Worcestershire Local Aggregate Assessment: Data covering the period up to 31/12/2023

Document Details:

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1. Executive Summary

1.1. The Local Aggregate Assessment (LAA) is an assessment of the demand for and supply of aggregates in the county. Its prime purpose is to assist Worcestershire County Council (in its role as Mineral Planning Authority) in its efforts to provide for the steady and adequate supply of local aggregates. It will inform the development and monitoring of minerals planning policy in the county and will be a material consideration in the determination of planning applications.

Substitute, secondary and recycled aggregates

1.2. There is a lack of data about the contribution that substitute, secondary and recycled materials and minerals waste make to the supply of aggregate materials in Worcestershire. 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.

Sand and gravel

1.3. There are two distinct types of sand and gravel deposits in Worcestershire:

- Bedrock deposits: solid sands of the Kidderminster Formation and Wildmoor Sandstone Formation

- Superficial deposits: river terrace deposits of the rivers Severn and Avon and glacial deposits found in association with boulder clay.

1.4. The LAA considers supply and demand indicators in relation to sand and gravel.

1.5. None of the demand indicators suggest that the production guideline should be lower than the 10-year average, and some (3-year sales average, historic sub-regional apportionment, and predicted housing and infrastructure requirements) suggest that the production guideline should be increased above the 10-year average. The majority of supply indicators are either neutral or positive about Worcestershire's ability to supply sand and gravel, which suggests that there does not need to be any restriction on the production guideline, and an increase above the 10-year average can be supplied at present. Following consideration of these demand and supply factors, **the production guideline in this LAA is derived from the 10-year sales average +20%.** This scale of uplift will support the continuation of recent supply levels and mitigate any potential impacts on the production guideline from the former County of Hereford and Worcester Minerals Local Plan (1997) being in place well beyond its expected implementation period (up to July 2022), which may have led to lower annual sales due to additional barriers to development rather than lower levels of demand. The 20% uplift will also support the anticipated scale of demand for housing and infrastructure development and allow some flexibility in relation to demand for HS2 and other development needs. This approach will be kept under review

in future LAAs, particularly to monitor the impact of the Worcestershire Minerals Local Plan (2018-2036) which was adopted in July 2022 and to reflect greater certainty about demand for HS2 as the project moves through the anticipated period of peak demand.

1.6. The annual production guideline for sand and gravel identified by this Local Aggregates Assessment is therefore 0.674 million tonnes per annum. Based on this production guideline and the stock of permitted reserves of 5.08 million tonnes, Worcestershire had a landbank of 7.53 years at 31st December 2023. This is above the minimum 7-year landbank required by national policy. Additional permissions will be needed in future years to maintain a sufficient landbank. Because the production guideline and level of landbank are dynamic, the need for additional permissions will continue to be reviewed annually through the LAA process.

Crushed rock

1.7. The following bedrock mineral deposits are believed to be the only strata in the county that have been worked to produce crushed rock aggregates:

- The Precambrian "Malverns Complex" and "Warren House Formation"
- The Silurian "Woolhope Limestone Formation"[1]
- The Ordovician "Lickey Quartzite Formation" and
- The Jurassic "Inferior Oolite Group".

1.8. Worcestershire has no permitted reserves, no productive capacity and no landbank for crushed rock. Whilst the 10-year sales average for crushed rock sales is 0 tonnes and there has been no production of crushed rock in Worcestershire since 2010, it is important to recognise that there is demand for crushed rock to meet needs within Worcestershire. Due to the lack of sales from sites within Worcestershire, some “demand” indicators are not actually representative of demand for crushed rock in Worcestershire. However, the majority of the remaining demand indicators suggest that an increase above the 10-year average should be considered. There may also be an increasing need for crushed rock to be supplied from within Worcestershire, as reserves are diminished elsewhere.

1.9. However, there are very significant limitations on Worcestershire’s ability to supply crushed rock, both in the short and longer term. The lack of existing sites with permitted reserves and the lack of any planning applications pending decision means that there is no likelihood of supply from within Worcestershire in the immediate future. Although the Minerals Local Plan (2018-2036) provides increased certainty and policy support for crushed rock

[1] 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)

development in Worcestershire, it also recognises that there are significant constraints on Worcestershire's crushed rock resources. When combined with the lack of planning applications, pre-application discussions, and the fact that no sites for crushed rock have been proposed in response to five "calls for sites", this means that there is no certainty that Worcestershire will be able to provide crushed rock in the longer term.

1.10. This LAA concludes that the production guideline for crushed rock in Worcestershire is unable to be calculated, but that it is explicitly greater than 0 tonnes.

1.11. 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 Worcestershire's demand for crushed rock over recent years has been met by imports of crushed rock from outside the county. This was discussed in detail with the West Midlands, East Midlands, South West and South Wales Aggregate Working Parties during the development of the Minerals Local Plan, and Worcestershire County Council will continue to cooperate with the mineral planning authorities in these areas to understand whether Worcestershire's demand for crushed rock can continue to be accommodated.

LAA Dashboard

🡻 Indicates a decrease in comparison to the figure in the previous year's LAA.
🡹 Indicates an increase in comparison to the figure in the previous year's LAA.
- Indicates no change in comparison to the figure in the previous year's LAA.

	Sand and gravel	**Crushed rock**
Production (demand): 2023 sales	0.471 million tonnes 🡻	0 tonnes -
Production (demand): 3-year average sales (mean)	0.656 million tonnes 🡹	0 tonnes -
Production (demand): 10-year average sales (mean)	0.562 million tonnes 🡹	0 tonnes -
Production (demand): 'Baseline' production guideline which informed the adopted Minerals Local Plan	0.572 million tonnes This was the production guideline as calculated in the "Worcestershire Local Aggregate Assessment (using data up to December 2017)".	0.163 million tonnes This indicative provision figure was based on the sub-regional apportionment for Worcestershire derived from the "National and regional guidelines for aggregates provision in England 2001-2016".
Production: Annual Production Guideline	**0.674 million tonnes 🡹**	**Unable to be calculated, however is explicitly greater than 0 tonnes.**
Production: Informatives	Production guideline based on 10-year average plus 20%.	Lack of production in Worcestershire means the 10-year sales average is zero tonnes. There is evidence of demand for (and consumption of) crushed rock which is being met through importation from other mineral planning authority areas, but there are significant

	Sand and gravel	Crushed rock
		constraints on Worcestershire's crushed rock resources. The lack of current interest from the minerals industry indicates that production of crushed rock in Worcestershire in the immediate future is highly unlikely.
Landbank: Permitted Reserves at 31st December 2023	5.08 million tonnes ↑	0 tonnes -
Landbank: Number of sites at 31st December 2023	4 active extraction sites. 2 permitted extraction sites. 1 active processing site.	0 sites **-**
Landbank: Landbank at 31st December 2023 (based on annual production guideline)	**7.53 years ↓**	**0 years**
Landbank: Landbank requirement	7.00 years ✓	10.00 years ✗
Landbank: Informatives	56% of reserves are at active sites. 44% of permitted reserves are at sites where planning permission had not been implemented by 31st December 2023. No applications for new mineral extraction sites or extensions/alterations to extant sites were determined in 2023. Six applications were under consideration. Worcestershire is a net exporter of sand and gravel. Sufficient sand and gravel resources exist in Worcestershire and evidence of interest from minerals industry suggest an increase above the 10-year average can be accommodated.	Crushed rock resources exist in Worcestershire, but there are no current permitted reserves. Worcestershire County Council recognises that some contribution towards crushed rock supply may be possible from Worcestershire's resources, but the lack of current interest from the minerals industry indicates that production of crushed rock in Worcestershire in the immediate future is highly unlikely. Discussions with the West Midlands, East Midlands, South West and South Wales Aggregate Working Parties have previously concluded that Worcestershire's production guideline for crushed rock should be 0 tonnes, but with the Minerals Local Plan providing a policy framework seeking to enable a contribution towards the provision of crushed rock from Worcestershire, it is considered that the production guideline should explicitly be greater than zero tonnes, although it is not possible to calculate an exact figure. Following consultation with Aggregate Working Parties, no concerns were raised regarding other mineral planning authority areas meeting Worcestershire's

	Sand and gravel	Crushed rock
		demand for crushed rock at present.

Contents

2. Introduction

"*It is essential that there is a sufficient supply of minerals to provide the infrastructure, buildings, energy and goods that the country needs. Since minerals are a finite natural resource, and can only be worked where they are found, best use needs to be made of them to secure their long-term conservation.*"

National Planning Policy Framework (2024), paragraph 222

2.1. The National Planning Policy Framework[2] requires Minerals Planning Authorities (MPAs) to plan for a steady and adequate supply of aggregates by:

- *"preparing an annual Local Aggregate Assessment* […] *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*",
- "*taking account of any published National and Sub National Guidelines on future provision which should be used as a guideline when planning for the future demand for and supply of aggregates*",
- "*using landbanks of aggregate minerals reserves principally as an indicator of the security of aggregate minerals supply…*", and
- "*maintaining 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 Worcestershire County Council (in its role as Mineral Planning Authority) in its efforts to provide for the steady and adequate supply of local aggregates, where reasonable and practicable to do so. It will inform the development and monitoring of minerals planning policy in the county and will be a material consideration in the determination of planning applications.

2.3. 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 February 2025, and their comments have been taken into account in the final report (see Appendix 1: Consultation with Aggregate Working Parties).

[2] Ministry for Housing, Communities and Local Government (December 2024) *National Planning Policy Framework*, paragraph 226.

Approach

2.4. A Local Aggregate Assessment is an annual assessment of the demand for and supply of aggregates in a mineral planning authority's area[3]. The LAA serves a number of functions, principally:

- Monitoring aggregates provision and likely future demand;
- Identifying a LAA figure for calculation of landbanks; and
- Supporting evidence for preparation or review of Minerals Local Plans.[4]

2.5. Section 3 of this LAA takes account of the contribution that substitute or secondary and recycled materials and minerals waste make to overall supply of materials.[5]

2.6. The LAA then goes on to consider the supply of primary minerals. The starting point for setting a production guideline in the LAA is to estimate demand on the basis of **a rolling average of 10 years sales data** (the 10-year average, see sections 4 and 5) and then to consider other relevant local information and an assessment of supply options. This is based on the demand and supply indicators agreed by West Midlands Aggregate Working Party[6] as set out in Appendix 2:

- **Imports and exports of primary aggregates** to and from Worcestershire (see section 6)
- **Demand indicators** (see section 7)
  - **Total consumption** of aggregates in Worcestershire including from imports and indigenous supply.
  - **3-year sales average** to give an indication of the most recent trend in demand
  - **Sub-regional apportionment** derived from any national and sub national guidelines for aggregate provision.
  - **Anticipated levels of demand**
    - **Housing**
    - **Infrastructure**
    - **Employment**
- **Ability to Supply** (see section 8)
  - **Extant sites and permitted reserves**
  - **Site allocations**
  - **Pre application discussions**

2.7. Section 9 reviews transport considerations and section 10 addresses replenishment rates. Section 11 then considers the conclusions drawn about each of these factors and uses this information to establish the annual

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[3] Minerals - GOV.UK (www.gov.uk)
[4] A guide to the production and use of local aggregate assessments (planningofficers.org.uk)
[5] Ministry of Housing Communities and Local Government (December 2024) *National Planning Policy Framework*, paragraph 223(b).
[6] Indicators to be used in LAAs (some may be dependent on availability/quality of data) as agreed by West Midlands Aggregate Working Party, October 2021.

production guidelines for sand and gravel and for crushed rock. These production guidelines are then used to establish the landbank in section 12.

Next steps

2.8. The Local Aggregate Assessment will be updated annually in consultation with the West Midlands Aggregate Working Party (WM AWP) and other AWPs as required. It will be published by the Council on our website at www.worcestershire.gov.uk/laa, and will be taken into account in Worcestershire County Council's Authority Monitoring Report (AMR) which will be published at www.worcestershire.gov.uk/amr. If you would like to be notified when new Local Aggregate Assessments and/or Authority Monitoring Report AMRs are published please contact PlanningDatabase@worcestershire.gov.uk providing your contact details[7].

[7] See http://www.worcestershire.gov.uk/info/20014/planning/1156/get_involved_in_planning

3. Substitute, secondary and recycled aggregate materials 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".[8]

Substitute materials

3.2. It may be possible to reduce the need for primary aggregates through the use of substitute materials in construction. However, 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 the City, Borough and District Councils' Local Plans rather than through minerals planning policies.

3.3. There is no data available to indicate the level of contribution made by substitute materials in Worcestershire, but if use of substitutes were to increase and lead to a reduction in demand for primary materials, this will be reflected in the level of aggregate sales recorded.

The commercial extraction of aggregate is subject to the Aggregates Levy, which is charged per tonne of taxable product. The levy increased in April 2023 - the first increase since 2009 - and further increases will come into force in 2024 and 2025[9]. Because recycled aggregates are exempt from the levy, these increases in the tax payable on primary aggregates may further increase the financial attractiveness of substitutes or recycled 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 was one industrial process in Worcestershire known to produce material suitable for processing into secondary aggregates in 2023: the ‘EnviRecover’ Energy from Waste plant at Hartlebury, near Kidderminster. This plant produces approximately 40,000 tonnes per annum of Incinerator Bottom Ash (IBA) which is capable of being used as secondary aggregate, although further processing is required to enable this.

3.6. An Incinerator Bottom Ash Processing and Recovery Facility at Hill and Moor Landfill Site removes metals from the IBA for recycling and, subject to market demand, enables the re-use of secondary aggregate in the construction

[8] Ministry of Housing Communities and Local Government (December 2024) *National Planning Policy Framework*, paragraph 223(b)

[9] The applicable levy was £2 per tonne from April 2023 and £2.03 per tonne from April 2024. This will increase to £2.08 per tonne from April 2025. Charges for subsequent years have not yet been published by government.

industry. In 2022 permission was granted to increase the throughput of the IBA processing operation at this site from 50,000 tonnes per year to 100,000 tonnes per year. This was to enable greater recovery of metal (which can be recycled) and to provide the opportunity for more secondary aggregate to be used in the construction industry. In addition, the permission included 'aggregates blending' to allow the importation of up to 40,000 tonnes per year of non-IBA aggregate to be blended with 40,000 tonnes per year of secondary aggregate (recycled IBA) at a 50:50 ratio, to produce MOT Type 1 specification material[10]. The imported aggregate would most likely be primary but could include recycled aggregate material such as crushed brick. The process of obtaining End of Waste Criteria to use the recovered IBA in block manufacture has also commenced. This IBA processing facility is tied to the life of the Hill and Moor Landfill Site.

Recycled aggregates

3.7. Recycled aggregates arise from several sources, notably construction and demolition (C&D) waste (such as the demolition of buildings), asphalt planings from road resurfacing, recycled glass, recycled tyres, 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 in less-demanding applications.

3.8. The supply of recycled materials depends on the capacity to process these materials. The Waste Core Strategy[11] sets targets for capacity at static plant, but due to data limitations it is not possible to monitor the role of mobile plant.

3.9. There are no reliable assessments of C&D arisings, and no nationally-set approach for estimating C&D waste arisings or projecting growth in C&D waste. The method used to establish projections in the Waste Core Strategy assumed 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 annual arisings of C&D waste in Worcestershire based on this approach are set out in **Table 1**.

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

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

3.10. A Guidance Note was prepared by representatives from the National Waste Technical Advisory Board Chairs and Aggregate Working Party Chairs

[10] MOT Type 1 material is granular sub-base material used to construct the base of roads, driveways, and hard-standings. It contains a mix of angular aggregate stone from 40 millimetres down to dust.

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

in May 2022 outlining various options available for the collection and collation of data to estimate arisings and sales of recycled aggregates. This Guidance Note will be taken into account when reviewing the Waste Core Strategy.

3.11. The Waste Core Strategy anticipated that at least 25% of the capacity to manage C&D waste would be at static sites. Data on C&D waste managed at static and mobile sites is limited, but estimates suggest that static facilities in Worcestershire received approximately 248,000 tonnes of inert/C&D waste for treatment at ten sites in 2023, with a further 130,000 tonnes received for transfer at 20 sites.[12] It is not currently possible to assess the proportion of this which was subsequently sold or used as recycled aggregate.

3.12. Mobile processing and on-site re-use of recycled aggregates is common at construction sites across the county, although no data is available about the volume processed by mobile plant.

3.13. Worcestershire does not have any rail depots 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" primary aggregates from one site in Worcestershire to processing plant at another. All imports and exports currently take place by road.

Potential to increase contribution from secondary and recycled aggregate materials

3.14. The Minerals Local Plan and Waste Core Strategy give policy encouragement to increasing the use of secondary and recycled materials. However, the lack of data makes this difficult to monitor at the local level. Nationally, recycled and secondary sources of aggregates have supplied on average 29% of total aggregates in Great Britain over the last 10 years, reaching an estimated 74 million tonnes in 2022.[13] The proportion grew from just over 10% in 1990 to just over 30% in 2010, but has since remained relatively stable.[14] This places Britain as a leader internationally in the use of recycled and secondary aggregates.[15] It has been reported that the proportion of C&D waste recycled nationally increased marginally, from 92.2% in 2010 to 93.8% in 2018.[16] This may suggest that recycling of C&D waste has effectively plateaued, with the remaining portion of C&D waste being too technically or financially challenging to recycle under current arrangements. However, this may change in future; government has stated

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[12] Environment Agency Waste Data Interrogator 2023, interrogated for treatment and transfer facilities for 'Inert/C&D' waste received in Worcestershire.
[13] Mineral Products Association (2023) *Profile of the UK Mineral Products Industry 2023 Edition*, page 25. Profile_of_the_UK_Mineral_Products_Industry_2023.pdf (mineralproducts.org)
[14] Mineral Products Association (2023) *Profile of the UK Mineral Products Industry 2023 Edition*, page 25. Profile_of_the_UK_Mineral_Products_Industry_2023.pdf (mineralproducts.org)
[15] Mineral Products Association (2023) *Profile of the UK Mineral Products Industry 2023 Edition*, pages 10 and 25. Profile_of_the_UK_Mineral_Products_Industry_2023.pdf (mineralproducts.org)
[16] Progress report on recycling and recovery targets for England 2020 - GOV.UK (www.gov.uk)

that "*although around 90% of construction waste is recycled much of this is downcycled - used to backfill holes on sites or crushed into aggregate - which is inefficient in terms of the energy used to create these materials, and carbon emissions"* and has committed *"to eliminate all but hazardous construction and demolition waste to landfill* […] *ultimately working towards zero avoidable construction and demolition waste by 2050."*[17]

3.15. The quantity of C&D waste generated was 14% higher in 2018 than 2010, meaning that the contribution from recycled C&D waste to overall recycled aggregate provision increased in absolute terms, even if proportionally it remains largely unchanged.[18]

3.16. The Mineral Products Association (MPA)[19] states that, nationally, the potential to increase the use of recycled aggregate much further is "limited" and that *"Primary aggregates are expected to continue to meet over two thirds of overall demand for the next 15 years"*. This reconfirms an earlier commentary from the MPA[20], stating that *"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."* In the absence of evidence that the proportion of secondary and recycled aggregate material used in Worcestershire is likely to vary from the national proportion, these statements support this Local Aggregates Assessment not relying on any significant alterations to the proportion of supply.

