

10th Local Aggregates Assessment for Gloucestershire

Covering the period:
01/01/2020 to 31/12/2020

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COUNTY COUNCIL



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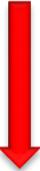
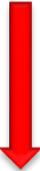
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All hyperlinks contained in this document are correct as of November 2021

Gloucestershire summary of sales and reserves for the period | 01/01/2020 – 31/12/2020

	2020 Sales (in million tonnes)	10-year Sales Average (in million tonnes per annum)	3-year Sales Average (in million tonnes per annum)	Change (compared to 2018)	LAA Rate (in million tonnes)	Reserves (in million tonnes)	Landbank (in remaining years)	Theoretical Capacity (in million tonnes per annum)	Comments
All land-won sand and gravel¹	0.477mt	0.698mtpa	0.689mtpa		0.698mt	5.32mt	7.62 years	Up to 1.14mtpa (estimated maximum including inactive sites).	A notable decline in the sales of land won sand and gravel and crushed rock from the county during 2020 is likely to be a result of the national restrictions imposed to tackle the COVID-19 Pandemic. At times during the year many local operations were temporarily closed or functioned at reduced capacity. This was in response to direct restrictions on their operations and the indirect impact of a fall in demand for aggregates from users for the same reason.
Crushed rock	1.073mt	1.446mtpa	1.404mtpa		1.446mt	22.22mt	15.37 years	Up to 2.84mtpa (estimated maximum).	
Recycled / secondary aggregates² (from fixed sites only)	0.242mt	Insufficient data available to date. However the 5-year sales average is 0.1868mt	0.216mt		There is no LAA rate for recycled / secondary aggregates at this time				This is the fifth year of reporting on local recycled / secondary aggregate supplies. Despite the imposition of COVID-19 restrictions during 2020 the annual tonnage figure rose from 2019 by 29,000 tonnes.
Trend analysis for Gloucestershire	The trend analysis up to 2020 has been significantly impacted by the COVID-19 Pandemic and the restrictions imposed to tackle it. For all primary aggregates worked in Gloucestershire there was a significant fall in sales. At no time in the last 10 years have sales of crushed rock been as low. Similarly, with sand and gravel, sales have not been so low for the last six years, since 2014 – a time that was still affected by the recession of the late 2000s. However, in contrast, recycled and secondary aggregate sales from fixed sites do not seem to have been impacted in the same way as primary land-won aggregates and reported yet another annual increase. Recycled and secondary aggregate sales from fixed sites have increased year-on-year from 2016.								

¹ Whilst marine-won sand and gravel is sold and used within Gloucestershire, none is presently landed at Gloucestershire's only commercial port – Sharpness Docks.

² There are now secondary aggregates produced in the county, but the figures have been combined with the recycled aggregates to protect commercial confidentiality.

Executive Summary

Introduction

This is the tenth Local Aggregates Assessment (LAA) for Gloucestershire. It contains updated aggregate minerals data for the period 1st January 2020 to 31st December 2020. The tenth LAA underwent targeted consultation in Spring 2022. The organisations invited to participate in the technical consultation are set out within Appendix 4.

Aggregates in the mineral planning authority area

Aggregates produced across Gloucestershire are: -

- Crushed rock sourced from Carboniferous and Jurassic limestone;
- Sand & gravel mostly made up of sharp sand with small amounts of soft sand;
- Recycled aggregates from construction, demolition and excavation wastes; and
- Secondary aggregates from Incinerator Bottom Ash known as IBAA

Demand indicators

Future demand indicators are discussed in Section 3. These are: -

- Ten-year and three-year rolling averages of annual aggregate sales;
- Forecast local house building;
- Economic ambitions and major sub-national infrastructure projects; and
- National and Sub-National Guidelines on future aggregates provision (2005 - 2020).

Supply figures

Current and future aggregate supplies affecting Gloucestershire are discussed in Section 4, these include: -

- Locally sourced and imported land-won crushed rock;
- Locally sourced and imported land-won sand & gravel;
- Locally sourced recycled aggregates;
- Locally sourced secondary aggregates;
- Imported marine-won aggregates; and
- Exports of primary land-won aggregates.

Environmental constraints

Gloucestershire has a strong rural character and is known for its environmental quality, biodiversity and scenic beauty. It contains a number of strategically

significant environmental designations of international and national importance, which also have a strong spatial relationship to the county's key aggregate mineral resource areas. These designations could prove a constraint on the availability of future aggregate supplies. They include: - the Cotswolds, Malvern Hills and Wye Valley Areas of Outstanding Natural Beauty (AONBs), which cover nearly two-thirds of the county area; the Severn Estuary Special Protection Area (SPA); and several Special Areas of Conservation (SAC) such as the River Wye SAC. The management of these designations is dealt with through the planning system and is a key feature of the adopted Minerals Local Plan for Gloucestershire.

Balance between supply and demand

The assessment of balance between supply and demand is discussed in Section 5. The main topics covered are: -

- the amount of locally-sourced aggregates available – as monitored through remaining landbanks;
- the influence of productive capacities;
- the influence of inactive and dormant mineral working sites;
- the influence of supply trends – particularly for crushed rock aggregates;
- the impact of aggregates supplies from recycled and secondary, marine-won, and imported primary sources; and
- the impact of growth – e.g. the demand for aggregates from significant future house building and other aggregate-heavy major infrastructure projects.

Cross border mineral planning authority issues

There is a long history of imports and exports of Gloucestershire's aggregate minerals largely with its neighbouring areas, but also further afield. Data from 2014 and 2019, suggests that aggregate imports continue to be a component, but not a dominant part of consumption within the county. In terms of aggregate exports, this appears to have increased in both overall tonnage and as a proportion of sales from 2014 to 2019. However, as at 2019 overall Gloucestershire remains largely a local supplier

Overall conclusion

The use of the 10-year rolling annual average of aggregate sales to generate a projection of the future demand for aggregates sourced from Gloucestershire, remains the most robust approach available at present. A number of other potential influences on future demand do exist and these have been carefully assessed to determine their possible significance. However, to date no alternative to the 10-year rolling annual average for gauging future demand appears to be sufficiently credible

and / or represents a significantly different view of the future able to be used for both decision making and plan-making for aggregates.

Introduction

- 1.1. Gloucestershire County Council is the Mineral Planning Authority (MPA) for Gloucestershire and under national policy is expected to prepare a Local Aggregates Assessment (LAA) on an annual basis³.
- 1.2. An LAA provides data on local aggregates. It includes current levels of supply and an understanding of influences upon demand. An LAA's prime purpose is to assist MPAs in their efforts to facilitate steady and adequate supply of local aggregates, where reasonable and practicable to do so.
- 1.3. Further details as to what an LAA should contain are provided within Planning Practice Guidance (PPG)⁴. In May 2017 the Planning Officers Society (POS) and the Mineral Products Association (the MPA) produced updated *Practice Guidance on the Production and Use of Local Aggregates Assessments*, which has also influenced the production of this document⁵.
- 1.4. This document is the tenth LAA for Gloucestershire and contains data up to the end of 2020. Information on imports and exports was also sourced from the national aggregate mineral (AM) survey⁶, which usually takes place every four to five years. Previous LAAs for Gloucestershire are available to view online⁷.
- 1.5. In light of the County Council's decision in May 2019 to endorse the UK Parliament's declaration of an environment and climate change emergency, the tenth LAA for Gloucestershire includes a dedicated climate change statement. This confirms the position of the County Council in respect of the delivery of policy relating to LAAs and the relationship to recent climate change ambitions / commitments supported by the County Council⁸.
- 1.6. This document is broken into five main sections which consider:
 - Climate change statement | LAAs for Gloucestershire;
 - Future demand for aggregates;
 - Analysis of all supply options;
 - Assessment of the balance between demand and supply; and
 - Conclusions and recommendations for planning purposes.

³ National Planning Policy Framework (NPPF) (2019), paragraph 207, point a

⁴ Planning Practice Guidance (PPG) advise on LAAs:- <https://www.gov.uk/guidance/minerals#Local-Aggregate-Assessments>

⁵POS and MPA - Practice Guidance on the Production and Use of Local Aggregates Assessments can be viewed at:-

<https://www.planningofficers.org.uk/publications/good-practice-publication/good-practice-production-and-use-of-local-aggregate-assessments>

⁶ The most recent AM survey applies data recorded from 01/01/2019 to 31/12/2019.

