

Minerals Local Plan Background Document

Worcestershire Local Aggregate Assessment 2016

August 2016

**Data covering the period up to
31/12/2015**

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1. Executive Summary

		Sand and gravel	Crushed rock
Production (demand)	2015 production	0.538 million tonnes	0 tonnes
	3-year average (mean)	0.572 million tonnes	0 tonnes
	10-year average (mean)	0.637 million tonnes	0.036 million tonnes
	'Baseline' production guideline identified in adopted Minerals Local Plan	N/A	N/A
	Annual Production Guideline	0.637 million tonnes	0 tonnes
	Informatives	Production guideline based on 10-year average. No other relevant local information which indicates deviation from this average is required.	Significant constraints on delivering crushed rock production, and lack of sites being put forward by industry, indicate deviation from 10 year average is appropriate.
Landbank (Supply)	Permitted Reserves at 31st December 2015	0.895-0.945 million tonnes	0 tonnes
	Number of sites at 31st December 2015	4 "active" + 2 "inactive"	0
	Landbank at 31st December 2015 (based on annual production guideline)	1.41-1.48 years	0 years
	Landbank requirement	7.00 years	10.00 years
	Informatives	22% of reserves in "inactive" sites. Planning permission granted for 1 additional site (1.4 million tonnes) and applications pending for two further sites.	Discussions with the West Midlands, East Midlands, South West and South Wales Aggregate Working Parties concluded that Worcestershire's production guideline for crushed rock should be reduced to 0 tonnes, but with the emerging Minerals Local Plan providing a policy framework which could enable crushed rock development to take place. The Mineral Planning Authorities and Aggregate Working Parties have indicated that supplying Worcestershire's demand for crushed rock can be accommodated.

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2. Introduction

"Minerals are essential to support sustainable economic growth and our quality of life. It is therefore important that there is sufficient supply of material to provide the infrastructure, buildings, energy and goods that the country needs. However, since minerals are a finite natural resource, and can only be worked where they are found, it is important to make best use of them to secure their long-term conservation."

National Planning Policy Framework, paragraph 142

- 2.1. The National Planning Policy Framework¹ requires Minerals Planning Authorities (MPAs) to plan for a steady and adequate supply of aggregates by:
 - preparing an annual Local Aggregate Assessment (LAA) "*based on a rolling average of 10 years sales data and other relevant local information, and an assessment of all supply options (including marine dredged, secondary and recycled sources)*",
 - "*participating in the operation of an Aggregate Working Party and taking the advice of that Party into account when preparing their Local Aggregate Assessment*", and
 - "*making provision for the maintenance of landbanks of at least 7 years for sand and gravel and at least 10 years for crushed rock*".
- 2.2. The LAA is an assessment of the demand for and supply of aggregates in the county. Its prime purpose is to assist MPAs in their efforts to provide for the steady and adequate supply of local aggregates, where reasonable and practicable to do so. It will inform the Minerals Local Plan and will be a material consideration in the determination of planning applications.
- 2.3. An updated LAA was not produced for Worcestershire in 2015, and instead a full review of the LAA and its methodology has taken place. This Worcestershire Local Aggregate Assessment 2016 is therefore a fully refreshed document and has taken into account:
 - The requirements of the *National Planning Policy Framework* and *National Planning Practice Guidance*
 - Ongoing discussions with the West Midlands and other Aggregate Working Parties on Worcestershire's limited ability to supply crushed rock
 - Responses to a consultation held in 2015
 - *Practice Guidance on the Production and Use of Local Aggregate Assessments* (April 2015) produced by the Minerals Products Association and Planning Officers Society²

¹ Department for Communities and Local Government (March 2012) *National Planning Policy Framework*, paragraph 145

² Planning Officers Society, Mineral Products Association (April 2015) *Practice Guidance on the Production and Use of Local Aggregate Assessments*
http://www.mineralproducts.org/documents/LAA_Guidance.pdf

- Regional and national data updates which have been published recently.
- 2.4. A separate background document has been prepared to set out how the Council will approach the issue of the steady and adequate supply of industrial and energy minerals³.

Next steps

- 2.5. The Local Aggregate Assessment will be updated annually in consultation with the West Midlands Aggregate Working Party (WM AWP) and other AWPs as required, and will be published by the Council as part of the Minerals and Waste Local Development Scheme Annual Monitoring Report (AMR) in December each year. The current and previous AMRs are available on www.worcestershire.gov.uk/AMR. If you would like to be notified when new AMRs are published please contact minerals@worcestershire.gov.uk providing your e-mail address.

³ Worcestershire County Council (2015) *Ensuring Adequate and Steady Supply of Industrial and Energy Minerals*, available at www.worcestershire.gov.uk/mineralsbackground

3. Secondary and recycled aggregates in Worcestershire

- 3.1. National policy states that, so far as practicable, planning authorities should "*take account of the contribution that substitute or secondary and recycled materials and minerals waste would make to the supply of materials, before considering extraction of primary materials*".⁴

Substitute materials

- 3.2. The use of substitutes will vary depending on individual development proposals. Their use is likely to be more strongly influenced by sustainable design and construction policies in Local Plans rather than the Minerals Local Plan.
- 3.3. There is no data available to indicate the level of contribution made by substitute materials.

Secondary aggregates

- 3.4. Secondary aggregates is a term often used to describe mineral that is produced as a by-product of other mining or quarrying activities or as a by-product of an industrial process.
- 3.5. There are currently no industrial processes in Worcestershire which are known to produce secondary aggregates. However, there is potential for some provision of secondary aggregates in the future:
- An Energy from Waste Plant is currently under construction at Hartlebury, near Kidderminster.⁵ This plant is predicted to produce 40,000 tonnes per annum of incinerator bottom ash which may be capable of being used as secondary aggregate, although further processing would be required to enable this.
 - A separate application has been submitted for a facility to process 120,000 tonnes per annum of incinerator bottom ash at Veolia's Sandy Lane site near Bromsgrove.⁶ This application is currently under consideration.

Recycled aggregates

- 3.6. Recycled aggregates arise from several sources, notably construction and demolition waste (C&D waste) such as the demolition of buildings, asphalt planings from road resurfacing and railway track ballast. "Recycling" aggregates involves the processing of waste materials to remove unwanted or inappropriate material such as fines, wood, plastic and metal. It will usually include crushing and screening. The recycled aggregate is then re-used, usually for a less demanding application.

⁴ Department for Communities and Local Government (March 2012) *National Planning Policy Framework*, paragraph 143

⁵ Further information about the development of the Energy from Waste Plant can be viewed at <http://www.severnwaste.com/recovery/envirecover-project/>

⁶ Planning application 13/000027/CM.

- 3.7. The supply of recycled materials will depend on the county's capacity to process these materials. The Waste Core Strategy⁷ sets targets for capacity at static plant, but due to data limitations it is not possible to monitor the role of mobile plant.
- 3.8. There are no reliable assessments of C&D arisings or set approaches for making estimates about waste arisings or projecting waste growth for C&D waste, nationally or locally. The method used to establish projections in the Waste Core Strategy assumes that development would initially be concentrated on previously developed (brownfield) land which would generate considerable volumes of C&D waste, and that over time more new development would take place on greenfield sites resulting in the amount of C&D waste decreasing. The projected arisings of C&D waste in Worcestershire based on this approach are set out in Table 1.

Table 1. Projected Arisings of Construction and Demolition Waste (Worcestershire Waste Core Strategy)

	2010	2015	2020	2025	2030
Projected arisings of C&D waste	510,555	419,520	419,520	419,520	419,520

- 3.9. The Waste Core Strategy makes provision for at least 25% of the capacity to manage this waste to be met from static sites. Static facilities in Worcestershire received approximately 141,000 tonnes of inert waste for treatment in 2014, with a further 106,000 tonnes received for transfer.⁸ It is not currently possible to assess the proportion of this which was used as aggregate.
- 3.10. Mobile processing and re-use on site is common at construction sites across the county, although no data is available about the volume processed by mobile plant.
- 3.11. Worcestershire does not have any rail depot for the import or export of minerals (including secondary and recycled materials). Water transportation takes place on the River Severn, but this is limited to moving "as-dug" material from one site in Worcestershire to processing plant at another. The wharves at these sites therefore do not currently enable imports or exports of minerals. It is therefore concluded that all imports and exports currently take place by road transport.

⁷ The Waste Core Strategy for Worcestershire was adopted in November 2012. The relevant documents are available to view on www.worcestershire.gov.uk/wcs.

⁸ Environment Agency Waste Data Interrogator 2014, interrogated for treatment and transfer facilities for inert waste in Worcestershire.