3.17. 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.

Summary

Summary: Substitute, secondary and recycled aggregate materials

Substitute, secondary and recycled aggregate materials are likely to play an important role in the supply of materials, estimated at approximately 29% of the total aggregate market nationally.

There is permitted capacity in Worcestershire for processing 100,000 tonnes per annum of incinerator bottom ash to create secondary aggregate.

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[17] Progress report on recycling and recovery targets for England 2020 - GOV.UK (www.gov.uk)
[18] Progress report on recycling and recovery targets for England 2020 - GOV.UK (www.gov.uk)
[19] Mineral Products Association (2023) *Profile of the UK Mineral Products Industry 2023 Edition*. Profile_of_the_UK_Mineral_Products_Industry_2023.pdf (mineralproducts.org)
[20] Mineral Products Association's written statement for day 1 of the Staffordshire Minerals Local Plan examination in public in 2016. Response to question 3 in document 'WS.05'.

Static facilities in Worcestershire received approximately 248,000 tonnes of inert waste for treatment in 2023, with a further 130,000 tonnes received for transfer, however there is no data on the tonnages recycled on-site by mobile plant.

There is little evidence to suggest that the LAA should rely on any significant alterations to the proportion of supply from substitute, secondary or recycled materials.

The LAA assumes that the contribution of substitute, secondary and recycled materials is already accounted for prior to considering the sales figures for primary aggregates.

4. Primary Aggregates: Sand and Gravel Baseline

4.1. There are two distinct types of sand and gravel deposits in Worcestershire:

- Bedrock deposits: solid sands of the Kidderminster Formation and Wildmoor Sandstone Formation
- Superficial deposits: river terrace deposits of the rivers Severn and Avon and glacial deposits found in association with boulder clay.

4.2. As the qualities and properties of these deposits vary, the sand and gravel resources in Worcestershire are capable of supplying the markets for various types of sands (sands for asphalt, building or mortar sands, and concrete or sharp sands).

4.3. Worcestershire's solid sands are easily crushed to produce sand. Building and mortar sands are the primary market for quarries working the Wildmoor Sandstone Formation.[21] In the Kidderminster Formation, the sand grains are coarse- to fine-grade, and pebbles and cobbles can also be found,[22] meaning that there is potential for sand and gravel working in this Formation to provide materials to the concrete market, as well as the building sand and mortar markets.

4.4. Terrace deposits are washed and separated into different sizes of sands and gravels to supply different markets, with the majority of material being sold as concreting sand (sharp sand) and concrete aggregate (gravel, and gravel/sand mixes), but with some being sold as building or mortar sands and asphalting sand.[23]

4.5. Due to the overlap in their potential uses, and to facilitate the flexibility of market supply from each deposit, the solid sands and the river terrace and glacial deposits will be considered collectively under the term "sand and gravel" in the rest of this report.[24]

10-year sales average

4.6. 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. The 10-year sales average is designed to provide a

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[21] Based on information supplied by mineral operators in response to West Midlands Aggregate Working Party's Aggregates Surveys.
[22] British Geological Survey and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.
[23] Based on information supplied by mineral operators in response to West Midlands Aggregate Working Party's Aggregates Surveys.
[24] 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

representative baseline indication of demand by averaging out economic peaks and troughs.

4.7. Table 2 and Figure 1 show the levels of sand and gravel sales in Worcestershire over the 10-year period from 2014 to 2023. The most recent data available is for 2023. In both Table 2 and Figure 1, the sales figures differ from those given in previous LAAs, to reflect the apportionment of two years of sales - in 2020 and 2021 - from a site that received partially retrospective planning permission in March 2024 (application reference 21/000036/CM). This apportionment has also resulted in different 10-year sales averages for the years 2020, 2021, and 2022 compared to those given in previous LAAs. The figures represent the best estimates based on planning application documents.

4.8. To preserve commercial confidentiality, Worcestershire's sales figures for 2012 and 2013 were combined with Herefordshire's. Whilst these years do not affect the 10-year average from this LAA (2023 data) onwards, they are reflected in the 9-year and 10-year average for previous years (as displayed in Table 2 and Figure 1). Previous LAAs used the combined figure as a proxy for Worcestershire-only sales, as it was believed that the vast majority of sales were from Worcestershire, and the combined figures were similar to those for Worcestershire alone in the years before 2012 and after 2013. While figures for 2012 and 2013 no longer influence the current 10-year average, the historic averages which used this data could still appear on charts in LAAs up until 2032.

Table 2. Sand and gravel sales 2014 – 2023

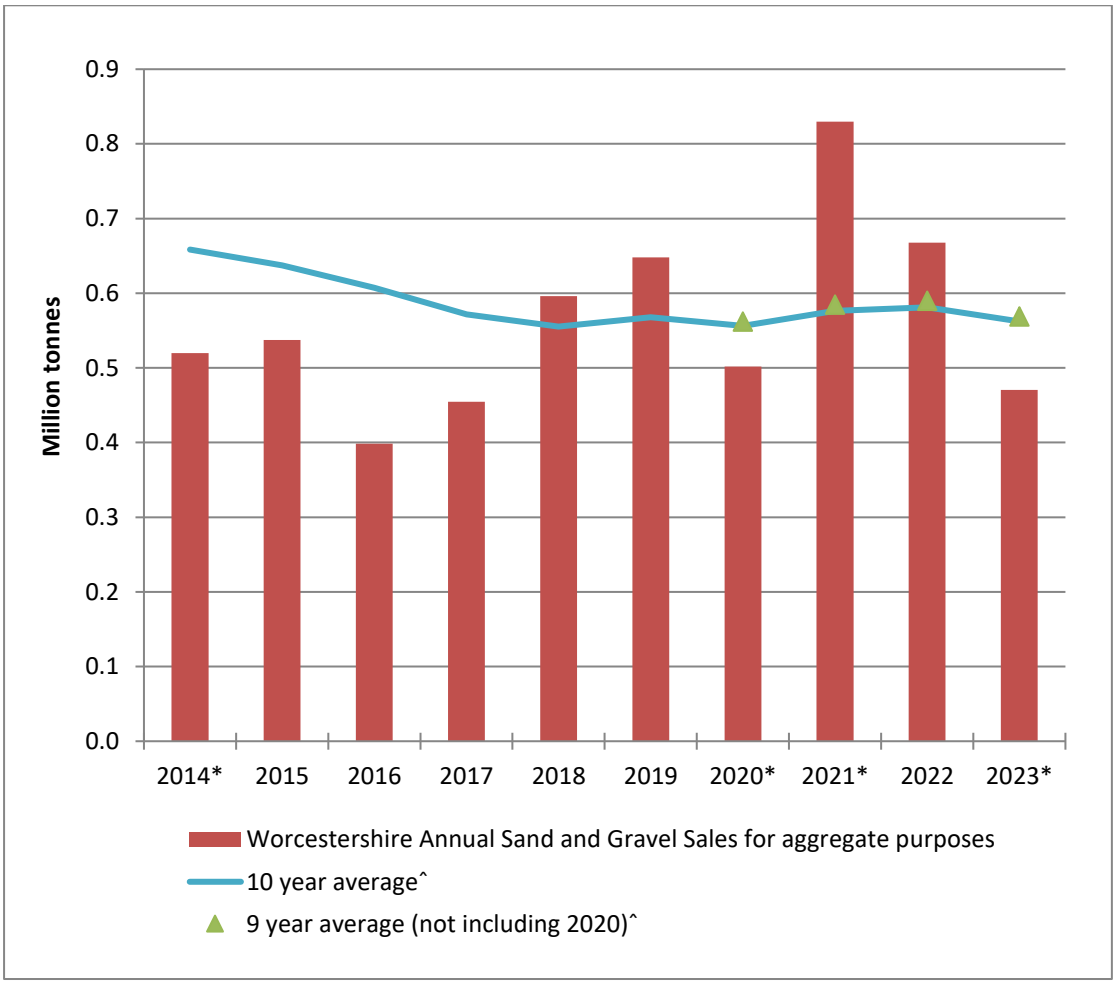
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Sales from Worcestershire (million tonnes)	0.520*	0.538	0.399	0.455	0.596	0.648	0.502	0.830	0.668	**0.471***
10-year sales average (million tonnes)	0.658	0.637	0.607	0.572	0.555	0.568	0.556	0.576	0.581	**0.562**
Number of active sites	**	4	3	3	3	3	3	4	4	**4**
Number of inactive sites	**	2	2	-	1	-	-	-	-	**-**
Permitted not yet commenced	**	1	1	-	-	-	-	-	3	**2**

Source: West Midlands Aggregate Working Party Annual Reports and West Midlands Aggregate Working Party Annual Monitoring Survey data.

* Includes estimated sales data for some sites.

** Data not available because no LAA was published covering 2014 data.

Figure 1. Sand and gravel annual and average sales 2014-2023



* Including estimated sales data for some sites.
^ Nine-year averages until 2021 and ten-year averages until 2022 reflect combined Herefordshire and Worcestershire sales figures for 2012 and 2013.

4.9. In 2023, sales of sand and gravel from sites in Worcestershire were 0.471 million tonnes, a decrease from 0.668 million tonnes in 2022. This was, in turn, a decrease from 0.830 million tonnes in 2021. Prior to this, the figure for 2020 was noticeably lower, at 0.502 million tonnes. The figure for 2020 is likely to have been impacted by the COVID-19 pandemic, when restrictions resulted in enforced shutdown of large sections of the UK economy. Sales of sand and gravel from Worcestershire in 2020 were 23% lower than in the previous year (2019), which was unaffected by the pandemic. Sales in 2021 were higher than pre-pandemic levels, indicating that the 2020 figure was a short-term fluctuation. It is possible that 2021 sales included some compensatory uplift, before returning to pre-pandemic levels in 2022, when sales were very similar to those in 2019.

4.10. The 10-year average of sales from 2014-2023 is 0.562 million tonnes. 2023 sales were 16.3% lower than the 10-year average of sales. Annual sales figures have fluctuated over the 10-year period, with a high of 0.830 million tonnes in 2021 and a low of 0.399 in 2016.

4.11. The 10-year average fell by 15.7% over the period from 2014 to 2018, but has remained broadly stable over the last seven years[25].

4.12. Figure 1 also shows a 9-year average, which excludes the 2020 sales figures that would have been most affected by the COVID-19 pandemic. 2023 sales levels were 17.3% lower than the 9-year sales average.

4.13. Because the 10-year average is only 1.2% lower than the 9-year average, and because the 10-year average has remained relatively stable since 2018, the LAA will continue to use the 10-year average (including 2020 sales figures) as the starting point for forecasting future demand.

Limitations of using the ten-year average of sales data

4.14. The National Planning Policy Framework requires the LAA to forecast future demand for aggregates "based on a rolling average of 10 years' sales data and other relevant local information"[26]. Basing demand *solely* on 10 years' sales data would not be appropriate for the following reasons:

- Sand and gravel sales will vary depending on both supply and demand factors in the market. Basing a production guideline on this alone could risk following historical trends, rather than meeting future demand or considering the county's ability to supply.
- Until July 2022, the County of Hereford and Worcester Minerals Local Plan (adopted in 1997), was used to make decisions about planning applications for mineral development. This Plan was still being used beyond its expected implementation period, and the limited number of Preferred Areas and saved policies it contained could have supressed operator interest in bringing sites forward in Worcestershire during this time, thereby depressing the annual sales figures. Although a replacement Worcestershire Minerals Local Plan (2018-2036) was adopted in July 2022, any potential impacts of the dated Mineral Local Plan on sales in previous years will continue to have an impact on the 10-year sales average going forward. The influence of this will diminish over time.
- In two of the last five years, the 10-year average was below annual sales (10%-16% lower) meaning that it could under-represent current market demand.

4.15. The factors above mean that, whilst the 10-year average is considered to be the best starting point, this needs to be considered alongside other indicators of demand and supply.

[25] Over the period 2017-2023, the 10-year average has varied relatively little, with the highest average in that period being only 4.7% above the lowest.
[26] Ministry of Housing, Communities and Local Government (December 2024) National Planning Policy Framework, paragraph 226(a)

Summary

Summary: 10 years sales average – sand and gravel

The 10-year average of sales from 2014-2023 is 0.562 million tonnes. This has fluctuated during that time-period, but to a lesser extent than the annual sales figures, and the average has remained broadly stable for the last seven years.

Sales of sand and gravel from sites in Worcestershire in 2023 were 0.471 million tonnes, which is 16% lower than the 10-year sales average.

5. Primary Aggregates: Crushed Rock Baseline

5.1. 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: [27]

- The Precambrian "Malverns Complex" and "Warren House Formation"
- The Silurian "Woolhope Limestone Formation"[28]
- The Ordovician "Lickey Quartzite Formation" and
- The Jurassic "Inferior Oolite Group".

5.2. The Malverns Complex and Warren House Formation include rocks which have previously been worked as a source of aggregate suitable for use in road construction and maintenance, as well as for building stone.[29] Woolhope Limestone is often only suitable for production of constructional fill, although there may be areas where the formation comprises relatively clean, good-quality limestones suitable for aggregate use.[30] Lickey Quartzite may be suitable for uses which require high resistance to abrasion,[31] whereas Inferior Oolite limestone is used for low-quality aggregate purposes such as constructional fill (as well as for building stone).[32, 33]

5.3. The qualities and properties of these deposits vary, although each type of deposit may be capable of supplying various markets (such as roadstone, railway ballast, concrete aggregate, or other construction aggregates). Due to the overlap in their potential uses, and to facilitate the flexibility of market

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[27] 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

[28] 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)

[29] British Geological Survey and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

[30] British Geological Survey and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

[31] British Geological Survey and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

[32] British Geological Survey and Office of the Deputy Prime Minister (2006) *Mineral Resource Information in Support of National, Regional and Local Planning: Gloucestershire (comprising Gloucestershire and South Gloucestershire)*.

[33] British Geological Survey and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

supply from each deposit, these deposits will be considered collectively under the term “crushed rock” in the rest of this report.

10-year sales average

5.4. The National Planning Policy Framework requires the LAA to forecast future demand for aggregates “based on a rolling average of 10 years’ sales data and other relevant local information”[34].

5.5. Table 3 shows the levels of crushed rock sales in Worcestershire over the last 10 years (2014-2023). Worcestershire's last crushed rock site ceased working in 2010 and has since been restored.

Table 3. Crushed rock sales 2014-2023 (million tonnes)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Sales from Worcestershire	0	0	0	0	0	0	0	0	0	0
10-year sales average	0.036	0.026	0.014	0.007	0	0	0	0	0	0

Source: West Midlands Regional Aggregate Working Party Annual Reports.

5.6. In 2023, sales of crushed rock from Worcestershire were 0 tonnes.

5.7. As no crushed rock sales have been recorded in any of the last 10 years, the 10-year average of sales from 2014-2023 is 0 tonnes.

5.8. The lack of sales of crushed rock in Worcestershire in recent years should not be misconstrued as a lack of demand. It should therefore be considered alongside other indicators of demand and supply.

Summary

Summary: 10 years sales average – crushed rock

No crushed rock sales have been recorded in any of the last 10 years. The lack of sales of crushed rock in Worcestershire in recent years should not be misconstrued as a lack of demand. It should therefore be considered alongside other indicators of demand and supply.

[34] Ministry of Housing, Communities and Local Government (December 2024) National Planning Policy Framework, paragraph 226(a)

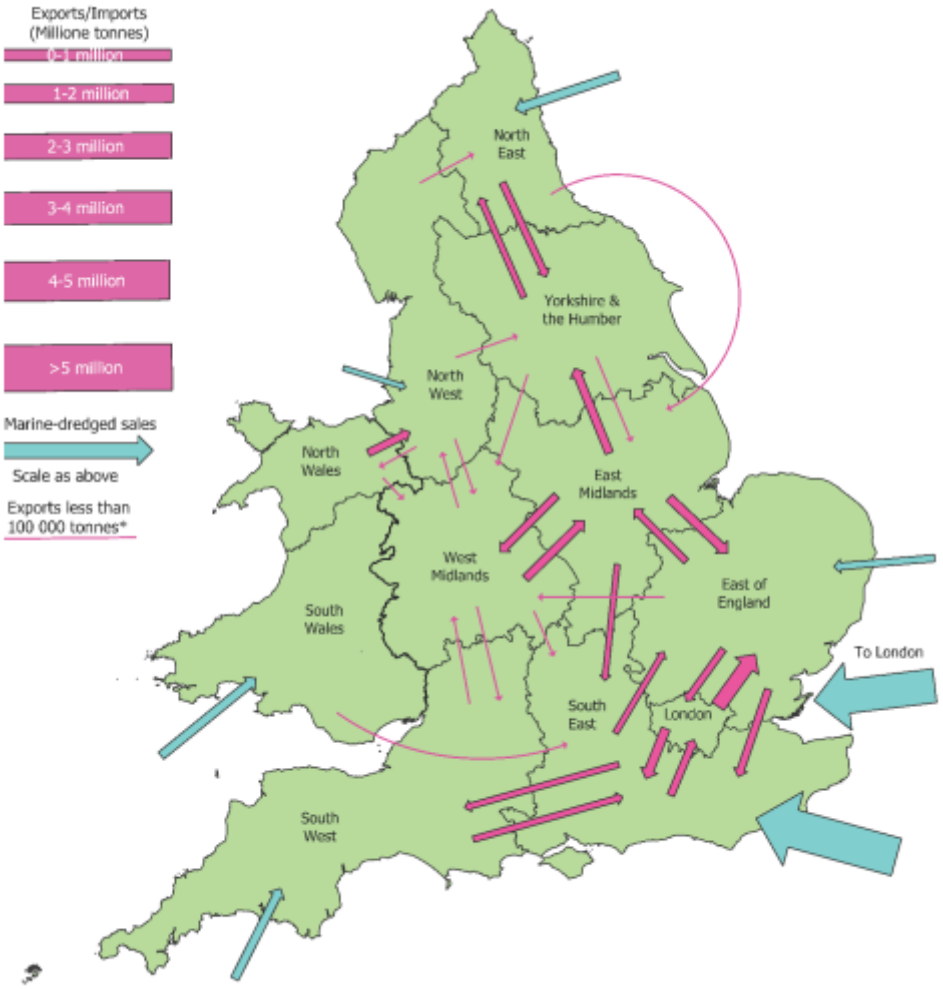
6. Primary Aggregates: Imports and Exports

6.1. Sales figures alone only show the amount of aggregate produced within the county, and cannot show whether this is broadly comparable to the scale of demand within Worcestershire. Understanding the scale of net imports and exports in the county is therefore important. Net imports would indicate that demand in the county exceeds the amount sold from sites in the county, whereas net exports would indicate that Worcestershire produces more than is needed to meet its own needs and is therefore contributing to regional or national supply through the Managed Aggregate Supply System.