<https://www.gov.uk/government/publications/aggregate-minerals-survey-for-england-and-wales-2019>

⁷ <https://www.gloucestershire.gov.uk/planning-and-environment/planning-policy/minerals-local-plan-for-gloucestershire/evidence-base-for-the-minerals-local-plan-for-gloucestershire/>

⁸ Gloucestershire's Climate Change Strategy (December 2019)

<https://www.gloucestershire.gov.uk/planning-and-environment/climate-change/climate-change-what-is-the-councils-approach/our-vision/gloucestershires-climate-change-strategy/>

2. Climate change statement | LAAs for Gloucestershire

- 2.1. Local Aggregate Assessments (LAAs) are a monitoring tool to support Mineral Planning Authorities (MPAs). LAAs show whether there is the demonstrable capability of providing for steady and adequate supplies of aggregates – a key national planning policy for minerals. LAAs do not set policy but are crucial in contributing to the evidence base as to how successful or otherwise they are in affecting change.
- 2.2. From a climate change perspective, the attention of national planning policy for minerals is focused on the effective management of finite mineral resources. This recognises that the UK is very much transitioning to increasingly more sustainable and less exploitative approaches to development, but that it remains vitally important that supplies of primary minerals are still sufficient to meet the country's present needs. Nevertheless, key forward thinking policies have been put in place to support the change that is needed to achieve the long-term security of mineral resources for future generations. National policy is clear that the best use of minerals needs to be made; their supplies should be sourced indigenously wherever possible; and that secondary and recycled materials and mineral waste should be seen as a valid substitution for the extraction of primary minerals⁹.
- 2.3. In May 2019, Gloucestershire County Council declared a climate emergency¹⁰. This follows a nationwide climate and environment emergency declaration of the same month, made by the UK parliament¹¹. An overarching target has been set to achieve carbon neutrality throughout the UK by 2050. For Gloucestershire there is a local ambition to be a net zero carbon county and to achieve a reduction in carbon emissions of 80% by 2030.
- 2.4. The Gloucestershire Climate Change Strategy was launched in December 2019¹². It contains actions to help deliver on local climate change commitments. Of particular relevance to the County Council as the local MPA, is the use of planning powers to successfully achieve change and to support others to do similar. This is in respect of meaningfully contributing towards a reduction in locally-generated carbon emissions through both the delivery of development and ongoing land use over the coming years.
- 2.5. The LAA alongside other statutory monitoring functions such as the Authority Monitoring Report (AMR) allow the MPA to monitor on an annual basis whether

⁹ National Planning Policy Framework (NPPF) 2021, paragraphs 209, 210, 213

¹⁰ Wednesday 15th May 2019 | County Council Motion 836

<https://glostext.gloucestershire.gov.uk/ieListDocuments.aspx?CId=333&MId=9141>

¹¹ On 1st May 2019 the UK Parliament passed a cross-party non-binding motion in the House of Commons to declare 'an environment and climate emergency'

¹² Gloucestershire's Climate Change Strategy (December 2019) <https://www.gloucestershire.gov.uk/planning-and-environment/climate-change/climate-change-what-is-the-councils-approach/our-vision/gloucestershires-climate-change-strategy/>

key changes are taking place on the ground. Monitoring data on the aggregate supplies will be crucial to the assessment of adopted Minerals Local Plan for Gloucestershire (2018 – 2032) Policy SR01 | *'Maximising the use of secondary and recycled aggregates'*¹³. This policy seeks to facilitate the increased availability and use within the county of alternatives to primary aggregates. A key indicator for Policy SR01 as set out in the plan's monitoring schedule includes the annual sales (in million tonnes) of secondary and / or recycled aggregates¹⁴. Data from the LAA will inform whether an upward trend in supply is occurring over time and whether the contribution to overall local aggregate supplies sourced from secondary and / or recycled aggregates is also on the rise.

- 2.6. In addition, LAA data could make a valuable contribution to the wider monitoring of climate change-related ambitions, such as a reduction in carbon-intensive activities (e.g. exploitation of raw primary materials (e.g. primary aggregates), whilst still sustaining desirable levels of social and economic growth (e.g. delivery of infrastructure projects and meeting housing needs etc.).

¹³ Minerals Local Plan for Gloucestershire (2018 – 2032) (Adopted March 2020)

<https://www.gloucestershire.gov.uk/planning-and-environment/planning-policy/minerals-local-plan-for-gloucestershire/>

¹⁴ [Minerals Local Plan for Gloucestershire \(2018 – 2032\) Section 12 | Managing and monitoring plan delivery](#)

3. Future demand for aggregates

- 3.1. National policy advises that to determine future demand for aggregates, mineral planning authorities should project forward the rolling annual average of 10 years sales data¹⁵. However, consideration may also be given to other relevant local information, which might suggest a different pattern of demand could occur.
- 3.2. Other relevant local information will differ from location to location. It may include the level of planned development incorporating house building in both the local area, and elsewhere, where it may have a noteworthy influence upon the availability of construction materials. National policy also advises that future demand could also be based on the average annual sales over the last three years¹⁶.

10-year and 3-year rolling average of annual aggregate sales – as a projection of future demand

- 3.3. Table 1 sets out both the 10-year and 3-year rolling average of annual aggregate sales figures for Gloucestershire from 2011 through to 2020. For crushed rock the 10-year rolling average of annual aggregate sales as at the end of 2020, equalled 1.446 million tonnes per annum (mtpa). For sand & gravel it was 0.698 mtpa.
- 3.4. A comparison between the 10-year and 3-year averages of annual aggregate sales shows there is a difference. Applying the 3-year average would represent a slight decrease of around 3% for crushed rock and around 2% for sand & gravel. In annual supply terms, this equates to a decrease in the projected future demand of 42,000 tonnes per annum for crushed rock and 9,000 tonnes per annum for sand & gravel.
- 3.5. Compared to the 2019 LAA rate (which was based on the 10-year sales average), the projected demand from 2020 onwards for both crushed rock and sand and gravel has declined. This sales decline is not in isolation for crushed rock and can be observed going back to supplies from 2018 onwards. However, for sand and gravel there is a more fluctuating pattern, with 2019 reporting the highest sales figures over the ten-year period between 2011 and 2020 before a dramatic decline in 2020, which is attributable to the restrictions of the COVID 19 pandemic.

¹⁵ [National Planning Policy Framework \(NPPF\) \(2021\)](#) paragraph 213, point a) details the application of 10 years sales data as part of the LAA process;

¹⁶ [National Practice Guidance Notes \(NPPG\) Minerals](#) - Planning for Aggregates Section, paragraph: 064, reference ID: 27-064-20140306 introduces the approach to considering the 3-years sales data within the LAA process.

Table 1: Gloucestershire Crushed Rock (C/R) and Sand and Gravel (S/G) Sales 2011-2020 (in million tonnes per annum - mtpa)¹⁷

Annual aggregate sales (in million tonnes per annum)											10-Yr Ave	3-Yr Ave [#]
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		
C/R	1.3	1.18	1.36	1.51	1.46	1.65	1.79	1.66	1.48	1.07	1.446	1.404
S/G	0.85	0.78	0.68	0.43	0.59	0.70	0.88	0.68	0.91	0.48	0.698	0.689
Total	2.15	1.96	2.04	1.94	2.05	2.35	2.67	2.34	2.39	1.55		

[#] - The 3-year average is based on annual aggregate sales data 2018– 2020 (inclusive)

Other relevant information

The impact of growth – future local house building

3.6. A view on the future of house building in Gloucestershire over the next five years to 2024/25 has been compiled using published district council five-year housing supply reports. Table 2 provides a summary of the calculated demand for all district councils in Gloucestershire between 2020/21 and 2024/25. Unfortunately, a longer-term strategic view of local house building is not possible as not all district councils in Gloucestershire have produced a longer-term house building trajectory for the coming decade and beyond. Over the next few years there is expected to be year-on-year increases in the demand for new homes before the start of a decline for 2023/24 and 2024/25.

Table 2: Future local house building requirements for all of Gloucestershire between 2020/21 and 2024/25

Annualised calculated future demand for new homes for all of Gloucestershire				
2020/2021	2021/2022	2022/2023	2023/2024	2024/2025
2,420	2,726	3,051	3,045	2,776

3.7. Section 5 provides a discussion as to how influential future local house building might prove to be in respect of the future demand for aggregates. This includes a review of the comparison between previous levels of house building and aggregate sales.

¹⁷ All historic sales data has been cross-referenced with that previously published within South West – Aggregate Working Party (SW-AWP) annual reports

The impact of growth – local economic ambitions and other planned major strategically significant infrastructure projects

3.8. Economic growth plans for Gloucestershire led by GFirst Local Enterprise Partnership (LEP) involve a number of noteworthy local infrastructure improvement projects, which may well stimulate demand for local aggregates. These projects are either underway as of the start of 2020 or have secured funding and are timetabled to commence over in the next few years¹⁸:-

- Upgrades and expansion of education infrastructure at various colleges throughout the county;
- Improvements to Cheltenham town centre (Cheltenham Minster Innovation Exchange).
- A 10-year growth plan for Gloucestershire Airport;
- The A40 Innsworth Gateway Scheme, involving new and upgraded highway infrastructure improvements;
- Upgrades to Gloucestershire's towpaths; and
- Upgrades to sections of the Gloucester South West Bypass.

