Berkshire Unitary Authorities

Local Aggregate Assessment 2003 - 2012

Final Report

March 2014

Plan Design Enable

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Notice

Document History

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Glossary

Primary aggregates

These are aggregates produced from naturally occurring mineral deposits, extracted specifically for use as aggregate and used for the first time. They are produced either from rock formations that are crushed to produce 'crushed rock' aggregates, or from naturally occurring sand and gravel deposits.

Land-won aggregates

Primary aggregates won from land.

Marine aggregates

Primary aggregates dredged from the sea, almost exclusively sand and gravel.

Secondary aggregates

Aggregates derived as a by-product of other quarrying and mining operations or industrial processes, including colliery spoil, china clay waste, slate waste; power station ashes, incinerator bottom ashes and similar products.

Recycled aggregates

Aggregate materials recovered from construction and demolition processes and from excavation waste on construction sites.

Alternative aggregates

A grouping of secondary and recycled aggregates.

1. Introduction

Project Brief

1.1 Atkins Ltd has been commissioned by five of the Berkshire Unitary Authorities (BUAs), Bracknell Forest Borough Council, Reading Borough Council, Royal Borough of Windsor and Maidenhead, Slough Borough Council, Wokingham Borough Council working in conjunction with West Berkshire Council to produce a Joint Local Aggregate Assessment for 2013. This follows advice within the National Planning Policy Framework (NPPF), and Guidance set out in the Managed Aggregate Supply System (GMASS), published in October 2012.

1.2 The National Planning Policy Framework 2012 (NPPF) states at paragraph 145 that minerals planning authorities should prepare:

> *'an annual Local Aggregate Assessment, either individually or jointly by agreement with another or other Mineral Planning Authorities, based on a rolling average of 10 years sales data and other relevant local information, and an assessment of all supply options (including marine dredged, secondary and recycled sources)'.*

1.3 The BUAs have historically acted together in mineral planning matters, via the Joint Strategic Planning Unit. Following the closure of the JSPU in 2011, the BUAs continue to cooperate on minerals and waste matters and are now seeking the production of a joint Local Aggregate Assessment (LAA) to cover all of the six Berkshire UA areas.

1.4 The 2013 Berkshire LAA includes West Berkshire and although West Berkshire Council (WBC) is not a client, they have been involved in the production of the LAA. WBC has produced its own LAA and there is a clear relationship between the Berkshire LAA and the West Berkshire LAA in that they draw on many of the same sources.

1.5 The commission included updating the annual survey of aggregate sales and reserves in the county covering quarries, rail depots and sites processing recycled aggregates to the end of 2012. The results of the survey update are presented in Appendix A. This report combines the result of the survey with information available for previous years supplied by the UAs and considers how the current guidance on calculating Local Aggregate Assessments might be applied in Berkshire.

Purpose of the Assessment

1.6 Para 142 of the NPPF confirms that *'Minerals are essential to support economic growth and our quality of life. It is therefore important that there is sufficient supply of material to provide the infrastructure, buildings, energy and goods that the country needs'*. Mineral Planning Authorities are advised to '*plan for a steady and adequate supply of aggregates'* by, amongst other things, preparing a Local Aggregate Assessment (LAA).

1.7 The objectives of the LAA are to provide a robust evidence base for minerals planning in Berkshire, including development management decisions, the formulation of planning policy and responding to minerals issues in other local authority areas. Information in the LAA, as updated by annual reviews, is also relevant to the calculation of the landbank figure used for annual monitoring purposes and in the consideration of planning applications for mineral working during the plan period.

Background to MASS

1.8 The Managed Aggregate Supply System (MASS) is a process which was initially introduced following the recommendations in the 1976 report of the Advisory Committee on Aggregates chaired by Sir Ralph Verney. It seeks to assist in the planning of '*a steady and adequate supply of aggregates'* by addressing the significant imbalances in the occurrence of suitable natural aggregate resources in England and the areas where they are most needed.

1.9 Guidance on the Managed Aggregate Supply System (GMASS) explains in para 3 that *'The underpinning concept behind the Managed Aggregate Supply System is that Mineral Planning Authorities which have adequate resources of aggregates make an appropriate contribution to national as well as local supply, while making due allowance for the need to reduce environmental damage to an acceptable level. Furthermore, Government expects resource-poor areas to make some contribution to meeting local and national needs, where that can be done sustainably'.*

1.10 GMASS states that the Government is clear that every Mineral Planning Authority (MPA) has a role to play in meeting national and local demand, however it recognises that in some areas the availability of the resource is affected by environmental constraints (para 16).

Methodology

1.11 The NPPF states that separate landbanks should be calculated and maintained for aggregate materials of a specific type or quality or which have a distinct and separate market. For each different type of aggregate, the landbank, and future provision calculations, should be based on a 'rolling average of 10 years' sales data and other relevant information and an assessment of all supply options, taking into account:

- the advice of the Aggregate Working Party; and
- published National and sub National guidelines on future provision.

1.12 The GMASS makes it clear (in para. 20) that the advice of the National Aggregate Co-ordinating Group to each Aggregate Working Party may be a material consideration when preparing plans. The guidance also advises that published National and sub National guidelines provide understanding or content of the overall demand and possible sources that might be available in the Aggregate Working Party area, and that the guidelines are *'capable of being a material consideration when determining the soundness of plans*' (para. 15).

1.13 GMASS supports the approach to planning for aggregate mineral extraction under the NPPF. Paragraph 6 of that document says the LAA should also cover an assessment of the balance between demand and supply, and the economic and environmental opportunities and constraints that might influence the situation. As advised by Paragraph 10 of that document, Berkshire's Local Aggregate Assessment provides an assessment of the demand for and supply of aggregates based on the following supply options:

- recycled aggregates;
- secondary aggregates;
- marine sources;
- aggregate imports into and exports out of the Mineral Planning Authority Areas; and
- land-won resources.

1.14 In order to be used to monitor the need for provision for aggregate supply on an ongoing basis during the plan period, the LAA needs to be based on a methodology that can be updated annually. The Guidance strongly encourages Mineral Planning Authorities to include Local Aggregate Assessments in their Annual Monitoring Reports as part of their responsibility to keeping the demand and supply of aggregates under regular review.

Sources of Information

1.15 Reference has been made to the sources of information listed in the GMASS guidance which are relevant to the preparation of Local Aggregate Assessments. This includes, but is not limited to:

- the Annual Minerals Raised Inquiry Survey, (AMRI) which sets out sales of each type of mineral in Great Britain; the latest available information is for 2011. At the time of writing (December 2013) no information was available for 2012 from AMRI;

- the four-yearly Aggregate Minerals Surveys on the sales, movement, consumption and permitted reserves of aggregate minerals; the latest such survey was for the year 2009;
- local data on the arisings of and recovery/disposal routes of Construction and Demolition waste, including inert waste used to restore mineral sites;
- the Annual Report of the Aggregate Working Party, which sets out sales of aggregates, aggregate mineral reserves, local information on Construction and Demolition waste, secondary aggregates, and planning permissions; the latest available report was for the year 2012;
- any Annual Monitoring Reports prepared by Mineral Planning Authorities setting out the effectiveness of mineral policy and providing information to be used in reviewing and preparing new policies; and
- data and information on mineral resources held by the British Geological Survey and the Crown Estate.

1.16 Other sources of information include:

- Construction forecasts and other national economic forecasts;
- Records of past and anticipated future development rates in Berkshire;
- Berkshire Economic Assessments and Local Investment Plan;
- The study of Aggregate Wharves and Rail Depots in South East England Prepared for South East England Regional Assembly (SEERA) by MDS Transmodal Limited (2009);
- Other public sources of information, e.g. Minerals UK and MPA web sites; and
- Past and anticipated rates of development in Berkshire.

2. Aggregates in Berkshire

Geology of Berkshire and Current Mineral Working

2.1 Berkshire has been a significant producer of minerals for many years. The area is underlain by three main types of minerals – sand and gravel, chalk and clay – and each of these has been and continues to be extracted. There are no deposits that yield crushed rock aggregates. The extent of the deposits of sand and gravel, chalk and clay is shown in the simplified geological map (Figure 2.1 below). Further background information about minerals and minerals planning can be found on the British Geological Survey website at www.mineralsuk.com.

2.2 Until the 20th Century, chalk and clay were the main minerals produced in the area, generally to meet local needs. Chalk and clay continue to be extracted as a by-product at sand and gravel quarries, but on a very small scale now compared with previous times. The chalk is now mainly used as agricultural lime, and sometimes as 'fill' material in civil engineering projects. The clay was formerly used chiefly for brick and tile making, but today its main use is as part of the lining for waste landfill sites to prevent the spread of pollution and for other engineering applications.

2.3 Since the Second World War, the main type of mineral production in Berkshire has been of 'aggregates' for the construction industry, which comprise sands and gravels. Substantial quantities of aggregate minerals are needed for all construction work – in the building or renovation of houses, schools, hospitals, roads, and so on.

2.4 Berkshire's main aggregates deposit is sharp sand and gravel, suitable for most types of concreting purposes, and therefore an important material for the construction industry. There are also deposits of soft sand, suitable either as a fill material, or in limited circumstances as building sand for use in making mortar or plaster, or in asphalting.

2.5 Geologically sharp sand and gravel is a very recent deposit, dating from the end of the last ice age (c.10,000 years ago). As shown in the geological map, sharp sand and gravel is predominantly found along the river valleys, notably the Kennet, Loddon and Thames. It is also found in the river terrace deposits (formerly called 'plateau gravels') which are the remnants of earlier abandoned floodplains raised by geological forces above the present course of the rivers.

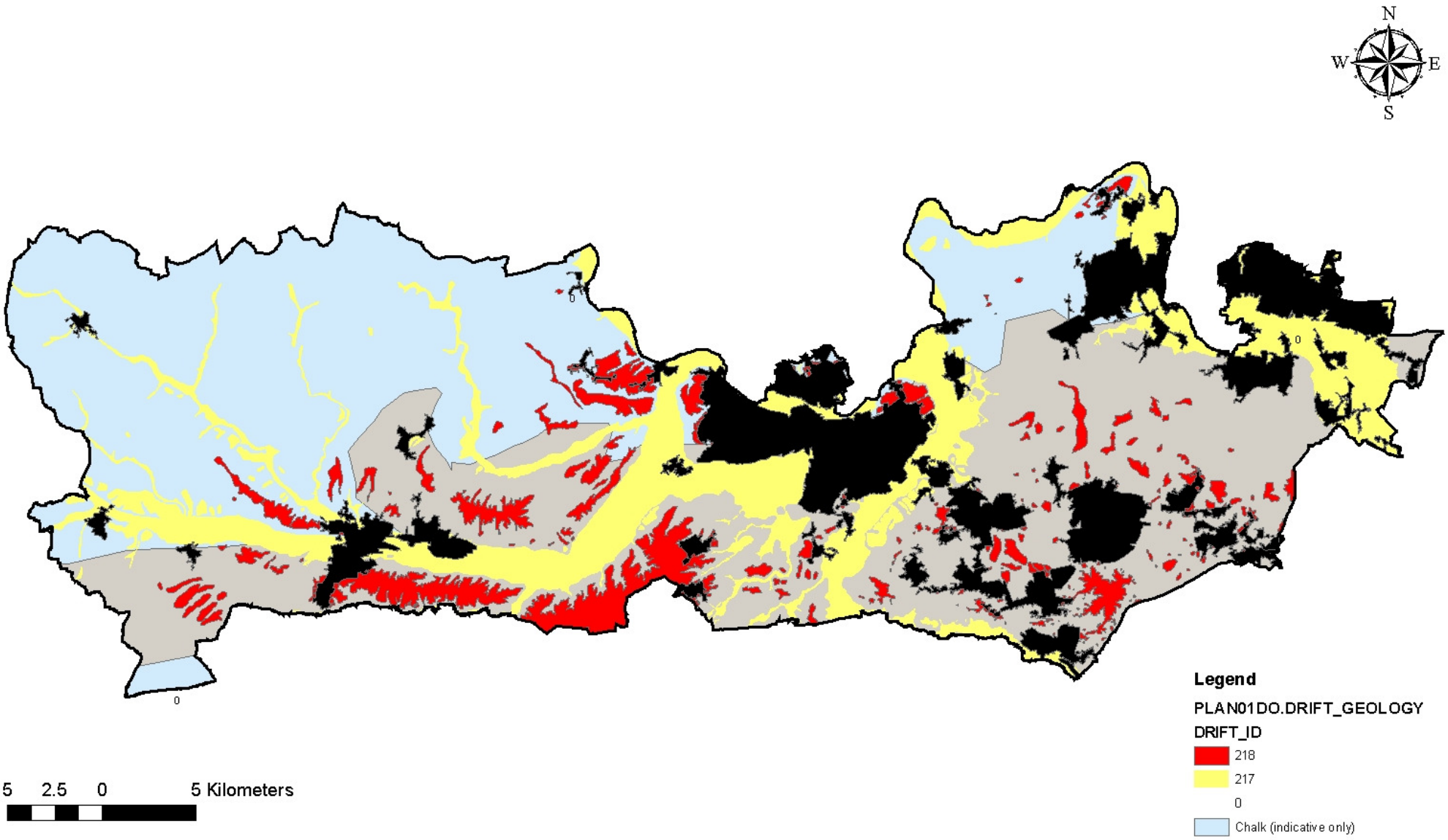
2.6 The better quality sharp sand and gravel is mainly used for making concrete, and is referred to as 'concreting sand'. Where the deposit contains clay and silt, it is not suitable for concreting and instead used as sub base in roads and hardstandings, or otherwise as a fill material. This poorer quality sharp sand and gravel is colloquially known as 'hoggin'.