Potential to increase contribution from secondary and recycled materials

- 3.12. Despite the current lack of information on the level of use of secondary and recycled materials locally, these account for 29% of the total market nationally.⁹
- 3.13. We are not aware of any potential drivers that would result in significant increases in arisings or recovery for these materials. We also have no evidence to indicate whether Worcestershire is likely to produce any more or any less than the national average.
- 3.14. The Mineral Products Association's evidence to the examination in public of the Staffordshire Minerals Local Plan in 2016 states that:
- "secondary sources benefit from significant fiscal advantages over primary materials in the form of exemptions from the Aggregates Levy and avoidance of the Landfill Tax. As such, they will continue to be much cheaper than primary materials and thus favoured where specifications can accommodate them. Moreover, the [Mineral Products Association]'s members invariably offer a range of products including primary and secondary materials to customers so the [minerals planning authority] can have the assurance that the industry is not needlessly extracting primary materials when secondary materials will do the job just as well.*
- Arisings of secondary materials will continue to rise and fall with economic conditions in the same way that demand for primary materials varies. Therefore, the two types of material will parallel each other and we expect the level of use of recycled and secondaries to remain broadly at the current level of 28 - 29% of total consumption. Given this any increase in primary mineral extraction activity will not be at the expense of secondary usage."*¹⁰
- 3.15. The Minerals Local Plan will give (and the Waste Core Strategy already gives) policy encouragement to increasing the use of secondary and recycled materials. However, the lack of data will make this difficult to monitor at the local level, and the evidence above from the Minerals Products Association indicates that this Local Aggregates Assessment should not rely on any significant alterations to the proportion of supply.
- 3.16. On this basis, this LAA assumes that the contribution of substitute, secondary and recycled materials is already accounted for prior to considering the sales figures for primary aggregates.

⁹ Mineral Products Association (2015) *The Mineral Products Industry at a Glance*, page 7, http://www.mineralproducts.org/documents/Mineral_Products_Industry_at_a_Glance_2015.pdf. 60 million tonnes of secondary & recycled material out of a total aggregates supply market of 209 million tonnes (28.7%).

¹⁰ Mineral Products Association's written statement for day 1 of the Staffordshire Minerals Local Plan examination in public. Response to question 3 in document WS.05 in the examination document library, <http://www.staffordshire.gov.uk/environment/planning/policy/NewMineralsLocalPlan/Minerals-Policy-Document-Library.aspx>

4. Marine sand and gravel

- 4.1. Sand and gravel deposits occur in many offshore areas around Britain. Most dredging takes place in coastal waters less than 25 km offshore and in water depths of between 18 m and 35 m. Marine aggregates can have special qualities which meet particular specifications.
- 4.2. Worcestershire is an inland county and as such has no marine resources. There are also no ports that land marine-won aggregate in the county. However, a national survey¹¹ showed that a relatively small amount (13,000 tonnes) of marine sand and gravel was imported into Worcestershire in 2009 (compared with 12,000 tonnes imported into Herefordshire and Worcestershire together in 2005).
- 4.3. As an inland county, the Worcestershire Minerals Local Plan cannot make provision for the production of marine sand and gravel. We have no evidence that there is a particular demand for marine-dredged aggregates in Worcestershire, and it is likely that this relatively low level of imports is simply a normal function of the commodities market for aggregates.
- 4.4. Worcestershire does not have any rail depot for the import or export of minerals. Water transportation takes place on the River Severn, but this is limited to moving "as-dug" material from one site in Worcestershire to processing plant at another. The wharves at these sites therefore do not currently enable imports or exports of minerals. It is therefore concluded that all imports and exports currently take place by road transport.

¹¹ Department for Communities and Local Government, British Geological Survey, Welsh Assembly Government (October 2011) *Collation of the results of the 2009 aggregate mineral survey for England and Wales*. An updated survey for 2014 is expected to be published during 2016, and this will be taken into account in future updates of the LAA.

5. Primary Aggregates: Sand and Gravel

- 5.1. There are two distinct types of sand and gravel deposits in Worcestershire:
- Bedrock deposits: solid sands of the Kidderminster Formation and Wildmoor Formation
 - Surface deposits: river terrace deposits of the rivers Severn and Avon and glacial deposits found in association with boulder clay
- 5.2. The solid sands, river terrace and glacial deposits will be considered collectively under the term “sand and gravel” in the rest of this report.¹²

Estimating demand

10 years sales average

- 5.3. The starting point for setting a production guideline for sand and gravel in the LAA is to estimate demand on the basis of a rolling average of 10 years sales data (the 10-year average) before considering other relevant local information.
- 5.4. Table 2 and Figure 1 show the levels of sand and gravel sales in Worcestershire and Herefordshire over the last 10 years (from 2006 onwards). Worcestershire's data was combined with Herefordshire in 2012 and 2013 due to issues of commercial confidentiality¹³. Permission was given by the affected operator in Herefordshire to enable the data to be shown separately again in 2014 and 2015¹⁴.
- 5.5. The most recent data available is for 2015.

Table 2. Sand and gravel sales 2006 – 2015 (million tonnes)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Worcestershire	0.7	0.81	0.76	0.52	0.62	0.63	-	-	0.520	0.538
Herefordshire & Worcestershire Combined							0.62	0.659		

Source: West Midlands Aggregate Working Party Annual Reports¹⁵. Data for sales in 2012-2013 combined for Herefordshire and Worcestershire due to confidentiality requirements.

- 5.6. In 2015, sales of sand and gravel in Worcestershire were 0.538 million tonnes.

¹² For further information about the nature, location and potential significance of the deposits see background document *Analysis of Mineral Resources in Worcestershire* at www.worcestershire.gov.uk/mineralsbackground

¹³ Long-standing confidentially arrangements agreed between the industry and government to protect operators' commercial interests. This means that sales data will not be released or published where there are fewer than 3 operational sites in an area unless express permission is given by the operators affected. From 2012 onwards there has been fewer than 3 operational sites in Herefordshire.

¹⁴ Permission given by Tarmac in email dated 4th July 2016.

¹⁵ Data for all West Midlands Mineral Planning Authorities is available in the West Midlands Aggregate Working Party Annual Reports at <https://www.gov.uk/government/collections/aggregates-working-parties-annual-reports>

5.7. The 10 year average of sales from 2006-2015 including combined data for 2012-13 is 0.637 million tonnes. This is 18.5% higher than the 2015 sales figure.

5.8. The 10-year average has a number of weaknesses that make sole reliance on it undesirable:

- sales will vary depending on both supply and demand factors in the market, and basing a production guideline on this alone could risk following historical trends rather than meeting future demand;
- it incorporates combined data with Herefordshire which could skew the average;¹⁶
- it includes data from a period of significant economic downturn and therefore may not represent the demand likely to be experienced as the economy recovers; and
- the adopted Minerals Local Plan was beyond its expected implementation period, with a limited number of Preferred Areas and saved policies, which could have limited operator interest in bringing sites forward in Worcestershire during this time, thereby depressing the annual sales figure.

5.9. Therefore, whilst the 10-year average is considered to be the best starting point, it needs to be sense-checked against other indicators.

