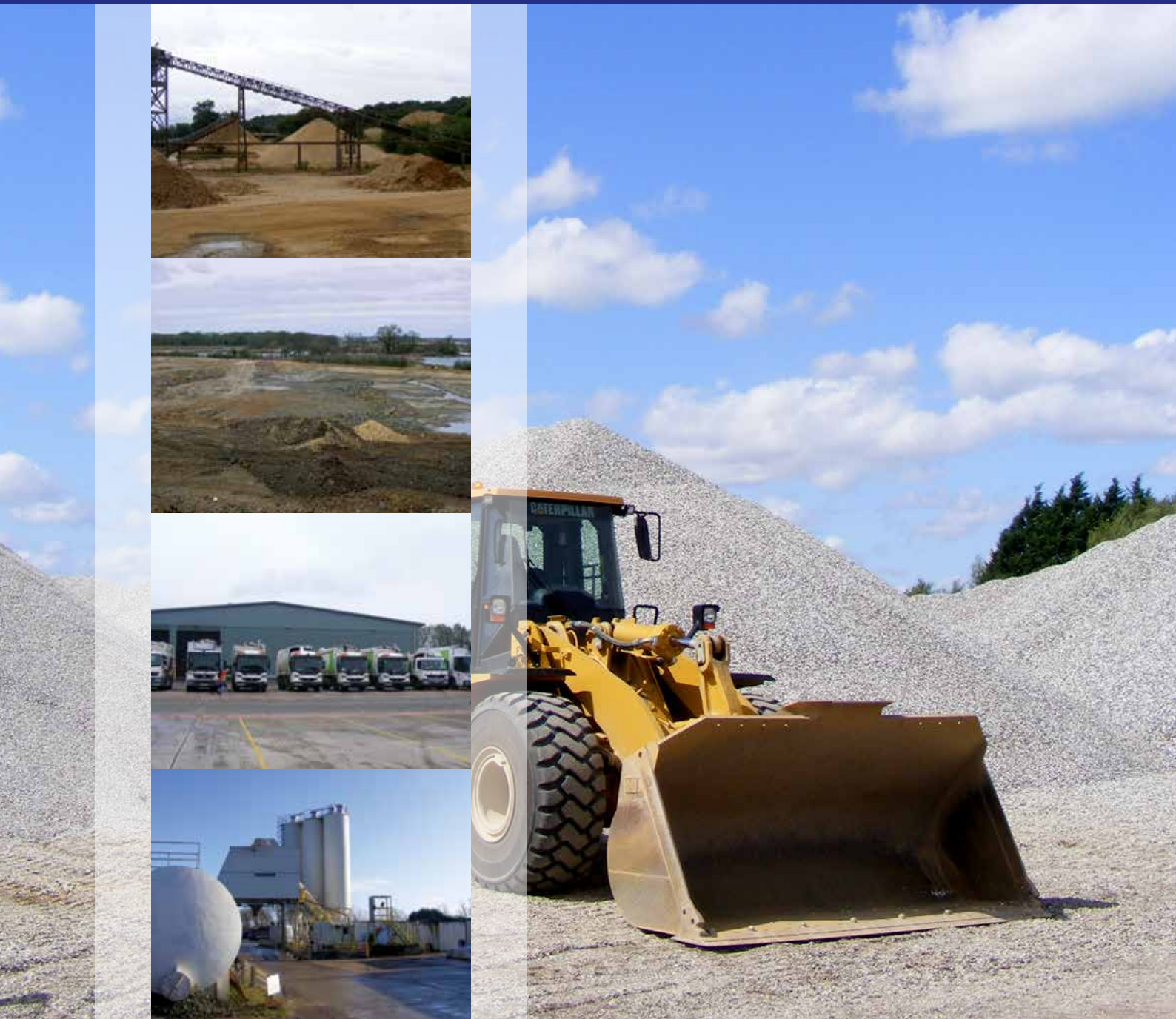


# West Berkshire Minerals and Waste Plan

## Local Aggregates Assessment, December 2014

### West Berkshire Local Plan



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Sue Broughton, Information Management Officer Policy & Communication  
Tel 01635 519747  
Email: [scbroughton@westberks.gov.uk](mailto:scbroughton@westberks.gov.uk)

## Contents

	<b>Executive Summary</b>	<b>3</b>
<b>1.0</b>	<b>Introduction</b>	<b>4</b>
1.1	The purpose of a Local Aggregate Assessment	4
1.2	The NPPG and NPPG	5
1.3	West Berkshire LAA 2013	6
<b>2.0</b>	<b>Land won Primary Aggregates - Sharp sand and gravel and soft sand</b>	<b>7</b>
2.1	Geology and Landscape	7
2.2	Production / Sales	10
2.3	Supply (Reserves and Landbank)	15
2.4	Summary	17
<b>3.0</b>	<b>Recycled and Secondary Aggregates</b>	<b>18</b>
3.1	Introduction	18
3.2	England South East and Berkshire	18
3.3	Production / Sales	20
3.4	Construction and Demolition waste arisings and treatment	20
3.5	Recycled aggregate capacity	23
3.6	Secondary aggregates	24
3.7	Summary	25
<b>4.0</b>	<b>Rail imported crushed rock and marine dredged sand and gravel</b>	<b>26</b>
4.1	Introduction	26
4.2	Production / Sales	27
4.3	Capacity	28
4.4	Summary	30
<b>5.0</b>	<b>Demand for Aggregates</b>	<b>32</b>
5.1	Introduction	32
5.2	Demand related factors considered in AM 2012	32
5.3	The National Infrastructure Plan	33
5.4	West Berkshire Core Strategy and existing mineral uses	33
5.5	Summary	34
<b>6.0</b>	<b>When new sites are likely to be required</b>	<b>36</b>
<b>7.0</b>	<b>Conclusions</b>	<b>39</b>
<b>8.0</b>	<b>Consultation</b>	<b>42</b>
	<b>Appendix A:</b> Estimate of West Berkshire recycled construction, demolition and excavation wastes	44
	<b>Appendix B:</b> Estimate of West Berkshire primary aggregate consumption 2002 to 2012 and comparison with West Berkshire's estimated sales	45
	<b>Appendix C:</b> Estimate of West Berkshire alternative aggregate consumption 2002 to 2012	46
	<b>Appendix D:</b> Review of minerals supply and demand for South East	47
	<b>Appendix E:</b> Mineral movements	49
	<b>Glossary</b>	<b>51</b>

## Executive summary

The National Planning Policy Framework (NPPF) introduced a requirement for mineral planning authorities to prepare an annual local aggregate assessment (LAA). This is the second LAA that has been produced for West Berkshire and it has been devised in line with the approach set out in paragraph 145 of the requirements of the NPPF and the Guidance provided in the National Planning Policy Guidance Website (NPPG).

This LAA aims to provide an assessment of the current state of the minerals landbank in West Berkshire and predict the future provision of mineral resources that needs to be met by the emerging West Berkshire Minerals and Waste Development Plan (WBMWDPD) and covers the period to the end of 2013. The LAA essentially considers the demand and supply issues around the 3 main sources of aggregates that are sold in West Berkshire: land won sand and gravel from quarry sites, recycled aggregates (primarily produced at waste sites), and hard rock that is imported to rail head sites. Other aggregate streams: marine and secondary aggregates, make up such a small proportion (less than 10%) of the total aggregate mix sold in West Berkshire and are also covered in the LAA.

In respect of land won sand and gravel from sites in West Berkshire, this LAA has utilised the approach endorsed by the NPPF and NPPG, and used the average of the past 10 years sales to derive the future need. This approach is the same that was used last year (although last year a number of different methodologies were also considered and discounted) and is considered to be a simple and transparent methodology. This approach suggests that West Berkshire will need to plan to deliver 399,683 tonnes of sand and gravel from sites in the authority each year over the plan period. Due to a consistent decline in the level of production of construction aggregates from quarries in West Berkshire over the past decade (which reflects the pattern seen nationally) this projected figure is significantly lower than production levels seen in West Berkshire historically and is lower than the 10 year average sales figure of 439,356 tonnes of sand and gravel per annum that was published in the LAA last year, this change is considered to be due to the continuing decline in primary aggregate sales from sites in West Berkshire. This Local Aggregates Assessment concludes that at the end of 2013 West Berkshire had 8.37 years worth of aggregate supply (landbank), assuming that the level of sales in the future equates to the average of the last 10 years sales. The LAA has identified however, that from 2016 onwards, new minerals sites should be sought to ensure that an adequate and steady supply of minerals is available.

With regard to rail based imports of hard rock it is clear that the estimated volume of primary aggregates imported into West Berkshire by rail is significant, accounting for approximately 48% of the total aggregates sales in West Berkshire in 2013. It is assumed that a large proportion of the imported aggregate sold from the two rail depots in West Berkshire is actually exported from the authority by road. It is apparent that there is likely to be sufficient capacity at the existing rail head sites to meet any increased demand for rail imports in the longer term. In addition the locations where hard rock is currently imported from are understood to have sufficient reserves to continue to supply West Berkshire for many years.

In respect of recycled aggregates the LAA concludes that the level of recycled aggregates being produced (circa 300,000 tonnes in 2013) is more than double the projected level of demand for recycled aggregates for West Berkshire. This indicates that West Berkshire imports a significant amount of waste that is used to produce secondary aggregates that are then used within West Berkshire or exported to surrounding areas.

With regard to marine sand and gravel (understood to be imported by rail) and secondary aggregates, these sources make up a relatively small proportion of the total construction aggregate mix sold from site in West Berkshire (totaling less than 10%).



## Introduction

### 1.0 The purpose of a Local Aggregate Assessment

- 1.1.1 The purpose of a Local Aggregate Assessment (LAA) is to assess the demand for, and supply of, construction aggregates for a Mineral Planning Authority area to ensure that an appropriate provision of construction aggregate minerals can be maintained.
- 1.1.2 This LAA has been produced by West Berkshire Council and the data included in this LAA covers the period to the end of 2013. The minerals assessment provided in this report follows the approach set out in paragraph 145 of the National Planning Policy Framework (NPPF)<sup>1</sup> and the accompanying Planning Practice Guidance (NPPG)<sup>2</sup>.
- 1.1.3 This LAA seeks to provide an assessment to form the basis for calculating the current state of the landbank in West Berkshire and will be used to inform the formulation of the emerging Minerals and Waste Local Plan (WBMWLP) that is projected to cover the period of 2012 to 2036<sup>3</sup>. Therefore this LAA also provides an estimate for the provision of an appropriate aggregate mineral landbank over the anticipated plan period to assist the plan making process. This is the second LAA to be produced by West Berkshire Council. It is intended that the LAA will be updated annually to be used as a means of calculating the landbank in subsequent years as part of the assessment of planning applications during the plan period.
- 1.1.4 This LAA draws on information contained in the West Berkshire Local Waste Assessment (published in December 2013 (covering the years to 2012), also prepared by West Berkshire Council, along with data obtained by West Berkshire Council that will be used to update the Local Waste Assessment, expected to be completed in the near future (2014/15).
- 1.1.5 The forthcoming WBMWLP is likely to include the allocation of preferred areas for mineral extraction to ensure that West Berkshire can maintain a steady and adequate supply of minerals to meet the needs of West Berkshire. This approach will identify areas where mineral extraction will cause the least harm when balanced against the wider sustainability and environmental objectives.
- 1.1.6 West Berkshire has not previously developed a strategic plan for minerals and waste solely for its authority area (previously relying on joint working across the former County of Berkshire), therefore the availability of West Berkshire specific data is limited. The 2012 LAA was therefore grounded upon publicly available data. The data used to support the 2012 LAA has been used to support the 2013 LAA, however since 2012 West Berkshire has undertaken independent operator surveys and therefore this actual data, which has been collected by WBC via operator returns, for 2012 and 2013 has been used. Any assumptions which have been applied within this report are clearly listed.
- 1.1.7 If new evidence or relevant information is made available to West Berkshire, this will be considered within future reviews of the LAA.

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<sup>1</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/6077/2116950.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf)

<sup>2</sup> <http://planningguidance.planningportal.gov.uk/blog/guidance/minerals/planning-for-aggregate-minerals/>

<sup>3</sup> The plan period may alter over the course of the consultation upon and development of the West Berkshire Minerals and Waste DPD but for the purpose of this local aggregate assessment a 20 year plan period (post current anticipated adoption date) has been assumed.

## 1.2 The NPPF and NPPG

- 1.2.1 The NPPF advises in paragraph 145 that “Minerals Planning Authorities should plan for a ‘steady and adequate supply of aggregates through preparation of a LAA.” In summary, the NPPF states that the LAA should be used to inform the preparation of a Minerals Plan, by:
- assisting in the calculation of the landbank figure when the plan is prepared (based on a rolling average of ten years sales data and other relevant information),
  - assisting in the calculation of the future provision of mineral resources that needs to be made in the plan (making provision for maintenance of landbank of at least 7 years for sand and gravel), and
  - in the assessment of planning applications during the plan period.
- 1.2.2 The NPPF advises that separate landbanks should be calculated and maintained for any aggregate materials of a specific type or quality or which have a distinct and separate market. It also states that Minerals Planning Authorities should ensure that large landbanks, which are bound up within very few sites, do not stifle competition.
- 1.2.3 The NPPF further advises that the LAA should also take account of:-
- The advice of the relevant Aggregate Working Party.
  - Published National and sub National guidelines on future provision.
- 1.2.4 The NPPG (ref ID 27-062-20140306) advises that LAAs should contain three elements:
- a forecast of the demand for aggregates based on both the rolling average of 10-years sales data and other relevant local information;
  - an analysis of all aggregate supply options, as indicated by landbanks, mineral plan allocations and capacity data e.g. marine licenses for marine aggregate extraction, recycled aggregates and the potential throughputs from wharves. This analysis should be informed by planning information, the aggregate industry and other bodies such as local enterprise partnerships; and
  - an assessment of the balance between demand and supply, and the economic and environmental opportunities and constraints that might influence the situation. It should conclude if there is a shortage or a surplus of supply and, if the former, how this is being addressed
- 1.2.5 The NPPG (ref ID: 27-063-20140306) advises that Local Aggregate Assessments should consider all aggregate supply options, including the following:
- recycled aggregates, including from construction, demolition and excavation waste;
  - secondary aggregates, whose sources come from industrial wastes such as glass (cullet), incinerator bottom ash, railway ballast, fine ceramic waste (pitcher) and scrap tyres; and industrial and minerals by-products, notably waste from china clay, coal and slate extraction and spent foundry sand. They can also include hydraulically-bound materials;
  - marine aggregates from The Crown Estate. Information will cover the areas licensed by the Marine Management Organisation for marine sand and gravel dredging and, as they are prepared over time, Marine Plans;
  - imports into and exports out of the mineral planning authority area. The mineral planning authority must capture the amount of aggregate that it is importing and exporting as part of its Assessment (this will usually be captured through the four yearly Aggregate Minerals Survey); and

- land-won resources, including landbanks and site specific allocations.

