

West Berkshire Minerals and Waste Plan

Local Aggregates Assessment

November 2020

West Berkshire Local Plan



West Berkshire
COUNCIL

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West Berkshire District Council Local Aggregate Assessment 2020 DASHBOARD									
	Sales (t) & Trend 2019	Average 10 year Sales (t) 2010-2019 & Trend	Average 3 year Sales (t) 2010-2019 & Trend	LAA Rate (t) (Proposed)	Reserves (t)	Landbank (years)	Allocations (years)	Capacity (t)	Comments
Sharp Sand and Gravel	42,883 ↑	128,581 ↓	52,684 ↓	189,233	2,567,500	13.6	N/A	100,000*	Sales at historically low levels – year on year sales show slight increase. Reserves level around 2.56 million tonnes. 2018 LAA rate recommended to remain in place.
Soft Sand	16,530 ↓	27,652 ↓	13,459 ↓	43,730	0	0.0	N/A	0	Sales very low. WB's only soft sand site worked out in 2019 – no reserves remaining. 2018 LAA rate recommended to remain in place.
All Sand and Gravel	59,413 ↑	156,233 ↓	66,143 ↓	232,964	2,567,500	11.0	N/A	100,000*	Average level of sales continues to decline. Sales at very low levels. No remaining soft sand reserves. Reserves level around 2.56 million tonnes. 2018 LAA rate recommended to remain in place.
Crushed Rock	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No hard rock producing sites in West Berkshire.
Recycled Aggregates	344,645 ↑	293,510 ↑	328,637 ↓	328,637 (3 yr average)	N/A	N/A	N/A	744,250	Survey data only available from 2012 – 2019. Potential capacity level well above sales. Sales are more than double the predicted WB demand level. No supply issues identified.
Secondary Aggregates	Confidential	N/A	N/A	N/A	N/A	N/A	N/A	N/A	In 2019, substandard blocks from Forterra Thermalite were used in the manufacture of concrete blocks.
Marine Sand and Gravel	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No wharf sites so zero landings in West Berkshire (some marine material imported by rail).
Rock Imports by Sea	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No wharf sites so zero landings in West Berkshire.
Rail Depot Sales (Sand and Gravel)	116,574 (based on 3yr average) ↑	87,456 ↑	116,574 ↑	116,574	N/A	N/A	N/A	1,026,500	Sales data based on 3 year average to ensure confidentiality. Sales of marine sand and gravel and 3 year average increasing. LAA rate based on previous 3 years' sales average. N.B. No return for 2019 so 2018 sales figure used.
Rail Depot Sales (Crushed Rock)	783,075 ↓	629,885 ↑	840,266 ↑	840,266	N/A	N/A	N/A		2019 sales have decreased in relation to higher levels of the previous two years. However, both the 10 year and 3 year average sales increased again. LAA rate based on previous 3 years' sales average. N.B. 2019 sales data for one site based on 2018 sales due to lack of return.
General Comments	<p>2019 saw a further decline in 3 year and 10 year average sales of land-won construction aggregates due to declines in reserves at operational sites, and possibly due to an increase in sales of rail imports such as marine sand and gravel and crushed rock. Sales of recycled aggregates increased slightly in 2019 compared with 2018 though this is based on an assumption that sales levels from one significant operator were the same as 2018 due to a lack of survey return. Landbanks indicate a pressing need for soft sand - to be addressed through the new Minerals and Waste Local Plan. Although the landbank suggests healthy reserves of sharp sand and gravel, the majority of this is bound up in a single site that has yet to commence production, and hence limiting available production capacity. Aggregate was imported to the railheads at Theale, where three are currently operational (one depot is utilised by two operators, resulting four depot 'sites'). Some uncertainty over actual sales levels from railheads due to one operator not supplying an estimate of sales. No supply/capacity issues identified for recycled aggregates.</p> <p>* Sand and gravel capacity figures are based on combination of theoretical outputs as limited by the amount of remaining permitted reserve.</p>								

1.0 Executive Summary

1.1 Background

- 1.1.1 The National Planning Policy Framework (NPPF, 2019) places a requirement on mineral planning authorities to prepare an annual local aggregate assessment (LAA). This is the eighth LAA that has been produced for West Berkshire and it has been produced in line with the approach set out in paragraph 207 of the NPPF and the Guidance provided in the National Planning Policy Guidance Website (NPPG). Consideration has also been given to the Planning Officers Society / Mineral Products Association (POS/MPA) guidance on the production of LAAs (as updated May 2017), and South East Aggregates Working Party (SEEAWP) Supplementary Guidance on Local Aggregates Assessments¹.
- 1.1.2 This LAA covers the period to the end of 2019. The LAA considers the demand and supply issues around the four main sources of construction 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 and marine sand and gravel that is imported to rail head sites. This LAA also aims to provide an assessment of the current state of the mineral 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 Local Plan (MWLP).

1.2 Aggregates in West Berkshire

- 1.2.1 West Berkshire's main construction aggregate deposit is sharp sand and gravel, suitable for most types of concreting purposes, and therefore an important material for the construction industry. There are also deposits of soft sand (building sand), suitable for use in making mortars and plasters.
- 1.2.2 Recycled aggregates created from the treatment of construction and demolition wastes are also produced in West Berkshire. In 2019, there were a number of permitted construction and demolition waste recycling facilities in operation, mostly operating under permanent permissions. There are no notable sources of secondary aggregates in the district.
- 1.2.3 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. This is done through the main aggregate railheads at Theale, where three are currently operational (one depot is utilised by two operators, resulting four depot 'sites'). Small, but increasing volumes of marine dredged sand and gravel are also known to be imported into West Berkshire, through the district's rail depots. It should be noted that these rail depots are an important sub-regional supply hub as aggregates delivered to these depots are utilised beyond West Berkshire.

1.3 Land Won Sand and Gravel

- 1.3.1 Sales of land won aggregates in West Berkshire have been declining over the past decade, and this is reflected in the 10 year sales average which has been declining in turn. In 2019 it was 128,581 tonnes for sharp sand and gravel and 27,652 tonnes for soft sand (156,233 tonnes for combined sand and gravel); these are the lowest levels reported by the authority's LAAs.
- 1.3.2 The factors influencing supply for land won sand and gravel were: Sites in West Berkshire producing construction aggregates; levels of reserves; and, current

¹ <http://documents.hants.gov.uk/see-awp/SEEAWP-SuppLAAGuidance-July2019.pdf>

operational capacity. From this, it was shown that despite a relatively large reserve base, operational production capacity is limited in West Berkshire, and may prove to constrain supply in the district. Environmental constraints are also relevant, as 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 (AONB).

- 1.3.3 Other relevant local information was also considered as to whether it might be appropriate to deviate from the past 10 year sales average in planning for the supply of land won construction aggregates in West Berkshire. Growth factors considered were: population change, economic/national construction/national aggregates forecasts, infrastructure projects and local industry. Constraints considered were: environmental constraints and decline in operational aggregate sites and reserves in West Berkshire. Alternative aggregate supplies were also considered. It was determined that future demand for aggregates is likely to be incremental in nature, not likely to be above that in the previous 10 years and therefore adequately captured in a rolling 10 year sales average. In addition, environmental constraints and alternative aggregate supplies were not considered to be significant enough to require a revision of the 10 year sales average.
- 1.3.4 However, the decline in land-won aggregate producing sites and reserves in West Berkshire has been considered to have suppressed sales in relation to demand in recent years and particularly again in 2019. This is due to the fact that only two sites were operational in 2019 following exhaustion of reserves at a site in 2018, and, of these two, one was worked out in 2019, and the other is nearing the end of its available reserves. Therefore, consistent with the 2019 LAA, it is considered that relying on the past 10 year sales average may not be sufficient to plan for a steady and adequate supply of sand and gravel West Berkshire. Due to this, as proposed in the 2019 LAA, it is recommended that the 2018 LAA rates should remain in place (189,233 tpa for sharp sand and gravel and 43,730 tpa for soft sand). This situation will need to be monitored in future to determine whether these rates remain appropriate, particularly if additional sites become operational and levels of sales again increase.
- 1.3.5 In assessing the balance between supply and demand, separate landbanks were calculated, which show that the sharp sand and gravel landbank in West Berkshire is 13.6 years, and the soft sand landbank is 0 years (due to reserves being exhausted in 2019). Additional sources of these aggregates, particularly soft sand, will need to be secured in order to maintain a steady and adequate supply as required by the NPPF. Therefore it is considered important to continue to develop the West Berkshire Minerals and Waste Local Plan that will include the identification of potential sites for future extraction. An additional need for approximately 840,000 tonnes of sharp sand and gravel and 790,000 tonnes of soft sand has been identified over the Plan period 2022 to 2037 (See Table 8.5).

1.4 Recycled and Secondary Aggregates

- 1.4.1 Levels of recycled aggregate sales are shown to have been increasing since 2008, and in 2019 were estimated at 344,645 tonnes; estimates of consumption have been more variable. Supply options considered were sources of construction and demolition waste and production capacity at recycled aggregate facilities. It is understood that construction and demolition waste has historically been imported for treatment in West Berkshire, indicating that supply of raw materials to produce recycled aggregate has not historically been an issue. It is considered that the most appropriate way to meet increasing demand, and encourage the supply of recycled aggregates, is to ensure adequate provision is made to meet recent levels of sales (3

year average). This equates to a level of need for capacity to recycle 328,637 tonnes of aggregates per annum. This is recommended as the LAA rate for recycled aggregates. The current operational capacity to produce recycled aggregates in West Berkshire is 669,250 tonnes per annum while there is potential capacity to deliver approximately 744,250 tonnes per annum overall. This indicates that there are no capacity issues which would hinder being able to meet current demand.

- 1.4.2 In 2019, substandard blocks from Forterra Thermalite were used in the manufacture of concrete blocks, which is regarded as secondary aggregate.

1.5 Rail Imported Crushed Rock and Marine Aggregates

- 1.5.1 West Berkshire does not produce any crushed rock indigenously, nor are there any marine landing sites. As such, these aggregates are imported to the rail depots within the district at Theale. Sales of both crushed rock and marine aggregates have been shown to be increasing since at least 2009. The 10 year sales average for crushed rock is 629,885 tonnes, and the 3 year average is 840,266 tonnes. The LAA rate is recommended as the 3 year average sales of 840,266 tpa. The 10 year sales average for marine sand and gravel is 87,456 tonnes, and the 3 year average is 116,574 tonnes². The LAA rate is recommended as the 3 year average sales of 116,574 tpa.
- 1.5.2 Crushed rock is mainly imported from Somerset, and no supply issues have been identified with this arrangement. Marine aggregates are mainly imported from landings at London Wharves, and although no supply issues have been identified, the continued safeguarding of London wharves and infrastructure will be necessary to ensure the security of this supply. In terms of capacity at West Berkshire's rail depots, estimated capacity (1,026,500 tonnes per annum) is above the combined LAA rates for rail imported crushed rock and marine sand and gravel (956,840 tonnes). When considered against levels of sales in 2019 (902,374 tonnes of crushed rock and marine sand and gravel), the depots appear to be operating below capacity. It will be essential to safeguard this infrastructure in future to ensure current levels of sales are able to be maintained in order to satisfy demand.

1.6 Future Addendum to this LAA

- 1.6.1 At the time of writing, the latest MHCLG Aggregate Minerals survey (that take place approximately every four years) was underway. Once the results of this survey are available (anticipated in Spring 2021) an addendum to this LAA will be prepared that takes account the results of this survey. The main impact of this survey could be to affect conclusions regarding imports and exports of aggregate which are currently based on surveys undertaken in 2009 and 2014.

² Marine aggregates values are based on 2018 sales being rolled forward for use as 2019 sales as data for 2019 not received.

2.0 Introduction

- 2.1 The purpose of a Local Aggregate Assessment (LAA) is to assess the demand for, and supply options of construction aggregates for a Mineral Planning Authority area, to ensure that an appropriate provision of these minerals can be maintained, as required in paragraph 207 of the National Planning Policy Framework (NPPF) (2019)³:
- 'Minerals planning authorities should plan for a steady and adequate supply of aggregates by:*
(a) preparing an annual Local Aggregate Assessment, either individually or jointly, to forecast future demand, based on a rolling average of 10 years' sales data and other relevant local information, and an assessment of all supply options...'
- 2.2 Local Aggregate Assessments have been produced by West Berkshire District Council since 2013. This LAA covers the calendar year of 2019 and the assessment provided in this report follows the approach set out in paragraph 207 of the NPPF and the accompanying Planning Practice Guidance (NPPG)⁴. Consideration has also been given to the POS/MPA LAA Guidance document⁵ and the SEEAWP Supplementary Guidance on Local Aggregates Assessments⁶.
- 2.3 The data used in the preparation of this report predominantly comes from the annual monitoring of aggregate sales in West Berkshire for the South East Aggregates Aggregate Working Party (SEEAWP). The Aggregates Monitoring (AM) survey collects annual sales data from active mineral extraction sites, minerals wharves, minerals rail depots and recycled aggregate processing sites. Additional data used, where relevant, includes the following sources:
- The Annual Minerals Raised Inquiry Survey (where available), previously undertaken by the Ministry of Housing, Communities and Local Government (MHCLG), 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 undertaken by the British Geological Survey (BGS) on behalf of MHCLG (where available);
 - Annual Monitoring Reports and LAAs prepared by Mineral Planning Authorities; and
 - Data and information on mineral resources held by the BGS and the Crown Estate.
- 2.4 The collation of 2019 data took place during 2020 and so was affected by restrictions due to the Covid-19 pandemic. This meant that in a few cases data was not fully reported by the industry, however it is considered that this LAA still represents a robust update of the 2019 LAA.
- 2.5 This LAA provides an assessment of the current state of supply and demand related to aggregate minerals in West Berkshire, comprising land-won sand and gravel and soft sand, recycled aggregates, and rail-imported marine sand and gravel and crushed rock. This will be used to inform the emerging Minerals and Waste Local Plan (MWLP) covering the period 2022 - 2037⁷ by providing an estimate for the provision of an appropriate aggregate mineral landbank over the plan period. The LAA will continue to be updated annually and used as a means of calculating the landbank in future years. The landbank is taken as a material consideration in the

³ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf

⁴ <http://planningguidance.planningportal.gov.uk/blog/guidance/minerals/planning-for-aggregate-minerals/>

⁵ http://www.planningofficers.org.uk/POS-Library/POS-Good-Practices/Practice-Guidance-on-The-Production-and-Use-of-Local-Aggregate-Assessments_536.htm

⁶ <http://documents.hants.gov.uk/see-awp/SEEAWP-SupplAAGuidance-July2019.pdf>

⁷ The plan period may alter over the course of the consultation upon, and development of, the West Berkshire Minerals and Waste Local Plan but for the purpose of this local aggregate assessment a plan period to 2037 has been assumed.

assessment of planning applications during the plan period, as well as being an indicator in the review process, as to whether the adopted Plan, or individual parts of the Plan need to updated⁸.

⁸ Reviews at least every five years are a legal requirement for all local plans (Regulation 10A of the Town and Country Planning (Local Planning) (England) Regulations 2012).

3.0 Land Won Sand and Gravel

3.1 Geology and Landscape in West Berkshire

- 3.1.1 The bedrock geology of West Berkshire is characterised by four main geological formations: Bagshot Beds, Reading Beds, London Clay and Chalk.
- 3.1.2 The superficial geology of West Berkshire includes deposits of sand and gravel comprising:
- Plateau Gravel
 - Valley Gravel
- 3.1.3 The geology in West Berkshire produces the following type of construction aggregates:
- Sharp Sand and Gravel (suitable for most types of concreting purposes)
 - Soft Sand (also called 'building sand', it is suitable for mortars and plasters)
- 3.1.4 Geologically speaking, sharp sand and gravel is a very recent deposit. It is predominantly found along the Kennet River valley, and also in river terrace deposits, which are the remnants of raised floodplains. Soft sand is much older, and in West Berkshire it principally occurs in the Reading Formation, a bedrock deposit outcropping in the higher ground above the Kennet Valley. The Formation is predominantly clay bearing, but also contains sand beds.
- 3.1.5 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 (AONB).
- 3.1.6 Information on the general extent of the deposits of sand and gravel, chalk and clay in West Berkshire is shown in the simplified geological map in Figure 3.1, which also shows the locations of active quarries, recycled aggregate sites and aggregate rail depots.

3.2 Demand Indicators

Production/Sales

- 3.2.1 When determining the rate at which demand is to be satisfied by a steady and adequate supply of aggregates, the NPPF 2019 (para 207) requires this to be based on an assessment of the previous 10 years rolling sales average and other relevant local information. Planning guidance also suggests that the 3 year average is considered to identify whether it might be appropriate to increase supply (PPG Minerals Paragraph: 064 Reference ID: 27-064-20140306).
- 3.2.2 The past 10 years' sales of sharp sand and gravel and soft sand are shown in Table 3.1 and represented in Figure 3.2, and the 10 year and 3 year sales averages are shown in Table 3.2.
- 3.2.3 Separate sharp sand and gravel and soft sand sales have been published since 2016. Sales figures were previously combined due to confidentiality issues, and sales figures prior to 2016 are still combined to protect the confidentiality of past operators.

