The Fifth Local Aggregates Assessment for Gloucestershire

Incorporating sales data for the period: 01/01/2015 – 31/12/2015

June 2017
# Gloucestershire Summary sales figures for the period | 01/01/2015 – 31/12/2015

<table>
<thead>
<tr>
<th></th>
<th>2015 Sales (in million tonnes)</th>
<th>10-year Sales Average (in million tonnes)</th>
<th>3-year Sales Average (in million tonnes)</th>
<th>Change (compared to 2014)</th>
<th>LAA Rate (in million tonnes)</th>
<th>Reserves (in million tonnes)</th>
<th>Landbank (in remaining years)</th>
<th>Theoretical Capacity (in million tonnes per annum)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>All land-won sand and gravel¹</td>
<td>0.59</td>
<td>0.744</td>
<td>0.567</td>
<td></td>
<td>0.744</td>
<td>5.29</td>
<td>7.11</td>
<td>Up to 1.46 (estimated maximum including inactive sites)</td>
<td>Sales have increased compared to 2014. However, they still remain markedly lower than the 10-year sales average.</td>
</tr>
<tr>
<td>Crushed rock</td>
<td>1.46</td>
<td>1.468</td>
<td>1.443</td>
<td></td>
<td>1.468</td>
<td>25.23</td>
<td>17.19</td>
<td>Up to 2.33 (estimated maximum including inactive sites)</td>
<td>Sales are a little lower than experienced in 2014. This is despite a previous small uplift in sales over the annual periods 2013 and 2014. Sales in 2015 are in effect, aligned with the 10-year sales average.</td>
</tr>
<tr>
<td>Recycled / secondary aggregates</td>
<td>0.1 (estimated)</td>
<td>0.1 (estimated)</td>
<td>0.1 (estimated)</td>
<td></td>
<td>0.1 (estimated)</td>
<td></td>
<td></td>
<td>Unknown</td>
<td>The MPA is currently reviewing its monitoring regime and aims to provide more accurate and reliable dataset over the coming years.</td>
</tr>
</tbody>
</table>

**Trend analysis for Gloucestershire**

The supply of locally-sourced crushed rock aggregate has experienced a small recovery in the recent past. Sales have been historically depressed with particularly low sales compared to recent 10-year averages between 2009 and 2012. Sand and gravel has been in steady decline over the last 10 years. Sales of sand and gravel in 2015 represent close to half of the sales recorded back in 2005.

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

Introduction

This is the fifth Local Aggregates Assessment (LAA) for Gloucestershire containing aggregate minerals data for the period 1st January 2015 to 31st December 2015. The report was subject to a targeted consultation from 11th to 23rd May 2017. Details concerning the consultation are set out within Appendix 1.

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; and
- Recycled aggregates from construction, demolition and excavation wastes.

Demand indicators

Future demand indicators are discussed in section 2, these are: -

- 10-year and 3-year rolling averages of annual aggregate sales;
- forecast local house building;
- economic ambitions and other planned major infrastructure projects; and

Supply figures

Current and future Aggregate supplies affecting Gloucestershire are discussed in Section 3, 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;
- 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 around half 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 matters is dealt with through the planning system and is a key feature of both the adopted and emerging minerals local plan for Gloucestershire.

Balance between supply and demand

The assessment of balance between supply and demand is discussed in Section 4, 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 – future house building.

Cross border mineral planning authority issues

There is a long history of imports and exports of aggregate minerals to and from Gloucestershire and its neighbouring areas and beyond. Over the recent past the tonnage of aggregates imported into the county has actually increased, albeit this represents a proportional decline compared to overall consumption. In terms of exports, less locally-sourced aggregate is now being sent ‘out of county’. When reviewed as a proportion of all sales recorded for Gloucestershire, exports have fallen away quite significantly. This is despite a total increase in local aggregate consumption.