3.9. In addition, there are also a number of major privately-financed (with some public-sector support) construction projects of strategic significance that have been earmarked for Gloucestershire. These projects could also have an influence on demand for local aggregates and / or impact on regional level aggregate supply chains at various points over the coming decade and beyond:

-

- Tewkesbury Garden Town -- 10,000+ new homes and 100+ hectares of new employment land;
- Elms Park at North West Cheltenham – 4,000+ new homes and 20+ hectares of new employment land;
- The Golden Valley (Cyber Park) Development – 1,000+ new homes and 40+ hectares of employment land;
- The EcoPark at M5 Junction 13, Stonehouse – a 40+ ha strategic mixed-use employment development incorporating a new sports stadium and associated infrastructure; and 10+ ha of new employment land.

3.10. The Local Transport Plan (2015-2031) for Gloucestershire identifies up to 50 long-term capital highway project priorities for the period to 2031¹⁹. The most significant of these, which could have an influence on local aggregate supplies and / or impact on regional level aggregate supply chains, include: -

¹⁸ <https://www.gfirstlep.com/projects/>

¹⁹ <https://www.gloucestershire.gov.uk/media/2227/11-pd-4-highways-nov-2017.pdf>

- All-movements junction improvements at Junction 10 for the M5²⁰;
- Upgrades, realignment and improvements to the A417 / A419 ('the missing link')²¹; and
- Upgrades and improvements to the A46/A428 corridor including Junction 9 of the M5, Tewkesbury.

3.11. Plans for growth outside of Gloucestershire could also have an influence on local aggregate supplies, particularly by impacting on regional-level (and beyond) aggregate supply chains. Nationally significant projects (NSIPs) of note that may fall into this category include: -

- The new nuclear power station in the South West of England (Hinckley C);
- three new gas-fired power stations (Avonmouth, Merthyr Tydfil and Swansea);
- two renewable power-generating tidal lagoons (West Somerset and Swansea Bay);
- improvements to the M42 Junction 6²² and several extensions to the national rail network (a Great Western Mainline link to Heathrow Airport and the Metro-west 'Portishead' Branch line); and
- a new £30 million, 2.5km road link to a new proposed 724ha strategic development has been approved between the A419 and M4 within Swindon Borough²³.

3.12. There is little doubt from the scale and ambition of infrastructure projects over the coming years either across Gloucestershire or within its sphere of influence, there will be a demand placed on locally-sourced aggregate. However, there is no evidence to suggest the delivery of these projects warrants an alternative demand scenario for the county as is currently being envisaged and planned for. Many of the projects will not necessarily require materially-significant amounts of land-won aggregate from Gloucestershire and / or for those proposed outside of Gloucestershire, these may be sufficiently serviced by other aggregate resources from elsewhere (e.g. the Mendip Hills or South Gloucestershire). Nevertheless, the potential impact on demand arising from the delivery of infrastructure projects should be kept under continual review to assess new potential projects as they come forward and evolution of existing ones.

²⁰ (currently at pre-application stage) <https://infrastructure.planninginspectorate.gov.uk/projects/South%20West/>

²¹ Application for development consent order is current in preparation <https://highwaysengland.co.uk/our-work/south-west/a417-missing-link/>

²² <https://infrastructure.planninginspectorate.gov.uk/projects/west-midlands/m42-junction-6-improvement/>

²³ Planning application reference S/19/0703 available from <https://pa1.swindon.gov.uk/publicaccess/>

Forecast demand as established through National and Sub National Guidelines on future aggregates provision (2005 – 2020)

- 3.13. National policy advises that MPAs must take account of published national and sub-national guidelines on future aggregate provision when preparing a minerals local plan²⁴. These guidelines are based on an analysis of anticipated future demand and likely supply options. Their purpose is to establish future aggregate requirements that MPAs can work towards when preparing local plans and consider when deciding on planning applications. The most recent guidelines cover the period between 2005 and 2020 and are based on data analysed during the late 1990s and early 2000s. For Gloucestershire, the guidelines generate an annual local apportionment equal to 2.25 mtpa for the supply of crushed rock and 1.0 mtpa for sand and gravel.
- 3.14. The figures previously set out in Table 1 suggest that the historic demand for local aggregates over recent years has been notably lower than envisaged under the national guidelines. As a consequence, very careful consideration will need to be given to the future application of the national guidelines.
- 3.15. Section 4 considers likely influences upon future aggregate supply. These could be a major factor in determining how significant the assumptions behind the guidelines will continue to prove to be.

²⁴ National Planning Policy Framework (NPPF) (2019) paragraph 212, point c

4. Aggregate supply options

- 4.1. LAAs should consider all future aggregate supply options, which are discussed in this section.

Supplies of primary land-won aggregate – crushed rock

- 4.2. The countywide crushed rock landbank as at 01/01/2021 totalled 22.22 million tonnes. The remaining length of this landbank stands at 15.37 years. This is based upon the application of 10-year rolling average annual sales, which amounts to 1.446 million tonnes per annum. Applying the 3-year rolling average annual sales, which is lower (1.404 mt), would increase the remaining length of the landbank to 15.83 years.
- 4.3. However, the use of a countywide landbank for crushed rock is of limited value when attempting to determine the availability of future supplies. A countywide landbank does not take into account other influential factors. These include: - the number of and the continuation of inactive sites; restrictions upon the timescales for mineral working at individual sites; and the presence of sales limitations at sites. In addition, a longstanding and well-established supply trend exists with crushed rock sourced from Gloucestershire that is linked to the county's two distinct resource areas – the Forest of Dean and Cotswolds. This trend presents as a proportional split in the overall countywide supply, broadly equal to 70% from within the Forest of Dean and 30% from within the Cotswolds. The continued significance of this supply trend and how it might impact upon the availability of crushed rock is discussed in detail in Section 5.

Supplies of primary land-won aggregate – sand & gravel

- 4.4. The countywide sand and gravel landbank as at 01/01/2021 was 5.32 million tonnes. The remaining length of this landbank is 7.62 years. This is based upon the 10-year rolling average sales of 0.6998mtpa. Applying the 3-year rolling average annual sales, which is lower, (i.e. 0.689mtpa) would marginally increase the remaining length of landbank to 7.72 years.
- 4.5. Similar to crushed rock, the length of the remaining landbank is of limited value in establishing the future availability of sand & gravel supplies. Other influential factors include productive capacities and envisaged working schedules for individual sites. These matters are discussed within Section 5.

Supplies of recycled aggregates

- 4.6. Data on the supply of recycled aggregates remains limited. This is partly down to the supply and demand dynamic of this type of material. Recycled aggregates in Gloucestershire are usually sourced from regeneration and

redevelopment projects. They are made up of construction, demolition and excavation (C, D and E) wastes that are mostly crushed on-site using mobile plant. They are then re-used without entering the wider supply chain or being presented onto the open aggregate market. These sources are not generally captured through any formal monitoring processes.

- 4.7. The County Council currently operates a monitoring regime for recycled aggregates, which covers materials generated or managed and sold only at fixed sites located across Gloucestershire. For 2020, 0.242 mt of recycled aggregates²⁵ from fixed sites was sold from within Gloucestershire. This figure represents over 13% of the total supply of aggregates sourced from within the county during 2020.
- 4.8. It is highly likely that a much larger amount of recycled aggregates has been employed by the construction industry as a substitute for primary aggregates within Gloucestershire. However, as a result of the data monitoring complexity highlighted above, there is no clear evidence to demonstrate and quantify this. The origin of recycled aggregates in Gloucestershire means that the delivery of regeneration and redevelopment, and initiatives to improve the implementation of waste minimisation in development projects, rather than just an increase in construction activity, will likely be the biggest influence on the availability of future supplies.

Supplies of secondary aggregates

- 4.9. Until 2019, no secondary aggregates were produced in Gloucestershire. However, following the development of the Energy from Waste (EfW) facility at Javelin Park near Gloucester, a new local source of secondary aggregate has become available²⁶. The Javelin Park EfW facility allows for a processing facility for bottom ash, which has the potential to create a construction aggregate – incinerator bottom ash aggregate (IBAA)²⁷. Based on the proposed maximum throughput of 190,000 tpa of waste through the main EfW plant, it is estimated a maximum of 45,000 tpa of bottom ash could be generated. Javelin Park EfW became operational during 2019. IBAA production makes a small contribution to the overall aggregate supply sourced from Gloucestershire. The figures for the secondary aggregates are combined with recycled aggregates to protect commercial confidentiality.

²⁵ Sales data for recycled and secondary aggregates have been combined to protect commercial confidentiality

²⁶ Details concerning the EfW facility at Javelin Park can be found on the Gloucestershire County Council public access to planning applications website under the reference: 13/0001/INQUIR <https://planning.gloucestershire.gov.uk/publicaccess/>

²⁷ A source of information on incinerator bottom ash aggregate (IBAA) and its potential use as a secondary aggregate is available via the Manufacturers of IBA Aggregates Association (MIBAAA) website – <http://mibaaa.org.uk/index.html>

Supplies of marine-won aggregates

4.10. There are no active marine dredging licences or applications for future dredging affecting Gloucestershire. There are also no ports within the county that land marine-won aggregate. However, the 2019 Aggregate Minerals survey for England and Wales²⁸ shows that a small amount (around 46,000 tonnes) has been imported into the county. This compares with around 50,000 tonnes in 2009 and 28,000 tonnes in 2014. Imported marine-won aggregates during 2019 look to have been landed in port-side facilities at Bristol, Portsmouth or Cardiff. The amount imported into Gloucestershire represents around 19% of the South West's total consumption of marine-won sand and gravel during 2019.