6.2. The only source of information about the flows of imports and exports of primary aggregates is the *Aggregate minerals survey for England and Wales*[35]. This survey is undertaken by government every four or five years, with the most recent available reports dating from 2009, 2014, and 2019.[36] One aspect considered in these reports is the movement of materials, setting out information relating to the inter-regional flow of aggregates. The pattern of movements of sand and gravel is illustrated in Figure 2, and the pattern of movements of crushed rock is illustrated in Figure 3.

[35] Collation of the results of the 2019 aggregate minerals survey for England and Wales, Ministry of Housing, Communities and Local Government (2021).
[36] A further survey has been undertaken by government for 2023 data, but the results had not been published at the time of writing this LAA.

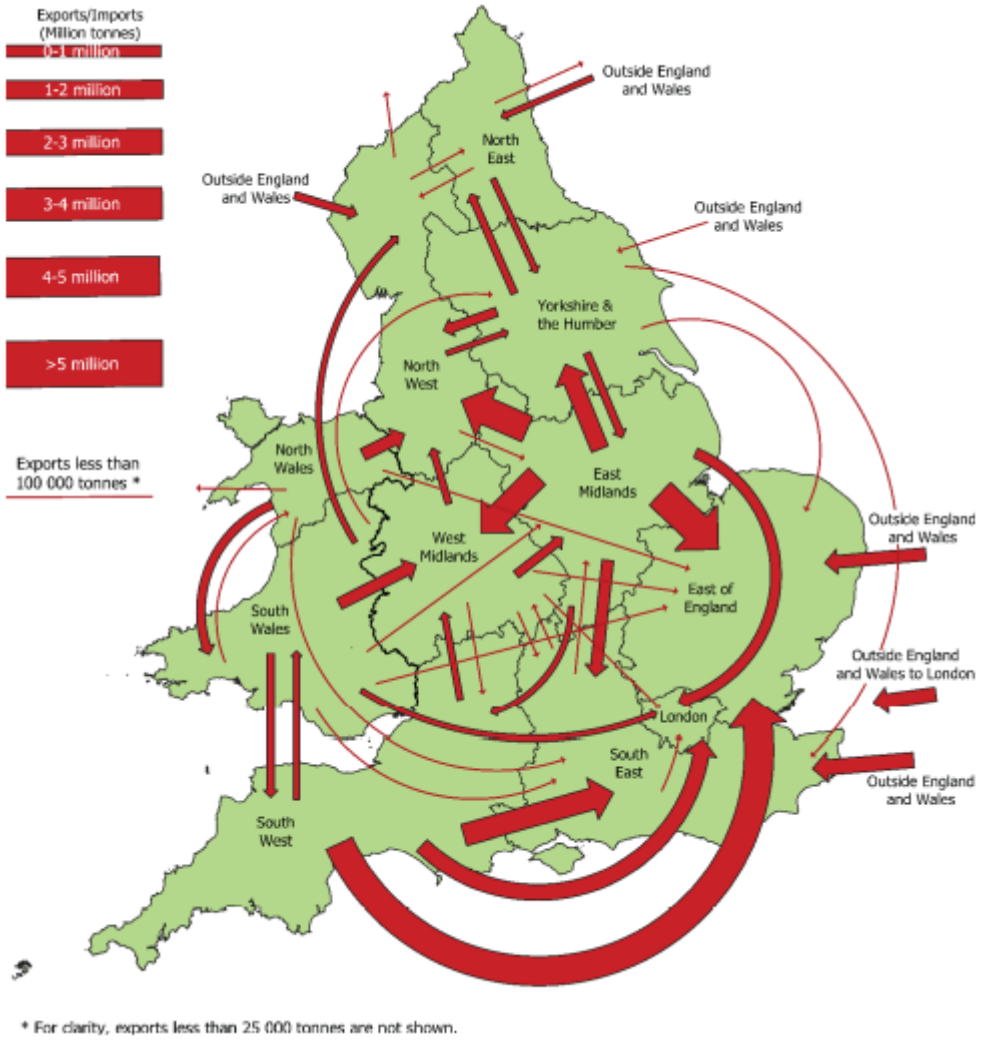
Figure 2. Sand and gravel inter-regional flows, 2019



* For clarity, exports less than 25 000 tonnes are not shown.

Source: "Collation of the results of the 2019 aggregate minerals survey for England and Wales" Ministry of Housing, Communities and Local Government (2021).

Figure 3. Crushed rock inter-regional flows, 2019



Source: "Collation of the results of the 2019 aggregate minerals survey for England and Wales" Ministry of Housing, Communities and Local Government (2021).

6.3. The data available for Worcestershire in the *Aggregate minerals survey for England and Wales* for 2009, 2014 and 2019 is presented in Table 4, Table 5, and

6.4. Table 6. This is the best available data for understanding both the likely scale and balance of imports and exports and the total consumption of primary aggregates in Worcestershire (see section 7). However, discussion with the authors of the document revealed that the information in the 2014 survey did not represent a complete dataset from all mineral operators,[37] and we understand from personal communications with officers at other mineral

[37] Correspondence with the British Geological Survey in 2017 revealed that only two quarries in Worcestershire responded to the 2009 survey, and only a single quarry in Worcestershire responded to the 2014 survey.

planning authorities that this may also be the case for the 2019 dataset. It is therefore considered that caution must be applied in relying on this data[38].

6.5. Subject to the caveats outlined above, the data presented in Table 4 to

6.6. Table 6 below indicate that Worcestershire was a net exporter of sand and gravel, and a net importer of crushed rock, in each of the three survey years. Data is presented for sales of primary (land-won) sand and gravel from Worcestershire, alongside the level of imports of land-won sand and gravel, marine sand and gravel, and crushed rock into Worcestershire. As an inland county, Worcestershire does not produce marine sand and gravel. No sales data is presented for crushed rock, because no sales from Worcestershire were recorded in any of the three surveys.[39] However, there may be an increasing need for crushed rock to be supplied from within Worcestershire, as reserves are diminished elsewhere.

Table 4. Sales of land-won sand and gravel from Worcestershire by principal destination sub-region

Year	Tonnes sold within Worcestershire	Tonnes sold within the West Midlands	Tonnes sold elsewhere	Total tonnes sold
2009	114,000 (52%)	59,000 (27%)	45,000 (21%)	218,000
2014	51,000 (22%)	133,000 (57%)	47,000 (21%)	231,000
2019	278,000 (44%)	269,000 (41%)	92,000 (14%)	648,000

Source: "*Collation of the results of the 2009 aggregate minerals survey for England and Wales*" Communities and Local Government (October 2011) table 9f, "Collation of the results of the 2014 aggregate minerals survey for England and Wales" Communities and Local Government (March 2016) table 9f, and "Collation of the results of the 2019 aggregate minerals survey for England and Wales" Ministry of Housing, Communities and Local Government (2021) table 9f.

Table 5. Imports of primary aggregates into Worcestershire

Year	Tonnes of land-won sand and gravel	Tonnes of marine sand and gravel	Tonnes of crushed rock
2009	45,000	13,000	192,000
2014	146,000	2,000	540,000
2019	103,000	2,000	733,000

Source: "*Collation of the results of the 2009 aggregate minerals survey for England and Wales*" Communities and Local Government (October 2011) table 10, "Collation of the results of the 2014 aggregate minerals survey for England and Wales" Communities and Local Government (March 2016) table 10 and "Collation of the results of the 2019 aggregate minerals survey for England and Wales" Ministry of Housing, Communities and Local Government (2021) table 10.

[38] See Table 7 and Table 8 below for more details about the difference between the data in the *Aggregate minerals survey for England and Wales* and AWP sales data.

[39] No sales of crushed rock were recorded in "Collation of the results of the 2009 aggregate minerals survey for England and Wales" Communities and Local Government (October 2011) table 9f. A crushed rock site in Worcestershire was approaching the end of its working life in 2009, but it is unclear whether this table is accurate or whether some of the combined sales figure with Herefordshire for 2009 (0.2 million tonnes) reported in previous iterations of the Local Aggregate Assessment may have been attributable to Worcestershire.

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

Year	Balance of sand and gravel imports / exports (land won and marine)	Balance of crushed rock imports / exports	Balance of all primary aggregate imports / exports
2009	Net exporter: 46,000 tonnes	Net importer: 192,000 tonnes	Net importer: 146,000 tonnes
2014	Net exporter: 32,000 tonnes	Net importer, 540,000 tonnes	Net importer: 508,000 tonnes
2019	Net exporter: 256,000 tonnes	Net importer: 733,000 tonnes	Net importer: 477,000 tonnes

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), "Collation of the results of the 2014 aggregate minerals survey for England and Wales" Communities and Local Government (March 2016) and "Collation of the results of the 2019 aggregate minerals survey for England and Wales" Ministry of Housing, Communities and Local Government (2021)

6.7. The tables show that in 2019 Worcestershire was a net exporter of sand and gravel and a net importer of crushed rock. Overall, 44% of sand and gravel produced in Worcestershire was used within the county, with 85% used within the West Midlands. In 2019, sales of sand and gravel from Worcestershire accounted for 10% of total supply from the West Midlands AWP area. This was the second largest contribution from a West Midlands Minerals Planning Authority, the largest being Staffordshire at 78%.

6.8. Worcestershire does not have any rail depots 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. All imports and exports currently take place by road transport.

Summary

Summary: Imports and Exports

In 2019, Worcestershire was a net exporter of sand and gravel but, with no indigenous production of crushed rock, overall Worcestershire was a net importer of primary aggregates. 44% of sand and gravel produced in Worcestershire was used within the county, with 85% used within the West Midlands.

7. Primary Aggregates: Demand Indicators

Total consumption

7.1. The amount of primary aggregate consumed within Worcestershire each year can provide useful context about the demand for resources within the county, but does not reflect the role which supply from Worcestershire plays in the regional market.

7.2. Total consumption for the county can be estimated based on available data for Worcestershire in the *Aggregate minerals survey for England and Wales* for 2009, 2014 and 2019. However, as detailed above, discussion with the authors of these reports revealed that the information in the 2014 survey did not represent a complete dataset from all mineral operators,[40] and we understand from personal communications with officers at other mineral planning authorities that this may also be the case for the 2019 dataset. It is therefore considered that caution must be applied in relying on this data. Table 7 and Table 8 below therefore show this information alongside more robust sales figures recorded by the West Midlands AWP for context.

Table 7. Sales and consumption of sand and gravel in Worcestershire (million tonnes)

Sand and Gravel: Sales/Consumption	2009	2014	2019
Total sales from sites in Worcestershire: AWP sales data	0.524	0.519	0.648
Total sales from sites in Worcestershire: Collation of the results of the aggregate minerals survey for England and Wales	0.218 (↓58% lower than AWP data)	0.231 (↓55% lower than AWP data)	0.648 (both reports use the same survey data)
Total consumption in Worcestershire from any source: Collation of the results of the aggregate minerals survey for England and Wales	0.172	0.199	0.392
Net importer/exporter: Collation of the results of the aggregate minerals survey for England and Wales	Net exporter: 0.460	Net exporter: 0.032	Net exporter: 0.256

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), "Collation of the results of the 2014 aggregate minerals survey for England and Wales" Communities and Local Government (March 2016) and "Collation of the results of the 2019 aggregate minerals survey for England and Wales" Ministry of Housing, Communities and Local Government (2021)

[40] Correspondence with the British Geological Survey in 2017 revealed that only two quarries in Worcestershire responded to the 2009 survey, and only a single quarry in Worcestershire responded to the 2014 survey.

Table 8. Sales and consumption of crushed rock in Worcestershire (million tonnes)

Crushed rock: Sales/Consumption	2009	2014	2019
Total sales from sites in Worcestershire: AWP sales data	0.2	0	0
Total sales from sites in Worcestershire: Collation of the results of the aggregate minerals survey for England and Wales	0 (lower than AWP data)	0	0
Total consumption in Worcestershire from any source: Collation of the results of the aggregate minerals survey for England and Wales	0.192	0.54	0.733
Net importer/exporter: Collation of the results of the aggregate minerals survey for England and Wales	Net importer: 0.192	Net importer: 0.54	Net importer: 0.733

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), "Collation of the results of the 2014 aggregate minerals survey for England and Wales" Communities and Local Government (March 2016) and "Collation of the results of the 2019 aggregate minerals survey for England and Wales" Ministry of Housing, Communities and Local Government (2021)

7.3. Data on total consumption is not available on an annual basis, and there are significant concerns about the reliability of the data that is available, with sales levels of sand and gravel reported in the 2009 and 2014 Collation of the results of aggregate minerals survey for England and Wales being 55-58% lower than those reported by the AWP (see Table 7). This means data cannot be used to identify trends. However, both the Collation of the results of the 2019 aggregate minerals survey for England and Wales and the 2019 AWP Report are based on the same survey data, and could be used to provide an indication of the overall scale of demand for primary aggregates within Worcestershire at a fixed point.

7.4. Based on this survey data, in 2019 the total consumption of sand and gravel in Worcestershire was estimated to be 0.392 million tonnes. This is equivalent to 59% of sand and gravel supply from the county. Crushed rock consumption was estimated to be 0.733 million tonnes, with no indigenous supply.

Summary

Summary: Total consumption

In 2019, consumption of sand and gravel in Worcestershire was estimated to be 0.392 million tonnes, which was equivalent to 59% of sand and gravel supply from the county.

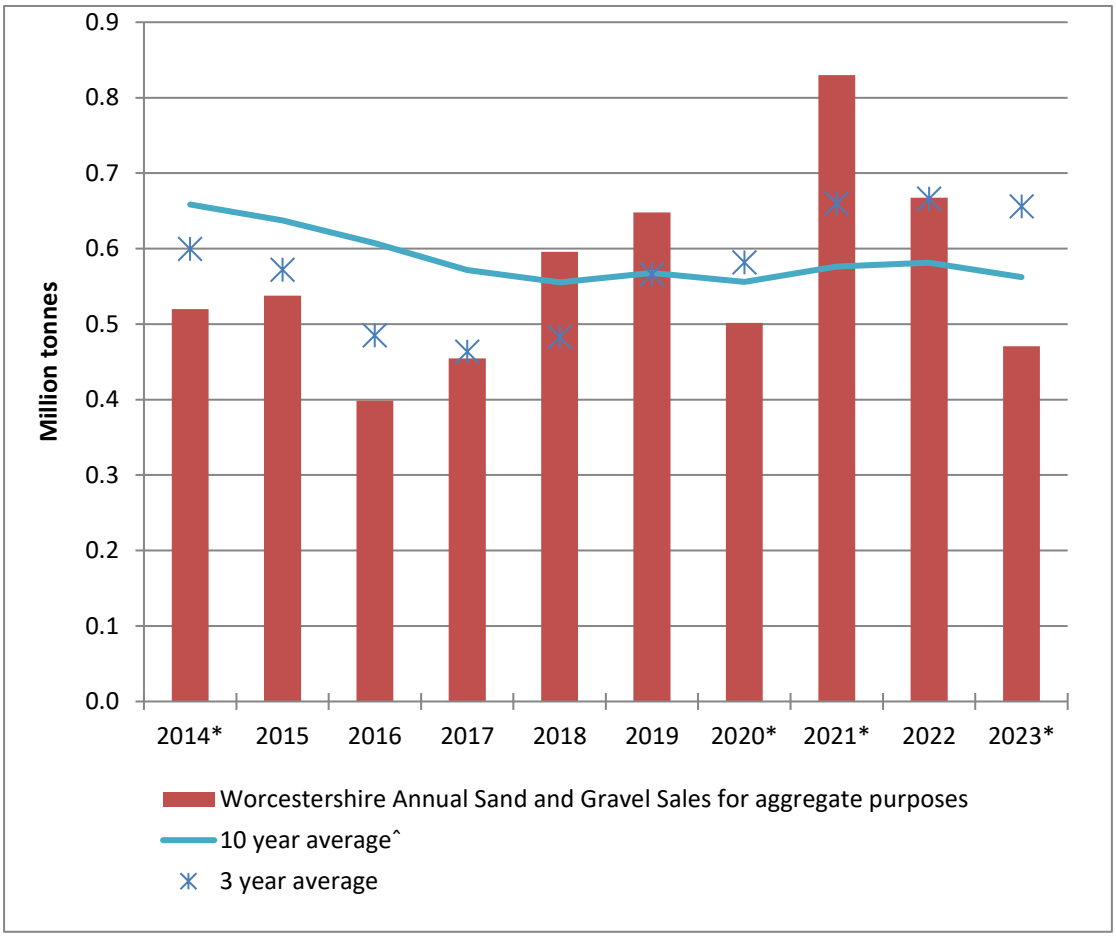
Crushed rock consumption was estimated to be 0.733 million tonnes, with no indigenous supply.

3-year sales average

7.5. The LAA also considers an average of the last three years of sales to give an indication of the most recent trends in demand.

7.6. For sand and gravel, the 3-year average from 2021-2023 is 0.656 million tonnes. This is 17% higher than the 10-year average and 39% higher than the 2023 sales figure.