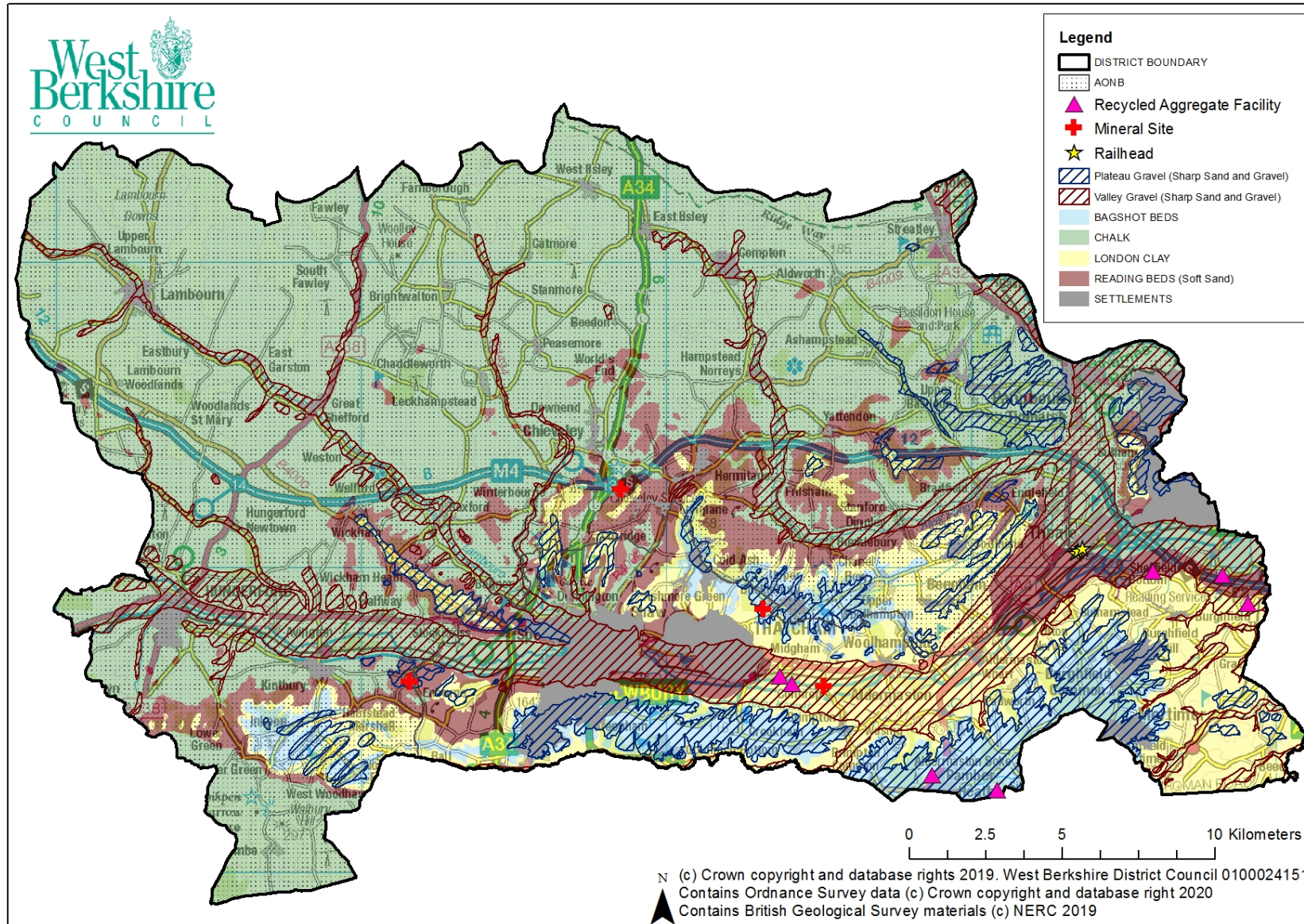


Figure 3.1 - Geology Resources and Mineral Infrastructure in West Berkshire

Table 3.1 - Past 10 Year Construction Aggregate Outputs in West Berkshire

Year	Sharp Sand and Gravel	Soft Sand	Total
2010	confidential	confidential	264,614
2011	confidential	confidential	244,975
2012	confidential	confidential	234,006
2013	confidential	confidential	198,745
2014	confidential	confidential	157,205
2015	confidential	confidential	152,188
2016	104,990	7,185	112,175
2017	81,993	2,054	84,047
2018	33,177	21,792	54,969
2019	42,883	16,530	59,413

Source: West Berkshire District Council Aggregates Monitoring Surveys.

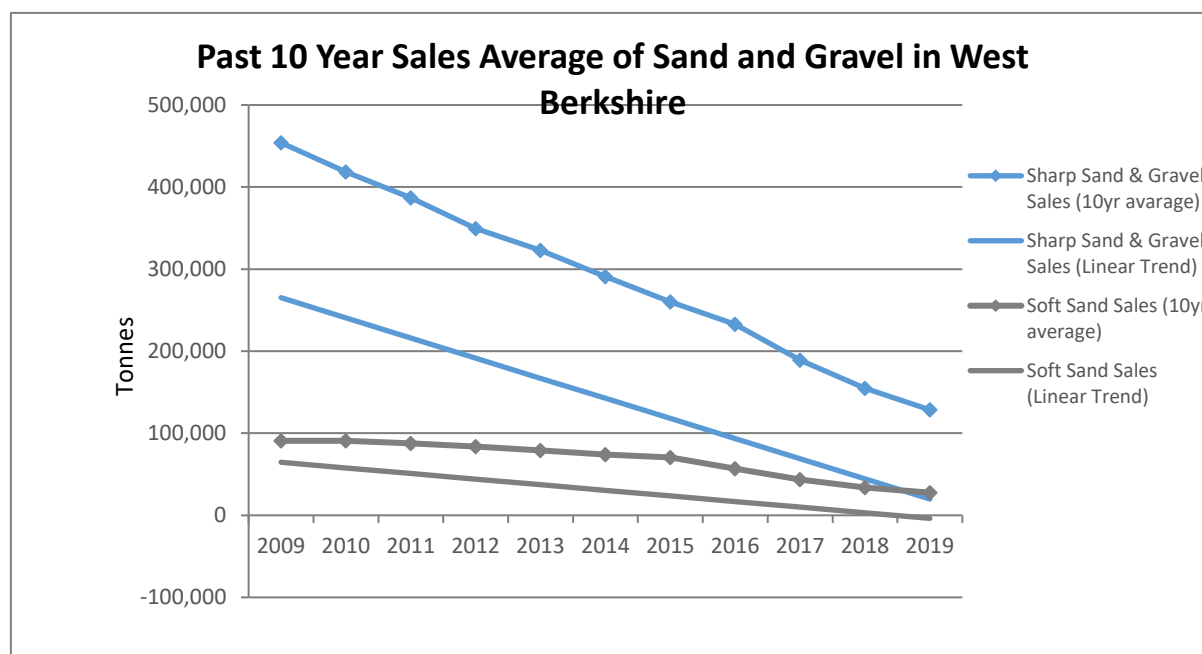


Figure 3.2 - Linear Trend for Past 10 Years Sales and Actual 10 Year Average Sales of Sharp Sand and Gravel and Soft Sand in West Berkshire. Source: West Berkshire District Council.

3.2.4 Figure 3.2 illustrates that, in recent years the level of sales of sharp sand and gravel and soft sand have been below the rolling 10 year average of sales. The rolling 10 year average of sales for both aggregates and sales of sand and gravel have also declined markedly in recent years.

3.2.5 The past 10 year average and past 3 year average of sales for soft sand, sharp sand and gravel and total sand and gravel are shown in Table 3.2. The 3 year averages for both sharp sand and gravel and soft sand are below the 10 year averages, and therefore do not serve to indicate that supply should be increased.

Table 3.2 – 10 and 3 Year Averages for Land Won Sharp Sand and Gravel and Soft Sand

2010 - 2019	10 Year Sales Average	3 Year Sales Average
Sharp Sand and Gravel	128,581	52,684
Soft Sand	27,652	13,459
Combined	156,233	66,143

3.2.6 The pattern of primary aggregate output decline in West Berkshire generally reflects the pattern of overall decline in primary aggregate outputs seen across the South East from 2008 - 2013. However, in recent years (2013 – 2018⁹) sales in the South East have been increasing (Figure 3.3), whereas sales in West Berkshire have continued to fall. This is due to the closure of extraction sites and depletion of reserves in the remaining operational sites in the district and no new substantive applications.

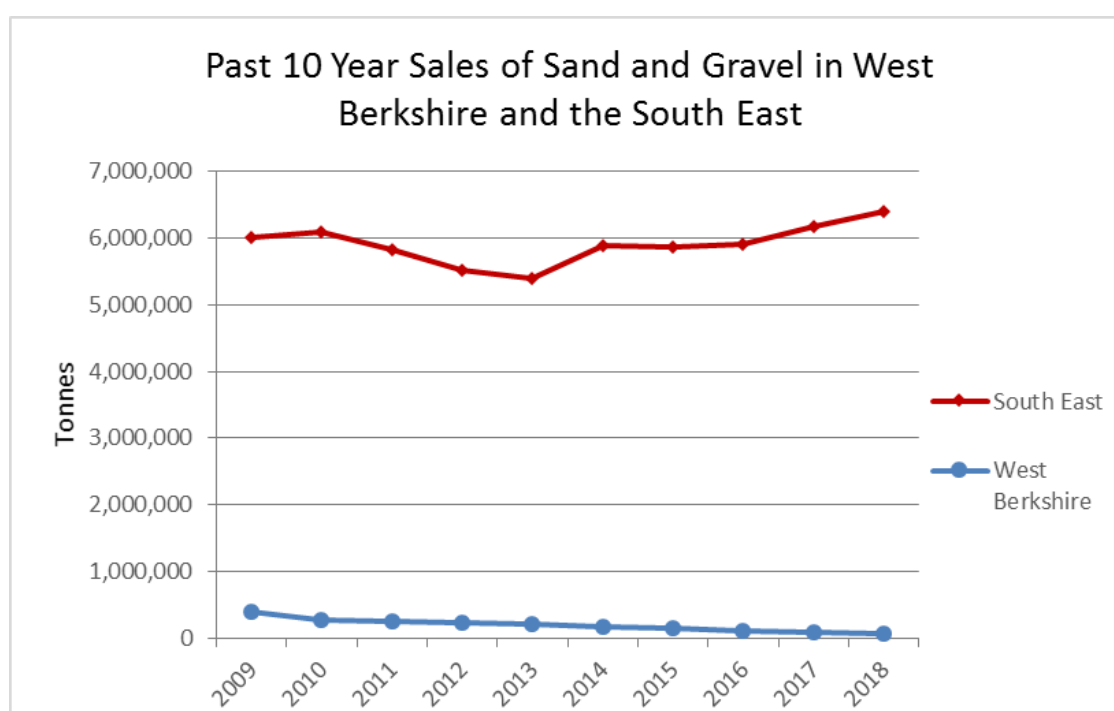


Figure 3.3 - South East Sales of Sand and Gravel. Source: South East England Annual Monitoring Report (2018).

Imports/Exports

3.2.7 There are cross boundary movements of construction aggregates which are dictated by market demands, ensuring that the types of aggregates available to the local construction industry are in line with the types of aggregates that it needs, at the time it is needed, and in the quantity required. In general, it is expected that each Mineral Planning Authority should seek to meet its needs for land won aggregates from indigenous sources where possible. MPAs also need to take account of demands from other areas where mineral might not be present and in doing so plan to provide for mineral provision within their authority area which allows for relevant amounts of mineral to move across boundary areas to meet specific market demands.

3.2.8 Imports and exports reflect part of the demand situation for construction aggregates within an MPA area. This is because imports reflect demand within the area that has

⁹ Note that at the time of initial drafting sales data for the South East was not available

not been met indigenously, and exports reflect demand for aggregates in another area that have not been supplied from within that area. Together, sales, imports and exports generate the total consumption within an MPA area (primary sales + imports – exports = total consumption).

- 3.2.9 Import/export and consumption data is only available approximately every 4 years when data is published by the Ministry of Housing, Communities and Local Government as part of the Aggregate Minerals (AM) survey undertaken by the British Geological Survey (BGS), the most recent being in 2014¹⁰. The data from these surveys is generally only reported at the Berkshire-wide level and sand and gravel data is also combined rather than having separate figures for sharp sand and gravel and soft sand.
- 3.2.10 At the time of writing, a further MHCLG Aggregate Minerals survey was underway. Once the results of this survey are available (anticipated in Spring 2021) an addendum to this LAA will be prepared that takes account of this survey.
- 3.2.11 The summary of import/export and consumption data for Berkshire in 2009 & 2014 is shown in Table 3.3. This table shows that sales and imports of sand and gravel increased from 2009 to 2014, however export figures also increased and therefore overall consumption dropped. It also shows that in 2009 and 2014 Berkshire was a net exporter of sand and gravel, as sales figures were above consumption figures, and in 2014 they were nearly double total consumption.

Table 3.3 – Sand and Gravel Import/Export (all sources) and Consumption Data for Berkshire 2009 & 2014

	Sales	Imports	Exports	Consumption
2009	840,000	298,000	331,000	807,000
2014	1,051,000	353,000	803,000	601,000

- 3.2.12 The sources of land won sand and gravel consumed in Berkshire in 2014 are shown in Table 3.4. Clearly, a high proportion of land won sand and gravel consumed came from Berkshire itself (West Berkshire and Windsor and Maidenhead).

Table 3.4 - Sources of Land Won Sand and Gravel Consumed in Berkshire 2014

Source MPA	Percentage	Tonnes
Indigenous		
Berkshire		
West Berkshire	20-30%	120,200 – 180,300
Windsor and Maidenhead	20-30%	120,200 – 180,300
Imports		
South East		
Hampshire	10-20%	60,100 – 120,200
Oxfordshire	10-20%	60,100 – 120,200
Surrey	1-10%	6,010 – 60,100
Buckinghamshire	1-10%	6,010 – 60,100
Kent	<1%	<6,010
South Downs National Park,	<1%	<6,010
West Sussex	<1%	<6,010

¹⁰ At the time of initial drafting a further AM survey was being undertaken that will provide data for the period 2015 to 2019. The findings of this survey will be incorporated into the next LAA produced in 2021. Prior to publication of LAA2021, and depending on when the findings are made available, an addendum to this document will be published which sets out findings related to West Berkshire.

Elsewhere		
Wiltshire	10-20%	60,100 – 120,200
Gloucestershire	1-10%	6,010 – 60,100
Cambridgeshire	1-10%	6,010 – 60,100
Hertfordshire	1-10%	6,010 – 60,100
Devon	<1%	<6,010
Central Bedfordshire	<1%	<6,010
Essex	<1%	<6,010
Total Indigenous Consumption		248,000
Total Imports		353,000
Total Consumption		601,000

Source: AM 2014 Source of Primary Aggregates by Sub-region – Percentage Categories (2016), BGS.

3.2.13 Table 3.4 shows that 248,000 tonnes (41%) of land won sand and gravel consumed in Berkshire in 2014 originated from Berkshire Authorities, and 353,000 tonnes (59%) was imported. The main sources of land won sand and gravel from outside the county in 2014 were Hampshire, Wiltshire and Oxfordshire – all neighbouring authorities.

3.2.14 The destinations of exports of land won sand and gravel from West Berkshire in 2014 are shown in Table 3.5. It can be seen that the majority of exports from West Berkshire are consumed elsewhere in Berkshire or elsewhere in the South East, with smaller amounts being consumed in Hampshire, Surrey, Oxfordshire, Wiltshire and Swindon, Warwickshire, London and West Sussex.

Table 3.5 – Exports of Land Won Sand and Gravel from West Berkshire in 2014

Destination of Minerals Won from West Berkshire	Tonnes
Berkshire	120,116 – 180,249
Unknown but somewhere in the South East	7,690 – 76,900
Hampshire and the Isle of Wight	<8,820
Surrey	<7,630
Oxfordshire	<7,590
Wiltshire and Swindon	<5,390
Warwickshire	<4,750
Unknown but somewhere in Greater London	<1,280
West Sussex	<990

Source: AM 2014 Source of Primary Aggregates by Sub-region - Percentage Categories (2016), BGS.

Consumption

3.2.15 Consumption figures for primary aggregates, including land won sand and gravel can only be obtained approximately every four years when import/export data is published by the Department for Communities and Local Government as part of the Aggregate Minerals (AM) survey undertaken by the British Geological Survey (BGS). The most recently undertaken survey was in 2014 (a more recent survey is being undertaken in 2020 but the findings are not yet available). Additionally, this data is not available at the West Berkshire level as the main reporting unit is for the former county of Berkshire.

3.2.16 The most recently available survey findings indicate that consumption of land-won sand and gravel has decreased on a Berkshire-wide level from 2009 to 2014 (from 807,000 tonnes to 601,000 tonnes). Although these figures are only accurate at a Berkshire-wide level it is likely that West Berkshire has generally followed this trend. It is therefore possible to estimate consumption of sand and gravel within West Berkshire based on its proportion of the Berkshire-wide population in 2009 (18.0%)

and 2014 (17.7%). This equates to 145,620 tonnes of land-won sand and gravel consumed within West Berkshire in 2009, and 106,377 tonnes consumed in 2014 (Table 3.6).

Table 3.6 - Estimates of Sand and Gravel Consumption in West Berkshire 2009 and 2014.