1.2.6 The NPPG (ref ID 27-060-20140306) also states that the Managed Aggregate Supply System seeks to ensure a steady and adequate supply of aggregate mineral, to handle the significant geographical imbalances in the occurrence of suitable natural aggregate resources, and the areas where they are most needed. It requires mineral planning authorities, which have adequate resources of aggregates, to make an appropriate contribution to national as well as local supply, while making due allowance for the need to control any environmental damage to an acceptable level. It also ensures that areas with smaller amounts of aggregate make some contribution towards meeting local and national need where that can be done sustainably.

### 1.3 West Berkshire LAA 2013

1.3.1 The first LAA produced by West Berkshire (LAA 2013) was produced as part of a suite of documents to inform the emerging Minerals and Waste Development Plan Document (projected to cover the period of 2012 to 2036<sup>4</sup>). Therefore it considered the need for the provision of an appropriate aggregate mineral landbank over the projected plan period. After assessing a number of methodologies for projecting future aggregate demand it was concluded that, for land won primary aggregates, the 10 year sales average of historic aggregate sales represented the most realistic supply system for West Berkshire to utilise.

1.3.2 This methodology was considered to reflect the fall in demand for land-won primary aggregates over the previous 10 years, while providing headroom for an increase in demand in response to future economic growth. It also reflected the significant proportion of the authority area designated as AONB (approximately 75%) and the apparent shift in emphasis of land-won production from West Berkshire to the more urbanised eastern end of the former county area seen in recent years. A 10 year period was considered to be adequately long enough to cover periods of both high economic growth (2001-2008) and low economic growth (2008-2012). The approach was considered to be a clear and transparent methodology that also accounted for peaks and troughs in supply as well as recognising the inter authority and regional movements of construction aggregates. This approach reflects the provisions of the NPPF and NPPG, and is supported by the South East England Aggregates Working Party (SEEAWP).

1.3.3 Following this rationale the previous LAA concluded that the ten year average of past sales of primary aggregates from sites in West Berkshire was 439,356 tonnes, and therefore this level of “need” should be the level that the authority seeks to maintain. Based on the level of permitted reserves at the end of 2012 the landbank of aggregate reserves in West Berkshire stood at 2.87 years (however the previous LAA also reported that, in 2013, permission was granted for a new mineral site that significantly increased the level of permitted reserves).

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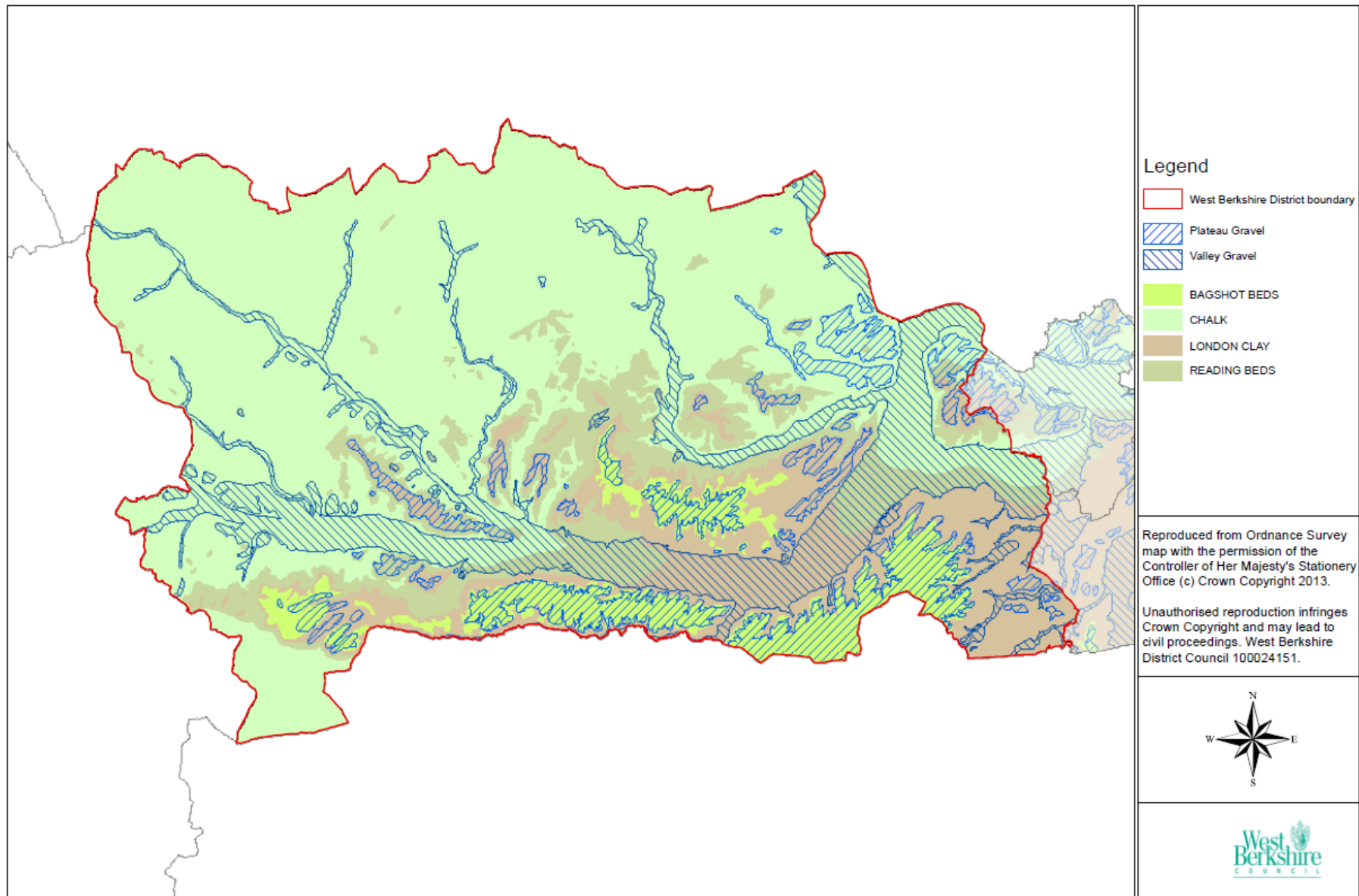
<sup>4</sup> The plan period may alter over the course of the consultation upon and development of the West Berkshire Minerals and Waste DPD but for the purpose of this assessment a 20 year plan period (post current anticipated adoption date) has been assumed.

## **2.0 Land won Primary Aggregates - Sharp sand and gravel and soft sand**

### **2.1 Geology and Landscape**

- 2.1.1 Since the Second World War, the main type of mineral production in West Berkshire has been the winning and working of 'construction aggregates' for use in the construction industry, (construction aggregates comprise sands and gravels).
- 2.1.2 West Berkshire's main construction 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 understood to be large deposits of soft sand, suitable either as a fill material, or in limited circumstances as building sand for use in making mortar.
- 2.1.3 Geologically speaking the sharp sand and gravel found in West Berkshire 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 below, sharp sand and gravel is predominantly found along the Kennet river valley. It is also found in the river terrace deposits (also called 'plateau gravels') which are the remnants of earlier abandoned floodplains raised by geological forces above the present course of the rivers.
- 2.1.4 Soft sand is a much older deposit, dating from around 60 million years ago. In West Berkshire it principally occurs in the Reading Formation, and outcrops on the higher ground above the Kennet valley. The Reading Formation is a bedrock deposit, predominantly clay bearing, but also containing sand beds. Generally speaking, bedrock deposits are thicker than the superficial sharp sand and gravel deposits, and hence aggregate yield per hectare tends to be higher.
- 2.1.5 For information the general extent of the deposits of sand and gravel, and chalk and clay in West Berkshire is shown in the simplified geological map below.





- 2.1.6 Much of the northern area of West Berkshire, where the main deposits of soft sand have historically been worked, lies within the North Wessex Downs Area of Outstanding Natural Beauty (NWD AONB). Whilst mineral extraction is not excluded from such areas the NPPF states that, when determining planning applications for major development in Areas of Outstanding Natural Beauty, 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 unless in exceptional circumstances, and where it can be demonstrated to be in the public interest.
- 2.1.7 The NPPF also confirms that landbanks of non energy minerals should, as far as is practical, be maintained from sites outside such national level designations. Consideration of planning applications for major developments in Areas of Outstanding Natural Beauty should include assessment of:
- 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.<sup>5</sup>
- 2.1.8 Past Minerals Plans for Berkshire, including the extant Replacement Minerals Local Plan for Berkshire adopted in 2001, recognised this policy position by setting out a strict policy approach for considering applications and, even if proposals were considered appropriate, the policy restricted the total annual output of soft sand from quarries within the North West Downs AONB to a maximum of 150,000 tpa. However, this policy approach dates back to when the Replacement Minerals Local Plan for Berkshire was first adopted in 1998 and, therefore, this policy approach predates the Countryside and Rights of Way Act of 2000 and the subsequent clarification that the AONB designation is equivalent to national parks in terms of the statutory purpose being to conserve and enhance the natural beauty of the area.
- 2.1.9 The Replacement Berkshire Minerals Local Plan also set out preferred areas within which there was a presumption that planning proposals for extraction of sharp sand and gravel would be approved, subject to detailed development control considerations, which would have considered many factors including environmental designations.
- 2.1.10 Reflecting the environmental designations and proximity to urban areas, where the main demand for construction materials arises, quarrying of construction aggregates in West Berkshire has historically been focussed on the sharp sand and gravel deposits found along the Kennet valley, and between Reading and Newbury. However, much of the aggregate resources are located in areas that are subject to flooding, which can make mineral extraction more problematic, even though the NPPG categorises sand and gravel workings as ‘water compatible’.
- 2.1.11 Most of the primary construction aggregates won from sites within West Berkshire are processed by the operator, either on-site or at a central processing facility nearby, and sold directly for use in the construction industry. In addition, there is an established factory at Beenham which manufactures roof tiles from aggregate and

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<sup>5</sup> NPPF paragraphs 115 and 116

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.

## 2.2 Production/Sales

2.2.1 Due to a combination of the fact that past records of sales of land won aggregates in West Berkshire have been amalgamated with those from the other unitary authorities of the former county of Berkshire, and the reluctance of some operators to respond to requests to provide the relevant data at the time that the previous LAA was completed, it was not possible to refer to actual records of past outputs / sales from sites. The analysis of historical aggregate production therefore sought to use West Berkshire specific information derived from the following available alternative sources:

- Planning application forms,
- Written submissions accompanying planning applications,
- Proofs of evidence supporting planning appeals,
- Letters from site operators,
- Site visit photographs,
- Site visit notes (including notes of conversations with site managers),
- Aerial photography,
- Returns information provided by a mineral operator,
- Annual Monitoring Reports produced by the JSPU,
  - Annual Monitoring Reports produced by the Aggregates Working Party, in this case the South East England Aggregates Working Party, and
- Aggregates Monitoring report for Berkshire 2011.<sup>6</sup>

2.3.2 It should be noted however, that this LAA (2014) does include reference to actual records of outputs from sites in 2012 and 2013. This data was collected via operator returns to WBC and commercial confidentiality will be respected. As time passes, and these annual surveys are completed, it is anticipated that each LAA produced will be reliant on more and more robust data on primary aggregate sales and reserves.

2.3.3 Reference has also been made, where appropriate, to:

- The Annual Minerals Raised Inquiry Survey, which sets out sales of each type of mineral in Great Britain;
- The 4-yearly Aggregate Minerals Surveys on the sales, movement, consumption and permitted reserves of aggregate minerals;
- Local data on the arisings of and recovery/disposal routes of Construction and Demolition waste, including inert waste used to restore mineral sites. This includes data available from the Environment Agency;
- 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;
- Annual Monitoring Reports and Local Aggregate Assessments 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.

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<sup>6</sup> The aggregate reserves figures for 2011 for West Berkshire detailed in this report have not been used in the LAA as the data is significantly different to WBC records and the data collected in 2012.

- 2.3.4 Due to commercial confidentiality the sand and gravel sales and soft sand sales have been combined. However, it is possible to report that the outputs of soft sand have remained relatively constant throughout the period covered by this LAA (2004-2013), with a slight increase in outputs in 2006. On the other hand, outputs of sharp sand and gravel show considerable variation. The variation is likely to be caused by the variation in number of active mineral sites during this period, i.e. currently only one quarry producing soft sand in West Berkshire and the changing rate of production from a limited number of individual quarries.
- 2.3.5 The pattern of primary aggregate output decline in West Berkshire (as shown on graph 2.1) generally reflects the pattern of overall decline in primary aggregate outputs seen in England and in the South East, indicating the pattern of mineral extraction in West Berkshire follows the national and regional patterns of sales relatively closely. This data is shown in table 2.1 below.
- 2.3.6 Graph 2.1 also illustrates the total level of primary aggregate sales from sites for the whole of Berkshire (including the sales from West Berkshire), the former county area saw an increase in sales 2007 through to 2011 though they have since fallen again.
- 2.3.7 This graph also illustrates the historic “apportionment” figure attributed to Berkshire, it is acknowledged that this apportionment approach has now been replaced with the new “10 year average approach” endorsed by the current Managed Aggregate Supply System (MASS) in the NPPF but this demonstrates that the level of sales of primary aggregates from sites in Berkshire has consistently been below the level of apportionment allocated to the former county area.
- 2.3.8 Despite the lack of data on historic sales in West Berkshire, it has been possible to illustrate the current MASS approach that utilises the 10 year average of sales for an extended period and this is also shown on the graph for the past 3 years. This illustrates that, in recent years the level of sales from construction aggregate producing sites in West Berkshire has been below the rolling 10 year average of sales. This graph also shows that the rolling 10 year average of sales has been declining in recent years.