2.7 Soft sand is a much older deposit, dating from around 60 million years ago. In Berkshire it principally occurs in the Reading Formation. The Reading Formation is a bedrock deposit, predominantly clay bearing, but also containing sand beds. It also outcrops on the higher ground above the Kennet valley, and in bands between Reading and Maidenhead.

2.8 Generally speaking bedrock deposits are thicker than the superficial sharp sand and gravel deposits, and hence the yield per hectare is higher.

2.9 Much of the northern area of West Berkshire, where the main deposits of soft sand occur, lies within the North Wessex Downs AONB. Whilst mineral extraction is not excluded from such areas, national planning policy is that in determining planning applications for major development in AONBs, National Parks and The Broads (including major mineral development) great weight should be given to the conservation of the landscape and scenic beauty, as well as conservation of wildlife and cultural heritage, and that permission should not be granted except in exceptional circumstances, and where it can be demonstrated to be in the public interest. The NPPF confirms that landbanks of non-energy minerals should, as far as is practical, be maintained from outside such national level designations. Consideration of

Figure 2.1 – Simplified Geological Map of Berkshire



planning applications for major developments in AONBs should include assessment of the following:

- the need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy;
- the cost of, and scope for, developing elsewhere outside the designated area, or meeting the need for it in some other way; and
- any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.[1]

2.10 Past Minerals Plans for Berkshire, the latest of which is the Replacement Minerals Local Plan for Berkshire (RBMLP) adopted in 2001, recognised this policy position by restricting the annual combined output of soft sand from sites in the AONB to a maximum of 150,000 tonnes per annum, as well as scrutinising applications as set out above. The relevant policy was Policy 15.

2.11 The RBMLP also set out preferred areas within which planning proposals for extraction of sharp sand and gravel would be approved subject to detailed development control considerations.

2.12 Reflecting the proximity to urban areas, where the main demand for construction materials arises, quarrying of aggregates in Berkshire has been focussed on the sharp sand and gravel deposits along the Kennet valley, and between Reading and Newbury. Additionally there are concentrations of past and active workings north and south of Maidenhead and south of Slough. Most aggregate is processed by the operator, either on-site or at a central processing facility nearby and sold direct for use in the construction industry.

2.13 In addition, there is an established factory at Beenham in West Berkshire which manufactures roof tiles from aggregate and supplies a wide market in the south of England with its products. Its raw material is principally sand and gravel obtained locally, but the factory also uses recycled aggregate obtained by reprocessing its own non specification concrete tiles.

2.14 The quarries that have approved reserves for extraction of sharp sand in Berkshire that have operated in the last 10 years are listed in the tables below. The shading indicates the years that those quarries were operational. Quarries marked with an asterisk are now worked out. Craven Keep and Star Works are dormant / inactive, but retain approved reserves.

Table 2.1 – Sharp Sand and Gravel Quarries in Berkshire

Quarry	UA	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Horton Brook	RBWM										
Kingsmead Quarry, Horton	RBWM										
Sheephouse Farm	RBWM										
Upper Bray Road	RBWM										
Eversley (Manor & Fleethill Farm)	Wok										
Star Works	Wok										
Kennetholme	WBC										

[1] NPPF paras 115 and 116 (following equivalent earlier guidance in PPS7 and MPS1)

Quarry	UA	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Harts Hill	WBC	■	■					■		■	■
Craven Keep	WBC										
Field Farm Sulhamstead *	WBC	■									
Woolhampton Quarry*	WBC	■	■	■	■						
Midgham Quarry Ph 5-8	WBC	■	■	■	■	■	■	■	■	■	■
Aldermaston Wharf *	WBC	■	■	■	■	■	■	■			■
Lower Farm *	WBC	■	■	■	■	■	■	■	■	■	
Raghill Farm / Quarry *	WBC	■	■	■	■	■	■				
Preferred Area 5 *	WBC		■	■	■	■					
Theale Pit*	WBC						■	■			
Beenham Pit *	WBC					■	■	■	■		

* Denotes quarry is now worked out.

Source: Annual Monitoring Reports

2.15 In 2013, West Berkshire Council granted planning permission for a new sharp sand and gravel quarry at Lower Wasing Farm. The site is not yet in operation.

2.16 The equivalent quarries that have approved reserves for soft sand and have operated in the last ten years are listed in the table below. The shading indicates the years that those quarries were operational. Old Kiln Farm is now worked out. Both these quarries are in the AONB.

Table 2.2 – Soft Sand Quarries in Berkshire

Quarry	UA	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Old Kiln Farm *	WBC	■	■	■	■	■	■	■	■	■	■
Copyhold Farm (inc extension)	WBC				■	■	■	■	■	■	■

* Denotes quarry is now worked out

Source: Annual Monitoring Reports

Assessment of Berkshire's Available Mineral Resources

2.17 GMASS advises that reference should be made to data and information on mineral resources held by the British Geological Survey and that the contributions made by Mineral Planning Authorities to achieve a steady and adequate supply of aggregates for the construction industry should acknowledge environmental constraints.

2.18 The Review of Minerals Supply prepared for SEERA by the BGS in 2006 included assessments of the available resources (i.e. aggregate deposits that were not already sterilised

by surface development) in each MPA area in the South East. The figures were categorised according to whether the resources fell within an area subject to one or more of the following national or international environmental designations which indicate special care is needed to avoid damaging the environment: SSSI, NNR, National Park, AONB, SPA or SAC. The resources that were not in any of these designated areas were referred to as 'unconstrained' reserves. The assessments were undertaken by reference to assumed depths of deposits interpreted from local and regional geological knowledge and other considerations as explained in more detail in the South East England Regional Assembly: South East Plan – Review of Mineral Supply and Demand – CR/06/147.

2.19 The resource assessments do not take account of other potential constraints on the availability of these resources for extraction, such as the physical constraints of access, air safety, air quality management areas, proximity to sensitive uses, local nature conservation interests, protected species, water interests, landscape impact, etc, or the practical constraints, such as quality of the reserve and distance from markets. Any conclusions drawn from this resource assessment therefore need to be treated with caution.

2.20 The assessments for Berkshire indicated the amounts of resources of concreting sand and gravel (sharp sand and gravel) and of soft sand, subject to or not subject to the national or international environmental designation constraints, as shown in the tables below.

Table 2.3 – Berkshire Sharp Sand and Gravel Resource Assessment (million tonnes)

Type of mineral/MPA	Not subject to environmental designation constraint	Subject to one environmental designation constraint	Subject to more than one environmental designation constraint
Bracknell Forest DC	12	0	17
Reading BC	15	0	0
Slough BC	14	0	0
West Berkshire C	312	348	36
RBWM	195	0	2
Wokingham DC	177	0	0
Berkshire Total	725	349	56
NB. Totals may not sum due to rounding.			

Source: South East Plan - Review of Minerals Supply and Demand. BGS report CR/06/147 Table 5

Table 2.4 – Berkshire Soft Sand Resource Assessment (million tonnes)

Type of mineral/MPA	Not subject to environmental designation constraint	Subject to one environmental designation constraint	Subject to more than one environmental designation constraint
Bracknell Forest DC	0	0	0
Reading BC	23	0	0
Slough BC	5	0	0
West Berkshire C	321	983	23
RBWM	339	0	5
Wokingham DC	183	0	0
Berkshire Total	872	983	28
NB. Totals may not sum due to rounding.			

Source: South East Plan - Review of Minerals Supply and Demand. BGS report CR/06/147 Table 6.

Assessment of Available Mineral Resources in Berkshire's Neighbouring Areas

2.21 The following tables compare Berkshire's resource assessment against those of other MPA areas included in the BGS report for SEERA. Table 2.5 suggests that there are three MPA areas with more concreting sand and gravel resources than Berkshire; Buckinghamshire, Hampshire and Oxfordshire. These three MPA areas contain some 63% of the unconstrained concreting sand and gravel in the former region. Berkshire has just over 10%.

2.22 Table 2.6 suggests that Berkshire ranks third in its unconstrained soft sand resources after Hampshire, and Kent and Medway. Berkshire has about 16% of the unconstrained soft sand resources in the former region, and together with Hampshire and Kent and Medway this amounts to some 65% of the unconstrained soft sand resources in the former region.

Table 2.5 – Comparative Assessment of Sharp Sand and Gravel Deposits in SE England

County	Not subject to environmental designation constraint	Subject to one environmental designation constraint	Subject to more than one environmental designation constraint
Berkshire	725	349	56
Buckinghamshire	1,058	113	25
East Sussex	119	179	45
Hampshire	1,059	289	545
Kent and Medway	549	193	190
Milton Keynes	153	0	0
Oxfordshire	2,091	419	41
Surrey	495	66	64
West Sussex	401	178	23

Source: South East Plan - Review of Minerals Supply and Demand. BGS report CR/06/147

Table 2.6 – Comparative Assessment of Soft Sand Deposits in SE England

County	Not subject to environmental designation constraint	Subject to one environmental designation constraint	Subject to more than one environmental designation constraint
Berkshire	872	983	28
Buckinghamshire	285	0	0
East Sussex	10	1	0
Hampshire	1,022	317	1237
Kent and Medway	1,695	422	168
Milton Keynes	190	0	0
Oxfordshire	559	0	25
Surrey	461	1,486	487
West Sussex*	355	853	202
*NOTE; Figures for W Sussex may have changed following creation of South Downs National Park.			

Source: South East Plan - Review of Minerals Supply and Demand. BGS report CR/06/147

Key Points

2.23 Berkshire's aggregate minerals are sharp sand and gravel and soft sand. Not all sharp sand and gravel is suitable for concreting, lesser quality material is used for fill. Soft sand also varies in quality, with the better deposits being used for building sand or asphalting, and poorer material also used as fill.

2.24 Sharp sand and gravel is the main aggregate quarried in Berkshire, but many of the quarries that have operated during the last ten years are now worked out. Ten quarries remain in operation, one of them soft sand, which is within the AONB. Permission has been granted for a new sharp sand and gravel quarry at Lower Wasing Farm in West Berkshire, which is yet to start operating.

2.25 West Berkshire, Royal Borough of Windsor and Maidenhead and Wokingham have been assessed in the 2006 Review of Minerals Supply prepared for SEERA by the BGS as the UAs with the highest amount of sand and gravel resources in Berkshire. There are roughly similar amounts of sharp sand and gravel and soft sand deposits in Berkshire which are unconstrained by specified national level environmental designations.

2.26 Berkshire has about 10% of the unconstrained sharp sand and gravel in the former south east region, and about 16% of the unconstrained soft sand. The environmental designation constraint does not take account of physical and practical constraints such as poor access, proximity to sensitive land uses and distance from markets. The BGS study is a high level assessment of potential reserves based on a number of assumptions and therefore can only be considered an indicative, broad estimate, of potential reserves that does not account for a myriad of factors that may influence extraction.