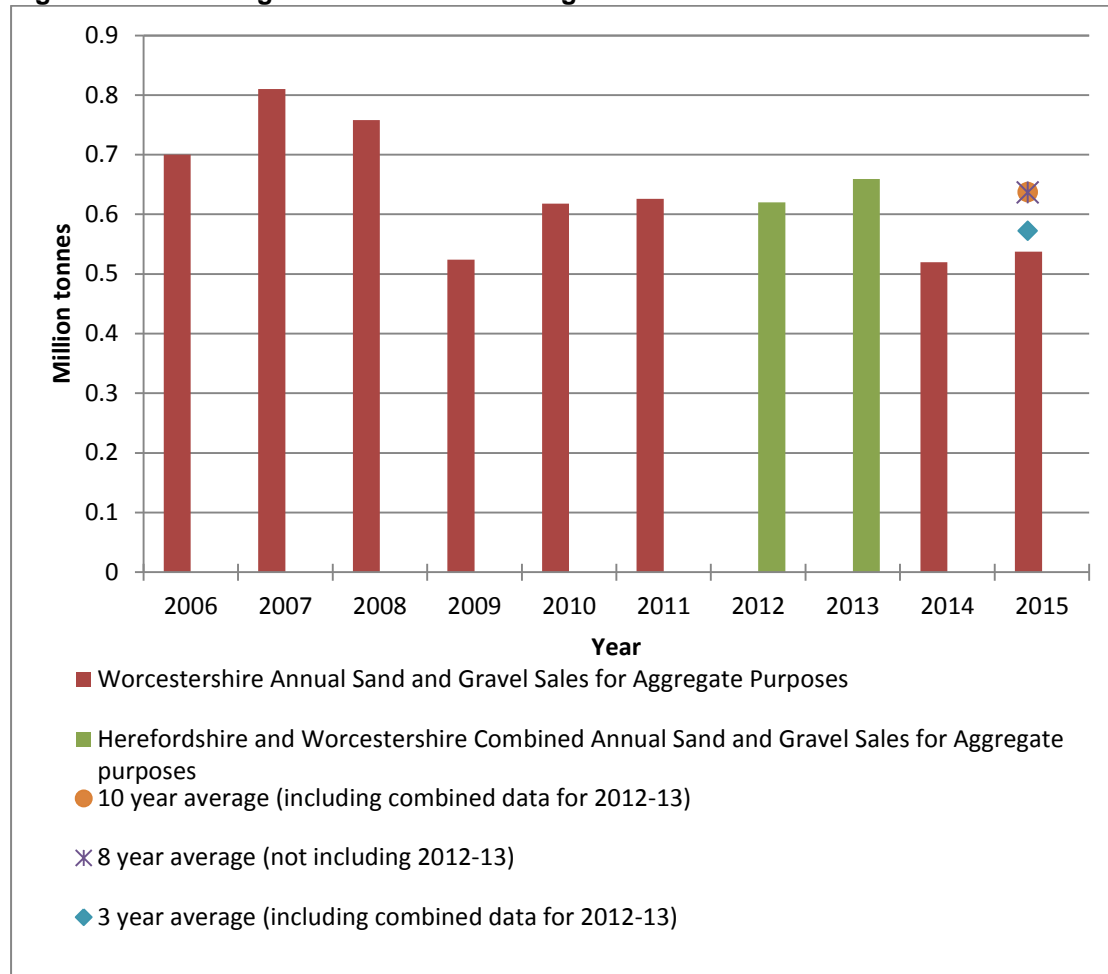
3 year sales average

5.10. An average of the last 3 years sales (including combined data for 2013) gives an indication of the most recent sales trends to identify the general trend of demand.

5.11. The 3 year average from 2013-2015 is 0.572 million tonnes. This is 10% lower than the 10 year average, but 6.4% higher than the 2015 sales figure. The trend highlighted by this 3 year average does not appear significant enough to indicate that it would be appropriate to alter the production guideline from the 10 year average.

¹⁶ If we were to discount the combined data for 2012 and 2013, the average over the 8 remaining years between 2006-2015 is also 0.637 million tonnes when rounded to 3 decimal places (10 year average of 0.6372 million tonnes compared to 8 year average of 0.63665 million tonnes).

Figure 1. Sand and gravel annual and average sales



Sub regional apportionment

5.12. A further indicator to be taken into account is the sub-regional apportionment derived from the *National and regional guidelines for aggregates provision in England*.¹⁷ These guidelines were produced to cover the period 2001-2016 and updated for the period 2005-2020 and set out the level of provision which should be made by each Region. An annual "sub-regional apportionment" was derived from the 2001-2016 Guidelines, and for Worcestershire this was 0.871 million tonnes of sand and gravel. No sub-regional apportionment based on the 2005-2020 Guidelines has been agreed.

5.13. This sub-regional apportionment is 62% higher than the 2015 sales figure and this level of production has not been achieved in Worcestershire since 2003.

¹⁷ Department for Communities and Local Government
<https://www.gov.uk/government/publications/national-and-regional-guidelines-for-aggregates-provision-in-england-2005-to-2020>

- 5.14. In the Inspector's Report on the partial review of the Northamptonshire Minerals and Waste Local Plan,¹⁸ the Inspector stated “as they (*the national guidelines*) were based on production before the recession and within a different policy context, it would not be prudent to accord them very significant weight.”
- 5.15. This suggests that it would not be appropriate to increase the production guideline in this LAA above the 10 year average on the basis of the *National and regional guidelines* or the sub-regional apportionment.

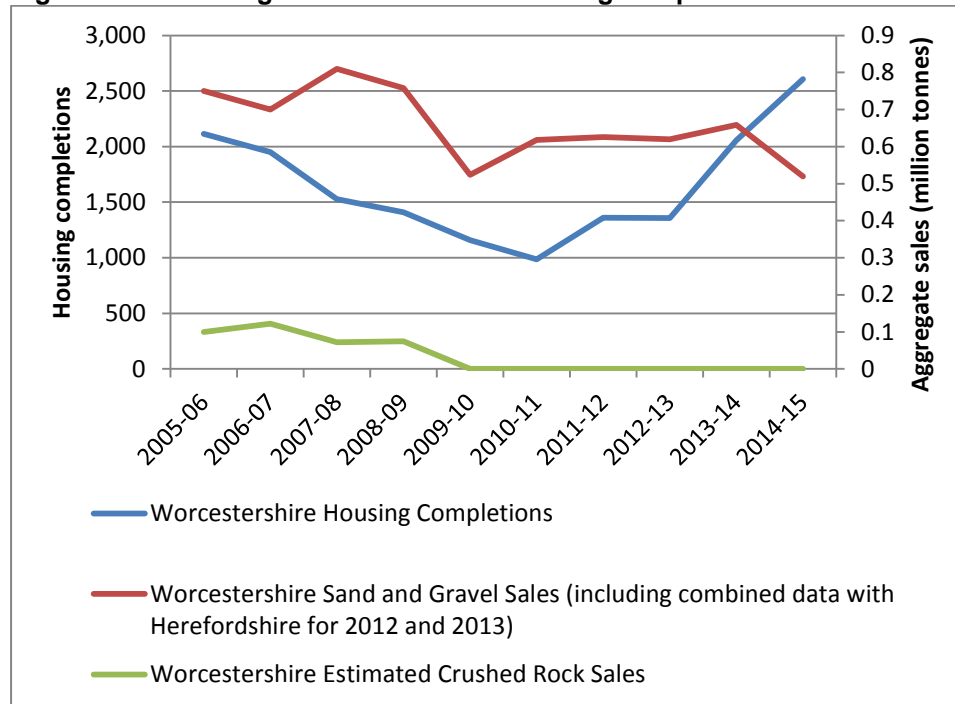
Factors which might influence demand

- 5.16. Considering levels of planned development could provide an indication of whether demand for sand and gravel is likely to significantly increase or decrease, warranting an adjustment in the production guideline.
- 5.17. Figure 2 shows sand and gravel sales against housing completions in the county over the last 10 years. This does not indicate a direct correlation between housing completions and the level of sand and gravel sales.
- 5.18. Figure 2 shows that the level of housing completions has varied annually over the last 10 years (between 987 and 2,606), with an average of 1,653 completions per year. Over the next 10 years, the anticipated level of housing provision is 2241.1 per year.¹⁹ If delivered as anticipated, this represents a 35% increase on the average over the last 10 years, but is slightly lower than the number of actual completions seen in 2014/15. A steady and adequate supply of aggregates, including sand and gravel, will be crucial to enabling the level of planned housing development to be delivered.

¹⁸ The Planning Inspectorate (August 2014) *Report on the Examination into the Northamptonshire Minerals and Waste Local Plan (Northamptonshire Minerals & Waste Development Framework Partial Review)*
<http://www.northamptonshire.gov.uk/en/councilservices/Environ/planning/policy/minerals/Documents/PDF%20Documents/ReportToNorthamptonshireCountyCouncilV3.pdf>

¹⁹ Based on figures in South Worcestershire Development Plan (2016), Wyre Forest Core Strategy (2010), Bromsgrove District Plan Proposed Submission Version, and Borough of Redditch Local Plan No.4 Submission (March 2014)