**Table 2.1 Construction Aggregate outputs from sites in West Berkshire (combined sharp sand and gravel and soft sand)**

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>Totals (tones)</b>	620,000	590,000	650,000	510,000	530,000	490,000	525,000	592,500	492,500	390,000	275,000	275,000	233,684	193,265

Source: West Berkshire DC

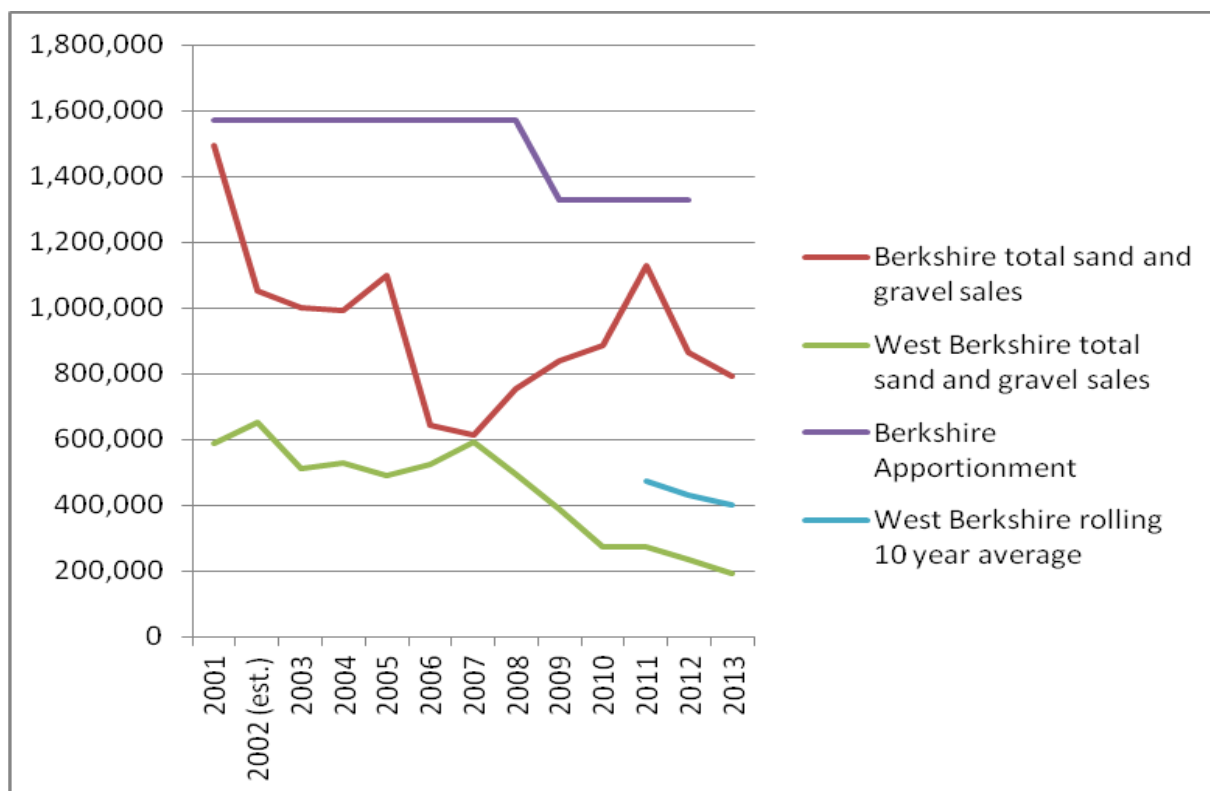
The data for 2000 to 2011 has been derived from the following publicly available alternative sources.

- Planning application forms.
- Written submissions accompanying planning applications.
- Proofs of evidence supporting planning appeals.
- Letters from site operators.
- Site visit photographs.
- Site visit notes (including notes of conversations with site managers).
- Aerial photography.<sup>7</sup>
- Returns information provided by mineral operators
- Annual Monitoring Reports produced by the JSPU.
- Annual Monitoring Reports produced by the Aggregates Working Party.
- Berkshire Annual Monitoring report for Berkshire

The data for 2012 and 2013 has been derived from actual AM2012 and AM2013 mineral operator returns for West Berkshire (with estimates made in the event of a non response)



**Graph 2.1: Sales of land won primary aggregates in Berkshire and West Berkshire from 2000 to 2013**



Source: SEEAWP Reports and West Berkshire DC<sup>8</sup>

2.3.9 Over the past decade, West Berkshire has also seen a decline in the number of sites producing land won primary aggregates (see table 2.2 below) alongside the decline in sales. In 2001, there were 13 quarries in operation in West Berkshire, producing primary aggregates. In 2007, there remained 8 operational sites. However, since 2007 there has been further decline in the number of active sites with only 4 producing aggregates in 2013. Of the 4 sites that produced primary aggregates in 2013 one is now worked out and has ceased production, and a further site's planning permission expires at the end of 2015.

<sup>8</sup> Minerals Local plan Monitoring Report 1997, 1998, 1999, 2000, 2001 and 2002, Joint Minerals and Waste Annual Monitoring Report 2005, 2006, 2007, 2008, 2009 and 2010, South East England Aggregates Working Party Monitoring reports 2010, 2011, 2012, 2013 and Aggregates Monitoring report (2012) for Bracknell Forest, Reading, Slough, West Berkshire, Windsor and Maidenhead and Wokingham, February 2013.

**Table 2.2: Number of active sharp sand and gravel and soft sand sites in Berkshire and West Berkshire**

Year	Active sand and gravel sites in Berkshire	Active sand and gravel sites in West Berkshire
1997	21	12
1998	15	10
1999	17	11
2000	22	13
2001	21	13
2002	18	11
2003	14	8
2004	14	8
2005	12	7
2006	10	8
2007	9	8
2008	10	8
2009	11	9
2010	9	6
2011	11	6
2012	9	6
2013	8	4

Note: Data sources vary year on year, either from AWP reports, JSPU AMR's and data from WBDC. (Please note: that not all these sources information aligns for all years covered by this graph, due to differing reporting processes and administrative errors.)

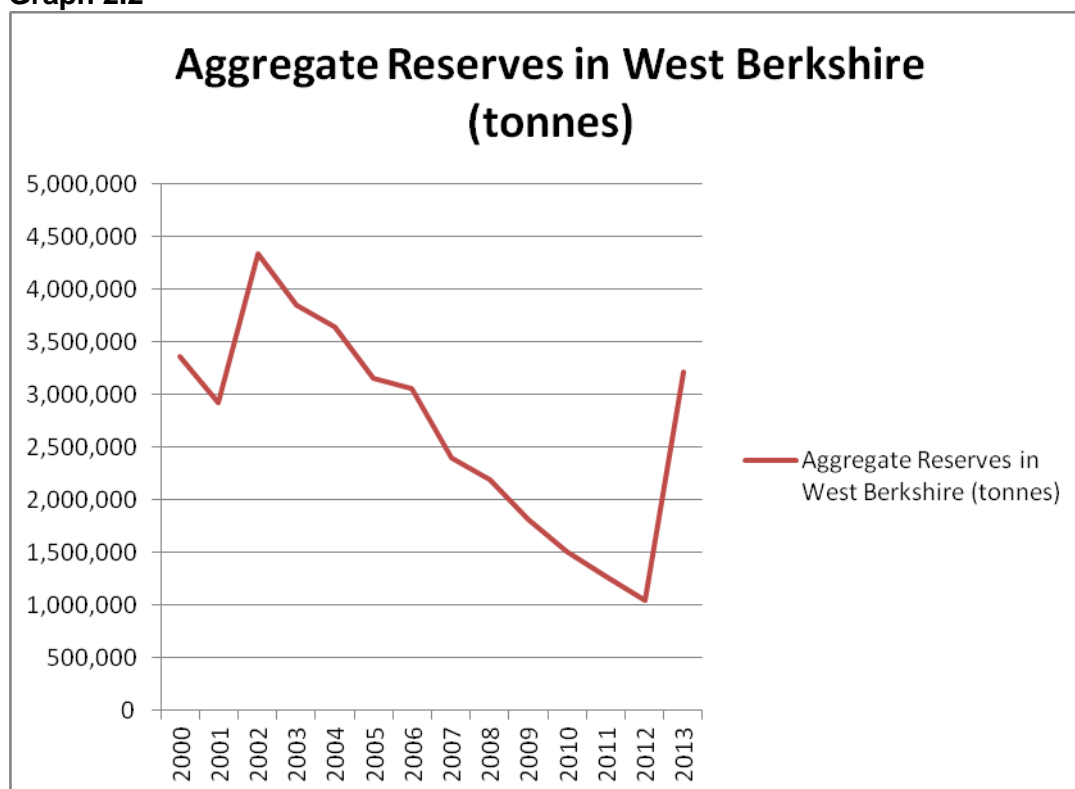
2.2.6 The number of sites which have produced sand and gravel in West Berkshire have been considered against the number of sites worked in the remainder of the former county of Berkshire (see table 2.2 above). This is a very crude manner for estimating the balance of working within West Berkshire and Berkshire as a whole. For example, such an approach does not account for the size of the individual mineral workings. These calculations reveal that on average West Berkshire authority area has accommodated 65% of the minerals working sites for the former county of Berkshire since 1997, this (coupled with the data in graph 2.1) could illustrate that West Berkshire plays an important role in maintaining the level of mineral supply for the former County area.

2.2.7 Prior to the NPPF, the managed aggregates supply system was based on national and regional aggregates guidelines, and a sub-regional apportionment (generally to the county level) of the regional figures by the Regional Planning Body (now abolished), in discussion with the Regional Aggregate Working Party. In the South East, the apportionment of the Government's regional guidelines for 2005-2020 was not formally completed before abolition of the Regional Planning Body. The latest position was March 2010, when the Government Office for the South East published 'Proposed Changes' to Policy M3 of the South East Plan, setting a regional apportionment of 11.12 mtpa for land-won sand and gravel and 1.44 mtpa for crushed rock. Berkshire's share of this sand and gravel apportionment was 1.33 mtpa. The equivalent figure for the period before 2010 was 1.57 mtpa. Graph 2.1 above shows that over the 10-year period between 2003 and 2012 (inclusive) Berkshire's total sand and gravel sales were consistently below the prescribed sub-regional apportionment.

### 2.3 Supply (Reserves and Landbank)

It can be seen from graph 2.2 below that over the past decade the level of sand and gravel reserves has declined such that in 2012 it was at an all time low and the West Berkshire Landbank of construction aggregates was only 2.87 years. The granting of planning permission for the extraction of 2.4 million tonnes of sharp sand and gravel from Lower Farm at Wasing in 2013 has dramatically increased the amount of available reserves in West Berkshire for 2013 (although the permission has yet to be implemented).

**Graph 2.2**



2.3.1 Whilst this does indicate that there is a significant level of permitted reserves in West Berkshire at present, it has to be noted that the majority of these reserves are all located in a single site.

2.3.2 Table 2.3 below outlines the situation with regard to the permitted sand and gravel producing sites in west Berkshire. As detailed above, only 4 sites produced primary aggregates in 2013, and of these one is now worked out and has ceased production, and the planning permission at a further site expires at the end of 2015.

Table 2.3

Site Name	Site Operator	Type of deposit	Site notes	Comments
<b>Active</b>				
Kennetholme Farm	Grundon	Sharp sand and gravel	Preferred Area in RMLP 2001. Minerals are processed at the adjacent Colthrop processing plant.	Planning permission granted in 2002. Production started in 2009 and continues. There is no tonnage limit on annual output (although there is a limit on the adjacent processing plant). There are circa 330,000 tonnes of reserves remaining (2013 - based on operator returns).
Midgham Quarry	Marley	Sharp sand and gravel	Extension to Midgham. Supplying the Marley tile factory, the minerals are therefore processed at the factory site.	Production started 1994. There were no restrictions on output. Worked out (2013 – based on operator returns).
Copyhold Farm	Raymond Brown	Soft sand	In NWDAONB. Granted consent on the basis that the majority of the mineral would supply the Marley tile factory, however it is unclear whether this remains the case. Mineral may be being sold to the general construction market.	Approved under RMLP policy 15. Commenced production in 2006. Extension approved under RMLP policy 15 to provide materials for Beenham Tile Factory. Approximately 125,000 tonnes of reserves remain (2013 – based on site visit observations). Conditions limit the production output to 60,000 tpa.
Hartshill Quarry	Harleyford	Hoggin – lower quality sand and gravel used as fill and generally sold as dug.	In recent years some production transported for processing at former Aldermaston Quarry site. In 2013, the Aldermaston Quarry plant was removed from site.	Small operation, intermittent production. Reserves remain, but planning permission expires at the end of 2015. There is no tonnage limit on annual output, although there is a maximum number of HGV's (50 per day). Reserves of circa 150,000 tonnes remain (2013 - based on operator returns).
<b>Inactive</b>				
Craven Keep	Earthline	Sharp sand and gravel	-	Inactive, Small remaining reserve. Approximately 2 years working remains on site.
Lower Farm, Wasing <sup>9</sup>	Lafarge Tarmac and Marley	Sharp sand and gravel	-	Extraction of 2.4 million tonnes of sharp sand and gravel at a rate of 200,000 tpa.

2.3.3 As shown in graph 2.2 above, the total permitted reserves in 2013 stood at approximately 3,346,600 tonnes. Based on the 10-year average annual sales figure (2004-2013) of 399,683 tonnes, the landbank at the end of 2013 was 8.37 years.

<sup>9</sup> <http://publicaccess.westberks.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=M4U2FVRD0EA00>

- 2.3.4 When this 10 year average sales figure is extrapolated this suggests that West Berkshire will need to deliver 11,990,490 tonnes of land won primary aggregates to maintain this level of supply to cover the emerging plan period 2036<sup>10</sup> (and 7 years beyond). Once the level of already permitted reserves is deducted from this figure, this means that there is a need seek to identify an additional 8,643,890 tonnes of primary construction aggregates as part of the plan making process<sup>11</sup>.
- 2.3.5 It is noted that the Replacement Minerals Local Plan for Berkshire (RMLP) set out a number of preferred areas, designed to meet the needs of that plan. There remain two sites identified in the adopted RMLP located in West Berkshire that have not yet been worked, or been the subject of planning applications. There is no certainty over whether these sites will ever be worked (and indeed having been allocated for 15 years and no application having been forthcoming it seems unlikely), but these sites are estimated to contain circa 1,700,000 tonnes of sharp sand and gravel.
- 2.3.3 NPPG (ref ID 27-064-20140306) states that mineral planning authorities should also look at average sales over the previous three years to identify the general trend of demand as part of the consideration of whether it might be appropriate to increase supply. The 3-year average sales for construction aggregates from sites in West Berkshire was 233,983 tonnes. If this 3 year average were to be used to estimate the landbank in West Berkshire then, at the end of 2013 the landbank would stand at 14.3 years. This confirms that, if the level of sales of construction aggregates in West Berkshire remains at the level seen in more recent years, then the permitted reserves would last much longer. This 3 year average figure is also significantly below the 10 year average figure, which suggests that there has not been a recent increase in the sale of aggregates which could suggest that there might be a need to increase supply.

## 2.4 Summary

- 2.4.1 In 2013 the total sand and gravel output from sites in West Berkshire was 193,265 tonnes, which was a reduction from the 2012 output of 233,684 tonnes. This has resulted in a slight reduction in the **average 10 years sales of primary aggregates** such that this **stood at 399,683 tonnes at the end of 2013**.
- 2.4.2 Over the past decade, West Berkshire has seen a continuing decline in both the number of sites producing primary aggregates and also the total primary aggregate output from those sites.
- 2.4.3 Sand and gravel reserves had seen a general pattern of decline such that in 2012 they were at an all time low. The granting of planning permission for the extraction of 2.4 million tonnes of sharp sand and gravel from Lower Farm at Wasing dramatically increased the amount of available reserves in West Berkshire for 2013 (although the permission has yet to be implemented).
- 2.4.4 The total permitted reserves in 2013 stood at approximately 3,346,600 tonnes with West Berkshire's **landbank standing at 8.37 at the end of 2013**.

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<sup>10</sup> The plan period has not yet been determined and may alter over the course of the consultation upon and development of the West Berkshire Minerals and Waste DPD but for the purpose of this local aggregate assessment a 20 year plan period (post current anticipated adoption date) has been assumed.