Sand and Gravel Consumption	2009	2014
Berkshire – AM Survey Total	807,000	601,000
West Berkshire – Proportion of Berkshire Estimate (based on AM survey)	145,620	106,377

Source: Collation of the Results of the 2014 Aggregate Minerals Survey 2009 and 2014 Survey (Table 11), British Geological Survey, ONS.

3.2.17 In terms of soft sand, several methods to estimate consumption in West Berkshire have been provided in Appendix C. These estimates range from 4,662 – 31,788 tonnes per annum. In terms of sharp sand and gravel, if the estimates of soft sand consumption are removed from the total estimate of West Berkshire sand and gravel consumption in Table 3.6 (106,377 tonnes in 2014), this equates to between 74,589 and 101,715 tonnes per annum for sharp sand and gravel consumption.

3.2.18 A further method of estimating consumption can be used that takes the proportion of sand and gravel consumed per head of population in Great Britain, and applies this to West Berkshire. This has been calculated for 2018 (the most recent year for which data is available) and is shown in Table 3.7 below. This shows that the estimated level of sand and gravel consumption in West Berkshire in 2018 was 153,771 tonnes.

Table 3.7 - Estimate of Sand and Gravel Consumption in West Berkshire in 2018

Sand and Gravel Sales in Great Britain	62,597,000 ¹¹
Great Britain Population	64,553,900 ¹²
Sand and Gravel Consumption per head in Great Britain	0.97
West Berkshire Population	158,527 ⁷
Estimated Sand and Gravel Consumption in West Berkshire	153,771

3.2.19 If estimated levels of consumption of soft sand consumption provided in Appendix C (4,662 – 31,788 tonnes) are removed from the estimate of sand and gravel consumption in Table 3.7, this equates to between 121,993 and 149,109 tonnes of estimated sharp sand and gravel consumption.

3.3 Supply Options

Sites

3.3.1 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.

¹¹ UK Minerals Yearbook 2019 Edition (BGS)

<https://www.bgs.ac.uk/mineralsuk/search/downloadSearch.cfc?method=viewDownloadsByCategory&panelNumber=4>

¹² ONS Population Mid-year Estimates (2018):

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland>

- 3.3.2 Over the past two decades, West Berkshire has seen a decline in the number of sites producing land won primary aggregates alongside the decline in sales. This is also reflected in a Berkshire-wide drop in the number of active sand and gravel sites over the same period. In 2001, there were 13 quarries in operation in West Berkshire producing primary aggregates and in 2019 this had dropped to two active¹³ sites with one of these sites exhausting its reserves during the year.
- 3.3.3 Table 3.8 provides details of the operational sites in West Berkshire, and also 'inactive' site (sites with permission for mineral extraction, but where they either have not yet commenced, or reserves remain but were not worked in 2019). Operational sites are also shown on Figure 3.1.

¹³ Active site is defined in this LAA as a site with planning permission for construction aggregate extraction where minerals have been worked during the year being reported upon.

Table 3.8 - Active and Inactive Sand and Gravel Sites in West Berkshire (2019)

Site Name	Site Operator	Type of Aggregate	Site Notes	Comments
Active				
Harts Hill	Grundon	Hoggin – lower quality sand and gravel used as fill and generally sold as dug.	Materials are transport to the processing plant at Colthrop.	Small operation. Application to extend the period of working was approved in 2018. There is no tonnage limit on annual output, although there is a maximum number of HGV's (25 per day, limiting output to circa 140,000 tpa). Reserves of 100,000-tonnes remaining (31.12.19 – based on operator returns). Permission granted to extend extraction from 31 st December 2020 to 30 th June 2021.
Copyhold Farm	Raymond Brown	Soft Sand	In AONB. 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.	Approved under RMLP policy 15. Commenced production in 2006. Extension approved under RMLP policy 15 to provide materials for Beenham. An additional extension of approximately 40,000 t was permitted in 2017. Conditions limit the production output to 60,000 tpa. No reserves remaining (31.12.19 – based on operator returns). Site worked out in 2019.
Inactive				
Craven Keep	Earthline	Sharp Sand & Gravel	-	Inactive, small remaining reserve of 55,000 tonnes, with two years remaining for extraction.
Moore's Farm	Caversham Project Management Ltd.	Sharp Sand gravel	-	Active inert waste recycling facility, however inactive in terms of mineral extraction. Small remaining reserve of approximately 10,000-15,000 tonnes required to be extracted by 31 st December 2023. No limit on production.
Lower Farm, Wasing ¹⁴	Lafarge Tarmac & Marley	Sharp Sand & Gravel	-	Extraction of 2.4 mt of sharp sand and gravel at a rate of 200,000 tpa. The planning permission has been implemented but extraction has yet to commence.

Source: West Berkshire District Council - Planning application information and annual Aggregates Monitoring Surveys.

Reserves

- 3.3.4 Figure 3.4 shows that reserves declined markedly from 2001, to an all-time low in 2012. However, the granting of planning permission for the extraction of 2.4 million tonnes (mt) of sharp sand and gravel from Lower Farm at Wasing in 2013 has

¹⁴ <http://publicaccess.westberks.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=M4U2FVRD0EA00>

dramatically increased the amount of available reserves in West Berkshire (although this permission has been implemented, extraction has yet to commence on this site).

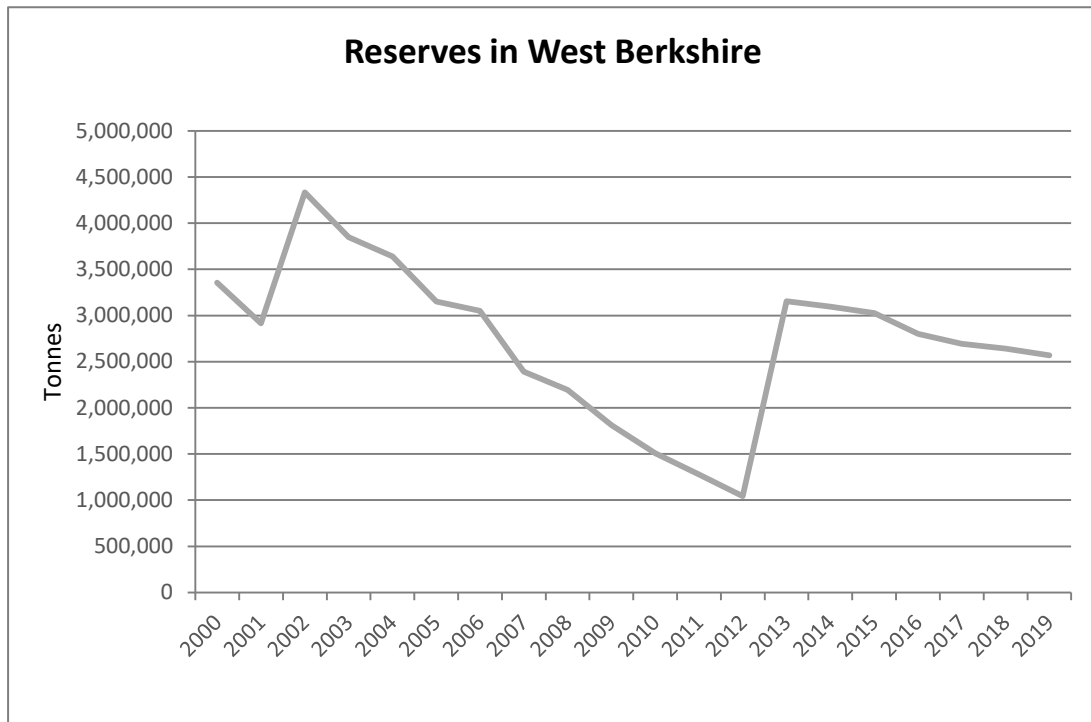


Figure 3.4 – Aggregate Reserves in West Berkshire. Source: West Berkshire District Council - Annual Aggregates Monitoring Surveys.

3.3.5 Whilst Figure 3.4 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 located in a single site that has been implemented but has yet to commence production. Permitted reserves at the end of 2019 totalled 2,567,500 tonnes, all of which were sharp sand and gravel with no soft sand reserves remaining.

4.0 Recycled and Secondary Aggregates

4.1 Recycled and Secondary Aggregates in West Berkshire

- 4.1.1 Recycled aggregates are obtained from the processing of construction and demolition waste and secondary aggregates are aggregates derived as a by-product of other quarrying, mining or industrial operations.
- 4.1.2 Recycled aggregates have historically been 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. This matter will be kept under review, as advances in recycling techniques, such as aggregate washing facilities and advances in sorting, screening and blending operations can facilitate the production of a higher quality material, which may be able to replace more and more primary minerals. Such washing facilities have been permitted at sites in West Berkshire. In addition, construction techniques are also evolving to ensure that the minimum amount of primary material is utilised.
- 4.1.3 Regarding secondary aggregates, Forterra Thermalite produce an autoclaved aerated building block largely from Pulverised Fuel Ash, cement and lime at its facility in Thatcham. Substandard blocks are crushed into a fine dust (secondary aggregate) and used in the manufacture of concrete blocks. This figure was confidential in 2019. Also there are a number of energy from waste facilities currently operational in relative proximity to West Berkshire, such as Ardley Energy from Waste plant in Oxfordshire and Colnbrook (Lakeside) Energy from Waste plant in Slough. These facilities produce Incinerator Bottom Ash (IBA) which can be recycled for use as aggregate.

4.2 Demand Indicators

Production/Sales

- 4.2.1 The data sources for recycled aggregate for the south east are regarded as less robust than the information collected for primary aggregates. The figures are collected yearly, as part of the aggregate monitoring survey carried out by each Mineral Planning Authority, but the response rate for these surveys is often lower than the response rate for 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.
- 4.2.2 The output/sales of recycled aggregates in 2019 has been estimated as 344,645¹⁵ tonnes, while 31,936 tonnes of material for non-aggregate uses (landfill engineering/restoration material, and soils) was also produced.
- 4.2.3 As can be seen from Figure 4.1, recycled aggregate sales in West Berkshire have been increasing over the last 10 years for which data is available. There was a larger increase between 2015 and 2016, which has not continued, but if this 2016 figure is taken as an anomaly, recycled aggregate sales have still continued to rise over the 10 year period. The average of sales for this period is 281,949 tonnes, an increase of approximately 62% from 2009. The past 3 year average is 328,637 tonnes, and reported sales in 2019 (344,645) were nearly double those of 2009.

¹⁵ Note that this value is an estimate as no return was received from a significant operator for 2019

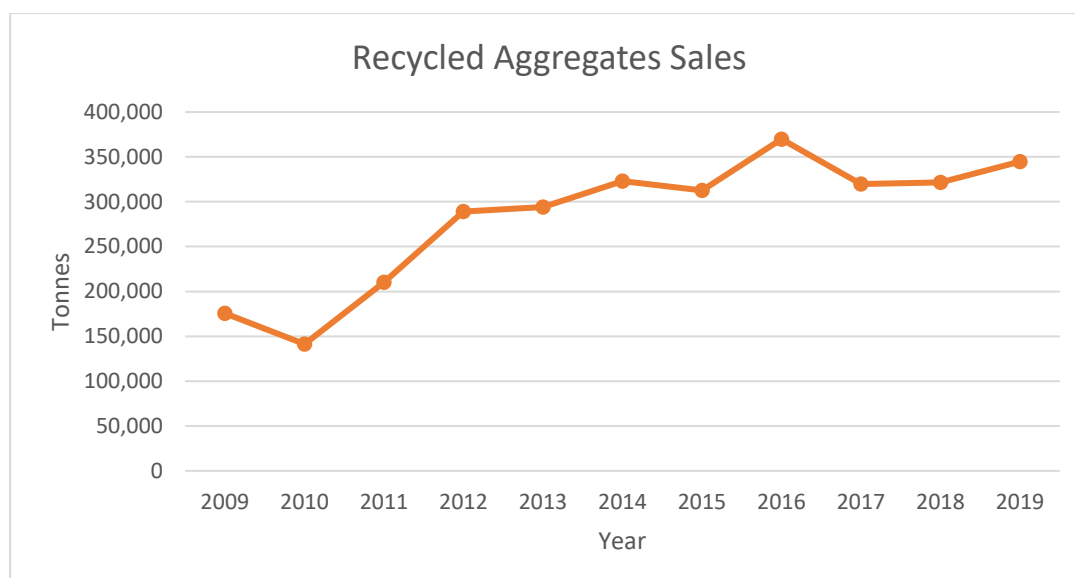


Figure 4.1 - Recycled Aggregate Sales in West Berkshire. Source: West Berkshire District Council Aggregate Monitoring Survey Returns (2012 – 2019) and DEFRA methodology of 89% treated C&D waste (2008 – 2011).

Recycled Aggregate Utilisation

- 4.2.4 A further method for estimating the use of/demand for recycled aggregates in West Berkshire can be made by applying a national rate of utilisation of recycled aggregates, as a proportion of total aggregates used in the construction industry. Recycled and secondary aggregates are estimated to represent approximately 30% of the total market for aggregates in Great Britain¹⁶ and in 2019 it was 29%¹⁷.
- 4.2.5 The national rate of utilisation percentages have been applied to the estimated total primary aggregate consumption figures for West Berkshire (sand and gravel and crushed rock), to calculate an estimate of the amount of recycled aggregate consumed in West Berkshire. This method has also been used to estimate a combined primary and recycled aggregates consumption estimate for West Berkshire. This has shown (Appendix A) that in 2018 (the most recent year for which data is available), an estimated 180,654 tonnes of recycled aggregate was consumed in West Berkshire.
- 4.2.6 The estimated consumption figure for recycled aggregates of 180,654 tonnes is significantly lower than 2019 sales figures for recycled aggregates (344,645 tonnes), suggesting that the remainder is exported out of the district. Therefore in order to provide the recycled aggregate capacity required to continue recent levels of sales it is recommended to use an average of sales rather than estimates of consumption to determine future demand and encourage supply of these aggregates.
- 4.2.7 The last 10 year average of sales of recycled aggregates is 292,585 and the average for the last 3 years is 328,637 tonnes. Given the national priority to first seek to take account of the contribution recycled aggregates can make to the supply of materials before considering extraction of primary materials, (NPPF para 204) it would be

¹⁶ Long-term Aggregates Demand and Supply Scenarios, 2016 – 2030 (Mineral Products Association) http://www.mineralproducts.org/documents/MPA_Long_term_aggregates_demand_supply_scenarios_2016-30.pdf

¹⁷ Sustainable Development Report 2019 (Mineral Products Association) https://mineralproducts.org/documents/MPA_SD_Report_2019.pdf - See Appendix A of this LAA

prudent to use the higher of these figures (3 year average) in planning for the supply of recycled aggregates.

4.3 Supply Options

Construction and Demolition (C&D) Waste Arisings

- 4.3.5 In March 2012, DEFRA published a new methodology¹⁸ 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. An attempt has been made to apply that methodology to West Berkshire using available data sources in the Local Waste Assessment 2020 (based on 2018 data). The methodology estimates that approximately 350,000 tonnes of CDE waste was produced in West Berkshire in this year (see Appendix B for methodology). The estimates of CDE waste since 2014 using this methodology have fluctuated between around 350,000 – 570,000 tonnes (Table 4.2), suggesting supply of raw materials to provide recycled aggregates is not constrained.

Table 4.2 - Estimates of CDE Waste in West Berkshire based on modified 2012 DEFRA Methodology.

Year	CDE Estimate (tonnes)
2014	439,268
2015	500,096
2016	569,441
2017	458,619
2018	347,089

- 4.3.6 Due to the fact that there are no restrictions upon the movement of C&D waste across administrative boundaries and that excavation waste is less able to be recycled for use as aggregate, it is considered that the volume of construction and demolition waste sold as recycled aggregates in West Berkshire is considered a more representative figure to ensure that adequate capacity is planned for, rather than the amount of CDE waste arising in the district, as also concluded in paragraph 4.2.7.

Sites

- 4.3.7 At the end of 2018, West Berkshire had eight sites with planning permission to manage inert waste and produce recycled aggregates. Their planning status, sales, and theoretical operational capacities are shown in Table 4.3. Seven of the sites were operational in 2019. The location of recycled aggregate facilities in West Berkshire are shown on Figure 3.1.
- 4.3.8 Table 4.3 shows that the level of actual recycled aggregates production is significantly lower than the theoretical levels of production capacity. This is likely to be 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. In addition, this data excludes any recycled aggregate production on development sites, through the use of mobile plant.

¹⁸ 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

Table 4.3 - Recycled Aggregate Facilities in West Berkshire

Site Name	Recycled Aggregate produced (tonnes)	Recycled Aggregate Production Capacity (tpa)	Status at End of 2019 ¹⁹
Reading Quarry Recycling	195,292	275,000	Operational
Whitehouse Farm	87,265	150,000+	Operational
Theale Quarry WRTF	0	90,000	Operational
Colthrop, Avon site	35,000	93,000	Operational
Colthrop, Grundons	2,474	10,000	Operational
Moores Farm	24,613	35,000	Operational
Old Stocks Farm	0	16,250	Operational
Copyhold WTS *	0	75,000+	Non-operational
Total Operational Capacity		669,250+	
Total Permitted Capacity		744,250+	
Total Recycled Aggregates Produced in 2019	344,645		
Sources of capacity estimates: Data from WBC, WDI and Planning permissions Capacity estimate based primarily on WBC (operator returns), and permit information, or planning permission information Key: * Temporary planning permission + Some figures will include skip waste, recycling and construction and demolition processing			

- 4.3.9 Other construction and demolition waste recycling is likely to be undertaken by mobile plant at construction sites, and this processing is unrecorded.
- 4.3.10 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, Forterra Thermalite produce an autoclaved aerated building block at its facility in Thatcham and substandard blocks are crushed into a fine dust and used in the manufacture of concrete blocks.
- 4.3.11 The asphalt plant at Theale uses a proportion of road planings in the production of new asphalt, directly replacing the use of primary aggregates in the manufacturing process. Such volumes are not captured in this LAA.