Imports and exports of primary land-won aggregates

4.11. As mentioned above, a national survey of import / export data was conducted for 2019. This contains the most recent published data on local sources of primary aggregate and imports and exports to and from local producing and consuming areas across England. The report provides a useful indicator as to the relationship that exists between markets and those areas that supply aggregates. It also enables an indicative local aggregate consumption figure to be established. This is the 'total' amount of aggregate transacted in a particular area made up from local sources and imports from elsewhere.

4.12. Table 3 shows Gloucestershire's primary aggregate consumption in 2014 and 2019. In 2014 consumption stood at 2.49 million tonnes. In 2019 this figure looks to have dropped very slightly to 2.47 million tonnes. Overall locally-sourced aggregates and imports remain consistent between 2014 and 2019. A full list of mineral planning authorities, which supplied aggregates to Gloucestershire during 2019 is included in Appendix 1.

4.13. Table 4 provides a breakdown of the destination of aggregate sales from Gloucestershire from primary aggregates in 2014 and 2019. It headlines local sales (within Gloucestershire) and exports to elsewhere in the country. In 2014 total aggregate sales stood at 1.94 million tonnes. In 2019 they had risen to 2.39 million tonnes. Total aggregate exports from the county in 2019 increased compared to 2014, both in overall volume and as a proportion of all aggregate sales. Despite this increase, exports are still less significant than the local use of Gloucestershire sourced aggregates. A full list of mineral planning authorities that which received aggregates from Gloucestershire during 2019 has been included in Appendices 2 and 3.

²⁸ The 2019 Aggregate Minerals (AM) Survey for England and Wales is available at: <https://www.gov.uk/government/publications/aggregate-minerals-survey-for-england-and-wales-2019>

Table 3: Gloucestershire primary aggregate consumption (including origin data) for 2014 and 2019

	For 2014			For 2019		
	Locally sourced <i>(as a % of consumption)</i>	Imported <i>(as a % of consumption)</i>	Total Glos. Consumption	Locally sourced <i>(as a % of consumption)</i>	Imported <i>(as a % of consumption)</i>	Total Glos. Consumption
All data in million tonnes						
S/G Land-won	0.33 (60%)	0.22 (40%)	0.55	0.54 (78%)	0.15 (22%)	0.69
S/G Marine-won	-	0.03 (100%)	0.03	-	0.05 (100%)	0.05
Crushed Rock	1.22 (64%)	0.69 (36%)	1.91	1.00 (57%)	0.74 (43%)	1.74
Aggregate Total	1.55 (62%)	0.94 (38%)	2.49	1.54 (62%)	0.93 (38%)	2.47

Table 4: Gloucestershire primary aggregate sales (including destination data) for 2014 and 2019

	For 2014			For 2019		
	Local Sales <i>(as a % of total sales)</i>	Exports <i>(as a % of total sales)</i>	Total Sales from Glos.	Local Sales <i>(as a % of total sales)</i>	Exports <i>(as a % of total sales)</i>	Total Sales from Glos.
All data in million tonnes						
S/G Land-won	0.33 (77%)	0.10 (23%)	0.43	0.54 (59%)	0.37 (41%)	0.91
Crushed Rock	1.22 (81%)	0.29 (19%)	1.51	1.00 (68%)	0.48 (32%)	1.48
Aggregate Total	1.55 (80%)	0.39 (20%)	1.94	1.54 (64%)	0.85 (36%)	2.39

4.14. Appendix 1 details of imported supplies of aggregates into Gloucestershire during 2019. The data is presented as a proportion (%) of Gloucestershire's total consumption calculated for that year including locally-produced aggregates.

4.15. Gloucestershire's sand and gravel imports in 2019 mostly arrived from Wiltshire, Worcestershire and the South Downs National Park area. A further

eight other mineral planning authority areas also supplied very small levels of sand & gravel to the county.

- 4.16. Gloucestershire's marine-won sand and gravel imports in 2019 almost exclusively arrived from within the Bristol City area (likely to be from the international port facilities at Avonmouth). Smaller quantities also came from Cardiff and Portsmouth.
- 4.17. Gloucestershire's imports of crushed rock aggregate in 2019 largely came from South Gloucestershire. Although a further fifteen other mineral planning authority areas also contributed to meeting the county's consumption in 2019. They most notably included: - Somerset and Herefordshire; and from Wales (Neath Port Talbot; Powys and Rhondda, Cynon and Taf (Taff)).
- 4.18. Appendix 2 sets out the export destinations for primary land-won sand & gravel sourced from Gloucestershire during 2019. The data is presented as a proportion (%) of each destination's total calculated consumption for that year.
- 4.19. Not unsurprisingly, sand & gravel sourced from Gloucestershire was most significant with aggregate consumption in the neighbouring Swindon & Wiltshire area. It represented between 60-70% of this area's total sand & gravel aggregate use during 2019. This data confirms a long-established aggregate supply relationship that exists between Gloucestershire and Swindon & Wiltshire. The two areas share strategically-significant sand & gravel resource (i.e. the Cotswold Water Park) and have both experienced significant imports and exports of sand & gravel between each area over many years. The nature of sand & gravel supplies has been heavily dependent upon which specific localities across the resource have been worked at any given time.
- 4.20. South East Wales also received notable imports of sand & gravel from Gloucestershire during 2019. Supplies from the county made up between 20 – 30% of total consumption in South East Wales
- 4.21. Appendix 3 presents export data for primary land-won crushed rock from Gloucestershire in 2019. It shows that the majority of the county's exports went to mineral planning authority areas located in the West Midlands and the South East of England – mostly Herefordshire, Oxfordshire and Worcestershire. Only a relatively small proportion was exported to elsewhere in the South West of England.
- 4.22. Overall the 2019 imports and exports shows that Gloucestershire largely remains (as was the case in 2014) a local supplier of primary land-won aggregates. However, the local market still demanded a not unsubstantial proportion of imported aggregates in 2019. External markets also sought aggregate exports from Gloucestershire to meet their needs.

Additional permissions granted since 01/01/2021

4.23. The data set out in this LAA is for the year ending on 31/12/2020. Collated reserves are based only on extant permissions granted before 01/01/2021. Since the start of 2021, three new permissions (listed in Table 5) have been granted. In the event these permissions are implemented, they will have an impact on the future supply of aggregates from Gloucestershire.

Table 5: Additional permissions granted for the working of aggregates since 1st January 2021²⁹

Planning Permission Reference and decision date	Site Name	Potential Impact upon supply
16/0083/CWMAJM Decision issued 10/02/2021	Whetstone Bridge Quarry	This permission releases an additional 217,000 tonnes of sand and gravel from within the existing permission area at Whetstone Bridge Quarry
19/0072/CWMAJM Decision issued 17/03/2021	Tinkers Barn Quarry	This permission allows a 3-year temporary period to enable crushing of excess quarry waste (creating an aggregate product) – limited to a 20,000 tpa and 60,000 tonnes total over the 3 year period.
18/0065/CWMAJM Decision issued 21/10/2021	Naunton Quarry	An additional 5.8 mt of crushed rock was granted as an extension to Naunton Quarry permitted on a MLP preferred area.

Planning proposals for aggregate working still to be determined

4.24. At the time of preparing this LAA for Gloucestershire, there were a total of four undetermined planning applications for potential aggregate working under consideration by Gloucestershire County Council – two for crushed rock and two for sand and gravel. A further three applications have been recommended for approval but are subject to the completion of legal agreements that have yet to be resolved.

²⁹ Details concerning any of the proposals below can be found on the Gloucestershire County Council public access to planning applications website under the relevant application reference: <http://www.gloucestershire.gov.uk/planning-and-environment/planning-applications/search-and-track-planning-applications/>

4.25. There is no guarantee that forecast reserves contained within these ‘yet-to-be completed’ planning proposals will eventually make a contribution to the county’s supply. Furthermore, it is not normally possible to determine with any degree of certainty when permitted proposals may be implemented and therefore start contributing to local aggregate supplies. It is only in a small number of very specific circumstances that permissions will include conditions covering either commencement dates, detailed working timeframes or a minimum level of supply. Table 6 provides recent information on all of the county’s ‘yet-to-be-complete’ planning proposals for future aggregate working.