3. Past and Current Supply of Aggregates in Berkshire

3.1 Berkshire's current sources of aggregates are:

- Primary aggregates – sharp sand and gravel, and soft sand;
- Imported aggregates; and
- Alternative sources of aggregates (recycled aggregates and secondary aggregates).

3.2 The following is a consideration of the past and current supply of aggregate from these sources, and their potential role in providing an adequate and steady supply of aggregates in Berkshire.

3.3 The information is principally derived from the South East England Aggregates Working Party (SEEAWP) Aggregates Monitoring Surveys. Reference has been made to the reported sales and uses of sand and gravel from the Annual Minerals Raised Survey (AMRI) undertaken for the Office of National Statistics and Department for Communities and Local Government DCLG. The latest available information from AMRI is for the year ending December 2011. At the time of writing, December 2013, AMRI information up to the end of 2012 is still awaited. Like the SEEAWP information, due to confidentiality issues and the way the information is sub divided, the Berkshire information from AMRI is presented with many entries noted as confidential and this means that for four years out of the latest ten, no distinction can be made between sales of soft sand and sales of sharp sand and gravel. For this reason, and as the SEEAWP information is generally regarded as more reliable than AMRI data, the following analysis is based on SEEAWP data only, except for National data, for which information is only available from AMRI.

Sand and Gravel

Past Sales

3.4 As noted in Chapter 2, Berkshire has both sharp sand and gravel deposits and deposits of soft sand. The actual sales data for the two types of aggregate is confidential for commercial reasons, and for this reason it is not possible to calculate separate landbanks for each, even though it is recognised that they serve different markets. It is possible to report that generally sales of sharp sand and gravel in Berkshire are notably higher than sales of soft sand, with soft sand comprising less than about 10% of total sales for many years. This picture can also be deduced from the fact that there are fewer soft sand quarries, all of which are in the AONB and subject to an upper limit on the level of sales permitted.

3.5 Combined sales of sharp sand and gravel and soft sand from quarries in Berkshire for the period 2003 to 2012 are shown in Table 3.1.

Table 3.1 – Berkshire Combined Sales of Sand and Gravel 2003 – 2012 (thousand tonnes)

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	10 year average
Combined sales (1,000 t)	1,000	993	1055	645	615	755	840	886	1,127	865	878.1

Source: SEEAWP Aggregates Monitoring Surveys

3.6 Total sales of sand and gravel fell from 1,000,000 tonnes in 2003 to 615,000 tonnes in 2007, but then steadily increased to a higher figure of 1,127,000 tonnes in 2011. Sales in 2012 were lower again at 865,000 tonnes. The ten year average of sales of sand and gravel in Berkshire from 2003 to 2012 inclusive is 878,100 tonnes.

3.7 Data from AMRI indicates sales levels between 2003 and 2008 as being higher and more erratic than those collected for SEEAWP, but showing a steady decline since then. Sales in 2010 are similar according to both sources of data, but according to AMRI, sales in 2011 were less than those recorded for SEEAWP.

Comparison with National Sand and Gravel Sales

3.8 Comparison with the national pattern of sales can only be made up to 2011, because AMRI national figures for 2012 were not available at the time of writing in December 2013. In all cases data for combined sales of sharp sand and gravel and soft sand are used, because they cannot be reported separately for Berkshire due to confidentiality. The combined sales figures for Great Britain between 2003 and 2011 are in the table below, together with the percentage change based on 2003. The percentage change for combined sales of sharp sand and gravel and soft sand in Berkshire are also provided.

Table 3.2 – GB Combined Sales of Sand and Gravel 2003 – 2011 (thousand tonnes)

	2003	2004	2005	2006	2007	2008	2009	2010	2011
Great Britain (1,000t)	82,721	80,221	86,057	80,242	78,501	72,127	55,709	54,330	55,015
GB % sales	100%	97%	104%	97%	95%	87%	67%	66%	67%
Berkshire % sales	100%	99%	106%	65%	62%	76%	84%	89%	113%

Source: AMRI and SEEAWP Aggregates Monitoring Surveys (note: GB sales for 2012 not yet available)

3.9 Great Britain's combined sales of sharp sand and gravel and soft sand showed a small dip and a slightly larger increase in 2004 and 2005, but then there was a year on year decline until 2009, when the sales more or less levelled out. Sales in 2011 were 67% of the level recorded in 2003, a 33% drop.

3.10 The difference in the pattern of sales in Berkshire against that in Great Britain as a whole can be judged from the following graph which compares the percentage change in the rate of sales in Berkshire with that in Great Britain based on 2003.

Figure 3.1 - Comparison Between Percentage Sales Figures for Combined Sand and Gravel in Berkshire and Great Britain 2003-2011

3.11 It is to be expected that sales for Great Britain as a whole will follow a smother pattern than that of any individual Mineral Planning Authority area, or even combined MPA areas such as Berkshire, because the latter will have fewer quarries, which means either the closing or opening of any single quarry has a more significant impact on the overall level of sales. In Berkshire's case, the recent increase in sales can largely be attributed to the opening or re-opening of four quarries in RBWM; Horton Brook, Kingsmead, Sheephouse and the Upper Bray Road.

Comparison with Sand and Gravel Sales in Neighbouring MPAs

3.12 Berkshire's immediate neighbouring authorities are Buckinghamshire, Hampshire, Oxfordshire, Surrey and Wiltshire. Sales of sand and gravel for these areas are shown below:

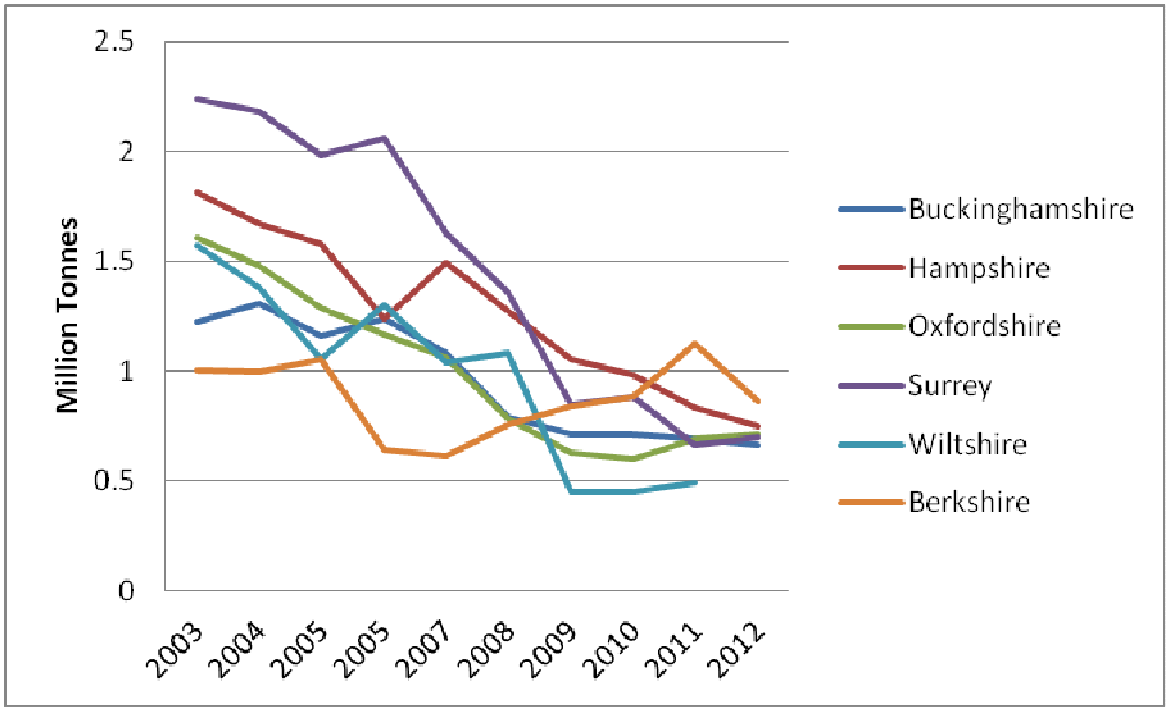
Table 3.3 - Sales of Sand and Gravel in Neighbouring MPAs 2003-2012 (Million tonnes)

	2003	2004	2005	2005	2007	2008	2009	2010	2011	2012
Buckinghamshire	1.22	1.31	1.16	1.24	1.08	0.79	0.71	0.71	0.69	0.66
Hampshire	1.81	1.67	1.58	1.24	1.49	1.27	1.05	0.98	0.83	0.75
Oxfordshire	1.37	1.18	1.09	0.98	0.89	0.63	0.46	0.46	0.49	0.71
Surrey	2.24	2.18	1.98	2.06	1.63	1.36	0.85	0.88	0.66	0.70
Wiltshire	1.57	1.38	1.05	1.30	1.04	1.08	0.45	0.45	0.49	n/a

Sources: Annual Monitoring Reports/LAAs

3.13 The graph shows that Berkshire's sand and gravel sales have been more constant than those of its neighbouring counties, which have all showed declining sales over the past 10 years. As a result Berkshire has changed from having the lowest level of sales between 2003 and 2005, to having the highest in 2011 and 2012.

Figure 3.2 - Comparison of Sales of Sand and Gravel in Berkshire and Neighbouring MPAs 2003-2012



Comparison between Past Sales and Sub-Regional Apportionment

3.14 Prior to the introduction of Local Aggregate Assessments though the NPPF in March 2012, the guidance on the provision for aggregates for which each region should plan was issued by Central Government. This Regional level provision was subsequently sub-apportioned to Mineral Planning Authorities, latterly through the Regional Spatial Strategy. The apportionment figures were for total sand and gravel sales, and therefore related to sharp sand and gravel and soft sand combined.

3.15 Table 3.4 compares the combined sales of sand and gravel in Berkshire against the apportionment that applied for each year from 2003 to 2012. The apportionment was not a production target, but a guide to provision required. Sales in Berkshire have generally been below two thirds of the apportionment amount but were less than half between 2006 and 2008. Since 2009, when the apportionment level was reduced to 1.3 mtpa in the 'Proposed Changes' to Policy M3 of the South East Plan, combined sand and gravel sales have once more been about two thirds of the apportionment level, except in 2011, when sales were 85% of the apportionment.

Table 3.4 – Comparison of Berkshire's Sales of Sand and Gravel and Apportionment 2003 – 2012 (thousand tonnes)

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Combined sales	1000	993	1055	645	615	755	840	886	1127	865
Berkshire apportionment	1570	1570	1570	1570	1570	1570	1330	1330	1330	1330
Sales as a % of Apportionment	64%	63%	67%	41%	39%	48%	63%	67%	85%	65%

Source: SEEAWP Aggregates Monitoring Surveys 2003 – 2012

3.16 With the revocation of the Regional Spatial Strategy (South East Plan) minerals policies in March 2013, the apportionment no longer applies, but if it had, 2012 sales of sand and gravel would be 65% of the apportionment level.

Current Supply (Sand and Gravel)

3.17 As at the end of 2012 there were eleven quarries with planning permission to extract sand and gravel in Berkshire. Information on these sites is summarised in the following table. The table includes information on the available reserves in each quarry, but production capacity is also relevant, as a large amount of reserve in a quarry with only a low production rate is notably less available to the landbank than equivalent reserves in a high producing quarry. It is notable that many of the larger quarries have production limits and some now have limited reserves or are subject to approaching time limits.