¹⁹ For some sites this information was assumed as no return was received

5.0 Rail Imported Crushed Rock and Marine Aggregate

5.1 Aggregate Rail Depots in West Berkshire

- 5.1.1 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. Crushed rock is imported into the district through the rail depots located at Theale. Small volumes of marine dredged sand and gravel are also known to be imported into West Berkshire through the district's rail depots. West Berkshire's aggregate rail depots are shown on Figure 3.1.
- 5.1.2 Prior to 2016 there were two "aggregate depots" in West Berkshire - one a depot importing crushed rock that is used to produce asphalt, the other a road to rail aggregates depot that imports primarily hard rock, together with some sand and gravel that is subsequently exported by road with the exception of what is used on-site at concrete batching plants.
- 5.1.3 From 2016, there were effectively four aggregates depot 'sites', as the depot importing crushed rock for asphalt is now utilised by two different operators, with separate sales figures. In addition, one depot that previously imported cement has begun to import raw aggregates for the manufacture of concrete and for onward transportation. As such, this site is also included in sales figures for imported aggregates.

5.2 Demand Indicators

Sales/Imports

- 5.2.1 As explained previously, West Berkshire does not produce any crushed rock indigenously, nor are there any marine landing sites. As such the only 'sales' figures for these aggregates are recorded at the rail depots within the district. Therefore, these figures are also import figures.
- 5.2.2 Actual returns for the sales at these depots have historically been confidential due to them being commercially sensitive when there were only two rail depots operating within the District. As such, sales were estimated as a proportion of Berkshire-wide sales²⁰. However, in 2016 there were effectively four aggregates depot 'sites' operating within West Berkshire, and therefore, West Berkshire specific figures for crushed rock can be obtained from this year onwards. However, sales of rail imported marine sand are still confidential due to the fact that not all depots were importing this aggregate.
- 5.2.3 In 2019, 783,075²¹ tonnes of crushed rock was sold at the district's depots, a reduction from 901,198 tonnes in 2018. Sales of crushed rock and marine sand and gravel since 2009 are shown on Figure 5.1. This shows that sales of both aggregates have been increasing over this period. The 10 year sales average for crushed rock in 2019 was 629,885 tonnes, with a 3 year average of 840,266 tonnes.

²⁰ Two out of the three rail depots operating in the former county of Berkshire were located in West Berkshire. Making the assumption that, prior to 2016, approximately two thirds of the mineral imported by rail into the former county of Berkshire is imported for onward sale into West Berkshire, this equates to approximately 287,000 tonnes of crushed rock sold in West Berkshire in 2009, and 774,000 in 2014. In 2011, separate monitoring obtained a Berkshire-wide figure for sales from aggregate rail depots within the county, again allowing an estimate of the amounts sold within West Berkshire. This was 504,000 tonnes for crushed rock.

²¹ This is an estimated value as a return from a significant operator is outstanding.

For marine sand and gravel the 10 year sales average in 2019 was 87,456 tonnes with a 3 year average of 116,574 tonnes²².

- 5.2.4 Due to commercial confidentiality, sales of marine sand and gravel prior to 2011 have been estimated as a proportion of Berkshire-wide sales²³. Sales figures since 2011 are based on the past three year sales average.

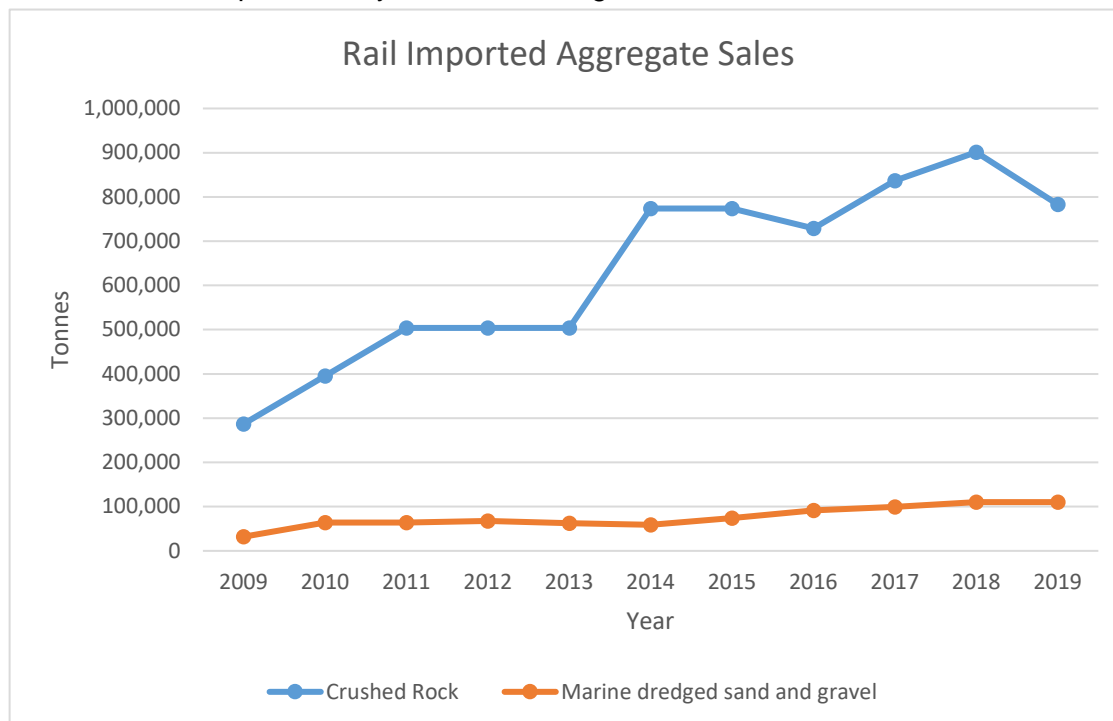


Figure 5.1 - Sales of Rail Imported Crushed Rock and Marine Aggregate at Rail Depots in West Berkshire. Source: Collation of the Results of the 2014 Aggregate Minerals Survey (2009 & 2014), BGS, West Berkshire District Council.

Consumption

- 5.2.5 Historic movements of rail-imported aggregates into the former county of Berkshire have been captured approximately every four years as part of the aggregates monitoring survey undertaken by the Ministry of Housing, Communities and Local Government and published by the British Geological Survey. The amount of crushed rock and marine sand and gravel imported is also the same as the amount consumed, as neither of these aggregates are produced indigenously. The most recent data from AM 2009 and AM 2014 is outlined in Table 5.1. This table (and this section generally) will be updated and included in an addendum to this LAA when the AM2019 results are available (anticipated spring 2021)
- 5.2.6 It is possible to estimate consumption of rail imported aggregates in West Berkshire based on its proportion of the Berkshire-wide population in 2009 (18.0%) and 2014 (17.7%). This is shown in Table 5.1, which also shows that consumption of both marine sand and gravel and crushed rock has increased from 2009 – 2014.

²² These are estimated value as a return from a significant operator is outstanding.

²³ Two out of the three rail depots operating in the former county of Berkshire were located in West Berkshire. Making the assumption that prior to 2016 approximately two thirds of the mineral imported by rail into the former county of Berkshire is imported for onward sale into West Berkshire, this equates to approximately 64,000 tonnes of Marine sand sold in West Berkshire in 2009.

Table 5.1 - Rail Imported Aggregate Consumption in Berkshire and estimated West Berkshire Consumption 2009 & 2014.

	2009	2014
	Marine Sand and Gravel (tonnes)	
Berkshire Consumption	98,000	152,000
Est. West Berkshire Consumption	17,640	27,360
	Crushed Rock (tonnes)	
Berkshire Consumption	861,000	1,161,000
Est. West Berkshire Consumption	152,397	205,497

Source: Collation of the Results of the 2014 Aggregate Minerals Survey (2009 & 2014), BGS. Table 10, ONS.

- 5.2.7 The demand for hard rock and marine aggregate imports is likely to be driven, to some degree, by major mineral utilising businesses within West Berkshire, demanding such aggregates to be imported into the area to meet their specific market need for the end product e.g. asphalt. These specific market forces are likely to result in an inflated mineral demand within West Berkshire above that needed for the level of consumption for the area i.e. for house building, general construction etc. In addition, due to the fact that there are a limited number of rail depots in Berkshire, it is assumed that some of the material imported into Theale is then transported by road to other Berkshire Unitaries, or even surrounding authorities such as Hampshire. Therefore the 'demand' as indicated by the level of aggregate sales at West Berkshire rail depots, is almost certain to be higher than the actual level of consumption of these aggregates in West Berkshire. However, it will be important to continue to plan for the current level of sales to ensure that existing supply arrangements are able to be fulfilled.

5.3 Supply Options

Imports

- 5.3.1 In July 2016, BGS supplied data for the consumption of primary construction aggregates in 2014 by sub-region, identifying the source MPAs which the aggregates came from (Table 5.2).

Table 5.2 - Sources of Crushed Rock Imported into Berkshire 2014

Source MPA	Percentage	Tonnes
Somerset County Council	70-80%	812,700 – 928,800
North Somerset Council, South Gloucestershire Council, Leicestershire County Council, Shropshire Council, Powys, Rhondda, Cynon, Taf (Taff), outside England and Wales.	1-10%	11,610 – 116,100
Cornwall Council, Devon County Council, Gloucestershire County Council, Oxfordshire County Council, Cambridgeshire County Council, Yorkshire Dales National Park, Neath Port Talbot.	<1%	<11,610
Total		1,161,000

Source: AM 2014 Source of primary aggregates by sub-region - percentage categories (2016), BGS.

- 5.3.2 Table 5.2 shows that Somerset is the dominant source of crushed rock for Berkshire (70-80%), with smaller amounts coming from other sources around the UK. The

most recent Somerset LAA (fourth edition, incorporating data from 2006 – 2015²⁴) states that there are approximately 380 million tonnes of permitted reserves for crushed rock and a landbank of at least 28.4 years at the end of 2015²⁵. The LAA acknowledges that Berkshire is among the counties importing the largest amount of crushed rock from Somerset due to limited indigenous supply and high development demand, together with the available rail connections. The rail capacity in Somerset is indicated to be sufficient and with headroom capacity to allow an increase in the amount moved by rail subject to demand. In addition, production capacity from crushed rock quarries within Somerset stands at over 21.8 million tonnes. Thus, there does not appear to be any supply issues with continuing to source crushed rock from Somerset. Safeguarding existing capacity within West Berkshire for the importation of crushed rock will be important to ensure these flows are able to continue in future.

- 5.3.3 The sources of marine sand and gravel imported into Berkshire in 2014 and approximate proportions of total imports are outlined in Table 5.3. Most comes from landings at wharves in London.

Table 5.3 – Sources of Marine Sand and Gravel Imported into Berkshire 2014

Source MPA	Percentage	Tonnes
Greater London – East	60-70%	91,200 – 106,400
Hampshire	20-30%	30,400 – 45,600
Medway	10-20%	15,200 – 30,400
Kent	1-10%	1,520 – 15,200
West Sussex	<1%	<1,520
Total		152,000

Source: AM 2014 Source of primary aggregates by sub-region - percentage categories (2016), BGS.

- 5.3.4 The London Aggregate Assessment (2016)²⁶ indicates (p.8) that the three marine regions supplying London and the South East would be able to maintain supplies to London and South East Market for 24.7 years at current extraction rates. Therefore, there does not appear to be a supply issue with imported marine aggregates. However, the London LAA does highlight that the safeguarding of wharves and railheads will potentially be an issue with increased pressure from development. If these infrastructure assets are lost, capacity to transport these aggregates could be restricted.

²⁴ <http://www.somerset.gov.uk/policies-and-plans/plans/somerset-minerals-plan/minerals-plan/?entryid100=59555&p=10>

²⁵ Note that updates to the Somerset LAA are currently being prepared and any change to the position will be reported in an addendum to this LAA.

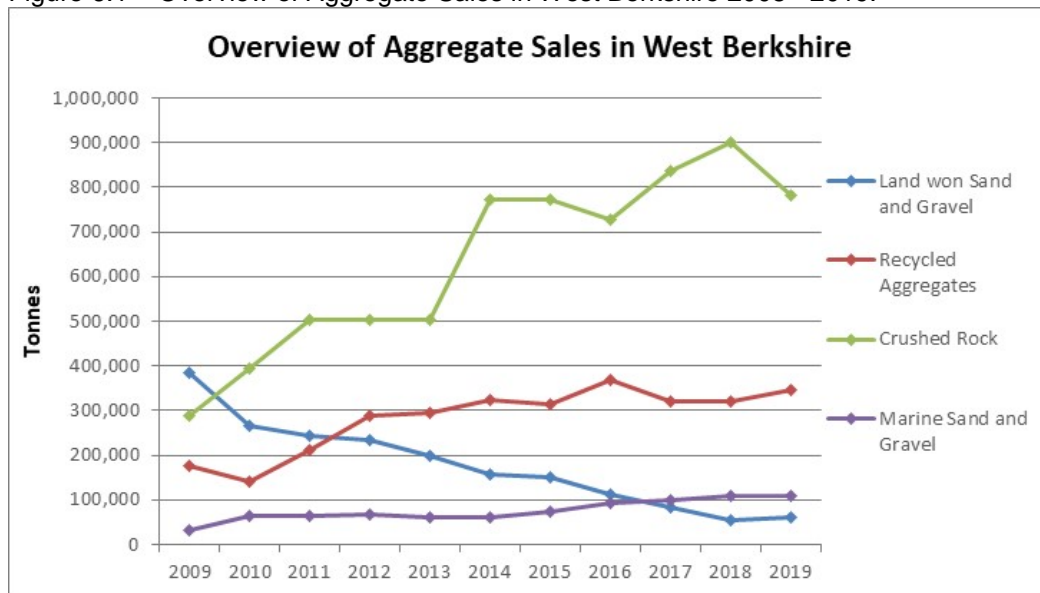
²⁶ https://www.london.gov.uk/sites/default/files/london_laa_2016.pdf

6.0 Overview of Aggregate Sales

6.1 The sales of land-won sand and gravel, recycled and secondary aggregates and rail imported crushed rock and marine sand and gravel are shown in Figure 6.1, which shows the changes in the overall aggregate mix seen in West Berkshire in recent years.

6.2 There has been a steady decline in sales of land won sand and gravel extracted from within West Berkshire alongside a general increase in recycled aggregate production, and the relatively static level of marine imported aggregates. Since 2012 the level of recycled aggregates produced in West Berkshire has 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 though this is uncertain. However, as previously mentioned, recycled aggregates are not able to substitute for all aggregate uses. There is also a possibility that further marine aggregate and crushed rock may be able to be imported into West Berkshire to supplement the need for indigenous resources. This obviously has its own environmental impacts and sustainability issues.

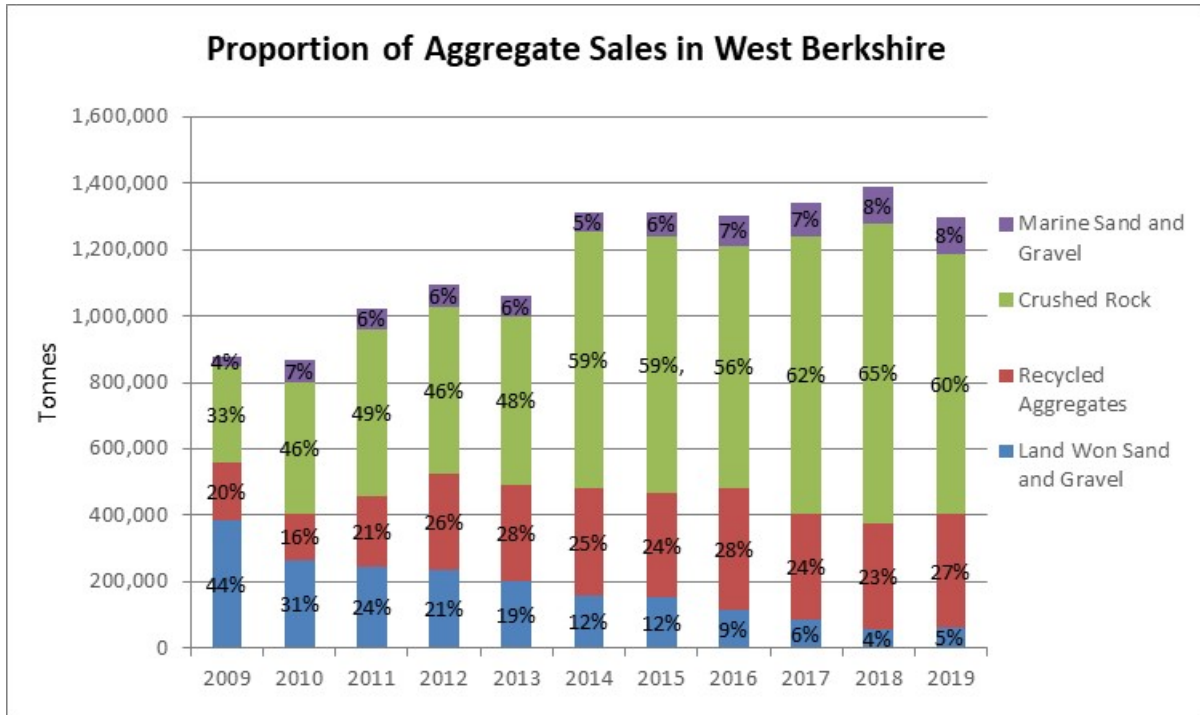
Figure 6.1 – Overview of Aggregate Sales in West Berkshire 2008 - 2019.