Figure 4. Sand and gravel 3-year average shown against annual sales and 10-year average 2014-2023



* Include estimated sales data for some sites.
^ 10-year averages until 2022 reflect combined Herefordshire and Worcestershire sales figures for 2012 and 2013.

7.7. For crushed rock, the 3-year average from 2021-2023 is 0 tonnes. As there were no sites in Worcestershire producing crushed rock in the last three years, no trends in demand can be derived from sales data over this period.

Summary

Summary: 3-year sales average

The 3-year sales average for sand and gravel is 17% higher than the 10-year average and 39% higher than the 2023 sales figure.

For crushed rock, the 3-year sales average from 2020-2022 is 0 tonnes.

Sub-regional apportionment

7.8. A further indicator to be taken into account is any published National and Sub National Guidelines on future provision.[41] *National and regional guidelines for aggregates provision in England*[42] 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, and 0.163 million tonnes of crushed rock. No sub-regional apportionment based on the 2005-2020 Guidelines was agreed, and no further National and Sub National Guidelines have been published by government.

7.9. The sub-regional apportionment for sand and gravel of 0.871 million tonnes is 85% higher than the 2023 sales figure, and is 55% higher than the 10-year average. This level of production has not been achieved in Worcestershire since 2003, although sales of 0.830 million tonnes in 2021 came very close to meeting this level.

7.10. For crushed rock, the level of production required to meet the sub-regional apportionment figure of 0.163 million tonnes has not been achieved in Worcestershire since 2002.

7.11. In the Inspector's Report on the partial review of the Northamptonshire Minerals and Waste Local Plan,[43] 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.” However, discussion during the examination hearing sessions for Worcestershire’s Minerals Local Plan in November-December 2020 highlighted that the lack of crushed rock production (and therefore sales information) in recent years means that the sub-regional apportionment for crushed rock does provide some indication of the scale of potential demand.

7.12. This suggests that it would not be appropriate to give much weight to the guidelines and former sub-regional apportionment for sand and gravel but, in absence of sales data, it is likely to be appropriate to give more weight to the scale of the former sub-regional apportionment for crushed rock.

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[41] Ministry for Housing, Communities and Local Government (December 2024) *National Planning Policy Framework*, paragraph 226(d).
[42] Department for Communities and Local Government https://www.gov.uk/government/publications/national-and-regional-guidelines-for-aggregates-provision-in-england-2005-to-2020
[43] 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://www3.northamptonshire.gov.uk/councilservices/environment-and-planning/planning/planning-policy/minerals-and-waste-planning-policy/documents/PDF%20Documents/ReportToNorthamptonshireCountyCouncilV3.pdf

Summary

Summary: Sub-regional apportionment

The sub-regional apportionment for Worcestershire for the period 2001-2016 was 0.871 million tonnes of sand and gravel, and 0.163 million tonnes of crushed rock.

For sand and gravel this is 85% higher than 2023 sales and 55% higher than the 10-year average. There has been no crushed rock production in Worcestershire since 2009.

For sand and gravel, this level of production has not been achieved since 2003, although sales levels in 2021 came very close. For crushed rock, this level of production has not been achieved since 2002.

There are no up-to-date National and Sub-National Guidelines.

Anticipated levels of development

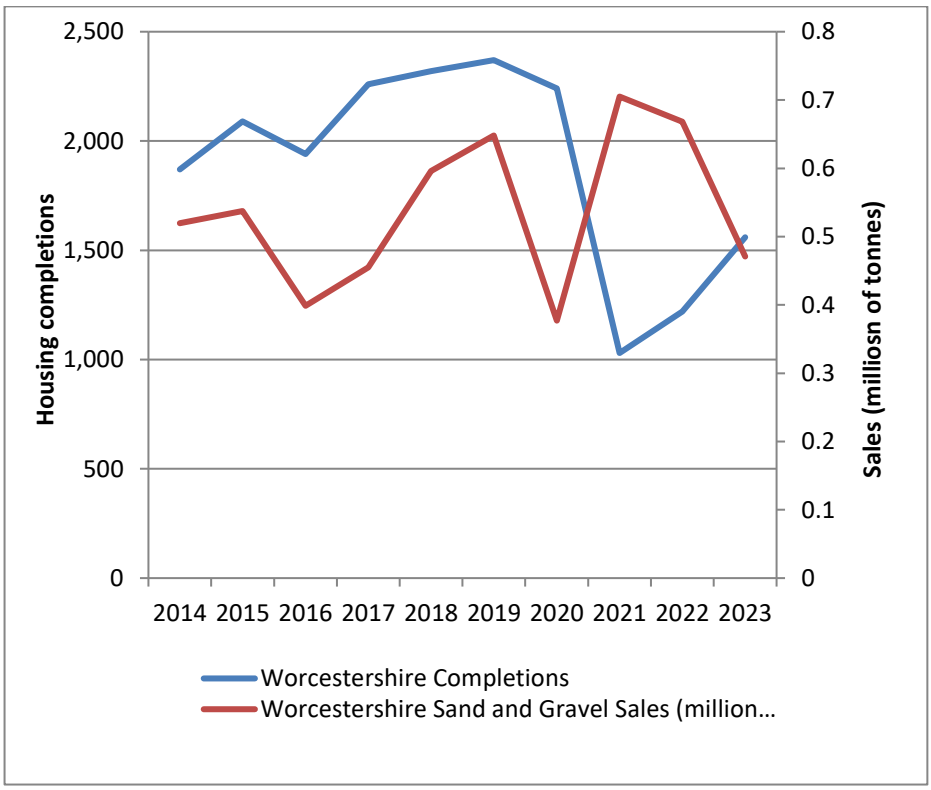
7.13. Considering levels of planned development can provide an indication of whether demand for aggregates is likely to significantly increase or decrease, warranting an adjustment in the production guidelines.

Housing development

7.14. A steady and adequate supply of aggregates is crucial to enabling the level of planned housing development to be delivered in the county. To understand whether future demand for aggregates for housing is likely to be comparable to, or significantly lower or higher than, historic levels of demand, trends in housing completions have been compared to target housing completion levels for Worcestershire's local planning authorities[44].

7.15. Figure 5 shows aggregate sales and housing completions in Worcestershire over the last 10 years.

Figure 5. Aggregate sales versus housing completions[45]



7.16. Figure 5 shows that the level of housing completions has varied annually over the last 10 years, with a low of 1,030 in 2021/22 and a high of 2,370 in

[44] Calculated using the Government's 'Standard Method' in force at the time each respective Local Plan was prepared.
[45] Housing completions data based on Department for Communities and Local Government, statistical data set 'Live tables on house building: new build dwellings' table 253 (permanent

2019/20.[46] The average over this ten-year period was 1,890 completions per year. The highest completions in the last ten years were in the four years prior to March 2021, despite the impact of the restrictions introduced in response to the COVID-19 pandemic in Spring 2020. Although the number of completions in April 2023 – March 2024 was 28% higher than the previous year and continues the year-on-year increases since 2021/22, it is still 18% lower than the average over the last 10 years.

7.17. The trajectories of housing completions and sand and gravel sales have diverged markedly in the last four years. This suggests that there is no close correlation between housing completions in Worcestershire and sand and gravel sales from Worcestershire. As Worcestershire does not currently produce crushed rock, any crushed rock used in housing development and supporting infrastructure is necessarily imported, which may skew any correlation there might otherwise have been between aggregate sales and housing completions. Due to Worcestershire's lack of crushed rock production/sales, and the fact that crushed rock consumption (imports) data is only available through the four-five yearly surveys, this section only compares the scale of future projected housing development to the scale of sand and gravel supply in Worcestershire. However, any trends in the scale of housing development will be considered for both sand and gravel and crushed rock in section 7.

7.18. Whilst some sand and gravel extracted in Worcestershire is used to build houses in Worcestershire, not all of Worcestershire's houses will use Worcestershire's sand and gravel. The movement of minerals across the county's administrative boundary is a normal part of a functioning market. The distance of sand and gravel reserves from population centres and other locations of planned housing growth will influence the cost of those minerals to the end user. There are significant areas of housing growth outside Worcestershire that fall within typical road-transport distance of the county boundary[47]. Developments within some of these areas will source sand and gravel from within Worcestershire and, similarly, some sites within Worcestershire will source sand and gravel from outside the county.

7.19. Whilst evidence demonstrates that Worcestershire is a net exporter of sand and gravel (as illustrated in Table 8), and shows how much of Worcestershire's sand and gravel is sold in both Worcestershire and the wider West Midlands, data on minerals movements between individual local authority areas is not available.

7.20. Despite the lack of a direct correlation between housing completions and the scale of aggregate (sand and gravel) sales locally, it is nonetheless the

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dwellings started and completed, by tenure and district).
https://www.gov.uk/government/statistical-data-sets/live-tables-on-house-building..

[46] Department for Communities and Local Government, statistical data set 'Live tables on house building: new build dwellings' table 253 (permanent dwellings started and completed, by tenure and district). https://www.gov.uk/government/statistical-data-sets/live-tables-on-house-building.

[47] Mineral Products Association (2020) *Sustainable Development Report: Data and developments – 2019/2020* states that the average road delivery distance for aggregates reduced from 30.1 miles in 2016 to 23 miles in 2019.

case that house-building is a significant consumer of aggregate materials. This LAA therefore considers the anticipated level of housing growth in Worcestershire in the coming years (based on adopted and emerging local plans, and likely future housing targets). Comparing these indicative growth levels to past trends can help to identify if a significant change to the scale of demand from this sector is likely, even though it is not possible to undertake a precise calculation.[48]

Future projected demand

7.21. Adopted Local Plans in Worcestershire make provision for a total of 2,218 new homes per annum.[49] This is comparable to the scale of annual delivery in Worcestershire in the four years up to March 2021, but is 17% higher than the average annual completions over the last 10 years.

7.22. Each local planning authority must maintain a five-year supply of housing land to enable the housing requirement in their respective plans to be delivered. However, under the NPPF[50], Local Plans that are more than five years old must make provision for a five-year supply of housing based on the government's 'standard method' of calculating housing need[51]. The standard method does not, on its own, produce a housing requirement figure[52].

7.23. In Worcestershire, only the Wyre Forest District Local Plan, adopted in 2022, is less than five years old. As such, the housing requirements for the other local planning authorities in Worcestershire are informed by the 'standard method', together with any relevant additional buffers. As of December 2024, the five-year housing land supply reports for all of

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[48] In previous LAAs, attempts were made to calculate the typical aggregate demand per new home, using a range of 200 tonnes up to 400 tonnes of aggregate per home (the higher figure to account for supporting infrastructure). The Mineral Products Association's '"Profile of the UK Mineral Products Industry - 2020 Edition'" (published in 2021) states that a "typical home" uses 12 tonnes of mortar and 200 tonnes of aggregate, https://www.mineralproducts.org/MPA/media/root/Publications/2021/Profile_of_the_UK_Mineral_Products_Industry_2021.pdf. However, due to the lack of a strong correlation between housing completions in Worcestershire and sand and gravel sales, as well as the fact that the estimated aggregate demand per house does not distinguish between use of sand and gravel and crushed rock, these calculations are no longer considered helpful.

[49] Based on figures in South Worcestershire Development Plan (2016), Wyre Forest District Local Plan (2022), Bromsgrove District Plan (2017), and Borough of Redditch Local Plan No.4 (2017).

[50] Ministry of Housing, Local Government and Communities (December 2024) National Planning Policy Framework, paragraph 78.

[51] The standard method uses a formula that incorporates a baseline of local housing stock which is then adjusted upwards to reflect local affordability pressures to identify the minimum number of homes expected to be planned for. The standard method identifies a minimum annual housing need figure, and ensures that plan-making is informed by an unconstrained assessment of the number of homes needed in an area.
Ministry of Housing, Local Government and Communities (December 2024) Planning Practice Guidance: 'What is the standard method for assessing local housing need?', Paragraph: 002 Reference ID: 2a-002-20241212, Revision date: 12 12 2024.

[52] *"The requirement may be higher than the identified housing need if, for example, it includes provision for neighbouring areas, or reflects growth ambitions linked to economic development or infrastructure investment."* Ministry of Housing, Local Government and Communities (December 2024) National Planning Policy Framework, paragraph 69.

Worcestershire's local planning authorities provide for a total of 2,475 dwellings per annum[53] over their respective periods[54].

7.24. This figure is 12% higher than the combined figures in the adopted Local Plans, 31% higher than the average annual housing completions over the last ten years, and 47% higher than the average completions seen over the last five years.

7.25. This level of housing supply was last achieved in Worcestershire in 1995/96[55]. However, housing completions in 2019-20 were only 4% lower, in a year that sand and gravel sales were 0.648 million tonnes, which is 15% above the current 10-year sales average. This suggests that a sand and gravel supply based on the 10-year sales average alone may not be sufficient to provide for the projected increase in housing development.

7.26. This situation is made more acute by the government's commitment to significantly increase the rate of housebuilding, with growth ambitions stating that this will *"require a rate of housebuilding and infrastructure construction not seen in over 50 years."*[56] To help facilitate this growth, the standard method was revised in December 2024. The revised method will need to be used in future to inform housing requirements in Worcestershire, and will lead to a substantial increase in housing need, as set out in Table 9.

[53] 2,475 homes per annum collated from 2024 Five-year housing land supply reports from each LPA. Bromsgrove: 2,316 over five years (463 per annum); Redditch: 2,552 over five years (510 per annum); Wyre Forest: 1,423 over five years (285 per annum); Malvern Hills: 1,930 over four years (386 per annum); Worcester City: 1,715 over four years (343 per annum); Wychavon: 2,440 over four years (488 per annum).

[54] The latest available report for South Worcestershire (Malvern Hills District, Worcester City, and Wychavon District) refers to a four-year housing supply position, due to specific provisions in the NPPF in force at the time, and the status of the South Worcestershire Development Plan review at that time.

[55] Based on years for which full data is available in ONS 'Permanent dwellings started and completed, by tenure and district' 1980/81 to 2023/24.

[56] HM Government (December 2024) 'Plan for Change: Milestones for Mission-Led Government', https://assets.publishing.service.gov.uk/media/6751af4719e0c816d18d1df3/Plan_for_Change.pdf

Table 9: Results of new standard method of calculating housing need for Worcestershire's local planning authorities

Area	Annual Local Housing Need under the previous standard method	Annual Local Housing Need under the new standard method	Percentage change
Bromsgrove	386	713	+ 85%
Redditch	143	486	+ 240%
Wyre Forest	211	584	+ 177%
S. Worcestershire	1,193	2,174	+ 82%
Worcestershire total	**1,933**	**3,957**	**+ 105%**

Source: Indicative local housing need (December 2024 – new standard method) https://assets.publishing.service.gov.uk/media/675aaeca9f669f2e28ce2b91/lhn-outcome-of-the-new-method.ods

7.27. The housing need figures set out in Table 9 are not the same as the housing requirement figures referred to in the preceding paragraphs. The housing need is the starting point for identifying the housing requirement. This is why the county-wide figure in Table 9 under the previous method is lower than the figure collated from all districts' housing land supply reports; these reports apply an additional buffer to their calculated need, according to the degree of any under-delivery.[57] Even where delivery has met or exceeded the target level, a 5% buffer must be applied *"to ensure choice and competition in the market for land"*[58].

7.28. In addition, increased housing requirements in areas adjoining Worcestershire could also lead to sand and gravel being exported from Worcestershire to meet their needs. The results in Table 10 demonstrate that, whilst the standard method leads to a noticeable increase overall, this is of a lower order of magnitude than the increase in Worcestershire. This is largely due to the standard method leading to a substantial decrease in housing need in Birmingham.

[57] 20% buffer applied in Bromsgrove District. 5% buffer applied in Malvern Hills District, Worcester city, Wychavon District, Redditch Borough, and Wyre Forest District.
[58] Ministry of Housing, Local Government and Communities (December 2024) National Planning Policy Framework, paragraph 78.

Table 10: Results of applying new standard method of calculating housing need to local planning authorities adjacent to Worcestershire

Local Planning Authority (LPA)	LHN under the previous standard method	LHN under the new standard method	% change
Birmingham	7,174	4,448	- 38%
Cotswold	504	1,036	+ 105%
Dudley	657	1,462	+ 123%
Forest of Dean	330	600	+ 82%
Herefordshire	773	1,363	+ 76%
Shropshire	1,070	1,994	+ 86%
Solihull	866	1,323	+ 53%
South Staffordshire	223	651	+ 192%
Stratford-on-Avon	553	1,126	+ 104%
Tewkesbury	554	614	+ 11%
Total (surrounding LPAs)	**12,704**	**14,617**	**+ 15%**
Total (all West Midlands LPAs)	**24,734**	**29,940**	**+ 21%**

Source: Indicative local housing need (December 2024 – new standard method) https://assets.publishing.service.gov.uk/media/675aaeca9f669f2e28ce2b91/lhn-outcome-of-the-new-method.ods

7.29. The clear direction of travel is for a substantial increase in housing development. Whilst not all of the sand and gravel needed for this growth will come from Worcestershire, a failure to secure adequate permitted reserves could compromise the ability to deliver the required housing numbers to the required timescales. Due to Worcestershire's long-standing lack of productive capacity for crushed rock and lack of demonstrated operator interest (see paragraphs 8.30-8.34), it is anticipated that the crushed rock needed to enable housing growth will continue to be imported from outside the county for the foreseeable future.

7.30. Whilst the local housing need for this LAA monitoring year (2023) and for the following year were based on the lower figures under the previous standard method, it is important to ensure that future housing growth is accounted for, especially given the timescales needed to secure planning permission for mineral extraction sites.

7.31. The national Aggregate Minerals Survey (AMS) also provides useful context on the relationship between sand and gravel supply and housing development. Table 11: below shows the sand and gravel sales and balance of imports and exports in Worcestershire for 2019 (the most recent survey

year available). It shows that consumption of sand and gravel in Worcestershire was equivalent to 59% of sand and gravel supply from sites in Worcestershire.

7.32. Worcestershire was therefore a net exporter of sand and gravel. However, this apparent 'headroom' in sand and gravel sales does not mean that exports could instead be 'diverted' to housebuilding within Worcestershire. This would fail to reflect the operation of the market and the fact that the location of housing growth and the location of mineral supplies do not always follow administrative boundaries; it is to be expected that developments outside, but close to, the county boundary may source aggregates from within the county if those aggregates are the nearest available resources[59].