Table 6: ‘Yet-to-be-completed’ planning proposals incorporate future aggregate working throughout Gloucestershire | as at 1st July 2021³⁰

Application reference	Proposal Site	Aggregate type	Current estimated aggregate yield
Undetermined			
19/0086/CWMAJM	Oathill Quarry	Crushed Rock	No additional gain to the landbank, but a potential increase of 50,000tpa in productive capacity.
19/0081/TWMAJM	Land at Bow Farm	Sand & Gravel	40,000t within Gloucestershire ³¹
21/0032/CWMAJM	Former RAF Down Ampney Airfield & Surrounding Areas	Sand & Gravel	6.5mt
Recommended for approval subject to the completion of a legal agreement.³²			
15/0071/CWMAJM	Stubbs Farm / Kempford Quarry	Sand & Gravel	Less than 0.1 mt
17/0122/FDMAJM	Stowe Hill / Clearwell Complex	Crushed Rock	2.5 mt

Potential future aggregate supply from within allocations contained within the Minerals Local Plan for Gloucestershire (MLP) (2018-2032)

4.26. The adopted MLP for Gloucestershire (2018-2032) contains a number of allocations for future aggregate working. These allocations were designed to facilitate future aggregate provision on order to meet expected demand that

³⁰ Details concerning any of the proposals below can be found on the Gloucestershire County Council public access to planning applications website under the relevant application reference: <http://www.gloucestershire.gov.uk/planning-and-environment/planning-applications/search-and-track-planning-applications/>

³¹ The proposal straddles the county boundary of Gloucestershire and Worcestershire. The full proposal is for 1.5 million tonnes, the majority of which could be extracted from land within Worcestershire.

³² The proposal has been approved subject to a legal agreement. Until the decision notice is issued it will not count towards the landbank.

was forecast during the preparation of the plan. The allocations consider future provision for both crushed rock and sand & gravel. The plan makes provision for between 39 and 47 million tonnes for crushed rock and around 10 million tonnes for sand and gravel. Some of these allocations are already subject to planning applications (see table 6). Details of all of the adopted MLP allocations is provided in Table 7.

Table 7: Undeveloped allocations contained within the Minerals Local Plan for Gloucestershire (2018-2032)

MLP (2018-2032) Allocations	Aggregate type	Estimated yield in new MLP allocation (million tonnes)
Land east of Stowe Hill Quarry#	Crushed Rock – Carboniferous limestone	Between 10 and 17mt
Land west of Drybrook Quarry	Crushed Rock – Carboniferous limestone	Between 3 and 4 mt
Depth extension to Stowfield Quarry	Crushed Rock – Carboniferous limestone	7.4mt
Land northwest of Daglingworth Quarry	Crushed Rock – Jurassic limestone	Up to 9mt
Land south and west of Naunton Quarry*	Crushed Rock – Jurassic limestone	Up to 10mt (less than 5mt now remaining)
Land south east of Down Ampney#	Sand & Gravel	7.8mt
Land at Lady Lamb Farm, west of Fairford	Sand & Gravel	3 mt

Part of these areas are already subject to planning proposals that are still either to be determined or legal agreements reached as of November 2021 – see table 6

*Part of the allocation has already been permitted for mineral extraction

5. Assessment of balance between supply and demand

5.1. This section of the report investigates potential factors that may influence future demand and supply patterns for Gloucestershire's primary land-won aggregates. Its purpose is to assist the MPA in determining how best to make provision through future plan-making to keep pace with future demand. The discussion provided in the following paragraphs expands upon the initial description of the data presented earlier in this report.

Remaining aggregate landbanks – an indicator of available future local supplies

5.2. The level of Gloucestershire's aggregate landbanks as of the end of 2020 indicates that additional provision will probably be required over the coming years for both crushed rock and sand & gravel should future demand remain at similar levels. This view is reinforced when taking into account the need to maintain minimum landbank levels³³.

5.3. In the case of crushed rock, countywide reserves are theoretically sufficient to meet projected annual demand until the end of 2034. Additional reserves would then need to be available from 2035 onwards. To accommodate a minimum rolling 10-year crushed rock landbank the timeframe reduces to 2025.

5.4. For sand & gravel, countywide reserves are anticipated to expire much sooner – by the end of 2028. For maintaining a 7-year minimum landbank, new reserves need to come forward in the immediate future. The minimum landbank level will have been breached by the end of 2020.

5.5. However, as discussed earlier in this report, the application of basic aggregate landbanks (incorporating minimum levels) is of limited use as a reliable and accurate indicator of when new supplies will be needed to meet future forecast demand. A more meaningful and realistic supply assessment must incorporate other influential factors. These are set out in following paragraphs: -

Influence of productive capacities

5.6. Productive capacity is concerned with how much aggregate can be worked and sold from a site over a period of time and is usually controlled over an annual period – in effect an annual sales limit. Capacities can also be affected by time restrictions on mineral working. These place a ceiling upon the supply from a site and are particularly significant where a sales limit is also in existence by way of a condition on a planning permission. Time restrictions are normally

³³ National Planning Policy Framework (NPPF) (2019), paragraph 213, point f advises as to the maintenance of minimum landbanks of at least 7 years for sand and gravel and at least 10 years for crushed rock

observed through the use of hours of working and an end date for working to cease.

- 5.7. Productive capacities can create a circumstance where remaining reserves at a site or suite of sites cannot be realised in full and therefore make the maximum contribution towards meeting forecast demand.
- 5.8. In Gloucestershire, where all aggregate working sites are time restricted and most have a sales limit; there are a proportion of remaining aggregate reserves that will undoubtedly require further planning permissions before they are able to contribute to future projected demand. This is as a consequence of a number of sites not always working up to their sales limits and being subject to a time limit, which can prevent sites from reaching their predicted exhaustion. The 'Credit Crunch' recession of the late 2000's had an impact on the availability of reserves by suppressing expected sales. This occurred into the early 2010's. A similar impact has taken place with the restrictions imposed by the COVID-19 Pandemic during 2020. This circumstance creates a bigger difference to emerge between 'actual' sales and the imposition of sales limits at many aggregate sites across the county.
- 5.9. Figures 1 and 2 attempt to show how productive capacities may influence Gloucestershire's remaining aggregate supply. Modelled scenarios have been applied in both figures, which assume that all sites will work up to their sales limit and through to their permitted end dates, or until reserves have run out. They also assume no new permissions will be granted to contribute to the supply. The maintenance of supplies equal to the 10-year average sales as at 2019 (i.e. the projected annual demand level) has also been illustrated within each figure. The scenarios are based upon an assumption of maximum aggregate production. The individual crushed rock resource areas of the Forest of Dean and Cotswolds have not been assessed individually to protect commercial confidentiality.

Figure 1: Modelled scenario of crushed rock productive capacity compared with the present 10-year average sales (i.e. forecast annual demand)

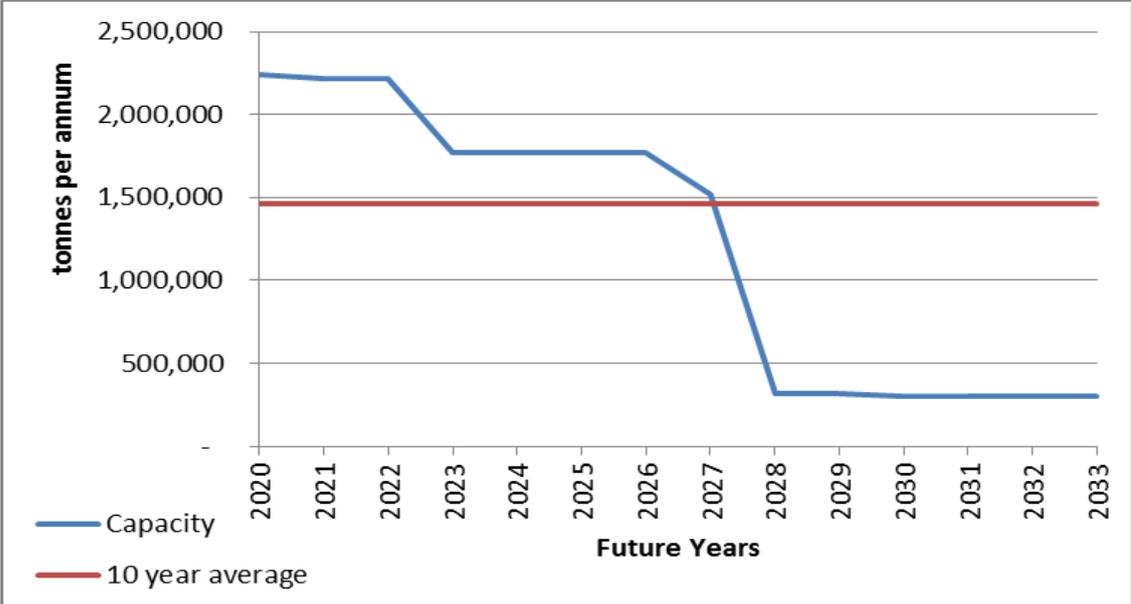
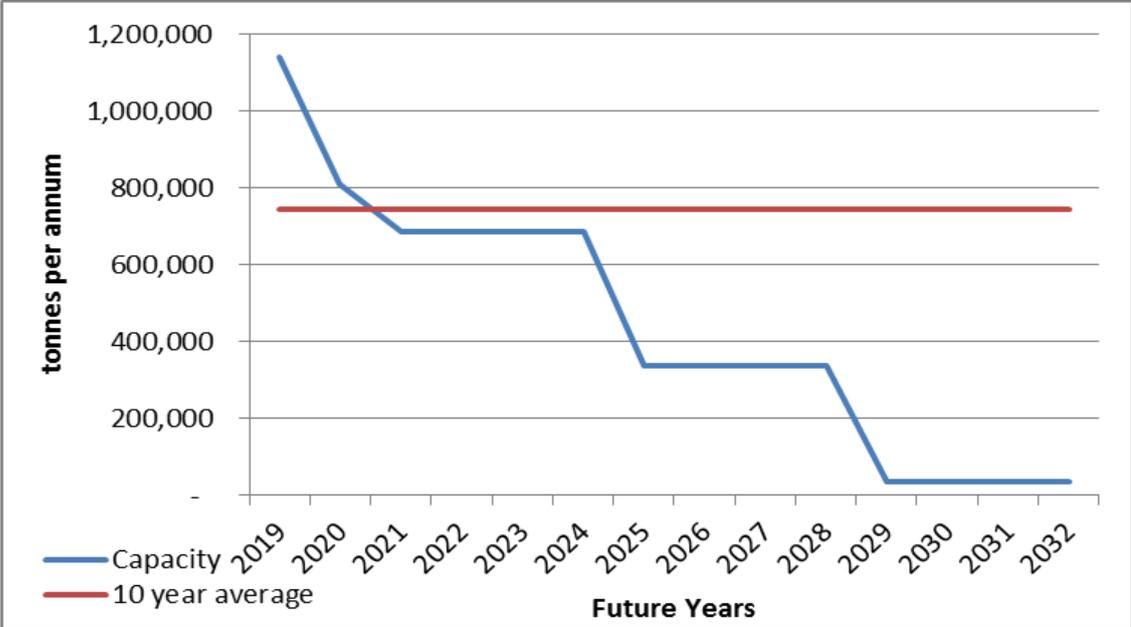