<sup>11</sup> Depending on various factors, such as environmental constraints, access etc



### 3.0 Recycled and secondary aggregates

#### 3.1 Introduction

3.1.1 Recycled aggregates are those obtained from the processing of construction and demolition waste at recycling facilities, some of which are located at operational quarries and others at construction sites or stand alone recycling sites.

3.1.2 The data sources for recycled aggregate for the south east are regarded as 'less robust' than the information collected for primary aggregate. These figures are collected yearly, as part of the surveys carried out by each mineral planning authority but the response rate for these surveys is often lower than the response rate on primary aggregates, and does not include monitoring of aggregate generation from mobile plants. As such, the results should be treated with caution and should be relied upon as no more than a 'reasonable indication' of what is taking place.

3.1.3 Secondary aggregates are aggregates derived as a by-product of other quarrying, mining or industrial operations. There are no known sources of secondary aggregates within West Berkshire.

3.1.4 In 2014 West Berkshire has conducted a survey of waste operators to inform an update of the authorities local waste assessment, this information has also been used to inform this section of the LAA.

#### 3.2 England, the South East, and Berkshire

3.2.1 The SEEAWP Aggregate Monitoring Reports documented the following figures for England and the south east:

**Table 3.1**

Year	Alternative aggregate <sup>12</sup> in tonnes for England	Recycled aggregate <sup>13</sup> in tonnes for south east <sup>14</sup>
2007	No comparable data	3,600,000
2008	No comparable data	3,300,000
2009 <sup>15</sup>	2,200,000	>2,600,000
2010	No comparable data	>3,000,000
2011	No comparable data	>2,800,000
2012	No comparable data	>2,500,000
2013	No comparable data	>3,300,000

<sup>12</sup> Principally includes china waste clay and slate waste

<sup>13</sup> Recycled and secondary aggregate total

<sup>14</sup> SEEAWP annual monitoring reports 2007 to 2013

<sup>15</sup> Including secondary sources

- 3.2.2 Recycled aggregates are classically used in low grade construction applications, such as fill, but it is understood that this situation is changing due to advances in the recycling industry. That said, it is understood that the aggregate recycling techniques currently undertaken at sites in West Berkshire (primarily crushing, screening and blending) are such that the recycled aggregates produced offer limited scope as a substitute for higher grades of sharp sand and gravel or for soft sand. Therefore, of the total amount of aggregates produced in West Berkshire, recycled aggregates are understood to only represent a possible substitution for the lower grade elements of crushed rock and sharp sand and gravel and as fill material.
- 3.2.3 This matter will be kept under review as advances in recycling techniques, such as aggregate washing facilities and blending operations, can facilitate the production of a higher quality material, which may be able to replace higher quality primary minerals. In addition construction techniques are also evolving to ensure that the minimum amount of primary material is utilised.
- 3.2.4 The national surveys of Arisings and Use of Construction, Demolition and Excavation Waste (C,DEW)<sup>16</sup> and other materials<sup>17</sup> suggested, in 2005, that the national production of recycled aggregates appeared to have increased slightly since the previous 2003 survey<sup>18</sup>, and the recycling industry maintains this view.
- 3.2.5 An update survey completed by WRAP in 2008<sup>19</sup> reported that there was likely to have been a rise in the total level of arisings during 2006 and 2007, before a decrease in construction activity that commenced in mid 2008. This led to a fall in the national production of all types of construction, demolition and excavation wastes. Overall, most of the difference can be accounted for by a reduction in the arisings of excavation waste, as a direct result of the slow in the construction market. Arisings of 'hard inert' construction, demolition and excavation wastes generating recycled aggregate increased between 2005 and 2008 by 3%. This rise is believed to have been as a result of improved recovery systems and techniques i.e. soil and aggregate washing. The information from these respective reports (2003, 2005 and 2008) are summarised in table 3.2 below.

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<sup>16</sup><http://webarchive.nationalarchives.gov.uk/20120919132719/http://www.communities.gov.uk/publications/planningandbuilding/surveyconstruction2005>

<sup>17</sup><http://webarchive.nationalarchives.gov.uk/20120919132719/http://www.communities.gov.uk/publications/planningandbuilding/surveyother2005>

<sup>18</sup><http://webarchive.nationalarchives.gov.uk/20120919132719/http://www.communities.gov.uk/publications/planningandbuilding/surveyarisings>

<sup>19</sup>

[http://aggregain.wrap.org.uk/templates/temp\\_agg\\_publication\\_details.rm?id=2298&publication=9526](http://aggregain.wrap.org.uk/templates/temp_agg_publication_details.rm?id=2298&publication=9526)

**Table 3.2:**

Year	Tonnes for England	Tonnes for South East			Tonnes for Buckinghamshire, Oxfordshire and Berkshire		
		Estimated number of crushers	Estimated production of recycled aggregate (million tonnes)	Estimated production of recycled graded: ungraded aggregate (%)	Estimated number of crushers	Estimated production of recycled graded aggregate (tonnes)	Estimated production of recycled ungraded aggregate (tonnes)
2003	39,600,000 ± 13%	44	4,82 ± 14%	51:49	-	-	-
2005	42,070,000 ± 15%	120	3,525,843	2,451,493	25	603,997	525,050
2008	43,520,000	-	-	-	-	-	-

### 3.3 Production/Sales

3.3.1 In 2013, there were a number of permitted and operating construction and demolition waste recycling facilities operating in West Berkshire; at Reading Quarry, Barton Court, Copyhold Farm, Whitehouse Farm, Avon site Colthrop, Herons Nest, and Old Stocks Farm. The combined output of recycled aggregates in 2013 was some 293,990 tonnes<sup>20</sup>, while 71,014 tonnes<sup>20</sup> of material for non-aggregate uses (landfill engineering/restoration material, and soils) was also produced.

3.3.2 It is worth noting that Copyhold, Herons Nest and Barton Court are all operating under temporary planning permissions. However, the combined output from these three sites only made up less than 8% of the total amount of recycled aggregates estimated to have been produced in West Berkshire during 2013. In 2013 planning permission was granted for a new construction and demolition waste site at Colthrop that could process up to 15,000 tonnes per annum. This site was not operational at the end of 2013 and nor was another consented site known as Wierside, near Burghfield.

3.3.3 Other construction and demolition waste recycling is likely to be undertaken by mobile plant at construction sites, to date this processing is unrecorded. In addition, the Beenham Tile factory crushes 'non specification' concrete tiles for re-use in the production of new tiles (which are mixed with primary aggregate) such that recycled aggregate is being used to directly replace primary aggregates in this process. Similarly, the asphalt plant at Theale uses proportion of road planings in the production of new asphalt, directly replacing the use of primary aggregates in the manufacturing process.

### 3.4 Construction and demolition waste arisings and treatment

3.4.1 Further information on the amount of inert/construction and demolition waste arising and treated in West Berkshire has been derived from the Environment Agency's

<sup>20</sup> West Berkshire Council (2013), Operator returns (with an estimate made in the event of a non response, sites that did not respond were Reading Quarry and Old Stocks Farm)

Waste Interrogator records from 2008 to 2012. The information shown in Table 3.3 indicates the amount of construction and demolition waste (C&D) arisings treated, and this data has been used to give an indication of the volumes that have been imported from outside of West Berkshire, which would then be available for use as recycled aggregate. Such material may be treated within West Berkshire, although its end use may be located outside of the West Berkshire. The main sources of inert/construction and demolition waste treated in West Berkshire are reported as Hampshire and Reading.

- 3.4.2 Generally these figures from Waste Data Interrogator (WDI) should be viewed with a significant degree of caution as the West Berkshire operator returns for 2012 and 2013 indicate that the amount of inert construction and demolition waste treated in West Berkshire is likely to be far in excess of that recorded in WDI 2012 and WDI 2013. As stated in the previous LAA it was understood that in excess of 380,000 tonnes of recycled aggregates were produced in West Berkshire in 2012. This figure, based on returns from the operators within West Berkshire is significantly greater than the figure of 71,986 tonnes “treated” in West Berkshire identified in WDI 2012. In addition, having examined the site data in the WDI 2012, a number of sites known to be operating and treating inert construction and demolition waste in 2012 do not appear, and some of the figures included for sites that were operating seem woefully inaccurate.
- 3.4.3 It has also been revealed that in 2012 and 2013 a site that treats Inert / C&D waste within West Berkshire (Whitehouse farm) has been recorded as being located in Hampshire therefore the figures table 3.3 (derived from waste data interrogator) underestimate the level of inert waste treatment in West Berkshire by approximately 90,000 tonnes in both 2012 and 2013. In addition there is another inert waste treatment facility, that is understood to produce circa 200,000 tonnes of recycled aggregates per year, (based on operator returns) but only minimal volumes of waste are recorded in the Waste Data Interrogator for this site in 2012 and 2013.
- 3.4.4 It is considered that these discrepancies are likely to be due to changes to the environmental permitting regime resulting in a significant expansion of the volumes of material that can be processed at sites via exemptions (and therefore now fall outside the returns information included in WDI), and the introduction of “standardised” permits. Data entry errors could also have occurred.

**Table 3.3: Levels of C&D waste assumed to be imported into West Berkshire**

Year	Inert/construction and demolition waste arisings within West Berkshire (tpa)	Inert/construction and demolition waste treated within West Berkshire (tpa)	Assumed Imported to West Berkshire (tpa)
2008	146,980	203,559	56,579
2009	83,777	197,291	113,514
2010	52,160	158,902	106,742
2011	65,422	236,282	170,860
2012	259,518	71,986 *	-187,532
2013	183,128	56,352 *	-126,776

Source: Environment Agency Waste Interrogator Record, 2008 to 2013, which is based on operator returns for Environmental Permits.

\* Data considered to be a significant underestimate of actual levels of inert waste treated (see paragraph 3.4.2)

- 3.4.5 The amounts of inert/construction and demolition waste treated in West Berkshire does not necessarily mean that the waste originates within West Berkshire or that the resulting recycled aggregate is actually used in West Berkshire. Nor is it suggested that all the inert and construction demolition waste recorded as being treated will be transformed into recycled aggregates.
- 3.4.6 In March 2012, DEFRA published a new methodology<sup>21</sup> that can be used for estimating total construction and demolition waste generation, which was developed in partnership with other agencies and industry bodies and used only existing data sources. It shows similar construction and demolition waste estimates as the Wrap surveys for England for 2009 and 2010, in the region of 47,500,000 tonnes, which was a decrease of approximately 18% from 2008<sup>22</sup>.
- 3.4.7 In the 2013 LAA an attempt was made to apply that methodology to West Berkshire using available data sources or, where necessary, estimating West Berkshire as a proportion of the DEFRA derived values for England. The results of that approach were only possible for 2010, due to the availability of data sources, and indicate that, in 2010, some 141,266 tonnes of construction and demolition waste was used as recycled aggregate in West Berkshire. To view the table, please see appendix A. This figure of 141,266 tonnes, derived from the DEFRA methodology, is not directly comparable to the figure of 52,160 tonnes identified as arising in West Berkshire that same year using the EA Waste Data interrogator. However the DEFRA methodology includes an estimate of the material that is crushed and re-used on development sites, which is not captured by the EA Waste Data interrogator. It is understood that there has been a growing trend of such on site processing of construction & demolition waste to generate recycled aggregates on site, which can be re-used on development sites and reduces transport costs and demand for primary aggregates.
- 3.4.8 Due to the fact that there are no restrictions upon the movement of this waste across administrative boundaries, it is considered that analysis that indicates the volume of construction demolition and excavation waste managed in West Berkshire might be a more representative figure to ensure that adequate capacity is planned for.
- 3.4.9 The figure of 158,902 tonnes (inert/construction and demolition treated within West Berkshire) from the Environment Agency's Waste Data Interrogator for 2010 aligns to the DEFRA methodology more closely, with these figures being 11% apart. This suggests that, in 2010, the volume of recycled aggregates produced was approximately 89% of volume of waste identified in Waste data interrogator as being "treated".
- 3.4.10 A further method for estimating the use of recycled aggregate can be made by applying a national rate of utilisation of recycled aggregates, as a proportion of total aggregate used in the construction industry (see appendix C). This is generally agreed to be approximately 26.4%<sup>23</sup>. These percentages have been applied to the estimated total primary aggregate sales figures for West Berkshire (sharp sand and gravel, soft sand and crushed rock), to produce an estimate of the amount of recycled aggregate consumed in West Berkshire for each of the years 2003 to 2012.

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<sup>21</sup> Methodology for Estimating Annual Waste Generation from the Construction, Demolition and Excavation Sectors in England, March 2012, DEFRA  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/119680/CDE-generation-methodology.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/119680/CDE-generation-methodology.pdf)

<sup>22</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/142006/CDE-generation-estimates.xls](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/142006/CDE-generation-estimates.xls)

<sup>23</sup> Approximate confirmed by Mineral Products Association



This has also been used to derive a combined primary and recycled aggregates consumption figure for West Berkshire.

- 3.4.11 The results of this calculation of the level of recycled aggregate consumed in West Berkshire for 2010 is significantly different from the amount of construction and demolition waste calculated using the DEFRA methodology, so the results should be used with caution, especially as there are so many assumptions in their derivation. This figure of 75,726 tonnes in 2010 could indicate that the need for recycled aggregates in West Berkshire is likely to be much less than the volume supplied (the amount recorded as being treated in West Berkshire in the WDI 2010 or that calculated using the DEFRA methodology) of approximately 150,000tpa.
- 3.4.12 The overall construction and demolition waste recycling capacity in West Berkshire, as indicated by industry surveys (2013), is some 650,000 tonnes, for which a large proportion of that capacity remains available for future growth, as only some 400,000 tonnes is currently operational. In addition the existing volume of recycled aggregates produced in West Berkshire is significantly above the volume estimated to be consumed within the authority.

### **3.5 Recycled aggregate capacity**

- 3.5.1 At the end of 2013 West Berkshire had 9 sites that have planning permission to manage inert waste, resulting in the production of recycled aggregates. Some of these sites are dedicated inert waste handling facilities where a vast majority of the output is recycled aggregates (such as Reading Quarry) other sites are skip waste processing and transfer facilities where the inert waste only comprises a limited fraction of the throughput. Unfortunately it is difficult to derive an estimate of exactly how much of a permitted throughput of a site is related to secondary aggregate production as this can change on a regular basis as it is dependent on the waste being imported to the sites and therefore the following table illustrates the maximum treatment capacity of the site.
- 3.5.2 At present there are 7 sites in West Berkshire that are operational and known to produce recycled aggregates. These are listed in table 3.4 below, together with relevant site information. Although outside the reporting period, in 2014 planning permission was granted for a permanent waste management facility near Sheffield Bottom, this site (which is understood to be a replacement site to the temporary facility at Herons Nest) has consent to process up to 100,000 tonnes of inert waste per year, adding a significant level of future potential recycled aggregate production.
- 3.5.3 For comparison Table 3.4 also includes information on the actual level of recycled aggregates produced in 2013, based on operator returns (and estimates in the absence of a return). As can be seen the level of actual recycled aggregates produced is significantly lower than the theoretical treatment capacity. This is due to the fact that some of the sites do not deal exclusively with the production of recycled aggregates, and not all inert waste treated at such sites is suitable for recycled aggregate use.
- 3.5.4 In addition this data excludes any recycled aggregate production on development sites, through the use of mobile plant.