Table 11: Housing completions and sand and gravel sales in Worcestershire, 2019

Housing completions (2019-2020)	2,320
Sales of sand and gravel from Worcestershire	648,000 tonnes 44% sold within Worcestershire 41% sold within West Midlands 14% sold elsewhere
Imports of sand and gravel into Worcestershire	103,000 tonnes
Consumption of sand and gravel in Worcestershire based on indigenous supply and imports	381,000 tonnes Equivalent to 59% of sales of sand and gravel from Worcestershire.
Balance of sand and gravel imports / exports: Worcestershire	Net exporter: 256,000 tonnes

7.33. Notwithstanding the housing need figures presented in Table 10 above, detailed data for other local planning authority areas in the West Midlands (including their growth proposals and five-year housing land supplies) has not been collated in this LAA and it is not possible to identify the precise movements of all aggregates into and out of the county. As such, we have less certainty on the relationship between demand for housing and sales of sand and gravel at a regional level. Indicators of regional demand include the Mineral Products Association's (MPA) forecast of 2% growth in construction output in the West Midlands for the period 2024-2028, with the highest level of growth expected to come from private housing.[60]

[59] A January 2025 appeal decision for a proposed sand and gravel quarry just north of Kidderminster in Worcestershire refers to this cross-boundary movement of minerals, stating that *"Proximity to markets in Worcestershire and Birmingham might mean reduced transport emissions over possible alternative sources"*. Planning Inspectorate appeal reference APP/E1855/W/22/3310099.

[60] Mineral Products Association, Regional_overview_of_construction_and_mineral_products_markets_in_Great Britain, 2024 edition: https://www.mineralproducts.org/MPA/media/root/Publications/2024/MPA_Regional_overview_of_construction_and_mineral_products_markets_in_GB_2024.pdf

7.34. The MPA reports[61] that, nationally, *"A challenging macroeconomic backdrop and high interest rates dragged on the construction sector in 2023 and the first half of 2024. Businesses in the construction supply chain have been dogged by cost inflation, economic uncertainty and planning obstacles, all of which have hindered confidence and project delivery"* and that *"New housing accounts for over a fifth of primary aggregates demand. However, work on new sites was cut back in 2023 in response to a slowdown in buyer demand, as UK interest rates rose to a 15-year high of 5.25% in August 2023 (Bank of England [a], 2023). The affordability squeeze has been compounded by a contraction in real household income levels after a period of elevated consumer price inflation."* It also states that *"The expected recovery in construction activity will give a boost to demand for construction materials such as aggregates, ready-mixed concrete, asphalt and mortar. The MPA forecast indicates a gradual recovery in mineral product sales from 2025, assuming housing bounces back and other construction sectors pick up. The upturn will be from a low base, following three years of decline."* The MPA also reported that "*In 2023, primary aggregates sales volumes (crushed rock and sand & gravel) dropped by 5.0% … ready-mixed concrete by 6.2% and mortar by 15.0%"*.

7.35. The Construction Products Association forecasts a 2.9% decline in construction output in 2024, followed by a rise of 2.5% in 2025, stating in October 2024 that *"The wider UK economy appears to be in a stronger position than it was 3-6 months ago and early indicators for the two largest construction sections* [sic]*, private housing new build and private housing repair, maintenance and improvement (rm&i) point towards growth in 2025. In addition, activity in the industrial sector has picked up earlier than anticipated due to some large one-off projects."*[62]

Summary

Summary: Anticipated levels of demand – housing development

Planned levels of annual housing provision in Worcestershire over the next five years are higher than the average annual completions over the last 10 years. However, national changes in the way that housing need is calculated will result in significantly higher housing numbers as these targets are revised. This level of housing supply was last achieved in Worcestershire in 1995/96[63]. However, housing completions in 2019-20 were only 4% lower, in a year that sand and gravel sales were 0.648 million tonnes, which is 15% above the current 10-year sales average.

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[61] Mineral Products Association, Regional_overview_of_construction_and_mineral_products_markets_in_Great Britain, 2024 edition: https://www.mineralproducts.org/MPA/media/root/Publications/2024/MPA_Regional_overview_of_construction_and_mineral_products_markets_in_GB_2024.pdf

[62] Construction Industry Forecasts - Autumn 2024 (https://www.constructionproducts.org.uk/publications/economics/construction-industry-forecasts/construction-industry-forecasts-autumn-2024/)

[63] Based on years for which full data is available in ONS 'Permanent dwellings started and completed, by tenure and district' 1980/81 to 2023/24.

Changes to the standard method are also likely to result in higher housing numbers in most Local Authorities adjacent to Worcestershire. Together, this suggests that a sand and gravel supply based on the 10-year sales average alone may not be sufficient to provide for the projected increase in housing development.

Crushed rock demand in relation to housing development in the county is currently met through the importation of material from outside Worcestershire. The lack of sales of crushed rock from Worcestershire in recent years should not be misconstrued as a lack of demand. For both sand and gravel and crushed rock, the national changes mentioned above will lead to overall increases in demand across the region.

Employment development

7.36. A total of 752ha of land is currently allocated for employment use across Worcestershire,[64] but there is no up-to-date information on which employment allocations have been implemented and which remain. As such, there is a lack of robust data available in Worcestershire regarding delivery trajectories and the relationship between employment development and aggregate supply. It is also not possible to identify trends in employment development or to consider the relationship between the scale of development and historic aggregates sales in Worcestershire.

Summary

Summary: Anticipated levels of demand – employment development

The lack of robust data on employment land development prevents conclusions being drawn on the relationship between employment land and aggregate use/demand.

Infrastructure development

7.37. It is recognised that significant levels of infrastructure development are proposed in the Local Plans and Strategic Economic Plans in and around Worcestershire which will create some demand for aggregate minerals from within the county.

7.38. There is limited data to provide a meaningful estimate of resource demand from infrastructure development and to understand whether this is likely to be

[64] Made up of 640ha allocated in the South Worcestershire Development Plan, 55ha in the Redditch Local Plan, 29ha in the Wyre Forest Local Plan and 28ha in the Bromsgrove District Plan.

significantly higher or lower than levels of demand over the last 10 years. This means it is difficult to identify whether the 10-year sales average would be an adequate indicator of future demand or whether some degree of change may be required. However, as with housing (above), it is useful to use the 2019 aggregate survey to provide some context.

7.39. In 2019, the sand and gravel consumption in Worcestershire was estimated to equate to approximately 59% of the supply from Worcestershire, making the county a net exporter of sand and gravel (see Table 11:). In 2019 the following local infrastructure projects were underway in Worcestershire:

- Southern Link Road (A4440) dualling in Worcester and new bridleway bridge
- Pershore Infrastructure Improvements (Pinvin cross-roads element of project)
- A38 Bromsgrove Package 1 Barley Mow Lane
- Churchfields Kidderminster, major highways alterations to assist access to new housing development
- Town centre enhancements – Worcester and Kidderminster
- Sidbury and A44 signals improvement works, Worcester
- St Johns, Worcester congestion and public realm project
- Upton upon Severn flood alleviation scheme
- Worcestershire Parkway new rail station
- Kidderminster rail station redevelopment

This indicates that there was substantial local infrastructure development taking place in Worcestershire during the period covered by this data.

Nationally Significant Infrastructure Projects

7.40. There are no Nationally Significant Infrastructure Projects and no significant National Highways infrastructure projects planned or underway within Worcestershire. However, infrastructure needs beyond the county boundary should also be taken into account. The closest nationally significant projects to Worcestershire include the M5 Junction 10 Improvements Scheme (approximately five miles south of the Worcestershire boundary); the M42 Junction 6 improvements (approximately 6.5 miles north-east of the boundary), and the A417 Missing Link (11.5 miles south of the boundary). We have no evidence on whether any of these projects will create demand on Worcestershire's aggregate resources.

7.41. In December 2024 the government announced plans for *"fast-tracking 150 planning decisions on major infrastructure by the end of this Parliament – more than double the number decided in the previous Parliament."*[65] The specific projects will be set out in a ten-year strategy due to be published in spring 2025, so any potential direct or indirect impacts on Worcestershire aggregate supplies are currently unclear. This position will be monitored in future LAAs.

[65] HM Government (December 2024) Plan for Change

7.42. The route of the HS2 project will pass within 8 miles of the county boundary. The West Midlands Aggregate Working Party has previously discussed the likelihood that HS2 would result in significant demand for aggregates from Mineral Planning Authority areas in the West Midlands. As aggregates tend not to travel far from their source, it was considered that this demand was likely to be met from the Mineral Planning Authority areas closest to the line's route in the first instance. However, the level and urgency of this demand was considered likely to put significant strain on existing supply options in these areas and lead to wider aggregate demand within these areas being met from supply elsewhere. Failing to make adequate provision to meet this increased demand could compromise the ability for both HS2 and other developments to be delivered.

7.43. At the time of preparing this LAA (autumn 2024), construction of the HS2 line was at its peak, with "over 350 active sites between London and the West Midlands. Work has begun on two thirds of HS2's viaducts and over half of its bridges. More than half of tunnelling is already complete and major stations are taking shape".[66] As such, it is unlikely that the peak levels of aggregate demand would have been reached and reflected in sales data up to 2023. The period of peak construction is expected to last for five years.

7.44. The scope of HS2 was substantially reduced in 2023. Phase 2 of the proposed route - which would have run between Birmingham and Manchester - was cancelled by the (then) government in October 2023. The current government has confirmed it is not reversing this decision, and that the primary focus is on "the safe delivery of HS2 between Birmingham and London at the lowest reasonable cost".[67] The proposed redevelopment of Euston station is also being "rescoped" with "options for the delivery of Euston [being] explored".[68] It is unclear exactly what effect these changes will have on peak annual requirements for aggregate, but those parts of HS2 closest to Worcestershire are still proceeding. The cancellation of the northern legs and changes to Euston station are likely to reduce the overall anticipated need for aggregates, although this may be offset to a degree by multiple smaller transport infrastructure improvements proposed at the time that Phase 2 was cancelled.

7.45. The most recent Annual Report from the West Midlands AWP states that[69] the AWP *"has been seeking to work closely with HS2 to better understand the implications for minerals supply from the West Midlands. It is not yet understood how that the withdrawal of Phase 2 will impact the West Midlands. The latest figures supplied to the West Midlands AWP by HS2 indicate that between 2020 and 2027, HS2's demand for resources from within the West Midlands may be approximately 50% of current production levels. Therefore, in order to continue supplying existing markets, production*

[66] High Speed Two (HS2) Limited (2024) Building HS2: https://www.hs2.org.uk/building-hs2/
[67] Department for Transport, High Speed Two (HS2) Limited and The Rt Hon Louise Haigh MP (20 October 2024) Transport Secretary announces urgent action to get a grip on spiralling HS2 costs: https://www.gov.uk/government/news/transport-secretary-announces-urgent-action-to-get-a-grip-on-spiralling-hs2-costs
[68] High speed Two (HS2) Limited (2024) Building HS2, Stations, London Euston: https://www.hs2.org.uk/building-hs2/stations/euston/
[69] West Midlands Aggregates Working Party Annual Report 2023 [2022 Data]

in the West Midlands region will require a 50% increase to meet the extra demand placed upon the region by HS2. However, due to the cancellation of Phase 2, and the wider slowing of activities in the construction sector, this need would become lower."

7.46. In April 2021 a payroll company specialising in the construction industry noted that its clients were reporting serious shortages in construction products[70]. It suggested this was likely due to demand from HS2, and that risks of materials availability were the main threat to their growth prospects, and that the problem with the lack of building materials is most acute in the West Midlands.[71]

7.47. Whilst Worcestershire is some distance from the line of the remaining HS2 development, and therefore unlikely to directly supply it, additional aggregate extraction in Worcestershire could be needed in order help meet the demands placed upon aggregate supply chains in the West Midlands. However, this impact is likely to be less significant than previously anticipated because of a wider slowing of activities in the construction sector. Mineral demand dropped between mid-July and mid-October 2023, driven by weaker housebuilding activity and delays to key infrastructure projects amid persisting cost and planning challenges across key subsectors, particularly roads. On a quarterly basis, the sales volumes of ready-mix concrete and sand & gravel recorded the sharpest falls, down 15% and 12.2% respectively, the largest individual quarterly decreases in over a decade.[72]

[70] Hudson Contract, a payroll firm managing the wages of construction workers and construction companies.
[71] https://www.theconstructionindex.co.uk/news/view/hs2-blamed-for-materials-shortages?amp=1&s=03
[72] MPA Economic Market Briefing to West Midlands AWP 13/11/2023.

Summary

Summary: Anticipated levels of demand – infrastructure development

Sand and gravel sales appear to be sufficient to meet the scale of likely demand for infrastructure projects within the county, although any demand for crushed rock for infrastructure development is currently being met from outside the county.

There are no Nationally Significant Infrastructure Projects or National Highways projects planned in Worcestershire.

The scale of demand for aggregates for the HS2 project is likely to impact the West Midlands as a whole, but it is difficult to quantify the impact of HS2 on the regional aggregate market. Worcestershire is some distance from the line of the remaining HS2 development, and is therefore unlikely to directly supply it. While additional capacity has been permitted within the region to meet some of the identified need, additional aggregate extraction in Worcestershire could be needed in order help meet the demands placed upon aggregate supply chains in the West Midlands. Demand from HS2 may have peaked - or begun to peak - in 2023 (at which point it will be maintained for approximately five years).

8. Primary Aggregates: Ability to Supply (indigenous supply)

Sand and gravel

Worcestershire's sand and gravel resources

8.1. Two estimates of the quantity of sand and gravel resources in Worcestershire are available to inform this LAA.

8.2. The first is the 'Sub-Regional Apportionment of Aggregates Provision in the West Midlands Region 2005 – 2020 Consultation paper'[73]. This used the British Geological Survey (BGS) mineral resource dataset (1:50,000) as the starting point to electronically map the distribution of resources in the region, and then subtracted areas of the resource assumed to be sterilised due to the following features:

- The road network – GIS lines showing the Primary Road Network (with a 5m buffer to approximate the footprint on the ground);
- Railways – based on GIS lines of railways data (with a 5m buffer to approximate the footprint on the ground);
- Urban areas – based on the 2001 Census 'Urban Areas' dataset; and
- Worked-out sites – based on information provided by mineral planning authorities (no GIS data on historical sites in Worcestershire was available at that time).

8.3. All international nature conservation and heritage designations were also removed to reflect the level of protection that international designations are afforded by the planning system. The Malvern Hills Conservators' landholdings were also removed due to the restrictions on quarrying imposed by the Malvern Hills Acts.

8.4. A mean working thickness for each deposit type in each sub-region was derived and these were applied to the remaining surface areas of each mineral deposit to convert the area (ha) to a volume (mt) using a bulk density figure of 1.675t/m^3 for sand and gravel.

8.5. The second estimate is from Worcestershire County Council's (WCC's) own analysis of the mineral resources in the county.[74] This is also based on the BGS 1:50,000 GIS data, but applied minimum size thresholds for the deposits considered (>10ha in area and >200m wide). BGS memoirs and planning histories were then analysed to estimate the likely depth of each deposit. Following consultation responses, a conversion factor of 1.65t/m^3 for sand and gravel was applied, which was broadly comparable to the bulk density figures used in the LUC report. International and national

[73] Land Use Consultants for the West Midlands Regional Assembly (February 2010)
[74] Worcestershire County Council (Revised 2021) *Worcestershire Minerals Local Plan Background Document: Analysis of Mineral Resources in Worcestershire*, available from the archive page at www.worcestershire.gov.uk/mineralsbackground.

designations were screened out. Some consideration was given to areas sterilised by surface development, but the analysis recognised that other constraints existed which could not be accounted for comprehensively at the mapping stage (i.e. some areas are overlain by dispersed development; that information about depth is limited; that the quality and depth can vary across a deposit; and that criteria-based policies would impose some limits on the resources which could be extracted). The calculated volume of resource was halved to allow for these additional factors.

8.6. A comparison between the two estimates can be seen in Table 12 below.

Table 12. Comparison between LUC and WCC estimates of Worcestershire's sand and gravel resources

Source of estimate	Area of unsterilised resource (ha)	Volume of unsterilised resource (mt)
LUC 'Sub-Regional Apportionment' paper (2010)	**25,036.34**	**3,222.57**
WCC Analysis of mineral resources (2021)	**14,543.00**	**3,960.92**

8.7. The WCC figure for the volume of unsterilised sand and gravel resource appears to be broadly comparable to that in the LUC report. Whilst the unsterilised resource area is less in the WCC analysis - due to a greater number of international and national designations having been screened from the resources - the resource volume remains broadly similar, due to the use of specific depth figures for deposits, rather than reliance on an average figure applied to all deposits.

8.8. This strategic-level information suggests that there is still a significant amount of sand and gravel resource in Worcestershire which is unlikely to be affected by international and national designations. However, the strategic nature of the assessments has clear limitations, including a lack of consideration of the quality of the resources, and the degree to which they may be affected by other planning or viability constraints. Overall, WCC considers the estimates to indicate that it should be possible for the supply of sand and gravel from Worcestershire to continue for at least the medium-term.

Summary

Summary: Ability to supply – estimated resources

There is still a significant amount of sand and gravel resource in Worcestershire which is unlikely to be affected by international and national designations. However, there is less certainty about the quality of the resources and the degree to which they may be affected by other planning or viability constraints.

Notwithstanding this, it should be possible for the supply of sand and gravel from Worcestershire to continue for at least the medium-term.

Extant sites and permitted reserves (including permitted lifespans of productive sites)

8.9. Sand and gravel sites in Worcestershire that were either “active” or “permitted – not commenced” during the 2023 monitoring year are set out in Table 13 below. Four of the sites have permitted reserves of sand and gravel for aggregate purposes and were "active" (in production for some time during the year) during 2023, and one of the sites no longer has its own permitted reserves but was “active” in processing material extracted from one of the other sites.

8.10. Permitted reserves are currently sufficient to meet required provision, but additional permissions will be needed in future years to maintain supply. Because the production guideline and level of landbank are dynamic, the need for additional permissions will continue to be reviewed annually through the LAA process.

8.11. No planning permissions were granted in Worcestershire in 2023 for any new sand and gravel extraction sites, or extensions to existing sites. Neither of the permissions granted in 2022 had been implemented during the 2023 monitoring year. One of these sites (Bow Farm quarry near Ripple, application reference 19/000048/CM) was contingent on planning permission being granted for site access and processing within Gloucestershire. The Gloucestershire element was initially refused permission, but permission was granted on appeal in 2024.