Overall conclusion

The use of the 10-year rolling annual average of annual aggregate sales is considered to be the most robust approach available at present for determining future demand for aggregates from Gloucestershire. Other potential influences on future demand exist and have been assessed. However, they do not appear at present to be significant enough to make a material difference to justify an alternative approach.
1 Introduction

1.1 Gloucestershire County Council is the Minerals Planning Authority (MPA) for Gloucestershire and under national policy is expected to prepare a Local Aggregate Assessment (LAA) on an annual basis. An LAA provides data on local aggregates. It includes current levels of supply and an understanding of influences upon demand. Its prime purpose is to assist MPAs in their efforts to provide for the steady and adequate supply of local aggregates, where reasonable and practicable to do so.

1.2 Further details as to what an LAA should contain are provided within Planning Practice Guidance (PPG). In April 2015 the Planning Officers Society (POS) and the Mineral Products Association (the MPA) jointly produced Practice Guidance on the Production and Use of Local Aggregates Assessments, which has also influenced the production of this document.

1.3 This document is the fifth LAA for Gloucestershire contains data up to the end of 2015. Information on imports and exports was also sourced from the national aggregate mineral (AM) survey, which usually takes place every four years. Previous LAAs for Gloucestershire are available to view online along with a comprehensive baseline report that supported the first LAA.

1.4 It is broken into four main sections which consider:

- Future of demand for aggregates
- Analysis of all supply options
- Assessment of the balance between demand and supply
- Conclusions and recommendations for planning purposes

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2 National Planning Policy Framework (NPPF), paragraph 145, bullet point 1
3 Planning Practice Guidance (PPG) advise on LAAs can be viewed at: http://planningguidance.planningportal.gov.uk/blog/guidance/minerals/planning-for-aggregate-minerals/local-aggregate-assessments/
4 POS and MPA - Practice Guidance on the Production and Use of Local Aggregates Assessments can be viewed at: http://www.planningofficers.org.uk/downloads/pdf/Local%20Aggregate%20Assessments%20GUIDANCE-v9%20FINAL%20080415.pdf
5 The most recent survey contains data to the end of 2014
6 Information on the national (four-yearly) aggregate mineral survey (AM) can be found online on the BGS web resource – Minerals UK. The most recent survey was in 2014, which precedes a survey that was carried out in 2009. The survey results can be viewed at: https://www.bgs.ac.uk/mineralsuk/statistics/UKStatistics.html
7 http://www.gloucestershire.gov.uk/extra/article/115911/Local-Aggregates-Assessment
2 Future demand for aggregates

2.1 National policy advises that the established means of determining future demand for aggregates is to project forward the rolling annual average of 10 years sales data taking into account other relevant information¹⁸.

2.2 Other relevant local information may 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 influence the availability of construction materials. National guidance also advises that future demand may be determined using the average annual sales over the last three years in particular to identify the general trend of demand as part of the consideration of whether it might be appropriate to increase supply⁽⁹⁾.

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

2.3 Table 1 sets out both the 10-year and 3-year rolling average of annual aggregate sales figures for Gloucestershire from 2006 through to 2015. For crushed rock the 10-year rolling average of annual aggregate sales as at the end of 2015 is 1.468 million tonnes per annum (mtpa) and for sand & gravel it is 0.744 mtpa.

2.4 A comparison between the 10-year and 3-year averages of annual aggregate sales shows a difference. Applying the 3-year average represents a drop of almost 2% for crushed rock and just over 20% for sand & gravel. In annual supply terms this would represent the equivalent to a reduction in demand of close to 25,000 tonnes less per annum for crushed rock and around 177,000 tonnes less per annum of sand & gravel.

2.5 Compared to the 2014 LAA projected demand for both sand & gravel and crushed rock has fallen. For sand & gravel the decline in forecast demand is equal to 44,000 tonnes per annum. In the case of crushed rock it is a reduction of 49,000 tonnes per annum.