Table 3.5 – Current Permitted Quarries in Berkshire, 2012

Site Name	UA	Operator	Type of Deposit	Site Notes	Comments
Harts Hill	WBC	Harleyford	Hoggin – lower quality sand and gravel used as fill	Some production processed at former Aldermaston quarry site.	Small operation, intermittent production. Reserves remain, but pp expires at the end of 2015.
Midgham Ph 5-8	WBC	Marley	Sharp sand and gravel	Extension to Midgham.	Production started 2002, small reserves remaining.
Kennetholme Farm	WBC	Grundon	Sharp sand and gravel	Material is processed at Colthrop processing plant adjacent, which is subject to limit on output.	Planning permission granted 2002 for 900,000 tonnes. Production started in 2009 and continues. Estimated approaching half of reserves now worked (source WBC).
Kingsmead	RBWM	Cemex	Sharp sand and gravel	No production limit.	Production level has varied over the last ten years, currently a significant producer. Large reserve.
Eversley (Manor and Fleethill Farms)	Wok	Cemex	Sharp sand and gravel	Extension approved 2008 for 650,000 tonnes.	No production limit, but production level is not high. PP due to expire at end of 2013, but reserves remain.
Sheephouse Farm	RBWM	Summerleaze	Sharp sand and gravel	Longstanding permission. No production limit.	Production now at a low level after some years of inactivity. Very large reserve.
Upper Bray Road	RBWM	Summerleaze	Sharp sand and gravel	Material is processed at Monkey Island processing plant adjacent, which is subject to HGV limit.	Medium sized satellite site approved 2009. Reserves now reduced.
Horton Brook	RBWM	Aggregate Industries/ Jayflex Aggregates	Sharp sand and gravel	2m tonnes extraction, approved in 2008.	Limit of 200,000 tpa. Large reserve.
Star Works	Wok	Grundon	Sharp sand and gravel	Dormant / inactive site.	Some reserves remain, but will require approval of working conditions before any further extraction can proceed.
Copyhold Farm	WBC	Raymond Brown	Soft sand	In AONB. Production limit of 60,000 tpa.	Some reserves remain.

Site Name	UA	Operator	Type of Deposit	Site Notes	Comments
Craven Keep	WBC	Earthline	Sharp sand and gravel	Dormant / inactive site, but retains small reserves.	Approximately 2 years working remains on site.

Source: Berkshire UAs

3.18 In 2013 West Berkshire Council approved a planning application for the extraction of 2.4 million tonnes of sand and gravel at Lower Wasing Farm, to be worked over a 12 year period at a rate of 200,000 tonnes per year. The site is not yet operational.

Reserves and Landbank

3.19 The landbank is a measure of the permitted reserves of mineral expressed in the number of years that the reserves would provide production for at the apportionment or other given rate. It is a theoretical measure of the life of the reserves since it assumes that they can be worked at a consistent rate across the period, whereas in practice reserves will be unevenly distributed between quarries and some quarries will run out of reserves before others. A large amount of reserve in a quarry with only a low production rate is notably less available to the landbank than equivalent reserves in a high producing quarry.

3.20 The NPPF requires MPAs to make provision for the maintenance of a landbank of at least seven years for sand and gravel. Reserves of sand and gravel in Berkshire with planning permission for extraction (permitted reserves) at 31 December 2012 are 8,116,754 tonnes. Based on the average of the last 10 years, as advised by GMASS (para 24), the sand and gravel landbank at the end of 2012 is calculated as 9.24 years. This does not include the additional 2.4 million tonnes of sand and gravel at Lower Wasing Farm granted planning permission in 2013, which will be added to the reported landbank for Berkshire when it is updated to the end of 2013.

3.21 The NPPF at para 145 requires MPAs in their planning for a steady and adequate supply of aggregates to (inter alia) ensure that large landbanks bound up in very few sites do not stifle competition. One quarry in Berkshire contains almost half of the total reserves in Berkshire, but its sales are only a very small proportion of total sales, so it is not considered that this position does stifle competition. This together with the position that some other quarries have less than 2 years operating life remaining, means that the calculation of the landbank as 9.24 years (2012) is not an accurate reflection of the ability of the quarries collectively to supply the construction industry in the following seven years, because of the limit on productive capacity that this position represents and because of the limits on the level of production at other quarries in Berkshire.

3.22 A more detailed analysis would be needed before a firm conclusion could be drawn that the current state of the landbank indicates that further planning permissions are needed in order to maintain adequate supplies in the next seven years, particularly in the light of the issue of the planning permission at Lower Wasing Farm, in West Berkshire during 2013. However the 2012 landbank position of 9.24 years does highlight that additional provision needs to be made in new mineral plans in Berkshire in the near future.

Exports, Imports and Consumption of Primary Aggregates

3.23 Every county in the UK has to import aggregates from elsewhere because the geology means that no single county area produces exactly the profile of different types of aggregate in the exact amounts or proportions consumed therein. This is the key issue that GMASS seeks to address. Berkshire needs to import all its supplies of crushed rock, as there are no crushed rock deposits within the county. There will also be a cross boundary exchange of sand and gravel depending on the relationship between the location of specific quarries and of their current market areas.

3.24 All sales of aggregate are the result of commercial decisions by both buyers and sellers and the resulting movements reflect the relative locations of reserves and demand. Where these

movements cross a county boundary, they are tracked in the four yearly Aggregates Minerals (AM) surveys, the latest of which were in 2005 and 2009. The 2005 survey report is generally referred to as AM2005, and the 2009 equivalent as AM2009. However, overall information about aggregate cross boundary movements is crude, because:

- The survey is only undertaken at four yearly intervals, and at best it can only be regarded as a snapshot of a dynamic picture;
- The results from the different surveys are reported differently;
- Only direct sales from quarries are tracked and not subsequent movements after processing elsewhere or sales from merchants;
- Sales of soft sand and of sharp sand and gravel are combined; and
- In some cases the figures are reported in groups of areas which are generally larger than individual MPAs.

Any conclusions from these AM surveys therefore need to be treated with caution.

3.25 The reports provide information on sales of aggregates from MPA areas or groups of MPAs together with the destinations of those sales. The reports also show consumption of aggregates by MPA areas or groups of MPAs. Consumption of aggregates relates to all aggregates used in the subject area, a figure derived from collating the stated destinations of movements of aggregates between all areas.

3.26 Nationally, total consumption should be somewhat higher than total sales reported in the 4 yearly AM surveys because it includes imports from outside England and Wales. The most notable imports are crushed rock from Scotland, and marine sand. Total consumption also includes a small element of unallocated sales of unknown destination.

3.27 The AM2005 report combines consumption in Berkshire with that of Oxfordshire and Buckinghamshire (referred to as BOB). The AM2009 report lists these county areas separately, so it is not possible to discern any trends from the information, except to say that imports of marine sand into Berkshire increased from a very low figure in 2005 (only 1,000 tonnes imported into BOB) to 98,000 tonnes in 2009. Nevertheless, the 2009 figure is not considered significant as it only comprises 5.5% of total consumption.

Imports and Consumption

3.28 The profile of imports and consumption of aggregates in Berkshire in 2009 are shown in the table below:

Table 3.6 - Consumption of Primary Aggregates in Berkshire, 2009 (Thousand Tonnes)

Berkshire	Land-won sand and gravel	Marine sand and gravel	Total sand and gravel	Crushed rock	Total primary aggregates
Imports	298	98	396	861	1257
Consumption	807	98	905	875	1780
Consumption%	45.3%	5.5%	50.8%	49.2%	100%
Imports/Consumption %	36.93%	100.00%	43.76%	98.40%	

Source: AM2009 Tables 10 and 11

3.29 The table shows that Berkshire's aggregate consumption in 2009 was almost exactly half sand and gravel and half crushed rock, and that in 2009 Berkshire imported some 43.8% of the sand and gravel that was consumed in the county (including marine sand and gravel), and all the crushed rock (the small difference in the import and consumption amounts are not considered significant).

Sources

3.30 It is not possible to discern the sources of the aggregate imported into Berkshire from the information in AM2005 or AM2009. However, the BGS has provided some further information about the sources of aggregates consumed in Berkshire in 2009 which are set out in the following tables.

Table 3.7 – Sources of Sand and Gravel Consumed in Berkshire 2009

Source	Proportion	Tonnage, where known (1,000 t)
Berkshire	56%	507
Hampshire	15%-10%	13.5 – 9.05
Greater London, Buckinghamshire, Surrey (Descending order)	Between 10% and 5% from each area	9.05 – 4.52 each
Wiltshire, Oxfordshire, Gloucestershire and Kent (Descending order)	Between 5% and 1% from each area	n/a
Hertfordshire, Dorset, Devon, West Sussex, Bedfordshire (Bedford and Central Bedfordshire) and Cambridgeshire (Descending order)	Less than 1% from each area	n/a

Source: BGS

Table 3.8 – Sources of Crushed Rock Consumed in Berkshire 2009

Source	Proportion	Tonnage, where known (1,000 t)
Somerset	83%	726.25
North Somerset	10%-5%	87.5 – 43.75
Neath Port Talbot, Leicestershire, Outside England and Wales, Cornwall, South Gloucestershire, Yorkshire Dales NP, Oxfordshire and Powys (descending order)	Between 5% and 1% from each area	n/a
Devon (inc. Dartmoor NP), and Gloucestershire	Less than 1% from each area	n/a

Source: BGS

3.31 It is clear that in 2009 Berkshire produced just over half of the sand and gravel consumed in the county, and imported the rest from a range of different sources, of which the largest supplier was Hampshire, which supplied between 15% and 10%. Somerset, and North Somerset together provided almost all crushed rock imported into Berkshire.

3.32 Equivalent information from the AM2005 and AM2001 surveys are not available.

Exports

3.33 In terms of the destinations of aggregates sold in Berkshire, Berkshire is grouped with Oxfordshire and Buckinghamshire as a destination in the AM2005 report so it is not possible to disaggregate the amount that went to Oxfordshire and Buckinghamshire, but in the AM2009 report Berkshire sales are reported separately. The principal destinations of sand and gravel in 2009 are shown in the following table:

Table 3.9 - Destinations of Berkshire's Sales of Primary Aggregates in 2009 (Thousand Tonnes)

Destinations	Berkshire	South East	Elsewhere	Unallocated	Total
Tonnes	509	234	92	5	840
Percentage	61%	28%	11%	1%	100%

Source: AM2009 Table 9b

3.34 Of the aggregates sold in Berkshire, 61% was consumed in Berkshire and the remainder 'exported', principally to destinations in the South East.

Imports of Crushed Rock by Rail

3.35 Most imports of sand and gravel are assumed to be by road. Crushed rock on the other hand is principally imported into Berkshire by rail (there are 2 rail depots at Theale that import aggregates and one at Colnbrook). SEERA commissioned a report on Aggregate Wharves and Rail Depots in South East England in 2007. However the report did not include any detailed information about capacities for reasons of confidentiality.

3.36 Figures for sales of crushed rock at rail depots in Berkshire collected for SEEAWP are reported together with sales from rail depots in Hampshire for reasons of confidentiality.

3.37 The amounts are shown in the table below:-

Table 3.10 - Pattern of Sales from Berkshire and Hampshire Rail Depots 2003-2012 (mt)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Berks and Hants Sales	2.1	2.3	1.8	1.7	1.9	1.3	1.1	1.1	1.2	1.2

Source: SEEAWP AM reports

3.38 This shows that sales from the rail depots in Berkshire and Hampshire have fallen since a high of 2.3 million tonnes in 2004 to less than half this amount in 2009 and 2010. The figures for 2011 and 2012 are slightly higher.

3.39 This does not necessarily indicate that Berkshire's consumption of crushed rock has declined, because Hampshire imports a significant amount of its crushed rock by sea, and also some by road, so the decline could be due to changing patterns of supply to Hampshire. However, it does suggest that there is adequate capacity for importation of crushed rock in the rail depots.

Recycled and Secondary Aggregates

3.40 The waste arising from construction, demolition and excavation activity comprises a range of materials, of which the 'hard inert' elements (e.g. concrete, bricks, stone, road planings, rail ballast and glass) can be recycled for use as aggregates. Secondary aggregates are aggregates derived as a by-product of industrial processes (e.g. blast furnace slag, incinerator bottom ash).

3.41 Recycled and secondary aggregates have a growing use in applications such as base layers for new developments and road construction.

3.42 The national surveys of Arisings and Use of Construction, Demolition and Excavation Waste (CDEW) and other materials in 2005[2] suggested that the national production of recycled aggregates appeared to have increased slightly since a previous survey for 2003, and the recycling industry maintains that view. The figures are 39.60 Mt ±13% in 2003 and 42.07 Mt ±15% in 2005.