Table 13: Sites with mineral planning permissions as of December 2023

Site name, location, and company	Planning permission end date	Limits imposed on productive capacity by planning permission	Status
Chadwich Lane Quarry (extraction) Wildmoor, Bromsgrove Salop Sand and Gravel	31 December 2037	None	Active
Cinetic Quarry (also known as Wildmoor Quarry) (extraction and processing) Sandy Lane, Wildmoor, Bromsgrove Wildmoor Quarry Products Ltd	None stipulated (therefore 2042)	None	Active
Clifton (extraction and processing) Clifton Arles Wood, Severn Stoke Tarmac	31 December 2030 (stated on planning permission 15/000006/CM which was granted 12 July 2016, consolidating the existing quarry and new extensions into one permission)	None	Active
Ryall's Court Quarry (extraction) Ryall Court Lane, Ryall, Upton-upon-Severn Cemex UK Materials Ltd	31st December 2026 (original scheme)[75] March 2026 (extension area)[76]	None	Active
Ryall House Farm Quarry (processing) Ryall House Farm, Tewkesbury Road, Ryall, Upton-upon-Severn Cemex UK Materials Ltd	31 December 2026 or end of Ryall's Court site, whichever is earlier (processing site)[77]	None	Active
Sandy Lane Quarry (extraction for stability purposes and restoration) Wildmoor, Worcestershire NRS Ltd	Within 6 years of commencement of development.	None	Permitted – not commenced Permission 21/000029/CM granted July 2022. Not implemented by 31st December 2023.

[75] Under permission 15/000013/CM "Proposed extraction of sand and gravel and erection of temporary wharf with progressive restoration to a landscaped lake", all mineral extraction shall cease and the site shall be restored in accordance with the approved restoration scheme before 31st December 2026.

Bow Farm (extraction) Ripple Worcestershire MC Cullimore (Gravels) Ltd	Within 9 years of commencement of development.	None	Permitted – not commenced Permission 19/000048/CM was granted in November 2022 and had not been implemented by 31st December 2023. Permission for the site access and processing plant - both of which are in Gloucestershire - was granted on appeal in January 2024 (Planning Inspectorate appeal reference APP/T1600/W/23/3324695)

8.12. According to returns submitted by operators of active mineral sites in Worcestershire in response to the West Midlands Aggregate Working Party Annual Monitoring Survey, the total permitted reserves at the active sand and gravel sites in Worcestershire at 31st December 2023 was 2.863 million tonnes. This is equivalent to 5.09 years' supply at the rate of the 10-year sales average.

8.13. While no minerals planning applications were permitted in the 2023 monitoring year, the planning permissions granted in 2022 for two sites containing a combined 2.22 million tonnes had not yet been implemented by the end of 2023. These permitted applications increase the total permitted reserves for sand and gravel in Worcestershire at 31st December 2023 to 5.083 million tonnes. This is 9.04 years' supply at the rate of the 10-year sales average.

[76] Permission 20/000009/CM provides for a southwards extension to the above. This must be restored within three years of commencement. The development commenced in March 2023, meaning the restoration must be complete by March 2026. A further permission (20/000015/CM) is a s73 permission to not comply with certain conditions of 15/000013/CM to enable restoration to a rowing lake, rather than then original lake. It does not change the permitted reserve of 15/000013/CM or the end date of that permission.

[77] Processing takes place at Ryall House Farm Quarry, under permission 23/000046/CM, which requires decommissioning and restoration of the wharf and plant area by 31 December 2026 (or to the end of the Ryall's Court site, whichever is earlier).

Summary

Summary: Ability to supply – extant sites and permitted reserves

Five sand and gravel sites in Worcestershire were "active" during 2023. Sites with further reserves permitted in 2022 had not yet been implemented by 31st December 2023.

Together, the total permitted reserves for sand and gravel in Worcestershire at 31st December 2023 stood at 5.083 million tonnes.

Planning applications

8.14. Six planning applications or appeals were under consideration during 2023 for new sites and alterations or extensions to extant sites. All six were pending determination as of 31st December 2023:

- Application reference 19/000053/CM, to extract 3 million tonnes of sand and gravel from a new quarry at Lea Castle Farm, Kidderminster. This application was refused in May 2022, and the refusal was upheld at appeal in May 2023. The appeal decision was quashed by the High Court in November 2023.[78]

- Application reference 19/000056/CM, to extract up to 850,000 tonnes of sand and gravel from a new quarry at Pinches 4, Bromsgrove.[79]

- Application reference 21/000036/CM, for winning and working of approximately 250,000 tonnes of sand and restoration to agriculture (part retrospective) at Wilden Lane, Stourport on Severn.[80]

- Application reference 22/000015/CM to extract 475,000 tonnes of sand and gravel from a new quarry at Ripple East, Ripple.

- Application reference 23/000045/CM for variation of conditions to the revised SuDS and Drainage Strategy Plan in relation to “Proposed sand quarry, infilling the void using inert materials only, restoration of the land to agricultural use together with new access, landscaping and associated

[78] Public Inquiry hearings for the re-determination of the appeal were held in November 2024. Following re-determination, the appeal was dismissed on 16th January 2025 (Planning Inspectorate appeal reference APP/E1855/W/22/3310099).
[79] In response to a Regulation 25 Request from Worcestershire County Council, the quarry design was amended in April 2021. This resulted in a reduction in the amount of mineral to be extracted, from approximately 1,000,000 to 850,000 tonnes. Planning permission was granted in October 2024.
[80] Planning permission was granted in March 2024, including the condition that “This permission does not authorise any further mineral extraction or importation of waste or soils to the site from the date of this permission”. The extracted material is now included in this LAA’s sand and gravel sales figures for the years 2020 and 2021.

works on land adjacent to former Chadwich Lane Quarry, Chadwich Lane, Bromsgrove, Worcestershire (18/000036/CM)".[81]

- Application reference 23/000046/CM for variation of conditions application in relation to Ryall House Farm Quarry (15/000012/CM) to continue temporary retention of aggregate wharf, aggregates processing plant, ancillary uses and structures and freshwater lagoons. Permission was granted in February 2024 with a condition that "Proposals for decommissioning and restoration of the wharf and plant areas…shall be submitted to the Mineral Planning Authority for their approval by 31 December 2026…[or] within 3 months of the date of permanent cessation of working [if earlier]", rather than by December 2023 as in the original permission.

8.15. An additional application (23/000049/CM) for extraction of 755,000 tonnes of sand and gravel for use in construction as dry aggregate and for concrete production, at Land of School Lane, Uckinghall, Worcestershire, was received in December 2023 but was not validated until February 2024. This proposes operations lasting for 2.5 to 3 years, with a further year to complete restoration to agriculture. Processing would take place at Ryall House Farm Quarry.

Pre-application discussions

8.16. In 2023, four pre-application discussions were held. These discussions all related to existing mineral sites. These discussions are confidential and may not result in planning applications being brought forward[82]. There were no pre-application discussions about potential new sand and gravel sites during 2023.

Summary

Summary: Ability to supply – Planning applications

Four planning applications for new or retrospective extraction were under consideration during 2023, with a further two applications to vary conditions that would not provide any additional extraction. All were pending determination as of 31st December 2023. The four applications that would yield sand and gravel had a combined potential resource of 4.575mt. In addition, pre-application discussions were held with regard to four existing sand and gravel sites.

[81] Planning permission to vary the conditions was granted (subject to the prior completion of a Section 106 Agreement to secure the management and maintenance in perpetuity of the Sustainable Drainage Systems) at WCC's Planning and Regulatory Committee on 26 November 2024. The permission does not result in any change to the permitted reserve; the amount of sand that can be extracted remains unchanged from the amount permitted under application 18/000036/CM.

[82] As an example, of six potential sites discussed in 2021, only two have since come forward as planning applications.

Site allocations

8.17. The Worcestershire Minerals Local Plan (2018-2036), adopted July 2022 (the MLP), identifies that new sites and alterations or extensions to extant sites will be required to provide at least a further 11.407 million tonnes of sand and gravel over the plan period, in addition to the plan's baseline of permitted reserves at the end of 2017 of 3.465 million tonnes.

8.18. The MLP contains policies to enable both new mineral development and extensions to existing sites, and allocates 100 areas of search for sand and gravel (70 for terrace and glacial sand and gravel resources, and 30 for solid sand resources). It also committed to the development of a separate Mineral Site Allocations Development Plan Document to allocate specific sites and/or preferred areas.

8.19. As noted above, six planning applications for new sites and alterations or extensions to extant sites were under consideration during 2023. All of these were within or partially within areas of search identified in the MLP.

8.20. Five calls for sites were undertaken in the development of the Minerals Local Plan and Mineral Site Allocations Development Plan Document between 2014 and 2020. The minerals industry and Mineral Products Association had previously stated that they struggled to find sand and gravel sites of sufficient size to work in Worcestershire, except as isolated satellite operations which were not long-term solutions.[83] However, a number of potential sites for sand and gravel extraction were proposed by the minerals industry and/or landowners in response to these calls for sites. Some of these have also been submitted as planning applications.

Summary

Summary: Ability to supply – Site allocations

The Worcestershire Minerals Local Plan (2018-2036) contains policies to enable both new mineral development and extensions or alterations to existing sites. To facilitate this, it allocates 100 areas of search for sand and gravel (70 for terrace and glacial sand and gravel resources, and 30 for solid sand resources).

A Mineral Site Allocations Development Plan Document to allocate specific sites and preferred areas had not been produced within this AMR monitoring period.

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

Crushed rock

Worcestershire's crushed rock resources

8.21. Two estimates of the quantity of crushed rock resources in Worcestershire are available to inform this LAA.

8.22. The first is the 'Sub-Regional Apportionment of Aggregates Provision in the West Midlands Region 2005 – 2020 Consultation paper'[84]. This used the British Geological Survey (BGS) mineral resource dataset (1:50,000) as the starting point to electronically map the distribution of resources in the region in GIS, and then subtracted areas of the resource assumed to be sterilised due to the following features:

- The road network – GIS lines showing the Primary Road Network (with a 5m buffer to approximate the footprint on the ground);
- Railways – based on GIS lines of railways data (with a 5m buffer to approximate the footprint on the ground);
- Urban areas – based on the 2001 Census 'Urban Areas' dataset; and
- Worked-out sites – based on information provided by mineral planning authorities (no GIS data on historical sites in Worcestershire was available at that time).

8.23. All international nature conservation and heritage designations were also removed to reflect the level of protection that international designations are afforded by the planning system. The Malvern Hills Conservators' landholdings were also removed due to the restrictions on quarrying imposed by the Malvern Hills Acts.

8.24. A mean working thickness for each deposit type in each sub-region was derived and these were applied to the remaining surface areas of each mineral deposit to convert the area (ha) to a volume (mt) using a bulk density figure of 2.600t/m^3 for hard rock.

8.25. The second estimate is from Worcestershire County Council's (WCC's) own analysis of the mineral resources in the county.[85] This is also based on the BGS 1:50,000 GIS data, but applied minimum size thresholds for the deposits considered (>10ha in area and >200m wide). BGS memoirs and planning histories were then analysed to estimate the likely depth of each deposit. Following consultation responses, a conversion factor of 2.45t/m^3 for crushed rock was applied, which was broadly comparable to the bulk density figures used in the LUC report. International and national designations were screened out. Some consideration was given to areas sterilised by surface development, but the analysis recognised that other constraints existed which could not be accounted for comprehensively at the mapping stage (i.e. some areas are overlain by dispersed development; that information about

[84] Land Use Consultants for the West Midlands Regional Assembly (February 2010).
[85] Worcestershire County Council (Revised 2021) *Worcestershire Minerals Local Plan Background Document: Analysis of Mineral Resources in Worcestershire*, available from the archive page at www.worcestershire.gov.uk/mineralsbackground.

depth is limited, that the quality and depth can vary across a deposit; and that criteria-based policies would impose some limits on the resources which could be extracted. The calculated volume of resource was halved to allow for these additional factors.

8.26. A comparison between the two estimates can be seen in Table 14 below.

Table 14: Comparison between LUC and WCC estimates of Worcestershire's crushed rock resources.

Source of estimate	Area of unsterilized resource (ha)	Volume of unsterilized resource (mt)
LUC 'Sub-Regional Apportionment' paper (2010)	508.98	427.58
WCC Analysis of mineral resources (2021)	61	1.47

8.27. The difference in the figures for crushed rock is likely to be explained by differences in the screening methodology between the two assessments. The WCC Analysis of Mineral Resources screens out a number of crushed rock deposits based upon their size, before any screening based on international and national designations is undertaken.

8.28. These strategic-level assessments suggest that there is either a very small or a relatively small amount of crushed rock resource in Worcestershire which is unlikely to be affected by international or national designations. These strategic assessments also have limitations in relation to consideration of the quality of the resources and the degree to which they may be affected by other planning or viability constraints. The constraints considered in these assessments are not necessarily an absolute bar to working the crushed rock resources in Worcestershire, but they are highly likely to limit the commercial attractiveness of those resources.

Summary

Summary: Ability to supply – estimated resources

There is only a small amount of crushed rock resource in Worcestershire which is unlikely to be affected by international or national designations. Although these constraints are not necessarily an absolute bar to working the crushed rock resources in Worcestershire, they are highly likely to limit the commercial attractiveness of those resources.

Extant sites and permitted reserves

8.29. There were no sites with permitted reserves of crushed rock in 2023. This means that Worcestershire has no permitted reserves, no productive capacity and no landbank for crushed rock.

Planning applications

8.30. No planning applications for new crushed rock extraction sites were under consideration during 2023.

Pre-application discussions

8.31. No pre-application discussions were held in 2023 regarding potential crushed rock sites.

Site allocations

8.32. The Worcestershire Minerals Local Plan (2018-2036), adopted July 2022 (the MLP), highlights that planning permissions would be required for at least 4.727 million tonnes of crushed rock over the life of the plan in order to meet the scale of provision indicated by the sub-regional apportionment. The MLP contains policies to enable both new mineral development and extensions to existing sites. It does not allocate any areas of search for crushed rock, but it includes criteria-based policies to enable crushed rock development on windfall sites.

8.33. The MLP also committed to the development of a separate Mineral Site Allocations Development Plan Document (DPD). Five calls for sites were undertaken in the development of the Minerals Local Plan and Mineral Site Allocations DPD between 2014 and 2020, but no sites for crushed rock were proposed by the minerals industry or landowners. The Mineral Site Allocations DPD had not been produced within this AMR monitoring period.

Summary

Summary: Ability to supply – Permitted reserves and industry interest

Worcestershire has no permitted reserves, no productive capacity and no landbank for crushed rock. There were no planning applications for crushed rock under consideration during 2023 and no pre-application discussions. No sites for crushed rock were proposed by the minerals industry or landowners in response to five calls for sites between 2014 and 2020.

This is a strong indication that there is limited interest in developing crushed rock workings in Worcestershire in the immediate future.

9. Transport considerations

9.1. Worcestershire does not have any rail depots 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" primary aggregates from one site in Worcestershire to processing plant at another. All transport movements of minerals, including imports and exports, currently take place by road.

9.2. As of December 2023, none of the permitted mineral sites in Worcestershire was subject to conditions restricting the ability for materials to be transported to markets.

10. Replenishment rates

10.1. The replenishment rate of permitted reserves provides a useful insight into the long-term availability of supply. In any one year, if sales of primary aggregates are equal to the tonnage of new permitted reserves, the replenishment rate would be 100%. Nationally, long-term replenishment rates for both land-won sand and gravel and crushed rock are well below 100%, with sales continuously exceeding the tonnage of new permitted reserves granted each year[86]. The Great Britain average for 2012-2021 was 63% for sand and gravel and 52% for crushed rock.[87] In other words, aggregates are being consumed almost twice as fast as they are being replaced with new permitted reserves.[88]

10.2. The Mineral Products Association highlights that the replenishment rate nationally poses a risk to maintaining a steady and adequate supply, stating that "*the continuing decline in permitted reserves for primary aggregates over the past 15 years is unsustainable. The implication of long-term replenishment rates well below 100% raises the prospect of future local supply shortages, with some regions responsible for national supplies facing challenges in maintaining their reserve base. With the additional demand created by green growth ambitions, including for major infrastructure projects and house building, the pressure on reserve availability and supply will only intensify over the next decade.*"[89]

Sand and gravel

10.3. Figure 6 sets out the replenishment rates for sand and gravel in Worcestershire based on the following calculation:

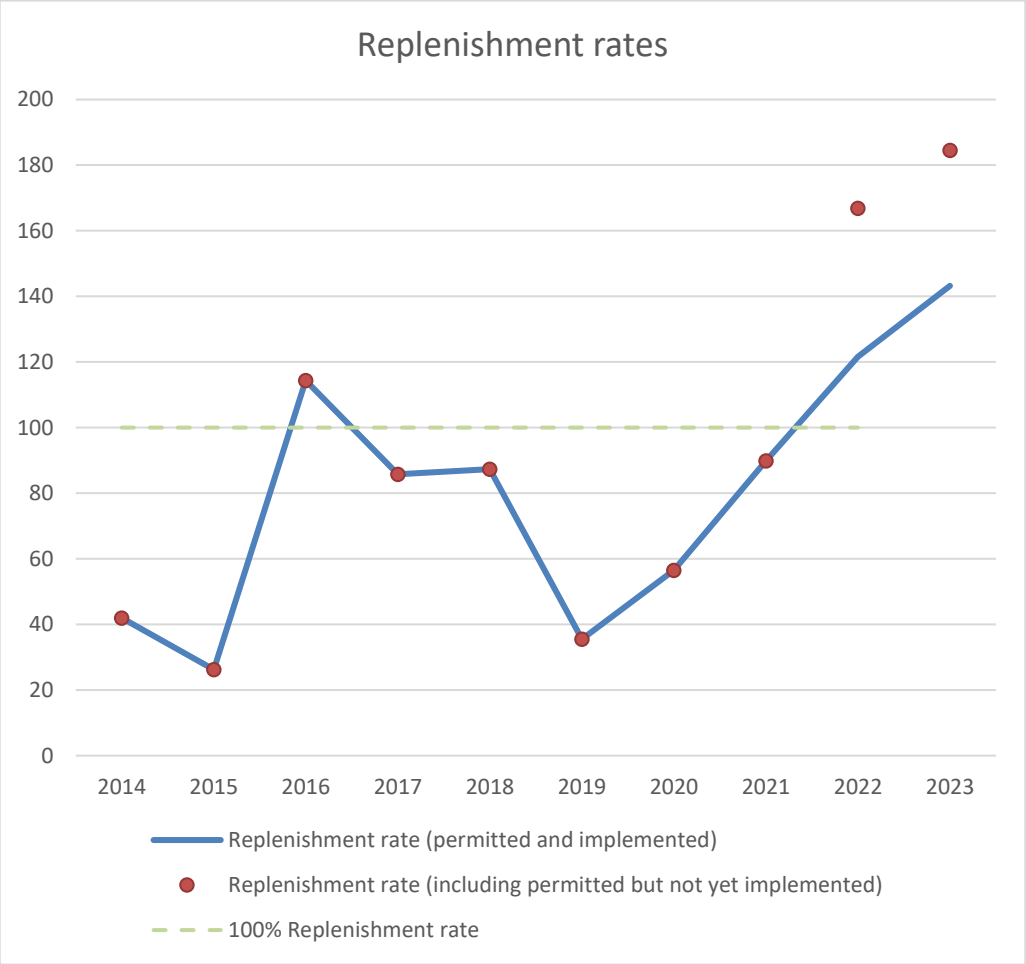
$$\frac{\text{(Current permitted reserves + total sales in last 10 years) – Permitted reserves at the start of the 10-year period}}{\text{Total sales in last 10 years}} \times 100 = \text{Replenishment rate}$$

10.4. This approach is broadly comparable to the method used by the Mineral Product Association, but allows for changes in estimated reserves to be reflected. These changes can arise from revisions to original estimated reserves at working sites due to previously unknown factors (including new geological information or unanticipated constraints on working). Figure 6 includes permitted reserves from permissions that have been implemented (blue) and permitted reserves from permissions that had not yet been implemented at the end of 2023 (orange). Replenishment rates have been

[86] Profile_of_the_UK_Mineral_Products_Industry_2023.pdf (mineralproducts.org)
[87] Profile_of_the_UK_Mineral_Products_Industry_2023.pdf (mineralproducts.org)
[88] Profile_of_the_UK_Mineral_Products_Industry_2023.pdf (mineralproducts.org)
[89] Profile_of_the_UK_Mineral_Products_Industry_2023.pdf (mineralproducts.org)

below 100% for much of the last 10 years, but appear to be improving over recent years.