Sources: West Berkshire District Council Aggregates Monitoring Survey, Collation of the Results of the 2014 Aggregate Minerals Survey (2009 & 2014), BGS and South East England Aggregate Working Party.

6.3 Figure 6.2 shows how the composition of aggregates sold within West Berkshire has changed in recent years. It can be seen that the sale of rail imported crushed rock, marine sand and gravel and sales of recycled aggregates have all increased proportionally since 2009. At the same time, sales of land won aggregates (sand and gravel) have been decreasing proportionally (from 44% in 2009 to 5% in 2019).

Figure 6.2 – Proportion of Aggregate Sales in West Berkshire.



Sources: West Berkshire District Council Aggregates Monitoring Survey returns, Collation of the Results of the 2014 Aggregate Minerals Survey (2009 & 2014), BGS and South East England Aggregate Working Party.

7.0 Future Aggregate Supply

7.1 Future Demand

7.1.1 This section looks at factors that may be associated with a change in the demand for aggregates in West Berkshire in future.

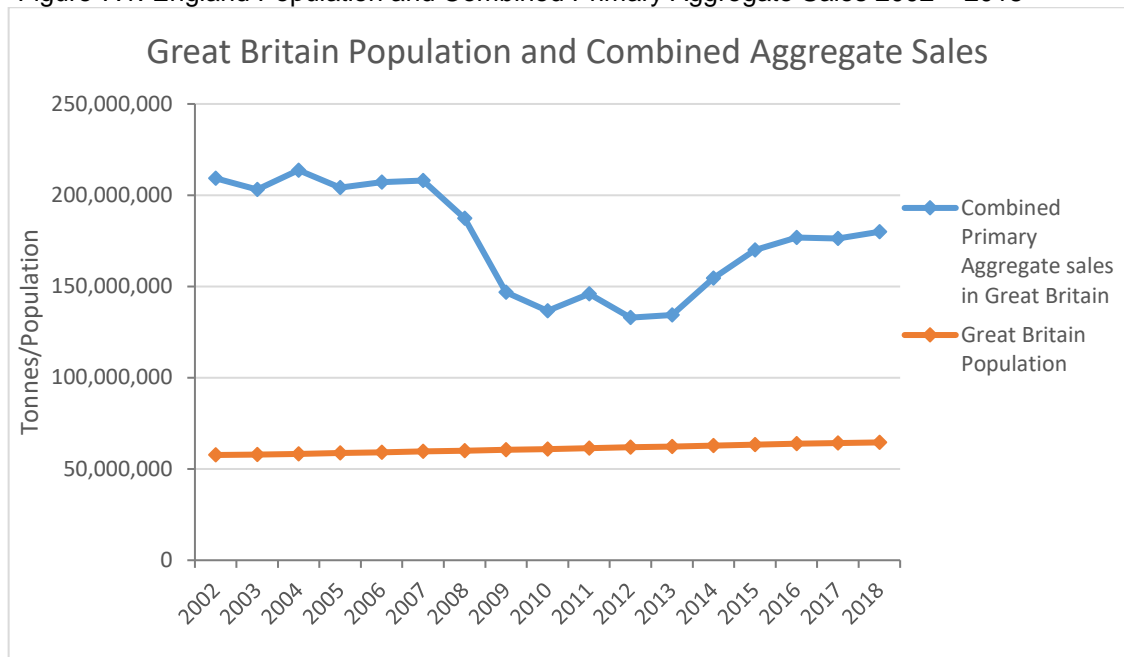
Population Change

7.1.2 Trends in population growth and aggregate usage may be considered when assessing future demand for aggregates. Population projections can give an indication of possible household growth and wider overall demand for aggregate.

7.1.3 Figure 7.1 shows the Great Britain population growth and primary aggregate sales over the period 2002 – 2018. Population growth was 0.76% per annum over this period on average. Aggregate sales varied, but have generally decreased over this time. Therefore, there does not appear to be a relationship between recent population growth and aggregate sales in Great Britain.

7.1.4 The population in Great Britain is forecast to grow 0.47% on average per year from 2016 – 2041 and the population in West Berkshire is forecast to grow 0.30% on average per year over the same period²⁷. These future levels of growth are lower than historic population growth from 2002 - 2018. Therefore, it is not considered that the steady increase in population in future will significantly alter the demand for aggregates, over what has been identified by using the past 10 year sales average.

Figure 7.1: England Population and Combined Primary Aggregate Sales 2002 – 2018



Source: ONS, Annual Mineral Raised Enquiries 2002 – 2014 (DCLG), Annual Minerals Yearbook 2019 (BGS).

Household Growth

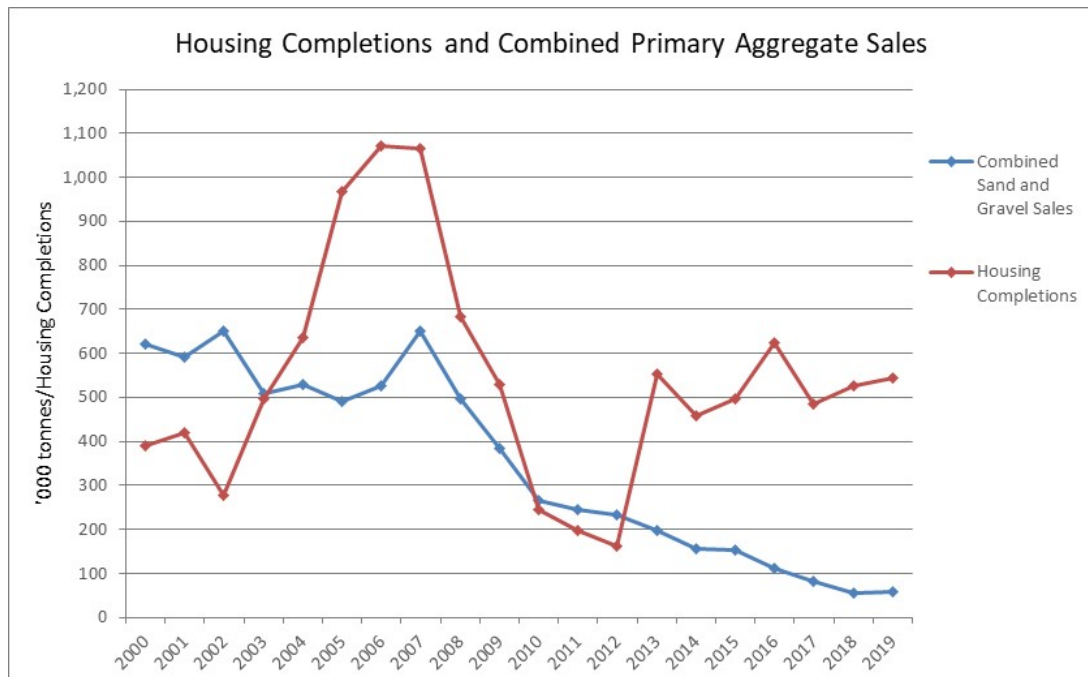
7.1.5 The adopted West Berkshire Core Strategy (July 2012) contains proposals for the delivery of at least 10,500 homes over the plan period (2006 – 2026) at a rate of

²⁷ ONS Population projections: <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/localauthoritiesinenglandtable2>

525 net additional dwellings per annum. This rate of house building corresponds with the historic average rate of construction over the period since 2000.

7.1.6 Net housing completions and primary aggregates sales since 2000 are shown on Figure 7.2. It can be seen from this that there does not appear to be a direct link between primary aggregate sales from within West Berkshire and house building, particularly since 2013. If it was assumed that the level of housing provision in West Berkshire was to remain at a similar level, this planned provision is considered unlikely to result in a significant alteration in West Berkshire’s demand for aggregates.

Figure 7.2 - Housing Completions and Land-won Aggregate Sales from sites in West Berkshire.



Source: West Berkshire District Council Annual Monitoring Report (Housing) 2018, and West Berkshire District Council.

7.1.7 The 2018 NPPF introduced a standard method for assessing local housing need (LHN), based on household projections with an affordability adjustment. The standard methodology to use the 2014-based household projections as the starting point for calculating LHN, which gives West Berkshire a LHN of 551 dwellings per year. This figure does not produce a housing requirement figure but will be used as a starting point to inform the Local Plan Review. This may slightly increase the provision for housing in the district, which in turn may increase the level of demand for aggregates in West Berkshire. However, there does not appear to be a direct linkage between housing provision and primary aggregate demand as shown in Figure 7.2.

Economic Forecasts

7.1.8 Economic forecasts are considered to be useful for providing an overall contextual picture and an indication of potential aggregate demand.

7.1.9 The Thames Valley Berkshire Strategic Economic Plan²⁸ identifies an average increase in GVA from 2000 – 2010 of 2.6%. The average increase from 2010 – 2020 is predicted to be 1.8%, and from 2020 – 2025 is 2.6%. It should be noted that these predictions were made before the Covid-19 outbreak that has resulted in a severe contraction of the UK economy in 2020. Furthermore, in 2019 parliamentary discussions regarding the UK's departure from the European Union (Brexit) created uncertainty which is also considered to have a negative impact on economic growth not considered by the Thames Valley Berkshire Strategic Economic Plan.

7.1.10 The Office for Budgetary Responsibility (OBR) forecasts for GDP until 2024 are²⁹:

	2019	2020	2021	2022	2023	2024
GDP % change	1.4	1.1	1.8	1.5	1.3	1.4

It is important to note that these forecasts were published on 11 March 2020 before the full impact of the Coronavirus pandemic had been assessed. In July 2020 the OBR published an assessment of potential growth³⁰ in 2020 that specifically considers impacts of the pandemic on the economy. This analysis considers three scenarios for GDP in 2020 as follows: -10.6%; -12.4%; and, -14.3%.

7.1.11 HM Treasury comparison of independent GDP forecasts³¹ published in July 2020 indicate growth of:

	2020	2021	2022	2023
GDP % change	- 9.1	6.6	N/A ³²	N/A

The ONS recorded a fall in GDP during the three months March to May 2020 of 19.1%.

7.1.12 Forecasts of growth have been significantly affected by the coronavirus pandemic. In its report on the economic outlook for the UK in June 2020, the OECD states:

“The COVID-19 crisis has led to a severe economic contraction. GDP is projected to fall by 14% in 2020 if there is a second virus outbreak later in the year (the double-hit scenario). An equally likely single-hit scenario would still see GDP fall sharply by 11.5%.”

7.1.13 KPMG noted that Brexit will also have an impact in its June 2020 report on the economic outlook for the UK³³.

²⁸

<http://www.thamesvalleyberkshire.co.uk/getfile/Public%20Documents/Strategic%20Economic%20Plan/TVB%20SEP%20Consultation%20Draft%20low%20res.pdf?inline-view=true>

²⁹ Economic and Fiscal Outlook March 2020 (OBR): <https://obr.uk/efo/economic-and-fiscal-outlook-march-2020/>

³⁰ <https://obr.uk/coronavirus-analysis/>

³¹ Forecasts for the UK Economy: A comparison of independent forecasts, July 2020 (HM Treasury):

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/900759/Fore_comp_July_2020.pdf

³² N/A = not available

³³ KPMG International Limited (KPMG) is one of the world's largest accounting organisations - <https://assets.kpmg/content/dam/kpmg/uk/pdf/2020/06/uk-economic-outlook-june-2020.pdf>

“As lockdown restrictions are gradually lifted during the summer, we expect to see a partial recovery from the second half of 2020. That said, Q1 next year could see another contraction due to the end of the transition period with the EU. GDP could fall by 7.2% in 2020 before rising by 2.8% in 2021.”

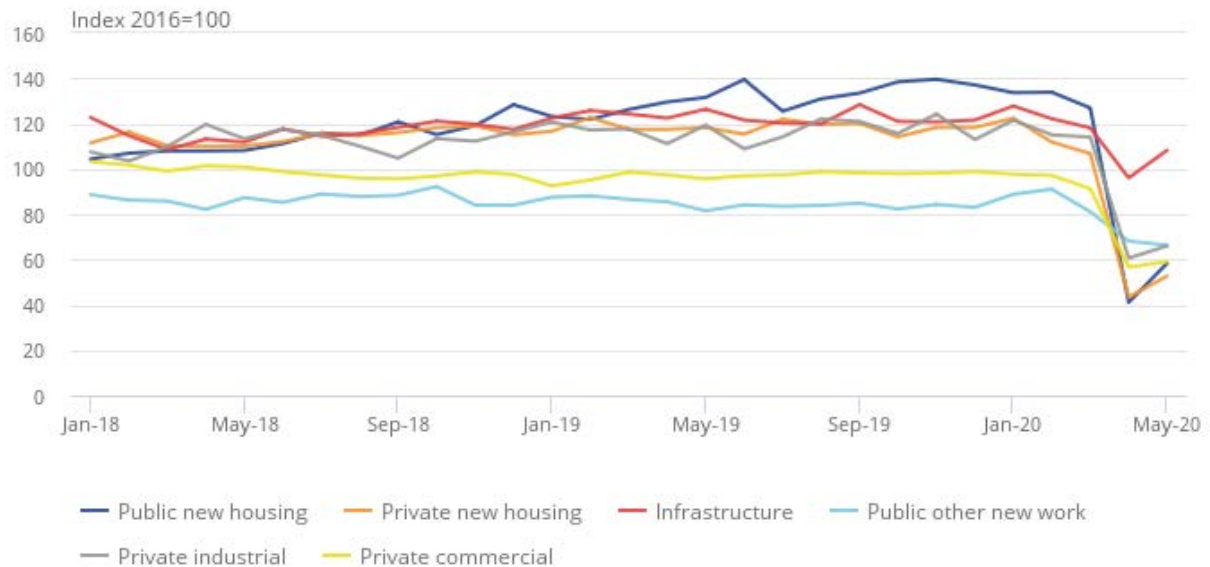
7.1.14 The lockdown restrictions in the Spring of 2020 meant that some mineral sites were not operating at all or at reduced capacity. This will have a significant impact on sales data for 2020. However, the longer term impacts are less certain and it is possible that over time sales might return to the level suggested by the 10 year average sales.

National Construction Forecasts

7.1.15 The Office for National Statistics produce a monthly bulletin (Construction Output in Great Britain)³⁴ detailing estimates of output in the construction industry. Construction output is an important economic indicator and is also used in the compilation of the output measure of gross domestic product (GDP). The estimates of construction output since 2014 are shown in Figure 7.3. Construction output fell by 40.1% in April 2020; this was driven by a 41.2% decrease in new work and a 38.1% decrease in repair and maintenance; all of these decreases were the largest monthly falls on record since the monthly records began in January 2010.

Figure 7.3:

Components of new work, index volume measure, seasonally adjusted, Great Britain, January 2018 to May 2020



Source: ONS³⁵

³⁴ Construction output in Great Britain:
<https://www.ons.gov.uk/businessindustryandtrade/constructionindustry/datasets/outputintheconstructionindustry>
³⁵
<https://www.ons.gov.uk/businessindustryandtrade/constructionindustry/bulletins/constructionoutputingreatbritain/may2020>

7.1.16 The Construction Products Association, in its report ‘Construction Industry Scenarios 2020 - 2021³⁶’ predict that construction output will fall by 20.6% in 2020. It states:

“Potential structural changes to the UK economy brought on by the pandemic, as well as uncertainty around consumer confidence and unemployment rates, could prove significant to construction activity returning to pre-Covid growth rates.”...

“The CPA Scenarios point to these larger shifts in the UK economy as crucial to the construction industry’s fortunes, claiming that the £5 billion ‘New Deal’ of construction investment announced under the government slogan ‘build, build, build’, was largely a re-announcement of existing budgets. As such, the ‘New Deal’ will have little impact on boosting construction activity beyond what was already expected.”....

“While next year we anticipate construction output rising 18.0% overall, it is worth noting that this is compared with a low base of activity in 2020 and will still be 6.4% lower than pre-coronavirus levels”

7.1.17 In August 2020 the Mineral Products Association (MPA) reported³⁷ that, overall, sales of aggregates during March to June 2020 declined by 38% with building sand sales declining by 61%.

7.1.18 The MPA’s latest projected construction growth figures for the South East were published before the pandemic and indicate an annual growth rate of 1.1% a year for the five years 2018 – 2022³⁸. This growth rate is generally below the national construction growth rates since 2014, outlined in 7.1.14

National Aggregate Forecasts

7.1.19 The MPA produces a regular medium-term (three-year) market forecast for construction materials. The MPA has previously noted how Brexit might impact on construction activity and in February 2020 reported a decline in aggregate sales in 2019 of 2.2%³⁹. This was perhaps most reflected in West Berkshire by a notable decrease in sales of crushed rock from rail depots compared to 2018.