[2] Survey of Arisings and Use of Alternatives to Primary Aggregates in England, DCLG 2005

3.43 A subsequent survey of arisings in 2008[3] prepared for WRAP reports that the fall in construction activity that started in mid 2008 led to a fall in the national production of all types of CDEW. Overall, most of the difference can be accounted for in a reduction in the arisings of excavation waste. Arisings of 'hard inert' CDEW generating recycled aggregate rose between 2005 and 2008 by 3% from 42.07 Mt to 43.5 Mt.

3.44 The statistics at a regional level are regarded as less robust. The figures are collected via surveys carried out by the MPAs in the South East and the response rate for these surveys is low, and does not include recycling from mobile plant. The results should be treated with caution and provide no more than a 'reasonable indication' of what is taking place. The SEEAWP Aggregate Monitoring Reports started recording production of alternative aggregates in 2007. The available information is as follows:

Table 3.11 – Production of Alternative Aggregates in the South East 2007-2011 (mt)

	2007	2008	2009	2010	2011
South East	3.6	3.1	2.6*	2.9*	2.8*

Source: SEEAWP AM reports * includes secondary aggregates

3.45 There is no reliable and comprehensive data on production and use of secondary and recycled aggregates available for Berkshire. The only secondary aggregates produced in Berkshire are from the bottom ash produced by the Lakeside EfW plant. Approximately 16,000 tonnes was produced between April 2009 and March 2010. Bottom ash is also produced by Chineham EfW plant in Basingstoke. Two further EfW plant have been granted planning permission recently and are now in the process of being built. They are at Calvert in Buckinghamshire, and Ardley in Oxfordshire.

3.46 The listed sites that are licensed to produce recycled aggregates are set out in the table below.

Table 3.12 – Capacity for Production of Recycled and Secondary Aggregates in Berkshire

Facility Name	Operational Status	Unitary Authority	Capacity*
Reynolds Skip Hire	Operational	Reading	4,999
Trafford Road	Operational	Reading	75,000
Wiggins Transport Ltd	Operational	Slough	85,000
Simpson Way	Operational	Slough	37,500
Gallymead House Transfer Station	Operational	Slough	45,600
Whitehouse Farm Concrete Crusher	Operational	West Berkshire	74,999
Barton Court	Operational	West Berkshire	4,000
Weirside, Green Lane	Non-operational	West Berkshire	20,000
Herons Nest WTS	Operational	West Berkshire	10,000
Copyhold WTS	Operational	West Berkshire	20,000
Reading Quarry	Operational	West Berkshire	275,000
Old Stocks	Operational	West Berkshire	25k/75k
Colthrop, Avon site	Non operational	West Berkshire	150,000
Colthrop, Grundons	Non operational	West Berkshire	15,000
H Rockall, Kimber Lane, Maidenhead, Sl6	Operational	Windsor & Maidenhead	4,800
Shorts Landfill	Operational	Windsor & Maidenhead	75,000

[3] Construction, demolition and excavation waste arisings, use and disposal for England WRAP 2008

Facility Name	Operational Status	Unitary Authority	Capacity*
Berksway	Operational	Windsor & Maidenhead	7,680
Horwoods Yard	Operational	Windsor & Maidenhead	9,000
St Georges Lane W T S	Operational	Windsor & Maidenhead	21,000
Hindhay Quarry	Operational	Windsor & Maidenhead	24,999
Oakfield Farm	Non-operational	Windsor & Maidenhead	20,000
Note: West Berkshire capacity correct to 2013. Other UAs correct to 2010 * see comments in para 0 re capacity figures.			

Source: Berkshire UAs.

3.47 The calculated combined capacity of the sites listed in Table 3.12 is approx 1,054,500 tonnes per annum, of which about 205,000 tonnes capacity is non operational. It is also worth noting that the 'capacity' figures used in the table are the capacity figures for the site and therefore do not necessarily represent the capacity to produce recycled aggregates as such. This is because the capacity figure for many sites is taken from the EA permit for the site, which is recorded according to the fee band within which the site falls, rather than their actual operating capacity. In addition a number of the sites are 'skip waste facilities' and, as such, the production of recycled aggregates is one of a number of operations carried out under the overall 'capacity' umbrella.

3.48 Recent aggregates monitoring surveys have not received full responses from recycled and secondary aggregates site operators. The combined capacity of the sites from which replies were received to the 2012 survey is 782,000 tonnes. The information that is available is presented in the table below:

Table 3.13 – Production of Alternative Aggregates in Berkshire 2007-2012 (tonnes)

	2007	2008	2009	2010	2011	2012
Berkshire	425,000	265,000	234,000	n/a	200,000	320,480
Notes	Partial return	Response from 7/18 sites	Response from 6/18 sites		Response from 11/23 sites	Response from 10/21 sites

Source, Berkshire AM Reports

3.49 The amounts in the above table are believed to be significantly less than the total actual production of recycled aggregates; in particular it does not include construction and demolition waste recycled in-situ using mobile plant.

3.50 There is no data on exports, imports and consumption of secondary and recycled aggregates.

Key Points

3.51 Berkshire's aggregate sources are land won sand and gravel, and soft sand, which in 2009 together combined to provide about half of the primary aggregate consumed in Berkshire. Sand and gravel is also exported to other counties, principally in the South East. Berkshire also imports all the crushed rock used in the county, the main source being Somerset. This material is imported into rail depots at Theale and Colnbrook.

3.52 It is not possible to calculate separate landbanks for sharp sand and gravel and soft sand in Berkshire, because there are only two soft sand operators which raises confidentiality issues. Generally soft sand sales average up to about 10% of total sales over the last ten years.

3.53 In contrast to the experience of surrounding counties, levels of aggregate sales in Berkshire have recovered recently to approaching that recorded in the early years of last decade.

3.54 The amount of crushed rock being imported into Hampshire and Berkshire combined has declined to about half the level in 2002 and 2003. This suggests that there is adequate capacity at rail depots for importation of crushed rock.

3.55 Alternative supplies of recycled aggregate are variable principally according to the level of local activity in the construction industry. Berkshire's sites are currently producing well below the combined capacity of the sites licensed for processing of recycled aggregates, although some of this is temporary. Berkshire has limited access to sources of secondary aggregates.

4. Assessment of Future Supply and Demand

Introduction

4.1 Against this background, possible supply and demand related factors are addressed below. The supply related factors are the current operating quarries, their production capacity and reserves; availability of Berkshire's future aggregate resources, availability of imports and of recycled and secondary aggregates. The key likely demand related factors are considered to be population, housing completions and activity in the construction industry.

Supply Related Factors

Current Operating Quarries

4.2 As at the end of 2012 there were eleven quarries with planning permission to extract sand and gravel in Berkshire. Their combined reserves as at the end of 2012 amounted to some 8 million tonnes, which translates into a landbank of over 9 years at the average of the last ten years sales[4]. However, as pointed out in Chapter 3, one quarry in Berkshire contains almost half of the total reserves, although its sales are only a very small proportion of total sales. This means that there is effectively a 'throat' on the availability of these reserves to the market. So the calculation of the landbank as 9.24 years (2012) is not an accurate reflection of the ability of the quarries collectively to supply the construction industry in the following seven years, because of the limit on productive capacity that this position represents and because of the limits on the level of production at other quarries in Berkshire. There is prospect that the position will improve when extraction commences at Lower Wasing Farm, which was approved by West Berkshire in 2013.

Availability of Future Aggregate Resources

4.3 Short term future aggregate resources are the remaining Preferred Areas identified in the adopted Replacement Minerals Local Plan. A number of the Preferred Areas have not yet been the subject of planning applications and remain available in theory. However, the indications are that there remains interest in only Preferred Area 11 (Riding Court Farm), which has an estimated 1,750,000 tonnes of sand and gravel. It is therefore important that provision for future extraction is made by the identification of further preferred areas to address this issue. The development of the West Berkshire Minerals and Waste Development Plan Document may also assist in the identification of new preferred areas within this area of the former County area.

4.4 The availability of Berkshire's future aggregate resources for consideration as preferred areas is considered with reference to The Review of Minerals Supply prepared for SEERA by the BGS in 2006 from which Tables 2.1 to 2.4 were derived, showing the calculated tonnage of sharp sand and gravel and of soft sand that are subject to one or more of the following environmental designations; SSSI, NNR, National Park, AONB, SPA or SAC.

4.5 The assessments show that Berkshire has 725mt of sharp sand and gravel that were not subject to any of the listed environmental constraints, and 349mt subject to one environmental constraint (AONB), of which all of the latter lie within West Berkshire. A further 56mt is subject to two of the listed environmental constraints.

4.6 The equivalent figures for soft sand were: 872mt in areas that were not subject to any listed environmental constraint; and 983mt subject to one environmental constraint and 28mt subject

[4] Note: This does not include the 2.4mt at Lower Wasing Farm – approved in 2013.

to two environmental constraints. Again the majority subject to environmental constraint lies in West Berkshire, the principal constraint being the AONB.

4.7 The resource assessments do not take account of other constraints on the availability of these resources for extraction, such as access, air safety, air quality management areas, proximity to sensitive uses, local nature conservation interests, protected species, water interests, landscape impact, and distance from markets etc.

4.8 It is beyond the scope of this report to assess the degree to which these constraints limit the future supply of aggregates in Berkshire. However, it is acknowledged that Berkshire is approaching the position whereby most of the less constrained sites have already been extracted and finding environmentally acceptable locations for future extraction is becoming increasingly challenging.

4.9 This challenge affects even unconstrained deposits of sharp sand and gravel deposits because they are shallower and therefore need more extensive areas to quarry than soft sand, making identification of sufficient suitable areas for extraction correspondingly more difficult. For soft sand, it seems that the better deposits of soft sand from the point of view of extraction are those that lie within the AONB that covers much of the area of West Berkshire north of the Kennet Valley. The NPPF advises that as far as is practical, local planning authorities should provide for the maintenance of landbanks of non-energy minerals from outside nationally protected areas, including AONBs. This raises further challenges for future supplies of soft sand.

Availability of Imports into Berkshire

4.10 Berkshire imports all types of aggregate, sand and gravel, soft sand and crushed rock.

4.11 The information on sand and gravel derived from the 2009 AM survey by the BGS as presented in Table 3.7 shows that Berkshire derives some 56% of its sand and gravel (inc soft sand) from within its own borders, and the main source of imported sand and gravel (inc soft sand) is Hampshire, which supplies between 15% and 10%. After that sand and gravel comes from a wide range of sources of which the main ones, each supplying between 10% and 5%, are Greater London, Buckinghamshire and Surrey. Reference has been made to the LAAs of these and other neighbouring mineral authorities and the South East AWP report for 2013 in the following assessment of the availability of sand and gravel resources for future importation into Berkshire.

4.12 The latest estimated amount of sand and gravel reserves in Hampshire are reported as 13.5 Mt, representing 11.4 years based on the ten year average between 2003-2012[5]. In Greater London, reserves have declined from over 5 Mt to 1.2 Mt at the end of 2012[6]. Buckinghamshire's approved reserves of sharp sand and gravel and soft sand combined are currently 10.5 Mt, representing just over 10 years landbank at the rate used in the adopted Minerals and Waste Core Strategy[7]. Whilst Surrey reports a steady landbank for soft sand, reserves of sharp sand and gravel have declined by 33% during the last 10 years from 13.96 Mt in 2003 to 9.37 Mt in 2012[8]. Oxfordshire's sand and gravel landbank is 8.3 years[9]. The picture from the main suppliers identified in the 2009 AM survey is therefore patchy, the main supplier Hampshire is well provided, but the position with Greater London and Surrey possibly indicates that the pattern of imports may change in future, with Buckingham and Oxfordshire playing a greater role.

4.13 Berkshire's level of imported marine sand represents a further 5% of the amount consumed in 2009. Although the actual amount is confidential at this stage it can be reported that imports of marine sand into Berkshire in 2012 were higher than the level in 2009.