**Table 3.4**

Site Name	Planning Category	Treatment Capacity (tpa)	Status in 2013
Barton Court *	Construction and Demolition recycling	4,000	Operational
Copyhold WTS *		20,000+	Operational
Reading Quarry Recycling		275,000	Operational
Whitehouse Farm		74,999+	Operational
Hérons Nest *		10,000	Operational
Old Stocks		24,999+	Operational
		75,000+	Consented
Colthrop, Hadleys Avon site		150,000	Operational
Colthrop, Grundons		15,000	Not implemented
Weirside Green Lane		20,000+	Not implemented
<b>Total permitted</b>			653,999
<b>Total operational</b>		<b>558,998</b>	
<b>Total Recycled aggregates produced in 2013 (includes 71,014 tonnes sold for not aggregate uses)</b>			365,004
Sources:			
Based on data from WBC, WDI and Planning permissions			
Capacity estimated based on permit, planning permission information or WBC.			
Key :			
* Temporary planning permission.			
+ Including skip waste, recycling and construction and demolition processing			

### 3.6 Secondary aggregates

3.6.1 There are no known sources of secondary aggregates within West Berkshire. Didcot A (Coal powered) power station, which has been a source of secondary aggregate from nearby in South Oxfordshire in the form of ash, has now closed. Didcot B power station remains open, although it is powered by gas and thus does not produce secondary aggregates.

3.6.2 It should be noted that there are a number of energy from waste facilities, which have recently been approved, or are currently operational that are in relative proximity to West Berkshire. These are listed in the table below. These facilities are likely to produce bottom ash, which can be recycled for use as aggregate. The annual quantity produced from such facilities is likely to be much smaller than the volumes produced by the former power station at Didcot, so it is likely that the secondary aggregates will be used close to the source of arising and not necessarily travel into West Berkshire. There are no other known sources of secondary aggregate identified at present. As such, it is not believed that any significant quantities of secondary

aggregates are currently produced within West Berkshire. However, it is understood that minor amounts of secondary aggregates are imported to the authority, and are blended with recycled aggregates in the production of primary aggregate substitute materials.

- 3.6.3 West Berkshire minerals planning authority will continue to review this situation, in particular additional planning permissions, which may result in more secondary aggregate capacity being generated.

**Table 3.5: Nearby EFW facilities**

Site	Annual throughput (tonnes)	Status
Colnbrook, Energy from Waste plant, Slough	410,000	Operational
Ardley Energy from Waste plant, Oxfordshire	300,000	Benefit of planning permission and currently being constructed.
Chineham, Energy from Waste plant, Hampshire	102,000	Operational
Calvert, Energy from Waste plant, Buckinghamshire	300,000	Planning Permission

### 3.7 Summary

- 3.7.1 The level of recycled aggregates estimated to have been produced, and also consumed, within West Berkshire is understood to have increased over the past decade. In addition, it is estimated that the volume of recycled aggregate produced in West Berkshire is supporting a demand that extends beyond the authority area. The level of construction and demolition recycling capacity in West Berkshire is such that it is understood that construction and demolition waste is being imported into the authority, where it is processed to create recycled aggregates that are then used in West Berkshire, or exported.
- 3.7.2 Based on operator returns to WBC the estimated combined output of recycled aggregates in 2013 was some 293,990 tonnes, with an additional 71,014 tonnes of material sold for non-aggregate uses (landfill engineering/restoration material, and soils) being produced<sup>24</sup>. It is believed that the quantity of recycled aggregates produced in West Berkshire is significantly greater than the level of consumption of recycled aggregates (which has been calculated as a percentage of the land won aggregate need, see appendix C).
- 3.7.3 The overall construction and demolition waste recycling capacity in West Berkshire, as indicated by industry surveys (2013), is some 650,000 tonnes (this excludes an additional 105,000 tonnes of unimplemented capacity), for which a large proportion of that capacity remains available for future growth, given that only 365,000 tonnes of material was sold for aggregate and non aggregate uses in 2013.
- 3.7.4 There are no known sources of secondary aggregates within West Berkshire.

<sup>24</sup> Assumed figures have been used for Reading Quarry and Old Stocks Farm in 2013 due to a lack of response to survey requests.

## 4.0 Rail imported crushed rock and marine dredged sand and gravel

### 4.1 Introduction

4.2.1 All counties in the UK have to import aggregates from elsewhere, as the available geology within each county means that no single minerals planning authority area produces the exact profile of types of aggregate, in the exact amount consumed therein. The geological composition in West Berkshire means that the area needs to import supplies of crushed rock, as there are no sources of crushed rock in the authority area. There are also cross boundary movements of sand and gravel and of soft sand to ensure that the types of aggregates available to the local construction industry are in line with the types of aggregates that the construction industry needs, at the time it is needed and in the quantity required. There are also site specific issues, such as in the case of Mortimer Quarry, which is located in Hampshire and yet the highway network is such that all the vehicular movements associated with the site (and thus the minerals) head straight into West Berkshire, albeit that much of the aggregate is then understood to travel back into Hampshire.

4.2.2 Historic patterns of movements of aggregates are generally recorded between regions in the four yearly aggregates movements survey, the latest of which took place in 2005 (AM2005<sup>25</sup>) and 2009 (AM2009<sup>26</sup>). The four yearly movement survey, by DCLG, was due to be carried out and cover the year of 2013, however due to funding issues it was not carried out, the intention is that it will be undertaken in 2015 (covering the year of 2014). The data from the forthcoming four-yearly survey will be drawn upon in the next LAA (2014). Appendix D (Maps D.1 and D.2) show the estimated quantities of aggregates imported and exported from Berkshire in 2009 based on AM 2009.

4.2.3 Due to the method of recording mineral movements, the data is generally available, however sales of soft sand and of sharp sand and gravel are combined for commercial confidentiality purposes. The figures are also reported in groups of areas, generally larger than individual mineral planning authority areas, in this case the former county of Berkshire figures are often combined with the Counties of Oxfordshire and Buckinghamshire or the south east. In addition, only direct sales from quarries are tracked and not subsequent movements from offsite processing, production of products or sale via merchants to other locations where the aggregates eventually may be used. This means that not all movements of aggregates imported to/exported from West Berkshire maybe known, although it is generally expected that these secondary movements are likely to be smaller amounts than those recorded directly from the extraction site to the initial destination (with the possible exception of rail linked aggregate depots).

4.2.4 Overall, these reports<sup>27</sup> show that aggregate production within Berkshire, Oxfordshire and Buckinghamshire was relatively consistent in 2005 and 2009, while there was a general decrease in consumption of crushed rock (approximately 50% of which is reported as consumed in Berkshire in 2009). There was a considerable increase in the amount of marine sand imports into Berkshire, from almost zero in 2005 (1,000 tonnes imported into Berkshire, Oxfordshire and Buckinghamshire) to 98,000 tonnes

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<sup>25</sup> Collation of the results of the 2005 Aggregates Minerals Survey for England and Wales, DCLG and BGS, May 2007

<sup>26</sup> <https://www.gov.uk/government/publications/aggregate-minerals-survey-for-england-and-wales-2009-results>

<sup>27</sup> AM 2005 and AM 2009

to Berkshire alone in 2009 (16,000 tonnes to Oxfordshire and 0 tonnes reported for Buckinghamshire).

- 4.2.5 As the number of mineral sites within Berkshire is limited, it is possible that the importation of aggregate to one of the three aggregate railheads in Berkshire (two at Theale, West Berkshire and one at Colnbrook, Slough) is providing for an overall shortfall of land won mineral from sites within Berkshire. For 2009, it is clear that the level of imported hard rock sales in Berkshire was at a much greater rate than that of Buckinghamshire (an authority that is approximately 1/3 larger than Berkshire) and Oxfordshire (that has an authority area approximately 50% larger than Berkshire) individually even though the authority area of Berkshire is considerably smaller than that of either Buckinghamshire or Oxfordshire.
- 4.2.6 This pattern could be linked to number or capacity of railheads in each authority area. There are three rail head aggregate sites in Berkshire and all three of these sites are understood to have a greater capacity than the single railhead site in Buckinghamshire. This pattern could also be linked to the rail linkages to the authority areas, where the minerals originate, or the capacity of the railway network involved. In addition Oxfordshire has land won sources of hard rock, which may reduce the demand to import such materials. Alternatively material imported by rail into Berkshire may be being exported again via road to surrounding areas, this is considered quite likely given that the three railhead aggregate sites in Berkshire are all located in close proximity to the motorway network.

## 4.2 Production/Sales

- 4.2.1 The crushed rock imports to Berkshire (see appendix E) are mostly likely to be transported into one of the three main aggregate railheads (two being at Theale, West Berkshire and one at Colnbrook, Slough) or imported shorter distances from neighbouring mineral planning authority areas by road. Such movements may be due to high development demand within/proximate to Berkshire, proximate location of the railheads to the current market demands and limited availability to/ supply of crushed rock within the authority area.
- 4.2.2 It should be noted that the actual returns for the sales from the rail depots in West Berkshire are confidential due to them being commercially sensitive. However, two of the three mentioned aggregate importing rail depots in Berkshire are located within West Berkshire and as the three aggregate importing depot sites are all roughly the same size (see table 4.1 below), it has been assumed that approximately two thirds of the mineral imported by rail into Berkshire is imported for onward sale into West Berkshire. AM 2009 (table 10) confirmed that 861,000 tonnes of crushed rock and 98,000 tonnes of marine sand was imported and sold from sites in Berkshire in 2009. Taking the assumption that approximately two thirds of the mineral imported by rail into Berkshire is imported for onward sale into West Berkshire this equates to approximately 574,000 tonnes of hard rock sold in West Berkshire and 66,000 tonnes of Marine sand<sup>28</sup>.
- 4.2.3 In 2011 it was estimated that approximately 600,000 tonnes of aggregate was sold from the rail depots in West Berkshire, of which approximately 504,000 tonnes was

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<sup>28</sup> It was noted in the production of this LAA that the calculations given in last years LAA for the hard rock and marine sand sales based on the AM 2009 data was incorrect, and only accounted for 1/3<sup>rd</sup> of the total hard rock and marine sand sales instead of the assumed 2/3<sup>rd</sup> figure quoted.

hard rock, and approximately 96,000 tonnes was marine dredged sand and gravel<sup>29</sup>. Although the actual sales figures of hard rock and marine sand sold from the rail depots in West Berkshire are known for 2012 and 2013, it is not possible to publish this data without breaching confidentiality agreements. Equally as a Berkshire wide sales figure has not been published it is not possible to provide an estimate of the West Berkshire sales based on the Berkshire sales. Therefore it has been assumed, for the purposes of this LAA, that for 2012 and 2013 the level of sales of these construction aggregates from railhead sites in West Berkshire has remained static.

- 4.2.4 The demand for hard rock and marine aggregate imports is likely to be driven, to some degree, by major mineral utilising businesses, which are located within West Berkshire, demanding such aggregates to be imported into the area to meet their specific market need for the end product i.e. asphalt. These specific market forces are likely to result in an inflated mineral need within West Berkshire above that needed for the level of consumption for the area i.e. for house building, general construction etc. The four yearly movement survey was due to be carried out to cover 2013, however due to funding issues it was not undertaken, and the intention is that it will be undertaken the future and cover 2014. The data from the next movement survey will be drawn upon in the next LAA (2015) to further assist the understanding of this matter.
- 4.2.5 It is understood that the majority of the crushed hard rock imported into West Berkshire by rail originates from Somerset, and to a lesser degree, Gloucestershire. It is understood from the Somerset Local Aggregate Assessment (2013) that there are sufficient permitted reserves to maintain a 10 year landbank of hard rock reserves for over 41 years similarly it is understood from the Gloucestershire LAA (covering the period to the end of 2012) that there are sufficient permitted reserves to maintain a 10 year landbank of reserves to 2022. Therefore it is considered that there are no obvious reasons why these levels of imports will not continue. However, it should be noted that certain crushed rock sites within Gloucestershire are currently mothballed and others may run out of reserves and/or permissions expire in the next few years. Therefore looking at landbank figures alone does not necessarily consider productive capacity. Furthermore Gloucestershire does anticipate a shortfall in crushed rock during the proposed revised Mineral Local plan period (2016-2030) and has recently consulted upon further site options for potential allocation in the emerging mineral local plan. As such, whilst current supply patterns may well continue in the near future, until the draft mineral local plan is adopted longer-term supply options from Gloucestershire cannot be guaranteed.

### 4.3 Capacity

- 4.3.1 Of the two “aggregate depots” in West Berkshire one imports crushed rock that is used to produce asphalt and the other depot is a road to rail aggregate depot that imports primarily hard rock, together with some sand and gravel, by rail. It is understood that all of these imports are subsequently exported from the site by road, with the exception of a quantity of material used at the concrete batching plants that are located at the road to rail depot (such that the imported aggregates are exported by road as product). These railhead sites all have existing markets which they are

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<sup>29</sup> The Berkshire Aggregates Monitoring report for 2011 states that the three active rail depot in Berkshire sold some 900,000 tonnes of material, of which 84% was crushed rock and 16% was marine dredged. The best indicative estimate currently available for sales from the rail depots in West Berkshire for 2011 is to calculate two thirds of the total Berkshire figure, in line with two out of the three rail depots in Berkshire being in West Berkshire. Using the ‘Berkshire-wide’ percentages, it can then be estimated what the breakdown was, in terms of aggregate-type imported by rail.



serving, and there is no reason to suggest that these sites will not continue to supply these same markets for the foreseeable future.

4.3.2 Whilst there are 2 aggregate rail head sites in West Berkshire, there is also a third rail depot at Theale that is involved in the “aggregate industry”. This third site imports cement, and as such this site is not considered in this report as an aggregate railhead site. However the availability of large amounts of cement may result in an inflated demand for aggregates in the locality that are then used to make concrete.