Figure 2: Modelled scenario of sand & gravel productive capacity compared with the present 10-year average sales (i.e. forecast annual demand)



5.10. The two modelled scenarios clearly indicate that productive capacity – by virtue of sales and time limits, will have an influence on supply. This influence will be of increasing significance over the coming years. In the case of crushed rock, the productive capacity of existing working sites might only be sufficient to meet

projected demand up until around 2027. However, for sand & gravel it could be notably shorter – the end of 2020.

Influence of inactive mineral working sites

5.11. As of the end of 2020, there was only one significant inactive crushed rock aggregate working site, which benefited from a recent permission for a time extension³⁴. There were no sand & gravel working sites classified as inactive in 2020.

5.12. The presence of inactive mineral working sites potentially skews the accuracy of the landbank indicator in identifying when additional aggregate supplies will need to be made available. In essence, by not securing any annual supply from inactive sites, they contribute to the creation of ‘artificially’ high landbanks of remaining reserves. Where productive capacity restrictions are also in place, inactive sites could prove to be even more significant as the ability of active sites to ‘theoretically’ compensate is significantly curtailed.

Influence of dormant mineral sites

5.13. Two sites with the potential for crushed rock aggregate working were categorised as dormant within Gloucestershire up to the end of 2020. There were no dormant sand & gravel sites recorded during the year.

5.14. All dormant sites are excluded from the calculation of aggregate landbanks in accordance with national practice and as such do not have a direct impact upon supply³⁵. However, the receipt of planning permissions to allow aggregate working at dormant sites could prove to be influential and would make a contribution to the relevant landbank. Up until recently, no evidence has been presented to suggest that local dormant sites will be subject to new planning proposals in the foreseeable future. Indeed, significant site-related issues would need to be overcome at the sites before consideration may be given to any future aggregate working. However, it is noted that the emerging national infrastructure project – the A417 Missing Link may dissect part of Birdlip Quarry (one of Gloucestershire’s dormant crushed rock quarries). The infrastructure project could stimulate a review of Birdlip Quarry as a continuing aggregate supply option for the future. This matter will no doubt evolve as the Development Consent Order (DCO) application progresses.

³⁴ Details concerning the approval of an extension of time for crushed rock working (at Drybrook Quarry) can be found on the Gloucestershire County Council public access to planning applications website under the reference: 14/0032/FDMAJM – <http://www.gloucestershire.gov.uk/planning-and-environment/planning-applications/search-and-track-planning-applications/>

³⁵ National Practice Guidance Notes (NPPG) – Planning for Aggregates Section, paragraph: 083 Reference ID: 27-083-20140306

Influence of Gloucestershire's crushed rock supply trend – the Forest of Dean and Cotswold resource areas

- 5.15. As explained within paragraph 4.3, there is a longstanding supply trend for Gloucestershire's crushed rock related to the county's two distinct resource areas – the Forest of Dean and Cotswolds. The supply trend presents as a proportional split equal to 70% from the Forest of Dean and 30% from the Cotswolds. It reflects a difference in the local markets being served and the marketability of the type of aggregate materials being supplied. Whilst there have been periods of time where this trend has deviated, this is normally only within a range of + / - 5%. Furthermore, from a review of data collected over recent years, there is no evidence to suggest that a material change in this pattern of working has occurred. The trend is acknowledged within the Minerals Local Plan for Gloucestershire (2018-2032), adopted in March 2020³⁶.
- 5.16. The continuation of the supply trend may prove to be a major influence on the ability of Gloucestershire's crushed rock aggregate supply. It will undoubtedly result in an uneven depletion of remaining aggregate reserves that specifically affects the Forest of Dean resource area much more than the Cotswolds. Its impact would be to undermine the reliability of the countywide landbank indicator by dispelling one of its key assumptions – that remaining permitted reserves decrease uniformly across the county as aggregates are being worked.
- 5.17. In assessing aggregate supply in the past, the MPA has introduced separate landbank indicators for the Forest of Dean and Cotswold resource areas. This has been a highly effective tool in determine how much aggregate provision should be facilitated through the adopted local plan. In previous years it has been possible to publish annual monitoring data relating to separate crushed rock landbanks. However, due to the decline in the number of working sites and distribution of independent operators, this cannot be done for reasons of commercial confidentiality.
- 5.18. Nevertheless, to illustrate the potential impact of the supply trend continuing unchanged into the future, separate crushed rock landbanks have been calculated applying the 2018 data and a 70/30 split between the Forest of Dean and Cotswolds LAA requirement. These indicate that a notable difference would exist in the anticipated length of remaining reserves in comparison to the countywide landbank indicator. The difference is equal to around 5 years less of reserves being available from within the Forest of Dean resource area, than would be the case if the countywide land bank was applied. However, for the

³⁶ Adopted Minerals Local Plan for Gloucestershire supporting text to policy MW01: <https://www.gloucestershire.gov.uk/planning-and-environment/planning-policy/minerals-local-plan-for-gloucestershire/>

Cotswold resource area, it represents a potential extension of the time reserves being available beyond the plan period.

5.19. In addition, the continuation of the crushed rock supply trend may also heighten or lower the significance that inactive sites may have on future supply. For example, if inactive sites were concentrated within a resource area that demonstrates a higher trend of supply, the timeframe under which available reserves contribute to supply may become shortened. However, for a resource area that has a lower trend of supply, there may be no or very little influence upon availability of remaining reserves to meet demand.

Influence of additional permissions granted since 01/01/2020

5.20. Paragraph 4.23 establishes the amount of additional aggregate reserves created since the beginning of 2020. A small amount of aggregate reserves has been added to the sand and gravel landbank (which represents less than four months' worth of additional supply to the total sand and gravel landbank). Temporary permissions have also been issued. However, compared to the overall landbank requirements these additional permissions are not considered a significant influence on the LAA requirements.

Impact of recycled aggregate on supply

5.21. Despite the limited time-series data on local recycled aggregates, it is not likely to have a significant influence on overall aggregate supplies from Gloucestershire (see paragraph 4.7). There is no evidence to suggest that the volumes currently recorded will change significantly in the foreseeable future. However, there have been small year-on-year increases and the wider impact of recycled aggregates should not be understated. Recycled aggregates can occur through on-site processing of construction and demolition wastes that are then re-used on-site. It is difficult to quantify the amount of recycled aggregate that has been applied in this manner throughout Gloucestershire over recent years, although it is likely to have acted as some form of suppressor upon local demand for primary aggregates. Nevertheless, without any firm evidence that the pattern of new development will offer greater opportunity to exploit recycled aggregates (e.g. an increased focus on re-development and regeneration), its future influence is likely to be limited. Furthermore, it is worth noting that recycled aggregates continue to have notable limitations in terms of specification of use compared to other aggregate sources.

Impact of secondary aggregates on supply

5.22. Secondary aggregates are contributing towards Gloucestershire's aggregate supply. Totals are combined with recycled aggregates to protect commercial confidentiality. However, the volumes from local sources are severely limited by planning constraints linked to permitted activities and are very small in comparison to the overall annual aggregate supply (see paragraph 4.9). As a result, locally-produced secondary aggregates are unlikely to be a noteworthy influence on the evolution of future aggregate supplies from Gloucestershire in the near future.