Figure 2. Sand and gravel sales versus housing completions

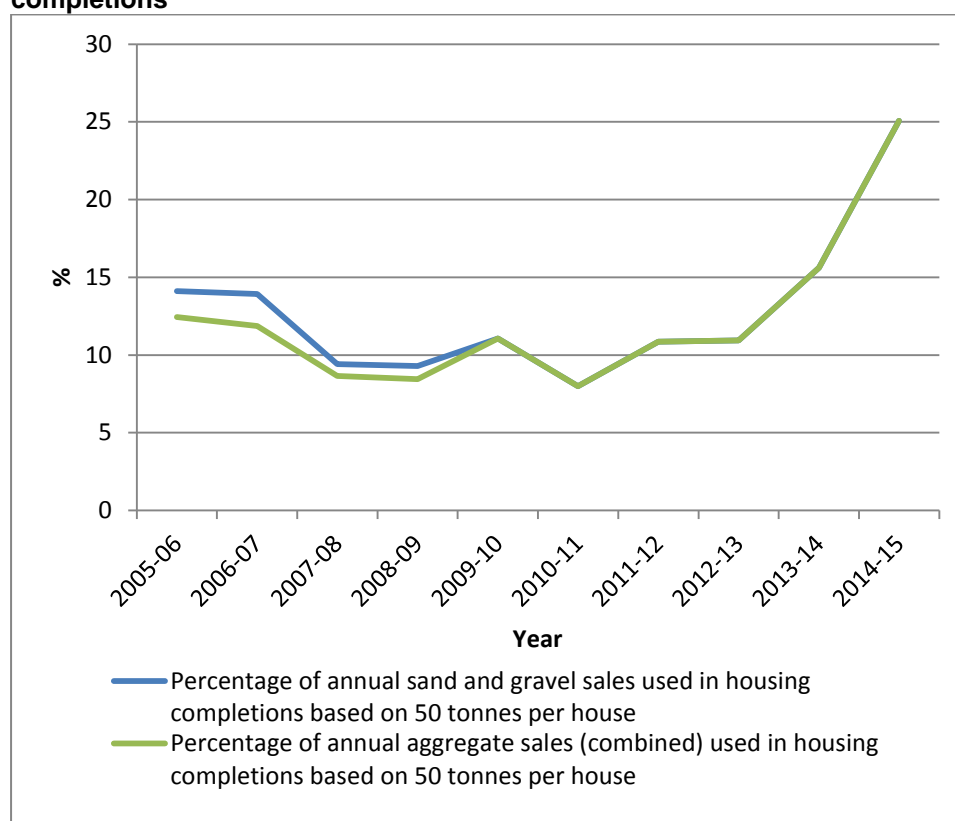


5.19. The Mineral Products Association states that the construction of a typical new house uses up to 50 tonnes of aggregates from the foundations through to the roof tiles.²⁰ Whilst this is a generalisation which should be treated with a degree of caution and does not distinguish between use of sand and gravel and crushed rock, multiplying this figure with housing completions shows that the proportion of sand and gravel sales which might be attributable to new houses is variable, ranging from 9% to 25%, as shown in Figure 3.

5.20. When considered in combination with crushed rock (Figure 3), these estimates show that new housing may have accounted for between 8% and 25% of aggregate sales. This does not include any requirements for infrastructure supporting housing development or the significant amount used in maintaining or refurbishing existing housing stock.

²⁰ Mineral Products Association, *Aggregates* web page http://www.mineralproducts.org/prod_agg01.htm

Figure 3. Percentage of sand and gravel sales estimated to be used in housing completions



5.21. There are no figures available to indicate the level of demand other types of development might create.

5.22. Whilst it is recognised that significant levels of development are proposed in the Local Plans and Strategic Economic Plan in Worcestershire, the variability in the proportion of demand from housing development and lack of data for other forms of development indicate that it would not be appropriate for the production guideline in this LAA to deviate from the 10 year average on the basis of projected housing numbers.

Supply options / constraints

Indigenous supply

Sites and permitted reserves

5.23. Of the 6 sand and gravel sites in Worcestershire shown in Table 3, four were "active" (in production for some time during the year) and two "inactive" (worked in the past and contain permitted reserves) during 2015. As of 31st December 2015, four of these sites had permitted reserves of sand and gravel for aggregate purposes, one was exhausted during the year, and one of the sites classed its permitted reserves as "non-aggregate uses".²¹

²¹ In the 2015 annual survey returns, one of the sites classed its permitted reserves as "non-aggregate" and therefore they have not been included in the figures for permitted reserves below, but it is possible that the material could be reclassified and sold as aggregate in future.

5.24. None of the sites has conditions attached to its planning permission which would restrict the productive capacity of the site.

Table 3. Sand and gravel sites in 2015

Site name	Company	Location
Ball Mill Quarry	Tarmac	Church Farm, Grimley
Cinetic Quarry (also known as Wildmoor Quarry)	Wildmoor Quarry Products Ltd	Sandy Lane, Wildmoor, Bromsgrove
Clifton	Tarmac	Clifton Arles Wood, Severn Stoke
Pinches 3 Quarry	J & V Kelly Ltd	Wildmoor Lane, Bromsgrove
Ryall / Ripple Quarry	Cemex UK Materials Ltd	Ryall House Farm, Tewkesbury Road, Ryall, Upton upon Severn
Sandy Lane Quarry	Veolia ES Landfill Limited	Sandy Lane, Wildmoor, Bromsgrove

5.25. The total permitted reserves for sand and gravel at 31st December 2015 was 0.895-0.945 million tonnes²². The permitted reserves contained within sites classed as "inactive" in 2015 account for approximately 22% of these reserves.

Site allocations and applications pending

5.26. A planning application received in 2009 (09/000085/CM) to extract 430,000 tonnes of sand and gravel from a new quarry at Strensham is subject to a holding objection from the Highways Agency. This site was allocated as a Preferred Area in the adopted County of Hereford and Worcester Minerals Local Plan 1997.

5.27. Planning applications were received during 2015 for:

- an extension to Clifton Quarry (planning application reference 15/000006/CM) for an estimated 2.2 million tonnes, and
- a new site at Ryall Court Farm (planning application reference 15/000013/CM) for an estimated 1.4 million tonnes. Part of this site was allocated as a Preferred Area in the County of Hereford and Worcester Minerals Local Plan 1997.

These applications were still to be determined at 31st December 2015.²³

5.28. Information received from the minerals industry and Mineral Products Association suggests that some caution should be given to the remaining Preferred Areas in the adopted 1997 Minerals Local Plan: "*if allocations from*

²² Most sites stated a single figure for their permitted reserves, but one site stated a range.

²³ Ryall Court Farm Quarry was granted planning permission on 23rd May 2016. The extension to Clifton quarry was granted planning permission on 12th July 2016. These will count towards Worcestershire's stock of permitted reserves in the next LAA.

*that Plan are still outstanding it suggests that they are undeliverable and should not be relied on"*²⁴.

5.29. Two calls for sites have been undertaken in the development of the new Minerals Local Plan. A number of potential sites for sand and gravel extraction have been proposed. These sites are under consideration as site allocations and a Deliverability Assessment is being undertaken to assess the likelihood of these sites being viable during the life of the new Minerals Local Plan. However, the minerals industry and Mineral Products Association state that they struggle to find sand and gravel sites of sufficient size to work in Worcestershire, except as isolated satellite operations which are not long term solutions.²⁵

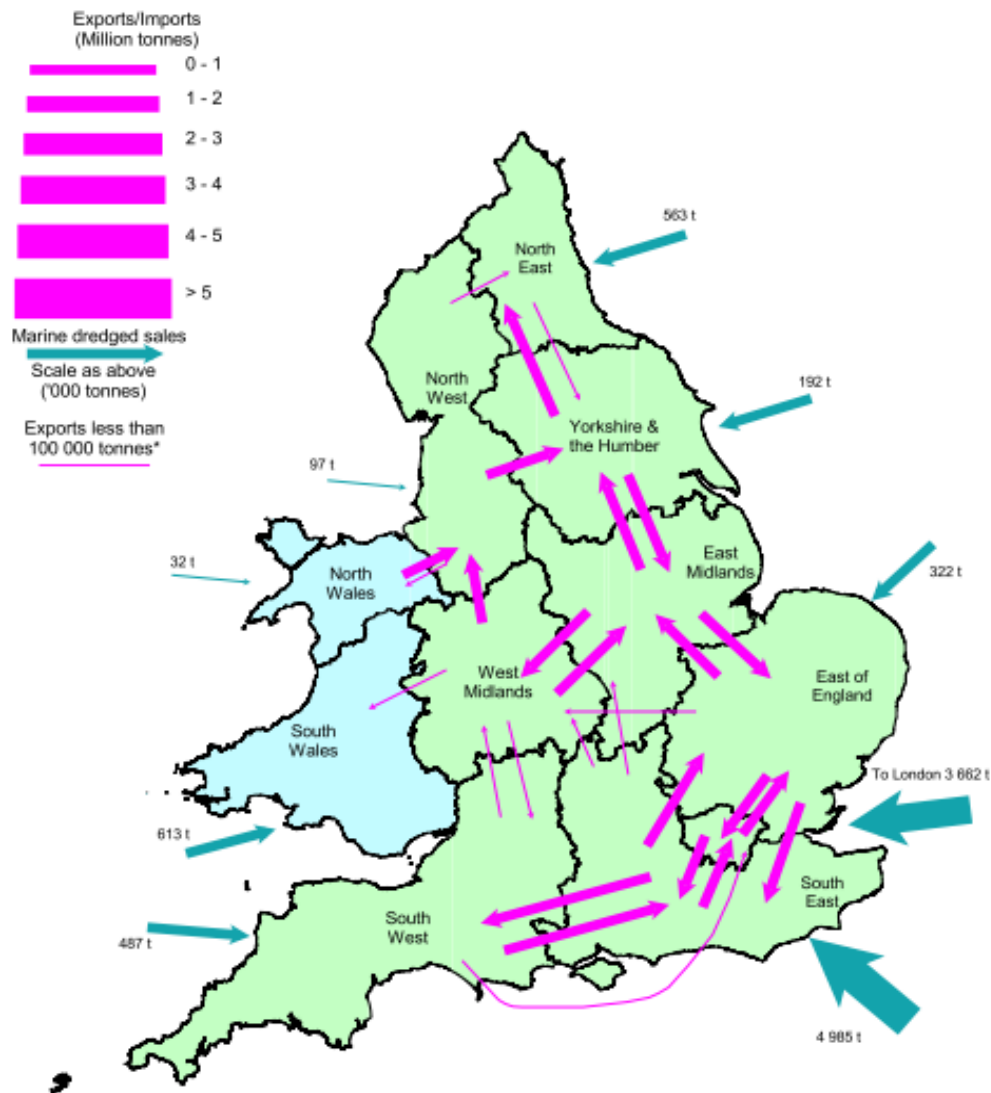
Imports and exports of primary aggregates

5.30. The best source of information about imports and exports is the *Aggregate minerals survey for England and Wales*. This survey is undertaken about every 4 years and one aspect that it considers is the movement of material. It sets out clear information relating to the inter-regional flow of aggregates. The pattern of movements of sand and gravel is illustrated in Figure 4.