[5] Draft Hampshire LAA. November 2013.
[6] London Aggregates Monitoring Report 2012. July 2013.
[7] Draft Buckinghamshire LAA. September 2013
[8] Draft Surrey LAA. July 2013.
[9] SEEAWP AM report 2013

The information on crushed rock from the BGS as shown in

4.14 Table 3.8 illustrates that Somerset is the dominant source of crushed rock for Berkshire. Somerset has some 451 Mt approved reserves of crushed rock (equivalent to 33.7 years landbank at the most recent sub regional apportionment rate)[10]. While not all the quarries in Somerset whose reserves are included in the landbank have rail connections, those that do form a significant proportion of the total. Provided Somerset maintains its productive capacity it is estimated that there are sufficient reserves available to supply ongoing market demand.

4.15 Other suppliers of crushed rock to Berkshire are:

- Neath Port Talbot, which supplies high specification aggregates (HSA), of which limited reserves remain[11];
- Leicestershire, which as at the end of 2011, the four active igneous rock quarries (which are all rail connected) had total reserves of some 306 million tonnes, a collective life of some 19 years based on the apportionment figure in the Regional Spatial Strategy[12];
- Outside England and Wales, which would be Scotland of which the main exporting quarry is Glensanda, which has extensive reserves[13];
- Cornwall, which also has extensive supplies[14];
- South Gloucestershire, which has a crushed rock landbank in excess of 30 years;[15]
- Yorkshire Dales NP which has a crushed rock landbank of 26 years[16];
- Oxfordshire which has a crushed rock landbank of over 20 years[17]; and
- Powys where the crushed rock landbank in 2010 was 119 million tonnes representing more than 40 years landbank[18].

4.16 Overall the availability of current reserves of crushed rock and soft sand in Berkshire's main sources of supply is good, but future supplies of sharp sand and gravel are less certain, and may require supplies to be sought from further afield, involving additional transportation which is less desirable, particularly if by road.

4.17 The SEERA commissioned a report on Aggregate Wharves and Rail Depots in South East England dated 2007, which did not include any detailed information about capacities of either wharves or rail depots for reasons of confidentiality. The report noted that freight path capacity on the mainlines in the South East is likely to be the major factor restricting further supply of aggregates by rail freight into the region but concluded that the existing rail depot capacity in the South East is sufficient to handle the forecast growth in aggregates demand. This is confirmed by the finding that the depots have handled higher throughputs of material in the past than is the case more recently.

4.18 There is consequently no requirement, from a regional capacity perspective, to plan for additional rail depots across the South East or in Berkshire in particular. The operators of the rail depots at Theale and Colnbrook show no indication at present of seeking to increase their capacity.

4.19 Nevertheless, the SEERA report recommended that policy documents should safeguard the current capacity to cater for ongoing demand and adopt suitable measures to permit the

[10] Somerset LAA. September 2013.
[11] Neath Port Talbot County Borough Council Local Development Plan Deposit August 2013, para 1.1.5
[12] Leicestershire and Rutland LAA May 2013.
[13] Wikipedia and Highland Council
[14] Cornwall LAA March 2013
[15] South Gloucestershire Council Monitoring report 2013
[16] Yorkshire Dales Local Plan options consultation 2012
[17] Oxfordshire Minerals and Waste Monitoring Report 2012
[18] South Wales RAWP, Regional Technical Statement Review 2013 - 2014

development of new wharves or rail served depots at suitable locations in the event that proposals are brought forward by operators. This will ensure and enhance the geographic choice across the South East.

Recycled and Secondary Aggregates

4.20 The Mineral Products Association reports that the use of recycled and secondary materials in the Great Britain aggregates market has increased rapidly, rising from 30 Mt per annum in 1990 to over 70 Mt in 2007. Although the amount had fallen in 2011 to 60 Mt, the proportion of total aggregates supplied from recycled and secondary sources has risen from 10% in 1990 to 29% in 2011 (source: MPA website).

4.21 The national forecasting model used to calculate the National and Regional Aggregate Provision Guidelines takes account of the anticipated contribution of alternative aggregates in its assessment of future need for total aggregates. The Draft Revised National and Regional Guideline for Aggregates Provision in England: 2005-2020 Consultation, April 2008, in its Table 7, forecasted a contribution to total aggregate demand of 58 Mt from secondary and recycled sources out of a total aggregate demand in England of 217 Mt in 2005, rising to 65 Mt out of a total of 259 in 2016, i.e. about 25%, with both overall aggregate demand and alternative aggregate demand remaining constant thereafter.

4.22 Generally rates of utilisation are regarded as good by the industry, and the 2008 CDEW report informs that there is little evidence of hard construction and demolition waste which could be recycled into aggregates being landfilled as waste. The national demand forecast of 25% national market share in total aggregate supply by recycled and secondary aggregates[19] is three times higher than the European average, suggesting that the use of recycled and secondary aggregates in Britain may be close to full potential.

4.23 It is suggested by the industry that this forecast includes some recycled aggregate being used for purposes that primary aggregate would not be used for, such as landscaping or general fill. Furthermore, the industry reports that a high proportion of aggregates generated at construction sites are now re-used on site, so there is little potential to increase availability of this source of aggregates. That conclusion is also made in the 2008 CDEW report.

4.24 The local supply of alternative aggregates in Berkshire principally comprises recycled aggregates from construction and demolition.

4.25 The rate of production of recycled aggregates is difficult to gauge because such information is not well documented. The available information suggests that West Berkshire is the main processor of recycled aggregates, principally of material arising in Reading. However it is likely that there is unreported recycling of construction and demolition waste in the larger urban areas, principally Slough, with further supplies possibly being derived from London.

4.26 Production of recycled aggregates from the licensed sites that submitted returns is less than half their capacity, suggesting that there is sufficient capacity for current arisings. Several sites however operate under temporary planning permissions, so it is important to monitor the situation closely to ensure that adequate capacity is maintained.

4.27 As to the possible contribution that alternative aggregates can make to total consumption of aggregates in Berkshire, estimates of utilisation of recycled and secondary aggregate have to be treated with caution. Secondary and recycled aggregates do not currently substitute for primary aggregates in structural uses, only in lower specification construction uses like sub base in roads and car parks. Of particular relevance for Berkshire is that secondary and recycled aggregate do not generally provide a suitable alternative to sand and gravel aggregates, either sharp sand and gravel (particularly for concrete) or building sand. The main use therefore is to provide a substitute for the lower quality fill sand and gravel produced in Berkshire.

[19] National and Regional Guidelines for Aggregates Provision in England 2005-2020.

4.28 It is not possible at this stage to anticipate what the effect of the proposed change to aggregate tax to extend it to secondary aggregates will make on the pattern of sales of aggregates. It is a point to be watched.

Demand Related Factors

National Background

4.29 It is logical that future demand will at least in part be a function of one or more variables in overall construction or economic activity, and the following forecasts were considered as possible indicators which may be useful in determining aggregate demand:

- Forecast contained in Draft Revised National Guidelines for Aggregate Provision in England: 2005-2020 (DCLG April 2008);
- Construction Industry Forecasts;
- HM Treasury forecasts, as an indication of predicted general economic activity;
- PricewaterhouseCoopers (PwC) forecasts of GDP and inflation, as indicators of general economic activity;
- Predicted Gross Value Added (GVA); and
- Predicted housing completions and other developments planned in Berkshire.

4.30 Further details regarding the above are provided in Appendix B and considered below.

4.31 The National Infrastructure Plan has also been considered, as advised by GMASS.

4.32 The latest available National Infrastructure Plan is the Update for 2013. This confirms a further increase in overall spending on major important infrastructure from 2011 and 2012, to over £375 billion, although not all of it will be on construction projects; a proportion of the planned expenditure is intended for broadband and other electronic communication improvements.

4.33 Projects within 30-50 miles of Berkshire include a number of important construction projects in the National Infrastructure Plan, including Cross Rail, Heathrow, the upgrade of Reading Station, and improvements to the M25 and the M3. A distance of 30-50 miles is suggested because this is the estimated distance over which the majority of the aggregate types produced in Berkshire are transported.

4.34 The forecasts are considered useful as providing an overall contextual picture to give some outline indication of anticipated future aggregate demand, and in summary the findings are as follows:

- The forecasting model used to calculate the national and regional aggregate provision figures to 2020 indicates a small but steady rise in aggregate consumption over the period 2005 to 2015, levelling off thereafter at the 2015 level.
- The Construction Industry Forecasts indicate a variable forecast in the value of construction work over the period to 2017, but overall optimism of a return to higher rates of activity after the recession. Growth in construction of housing, rail and energy infrastructure will be tempered by falls in education and health projects.
- The independent economic forecasts published by the HM Treasury and the forecasts of GDP produced by PricewaterhouseCoopers indicate a return to growth in the coming years, although the latter predicted this will be delayed until 2015.
- Berkshire's GVA is projected to increase at a higher rate than the South East as a whole, maintaining Berkshire's position as one of the stronger economies in the South East.

4.35 In general the forecasts indicate increased economic activity, suggesting that future aggregate consumption nationally is likely to either continue at a generally flat rate of growth or gradually increase, rather than continue to decline.

Demand in Berkshire

4.36 GMASS advises that in the preparation of a LAA, MPAs should note the general trend of demand as indicated by the average 3 year sales as part of the consideration of whether it might be appropriate to increase supply (footnote to first bullet point of para 6). Recent 3 year averages for combined sales in Berkshire are shown below:

Table 4.1 – Recent Three Year Averages of Berkshire Combined Aggregate Sales

3 year averages	2008-2010	2009-2011	2010-2012
Combined sales (1,000 t)	827	951	959

Source: Table 3.1 above

4.37 The latest 3 year average for combined sand and gravel is slightly higher than the previous one, and both are higher than the 3 year average for 2008-2010. Sales in 2012 were 262,000 tonnes lower than the high of 1,127,000 tonnes in 2011, a fall of 23%. This is a significant fluctuation, so it is not immediately apparent whether the increase will be sustained in future years. This will be monitored in future versions of the Berkshire LAA.

4.38 The key likely demand related factors for the longer term are considered to be population and activity in the construction industry. Construction of new homes, offices, industrial and other buildings and associated roads and other infrastructure requires large quantities of aggregates, particularly for foundations, concrete and road materials, in addition significant quantities of aggregates are used in maintaining and improving the existing built fabric of the area. However, the rate of consumption of aggregates per £1,000 spent in the construction industry has shown a continuous decline in past years[20] so future rates of use are not necessarily proportionate to development forecasts.

4.39 The level of housing development in Berkshire is anticipated to increase substantially, especially in the shorter term. Table 4.2 shows past completions for each of the Unitary Authorities and totals for Berkshire, and Table 4.3 shows total projected future housing completions for the whole of Berkshire.