¹ National Planning Policy Framework (NPPF) paragraph 145, bullet point 1 details the application of 10 years sales data as part of the LAA process;
² National Practice Guidance Notes (NPPG) - 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 2006-2015 (in million tonnes per annum - mtpa)\textsuperscript{10}

<table>
<thead>
<tr>
<th></th>
<th>Annual aggregate sales (in million tonnes per annum)</th>
<th>10-Yr Ave</th>
<th>3-Yr Ave\textsuperscript{a}</th>
</tr>
</thead>
<tbody>
<tr>
<td>S/G</td>
<td>2006: 0.72, 2007: 0.9, 2008: 0.66, 2009: 0.9, 2010: 0.85, 2011: 0.78, 2012: 0.68, 2013: 0.43, 2014: 0.59</td>
<td>0.744</td>
<td>0.567</td>
</tr>
</tbody>
</table>

\textsuperscript{a} The 3-year average is based on annual aggregate sales data 2013 – 2015 (inclusive)

Other relevant local information

The impact of growth – forecast local house building

2.6 Forecast house building over the six districts of Gloucestershire is shown in figure 1. It represents an amalgamation of locally prepared housing trajectories over the coming years, which themselves are based upon modified housing projections that seek to support the objectively assessed need (OAN) for housing\textsuperscript{11}. This data will likely influence the emerging planning strategies being prepared throughout the county\textsuperscript{12}.

2.7 Section 4 provides a discussion as to how influential forecast future house building might prove to be in respect of the future demand for aggregates. This includes a review of previous levels of house building compared with previous aggregate sales.

\textsuperscript{10} All historic sales data has been cross-referenced with that previously published within South West – Aggregate Working Party (SW-AWP) annual reports

\textsuperscript{11} See also figure 11 later in the document for a comparison between housing and aggregate supply trends

\textsuperscript{12} The housing projection forms part of the supporting evidence base to emerging district local plans including the Gloucester-Cheltenham-Tewkesbury Joint Core Strategy in Gloucestershire
The impact of growth – economic ambitions and other planned major sub-national infrastructure projects

2.8 Some of the new growth projects with funding within the county include expanded and upgraded infrastructure and new developments within Gloucestershire Airport\(^\text{14}\), improvements to the A40 including a £9M upgrade to Elmbridge Court roundabout between Gloucester and Cheltenham\(^\text{15}\). There are several regeneration projects underway within the county such as the re-development of Cinderford and King’s Quarter in Gloucester\(^\text{16}\). Work has also commenced on the major new Energy from Waste (EfW) facility at Javelin Park, south of Gloucester\(^\text{17}\).

2.9 GFirst LEP has successfully secured funding from Government to support further growth-enabling development within the county over the coming years\(^\text{18}\). Projects currently being planned include: - £4.53 million towards housing at Longford near Gloucester; £22 million for a Cyber Park in Cheltenham; and £2.6 million to assist with the new Gloucestershire College Forest of Dean campus\(^\text{19}\).

2.10 Outside of the county there are a number of other nationally significant infrastructure delivery programmes, which could have an impact on the future

\(^{13}\) Where trajectories do not go as far as 2032 the final year has been projected forwards

\(^{14}\) http://www.gfirstlep.com/News/Gloucestershire-Airport™-s-New-Road-Brings-New-Opportunities/

\(^{15}\) http://www.gfirstlep.com/News/Green-light-for-Elmbridge-roundabout-upgrade-to-start-this-summer/


\(^{17}\) http://planning.gloucestershire.gov.uk/publicaccess/applicationDetails.do?activeTab=summary&keyVal=M05I0SHN01600


\(^{19}\) http://www.gfirstlep.com/gfirst-LEP/Our-Priorities/Our-Vision/the-gloucestershire-growth-deal/#The-Gloucestershire-Growth-Deal
demand for aggregates from within Gloucestershire. A new nuclear power station is planned in Somerset (Hinckley Point C) and the construction has recently (September 2016) been approved by Government. There are also aspirations for developing the Oldbury power station plant with a new nuclear plan, but nothing is finalised at this point in time. Early project planning by South Gloucestershire Council highlights the potential significant impact on local resources including supplies of aggregates, from this major development. The emerging South Gloucestershire Local Plan – the Policies, Sites and Places Development Plan Document, also makes specific reference to Tytherington Quarry located near to Thornbury, as a potential rail linked source and/or storage base for construction aggregate needed to build the new power station. Slightly further afield, approval has also been given to build a £1 billion tidal lagoon within Swansea Bay.