²⁴ Mineral Products Association comments on Minerals Local Plan Background Documents consultation, summer 2015 (response reference D024-1899)

²⁵ Mineral Products Association comments on Minerals Local Plan Background Documents consultation, summer 2015 (response reference D024-1899)

Figure 4. Sand and gravel inter-regional flows, 2009



Source: "Collation of the results of the 2009 aggregate minerals survey for England and Wales" Communities and Local Government (October 2011)

5.31. The data which is available for Worcestershire in the *Aggregate minerals survey for England and Wales (2009)* is presented in Table 4, Table 5, and Table 6, showing that Worcestershire was a net exporter of sand and gravel in that year.

Table 4. Exports: Sales of primary sand and gravel from Worcestershire by principal destination sub-region in 2009

Destination	Land-won sand and gravel	MPA %
Worcestershire	114,000	52%
West Midlands	59,000	27%
Elsewhere	45,000	21%
Total	218,000	-

Source: "Collation of the results of the 2009 aggregate minerals survey for England and Wales" Communities and Local Government (October 2011) p82

Table 5. Imports: Sales of primary sand and gravel to Worcestershire in 2009

	Land-won sand and gravel	Marine sand and gravel	Total sand and gravel
Worcestershire	45,000	13,000	58,000

Source: "Collation of the results of the 2009 aggregate minerals survey for England and Wales" Communities and Local Government (October 2011) p95

Table 6. Balance of aggregate exports and imports in Worcestershire in 2009

	Exports	Imports	Balance
Sand and Gravel	104,000	58,000	Net exporter

Source: Based on data in "Collation of the results of the 2009 aggregate minerals survey for England and Wales" Communities and Local Government (October 2011)

5.32. Worcestershire does not have any rail depot for the import or export of minerals. Water transportation takes place on the River Severn, but this is limited to moving "as-dug" material from one site in Worcestershire to processing plant at another. The wharves at these sites therefore do not currently enable imports or exports of minerals. It is therefore concluded that all imports and exports currently take place by road transport.

Conclusion: Balancing demand and supply

5.33. Whilst there is no evidence that demand for sand and gravel is likely to decrease, there is also not sufficient evidence to suggest that the production guideline should vary from the 10 year average. **The production guideline for sand and gravel identified by this Local Aggregates Assessment is therefore 0.637 million tonnes.**

5.34. Based on this production guideline and the stock of permitted reserves of 0.895-0.945 million tonnes, **Worcestershire had a landbank of 1.41-1.48 years at 31st December 2015.**

5.35. This is a strong indicator that there is not a sufficient stock of permitted reserves in the county. However, two further sites have been granted planning permission in 2016, with one further application pending at the time of publication. Work is also well underway on a new Minerals Local Plan and a number of sites have been submitted for inclusion in that plan. Some of those sites are likely to be brought forward in the near future.

5.36. However, the minerals industry has indicated that there are likely to be significant constraints on finding sites of sufficient size and quality in the county in future.

6. Primary Aggregates: Crushed Rock

- 6.1. The bedrock geology in Worcestershire includes the following mineral deposits which are believed to be the only strata in the county that have been worked to produce crushed rock aggregates since 1947: ²⁶
- The Precambrian "Malverns Complex" and "Warren House Formation";
 - The Silurian "Woolhope Limestone Formation"²⁷;
 - The Ordovician "Lickey Quartzite Formation"; and
 - The Jurassic "Inferior Oolite Group".
- 6.2. These Precambrian, Silurian, Ordovician and Jurassic deposits will be considered collectively under the term "crushed rock" in the rest of this report.

Estimating demand

10 year sales average

- 6.3. The starting point for setting a production guideline for crushed rock in the LAA is to estimate demand on the basis of a rolling average of 10 years sales data (the 10-year average) before considering other relevant local information.
- 6.4. Table 7 and Figure 5 show the levels of crushed rock sales in Worcestershire and Herefordshire over the last 10 years (2006-2015). Worcestershire's data was combined with Herefordshire up to 2009 due to issues of commercial confidentiality²⁸. Worcestershire's last crushed rock site ceased working and has been undergoing restoration since 2010.

Table 7. Crushed rock sales 2006 – 2015 (million tonnes)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Worcestershire	-	-	-	-	0	0	0	0	0	0
Herefordshire and Worcestershire Combined	0.3	0.37	0.22	0.20						

Source: West Midlands Regional Aggregate Working Party Annual Reports. Data for sales up to 2009 combined for Herefordshire and Worcestershire due to confidentiality arrangements.

- 6.5. In 2015, sales of crushed rock in Worcestershire were 0 tonnes.

²⁶ For further information about the nature, location and potential significance of the deposits see background document *Analysis of Mineral Resources in Worcestershire* at www.worcestershire.gov.uk/mineralsbackground

²⁷ Silurian "Aymestry Limestone Formation" deposits have also been worked in the past, but these are not considered to be a significant resource under the methodology set out in the background document *Analysis of Mineral Resources in Worcestershire* (available at www.worcestershire.gov.uk/mineralsbackground)

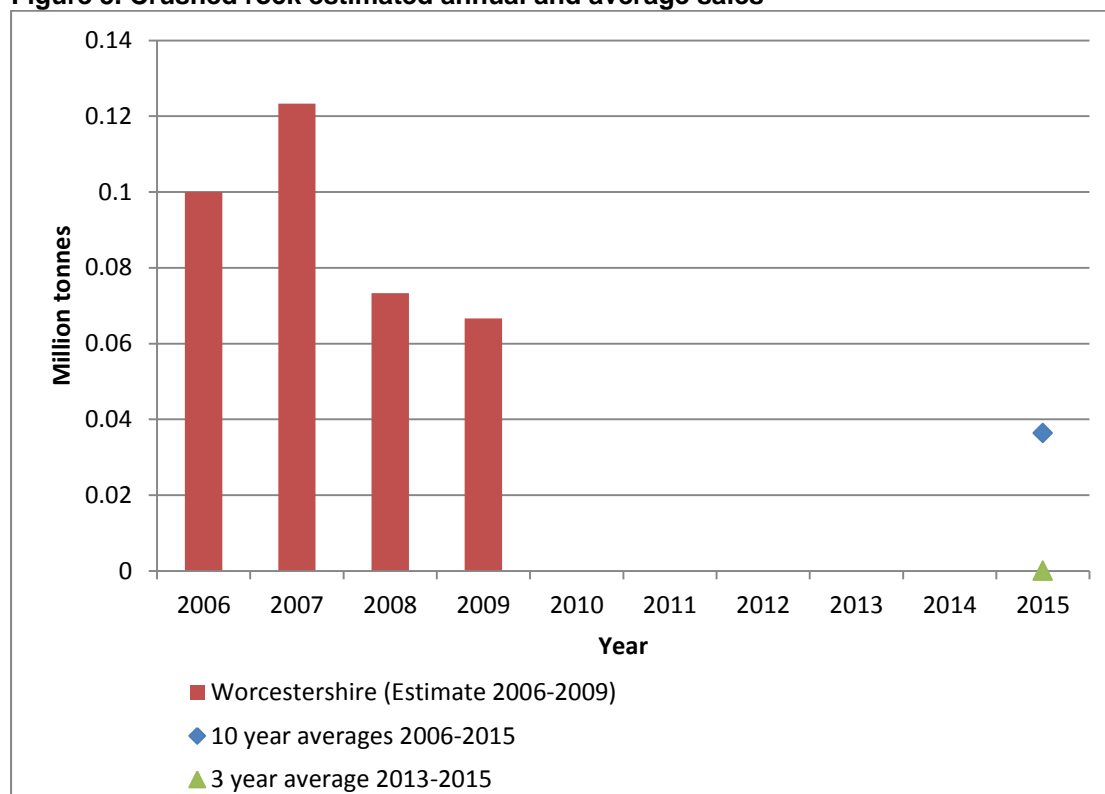
²⁸ Long-standing confidentially arrangements agreed between the industry and government to protect operators' commercial interests. This means that sales data will not be released or published where there are fewer than 3 operational sites in an area unless express permission is given by the operators affected.