Table 4.2 – Past Housing Completions in Berkshire 2002 – 2012 (number of dwellings)

	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012
Bracknell Forest	320	337	242	267	131	501	467	325	410	264
Reading	574	761	1177	656	637	837	782	693	321	312
Slough	196	340	841	393	409	849	595	275	249	246
West Berkshire	496	637	967	1071	1064	683	528	246	199	162
Windsor and Maidenhead	314	277	354	401	359	448	474	351	190	177
Wokingham	418	492	376	655	1018	488	368	226	220	273
TOTAL	**2318**	**2844**	**3957**	**3443**	**3618**	**3806**	**3214**	**2116**	**1589**	**1434**

Source: Berkshire UA Housing Trajectories, 2013

[20] BGS Mineral Planning Factsheet Construction Aggregates July 2013

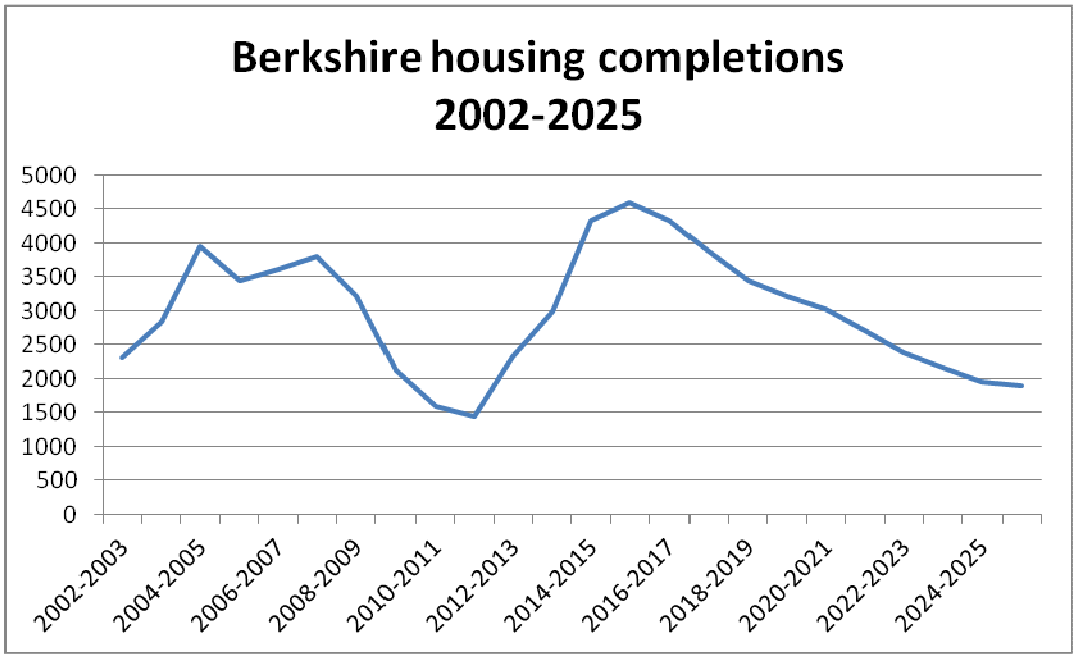
Table 4.3 – Projected Future Housing Completions in Berkshire 2002 - 2012 (number of dwellings)

2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
2332	2994	4331	4589	4334	3883	3452	3212	3029	2709	2395	2153	1943	1893

Source: Berkshire UA Housing Trajectories, 2013

4.40 The scale of the increase in housing completions projected for the next few years is demonstrated in the graph below. The level of completions is projected to increase in the next few years to a peak of over 4,500 in 2017, thereafter gradually reducing to about 2,000 a year by 2026. The peak level of 4,500 is more than twice that achieved since 2009.

Figure 4.1 – Past and Projected Housing Completions in Berkshire 2002-2026



4.41 A range of transport infrastructure and commercial developments are planned to take place in Berkshire in the next few years, most of which will involve aggregate utilisation in their realisation. Crossrail, one of the largest construction projects in recent years, extends well into Berkshire, with the current terminus planned to be at Maidenhead, with a potential extension to Reading under consideration. Improvements to Newbury station, Newbury Racecourse station and a major upgrade of Wokingham station are also scheduled within the next few years, the latter with associated new link road / public transport interchange due to be undertaken in summer 2014.

4.42 A programme of improvements to the highway network is planned, many in Wokingham. Specific projects include a relief road for Arborfield, and park and ride facilities at Coppid Beech, at Mereoak, at Thames Valley and at Winnersh Triangle. In West Berkshire several junction improvements are scheduled along the A339 in Newbury, at Monks Lane, at the A343 Andover Road, and at the A34 / A343 south interchange. The road programme includes relief roads at Arborfield, Shinfield, Wokingham and Winnersh.

4.43 A number of town centre developments are due to take place. These include the following:

- A major comprehensive mixed use redevelopment in central Slough comprising residential, offices (49,000 sq m), hotel, community space (6,000 sq m), retail and leisure uses;

- Areas allocated in Maidenhead Town Centre Area Action Plan comprising residential, retail (25,000 sq m), office (79,000 sq m), other employment (4,000 sq m), public transport interchange, other uses including leisure, culture etc;
- Various schemes capable of delivering up to 200,000 sq m of retail, leisure, office floorspace, new areas of public realm, pedestrian / cycle crossing of the Thames in Reading Town Centre;
- 15,000 sq m gross of floorspace as regeneration of Wokingham Town Centre (by 2018);
- Major town centre redevelopment of Bracknell Town Centre - overall proposed non-residential floorspace around 190,000 sq m (increase of approx 70,000 over existing centre);
- Queensmere and the Observatory Shopping centres, Slough; and
- Regeneration of Thatcham Town Centre.

4.44 Commercial and industrial developments are planned at Arborfield Garrison; Green Park, Reading; the 360 site on the A33 Reading; Kennet Island, Reading and at Reading Southside. Also at Alma Road, Windsor; Shinfield Science Park; Slough Trading Estate; Toutley Depot and Worton Grange. A mixed use development scheme is underway at Newbury Racecourse.

4.45 In addition, social infrastructure projects are planned at:

- Broadmoor, Crowthorne – a replacement hospital (56,000 sq m) plus 270 housing units, research park, care home, and re-use of listed building;
- Land at Transport Research Laboratory, Crowthorne – 1,000 housing units, primary school, neighbourhood centre, care home, and depot; and
- Wexham Park Hospital - redevelopment of hospital for new hospital uses.

4.46 The housing in the above projects is included in the total projected housing numbers set out in Table 4.3.

4.47 Together these construction projects will require a range of aggregates, amounting to ongoing demand that will need to be met through the supply of sand and gravel, crushed rock and recycled aggregates in the years ahead. Together they confirm how the supply of aggregates is essential to support sustainable economic growth and our quality of life as advised in para 142 of the NPPF.

Key Points

4.48 Berkshire's landbank of sand and gravel is calculated for December 2012 as just over 9 years at the average of sales over the last 10 years. However, a large proportion is contained in one quarry which has limited output, meaning that it may be increasingly difficult to maintain levels of output as quarries with low reserves become worked out, due to limits on the level of production at other operating quarries in Berkshire.

4.49 Although the opening of a new quarry approved in 2013 in West Berkshire will assist in maintaining supply levels, there is a need to identify further preferred areas in order to assist the local delivery of land won aggregates. Although Berkshire has substantial sand and gravel resources that are unconstrained by environmental designations, these deposits are subject to other environmental and practical constraints, which means that finding suitable locations for future extraction is increasingly difficult.

4.50 Overall the availability of future reserves of crushed rock and soft sand for importation into Berkshire is good, but future supplies of sharp sand and gravel are less certain, and may require supplies to be sought from further afield, involving additional transportation which is less desirable, particularly if by road.

4.51 Importing marine sand from neighbouring authorities is possible, preferably by rail. There is no identifiable need to increase the capacity of rail depots in Berkshire, although existing capacity should be safeguarded.

4.52 There is sufficient capacity for processing of recycled aggregates, although some is at sites with temporary planning permission.

4.53 Housing completions are projected to more than double from recent levels in the short term, and a further range of transport, commercial, industrial and social projects are planned throughout Berkshire. This may result in some recovery from the low sales levels experienced in the economic downturn, but it is not possible to conclude that future sales will mirror the relative levels of development, because of decreasing intensity of use of aggregates in construction generally.

5. Conclusions

5.1 The Guidance on Managed Aggregate Supply Systems issued by the DCLG advises in its Paragraph 6 that the forecast of the demand for aggregates in a Local Aggregate Assessment should be '*based on the average of 10 years sales data and other relevant local information*'.

5.2 The Guidance in its Paragraph 3 points out that the underpinning concept behind the Managed Aggregate Supply System is that *'Mineral Planning Authorities which have adequate resources of aggregate make an appropriate contribution to national as well as local supply, while making due allowance for the need to reduce environmental damage to an acceptable level. Furthermore, Government expects resource-poor areas to make some contribution to meeting local and national needs, where that can be done sustainably'*.

5.3 The NPPF requires Mineral Planning Authorities to plan for a steady and adequate supply of aggregates by, amongst other actions, '*making provision for the maintenance of landbanks of at least 7 years for sand and gravel and at least 10 years for crushed rock, whilst ensuring that the capacity of operations to supply a wide range of materials is not compromised. Longer periods may be appropriate to take account of the need to supply a range of types of aggregates, locations of permitted reserves relative to markets, and productive capacity of permitted sites*' (Bullet point 6 of para 145).

5.4 The previous chapters have reviewed the current and future position of aggregate supply to Berkshire and the overall picture of demand. Although there have been notable fluctuations in the level of sales of sand and gravel aggregates in Berkshire within the last ten years, the ten year average has advantages which are considered to make it the appropriate basis for making provision for future supply of sand and gravel as part of the overall supply of aggregate in Berkshire. Ten years is considered a suitably long period to allow the peaks and troughs of growth cycles to be smoothed out; the 10-year average sales approach provides a simple and transparent methodology that is easily calculated and is readily understandable by all interested parties. It is also considered appropriate to use the ten year average as an assessment of the adequacy of the current landbank and therefore as an indication of when further planning permissions for extraction are required.

5.5 The latest 10 year sales average of combined sales of sharp sand and gravel and soft sand in Berkshire for the period 2003-2012 is **878,100 tonnes per annum**. This figure is close to the level of sales in two out of the last three years.

5.6 Reserves as at the end of December 2012 were **8,116,754 tonnes**; this is sufficient for 9.24 years of supply at this average rate. Due to the identified 'throat' on production mentioned in para 4.2, it may be appropriate to adopt a longer period than the seven years landbank referred to in bullet point 6 of para 145 of the NPPF as to when further permissions for extraction are required.

5.7 There is sufficient capacity for processing of recycled aggregates, although some is at sites with temporary planning permission. There is no identifiable need to increase the capacity of rail depots in Berkshire, although existing capacity should be safeguarded.

5.8 This local aggregate assessment and the appropriateness of the ten year average as the basis for assessing the landbank and making provision for future supply will need to be kept under review as information becomes available.

Appendix A
Results of the 2012 Aggregates Monitoring Survey

Appendix A – Results of the 2012 Aggregates Monitoring Survey

The following are the results of the 2012 Aggregates Monitoring Survey that can be reported.

Topic	Amount in tonnes
Sales of Sand and Gravel 2012	865,387
Reserves at start of year	9,094,000
Reserves at end of year	8,116,754
10 year average of sales 2003-2012	878,100
Landbank at end of 2012	9.24 years @ 878,100 tpa
Sales of aggregates from rail depots (combined with Hampshire)	1,222,000
Sales of C&D recycled aggregates	320,480
Capacity of responding C&D recycling sites	742,500 tpa
New Permissions granted in 2012	none
New permissions granted in 2013	Lower Wasing Farm 2.4 mt to be worked over 12 years.

The following are the active and *inactive* quarries in Berkshire with reserves remaining

Site Name	UA	Operator	Type of deposit
Harts Hill	WBC	Harleyford	Hoggin – lower quality sand and gravel used as fill
Midgham Ph 5-8	WBC	Marley	Sharp sand and gravel
Kennetholme Farm	WBC	Grundon	Sharp sand and gravel
Kingsmead	RBWM	Cemex	Sharp sand and gravel
Eversley (Manor and Fleethill Farms)	Wok	Cemex	Sharp sand and gravel
Sheephouse Farm	RBWM	Summerleaze	Sharp sand and gravel
Upper Bray Road	RBWM	Summerleaze	Sharp sand and gravel
Horton Brook	RBWM	Aggregate Industries/ Jayflex Aggregates	Sharp sand and gravel
Star Works	*Wok*	*Grundon*	*Sharp sand and gravel*
Copyhold Farm	WBC	Raymond Brown	Soft sand
Craven Keep	WBC	*Earthline Ltd*	*Sharp sand and gravel*

Appendix B
National and Local Economic Forecasts

B.1 National and Local Economic Forecasts

B.1.1 The following considers sources from which it may be possible to derive a general picture of future aggregate demand. The national Infrastructure Plan has been considered as having various other economic forecasts. Possible forecasts which have been found to be readily available and hence could be used as general indicators of potential future aggregate demand are:

- Draft Revised National Guidelines for Aggregate Provision in England: 2005-2020 shows a forecasted level of increase in demand;
- Construction Industry Forecasts and ONS Construction Bulletins;
- HM Treasury forecasts, as an indication of predicted general economic activity;
- PricewaterhouseCoopers (PwC) forecasts of GDP and inflation, as indicators of general economic activity; and
- Predicted Gross Value Added.

B.1.2 The figures produced by the model used to inform the National Guidelines for Aggregate Provision indicate anticipated aggregate demand. The other forecasts indicate anticipated levels of potential economic activity, typically in monetary terms, over the respective forecast periods.