7.1.20 In its 2018 forecast, the MPA considered forecasting that mineral products markets would grow by 4% for primary aggregates over the period 2018 – 2020⁴⁰. The MPA has also produced long-term aggregates demand & supply scenarios, 2016-30⁴¹. Whilst the scenarios are estimated national demands, it is considered that they can be taken to reflect the situation in the south east.

7.1.21 The report studied two scenarios in order to estimate future demand for aggregates:

1. Baseline Scenario
2. Low Material Intensity Demand Scenario

³⁶ <https://www.constructionproducts.org.uk/news-media-events/news/2020/august/covid-19-still-leaves-uncertainty-for-construction-industry-despite-promises-to-build-build-build/>

³⁷ <https://mineralproducts.org/20-release26.htm>

³⁸ Construction & Markets – South East - November 2018, (MPA).

³⁹ <https://mineralproducts.org/20-release05.htm>

⁴⁰ Mineral Products Association Profile of the UK Mineral Products Industry, 2018 (MPA)

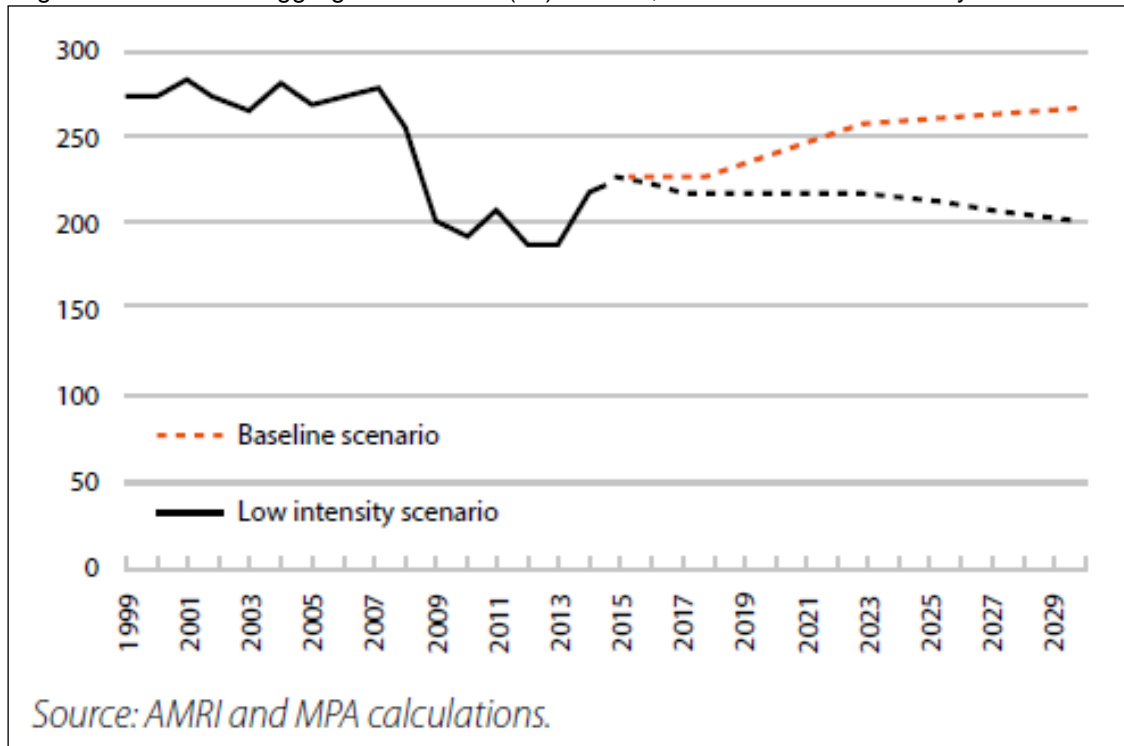
<https://mineralproducts.org/documents/Facts-at-a-Glance-2018.pdf>

⁴¹ Long-term aggregates demand and Supply Scenarios, 2016–30 (MPA):

[http://www.mineralproducts.org/documents/MPA Long term aggregates demand supply scenarios 2016-30.pdf](http://www.mineralproducts.org/documents/MPA%20Long%20term%20aggregates%20demand%20supply%20scenarios%202016-30.pdf)

7.1.22 The baseline scenario assumed that material intensity (volume of aggregates used per £1,000 spent) remains flat at its 2018 level, and growth is in line with economic and population growth. It predicted that demand for aggregates would increase steadily until 2030, but still not quite reach pre-recession levels (shown in Figure 7.5). The low intensity scenario assumed a decline in material intensity of 1.8% per annum, reflecting increases in resource efficiency in construction. This scenario predicted that demand would steadily decrease until 2030.

Figure 7.5: Total GB aggregates demand (Mt) to 2030, baseline and low intensity scenarios.



Source: Long-term aggregates demand & supply scenarios, 2016-30, MPA.

7.1.23 However this modelling does not take account of the measured decline in 2019 and the impact of the pandemic. In August 2020 the Mineral Products Association (MPA) reported⁴² that, overall, sales of aggregates during March to June 2020 declined by 38% with building sand sales declining by 61%.

Infrastructure Projects

7.1.24 At a local level, the West Berkshire Core Strategy (2012) 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 Sandleford Park.
- Sustainable Urban Drainage Systems.

⁴² <https://mineralproducts.org/20-release26.htm>

7.1.25 In addition, the Thames Valley Berkshire Strategic Economic Plan sets out infrastructure priorities of the Local Enterprise Partnership. West Berkshire schemes include:

- Newbury – Kings Road Link Road
- Newbury – Sandford Park, strategic housing allocation requiring supporting infrastructure including schools, highway improvements and provision for retail facilities in the form of a local centre and business employment
- Newbury – Railway Station Improvements
- Theale - Park and Rail at Theale Station at Programmed Entry Level and a business case is being worked on.

7.1.26 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 regeneration of Thatcham town centre, and
- the mixed development scheme at Newbury racecourse.
- Market Street redevelopment (Predominantly residential, some mixed use development).

7.1.27 To understand the wider demand for aggregates, based on construction, the National Infrastructure Delivery Plan 2016-2021 (NIDP) has been considered. This provides a strategic overview of UK infrastructure investment to 2020-21.

7.1.28 The NIDP identifies several construction projects within 20-40 miles⁴³ of West Berkshire, including:

- Smart Motorway – M4 Reading to London
- Development associated with Crossrail
- Electrification of the Great Western Mainline (including the line between Reading and Newbury) (complete 2019),

7.1.29 Other largescale projects taking place in the South East include High Speed 2 (HS2) rail and Expansion at Heathrow. A review is currently underway into HS2⁴⁴, and plans for expansion at Heathrow are progressing with a consultation on construction proposals taking place in June 2019⁴⁵. These projects may place demands on large quantities of mineral in surrounding areas resulting in minerals from further away being used to make up such increases in local demand.

7.1.30 Together these national and local construction projects will require a range of aggregates amounting to on-going demand that will need to be met through the supply of sand and gravel, crushed rock and recycled aggregates in the years ahead.

⁴³ 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 further).

⁴⁴ Independent review of HS2 <https://www.gov.uk/government/news/government-announces-independent-review-into-hs2-programme>

⁴⁵ Construction Proposals: Building an Expanded Heathrow (June 2019)
<https://aec.heathrowconsultation.com/documents/construction-proposals/>

- 7.1.31 Analysis of the list of 300 ‘shovel ready’ projects given funding by the Government in August 2020⁴⁶ does not reveal any that would necessarily result in any significant increase in the demand for aggregate in West Berkshire.

Local Industry

- 7.1.32 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. 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.

Summary

- 7.1.33 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 economic growth, 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. The Brexit transition and pandemic have impacted sales but it is assumed that these effects will be temporary. Overall, it is considered that there are no clear identifiable factors that might result in a significant alteration to the level of need in West Berkshire for construction aggregates in the foreseeable future over that identified over the past 10 year period.

7.2 Environmental Constraints

- 7.2.1 Approximately 74% of the administrative area of West Berkshire is located within the North Wessex Downs Area of Outstanding Natural Beauty (AONB). Much of the northern area of the district, where the main deposits of soft sand have historically been worked, lies within the AONB (see Figure 3.1).
- 7.2.2 Whilst mineral extraction is not excluded from such areas, the NPPF states that when determining planning applications for major development (including major mineral development) in Areas of Outstanding Natural Beauty, National Parks and The Broads, 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 (paragraph 172). Consideration of all supply options will need to be undertaken in demonstrating exceptional circumstances in this test. 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 including AONBs (paragraph 205 a).

⁴⁶ <https://www.gov.uk/government/news/1-3-billion-investment-to-deliver-homes-infrastructure-and-jobs>

- 7.2.3 Whilst the NPPF also indicates, at paragraph 204 (b), that mineral planning authorities should aim to source minerals supplies indigenously, these are relevant local factors that could affect the availability of supply of soft sand going forward.
- 7.2.4 The emerging West Berkshire Minerals and Waste Local Plan will need to consider how to meet demand for soft sand over the plan period in light of the constraints of the AONB. However, in line with National Policy, it is not considered to be such an absolute constraint that would warrant planning for a rate of supply that is different to the 10 year sales average.

7.3 Decline in Operational Aggregate Sites and Reserves in West Berkshire

- 7.3.1 Of relevance to the future supply of aggregate minerals in West Berkshire is the significant decline in aggregate producing mineral sites and declining reserves in operational sites in the district in recent years. In 2006, there were eight operational sand and gravel sites in West Berkshire, and in 2018 there were just three sites in production. In 2019, this dropped to two with one of these sites exhausting its reserves in 2019. Consequently, despite the slight increase in sales of sharp sand and gravel in 2019, overall sales of land won aggregates within the district have declined noticeably in recent years.
- 7.3.2 Therefore, consideration should be given to whether the decline in sales in recent years due to the declining reserves in active quarries has suppressed sales to such a degree that a departure from the 2018 10 year sales averages (as applied in the 2019 LAA) is considered necessary. The 10 year sales average for sharp sand and gravel in 2019 was 128,581 tonnes, and for soft sand was 27,652 tonnes. The combined 10 year sales average for sand and gravel was 156,233.
- 7.3.3 It is known that the sites in production in West Berkshire in 2019 were nearing the end of their permitted reserves, and therefore sales of sand and gravel were much lower than if the sites had been operating at normal levels. This, along with other sites being exhausted, has acted to suppress sales of sand and gravel in recent years, in relation to anticipated demand. Total combined sand and gravel sales in 2019 were 59,413 tonnes, far below the estimated consumption of 153,771.
- 7.3.4 Estimates of consumption have been considered in order to determine whether the 10 year sales averages are an appropriate level at which to plan for the future supply of aggregates in the district.
- 7.3.5 Total sand and gravel consumption in West Berkshire was estimated to be 153,771 tonnes in 2018 (the most recent year for which data is available). This is below the combined 10 year sales average for sand and gravel of 156,233 tonnes, which would seem to indicate that while planning for this level of supply would be sufficient to enable resources to be identified in order to satisfy local use of these aggregates, there would be little contribution to be made to wider aggregate supply.
- 7.3.6 In terms of soft sand, estimates of consumption range from 4,662 – 31,788 tonnes per annum (Appendix C), and the higher figure is above the latest 10 year sales average for soft sand of 27,652 tonnes. This indicates that using the current 10 year sales average may not be adequate to ensure supplies are planned for in order to satisfy local, or wider, demand.
- 7.3.7 In terms of sharp sand and gravel, estimates of consumption range from 120,587 and 147,713 tonnes per annum. The higher of these figures is above the 10 year sales average for sharp sand and gravel of 128,581 tonnes. As with the case for

soft sand, this indicates that using the 10 year sales average for sharp sand and gravel may not be adequate to ensure supplies are planned for in order to satisfy local, and wider, demand.

- 7.3.8 Therefore, it is considered that relying on the past 10 year sales average may not be sufficient to plan for a steady and adequate supply of sand and gravel, based on the facts that the number of aggregate producing sites, reserves in these sites and corresponding sales have reduced in recent years in West Berkshire. As the 10 year average sales values for 2018 were only at around the estimated maximum consumption estimates, the approach taken in the 2019 LAA was to plan for sales using the 10 year average sales for 2017 (as set out in the 2018 LAA).
- 7.3.9 The LAA rates for sand and gravel in the 2018 LAA were set at 189,233 tonnes for sharp sand and gravel, and 43,730 tonnes for soft sand (232,964 tonnes for total sand and gravel). These levels remain more sufficient to meet estimated levels of consumption. Therefore, it is considered that due to the fact that the current 10 year averages for sharp sand and gravel are unlikely to be sufficient to plan for an adequate supply of sand and gravel in the district that the previous 2018 LAA rates should again be utilised as a basis for forward planning. This situation will need to be monitored in future to determine whether these rates remain appropriate, particularly if additional sites become operational and levels of sales again increase.

7.4 Alternative Aggregates

- 7.4.1 Recycled aggregates will potentially reduce the need for primary aggregates in the future, although there are only limited uses for which these can substitute and therefore there will always be a requirement for some land-won aggregate within the district. This matter will be kept under review as advances in recycling techniques can facilitate the production of a higher quality material, which may be able to replace more and more primary minerals.
- 7.4.2 There is also a possibility that further marine aggregate and crushed rock may be able to be imported into West Berkshire to supplement the need for indigenous resources. The amount of marine sand and gravel imported into Berkshire increased from 2009 to 2014, and although it will not be possible to know for certain whether this trend continues until the results of the current aggregate minerals survey are available, marine aggregate supplies have been increasing over time nationally, so it is probable that this will continue.
- 7.4.3 The demand for primary aggregates and alternative aggregates are reflected in their respective past 10 year sales averages. Where it is more economic, or practical to use recycled and secondary aggregates in preference to primary materials, the market will decide this. Therefore, if the demand for primary aggregates is decreasing, then this will be reflected by a declining 10 year average of sales. Similarly, if the demand for alternative aggregates is increasing proportionally, then this will be reflected in an increasing 10 year average of sales. These market changes over time would be reflected in the 10 year sales average approach, and therefore are not considered significant enough to warrant an identified departure from this.

7.5 LAA Rates

Land Won Sand and Gravel

- 7.5.1 In addition to utilising the 10 year average approach to assessing future demand for aggregate, National Planning Guidance⁴⁷ suggests that Mineral Planning Authorities should look at average sales over the last 3 years in order to determine whether it might be appropriate to increase supply. The three year average figures for all aggregates are significantly below the 10 year average figures (Table 7.1), which suggests that there has not been a recent increase in the sale of aggregates such that a higher figure than the 10 year sales average should be used determine the rate at which minerals should be planned for. In fact, consideration of the most recent three years sales averages indicates that sales are likely to continue at a lower level in the short term at least.

Table 7.1 Ten Year and Three Year Sales Averages for Sand and Gravel

	10 Year Sales Average (tonnes)	3 Year Sales Average (tonnes)
Sharp Sand and Gravel	128,581	52,684
Soft Sand	27,652	13,459
Total Sand and Gravel	156,233	66,143

- 7.5.2 As outlined in section 7.3, it is considered that relying on the past 10 year sales average may not be sufficient to plan for an adequate supply of sand and gravel, based on the fact that the number of aggregate producing sites, reserves in these sites and corresponding sales have reduced in recent years in West Berkshire. Therefore, it is recommended that the previous 2018 LAA rates should remain in place for 2020; these are shown in Table 7.2. This situation will need to be monitored in future to determine whether these rates remain appropriate, particularly if additional sites become operational and levels of sales again increase.

Recycled Aggregates

- 7.5.3 The last 10 year average of sales of recycled aggregates is 292,585 and the average for the last 3 years is 328,637 tonnes. Given the national priority to first seek to take account of the contribution recycled aggregates can make to the supply of materials before considering extraction of primary materials, (NPPF para 204) it would be prudent to use the higher of these figures (3 year average) in planning for the supply of recycled aggregates. Therefore, this is the recommended LAA rate for these aggregates outlined in Table 7.2.

Rail Imported Aggregates (Marine Sand and Gravel and Crushed Rock)

- 7.5.4 For rail imported marine sand and gravel, sales have been increasing over the preceding 10 years (Figure 5.1). The 10 year sales average for this aggregate is 87,456 tonnes and the 3 year average is 116,574 tonnes⁴⁸. In terms of ensuring there is sufficient rail capacity available for the importation of these aggregate, it

⁴⁷ Minerals Planning Practice Guidance: Paragraph 064 Reference ID: 27-064-20140306.
<https://www.gov.uk/guidance/minerals>

⁴⁸ These values assume sales in 2019 were the same as those in 2018 as no return for 2019 has yet been received.

would be prudent to use the higher of these figures in planning for future supply. Therefore 116,574 tonnes is recommended as the LAA rate for this aggregate, as outlined in Table 7.2.

- 7.5.5 For crushed rock, sales have also been increasing over the preceding 10 year period. The 10 year sales average for this aggregate is 629,885 tonnes and the 3 year average is 840,266 tonnes. As with marine sand and gravel, in order to ensure sufficient rail capacity is available for the importation of this aggregate it would be prudent to use the higher of these figures in planning for future supply. Therefore 840,266 tonnes is recommended as the LAA rate for this aggregate, as outlined in Table 7.2.