4.3.3 Prior to being dissolved, the South East England Regional Assembly (SEERA) commissioned a report on Aggregate Wharves and Rail Depots in South East England<sup>30</sup>. This report did not include any specific detail for aggregate sales or information about sites capacities for reasons of confidentiality. The report did however suggest that Berkshire was receiving aggregates from the East Midlands, East of England, South West and Wales in 2006. The report concludes that considerable growth in rail freight demand can be expected up to 2030 and that additional capacity will be required, if these unconstrained forecasts are to be met. Significant railway lines where forecasted demand is likely to exceed existing freight path supply with potential specific impact on Berkshire include:

- Southampton – Reading – West Midlands
- GWML Reading to London
- East and West coast mainlines

4.3.4 The report concluded that the freight path capacity is likely to be the major restricting factor for further supply to the south east region. Assessments of the wharves and rail depots’ potential maximum capacity however, show that the maximum theoretical capacity at a south east level is sufficient to handle the forecasted growth in aggregates demands, subject to suitable safeguarding measures remaining or being enhanced, where necessary. The Padworth Sidings site was identified in the RMLP as a potential location for a new rail linked aggregates depot. However, part of the Padworth sidings site has been re-developed and recent works, undertaken by Network Rail as part of the electrification of the railway line, have now completely severed the Padworth sidings from the main line. The report provided the following details which are of relevance to this Local Aggregates Assessment:

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<sup>30</sup> Aggregate Wharves and Rail Depots in South East England. Prepared for SEERA by MDS Transmodal Limited, February 2009.

**Table 4.1: Details of Rail depot sites in the Berkshire and Hampshire**

Depot Name	Area (sq m)	Existing volume (tonnes)	Maximum Capacity (tonnes)
Theale Foster Yeoman **	20,600	Redacted	Redacted
Theale Hanson **	34,200	Redacted	Redacted
Colnbrook Foster Yeoman *	34,000	Redacted	Redacted
Eastleigh Foster Yeoman	16,000	Redacted	Redacted
Botley Foster Yeoman	12,800	Redacted	Redacted
Fareham Hanson	11,000	Redacted	Redacted
<b>Total based on operator returns <sup>31</sup></b>	128,600	2,090,000	3,800,000
<b>Estimated additional capacity from sites that did not respond <sup>32</sup></b>	-	617,000	617,000
<b>Total Rail Capacity of the South East including Kent, Medway and West Sussex</b>			7,197,000

Source: Aggregate Wharves and Rail Depots in South East England table 17, prepared for SEERA by MDS Transmodal Limited, February 2009. \* Site in Berkshire \*\* Sites in West Berkshire.

- 4.3.5 Although the actual existing capacity and maximum capacity of these railhead sites is commercially confidential, a broad estimate can be made in respect of the maximum capacity of each depot based on the area of the depot. This approach will not provide an accurate figure as each site is unique and a variety of factors will influence the actual capacity of a site, such as plant capacity, site layout, siding length etc, but it can give an indication of maximum capacity. By using this approach it suggests that each square metre of depot site equates to an approximate capacity of 29.5 tonnes, which suggests that the total maximum capacity of the two rail head sites in West Berkshire (Theale, Foster Yeoman (now operated by Aggregate Industries and United Asphalt) and Theale, Hanson) would be in the region of 1,619,284 tonnes.
- 4.3.6 These calculations, based on this very generalised assumption, suggest that, the three rail head sites in Berkshire were, in 2009 (when 1,257,000 tonnes of aggregates were reported as being imported to the whole of Berkshire by road and rail), operating well below the maximum capacity and re-affirms that the main constraining factor on an increase of rail imports of aggregates to West Berkshire is actually likely to be freight capacity on the rail network, as opposed to capacity at West Berkshire's rail sidings. It also confirms that the rail head depot sites in Berkshire have a large area in comparison to the majority of railhead sites across the south east (based on the responses received as part of this SEERA report).
- 4.3.7 Small volumes of marine dredged sand and gravel is known to be imported into West Berkshire, but it is not possible to distinguish the main methods of transport of the aggregate into, or subsequently out of, West Berkshire.

## 4.4 Summary

- 4.4.1 The majority of crushed rock imports to Berkshire are likely to be transported into the three aggregate railheads in Berkshire (two being at Theale, West Berkshire and one at Colnbrook, Slough). Of the two "aggregate depots" in West Berkshire one imports

<sup>31</sup> Total for Theale Foster Yeoman, Theale Hanson, Colnbrook Foster Yeoman, Eastleigh Foster Yeoman, Botley Foster Yeoman and Fareham Hanson

<sup>32</sup> Estimates of maximum capacity for Theale Lafarge (West Berkshire) and the following sites outside of West Berkshire: Banbury, Appleford, Woking, Bletchley, Thorney Mill and Salfords These are estimates as no details were provided by operators. Likely that these depots could also handle additional traffic.

crushed rock that is used to produce asphalt and the other depot is a road to rail aggregate depot that imports primarily hard rock, together with some sand and gravel, by rail.

- 4.4.2 It has been assumed that in 2013 the level of imported hard rock and marine aggregates sold from the rail depot sites in West Berkshire remained at two thirds of the level seen across the whole of Berkshire. As a Berkshire wide sales figure has not been published it is not possible to provide an estimate of the West Berkshire sales based on the Berkshire sales. Therefore it has been assumed that for 2012 and 2013 the level of sales of these construction aggregates from railhead sites in West Berkshire has remained static, based on the Berkshire wide data published in 2011.
- 4.4.3 Using this data is estimated that, in 2013, approximately 600,000 tonnes of aggregates was sold from the rail depots in West Berkshire. Of this 600,000 tonnes it is estimated that approximately 504,000 tonnes was hard rock and approximately 96,000 tonnes was marine dredged sand and gravel.
- 4.4.4 The broad estimated of the total maximum capacity of the two railhead sites in West Berkshire is 1,619,284 tonnes. In 2009 the quantity of aggregates imported to Berkshire by road and rail was 1,257,000 tonnes. This indicates that the railhead sites are likely to have been operating well below the maximum capacity. It could also be viewed that the main constraining factor on an increase of rail imports of aggregates to West Berkshire is actually likely to be freight capacity on the rail network.

## 5.0 Demand for aggregates

### 5.1 Introduction

5.1.1 An LAA is a tool that can be used to predict and review the demands placed upon aggregate minerals to ensure that minerals planning authorities provide an adequate and steady supply of mineral. This section looks at factors that may be associated with a change in the demand for aggregates in West Berkshire.

### 5.2 Demand related factors considered in the 2013 LAA

5.2.1 The 2013 LAA considered a number of demand related construction/economic factors from a National, Berkshire-wide, and West Berkshire-wide context. These have been outlined below that were considered as being possible indicators that may have been useful in determining future aggregate demand for West Berkshire:

- Forecasts contained in Draft Revised National Guidelines for Aggregate Provision in England: 2005-2020<sup>33</sup>
- Construction Industry Forecasts, Spring 2013.
- HM Treasury (May 2013),
- PricewaterhouseCoopers (PwC) (June 2013)
- Predicted housing completions from West Berkshire Annual Monitoring Reports.
- Predicted changes in economic growth through the use of Gross Value Added (GVA) calculations.

5.2.2 The forecasts were considered useful as providing an overall contextual picture to give an indication of the anticipated future aggregate demand. Generally the forecasts were indicative of 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.

5.2.3 Analysis within the 2013 LAA suggested that there was no apparent relationship between outputs of primary land won construction aggregates in West Berkshire and population growth for either the former County of Berkshire or West Berkshire. Therefore, whilst the population growth in West Berkshire was shown to be aligned to the national and regional pattern of population growth, it was considered that the apparent lack of linkage between population growth and land won aggregate sales in West Berkshire was such that national population growth predictions were unlikely to be suitable as a proxy to indicate a projected level of demand for land won minerals from West Berkshire.

5.2.4 It was also shown that primary aggregate outputs from sites within West Berkshire consistently declined over the period 2001 to 2007 despite the house building rate more than doubling over this period, suggesting that the level of house building in West Berkshire would not be a useful indicator of primary aggregate output levels.

5.2.5 Unfortunately it was only possible to calculate a figure for Berkshire's construction GVA up to 2009. For the years when information was available, there was a closer correlation noted between the outputs of land won aggregate from West Berkshire and construction GVA for the whole of Berkshire, which would indicate that output figures, from sites within West Berkshire, are predominantly a function of the overall

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<sup>33</sup>[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/7763/aggregatesprovision2020.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7763/aggregatesprovision2020.pdf)

level of activity in the wider construction industry rather than purely factors within West Berkshire.

5.2.6 In summary these indicators were generally found to be unsuitable to assess the projected level of demand for land won minerals from West Berkshire, and they will therefore not be utilised within this LAA.

5.2.7 After analysing these various methodologies within the 2013 LAA, it was considered that the ten year average of historic sales represented the most realistic supply system for West Berkshire to utilise in defining the need for land won primary aggregates in West Berkshire. This continues to be the preferred approach for this LAA (2014).

### **5.3 The National Infrastructure Plan**

5.4.1 To understand the wider demand for aggregates, based on construction, the National Infrastructure Plan has also been considered. Within the National Infrastructure Plan 2013 is the infrastructure pipeline which provides a strategic overview of UK infrastructure investment to 2020 and beyond. The infrastructure pipeline includes large infrastructure projects with a capital value of £50 million plus, and the overall value has increased from over £309 billion to over £375 billion. Most of the value of the pipeline is in the energy and transport sectors, however capital is also being allocated for communications, flood, intellectual capital, waste and water.

5.4.2 Projects mentioned within the improvement plan within 20-40 miles<sup>34</sup> of the authority area of West Berkshire include the upgrade of Reading Station (now nearing completion), and road improvements to the M3. There is a general commitment to complete essential maintenance to the national and local road network and to support development through removal of 'bottlenecks'. There is a commitment to continue the development of High Speed 2 (HS2) rail which may place demands on large quantities of mineral in surrounding areas resulting on minerals from further away being used to make up such increases in local demand.

### **5.4 West Berkshire Core Strategy and existing mineral uses**

5.4.1 The adopted West Berkshire Core Strategy (July 2012) contains proposals for the delivery of at least 10,500 homes over the plan period (2006 – 2026) at a rate of 525 net additional dwellings per annum. This rate of house building corresponds with the historic average rate of construction over the period since 2000. Two strategic sites are proposed, one of which, called Sandford, requires supporting infrastructure including schools, highway improvements and provision for retail facilities in the form of a local centre and business employment. The 2013 LAA considered the linkage between housing completions and aggregate sales and concluded that there was no direct link between housing completions in West Berkshire and land won aggregate outputs in West Berkshire. On the basis that the level of housing provision in West Berkshire is projected to remain at a similar level to that seen since 2000, this planned provision is considered unlikely to result in a requirement for any significant change to the demand for aggregates in West Berkshire.

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<sup>34</sup> A distance of 20 - 40 miles is suggested because this is the estimated distance over which the majority of the aggregate types produced in West Berkshire (recycled aggregates and land won sharp sand & gravel) are likely to be transported (however soft sand is understood to travel slightly further)

- 5.4.2 It should be noted that the revocation of the South East Plan may have an impact on the housing provision requirements for West Berkshire. The inspectors report following the EIP for the West Berkshire Core Strategy stated that the authority is to update the strategic housing market assessment within 3 years (to be agreed by relevant authorities which cover the market area) to meet the requirements of the NPPF. This is currently being undertaken, and may result in a review of the planned provision for housing, which in turn may increase the level of demand for aggregates in West Berkshire, although as detailed above there does not appear to be a direct linkage between housing provision and primary aggregate demand.
- 5.4.3 Although the West Berkshire Core Strategy (2012) does not identify any need for additional employment provision, it recognises that there is an imbalance in the types of employment provision currently available, and proposals to address this by shifting between offices and industrial provision could generate a demand for construction aggregates. The Core Strategy also identifies a number of infrastructure schemes to be implemented over the plan period, including:-
- Junction improvements along the A339 in Newbury, at Monks Lane, at the A343 Andover Road, and at the A34 / A343 south interchange.
  - Rail and highway improvements at Newbury Racecourse Road Site.
  - Improvements to Newbury Station.
  - Various upgrades to existing electricity and gas infrastructure across West Berkshire.
  - Upgrades to existing waste water infrastructure across West Berkshire, notably at Newbury/Thatcham and Sandford Park.
  - Sustainable Urban Drainage Systems.
- 5.4.4 This represents a commitment to an ongoing level of development over the plan period. Other development proposals which may have placed demand on greater aggregates supply within West Berkshire most recently include:
- development at Atomic Weapons Establishment, Burghfield,
  - the completion of the retail development at Parkway,
  - the regeneration of Thatcham town centre, and
  - the mixed development scheme at Newbury racecourse.
- 5.4.5 In respect of existing mineral users, the Beenham Tile Factory, located on the A4 approximately midway between Newbury and Reading, uses approximately 100,000 tonnes per annum of sand and gravel that is understood to primarily come from sites within West Berkshire. This tile factory is a strategic facility that manufactures concrete tiles that are used in developments across the whole of the South East of England. The rail linked asphalt plant in Theale is also a major user of primary aggregates in West Berkshire and is understood to utilise approximately 350,000 tonnes per annum of primary mineral (imported crushed rock). However like the tile factory, whilst some of the “product” manufactured will be used within West Berkshire a significant proportion is also exported for use in the surrounding area. This tile factory and asphalt plant have both operated for decades, and whilst it is assumed that these facilities will continue to place a level of “demand” on mineral resources in the authority, this level of demand is not anticipated to increase significantly, and therefore the “need” for these industries will be captured in the past 10 year sales.
- 5.4.6 The surrounding administrative areas of Reading, Wokingham, Wiltshire, Oxfordshire and Hampshire are also likely to make equivalent commitments to enable development, which will require mineral provision over their respective plan periods. It is assumed however, that each mineral planning authority is working to ensure a degree of net self sufficiency of mineral provision within their authority area (which



allows for relevant amounts of mineral to move across boundary areas to meet specific market demands). The only possible exception identified at this stage may be Reading, which is a relatively small urban authority that is understood to have limited primary aggregate resources available, meaning that reliance may need to be placed on alternatives sources such as imports or a greater use of recycled/secondary aggregates (see appendix D for broad details on levels of unconstrained reserves of primary construction aggregates in the areas around West Berkshire).

## **5.5 Summary**

- 5.5.1 It is apparent that the demand for aggregates in West Berkshire is likely to be driven by a variety of both local, and wider than local factors, such as housing growth and other development projects within and around the authority area. In addition existing industrial processes that utilise large volumes of aggregates also continue to inflate the level of demand for aggregates in West Berkshire.
- 5.5.2 However it is considered that there are no clear identifiable factors that may result in a significant alteration to the level of need for construction aggregates in West Berkshire in the foreseeable future.