Impact of marine-won aggregates on supply

5.23. The figure for marine imports presented earlier within paragraph 4.10 shows that ports within Gloucestershire do not land any marine-won aggregates and there are presently no plans to do so in the future. It also indicates that the county has not been a major importer in the recent past and that the small amount that has arrived has only made a very limited contribution to the annual supply. It is anticipated that marine-won aggregate will not make a significant contribution to future aggregate supplies from Gloucestershire.

Impact of imports and exports of primary land-won aggregates on supply

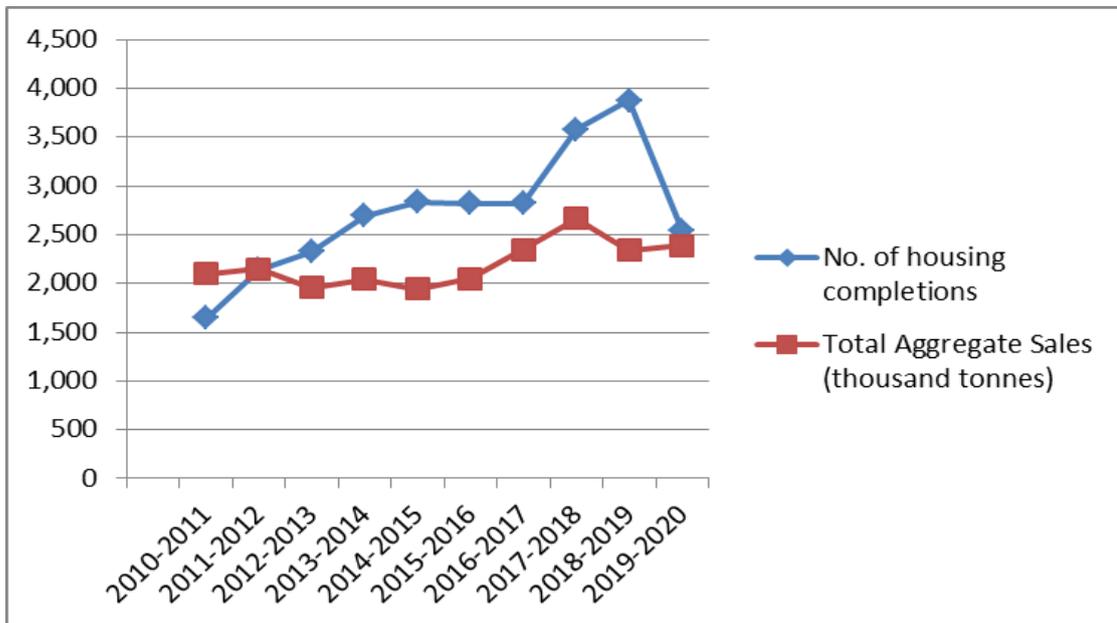
5.24. There has been very little change in overall aggregate consumption within Gloucestershire between the two survey years 2014 and 2019. Although the county's export market appears to have slightly increased by around 0.45 million tonnes.

5.25. Gloucestershire's overall aggregate supplies between 2014 and 2019 appear to have remained locally orientated. Although, for crushed rock supplies there has been an uplift in imports.

Impact of growth on demand – future house building

5.26. Figure 3 sets out historic data on housing completions and aggregate sales for the previous 10 years within Gloucestershire. This shows that any relationship between housing completions and aggregate sales is less significant than in previous years. This may be attributed to a number of potential factors including:- changing patterns in demand for aggregates from outside of the county (e.g. exports); changing patterns of supply resulting in more or fewer imports; changing demand for aggregate from other types of development; changes in house building techniques (e.g. low carbon / sustainable code homes, where the amount of aggregate needed has decreased); and a drive towards the use of alternative aggregate sources (e.g. secondary and recycled aggregates).

Figure 3: Gloucestershire housing completions and primary land-won aggregate sales between 2010-11 and 2019-20 ³⁷



5.27. Nevertheless, whilst accepting significant weaknesses in the relationship between local house building and aggregate sales, it would still not be unreasonable to conclude that aggregate consumption in Gloucestershire is likely to experience some degree of rise in the near future should forecast housing growth across the county occur. However, whilst some degree of housing growth can reasonably be anticipated, caution is expressed as to whether ‘actual’ housing delivery will match that which has been forecast. This is due to a number of factors including the pandemic recovery, economic conditions and the capacity of the local construction industry to achieve the resulting housing completion rates in such a short time frame. There is less certainty surrounding projected figures towards the end of the MLP period primarily because most housing trajectories do not go that far.

5.28. It remains unclear as to how significant an impact future local housing growth will have upon local aggregate sales. Aggregate import trends would suggest that Gloucestershire may become increasingly reliant on supplies from outside of the county. However, it is impossible to predict whether such imports would also be able in the future to accommodate all, or part of any forecast additional demand linked to increases in local house building. Furthermore, it is unknown as to whether the trend towards ever decreasing amounts of aggregate being used in house building will continue to act as a suppressor upon future aggregate demand. Nonetheless, there is some degree of certainty, that the availability of and subsequent contribution to the supply of alternatives to

³⁷ To accommodate the differing recording periods applied to housing completions and aggregate sales, aggregate sales have been set against the 2nd half-year of housing completions. This is because the chances of a lag-time are very high between the supply of aggregates and their subsequent use in construction. This approach is deemed a pragmatic way forward where by the completions from the 2nd half-year are partially attributed to aggregate supplies generated during the previous annual period.

primary land-won aggregate (see paragraphs 4.6 to 4.10) is unlikely to have a major impact; and therefore have an influence upon the relationship between future local house building and aggregate sales.

Impact of competing demands for materials

5.29. Almost all of the crushed rock quarries within Gloucestershire provide a wide range of quarry products. Many have permission to also supply crushed quarry products for non-aggregate purposes, such as supply for industrial furnaces or for agricultural lime production and building and walling stone. The proportion of crushed materials supplied for non-aggregate purposes can vary from year-to-year. As such this can have an impact on whether reserves are viewed by operators as aggregate or non-aggregate. This in combination with site re-appraisals can make landbanks seem significantly higher or lower than in previous years without any granting or ceasing of permissions. This is another reason for not relying solely on landbanks to determining the health of future local aggregate supplies.

6. LAA conclusion and recommendations for planning purposes

Demand

- 6.1. As at the end of 2020, the basic projected demand for primary land-won aggregates from Gloucestershire over the coming years stood at 1.446 million tonnes per annum for crushed rock and 0.698 million tonnes per annum for sand & gravel. This projection employs 10-year rolling average sales for each aggregate type between 2010 and 2019 inclusive.
- 6.2. An alternative projection using 3-year rolling average annual sales between 2017 and 2019 has also been analysed. It presents a slightly lower projected demand than observed with the 10-year rolling average for both crushed rock and sand and gravel.
- 6.3. Other information that could show a different pattern of demand may need to be taken into account has also been investigated. This includes levels of planned development. Whilst increases in local house building are anticipated to occur over the coming years, it remains unclear at this stage how significant this might be on local aggregate demand and to what extent it could require a deviation in the current projection, which applies the 10-year rolling average sales. Nevertheless, it is not unreasonable to monitor the levels of housing completion to see whether the application of an alternative projection, such as using 3-year rolling average annual sales, might be applicable.
- 6.4. There are multiple factors that may be influencing the demand for aggregate, which suggest a weakening of the basic assumption that levels of new development, such as local house building, dictate aggregate sales.
- 6.5. Whilst there has been a recent pattern of crushed rock sales exceeding the 10 year sales average, the most recent figures have dropped and the sales figure for 2020 was lower than the LAA rate. The pattern of sales will need to be closely examined over the next few years. If there proves to be a sustained increase in sales above the 10-year sales average, then there may be justification to deviate from the rolling average of 10-year sales. Uncertainty surrounding the economy due to external factors such as the re-alignment of the economy post-Brexit and more latterly the recovery from Coronavirus pandemic restrictions; it is considered premature to change the approach to the projection.
- 6.6. In conclusion, there is insufficient evidence at the time to justify deviating from a rolling annual average of 10-years sales data for the purpose of projecting future aggregate demand for Gloucestershire.