All Aggregates

- 7.5.6 Therefore, after consideration of the future demand for aggregates within West Berkshire, and factors affecting supply in the district, the following LAA Rates are proposed in Table 7.2:

Table 7.2: 2020 LAA rates

	LAA Rate (tpa*)
Land Won Sharp Sand and Gravel	189,233
Land Won Soft Sand	43,730
Total Sand and Gravel	232,964
Recycled Aggregates	328,637
Marine Sand and Gravel (Rail Imported)	116,574
Crushed Rock (Rail Imported)	840,266

*Tonnes per annum

8.0 Balance between Supply and Demand

8.1 Land-Won Sand and Gravel

Landbank

- 8.1.1 The balance between supply and demand can be shown in one way by the calculation of the 'landbank' of supply for land won aggregate minerals. The landbank is based on the amount of remaining reserves (supply) and a given extraction rate (demand). The NPPF requires that a landbank of at least 7 years is maintained for sand and gravel (para 201).
- 8.1.2 The total permitted reserves at the end of 2019 stood at approximately 2,567,500 tonnes, all of which are for sharp sand gravel i.e. soft sand reserves were fully depleted in 2019. Based on the LAA rates, the landbank for sharp sand and gravel at the end of 2019 was 13.6 years, for soft sand was 0 years and for combined sand and gravel was 11 years (shown in Table 8.1). Table 8.1 also shows the landbank based on the 10 and 3 year sales averages for comparison.

Table 8.1 - West Berkshire Landbank Calculations 2019 (years)

2019	Sharp Sand and Gravel	Soft Sand	Total Sand and Gravel
LAA Rate (tpa)	189,233	43,730	232,964
10 Year average	128,581	27,652	156,233
3 year average	52,684	13,459	66,143
Remaining Reserves	2,567,500	0	2,567,500
Landbank based on LAA Rate	13.6 years	0 years	11 years
Landbank based on 10 year average	20.0 years	0 years	16.4 years
Landbank based on 3 year average	48.7 years	0 years	92.8 years

- 8.1.3 Table 8.1 shows that the landbank, based on the LAA Rate is currently above the required 7 years for sharp sand and gravel and total sand and gravel. However, at zero, it is significantly below 7 years for soft sand. If the level of sales of construction aggregates in West Berkshire remains at the level seen in more recent years (3 year average), then the permitted reserves of sharp sand and gravel would last much longer, although the landbank for soft sand still remains far below the required 7 years, indicating that additional reserves of this aggregate are required in order to maintain a 'steady and adequate supply' in line with NPPF paragraph 207.

Production Capacity

- 8.1.4 Production capacity is also a relevant factor in assessing the balance between supply and demand. If the ability to produce the LAA rate from sites within the district is not available, then it will not be able to achieve a 'steady and adequate supply' of aggregates as required by the NPPF. A list of sites and their production capacities are listed in Table 8.2.
- 8.1.5 The level of annual production from operational sites (combined sand and gravel) in West Berkshire at the end of 2019 was estimated at 80,000 tonnes, which is far below the LAA rate for combined sand and gravel of 232,964 tonnes per annum.

However, inactive sites have the potential to contribute to a further 237,500 tonnes per annum, in which case this rate could just be met. However, whether inactive sites are able to resume/start production to meet future demand is not certain, and unless other sites come forward through the planning process, the combined LAA rate may not be achieved in the near future.

Table 8.2 - Estimated Production Capacity in West Berkshire

Site Name	Type of Aggregate	Comments	Capacity (tonnes)
Active			
Harts Hill	Hoggin	There is no tonnage limit on annual output, although there is a maximum number of HGV's (25 per day, limiting output to circa 140,000 tpa). Reserves of circa 100,000 tonnes remaining (based on operator returns) to be worked by 30 th June 2021.	100,000
Total Operational Capacity			100,000
Inactive			
Craven Keep	Sharp Sand & Gravel	Inactive, small remaining reserve of 55,000 tonnes, with two years permitted for extraction.	27,500
Moore's Farm	Sharp Sand & Gravel	Active inert waste recycling facility, however inactive in terms of mineral extraction. Small remaining reserve of approximately 10,000-15,000 tonnes required to be extracted by 31 st December 2023. No limit on production.	12,500
Lower Farm, Wasing ⁴⁹	Sharp Sand & Gravel	Extraction of 2.4 mt of sharp sand and gravel at a rate of 200,000 tpa. Extraction yet to commence.	200,000
Total Non-operational Capacity			237,500
Total Permitted Capacity			317,500

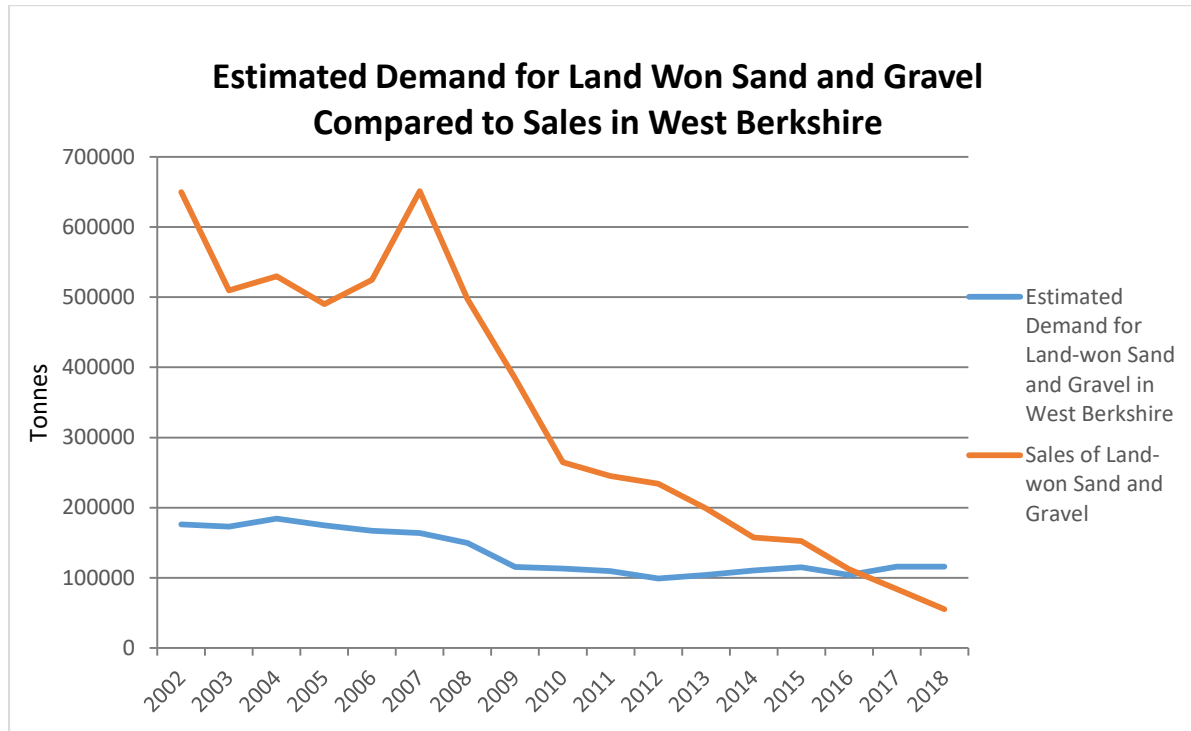
- 8.1.6 These figures show that current operational capacity in West Berkshire is extremely limited by the amount of remaining available reserves at active sites and suggests that production capacity is a significant factor that could affect the balance of supply to the county. However, when taking into account currently permitted but inactive reserves (for sharp sand and gravel) the production capacity would be sufficient to meet the LAA rate for this aggregate. Production of soft sand is constrained by the lack of any permitted reserves.

Estimated Demand Compared to LAA Rate

- 8.1.7 Perhaps the most obvious way to demonstrate the balance between supply and demand is by comparing demand (consumption) with sales. This has been done for land won sand and gravel from 2002 – 2018 (the most recent year for which data is available) in Figure 8.1.

⁴⁹ <http://publicaccess.westberks.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=M4U2FVRD0EA00>

Figure 8.1 – Estimated Demand for Land-won Sand and Gravel Aggregates in West Berkshire compared to Sales in West Berkshire.



Sources: West Berkshire District Council Aggregates Monitoring Survey returns, ONS population data, Annual Mineral Raised Enquiry Surveys (2002 – 2014). MPA Mineral Products Industry at a Glance (2016 – 2018) (See Appendix A)

8.1.8 Figure 8.1 shows that in West Berkshire, sales of land-won sand and gravel have consistently been above estimated levels of consumption until approximately 2016, when estimated demand was higher than sales within the district. This demonstrates that West Berkshire is likely to have moved from being a net exporter of sand and gravel historically, to being a net importer in recent years.

8.1.9 This highlights the importance of continuing to develop the MWLP to include the identification of potential sites for future mineral extraction to enable the LAA rates for land won sand and gravel to be realised, as these have been demonstrated as being able to meet anticipated demand.

When New Primary Aggregate Producing Sites are Likely to be Required

8.1.10 To assist in determining when new sites may be required, an estimate has been made of the production levels from current permitted sites year on year, along with the estimated remaining reserves. In doing so, certain assumptions have had to be made about when sites are in production, in order to obtain a view on how reserves will deplete.

8.1.11 In carrying out this approach it is apparent that it will be challenging for West Berkshire to currently meet the chosen LAA rate, unless additional sites come forward, and inactive sites resume/commence production. The results of this analysis are shown in Tables 8.3 and 8.4.

Table 8.3 – Estimated Future Outputs and Reserves – Sharp Sand and Gravel

Year	Total Est. Reserves at Start of Year	Land-bank in Yrs	Total Estimated Production*	LAA Rate	Yearly Reserve Surplus/ Shortfall**	Yearly Production Surplus/ Shortfall
2019	2,627,500	13.88	42,833	189,233	1,242,869	-146,400
2020	2,567,500	13.57	50,000***	189,233	1,192,869	-139,233
2021	2,517,500	13.30	90,000****	189,233	1,102,869	-99,233
2022	2,427,500	12.83	200,000*****	189,233	902,869	10,767
2023	2,227,500	11.77	200,000	189,233	702,869	10,767
2024	2,027,500	10.71	200,000	189,233	502,869	10,767
2025	1,827,500	9.66	200,000	189,233	302,869	10,767
2026	1,627,500	8.60	200,000	189,233	102,869	10,767
2027	1,427,500	7.54	200,000	189,233	-97,131	10,767
2028	1,227,500	6.49	200,000	189,233	-297,131	10,767
2029	1,027,500	5.43	200,000	189,233	-497,131	10,767
2030	827,500	4.37	200,000	189,233	-697,131	10,767
2031	627,500	3.32	200,000	189,233	-897,131	10,767
2032	427,500	2.26	200,000	189,233	-1,324,631	10,767
2033	227,500	1.20	200,000	189,233	-1,297,131	10,767
2034	27,500	0.15	27,500	189,233	-1,324,631	-161,733
2035	0	0	0	189,233	-1,324,631	-189,233
2036	0	0	0	189,233	-1,324,631	-189,233
2037	0	0	0	189,233	-1,324,631	-189,233

* Actual production figure for the 2019 year. Assumes that from 2021 all inactive sites also commence production except Lower Farm.

** Based on maintaining a 7 year landbank = 7 x 189,233 = 1,324,631

*** Comprised of 50,000 t Harts Hill.

**** Comprising 50,000 t Harts Hill to exhaustion, 12,500 t Moores Farm to exhaustion and 27,500 t Craven Hill to exhaustion.

***** Increase in production due to Lower Farm commencing production

Table 8.4 – Estimated Future Outputs and Reserves – Soft Sand

Year	Total Est. Reserves at Start of Year	Land-bank in Yrs	Total Estimated Production*	LAA Rate	Yearly Reserve Shortfall**	Yearly Production Shortfall
2019	15,000	0	16,530	43,730	-307,640	-27,200
2020	0	0	0	43,730	-306,110	-43,730
2021	0	0	0	43,730	-306,110	-43,730
2022	0	0	0	43,730	-306,110	-43,730
2023	0	0	0	43,730	-306,110	-43,730
2024	0	0	0	43,730	-306,110	-43,730
2025	0	0	0	43,730	-306,110	-43,730
2026	0	0	0	43,730	-306,110	-43,730
2027	0	0	0	43,730	-306,110	-43,730
2028	0	0	0	43,730	-306,110	-43,730
2029	0	0	0	43,730	-306,110	-43,730
2030	0	0	0	43,730	-306,110	-43,730

2031	0	0	0	43,730	-306,110	-43,730
2032	0	0	0	43,730	-306,110	-43,730
2033	0	0	0	43,730	-306,110	-43,730
2034	0	0	0	43,730	-306,110	-43,730
2035	0	0	0	43,730	-306,110	-43,730
2036	0	0	0	43,730	-306,110	-43,730
2037	0	0	0	43,730	-306,110	-43,730

* Actual production figure for the 2019 year.

** Based on maintaining a 7 year landbank = 7 x 43,730 = 306,110.

8.1.12 These calculations indicate that the current level of permitted reserves of sharp sand and gravel (at the end of 2019/start of 2020) are projected to be sufficient to maintain a 7 year landbank until 2027, however after this date the landbank is likely to fall below the 7 year level. For soft sand, the landbank is zero as there are no reserves remaining. A further 306,110 tonnes of soft sand would be required to obtain the minimum landbank required.

8.1.13 Tables 8.3 and 8.4 also show that the existing permitted estimated site production levels are such that the level of production from the consented sites in West Berkshire would struggle to achieve the LAA rate. These matters could prove to constrain future development and inhibit the ability for West Berkshire to maintain the same level of demand moving forward unless new sites are permitted and/or inactive sites become operational.

8.1.14 The future mineral reserve need until the end of the plan period to 2037⁵⁰ based on the LAA rate is outlined in Table 8.5.

Table 8.5 - Aggregate Mineral Requirement in West Berkshire to 2037

	Sharp Sand and Gravel	Soft Sand	Total
LAA Rate	189,233	43,730	232,964
Total Requirement (2020 – 2037 (18 years))	3,406,194	787,140	4,193,334
Permitted Reserves (estimated at start 2020)	2,567,500	0	2,567,500
Remaining Requirement	838,694	787,140	1,625,834

8.1.15 When the level of already permitted reserves is deducted from the requirement from 2020 to 2037 based on the LAA rate, there is a need for approximately an additional 1.63 million tonnes of sand and gravel over the plan period (840,000 tonnes of sharp sand and gravel and 790,000 tonnes of soft sand.)

8.1.16 It is noted that the Replacement Minerals Local Plan for Berkshire (RMLP) sets 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 estimated to contain circa 1,700,000 tonnes of sharp sand and gravel that have not

⁵⁰ The plan period may alter over the course of the consultation upon and development of the West Berkshire Minerals and Waste Local Plan but for the purpose of this local aggregate assessment the plan period has been assumed to be to 2037.

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 over 15 years and with no application forthcoming it seems unlikely). Therefore, the West Berkshire MWLP does not take these reserves into account, and is proposing to provide for the complete requirement identified over the plan period.

- 8.1.17 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 steady and adequate supply of primary construction aggregates at the identified requirement rate. Therefore it is considered important to continue to develop the MWLP that will include the identification of potential sites for future extraction.

8.2 Recycled and Secondary Aggregates

- 8.2.1 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.
- 8.2.2 The overall potential operational construction and demolition waste recycling capacity in West Berkshire in 2019, as indicated by industry surveys is some 744,250 tonnes. A large proportion of this capacity remains available for future growth, as the majority of this capacity is for permanent operations. The level of output of recycled aggregates in 2019 was 344,645 tonnes, which is significantly above the estimated level of consumption of recycled aggregates in West Berkshire of 180,654 tonnes (see Appendix A). Therefore, it is estimated that the volume of recycled aggregates produced in West Berkshire is supporting a demand that extends beyond the authority area. The operational level of construction and demolition recycling capacity of 669,250 tonnes per annum 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. This has been confirmed through conversations with operators.
- 8.2.3 Therefore, there does not appear to be an issue with the balance of supply to deliver the demand for recycled aggregates in West Berkshire.

8.3 Rail Imported Crushed Rock and Marine Sand and Gravel

Rail Depot Capacity

- 8.3.1 As previously mentioned, from 2016 there were effectively four aggregates depot 'sites' operating within West Berkshire, an increase from two such sites prior to this. As such, actual capacity figures are now able to be published, rather than estimates as has been the case previously.
- 8.3.2 Operator returns for suggest that the capacity at West Berkshire's rail depots was in the region of 1,026,500⁵¹ tonnes (although it is likely to be in excess of this as one of the site capacities is estimated based on the sales figure provided, and one operator recorded sales of 50,000 tonnes above the stated capacity).
- 8.3.3 When considered against the proposed LAA rates for rail imported crushed rock and marine sand and gravel (840,266 and 116,574 tonnes respectively (equivalent to the 3 year average sales)), the available rail depot capacity (1,026,500 tonnes) suggests that this infrastructure is sufficient to maintain these rates (956,840 tonnes total), and also accommodate some growth in future. When considered against

⁵¹ Value taken from 2019 LAA as surveyed capacity data was not available at the time of drafting.

2019 sales (893,287 tonnes of crushed rock and marine sand and gravel), the depots appear to be operating just under capacity (although there is some uncertainty over this capacity as one operator has stated that their capacity is 'unknown' so capacity at this site has been estimated based on sales and another operator has recorded sales at 50,000 tonnes above the stated capacity, indicating a greater capacity than estimated). Nevertheless, it will be essential to safeguard this infrastructure in future to ensure current levels of sales are able to be maintained in order to satisfy demand.