- 6.6. Previous versions of the LAA made the assumption that a third of the combined crushed rock sales data was attributable to Worcestershire. In order to calculate the 10 year average, this assumption has been used for the combined data for 2006-2009. On this basis, the 10 year average of sales from 2006-2015 is 0.036 million tonnes.
- 6.7. The 10-year average has a number of weaknesses that make sole reliance on it undesirable:
- sales will vary depending on both supply and demand factors in the market, and basing a production guideline on this alone could risk following historical trends rather than meeting future demand;
 - it uses assumptions on the proportion Worcestershire contributed to the combined data with Herefordshire which makes the average somewhat unreliable;
 - it includes data from a period of significant economic downturn and therefore may not represent the demand likely to be experienced as the economy recovers; and
 - the adopted Minerals Local Plan was beyond its expected implementation period, with a limited number of Preferred Areas and saved policies, which could have limited operator interest in bringing sites forward in Worcestershire during this time, thereby depressing the annual sales figure.
- 6.8. Therefore, whilst it is considered to be the best starting point, it needs to be sense-checked against other indicators.

3 year sales average

- 6.9. An average of the last 3 years sales gives an indication of the most recent sales trends to identify the general trend of demand. The 3 year average from 2013-2015 is 0 tonnes, as there were no operational crushed rock sites in Worcestershire during this period. This is therefore lower than the 10 year average, but the same as the 2015 sales figure. This indicates that it would be appropriate to decrease the production guideline to less than the 10 year average.

Figure 5. Crushed rock estimated annual and average sales*



* Estimated sales based on the assumption that a third of the combined crushed rock sales from Herefordshire and Worcestershire were attributable to Worcestershire.

Sub regional apportionment

6.10. A further indicator to be taken into account is the sub-regional apportionment derived from the *National and regional guidelines for aggregates provision in England*.²⁹ These guidelines were produced to cover the period 2001-2016 and updated for the period 2005-2020 and set out the level of provision which should be made by each Region. An annual "sub-regional apportionment" was derived the 2001-2016 Guidelines, and for Worcestershire this was 0.163 million tonnes of crushed rock. No sub-regional apportionment based on the 2005-2020 Guidelines has been agreed.

6.11. This level of production has not been achieved in Worcestershire since 2002.

6.12. In the Inspector's Report on the partial review of the Northamptonshire Minerals and Waste Local Plan,³⁰ the Inspector stated "as they (*the national*

²⁹ Department for Communities and Local Government
<https://www.gov.uk/government/publications/national-and-regional-guidelines-for-aggregates-provision-in-england-2005-to-2020>

³⁰ The Planning Inspectorate (August 2014) *Report on the Examination into the Northamptonshire Minerals and Waste Local Plan (Northamptonshire Minerals & Waste Development Framework Partial Review)*
<http://www.northamptonshire.gov.uk/en/councilservices/Environ/planning/policy/minerals/Documents/PDF%20Documents/ReportToNorthamptonshireCountyCouncilV3.pdf>

guidelines) were based on production before the recession and within a different policy context, it would not be prudent to accord them very significant weight.”

6.13. This suggests that it would not be appropriate to increase the production guideline in this LAA above the 10 year average on the basis of the *National and regional guidelines* or the sub-regional apportionment.

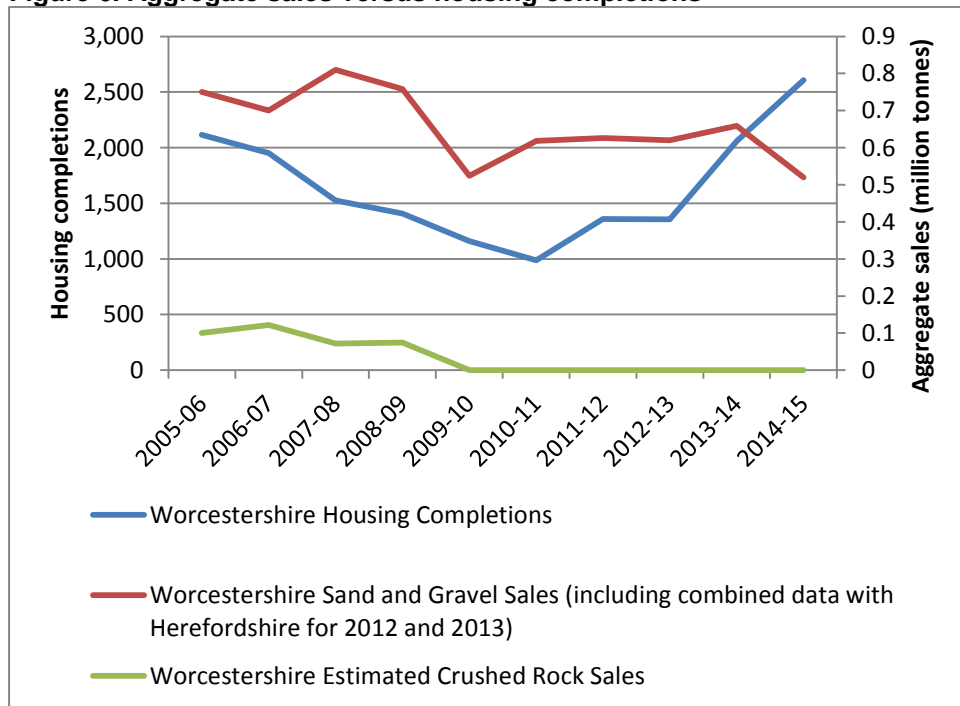
Factors which might influence demand

6.14. Considering levels of planned development could provide an indication of whether demand for sand and gravel is likely to significantly increase or decrease, warranting an adjustment in the production guideline.

6.15. Figure 6 shows crushed rock sales against housing completions in the county over the last 10 years. This does not indicate a direct correlation between housing completions and the level of crushed rock sales.

6.16. Figure 6 shows that the level of housing completions has varied annually over the last 10 years (between 987 and 2,606), with an average of 1,653 completions per year. Over the next 10 years, the anticipated level of housing provision is 2241.1 per year.³¹ If delivered as anticipated, this represents a 35% increase on the average over the last 10 years, but is slightly lower than the number of actual completions seen in 2014/15. A steady and adequate supply of aggregates will be crucial to enabling the level of planned housing development to be delivered.

Figure 6. Aggregate sales versus housing completions

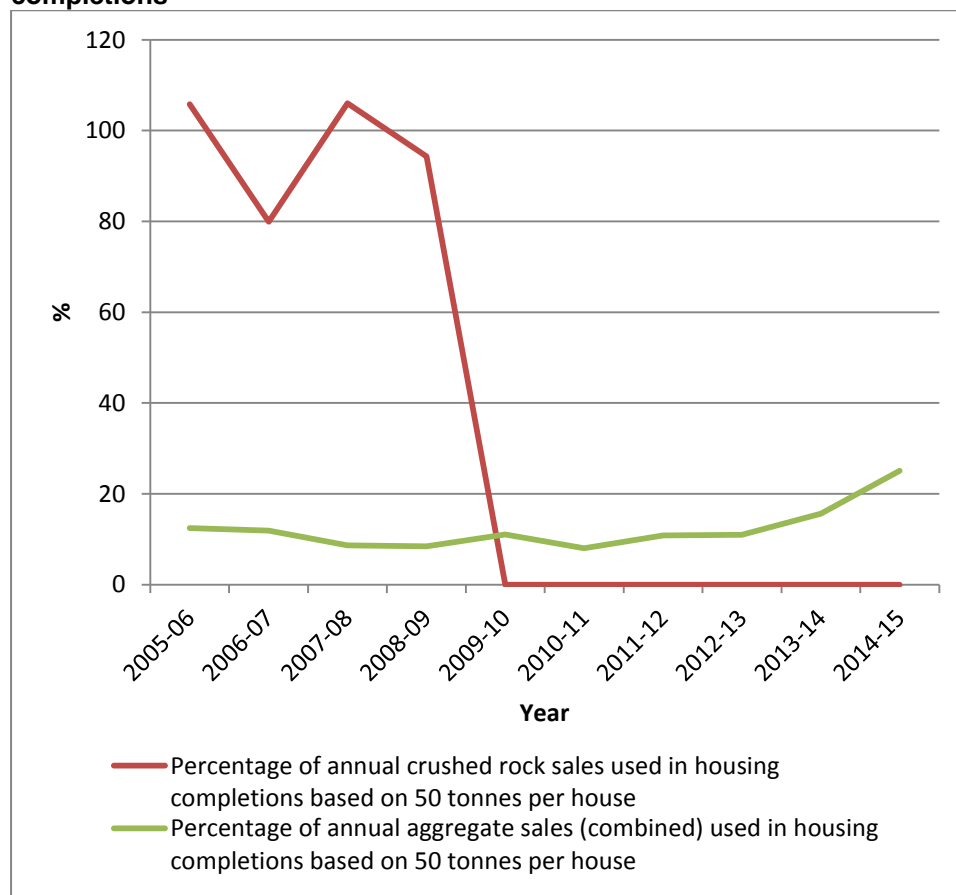


³¹ Based on figures in South Worcestershire Development Plan (2016), Wyre Forest Core Strategy (2010), Bromsgrove District Plan Proposed Submission Version, and Borough of Redditch Local Plan No.4 Submission (March 2014)

6.17. The Mineral Products Association states that the construction of a typical new house uses up to 50 tonnes of aggregates from the foundations through to the roof tiles.³² Whilst this is a generalisation which should be treated with a degree of caution and does not distinguish between use of sand and gravel and crushed rock, multiplying this figure with housing completions shows that the proportion of crushed rock sales which might be attributable to new houses is considerable, reaching over 100% of Worcestershire's estimated crushed rock sales, as shown in Figure 7.