Figure 6: Sand and Gravel Replenishment rates in Worcestershire



10.5. In Worcestershire no sand and gravel sites ceased operation in 2023.

Crushed rock

10.6. As no crushed rock sales have been recorded in any of the last 10 years, and no reserves have been granted planning permission, the replenishment rate for crushed rock is 0%.

11. Setting the production guideline

11.1. The starting point for identifying the production guideline is the 10-year sales average. Other supply and demand factors are then taken into account to identify whether the production guideline should be higher or lower than the 10-year sales average, based on the indicators agreed by the West Midlands Aggregate Working Party (see Appendix 2).

Sand and gravel

11.2. The 10-year sales average for sand and gravel is 0.562 million tonnes.

11.3. The majority of demand indicators in Table 15: below are either neutral or unclear about whether a variation from the 10-year average is required. None of the demand indicators suggest that a decrease from the 10-year average would be appropriate. The following four indicators suggest that an increase above the 10-year average is likely to be necessary:

- 3 years sales average (AWP indicator 5)
- Housing development (AWP indicator 1)
- Sub-regional apportionment (AWP indicator 6)
- Infrastructure development (AWP indicator 3 and 4)

11.4. The supply indicators in Table 15: suggest that there is some uncertainty about Worcestershire's ability to supply in the long term (due to lack of specific site or preferred area allocations, and lack of certainty about the quality of the remaining resources and the degree to which they may be affected by other planning or viability constraints). However, there is sufficient confidence provided by the current permitted reserves, the allocation of Areas of Search in the Minerals Local Plan, and by planning applications coming forward within those areas of search. As the majority of supply indicators are either neutral or positive about Worcestershire's ability to supply, this suggests that there does not need to be any restriction on the production guideline, and an increase above the 10-year average can be supplied at present.

11.5. Based on the consideration of these indicators, this LAA maintains a production guideline for sand and gravel 20% above the 10-year sales average. This equates to 0.674 million tonnes.

11.6. This will support the continuation of recent supply levels and mitigate any residual supressing effects from the County of Hereford and Worcester Minerals Local Plan (1997) being in place well beyond its expected implementation period[90].

[90] Although the Minerals Local Plan 2018-2036 was adopted in 2022, the timescales for securing and implementing mineral planning permissions are such that any suppressing

11.7. The 20% uplift will also support the forthcoming significant increase in housing targets and will allow some flexibility in relation to demand for HS2 and other infrastructure development needs. An increase in housing and associated infrastructure will require a commensurate increase in aggregate supply, and permitted reserves will need to be in place in time to support delivery.

11.8. This approach will be kept under review in future LAAs.

Table 15: Supply and demand indicators: Sand and Gravel

Indicator	Summary	Indication in relation to 10-year average
Contribution to supply from substitute, secondary and recycled aggregates (AWP indicator 14)	Substitute, secondary and recycled aggregates will be an important component of supply, currently averaging 29% of supply nationally. There is limited data available to assess the exact contribution this makes locally, and there is little evidence to suggest that the LAA should rely on any significant alterations to the proportion of supply from substitute, secondary or recycled materials. The LAA assumes that the contribution of substitute, secondary and recycled materials is already accounted for prior to considering the sales figures for primary aggregates.	No change indicated by this data.
Demand: Variation in 10-year average sales	The 10-year average of sales from 2014-2023 is 0.562 million tonnes. This has remained broadly stable for the last seven years.	No change indicated by this data.
Demand: Annual Sales variation	Sales of sand and gravel in Worcestershire in	Unclear if any change is indicated by this data.

effects on the 10 year sales average could potentially continue for several years beyond that date.

Indicator	Summary	Indication in relation to 10-year average
	2023 were 0.471 million tonnes, which is 16% lower than the 10-year sales average. Three of the last five years' sales were higher than both the 10-year average sales for those years and the current 10-year average. The lower sales figure seen in 2023 could potentially be indicative of reduced demand, but equally could be a reflection of economic contraction and/or be the result of aggregate sites coming towards the end of their life and a lack of adequate replacement reserves coming online.	
Levels of imports and exports (AWP indicator 11).	In 2019 Worcestershire was a net importer of primary aggregates but a net exporter of sand and gravel. 44% of sand and gravel produced in Worcestershire was used within the county, with 85% used within the West Midlands. Worcestershire therefore plays a regional role in the supply of sand and gravel. Due to data limitations, comparison to 2009 and 2014 data is not possible. 2019 is the latest available data at the time of preparing this LAA.	No change indicated by this data.
Demand: Total consumption	In 2019, consumption of sand and gravel in Worcestershire was estimated to be 0.392 million tonnes,	No change indicated by this data.

Indicator	Summary	Indication in relation to 10-year average
	equivalent to 59% of sand and gravel supply from the county. This is the latest available data at the time of preparing this LAA.	
Demand: 3-year sales average (AWP indicator 5)	The 3-year sales average for sand and gravel is 17% higher than the 10-year average and 39% higher than the 2023 sales figure.	Indicator for increase above 10-year average.
Demand: Sub-regional apportionment (AWP indicator 6)	The sub-regional apportionment for Worcestershire over the period 2001-2016 was 0.871 million tonnes of sand and gravel. For sand and gravel this is 85% higher than the 2023 sales and is 55% higher than the 10-year average. This level of production has not been achieved in Worcestershire since 2003. There are no up-to-date national guidelines and therefore no up-to-date sub-regional apportionment. Limited weight has been given to this indicator.	Weak indicator for increase above 10-year average.
Demand: housing development (AWP indicator 1)	Planned levels of housing provision in Worcestershire over the next five years are substantially higher than the average annual completions over the last 10 years, and a change in the standard methodology which has to be used by local planning authorities to calculate their housing need will lead to substantially higher housing requirements in the coming years. This	Strong indicator for increase above 10-year average.

Indicator	Summary	Indication in relation to 10-year average
	scale of housing will exceed any annual delivery in recent history and is likely to lead to a commensurate increase in demand for sand and gravel.	
Demand: Employment development (AWP indicator 2)	There is a lack of robust data about this indicator. However, 752ha of employment land is currently allocated in Local Plans across Worcestershire.	No change indicated by this data.
Demand: Infrastructure development (AWP indicator 3 and 4)	Sand and gravel sales appear to be sufficient to meet the scale of likely demand for infrastructure projects within the county, and there are no Nationally Significant Infrastructure Projects or National Highways projects planned in Worcestershire. The scale of demand for aggregates for the HS2 project is likely to impact the West Midlands as a whole. Worcestershire is some distance from the line of the remaining HS2 development, and is therefore unlikely to directly supply it, but additional aggregate extraction in Worcestershire could be needed to help meet the demands placed upon aggregate supply chains in the West Midlands. Demand from HS2 may have peaked - or begun to peak - in 2023 (at which point it will be	Indicator for increase above 10-year average.

Indicator	Summary	Indication in relation to 10-year average
	maintained for approximately five years).	
Supply: Estimated geological reserves (AWP indicator 12)	There is still a significant amount of sand and gravel resource in Worcestershire which is unlikely to be affected by international and national designations. The Worcestershire Minerals Local Plan allocates significant areas of sand and gravel resource as areas of search. However, there is less certainty about the quality of the resources and the degree to which they may be affected by other planning or viability constraints.	This indicator is neutral with regard to Worcestershire's ability to supply.
Supply: Replenishment and progressive exhaustion of permitted reserves over Plan period (including permitted lifespans of productive sites). (AWP indicator 9)	Four sand and gravel sites in Worcestershire were "active" during 2023 with total permitted reserves of 2.86 million tonnes. Further reserves permitted in 2022 had not been implemented by 31st December 2023. No sand and gravel sites ceased operation in 2023. Together, the total permitted reserves for sand and gravel in Worcestershire at 31st December 2023 stood at 5.083 million tonnes. Replenishment rates in the last two years have exceeded 100%, but this has only been the case for three of the past ten years. It is too soon to	Positive indicator of Worcestershire's ability to supply.

Indicator	Summary	Indication in relation to 10-year average
	conclude that the replenishment rate will remain at or above 100% in the longer-term.	
Supply: Quality and/or capacity constraints of existing permitted reserves (AWP indicator 7)	None of Worcestershire's active or permitted sites as of 31st December 2023 has conditions attached to its planning permission which would restrict the productive capacity of the site, and there are no known quality constraints likely to impact those permitted reserves. However, all permissions have a time limit.	Positive indicator of Worcestershire's ability to supply.
Supply: Site allocations (AWP indicators 9 &13)	The Worcestershire Minerals Local Plan (2018-2036) contains policies to enable both new mineral development and extensions or alterations to existing sites. To facilitate this, it allocates 100 areas of search for sand and gravel (70 for terrace and glacial sand and gravel resources, and 30 for solid sand resources). Whilst the absence of allocated specific sites and preferred areas could potentially have a negative impact on mineral development coming forward, a number of planning applications have been submitted in recent years within the areas of search.	This indicator is neutral with regard to Worcestershire's ability to supply.

Indicator	Summary	Indication in relation to 10-year average
Supply: Windfall minerals permissions/trends (AWP indicator 8)	Six planning applications for new sand and gravel sites or alterations or extensions to extant sites were under consideration during 2023. All were within or partially within areas of search identified in the Minerals Local Plan (2018-2036).	Positive indicator of Worcestershire's ability to supply.
Supply: Industry Interest	Five calls for sites undertaken between 2014 and 2020 resulted in a number of potential sites being put forward by industry and/or landowners. A number of these have since come forward as planning applications. There were no calls for sites during the 2023 monitoring year. Six planning applications for new extraction sites or alterations or extensions to extant sites were under consideration during 2023. All were pending determination as of 31st December 2023, with a combined potential resource of 4.575mt. In addition, pre-application discussions were held with regard to four existing sand and gravel sites.	Positive indicator of Worcestershire's ability to supply.
Supply: Transport constraints affecting markets for aggregates (AWP indicator 10)	Other than moving "as-dug" primary aggregates by river from one site in Worcestershire to processing plant at	This indicator is neutral with regard to Worcestershire's ability to supply.

Indicator	Summary	Indication in relation to 10-year average
	another, all transport movements of minerals in Worcestershire, including imports and exports, currently take place by road.	

Summary

Summary: Production guideline – Sand and gravel

The annual production guideline for sand and gravel identified by this Local Aggregates Assessment is 0.674 million tonnes per annum. This results from applying a 20% increase to the 10-year sales average.

Crushed rock

11.9. The 10-year sales average for crushed rock is 0 tonnes and has been 0 tonnes for the last 13 years.

11.10. Due to the lack of sales from sites within Worcestershire, some of the "demand" indicators in Table 16 below are not actually representative of demand for crushed rock in Worcestershire. The majority of the remaining demand indicators suggest that an increase above the 10-year average should be considered. In particular:

- Levels of imports and exports (AWP indicator 11)
- Sub-regional apportionment (AWP indicator 6)
- Housing development (AWP indicator 1)
- Infrastructure development (AWP indicator 3 and 4)
- Total consumption (non-AWP indicator)

11.11. These indicators suggest that although Worcestershire's 10-year sales average is zero, the county should seek some level of provision from its indigenous crushed rock resources and the production guideline should be greater than zero. However, consideration also needs to be given to the ability to supply crushed rock minerals from Worcestershire. The supply indicators in Table 16 suggest there are significant limitations on Worcestershire's ability to supply (due to lack of specific site or preferred area allocations, and lack of certainty about the quality of the remaining resources and the degree to which they may be affected by other planning or viability constraints). The lack of current permitted reserves, lack of allocated Areas of Search in the Minerals Local Plan, and lack of planning applications coming forward for crushed rock also indicate limitations on Worcestershire's ability to deliver an increase above the 10-year average at present. There are very significant limitations on the county's crushed rock resources. The following indicators (summarised in Table 16:) suggest that there are short- to medium-term (and possibly long-term) limitations on Worcestershire's ability to supply crushed rock:

- Estimated geological reserves (AWP indicator 12)
- Replenishment and progressive exhaustion of permitted reserves (AWP indicator 9)
- Quality and/or capacity constraints of existing permitted reserves (AWP indicator 7)
- Site allocations (AWP indicators 9 &13)
- Windfall minerals permissions/trends (AWP indicator 8)
- Industry Interest (non-AWP indicator)

11.12. Taking account of these indicators and recognising the National Planning Policy Framework's requirement to maintain at least a 10-year landbank of permitted reserves of crushed rock and the Minerals Local Plan's recognition that Worcestershire should seek some level of provision from its indigenous crushed rock resources, this LAA seeks to set a production guideline above the 10-years sales average of zero.

11.13. This will avoid a production guideline of zero potentially being viewed as being a barrier to crushed rock development. However, a percentage uplift cannot be applied from a starting point of 0 tonnes, and in light of the significant limitations on Worcestershire's ability to supply, at least in the short term, a specific figure for the production guideline cannot be calculated.

11.14. This LAA therefore sets the production guideline for crushed rock in Worcestershire as "explicitly greater than 0 tonnes" but does not set a tonnage figure.

Table 16: Supply and demand indicators: Crushed Rock

Indicator	Summary	Indication in relation to 10-year average
Contribution to supply from substitute, secondary and recycled aggregates (AWP indicator 14)	Substitute, secondary and recycled aggregates will be an important component of supply, currently averaging 29% of supply nationally. There is limited data available to assess the exact contribution this makes locally, and there is little evidence to suggest that the LAA should rely on any significant alterations to the proportion of supply from substitute, secondary or recycled materials. The LAA assumes that the contribution of substitute, secondary and recycled materials is already accounted for prior to considering the sales figures for primary aggregates.	No change indicated by this data.
Demand: Variation in 10-year average sales	The 10-year average of sales from 2014-2023 is 0 tonnes. The 10-year average has been 0 tonnes for five years.	This is likely to reflect limitations on Worcestershire's ability to supply, rather than reflect the scale of

Indicator	Summary	Indication in relation to 10-year average
		demand for crushed rock, and is not an indicator of demand for Worcestershire.
Demand: Annual Sales variation	Sales of crushed rock from Worcestershire in 2023 were 0 tonnes, and this has been the case since 2010.	This is likely to reflect limitations on Worcestershire's ability to supply, rather than reflect the scale of demand for crushed rock, and is not an indicator of demand for Worcestershire.
Levels of imports and exports (AWP indicator 11).	In 2019, Worcestershire was a net importer of primary aggregates and net importer of crushed rock. 2019 is the latest available data at the time of preparing this LAA, but with no indigenous sales, it is clear that all crushed rock used in Worcestershire is currently imported. There may be an increasing need for crushed rock to be supplied from within Worcestershire, as reserves are diminished elsewhere.	Strong indicator for increase above 10-year average.
Demand: Total consumption	In 2019, consumption of crushed rock in Worcestershire was estimated to be 0.733 million tonnes. 2019 is the latest available data at the time of preparing this LAA.	Strong indicator for increase above 10-year average.
Demand: 3-years sales average (AWP indicator 5)	The 3-year sales average is 0 tonnes.	This is likely to reflect limitations on Worcestershire's ability to supply, rather than reflect the scale of demand for crushed rock, and is not an indicator of demand for Worcestershire.

Indicator	Summary	Indication in relation to 10-year average
Demand: Sub-regional apportionment (AWP indicator 6)	The sub-regional apportionment for Worcestershire over the period 2001-2016 was 0.163 million tonnes of crushed rock. There has been no crushed rock production in Worcestershire since 2009, and this level of production has not been achieved in Worcestershire since 2002. Although there are no up-to-date national guidelines and therefore no up-to-date sub-regional apportionment, in the absence of any sales data in the county over the last 10 years, some weight has been given to this indicator.	Weak indicator for increase above 10-year average
Demand: housing development (AWP indicator 1)	Planned levels of housing provision in Worcestershire over the next five years are substantially higher than the average annual completions over the last 10 years, and a change in the standard methodology which has to be used by local planning authorities to calculate their housing need will lead to substantially higher housing requirements in the coming years. This scale of housing will exceed any annual delivery in recent history and is likely to lead to a commensurate increase in demand for crushed rock. Worcestershire is likely to remain reliant on imports of crushed rock, but at a	Strong indicator for increase above 10-year average.