## 6.0 When new sites are likely to be required

- 6.1 It will be challenging for West Berkshire to achieve the projected level of aggregate production estimated to be required in the near future because of the low level of productive capacity at the operational sites within the authority. In fact after 2015, only one of the currently operating quarries, Kennetholme Quarry, is expected to remain operational. Production at the recently permitted Wasing Lower Farm is considered unlikely to commence until 2015. Although this site has planning permission, there is a need to satisfy the pre-commencement conditions as well as obtain any other permits and consents and address other practicalities, such as installation of equipment and construction of the access.
- 6.2 To investigate this matter further an estimate has been made of the maximum production levels from current permitted sites year on year, along with the estimated remaining reserves. When considering the level of consented reserves and potential production capacities, it is apparent that it will be difficult for West Berkshire to meet the chosen managed aggregate supply system for West Berkshire (being the ten year average of historic sales). The results of this analysis are show in table 6.1 below:

**Table 6.1 – Estimated future outputs and reserves**

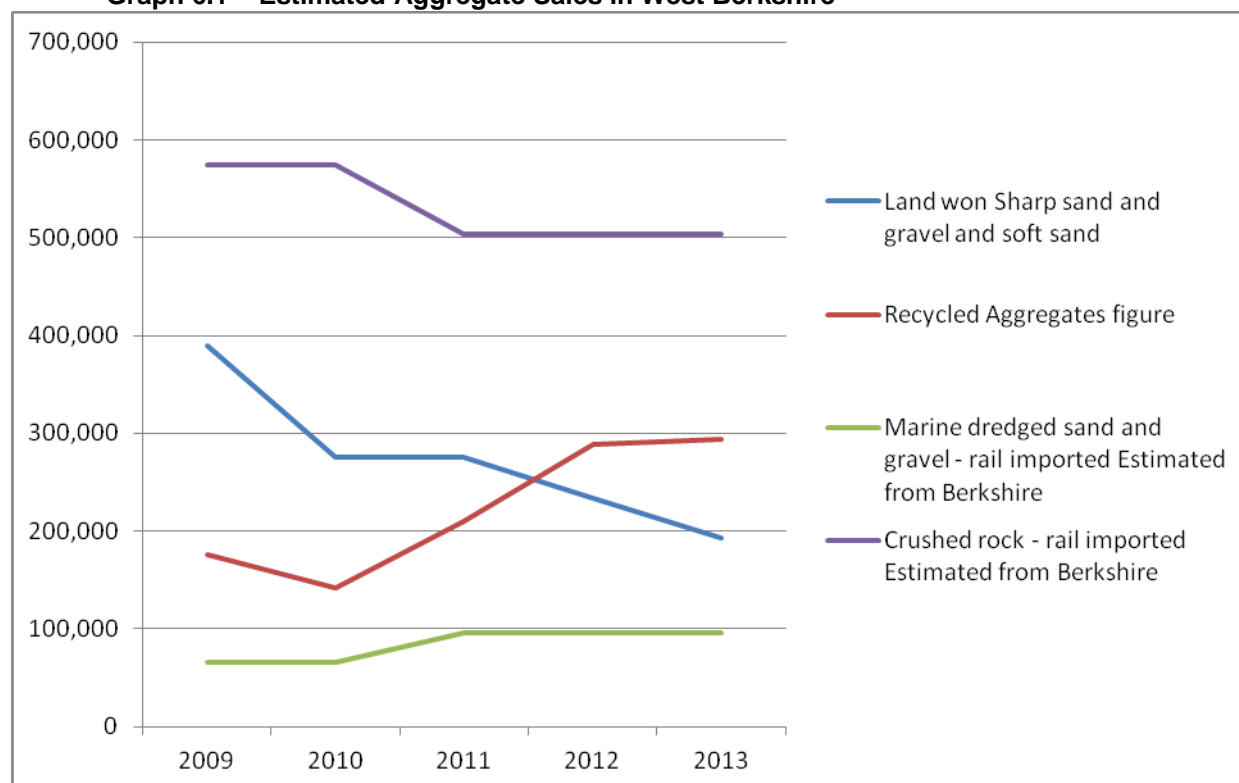
Year	Total reserves	Reserves in Yrs	Total possible production	Annual Need (MASS)	Yearly reserve shortfall	Yearly production shortfall
2013	3,346,600	8.37	193,265	399,683	548,819	-206,418
2014	3,153,335	7.89	180,000	399,683	355,554	-219,683
2015	2,873,335	7.19	282,900	399,683	75,554	-116,783
2016	2,392,341	5.99	370,000	399,683	-405,440	-29,683
2017	2,022,341	5.06	322,300	399,683	-775,440	-77,383
2018	1,700,041	4.25	200,000	399,683	-1,097,740	-199,683
2019	1,500,000	3.75	200,000	399,683	-1,297,781	-199,683
2020	1,300,000	3.25	200,000	399,683	-1,497,781	-199,683
2021	1,100,000	2.75	200,000	399,683	-1,697,781	-199,683
2022	900,000	2.25	200,000	399,683	-1,897,781	-199,683
2023	700,000	1.75	200,000	399,683	-2,097,781	-199,683
2024	500,000	1.25	200,000	399,683	-2,297,781	-199,683
2025	300,000	0.75	200,000	399,683	-2,497,781	-199,683
2026	100,000	0.25	200,000	399,683	-2,697,781	-199,683
2027	0	0.00	100,000	399,683	-2,797,781	-299,683
2028	0	0.00	0	399,683	-2,797,781	-399,683

- 6.3 These calculations indicate that the current level of permitted reserves (at the end of 2013) are projected to be sufficient to maintain the suggested 7 year landbank level

for 2014 and 2015, however after this date the landbank is likely to fall below the suggested 7 year level.

- 6.4 Table 6.1 also shows that the existing permitted site production levels are such that the level of production from the consented sites in West Berkshire would not be able to achieve a level that is close to the projected demand level derived in this LAA using the 10 year average sales approach (399,683 tpa). These matters could prove to constrain future development and inhibit the ability for West Berkshire to maintain the same level of demand moving forward.
- 6.5 This situation will be carefully monitored as it appears that it may not be possible for West Berkshire to meet the managed aggregate supply system for West Berkshire proposed by this LAA such that an alternative approach may need to be pursued.
- 6.6 However it is anticipated that the deficit of land won primary aggregates can, to some extent, be balanced by the very high levels of recycled aggregate production as well as through the high levels of imported aggregates, principally by rail. Graph 6.1 below shows the changes in the makeup of the overall aggregate mix seen in West Berkshire in recent years.
- 6.7 This graph shows a general decline in sales of land won sand and gravel extracted from within West Berkshire alongside a general increase in both recycled aggregate production, and the relatively static level of rail imported aggregates.

**Graph 6.1 – Estimated Aggregate Sales in West Berkshire**



Source: WBC operator returns (where operators have not responded, estimates or the 2012 figures have been used); Rail imported figures have been derived using indicative estimates to respect commercial confidentiality<sup>29</sup>

- 6.8 Over this period (2009 – 2013) it is estimated that the total amount of all construction aggregates produced / sold from sites in West Berkshire (land won primary, recycled, secondary and imported) has remained relatively stable ranging from 1.2 million

tonnes in 2009, with a decrease to around 1 million tonnes in 2010 and 2011 an increase back to 1.2 million tonnes in 2012 and a reduction to around 1 million tonnes in 2013.

- 6.9 As seen in the 2013 LAA the level of recycled aggregates produced in West Berkshire in the 2014 LAA once again exceeded the level of primary aggregate sales, suggesting that the shortfall in the supply of primary aggregates could be being replaced by the production and sale of recycled aggregates. As discussed earlier in the LAA it is considered that there is already additional capacity for recycled aggregate production that has consent, which is yet to be implemented. In addition a survey of operators suggested that the existing sites have the potential to deliver a greater level of capacity should the need arise, and should the raw materials (CDE waste) be available to create the recycled aggregate.
- 6.10 It is considered that there is currently sufficient capacity for the importation of material by rail. It is understood that the two existing rail fed aggregates sites in West Berkshire could accommodate a greater level of capacity and, at this stage, it is considered that there is no overriding need to deliver new railhead sites for the importation of construction aggregates into the authority.
- 6.11 In respect of land won primary aggregates, it is apparent that there is a need for new sites to come forward if West Berkshire is to maintain an ongoing supply of these materials at a similar rate to that which was previously experienced. Therefore it is considered important to develop the WBMWLP and to commence the identification of potential sites for future extraction as soon as possible. The public consultation for the Issues and Options stage of the WBMWLP was in January and February 2014. In conjunction with this consultation West Berkshire invited site specific proposals to be put forward for potential new, or expanded mineral extraction sites and waste management facilities. The authority is now in the process of reviewing the responses to the 'Issues and Options' consultation, and a planning assessment will be undertaken for each site-specific proposal put forward.

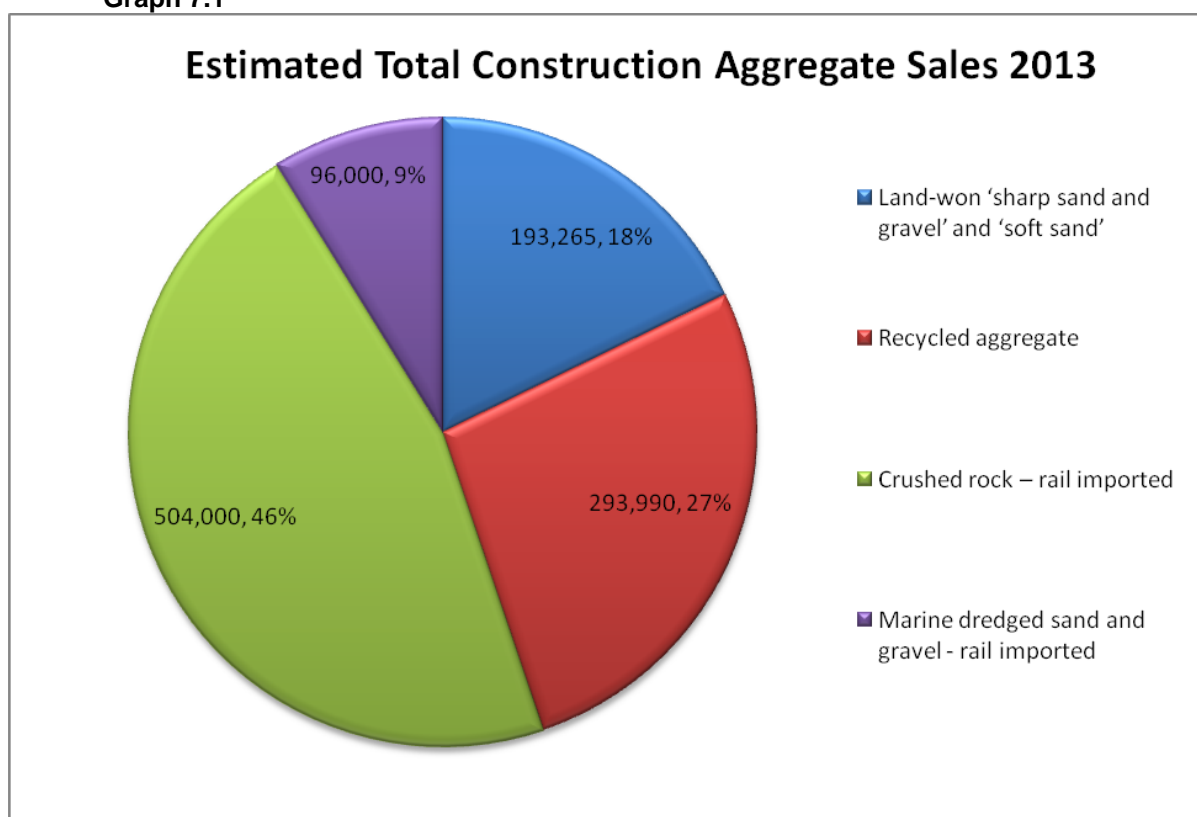
## 7.0 Conclusions

- 7.1 West Berkshire has seen declining sales of land won sand and gravel won in West Berkshire over the last ten years, which mirrors the downward trends of aggregate sales at the national level. There are no local considerations which indicate that the demand for sand and gravel in West Berkshire will increase significantly in the near future, or over the projected plan period. Consideration of the most recent three years sales indicates that demand is likely to continue at a lower level in the short term at least. Therefore, the average of ten years sales data, as recommended in the NPPF, is considered to be a realistic basis on which to calculate the annual supply requirement for West Berkshire. **The 10 year average sales of primary land won construction aggregates from sites in West Berkshire was 399,683 tpa at the end of 2013.**
- 7.2 This LAA concludes that, **at the end of 2013, West Berkshire had a landbank of aggregate minerals that was in excess of 7 years (standing at 8.37 years)** and this is expected to remain the case until around 2015. From 2016 onwards however, new minerals sites should be sought to ensure that an adequate and steady supply of primary construction aggregates is available. This is being progressed strategically via the emerging West Berkshire minerals and waste local plan document which is likely to identify preferred areas for mineral extraction. Speculative planning applications for new sites or extensions may also be received in the short term. If sales remain lower than the managed aggregate supply system for an extended period of time (as indicated by the 3 year average of sales), then the reserves will inevitably last for a greater period of time. The 3-year average sales figure is 233,983 tonnes and based on this figure, in 2013 the landbank of permitted reserves would be 14.3 years.
- 7.3 Future mineral reserve need for the potential plan period to 2036 (including a 7 year period beyond the end of the plan period) has been estimated at 11,990,490, based on the 10 year average sale managed aggregate supply system rate of 399,683 tpa. Once the level of already permitted reserves is deducted from this figure, this means that **there is a need for an additional 8,643,890 tonnes of primary construction aggregates to be found over the period of 2013 to 2043.**
- 7.4 The 2013 LAA concluded that the most appropriate way to derive the future demand for recycled aggregates was to ensure that provision was available to meet a level of demand that equated to at least 29% of the total primary aggregate demand for West Berkshire. This equated to a figure of 126,820 tonnes per annum. When updated for the 2014 LAA **this equates to a level of need for recycled aggregates of 115,908 tonnes per annum.**
- 7.5 **The actual level of recycled aggregates produced in West Berkshire was more than double this level at circa 300,000 tonnes in 2013.** Further, the level of recycled aggregates sold in West Berkshire exceeded the level of primary aggregates sales for the second year running (see graph 6.1 above). It is therefore considered that the consumption / demand (29%) figure should be an absolute minimum figure to be aimed for.
- 7.6 It is apparent that West Berkshire imports significant amounts of waste that are used to produce recycled aggregates, which are then used within West Berkshire or exported to surrounding areas. This matter will be kept under review as more data becomes available, but it is clear that the level of recycled aggregates produced in

West Berkshire makes up a significant amount of the total aggregates sales (estimated at 26% in 2012 and 27% in 2013) and this is expected to continue.

- 7.7 In 2013 the majority of the construction aggregate sold in West Berkshire was Crushed rock<sup>35</sup>, making up 46% of total sales. Recycled aggregate production made up 27% of the total aggregate sales in 2013 with Land won primary aggregates and rail imported marine sand<sup>36</sup> making up 18% and 9% respectively. This data is shown, along with tonnages on the following graph 7.1

**Graph 7.1**



- 7.8 With regard to rail based imports it is clear that, whilst site specific imports and sales data is confidential, the projected volume of primary aggregates imported into West Berkshire by rail is significant, and estimated to account for 55% of the total aggregates sales in 2013 (graph 7.1 above). It is assumed that not all of the imported aggregate sold from the two rail depots in West Berkshire is used in the authority area (for example it is understood that the rail linked asphalt plant distributes product to sites within a 40 mile radius). However, it is apparent that there is sufficient capacity at the existing rail depots in West Berkshire to meet any increased demand for rail imports in the longer term.
- 7.9 The availability of West Berkshire specific data on road based imports and exports is limited, although it is understood that there are flows of primary and recycled aggregates into, and out of, the authority as well as the exportation of rail imported crushed rock. Products manufactured from aggregates won in West Berkshire, as well as products manufactured using rail imported aggregates, are also known to be exported from West Berkshire to a wider area.