6.18. However, when considered in combination with sand and gravel (Figure 7), these estimates show that new housing accounted for between 8% and 25% of aggregate sales. This does not include any requirements for infrastructure supporting housing development or the significant amount used in maintaining or refurbishing existing housing stock.

Figure 7. Percentage of crushed rock sales estimated to be used in housing completions



6.19. There are no figures available to indicate the level of demand other types of development might create.

6.20. Whilst it is recognised that significant levels of development are proposed in the Local Plans and Strategic Economic Plan in Worcestershire, the

³² Mineral Products Association, *Aggregates* web page http://www.mineralproducts.org/prod_agg01.htm

variability in the proportion of demand from housing development and lack of data for other forms of development indicate that it would not be appropriate for the production guideline in this LAA to deviate from the 10 year average on the basis of projected housing numbers.

Supply options / constraints

Indigenous supply

6.21. There were no sites with permitted reserves of crushed rock at 31st December 2015, and no planning applications for working crushed rock are pending decision. This means that Worcestershire has no permitted reserves, no productive capacity and no landbank for crushed rock.

6.22. There has been very limited market interest in working crushed rock in Worcestershire³³ for many years and there are multiple factors relating to crushed rock resources in Worcestershire which may make it difficult for them to be worked. Of the land containing crushed rock resources in Worcestershire³⁴:

- approximately 15% is adjacent to or within 2.5km of Bredon Hill Special Area of Conservation,
- 99.5% is within the Cotswolds AONB or Malvern Hills AONB³⁵ and
- The Malvern Hills Conservators control approximately 75% of the land containing crushed rock resources in the county and have a unique responsibility to protect land in their control from harm from quarrying activities.³⁶

6.23. The delivery constraints outlined above, the lack of interest in Worcestershire's resources shown by the minerals industry over many years, and the fact that no sites for crushed rock have been proposed in response to "calls for sites" in 2014 and 2015 indicate that it is unlikely that Worcestershire will be able to provide crushed rock for the foreseeable

³³ Operations on two sites ceased due to the poor quality of the material. The county's last operational site was fully worked and ceased production in 2010. No sites for crushed rock have been put forward in response to the two "call for sites" consultations undertaken in 2014 and 2015 as part of the preparation of the Minerals Local Plan.

³⁴ Resource identified as *key* or *significant* in "Analysis of Mineral Resources in Worcestershire"

³⁵ Based on resources classified as Key or Significant in "Analysis of Mineral Resources in Worcestershire"

http://www.worcestershire.gov.uk/info/20015/planning_policy_and_strategy/17/emerging_minerals_local_plan_background_documents/3

³⁶ In 1884 a private act of parliament set out a requirement that "every...new quarry shall be so placed as to cause as little injury and disfigurement to the hills as reasonably practicable". In 1924 a further private act of Parliament gave the Malvern Hills Conservators the authority to compulsorily purchase land and property rights to prevent further land use for quarrying. In 1953 the Minister of Housing and Local Government determined permissions relating to four of the remaining five quarries refusing permission on part or all of these sites in order to preserve the skyline and appearance of the Hills. It is unlikely that large scale mineral working will take place in the Malvern Hills in the future, although this is not specifically prevented by the Acts. See Background Paper: The Malvern Hills Acts for further details http://www.worcestershire.gov.uk/downloads/file/495/background_document_the_malvern_hills_acts

future. These issues have been discussed in detail with the Aggregate Working Parties in the West Midlands, South West, East Midlands and South Wales.³⁷ These discussions highlighted that cross-boundary movements of crushed rock into Worcestershire have occurred for some time and are likely to continue into the future, but that the level of supply has been relatively small and has not undergone notable fluctuation over time.

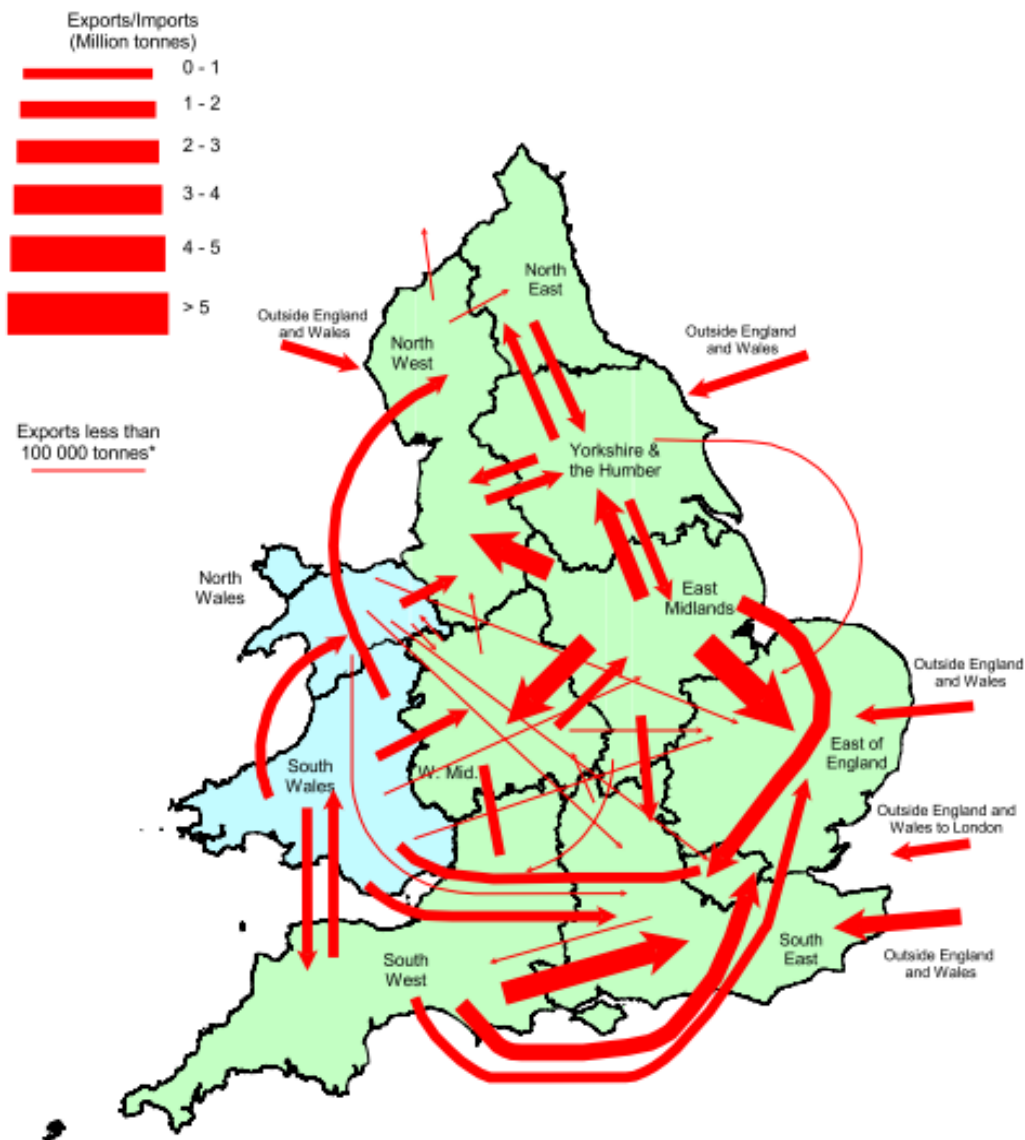
6.24. This indicates that Worcestershire should not pursue a production guideline which it is unlikely to be able to meet for the foreseeable future. Instead, the policy framework of the new Minerals Local Plan should contain policies which would enable crushed rock development to come forward on the basis of a criteria based policy to meet an identified need.