9.0 Conclusions

- 9.1 West Berkshire has seen declining sales of land won sand and gravel won in West Berkshire over the last ten years. In 2019, they accounted for only 5% of all aggregate sales in the district. 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. However, the number of active sites and remaining reserves in these sites has decreased in West Berkshire over recent years, and as a result the 10 year average of sales is no longer considered sufficient to plan for a steady and adequate supply of sand and gravel as required by the NPPF. **Therefore, consistent with the approach taken in LAA 2019, it is considered that that the previous 2018 LAA rates should remain in place for 2020 (189,233 tpa for sharp sand and gravel and 43,730 tpa for soft sand). This situation will need to be monitored in future to determine whether these rates remain appropriate, particularly if additional sites become operational and levels of sales again increase.**
- 9.2 This LAA concludes that, **at the end of 2019, West Berkshire had a landbank of 13.6 years for sharp sand and gravel and 0 years for soft sand.** This indicates severe supply issues for soft sand. It is expected that the landbank for sharp sand and gravel will remain above 7 years until approximately 2027. Although the recent economic slow-down in 2020 may extend this period, 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 which will identify sites for mineral extraction. Speculative planning applications for new sites or extensions could also be received in the short term. If sales remain lower than the LAA rate 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.
- 9.3 Based on the LAA rates in this LAA, **additional mineral reserve need for the plan period to 2037 has been estimated at approximately 840,000 tonnes of sharp sand and gravel and 790,000 tonnes of soft sand**
- 9.4 Recycled aggregates sales in 2019 were 344,645 tonnes, which accounted for 23% of total aggregate sales in West Berkshire. It is considered that the most appropriate way to meet increasing demand for recycled aggregates, and encourage their supply in line with sustainability objectives, is to ensure adequate provision is made to meet recent levels of sales (3 year average). **This equates to a level of need for recycled aggregates of 328,637 tonnes per annum. The current operational capacity to produce recycled aggregates in West Berkshire is 669,250 tonnes per annum.** This indicates that there are no capacity issues that would hinder the ability to meet demand.
- 9.5 With regard to rail based imports it is clear that the volume of primary aggregates imported into West Berkshire by rail is significant, and estimated to account for around 73% of the total aggregates sales in 2019. Sales of crushed rock from West Berkshire rail depots were 783,075 tonnes, and sales of marine sand and gravel are estimated at 116,574 tonnes. Sales of crushed rock decreased in 2019 which is especially notable as until this year sales of these aggregates had both been increasing since 2009. **The LAA rates for these aggregates are based on the past 3 year average of sales and equate to 840,266 tpa for crushed rock and 116,574 tpa for marine sand and gravel. Sales of both aggregates in 2019 were estimated as 893,287 tonnes.** The capacity at West Berkshire's rail depots in 2019 was in the region of 1,026,500 tonnes which **indicates that the depots appear to be operating below capacity when considered against 2019 sales. It**

will be essential to safeguard this infrastructure in future to ensure levels of sales are able to be maintained in order to satisfy demand.

10.0 Consultation

10.1 The production of an LAA is a requirement set out by the NPPF and its content is guided by the NPPF and National Planning Practice Guidance (NPPG). The NPPF requires that West Berkshire has regard to the views of the South East Aggregate Working Party (SEEAWP) in the production of the LAA, and SEEAWP will therefore be consulted on the draft document.

10.2 In addition, the South West Aggregates Working Party, the London Aggregates Working Party and the following bodies have also been consulted on a draft version of this LAA, either because they are neighbouring authorities, or it is considered that there is a specific flow of aggregates between West Berkshire and their respective areas:

Reading Borough Council	Gloucestershire County Council
Slough Borough Council	Somerset County Council
Bracknell Forest Council	Hertfordshire County Council
Royal Borough of Windsor and Maidenhead	Leicestershire County Council
Wokingham Borough Council	Shropshire Council
Wiltshire Council	North Somerset Council
Oxfordshire County Council	South Gloucestershire Council
Hampshire County Council	Rhondda, Cynon Taff County Borough Council
Buckinghamshire County Council	Powys County Council
Surrey County Council	

10.3 Comments were received from:

- Oxfordshire County Council
- Mineral Products Association
- Central and Eastern Berkshire

10.4 The following bodies also responded but offered no comments:

- Surrey County Council
- Gloucestershire
- South West AWP
- Hertfordshire County Council
- Shropshire
- Cemex

10.5 The only substantive response was received from Oxfordshire County Council (OCC). As a neighbouring authority, OCC expressed concern regarding the declining level of reserves and very limited current production capacity and noted that this may mask demand leading to excessively low LAA rates. However OCC noted that, subject to the results of the AM survey, it was content with the approach of rolling forward the LAA rate from LAA2018. In response to this comment it has been acknowledged in the LAA that an addendum will need to be prepared when the results of the AM survey are available. Furthermore the emerging Minerals and Waste Local Plan seeks to address the issue of declining reserves by the allocation of additional sites.

10.6 The South East Aggregates Working Party considered the West Berkshire 2020 LAA at their meeting on 24th November 2020. One minor comment was made regarding the wording in the dashboard relating to crushed rock sales (the wording suggested an increase in sales, but the arrow was downwards), which has been amended. No other specific comments were made on the LAA and written confirmation of this has been received in a letter from the SEEAWP secretary, dated 27th November 2020.

Appendix A: Estimate of West Berkshire Primary, Recycled & Total Aggregate Consumption 2006 - 2018

Year	Primary Aggregate Sales in Great Britain (Sand and Gravel and Crushed Rock)	Great Britain Population	Great Britain Primary Aggregate Consumption per head (t)	West Berkshire Population	Est. West Berkshire Estimated Primary Aggregate Consumption	Estimated Recycling Percentage for Great Britain ⁵²	Estimated Recycled Aggregate Consumption (t)	Est. Total Primary and Recycled Aggregate Consumption for West Berkshire (t)
2006	207,137,000	59,083,854	3.51	149,153	522,903	25%	174,301	697,204
2007	208,078,000	59,557,392	3.49	150,086	524,361	25%	174,787	699,148
2008	187,256,000	60,044,620	3.12	151,020	470,973	27%	174,196	645,169
2009	146,812,000	60,467,153	2.43	151,954	368,939	28%	143,476	512,415
2010	136,639,000	60,954,623	2.24	152,888	342,722	28%	133,281	476,002
2011	145,943,000	61,470,827	2.37	153,822	365,202	29%	149,167	514,368
2012	132,930,000	61,881,396	2.15	154,486	331,858	29%	135,548	467,405
2013	134,358,000	62,275,929	2.16	155,394	335,257	28%	130,378	465,634
2014	154,552,000	62,756,254	2.46	155,732	383,527	29%	156,652	540,178
2015	169,969,000	63,258,413	2.69	157,460	423,079	29%	172,807	595,886
2016	176,851,000	63,785,917	2.77	158,576	439,663	29%	179,581	619,244
2017	176,280,000	64,169,395	2.75	158,473	435,342	30%	186,575	621,917
2018	179,935,000	64,553,900	2.79	158,527	442,290	29%	180,654	622,944

Source: AMRI Surveys 2002 – 2014, BGS Minerals Yearbook 2018, ONS (population data)

⁵² Average difference between total aggregates and recycled aggregate for Great Britain, Market summary 1955 to 2012, MPA 2013 (email dated 16th August 2013).
MPA Sustainable Development Reports: <https://mineralproducts.org/sustainability/reports.html>

Appendix B: Estimate of West Berkshire Recycled Construction, Demolition and Excavation Waste 2014 - 2018

	2014	2015	2016	2017	2018	Notes
Waste dealt with by transfer & treatment facilities:	24,804	28,673	50,083	27,029	15,915	
Transfer	17,816	16,264	31,065	11,200	5,919	Only included input to transfer sites outside of West Berks, because the onward movement of waste from these facilities will no longer record West Berkshire as the origin. Waste to transfer facilities within West Berks will be covered by final disposal/treatment in other steps. Source: WDI
Treatment	2,100	3,926	10,143	5,217	9,996	Only included sites outside of West Berks, as waste recycled as product (aggregates, soil) within West Berks included in Step 4. Source: WDI
MRS	2,817	1,702	1,283	1,040	525	Source: WDI
CDE waste recoded as Ch. 19 12 12 at transfer facilities and disposed.	2,071	6,781	7,592	9,572	8,993	Included transfer facilities within plan area to account for waste that is received as Ch. 17 and recoded as 19 12 12. This was done by applying the proportion of CDE waste from West Berkshire at transfer sites within West Berks managing Ch. 17 waste and producing Ch. 19 waste to the total 19 12 12 output. Source: WDI
Waste deposited to land:	103,672	162,916	174,396	168,966	115,156	
Landfill	101,341	51,897	78,373	87,019	78,700	Source: WDI

On/in land	2,331	111,019	96,023	81,947	36,456	Includes waste managed at formerly exempt sites. Source: WDI
Waste dealt with under Exemptions	21,200	21,200	21,200	21,200	21,200	The most common exemption dealing with CDE waste is a 'U1' exemption which allows use of waste to be used in construction without requiring a permit. A report produced for WRAP ⁵³ estimated the mean value for U1 exemptions is 600t. The nature of these exemptions is that they are generally only used once, i.e. as a one-off exercise. The number of U1 exemptions in West Berkshire was obtained from the Environment Agency's Register of Waste Exemptions ⁵⁴ . Each registration lasts for 3 years, and so the total number of exemptions registered in the last 3 years was calculated (106) and multiplied by 600. This was then divided by three to give an approximate annual estimate, giving the figure shown.
Waste recycled as aggregate	156,454	152,533	179,935	167,248	117,924	Estimated from aggregates monitoring survey (including that recycled for non-aggregate use, e.g. construction fill) by multiplying total recycled product with estimated percentage originating in West Berkshire). Source: SEEAWP Aggregate Monitoring Surveys/Authority Annual Waste Surveys.
Berkshire and South East Unattributed Share	133,138	134,774	143,827	74,176	67,376	To account for a share of waste that has not been attributed below 'Berkshire or 'South

⁵³ WRAP, (2013). *Review of the factors causing waste soil to be sent to landfill, 2007 to 2011*. [online] Available at: <http://www.wrap.org.uk/sites/files/wrap/CIS101-301%20Final%20Report%20final%2017%20april%2013.pdf> [Accessed 05 Feb 2019].

⁵⁴ Environment Agency, (n.d.a.). *Register of Waste Exemptions*. [online] Available at: ⁵⁴<https://environment.data.gov.uk/public-register/view/search-waste-exemptions> [Accessed 05 Feb 2019].

						East'. See Local Waste Assessment for methodology.
TOTAL (tonnes)	439,268	500,096	569,441	458,619	347,089	

Assume CDE Arisings = \sum waste dealt with by transfer & treatment facilities + waste deposited to land + waste dealt with under exemptions + waste recycled as aggregate.
 Use EWC codes from Ch. 17, excluding hazardous (assume 20 02 02 (soil and stones) and 19 12 09 (minerals, for example sand, stones) covered by C&I estimate).

Appendix C: Soft Sand Consumption Estimates

These methods outline alternative approaches to estimating the level of consumption of soft sand within West Berkshire.

Method 1: Projected Housing and Other Construction Demand – Estimate from Construction Materials

In terms of future demand for housing in West Berkshire, the latest AMR⁵⁵ suggests that there is a need to deliver an additional 525 dwellings per annum to meet the target of at least 10,500 homes in West Berkshire over the 20 year plan period (to 2026) set out in the adopted Core Strategy.

The West Berkshire District Council AMR 2018 confirms that the average number of bedrooms per household in West Berkshire is 3 (based on 2011 census data). The West Berkshire District Council AMR 2013 confirmed that the majority of dwellings in West Berkshire built in 2012/13 were 4 or more bed houses (table 4.23). However, this table in the AMR also confirms that around 80% of all properties completed in 2012/13 were smaller than 3 bed houses, being 2 and 1 bed houses and 2 and 1 bed flats.

As such it has to be recognised that there are a significant number of semi-detached properties, terraced properties and flats, all of which would use less mortar by virtue of a reduction in exterior walls and a significant number of houses that have less than 3 bedrooms. Therefore the use of a 3 bed detached property is considered by the Authority to be a robust approach that is more likely to over-estimate the demand for building sand based on housing completions.

Using an online construction material calculator⁵⁶ the Council has calculated that volume of building sand required to construct a 3 bed detached house with walls 8.6m by 5.6m by 5.8m is 15 tonnes.

However it is accepted that not all housing constructed will have the same level of need for building sand with some properties requiring more building sand and some requiring less. In addition some builders use the “industry standard” of 4 parts building sand to 1 part cement to produce mortar, whereas others use a ratio of 5:1 (this worse case approach has been used to derive the 15 tonnes figure). It is also accepted that there will be an element of wastage and adjustments conversions of net volumes to gross volumes.

The Council considers that a figure of 15 tonnes of building sand for the construction of an “average house” is a suitably robust and likely to be a more generous figure than the actual average volume required to construct a new dwelling.

Using the figure of 15 tonnes of building sand required per dwelling this equates to a need for around 7,875 tonnes of building sand per year to achieve the requirements of the adopted West Berkshire Core Strategy (using the 525 dwellings per annum target).

West Berkshire District Council is in the process of reviewing the Local Plan, which will assess and seek to meet the housing and employment needs of the authority to 2037. Work on the plan is underway and it is likely it will result in a need to enhance the planned

⁵⁵ West Berkshire Local Plan Annual Monitoring Report 2018 – Housing, January 2020
<https://info.westberks.gov.uk/CHttpHandler.ashx?id=48513&p=0>

⁵⁶ https://source4me.co.uk/calculate_brick_mortar.htm

provision for housing (the Local Housing Need figure, based on the 2014 – based household projections, gives West Berkshire a LHN of 551 dwellings per year. If the figure of 551 new dwellings per year is used this would equate to a demand for around 8,265 tonnes of building sand per year to achieve these requirements.

The Council recognises that new housing is only one element of demand for construction aggregates. Other demand from non-housing development such as infrastructure and industrial and commercial buildings and repair and maintenance of existing infrastructure places a demand on aggregates. The ONS Output in the Construction Industry dataset⁵⁷ shows that on average over the period 2008 – 2018, housing accounted for 26% of the value of construction output in Great Britain and other non-housing development accounted for 74% of the value of construction output (these figures include repair and maintenance). Using this to estimate the demand for soft sand from non-housing development amounts to 22,413 tonnes at 525 dwellings per year, and 23,523 tonnes at 551 dwellings per year.

In total, this would equate to demand for between **30,288 tonnes** (at 525 dwellings per year) and **31,788 tonnes** (at 551 dwellings) of soft sand in the district.

Method 2: Projected Housing and Other Construction Demand - Estimate from UK Soft Sand Demand

The Minerals yearbook published by BGS (2015 Edition) confirms that in 2014⁵⁸ the UK produced 171,400,000 tonnes of aggregates (see Aggregates table on page 14) and it goes on to confirm at page 62 that 6,960,000 tonnes of building sand was consumed in the UK in 2014. This equates to around 4%, as such it could be broadly stated that it is therefore reasonable to assume that of all aggregates required in the UK around 4% is building sand. N.B. The Minerals yearbook is produced every year but the latest figure for building sand production is 2014.

As discussed the most up to date evidence for housing demand in West Berkshire suggests there is a need to deliver 551 homes per year to meet future demand. Using a generic figure of 55 tonnes of aggregates (of all types) required per dwelling (midway between the 50 - 60 tonnes quoted by BGS and the MPA) this would equate to 30,305 tonnes of aggregates per year needed to deliver this level of new housing.

Using 30,305 tonnes of aggregates per year for new housing to calculate demand for aggregates from non-housing construction, (74% of total value of construction output as detailed in Method 1), would amount to 86,253 tonnes. In total this would equate to demand for 116,558 tonnes of aggregates overall in the district.

Using the estimates of total aggregate consumption in West Berkshire based on a proportion of Great Britain aggregate consumption as outlined in Appendix A, this equates to a demand of 435,342 tonnes of aggregates in 2017.

As detailed above, it is estimated that approximately 4% of all aggregates used is building sand and as such the demand for soft sand for West Berkshire using this calculation method would equate to between **4,662 – 17,414 tonnes** per annum.

Method 3: Using Population to Calculate Demand

⁵⁷<https://www.ons.gov.uk/businessindustryandtrade/constructionindustry/datasets/outputintheconstructionindustry>

⁵⁸<https://www.bgs.ac.uk/mineralsuk/search/downloadSearch.cfc?method=viewDownloadsByCategory&panelNumber=4>

Another way to calculate demand for soft sand is to use population as a proxy to demand. Based on the fact that the population of West Berkshire is circa 0.249% of the population of Great Britain in 2014, then if this percentage (rounded up to 0.25%) is applied to the total building sand (including both building sand for construction and asphaltting) sales in Great Britain in 2014 (6,960,000) then this would equate to a demand for **17,400 tonnes** per annum.

If this calculation is revisited to remove the building sand used in asphaltting (1,170,000 tonnes) then this suggests that the level of demand at the UK level for building sand of the type found in West Berkshire, would be in the region of 5,912,800 tonnes. Taking the approach that the population of West Berkshire is 0.25% of the total population of the UK suggests that the level of demand for Soft Sand in West Berkshire is **14,475 tonnes**.

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
MHCLG	Ministry of Housing, 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 overburden, 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,
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