Indicator	Summary	Indication in relation to 10-year average
	larger scale than has been seen previously, in order to meet expected housing demand.	
Demand: Employment development (AWP indicator 2)	There is a lack of robust data about this indicator. However, 752ha of employment land is currently allocated in Local Plans across Worcestershire.	No change indicated by this data.
Demand: Infrastructure development (AWP indicator 3 and 4)	There is currently no indigenous supply of crushed rock to support the likely demand for infrastructure development in Worcestershire. Although there are no Nationally Significant Infrastructure Projects or National Highways projects planned in Worcestershire, the scale of demand for aggregates for the HS2 project is likely to impact the West Midlands as a whole. Demand from HS2 is anticipated peak in 2023 and then be maintained for approximately 5 years. With no current extraction or proposals pending determination, it is unlikely that Worcestershire will be able to contribute to meeting any demand on these timescales, but may be able to contribute to replenishing stocks of permitted reserves in the longer term.	Indicator for increase above 10-year average.

Indicator	Summary	Indication in relation to 10-year average
Supply: Estimated geological reserves (AWP indicator 12)	There is only a small amount of crushed rock resource in Worcestershire which is unlikely to be affected by international or national designations. Although these constraints are not necessarily an absolute bar to working the crushed rock resources in Worcestershire, they are highly likely to limit the commercial attractiveness of those resources. There are currently no permitted reserves for crushed rock working in Worcestershire.	Strong indication of limitations on ability to supply crushed rock.
Supply: Replenishment and progressive exhaustion of permitted reserves over Plan period (including permitted lifespans of productive sites) (AWP indicator 9)	There were no crushed rock sites with planning permission in Worcestershire during 2023. The total permitted reserves for crushed rock in Worcestershire at 31st December 2023 was 0 tonnes. As no crushed rock sales have been recorded in any of the last 10 years, and no reserves have been granted planning permission, the replenishment rate for crushed rock is 0%.	Strong indication of short- to medium-term limitations on ability to supply crushed rock.
Supply: Quality and/or capacity constraints of existing permitted reserves (AWP indicator 7)	There are no sites with permitted reserves.	Strong indication of short- to medium-term limitations on ability to supply crushed rock.
Supply: Site allocations (AWP indicators 9 &13)	The Worcestershire Minerals Local Plan (2018-2036) does not	Strong indication of limitations on ability to supply crushed rock in

Indicator	Summary	Indication in relation to 10-year average
	allocate any areas of search for crushed rock, but it includes criteria-based policies to enable crushed rock development on windfall sites and contains policy support for crushed rock development within Worcestershire.	the short and medium term, and possibly in the longer term.
Supply: Windfall minerals permissions/trends (AWP indicator 8)	No planning applications have been made and no permissions have been granted in Worcestershire for crushed rock development on windfall sites over recent years.	Strong indication of limitations on ability to supply crushed rock in the short and medium term, and possibly in the longer term.
Supply: Industry Interest	There were no planning applications for crushed rock pending decision in 2023, and no pre-application discussions were held. Five calls for sites undertaken between 2014 and 2020 did not result in any potential sites for crushed rock being put forward by the minerals industry or landowners.	Strong indication of limitations on ability to supply crushed rock in the short and medium term, and possibly in the longer term.
Supply: Transport constraints affecting markets for aggregates (AWP indicator 10)	All transport movements of minerals in Worcestershire, including imports and exports, currently take place by road.	No change indicated by this data.

Summary

Summary: Production guideline – Crushed Rock

The production guideline for crushed rock identified by this Local Aggregates Assessment is “explicitly greater than 0 tonnes per annum” but there is no set tonnage figure.

12. Landbank and productive capacity

Sand and gravel

12.1. As of December 2023, there were four active sand and gravel sites in Worcestershire, with combined estimated reserves of 2.863 million tonnes. There were three additional sites in Worcestershire with permitted reserves which had not yet implemented planning permission by the end of 2023, with combined estimated reserves of 2.22 million tonnes. Details of these seven sites are set out in **Table 13**.

Figure 7: Estimated reserves: Sand and gravel

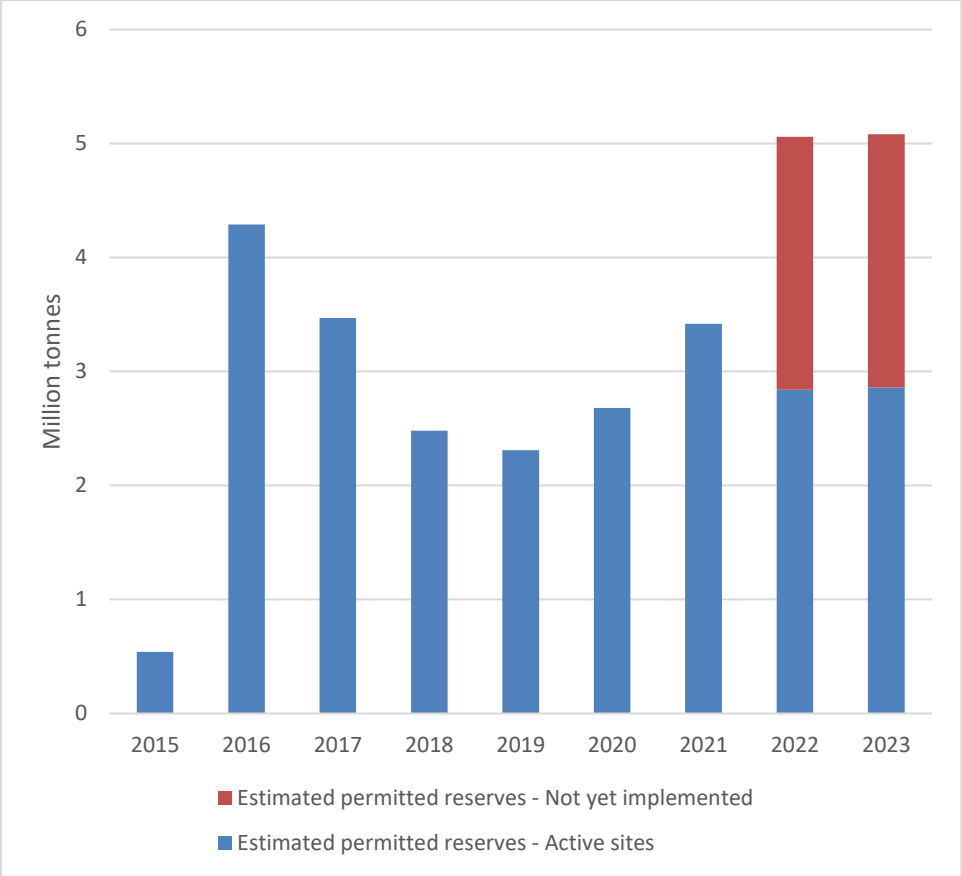


Table 17: Estimated permitted reserves[91], landbank and production guideline

Year	Reserves (million tonnes)	Production guideline (million tonnes)	Landbank (in years)	Method used to establish production guideline
2015	0.54	0.637	0.85	10 yr sales average
2016	4.29	0.607	7.07 ↑	10 yr sales average
2017	3.47	0.572	6.07 ↓	10 yr sales average
2018	2.48	0.833	2.98 ↓	10 yr sales average + 50%
2019	2.31	0.852	2.71 ↓	10 yr sales average + 50%
2020	2.68	0.853	3.14 ↑	10 yr sales average + 50%
2021	3.42	0.827	4.14 ↑	10 yr sales average + 50%
2022	5.06	0.667	7.59 ↑	10 yr sales average + 20%
2023	5.08	0.674	7.53 ↓	10 yr sales average + 20%

12.2. The productive capacity of mineral sites can potentially be affected by physical or policy limitations on how and when minerals can be extracted, processed, and transported. Conditions attached to planning permissions are commonly used to control multiple aspects of mineral developments, with one of the most important conditions for productive capacity being the date a site must cease operating (known as the "end date").

12.3. The majority of the sites active as of 31st December 2023 (as set out in Table 13) do not have conditions attached to their planning permission that would restrict their productive capacity. However, restoration at Ryalls Court Farm Quarry and its extension area, as well as decommissioning and restoration of the associated wharf and plant area at Ryall House Farm Quarry, must all happen by 2026. Whilst this does represent a loss of productive capacity in the shorter term, this loss is not considered to be significant in the overall context of sites coming forward and an upward trend in replenishment rates in recent years (as discussed in chapter 10).

12.4. All other remaining sites have end dates beyond the seven-year landbank period covered by this AMR, although only two sites with permitted reserves have end dates beyond the MLP's 2018-2036 plan period (Chadwich Lane Quarry and Wildmoor Quarry, at 2037 and 2042 respectively). Because material from Chadwich Lane Quarry is processed at Wildmoor Quarry, it is possible that conditions relating to the removal of plant and restoration of the Wildmoor site[92] could impact productive capacity for the material extracted

[91] In calculating landbanks, the term "permitted reserve" includes current non-working sites but excludes those sites where mineral working cannot take place until there has been a review of the planning conditions attached to their planning permission. Minerals - GOV.UK (www.gov.uk) Paragraph: 083 Reference ID: 27-083-20140306 Revision date: 06 03 2014

[92] Condition 2 of planning permission 17/000028/CM (for a mortar batching plant and other development), and condition 2 of permission 19/000002/CM (for a processing, stocking and bagging area), both require that *"Within 12 months of cessation of mineral extraction at Wildmoor Quarry, planning permissions ref: 107104 and 407219, the development hereby approved shall be removed from the site including all associated materials, infrastructure,*

from Chadwich Lane, should those conditions come into effect before extraction at Chadwich Lane is complete.

12.5. As of December 2023, none of the permitted mineral sites in Worcestershire were subject to conditions restricting the ability for materials to be transported to markets.

Summary

Summary: Landbank and productive capacity – Sand and gravel

Based on the production guideline of 0.674 million tonnes and the stock of permitted reserves of 5.08 million tonnes, **Worcestershire had a sand and gravel landbank of 7.53 years at 31st December 2023.**

Notwithstanding one of Worcestershire's extraction sites and its associated wharf and processing site having end dates in 2026, no other factors have been identified that would limit productive capacity.

Crushed rock

12.6. There were no active crushed rock sites in Worcestershire in 2023 and no permitted reserves. There have been no permitted reserves and therefore no landbank since 2009.

Summary

Summary: Landbank and productive capacity – crushed rock

Based on the production guideline for crushed rock of "explicitly greater than 0 tonnes per annum" and no permitted reserves, **Worcestershire had a crushed rock landbank of 0 years at 31st December 2023.**

Worcestershire currently has no productive capacity for crushed rock.

plant and machinery and the land reinstated to the satisfaction of the County Planning Authority".

Appendix 1: Consultation with Aggregate Working Parties

Worcestershire County Council (WCC) sent a draft of this Local Aggregates Assessment to the secretary of the West Midlands Aggregate Working Party (AWP) in February 2025, for circulation to the West Midlands AWP and other AWPs. In addition to inviting comments on any aspect of the draft LAA, AWP members were specifically asked whether they were comfortable that, collectively, Worcestershire's demand for crushed rock can continue to be accommodated from other MPAs, or whether there are any emerging issues in their areas that might result in a changing picture.

The following comments were received from AWP members:

West Midlands AWP:

- Mineral Products Association

South West AWP:

- Gloucestershire County Council

Yorkshire and the Humber AWP:

- Kirklees Council

Mineral Products Association

Section in Document (e.g. paragraph/ page number)	Comment	WCC Response
Executive summary (paragraph 1.6)	But will new permissions still be required to maintain an adequate and steady supply of minerals in accordance with the production guideline proposed given the time limits on some of the existing permissions?	No new permissions are currently needed to meet the seven-year landbank requirement of 5.08Mt. Whilst one permitted site has a 2026 end date, Worcestershire's other sites have end dates later in the plan period. Additional permissions will always be needed to maintain a landbank on a rolling basis. Pending applications and pre-application consultations discussions are

		positive indications of industry interest in further extraction. To provide greater clarity on the need for additional planning permissions, the following text will be added to the end of paragraph 1.6: ***"Sufficient permitted reserves exist in the monitoring year to meet the landbank requirement. Additional permissions will be needed in future years to maintain a sufficient landbank. Because the production guideline and level of landbank are dynamic, the need for additional permissions will continue to be reviewed annually through the LAA process."*** The following new paragraph will be added between draft paragraphs 8.11 and 8.12: ***"Permitted reserves are currently sufficient to meet required provision, but additional permissions will be needed in future years to maintain supply. Because the production guideline and level of landbank are dynamic, the need for additional***

		permissions will continue to be reviewed annually through the LAA process."
Paragraphs 8.13 and 8.14, which compare the permitted reserves to the 10-year average.	Is this needed as the LAA is not proposing to use the 10 year average.	These paragraphs of the LAA consider how permitted reserves relate to the 'starting point' of the methodology, which uses the 10-year sales average. This section of the LAA comes before the sections that go on to consider whether evidence supports an adjustment to this staring point. The deviation from the 10-year average is explained in the conclusion, which brings together all of the evidence. No change required.
Page 53: Summary: Ability to supply – Planning applications	And will new permissions still be required in order to maintain an adequate and steady supply of minerals in accordance with the production guideline figure proposed in the LAA?	To provide clarity on this, a new paragraph has been added at the beginning of the 'Summary: Ability to supply – Planning applications' section: ***"Whilst no new permissions are required to meet the landbank for this current LAA, planning applications will need to continue to come forward as permitted reserves are exhausted, to maintain the landbank on a rolling basis."***

Section 12. Landbank and productive capacity	This section only considers landbank.	More detail on productive capacity has been added to this section, including by moving text from elsewhere in the LAA.

Gloucestershire County Council

Section in Document (e.g. paragraph/ page number)	Comment	WCC Response
N/A	We have reviewed the document and have no comment to make. In relation to the specific question about crushed rock, at the moment we do not have any concerns about being able to supply from Gloucestershire. However this would need to be monitored over coming years, in particular if any crushed rock sites in Gloucestershire cease production.	Confirmation of GCC's position regarding crushed rock is welcomed.

Kirklees Council

Section in Document (e.g. paragraph/ page number)	Comment	WCC Response
N/A	Whilst the West Yorkshire Local Aggregates Assessment indicates that there are reserves of crushed rock in Kirklees and the wider West Yorkshire sub-region, it should be noted that these are of a low-grade and for higher quality crushed rock, West Yorkshire is highly reliant on imports from other areas. Based on the latest Aggregate Minerals Survey data, we are also unaware of	Noted. Confirmation of Kirklees Council's position is welcomed.

	any exports of crushed rock from Kirklees to Worcestershire therefore we don't feel it necessary to comment on crushed rock sales to Worcestershire.	

Appendix 2: Demand and supply indicators agreed by West Midlands Aggregate Working Party

Table A. Indicators to be used in LAAs (some may be dependent on availability/quality of data) as agreed by West Midlands Aggregate Working Party, October 2021

No.	Indicator	Type of information	Demand or supply indicator
1	Gross housing completions (refer to MHCLG live tables on housing supply), compared with housing targets	Set over the past 10 years, or a shorter time period. Targets from up to date local plan and/or Government's standard methodology	Demand indicator
2	Employment land completions, compared with requirements	Strategic local plan employment allocations only. Info from AMRs or Employment Land Reviews. Timeline: over local plan period to date.	Demand indicator
3	Large scale local infrastructure requirements compared with delivery (refer to local strategic Plans and National Highways website)	e.g. new roadbuilding. Check local development plans, LEPs, local transport plans etc.	Demand indicator
4	NSIPs and other major projects (refer to National Infrastructure Planning website)	Either in mineral planning authority area or nearby e.g. HS2 or Commonwealth Games Note that developers should be encouraged to provide materials audits which could be used to predict "significant future	Demand indicator

No.	Indicator	Type of information	Demand or supply indicator
		increases in demand that can be forecast with reasonable certainty" (refer to PPG)	
5	3-year aggregate sales average	Caveat: Although this indicator may give figures for most recent sales, it may include unnatural fluctuations or major anomalies (e.g. due to Covid) and therefore may not be relied upon in such instances	Demand indicator
6	Sub-regional apportionment figures	Useful for comparison and context	Demand indicator
7	Quality and/ or capacity constraints of existing permitted reserves	Compare data for the overall potential permitted capacity of sites with the level of provision made in the MLP and/ or with current 10 years sales average. Consider projection of comparison over next 10 years or over remaining period of 'time horizon' of MLP.	Supply indicator
8	Windfall minerals permissions/trends	Could high levels of windfall permissions mean that these sites should have been included in local plan allocations? Or, could this indicate that the minerals industry prefer to bring sites forward though planning applications, rather than through the local development plan process?	Supply indicator

No.	Indicator	Type of information	Demand or supply indicator
9	Progressive exhaustion of permitted reserves over Plan period and permitted lifespans of productive sites.	a) Compare sales against data on the number of operational sites and new permitted reserves (assess replenishment rates). b) Record the number of sites that have ceased production of aggregates and comment on reasons for cessation if possible. c) Record cessation dates for mineral production at permitted sites. d) Highlight sites where the MLP includes allocations for the extension of existing sites and the potential duration of continued production from allocated sites.	Supply indicator
10	Transport constraints affecting markets for aggregates	e.g. lack of rail freight opportunities Note output restrictions on permitted sites (number of lorry movements/ tonnages).	Supply indicator
11	Levels of imports and exports	Data is not always complete/reliable.	Demand/Supply indicator, depending on movements into or out of the area

No.	Indicator	Type of information	Demand or supply indicator
		Review data from AM Survey 2019 and compare with AM 2014	
12	Limited geological reserves	Generalised; not specific to particular permitted quarry operations Note LUC study for previous regional apportionment which considered the extent of aggregate resources and its constraint by international/ national designations for the environment or culture.	Supply indicator
13	Local plan allocations	See d) for 9 above.	Supply indicator
14	Contribution from alternative aggregates	Record permissions for: New / extended waste facilities with capacity for producing recycled aggregate. New/ extended facilities for producing secondary aggregate from industrial by products. Permissions for major development involving redevelopment of previously developed land involving demolition/ land clearance works.	

Note: trend-based data should be used where possible, with the intention that percentage figures on how far to deviate from the 10-year average can be explained/justified.