Imports and exports of primary aggregates

6.25. The best source of information about imports and exports is the *Aggregate minerals survey for England and Wales*. This survey is undertaken about every 4 years and one aspect that it considers is the movement of material. It sets out information relating to the inter-regional flow of aggregates. The pattern of movements of crushed rock is illustrated in Figure 8.

³⁷ See Background document "Strategic cross boundary issue: Crushed rock supply in Worcestershire. Summary of action undertaken under the duty to cooperate" July 2016

Figure 8. Crushed rock inter-regional flows, 2009



Source: "Collation of the results of the 2009 aggregate minerals survey for England and Wales" Communities and Local Government (October 2011)

- 6.26. The data which is available for Worcestershire in the *Aggregate minerals survey for England and Wales (2009)* shows that there were no sales of crushed rock from Worcestershire in 2009, but that 192,000 tonnes were imported and consumed in the county. It is not possible to identify the source of this material.
- 6.27. Worcestershire does not have any rail depot for the import or export of minerals. Water transportation takes place on the River Severn, but this is limited to moving "as-dug" material from one site in Worcestershire to processing plant at another. The wharves at these sites therefore do not currently enable imports or exports of minerals. It is therefore concluded that all imports and exports currently take place by road transport.

Conclusion: Balancing supply and demand

- 6.28. Whilst a 10 year average of crushed rock sales has been calculated as 0.036 million tonnes and there is no evidence that demand for crushed rock is likely to decrease, there has been no production of crushed rock in Worcestershire since 2010. There are significant constraints on delivering crushed rock production in Worcestershire and there has been a lack of interest from mineral developers to work the crushed rock resources in Worcestershire. These are all strong indicators that the 10 year average is not suitable. Discussions with the West Midlands, East Midlands, South West and South Wales Aggregate Working Parties concluded that Worcestershire's production guideline for crushed rock should be reduced to 0 tonnes, but with the emerging Minerals Local Plan providing a policy framework which could enable crushed rock development to take place.
- 6.29. Worcestershire has no permitted reserves, no productive capacity and no landbank for crushed rock. There is no data available to indicate how much of the demand for crushed rock has been met by substitution with either secondary or recycled materials or by sand and gravel. It is likely that the majority of demand has been met by increased imports of crushed rock from outside the county. This has been discussed in detail with the West Midlands, East Midlands, South West and South Wales Aggregate Working Parties. The Mineral Planning Authorities and Aggregate Working Parties have indicated that supplying Worcestershire's demand for crushed rock can be accommodated.
- 6.30. This LAA therefore concludes that the production guideline for crushed rock in Worcestershire should be 0 tonnes per annum.**

7. Conclusion

Substitute, secondary and recycled aggregates

- 7.1. Whilst national policy requires Local Planning Authorities to take account of the contribution that substitute or secondary and recycled materials and minerals waste would make to the supply of materials before considering extraction of primary materials, the lack of data will make this difficult to monitor at the local level, and the evidence above from the Minerals Products Association indicates that this Local Aggregates Assessment should not rely on any significant alterations to the proportion of supply.
- 7.2. On this basis, this LAA assumes that the contribution of substitute, secondary and recycled materials is already accounted for prior to considering the sales figures for primary aggregates.

Marine aggregates

- 7.3. As an inland county, the Worcestershire Minerals Local Plan cannot make provision for the production of marine sand and gravel.

Primary aggregates: sand and gravel

- 7.4. There is not sufficient evidence to suggest that the production guideline for primary sand and gravel should vary from the 10 year average. The production guideline for sand and gravel identified by this Local Aggregates Assessment is therefore 0.637 million tonnes.
- 7.5. Based on this production guideline and the stock of permitted reserves of 0.895-0.945 million tonnes, Worcestershire had a landbank for primary sand and gravel of 1.41-1.48 years at 31st December 2015, compared to the landbank requirement of 7 years.
- 7.6. This is a strong indicator that there is not a sufficient stock of permitted reserves in the county. Whilst, two further sites have been granted planning permission in 2016, and work is underway on a new Minerals Local Plan with a number of sites proposed, the minerals industry has indicated that there are likely to be significant constraints on finding sites of sufficient size and quality in the county in future.

Primary aggregates: crushed rock

- 7.7. There has been no production of crushed rock in Worcestershire since 2010. Worcestershire has no permitted reserves, no productive capacity and no landbank for crushed rock.
- 7.8. This has been discussed in detail with the West Midlands, East Midlands, South West and South Wales Aggregate Working Parties. The Mineral Planning Authorities and Aggregate Working Parties have indicated that supplying Worcestershire's demand for crushed rock can be accommodated.

- 7.9. This LAA therefore concludes that the production guideline for crushed rock in Worcestershire should be 0 tonnes per annum.

Transporting minerals

- 7.10. Worcestershire does not have any rail depot for the import or export of minerals. Water transportation takes place on the River Severn, but this is limited to moving "as-dug" material from one site in Worcestershire to processing plant at another. The wharves at these sites therefore do not currently enable imports or exports of minerals. It is therefore concluded that all imports and exports currently take place by road transport.
- 7.11. Transportation from any future minerals sites will be considered through the planning process and subject to the policies of the Minerals Local Plan, which will include consideration of the need for transport and air quality assessments.

Appendix 1: Consultation with Aggregate Working Parties

A draft of this Local Aggregates Assessment was sent to the West Midlands, East Midlands, South West and South Wales Aggregate Working Parties for consultation in July 2016. The following comments were received from the AWP's and their members:

West Midlands Aggregate Working Party

The West Midlands AWP commented as a whole, and detailed comments were received from the Mineral Products Association.

West Midlands Aggregate Working Party

- **WM AWP comment:** *"The AWP as a whole believes that the LAA meets the requirements as set out in relevant guidance. However, the Authority may wish to take into account comments made by neighbouring Authorities and industry in this or future revisions of the LAA. These comments are attached in the following Appendices: Mineral Products Association"*

WCC response: No action required in response to comments from the West Midlands Aggregate Working Party as a whole.

Mineral Products Association (MPA)

- **MPA comment:** *"The document as a whole reads well and appears logical in the arguments put forward. However, from a readers point of view I would be inclined to change the order of the document and deal with primary aggregates sand and gravel and crushed rock as section 3 and 4 with secondary aggregates and marine going to section 5 and 6."*

WCC response: Whilst we agree that the proposed change in order could be easier for a reader, the National Planning Policy Framework (NPPF) requires Local Planning Authorities to *"take account of the contribution that substitute or secondary and recycled materials and minerals waste would make to the supply of materials, before considering extraction of primary materials"*. In writing this LAA we have therefore followed the requirements of the NPPF and considered substitute, secondary and recycled materials and the potential to increase contribution from secondary and recycled materials before considering the amount of primary materials required. We consider that it would not be appropriate to consider primary materials first.

- **MPA comment:** suggested altering the subheading in the executive summary from *"landbank target"* to *"landbank requirement"* to properly reflect NPPF paragraph 145.

WCC response: agreed, change made.

- **MPA comment:** suggested that the wording of the informative for crushed rock in the executive summary should be altered from "*Significant constraints on delivering crushed rock production and lack of interest from mineral developers indicate deviation from 10 year average is appropriate*" to "*Significant constraints on delivering crushed rock production, and lack of sites being put forward by industry, indicate deviation from 10 year average is appropriate.*" It is not a case of lack of interest from industry but lack of opportunity hence the suggested wording change above.

WCC response: agreed, change made.

- **MPA comment:** It is felt important that the requirement to maintain at least a 7 year landbank by para 145 of NPPF is stated within the introduction which will support the opening statement in the introduction. This is even more important in the case of Worcs,CC due to very low landbank. It is important for the general reader that this point is made clear so they understand the landbank requirement is driven by National Policy, and should be articulated within the introduction.

WCC response: agreed, change made.

- **MPA comment:** "*It would be helpful if the LAA had final conclusion to bring the various section conclusions together*".

WCC response: agreed, change made.

East Midlands Aggregate Working Party

The East Midlands AWP secretary confirmed he had received no responses from members of the East Midlands AWP.

South West Aggregate Working Party

No comments were received from the South West AWP as a whole, but an individual response was received from South Gloucestershire Council.

South Gloucestershire Council (SGC)

- **SGC comment:** Thank you for circulating the draft 2016 Worcestershire Local Aggregates Assessment and the supporting Duty to Cooperate statement. I am pleased to note that the discussions between South Gloucestershire, Gloucestershire County Council and Worcestershire County Council have been reflected in the DTC statement.

I am also pleased that these discussions were of use and have informed the approach the County Council have taken to the supply of crushed rock – that the production guideline be 0 tonnes per annum. This approach is considered to be sensible and pragmatic, reflecting that Worcestershire has no permitted reserves, no productive capacity and no landbank for crushed rock.

I have no further comments to make at this stage but would welcome any future opportunities to engage with the County Council.

- **WCC response:** No action required in response to comments

South Wales Aggregate Working Party

No comments were received from the South Wales AWP.