Supply

- 6.7. The countywide landbank for crushed rock as at 01/01/2020 stands at 22.22 million tonnes. It is an indicator that crushed rock aggregate reserves may be available to meet projected demand for just over 15 years. In the case of sand & gravel the landbank as at 01/01/2020 was 5.32 million tonnes. The remaining length of this landbank is under 8 years.
- 6.8. Nevertheless, in ensuring minimum landbank levels are sufficiently maintained, the availability of crushed rock reserves becomes more a medium-term provision issue (e.g. less than 5 years) and for sand & gravel it develops into an immediate, very short-term concern (e.g. less than 2 years).
- 6.9. Furthermore, the application of countywide landbanks for Gloucestershire is not necessarily the most reliable means of determining the availability of future aggregate reserves particularly in the case of crushed rock. The use of local landbanks in this instance may prove a more realistic method. As at the end of 2019, the use of local landbanks for the county's two crushed rock resource areas (i.e. Forest of Dean and the Cotswolds) revealed a deviation in the anticipated time attributable to the availability of remaining local reserves when compared to the countywide calculation. For the Forest of Dean resource area, the use of a local landbank advises that remaining reserves may be depleted around 5 years sooner than if the countywide landbank was applied. However, in the Cotswolds, the availability of reserves could be extended beyond the plan period.
- 6.10. In addition, the county's remaining permitted reserves are also subject to site-specific restrictions that could affect both annual supply and the overall availability of reserves over time. The likely impact of these restrictions is to constrain any possible flexibility in the availability of reserves. Thus reduce the prospect they will be sufficient to keep pace with projected demand for many more years into the future. These restrictions are further impacted by competing demands for the same resource.
- 6.11. It also remains uncertain at this stage as to the anticipated future impact upon the local supply of aggregates from imports and exports. The 2020 data suggests that primary-land won aggregates sourced from Gloucestershire continue to make a significant contribution towards meeting local demand, which may be at the expense of meeting demand from outside of the county.
- 6.12. In conclusion, new applications for aggregate working for both crushed rock and sand & gravel would need to be successful in Gloucestershire over the next five years or so in order for local supplies to keep pace with projected demand. In March 2020, Gloucestershire County Council adopted the Minerals

Local Plan for Gloucestershire (2018 – 2032). This includes seven allocations for aggregate working³⁸. The principle of future working is accepted at each of the allocations subject to site-specific matters being resolved. The realisation of all of the plan's allocations should adequately support the county's aggregate supplies over the coming decade and ensure a sufficient landbank will also be in place at the start of the 2030s. A number of proposals have already been submitted on several of the allocations. These applications are various stages of determination.

³⁸ Adopted Minerals Local Plan for Gloucestershire (2018 – 2032)
<https://www.gloucestershire.gov.uk/planning-and-environment/planning-policy/minerals-local-plan-for-gloucestershire/>

Appendix 1 | Import supplies of aggregates to Gloucestershire during 2019

As a % of Gloucestershire consumption			
Source Area	Land won S/G	Marine S/G	C/R
Brecon Beacons National Park			<1
Bridgend			<1
Bristol City Council		90-100	
Cambridgeshire County Council	<1		
Cardiff County Council		<1	
Central Bedfordshire Council	<1		
Derbyshire County Council			<1
Devon County Council			<1
Doncaster Metropolitan Borough Council			<1
Dorset Council	<1		
Hampshire County Council	<1		
Herefordshire	<1		1-10
Leicestershire County Council			<1
Merthyr Tydfil			<1
Neath Port Talbot			1-10
North Somerset Council			<1
Oxfordshire County Council	<1		<1
Portsmouth City Council		<1	
Powys			1-10
Rhondda, Cynon, Taf (Taff)			1-10
Shropshire Council			<1
Solihull Metropolitan Borough Council	<1		
Somerset			1-10
South Downs National Park	1-10%		
South Gloucestershire			30-40
Staffordshire County Council	<1		
Wiltshire Council	1-10		
Worcestershire County Council	1-10		

Appendix 2 | Gloucestershire Sand & gravel (export) destinations as a percentage of the destinations' total consumption

Export Destination	Export Destination consumption		Change from 2014
	As a % of total consumption	Total Consumption (mt)	
Wiltshire and Swindon	60-70	0.52	Increase from 10-20%
South East Wales	20-30	0.003	Increase from 0%
Cornwall and Isles of Silly	10-20	<1	Increase from 0%
Berkshire	1-10	0.74	Increase from <1%
Herefordshire	1-10	0.25	No change
Worcestershire	1-10	0.39	Increase from 0%
Bedfordshire (Central Bedfordshire, Bedford and Luton)	<1	1.54	Increase from 0%
Cambridgeshire and Peterborough	<1	2.80	Increase from 0%
Lancashire, Blackpool and Blackburn with Darwen	<1	0.23	Increase from 0%
Hampshire and the Isle of Wight	<1	0.95	Increase from 0%
Oxfordshire	<1	0.91	No change
Surrey	<1	0.37	Increase from 0%
Devon, Plymouth, Torbay and Dartmoor National Park	<1	0.40	Increase from 0%
Dorset	<1	0.73	Increase from 0%
Somerset and Exmoor National Park	<1	0.32	No change
Remainder of South Wales	<1	0.18	Increase from 0%
Warwickshire	<1	0.31	Increase from 0%

Appendix 3 | Gloucestershire crushed rock (export) destinations as a percentage of the destinations' total consumption

Export Destination	Export Destination consumption		Change from 2014
	As a % of total consumption	Total Consumption (mt)	
Oxfordshire	10-20	0.62	Increase from 0
Herefordshire	10-20	0.49	Increase from 1-10
Worcestershire	10-20	0.73	No change
West of England	1-10%	1.42	Increase from <1
South East Wales	1-10%	3.93	No change
Warwickshire	1-10%	1.07	No change
Cambridgeshire and Peterborough	<1	1.8	No change
Hertfordshire	<1	0.73	No change
Derbyshire and Peak District National Park	<1	4.75	No change
Northamptonshire	<1	1.65	No change
Scotland	<1	0.05	Increase from 0
Berkshire	<1	0.89	No change
Hampshire and the Isle of Wight	<1	0.69	No change
Kent and Medway	<1	2.53	No change
West Sussex	<1	0.56	No change
Devon, Plymouth, Torbay and Dartmoor National Park	<1	2.52	No change
Dorset	<1	0.29	No change
Somerset and Exmoor National Park	<1	7.11	No change
Wiltshire and Swindon	<1	0.96	No change
Remainder of South Wales	<1	1.44	No change
Shropshire and Telford and Wrekin	<1	2.53	No change
Remainder of West Midlands	<1	1.49	No change

Appendix 4 | Consultation draft version of the 10th LAA

A draft version of the 10th LAA underwent targeted consultation for a period of eight weeks during March 2022 and May 2022. Comments were received and some factual amendments to the document were made. The following organisations were invited to comment: -

- All District and Town & Parish Councils in Gloucestershire;
- Aggregate Industries UK Limited;
- Allstone Sand & Gravel Trading Company;
- Bath & North East Somerset Council
- Bedford Borough Council
- Blackburn with Darwen Borough Council
- Blackpool Borough Council
- Bracknell Forest Borough Council
- Brecon Beacons National Park Authority
- Breedon Aggregates;
- Bridgend County Borough Council
- Bristol City Council
- British Aggregates Association;
- British Geological Survey;
- Cambridgeshire County Council
- Cardiff County Council
- Central Bedfordshire Council
- Complete Utilities;
- Cornwall Council
- Cotswold Stone Quarries;
- Crown Estates;
- Dartmoor National Park Authority
- David Jarvis Associates Ltd;
- Derbyshire County Council;
- Devon County Council
- Doncaster Metropolitan Borough Council
- Dorset Council
- Elliott & Sons Ltd;
- Environment Agency;
- Exmoor National Park Authority
- Forest of Dean Stone Firms Ltd;
- GFirst LEP;
- H T Waste Recycling;
- Hampshire County Council;
- Hanson UK;
- Herefordshire Council;
- Hertfordshire County Council
- Hills Quarry Products;
- Isle of Wight Council
- Johnston Quarry Group;
- Kent County Council
- Keyway (Glos) Ltd;
- Lancashire County Council
- Land & Mineral Management;
- Leicestershire County Council
- Luton Borough Council
- Manufacturers of Incinerator Bottom Ash Aggregates Association
- Marine Management Organisation;
- Medway Council
- Merthyr Tydfil County Borough Council
- Mineral Products Association;
- Monmouthshire County Council;
- Moreton C Cullimore;
- D K Symes associates;
- Neath Port Talbot County Borough Council
- North Northamptonshire Council
- North Somerset Council
- Oxfordshire County Council;
- Peak District National Park Authority
- Peterborough City Council
- Plymouth City Council
- Portsmouth City Council
- Powys County Council
- Reading Borough Council
- Rhondda, Cynon, Taf County Borough Council
- Shropshire Council
- Slough Borough Council
- Smiths (Gloucester) Ltd;
- Solihull Metropolitan Borough Council
- Somerset County Council
- South Downs National Park Authority
- South East of England Aggregates Working Party;
- South Gloucestershire Council;
- South Wales Aggregates Working Party;
- South West Aggregates Working Party;
- Staffordshire County Council;
- Stone Supplies (Cotswold) Ltd;
- Surrey County Council
- Swindon Borough Council;
- Tarmac Trading Ltd;
- Telford and Wrekin Council
- Torbay Council
- Urbaser-Balfour Beatty;
- Valley Trading Ltd;
- Warwickshire County Council;
- West Berkshire Council
- West Midlands Aggregates Working Party;
- West Northamptonshire Council
- West Sussex County Council
- Wiltshire Council;
- Windsor and Maidenhead Borough Council
- Wokingham Borough Council
- Worcestershire County Council