<sup>35</sup> As calculated in section 4 of the LAA

<sup>36</sup> As calculated in section 4 of the LAA



- 7.10 It is understood that the volume of marine won aggregates imported and used within West Berkshire remains limited (estimated at 9% of the total aggregates sales in West Berkshire in 2013). Like crushed rock it is understood that this aggregate is imported by rail, and sufficient railhead capacity is understood to exist.
- 7.11 The amount of secondary aggregates produced in West Berkshire is very limited and does not contribute to the overall supply of aggregates in West Berkshire. This will however, continue to be monitored.

## 8.0 Consultation

8.1 Prior to the publication of this local aggregates assessment it was subject to limited consultation with the following bodies, whilst still in draft format:

- The South East England Aggregates Working Party
- The South West Aggregates Working Party
- The Berkshire Unitary Authorities
- Neighbouring County and District Councils
- Somerset County Council
- North Somerset Council
- Gloucestershire County Council
- South Gloucestershire Unitary Authority

8.2 The results of this consultation are set out in this section of the LAA, with any changes undertaken as a consequence of the consultation process explained.

### SEEAWP - Approved the West Berkshire LAA

*Comment:* Concern was raised over the accuracy of the data in Table 3.3: Levels of C&D waste assumed to be imported into West Berkshire

*Response:* As stated in paragraph 3.4.2 the source of the data in table 3.3 should be treated with caution. For completeness the data for 2013 has been added to the final draft, following the release of waste data interrogator 2013.

The data in the table has been interrogated further and it has been revealed that in 2012 and 2013 a site that treats Inert / C&D waste within West Berkshire (Whitehouse farm) has been recorded as being located in Hampshire therefore the figures in table (derived from waste data interrogator) underestimate the level of inert waste treatment in West Berkshire by approximately 90,000 tonnes in both 2012 and 2013. In addition there is another inert waste treatment facility, that is understood to produce circa 200,000 tonnes of recycled aggregates per year (based on operator returns) but only minimal volumes of waste are recorded in the Waste Data Interrogator for this site. This information has been added to paragraph 3.4.2 to aid clarity on this matter, and a further caveat added to table 3.3.

Both the LAA for this year and the previous LAA produced by West Berkshire therefore utilise actual survey data for the figures for recycled aggregates produced in 2012 and 2013. Unfortunately prior to 2012 the authority has no actual survey data to rely upon and has to use other sources to derive estimates in an attempt to plot trends in recycled aggregate production in West Berkshire.

*Comment:* For clarity it was requested that all LAA's covering the period to the end of 2013 be referred to in a consistent manner (as LAA 2014, reflecting the date of publication).

*Response:* This suggested amendment has been incorporated into the final draft.

*Comment:* Concern was raised that no separate provision was being proposed for soft sand in the LAA.

*Response:* It is agreed that the LAA does not separate the sales data or need assessments of soft sand from sharp sand and gravel. This is due to confidentiality agreements preventing

the publication of West Berkshire specific data on soft sand, preventing the calculation of a separate need assessment. It is intended that the issues surrounding the need for, and provision of, soft sand will be addressed through the development plan process and the duty to cooperate.

### **Gloucestershire**

*Comment:* As suggested in paragraph 4.2.5 the Second Gloucestershire (2012) LAA does indicate that there are sufficient reserves to maintain the crushed rock landbank to 2022, but it should be noted that certain crushed rock sites within Gloucestershire are currently mothballed and others may run out of reserves and/or permissions expire in the next few years. Therefore looking at landbank figures alone does not necessarily consider productive capacity. Furthermore Gloucestershire does anticipate a shortfall in crushed rock during the proposed revised MLP plan period (2016-2030) and has recently consulted upon further site options for potential allocation in the emerging MLP. As such, whilst current supply patterns may well continue in the near future, until the draft MLP is adopted longer-term supply options cannot be guaranteed.

*Response:* These comments are acknowledged and incorporated into the final draft.

### **SWAWP**

*Comment:* It was acknowledged that SWAWP had no comments to make on the draft LAA and it was agreed that the Council should be informed accordingly.

### **Other notable changes from draft**

The final draft of the LAA has been update to include the latest information on waste published in the Environment Agency's Waste Data Interrogator for 2013 (in particular table 3.3)

The information on the level of sales of imported construction aggregates from rail head sites in West Berkshire has been updated due to the identification of calculation errors made when estimating the level of rail imported sales from AM 2009 in last years LAA.

## Appendix A: Estimate of West Berkshire recycled construction, demolition and excavation wastes

Parameter	DEFRA Estimates For England 2010			DEFRA Estimates for Construction, demolition and excavation waste in West Berkshire during 2010 (tpa)	Comments
	Construction and Demolition waste (tpa)	Excavation waste (tpa)	Construction, demolition and excavation waste (tpa)		
<b>Waste at Transfer/Treatment Facilities</b>					
MPA estimates of recycled aggregate produced from construction and demolition sector	34,816,000	N/A	34,816,000	116,592	Calculated as for Exemptions
Estimates of recycled soils produced from excavation sector	N/A	7,368,000	7,368,000	24,674	Calculated as for Exemptions
MPA estimates of total recycled aggregate:	34,816,000	7,368,000	42,184,000	141,266	
<b>TOTAL ARISING</b>					
<b>Construction and demolition aggregate</b>	34,816,000	7,368,000	42,184,000	141,266	
<b>Construction and demolition to waste transfer/treatment</b>	7,202,705	0	7,202,705	64,878	
<b>Construction and demolition to landfill</b>	53,373,999	14,501,192	19,838,591	12,448	
<b>Construction and demolition to exempt sites</b>	0	8,150,134	8,150,134	27,293	
<b>Total construction and demolition waste arisings</b>	47,356,104	30,019,326	77,375,430	245,884	

This table selects on the relevant information to aggregate recycling, please see Local Waste Assessment to view all estimates for construction, demolition and excavation wastes.

### Appendix B: Estimate of West Berkshire primary aggregate consumption 2002 to 2012 and comparison with West Berkshire's estimated sales

Year	Combined primary aggregate sales in England (tonnes) <sup>37</sup>	England Population <sup>38</sup>	Primary aggregate consumption per head in England (tonnes rounded)	West Berkshire Population <sup>39</sup>	Estimate of West Berkshire primary aggregate consumption (tonnes) based upon consumption per head in England	Estimated combined sharp sand and gravel and soft sand sales in West Berkshire (tonnes) <sup>40</sup>	Difference between estimated primary aggregate consumption and primary aggregate sales produced in West Berkshire (tonnes)
2003	151,974,000	49,925,517	3.04	146,351	445,495	510,000	64,505
2004	160,135,000	50,194,600	3.19	147,285	469,881	530,000	60,119
2005	151,430,000	50,606,034	2.99	148,219	443,520	490,000	46,480
2006	152,756,000	50,965,186	3.00	149,153	447,051	525,000	77,949
2007	150,059,000	51,381,093	2.92	150,086	438,328	592,500	154,172
2008	136,848,000	51,815,853	2.64	151,020	398,851	492,500	93,649
2009	106,195,000	52,196,381	2.03	151,954	309,155	390,000	80,845
2010	93,968,000	52,642,452	1.79	152,888	272,909	275,000	2,091
2011	103,462,000	53,107,169	1.95	153,822	299,672	275,000	-24,672
2012	94,674,000	53,493,729	1.77	154,486	273,412	233,684 <sup>41</sup>	-39,728
<b>Ten year averages</b>					379,827	431,368	51,541

<sup>37</sup> ONS AMRI (sharp sand and gravel, soft sand and crushed rock sales aggregated) 2013 data not currently available

<sup>38</sup> ONS <http://www.ons.gov.uk/ons/rel/pop-estimate/population-estimates-for-england-and-wales/mid-2012/index.html>

<sup>39</sup> ONS and <http://www.westberks.gov.uk/CHttpHandler.ashx?id=33665&p=0>

<sup>40</sup> Sources listed in paragraph 4.2

<sup>41</sup> Derived from actual AM2012 mineral operator returns for West Berkshire

**Appendix C - Estimate of West Berkshire alternative aggregate consumption 2002 to 2012**

Year	Estimated West Berkshire total primary aggregate consumption (tonnes)	Estimated recycling percentage for Great Britain <sup>42</sup>	WBC West Berkshire calculated recycled aggregate consumption (tonnes)	Estimated Total primary an secondary aggregate consumption for West Berkshire (tonnes)
2003	445,495	24%	106,919	552,413
2004	469,881	24%	112,771	582,652
2005	443,520	25%	110,880	554,400
2006	447,051	25%	111,763	558,813
2007	438,328	25%	109,582	547,910
2008	398,851	27%	107,690	506,540
2009	309,155	28%	86,563	395,718
2010	272,909	28%	76,414	349,323
2011	299,672	29%	86,905	386,577
2012	273,412	29%	79,289	352,701
Average	379,827	26%		

<sup>42</sup> Average difference between total aggregates and recycled aggregate for Great Britain, Market summary 1955 to 2012, MPA 2013 (email dated 16<sup>th</sup> August 2013). [http://www.mineralproducts.org/sustainability/pdfs/SD\\_Summary\\_Report\\_2011.pdf](http://www.mineralproducts.org/sustainability/pdfs/SD_Summary_Report_2011.pdf)  
[http://www.mineralproducts.org/sustainability/pdfs/2013\\_MPA\\_main\\_SD\\_report\\_single.pdf](http://www.mineralproducts.org/sustainability/pdfs/2013_MPA_main_SD_report_single.pdf)



## Appendix D: Review of minerals supply and demand for South East Sharp sand and gravel

County	Est. resource Not subject to environmental designation constraint (mt)	Est. resource subject to one environmental designation constraint (mt)	Est. resource subject to more than one environmental designation constraint (mt)	Mean working thickness (m)	Total resource area (ha) 0 environmental designations	Total resource area (ha) 1 environmental designation	Total resource area (ha) more than one environmental designation	Total resource area (ha)
Oxfordshire	2,091	419	41					
Buckinghamshire	1,058	113	25					
East Sussex	119	179	45					
Hampshire	1,059	289	545					
Medway	18	1	0					
Kent	531	192	190					
Milton Keynes	153	0	0					
Surrey	495	66	64					
West Sussex	401	178	23					
Bracknell Forest District Council	12	0	17	2.2	310	0	444	755
Reading Borough Council	15	0	0	3.3	254	0	0	254
Slough Borough Council	14	0	0	4.5	182	0	0	182
West Berkshire District Council	312	348	36	3.6	4,959	5,525	573	11,056
Windsor and Maidenhead District Council	195	0	2	5.7	1,954	2	22	1,977
Wokingham District Council	177	0	0	3.1	3,258	5	5	3,269
<b>Total for Berkshire</b>	<b>725</b>	<b>349</b>	<b>56</b>		<b>10,916</b>	<b>5,532</b>	<b>1,044</b>	<b>17,492</b>

**Soft Sand**

County	Est. resource Not subject to environmental designation constraint (mt)	Est. resource subject to one environmental designation constraint (mt)	Est. resource subject to more than one environmental designation constraint (mt)	Mean working thickness (m)	Total resource area (ha) 0 environmental designations	Total resource area (ha) 1 environmental designation	Total resource area (ha) more than one environmental designation	Total resource area (ha)
Oxfordshire	559	0	25					
Buckinghamshire	285	0	0					
East Sussex	10	1	0					
Hampshire	1,022	317	1,237					
Medway								
Kent	1,695	422	168					
Milton Keynes	190	0	0					
Surrey	461	1,486	487					
West Sussex	355	853	202					
Bracknell Forest District Council								
Reading Borough Council	23	0	0	10	144	0	0	144
Slough Borough Council	5	0	0	11.5	28	0	0	28
West Berkshire District Council	321	983	23	11.5	1,745	5,345	123	7,213
Windsor and Maidenhead District Council	339	0	5	11.5	1,842	0	27	1,869
Wokingham District Council	183	0	0	11.5	997	0	0	997
<b>Berkshire</b>	<b>872</b>	<b>983</b>	<b>28</b>		<b>4,756</b>	<b>5,345</b>	<b>150</b>	<b>10,251</b>

Source – British Geological Survey







## Glossary

Term	Definition
AMR	Authority Monitoring Report
Alternative Aggregates	A grouping of Secondary and recycled aggregates
AONB	Area of Outstanding Natural Beauty
AWP	Aggregate Working Party
BGS	British Geological Survey
C&D	Construction and Demolition waste
CDEW	Construction, Demolition and Excavation waste
DCLG	Department of Communities and Local Government
DEFRA	Department of Environment, Food and Rural Affairs
EA	Environment Agency
Land won Aggregates	Primary construction aggregates won from land (quarried)
LAA	Local Aggregate Assessment
LAA 2013	LAA covering the 10 year period ending in 2012 (published in 2013)
LAA 2014	LAA covering the 10 year period ending in 2013 (published in 2014)
Marine Aggregates	Primary construction aggregates won from the sea (dredged)
MASS	Managed Aggregate Supply System
MPA	Mineral Planning Authority
Mt	Million tonnes
Mtpa	Million tonnes per annum
NPPF	National Planning Policy Framework
NPPG	National Planning Policy Guidance Website
NWDAONB	North Wessex Downs AONB
ONS	Office of National Statistics
Recycled Aggregates	Aggregate materials recovered from construction and demolition processes and from excavation waste on construction sites.
RMLP	Replacement Minerals Local Plan for Berkshire
Secondary Aggregates	Aggregates derived as a by-product of other quarrying and mining operations, including colliery spoil, china clay waste, slate waste; power station ashes, incinerator ashes and similar products.
S&G	Sand and Gravel
SEEAWP	South East England Aggregate Working Party
SWAWP	South West Aggregate Working Party
SEERA	South East England Regional Assembly
SEP	South East Plan
SSSI	Site of Special Scientific Interest
Tpa	Tonnes per annum
UA's	Unitary Authorities
WBMWLP	Emerging West Berkshire Minerals and Waste Local Plan
WDI / EA WDI	Waste Data Interrogator / Environment Agency Waste Data Interrogator.

If you require this information in an alternative format or translation,  
please call 01635 42400 and ask for the Minerals and Waste Planning  
Policy Team.

**West Berkshire Council**  
**Planning and Countryside**

Council Offices  
Market Street  
Newbury  
RG14 5LD

T: 01635 519111  
F: 01635 519408  
E: [mwdpd@westberks.gov.uk](mailto:mwdpd@westberks.gov.uk)  
[www.westberks.gov.uk/mineralsandwaste](http://www.westberks.gov.uk/mineralsandwaste)

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