Draft Revised National Guidelines for Aggregate Provision in England: 2005-2020

B.1.3 The Draft Revised National and Regional Guidelines for Aggregates Provision in England: 2005–2020 Consultation, April 2008, published forecasts for aggregate demand for the regions as summarised in the following table for England, the South East and other regions around Berkshire. Thus those forecasts can also be used as a general indicator of possible future demand for aggregates in Berkshire.

Table B.1 - Forecast of Aggregate Demand from Draft Revised National Guidelines for Aggregate Provision in England: 2005-2020

Year	South East	South West	East Midlands	West Midlands	England
2005	29	31	29	24	217
2006	32	32	29	24	224
2007	33	33	29	24	228
2008	33	33	29	25	231
2009	34	34	30	25	235
2010	35	35	30	26	239
2011	35	35	31	26	243
2012	36	36	31	27	247
2013	36	36	32	27	251
2014	37	37	32	28	255
2015	38	38	33	28	259
2016	38	38	33	28	259
2017	38	38	33	28	259
2018	38	38	33	28	259

Year	South East	South West	East Midlands	West Midlands	England
2019	38	38	33	28	259
2020	38	38	33	28	259
Total 2005-20	566	569	498	453	3925
Average 2005-09	32.2	32.6	29.2	24.4	227
Average 2005-20	35	36	31	28	245
Change from average of 2005-2009 to 2020	18.0%	16.6%	13.0%	14.8%	14.1%
Change from 2010 to 2020	8.6%	8.6%	10.0%	7.7%	8.4%
Effective Annual Change from 2010-2020	0.83%	0.83%	0.96%	0.74%	0.83%
Notes: 1 Source: Draft Revised National and Regional Guidelines for Aggregates Provision In England: 2005–2020 Consultation, April 2008, Table 11: Demand arising within regions for total aggregates (September 2007). 2 Values in millions of tonnes.					

B.1.4 The indication from the regional forecasts, which take account of an assumed proportion of alternative aggregates to total consumption, is that growth in aggregate demand will occur, but will be under 1% per year on average.

Construction Industry Forecasts

B.1.5 Construction Industry Forecasts provide an analysis of the changing pressures and influences facing the construction industry and their implications for construction activity over the next five years. However, the freely available version of the forecasts is only as a national forecast for the whole of Great Britain which covers the period to 2017. Other forecasts are available by subscription. The following press release summarises the latest statement:

> *The Construction Products Association is anticipating growth of 19.0% for the £111 billion construction industry by 2017. This is an upward revision from the summer, reflecting an increase in activity, which will boost UK GDP by an additional £20 billion.*
> *Noble Francis, Economics Director of the Construction Products Association, commented: "Construction is set to enjoy growth over the next four years as it recovers from its worst recession in over 35 years. This is mainly due to private housing, which is experiencing a rapid rise, and infrastructure, which is seeing a more gradual return to positive territory".*
>
> *"The private housing sector is being driven by recovery in the wider economy and the impacts of policies including Help to Buy, which have driven both house prices and house building. This is expected to lead to private house starts increasing 19.0% in 2013 and 15.0% in 2014, albeit from historic low levels of house building".*
> *"Although rapid growth is predicted over the next 18 months, uncertainty remains around what will happen when the policies end, given that the housing market is unlikely to be self-sustaining by then".*
>
> *"The infrastructure sector is recovering from a very difficult 2012, when output fell 12.7% despite numerous government announcements of 'boosts' to the sector. Government now appears, however, to be refocusing capital investment towards repairs and renewals. In addition, work on Europe's largest construction project, Crossrail, is expected to peak over the next 18 months. As a result, growth of 7.4% is forecast in 2014".*

"In the longer-term, the prospects for infrastructure will be reliant upon investment in the replacement of energy capacity across nuclear, offshore wind, gas and shale, all of which remain uncertain. Driven by this investment, we predict the sector will enjoy further growth of 27.9% between 2015 and 2017".

"Two other sectors figure prominently in our forecasts," Mr. Francis continued. "First, work in the largest sector of commercial (offices and retail) remains one-third lower than its high in 2007. Second, public sector construction, which accounts for one-third of total industry output, continues to constrain overall growth".

He concluded: "After suffering from an extremely tough market for over five years, and acting as a drag on UK economic activity, construction is set to grow every year between 2014 and 2017. This should provide a considerable boost to the wider economy".
Key points in the Forecasts include:

• Construction output growth of 2.7% in 2014 and 4.6% in 2015;
• Private housing starts to rise 19.0% in 2013 and 15.0% in 2014;
• Public education to fall 14.0% this year;
• Rail infrastructure to rise 34.0% by 2017;
• Energy infrastructure to rise 99.0% by 2017; and
• Public sector education and health projects to fall 11.0% in 2013 and 2.4% in 2014.

Source: Construction Products Association website:-
http://www.constructionproducts.org.uk/news/press-releases/display/view/construction-to-boost-uk-economic-growth/

Office of National Statistics - Construction Industry Output

B.1.6 On 8th November 2013 the Office of National Statistics (ONS) issued a statistical bulletin entitled 'Output in the Construction Industry, September and Q3 2013', key findings from which included the following:

- Construction output estimates are a short term indicator of construction output by private sector and public corporations within the UK. The estimates are produced and published at current prices (including inflationary price effects) and at constant prices (with inflationary effects removed), both seasonally and non-seasonally adjusted. Construction output is used in the compilation of the UK National Accounts' production measure of Gross Domestic Product.
- In the last two quarters construction output has shown steady growth, rising by 1.7% in Q3 2013 and 1.9% in Q2 after a prolonged period of predominantly negative growth which began in Q3 2011.
- There were conflicting stories in the sub-sectors in Q3 2013 which saw new work show strong quarterly growth of 3.1%, the highest quarterly growth since Q2 2010, but a fall in repair and maintenance of 0.6%. The 1.7% growth in Q3 is the highest Q3 growth since 2003.
- When comparing Q3 2013 with Q3 2012 construction output increased by 4.1%, predominantly due to a 6.2% increase in new work. Within the new work category, private new housing increased by 15.6% and private commercial other new work by 12.5%, while infrastructure fell by 3.7%. In Q3 2013, these three sectors accounted for approximately 75% of all new work, with a combined volume of £13,100 million of the estimated £17,400 million output of new work in Q3.
- Construction output shows quarterly year on year growth for two consecutive periods for the first time since Q2 2011 with the main contribution to this growth coming from the new housing work, which shows year on year growth of 14.1%. Comparing September 2013 with the same month 12 months ago, the output of construction increased by 5.8%. Over the same period new housing showed growth of 13.6%.

- Construction output fell by 0.9% in September when compared with August 2013 with all sectors, excluding public new work and private commercial other new work estimated to have fallen month on month.
- The Preliminary Estimate of Gross Domestic Product (GDP) published on 25 October 2013 contained a forecast for quarterly construction output of 2.5%. This estimate has been revised within this release based on updated survey responses and is now estimated to be 1.7%, a downward revision of 0.8 percentage points. This downward revision has no effect on the preliminary estimate of GDP growth to 1 decimal place. Construction currently accounts for 6.3% of GDP.

Source: http://www.ons.gov.uk/ons/rel/construction/output-in-the-construction-industry/index.html

Independent Forecasts Published by HM Treasury

B.1.7 The HM Treasury publishes monthly 'Forecasts for the UK economy: a comparison of independent forecasts', compiled by its Macroeconomic Prospects Team, at the time of writing, the latest publication being No. 3193 November 2013. This is a summary of published material reflecting the views of the forecasting organisations themselves and does not provide new information on the Treasury's own views. It contains selection of 'city' and 'non city' based organisations with a comparison of medium-term projections for the calendar years 2013 to 2017, and the fiscal years 2013-14 to 2017-18. The following table summarises the independent average of forecasts for GDP growth and the GDP deflator. The GDP deflator measures the ratio of nominal (or current-price) GDP to the real (or chain volume) measure of GDP, i.e. GDP deflator equals nominal GDP divided by real GDP times 100.

Table B.2 - HM Treasury Published Average of Independent Forecasts for the UK Economy

Parameter	2013	2014	2015	2016	2017	2018
GDP Growth, %	1.3	2.2	2.4	2.4	2.3	
GDP Deflator, % change		2013-14 2.2	2014-15 2.0	2015-16 2.2	2016-17 2.3	2017-18 2.4
Domestic Demand, % change	1.2	2.1	2.2	2.2	2.1	
Notes: Values from Tables M1 and M2 of 'Forecasts for the UK Economy' No. 319. Source: https://www.gov.uk/government/collections/data-forecasts#documents						

B.1.8 The 'GDP Growth' and 'Domestic demand' projections rise from 2014 to 2017, predicting increases of 8% and 7% over that period.

Forecasts by PricewaterhouseCoopers

B.1.9 PricewaterhouseCoopers provides short and long-term forecasts of GDP growth and inflation, available via http://www.pwc.co.uk/economic-services/global-economy-watch/gew-projections.jhtml and summarised in the following table.

Table B.3 – PwC Forecasts (December 2013) for the UK Economy

Parameter	2013	2014	2015-2019
Real GDP growth %	1.4	2.4	2.4
Inflation %	2.7	2.3	2.0

Source PwC

B.1.10 This provides a forecast for GDP over a longer period, though still not to the end of the plan period. The forecast suggests that whilst there has been a notable dip in the economy recently, GDP is anticipated to rise in the near future.

Forecasts of Gross Value Added (GVA)

B.1.11 Gross Value Added (GVA) measures the contribution to the economy of each individual producer, industry or sector in the United Kingdom, and is used in the estimation of Gross Domestic Product (GDP). GVA is a top down measure of economic performance at 'basic- prices and at county level includes wages and profits. The intention is that GVA is a measure of production, and hence it was considered plausible that GVA may provide an indication of the possible demand for aggregate.

B.1.12 Past GVA values are available from the ONS via its NUTS data. NUTS stands for 'Nomenclature of Units for Territorial Statistics' which is a geocode standard developed and regulated by the European Union for referencing the subdivisions of countries for statistical purposes. There are three levels of NUTS defined, with for England NUTS1 being for Government Office Regions, NUTS2 being for counties (some grouped) and inner and outer London, and NUTS3 being for upper tier authorities or groups of lower tier authorities e.g. unitary authorities or districts.

B.1.13 The GVA Values are available from 1997 to 2011 for the economic activity as a whole or different sectors in the economy, including the construction industry, subdivided per region e.g. Berkshire, the South East and other counties. The GVA reflecting general economic activity is available via the NUTS3.1 table, which is titled 'Headline Gross Value Added (GVA) at current basic prices', whereas the GVA for the construction industry is available via the NUTS3.4 table which is titled 'Headline Gross Value Added (GVA) by 10 industries at current basic prices'.

B.1.14 Separate Economic Assessments have been prepared for east and west Berkshire. Both draw on the forecast for the Berkshire economy provided by the Berkshire Observatory in August 2010. Under this forecast Berkshire's GVA is projected to increase from its 2006 level of £22,580 million (13% of South East GVA) to £35,307 million (20% of the South East's GVA by 2026) (East Berkshire Local Economic Assessment August 2011).

Findings

B.1.15 In general the forecasts are considered useful as providing an overall contextual picture to give some outline indication of anticipated future aggregate demand, and in summary the findings are as follows:

- The forecasting model used to calculate the national and regional aggregate provision figures to 2020 indicates a small but steady rise in aggregate consumption over the period 2005 to 2015, levelling off thereafter at the 2015 level.
- The Construction Industry Forecasts indicate a variable forecast in the value of construction work over the period to 2017, but overall optimism of a return to higher rates of activity after the recession. Growth in construction of housing, rail and energy infrastructure will be tempered by falls in education and health projects.
- The independent economic forecasts published by the HM Treasury and the forecasts of GDP produced by PricewaterhouseCoopers indicate a return to growth in the coming years, although the latter predicted this will be delayed until 2015.
- Berkshire's GVA is projected to increase at a higher rate than the South East as a whole, maintaining Berkshire's position as one of the stronger economies in the South East.

B.1.16 In general the forecasts indicate increased economic activity, suggesting that future aggregate consumption nationally is more likely to either continue at a generally flat rate of growth or gradually increase than it is to fall.

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