2.11 It is unlikely that the major development projects proposed nearby to Gloucestershire will have a direct influence on the demand for local land-won aggregates. There are well established aggregate supply chains, which will exploit resources much closer to each of the projects identified than those located from within Gloucestershire. Nevertheless, the likely draw on reserves may prove to be sufficient to indirectly affect future demand and patterns of sale for Gloucestershire’s primary land-won aggregates. This may be as a result of generating new demands (e.g. a source of exports from Gloucestershire) caused by the diversion of more usual local supplies. Alternatively, by providing for increased local demand in affected areas this may create new supply options – such as the opening up of quarries or increasing capacities (i.e. a source of imports into Gloucestershire). These may compete with established supply chains within Gloucestershire. Nevertheless, there is no evidence at this time to suggest that local markets will be materially impacted by the development of major large-scale projects nearby to the county. This situation will require careful monitoring over the coming years.

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

2.12 National policy advises that MPAs must take account of published national and sub-national guidelines on future aggregate provision when preparing a minerals local plan. 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 use when deciding on planning applications. The most recent guidelines cover the period between 2005 and 2020 and are based on data

20 http://www.edfenergy.com/energy/nuclear-new-build-projects/hinkley-point-c
21 http://www.horizonnuclearpower.com/oldbury
22 https://consultations.southglos.gov.uk/consult/t/Draft_PSP_Summer2014/consultationHome
23 http://www.walesonline.co.uk/business/business-news/swansea-bay-tidal-lagoon-gets-9420834
24 National Planning Policy Framework (NPPF) paragraph 145, bullet point 3
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 1.0mtpa for sand and gravel.

2.13 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. Key to this will be whether there are any realistic prospects that the forecast demand for aggregate seen through the local apportionment could become a reality at least for the remaining ‘active’ 5-years of the guidelines – up to the end of 2020.

2.14 Section 4 considers likely influences upon future aggregate demand. These could be a major factor in determining how significant the assumptions behind the guidelines will prove to be.
3 Aggregate supply options

3.1 LAAs should consider all future aggregate supply options and these are discussed in the next few paragraphs.

Supplies of primary land-won aggregate – crushed rock

3.2 The countywide crushed rock landbank as at 01/01/2016 totalled 25.23 million tonnes. The remaining length of this landbank stands at 17.19 years. This is based upon the application of 10-year rolling average annual sales, which amounts to 1.468 million tonnes per annum. Applying the 3-year rolling average (1.443 mt) annual sales extends the remaining length of the landbank to 17.48 years.

3.3 However, the use of a countywide landbank for crushed rock may prove to be of limited value in determining 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 sales limitations of some 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 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 4.

Supplies of primary land-won aggregate – sand & gravel

3.4 The countywide sand and gravel landbank as at 01/01/2016 was 5.29mt. The remaining length of this landbank is 7.11 years. This is based upon the 10-year rolling average sales of 0.744mtpa. Applying the 3-year rolling average annual sales (i.e. 0.567mtpa) would increase the remaining length of landbank to 9.32 years.

3.5 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 4.
Supplies of recycled aggregates

3.6 Data on the supply of recycled aggregates is very 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 and demolition wastes that are mostly crushed on-site using mobile plant and then re-used without entering the supply chain or presenting onto the open aggregate market.

3.7 However, commercially confidential survey work has been undertaken by the MPA, which indicates that in the region of 100,000 tpa of recycled aggregates may be generated at fixed sites within Gloucestershire. This is making a contribution to the overall supply of aggregates. The figure has remained fairly consistent over a number of surveys and is the equivalent of just under 5% of the total supply of primary land-won aggregates from within the county during 2015.

3.8 There is no evidence to suggest that the supply of recycled aggregates is likely to change significantly, at least in the near future. There are no notable, firm implementation plans in place for up scaling the delivery of regeneration and redevelopment ambitions across Gloucestershire. Nevertheless, this may need to be reviewed in the event that further local surveys indicate a change in the supply trend of recycled aggregates and / or that the delivery of regeneration and redevelopment markedly increases.

Supplies of secondary aggregates

3.9 Currently, there are no secondary aggregates facilities operating in Gloucestershire. However, following the development of a new Energy from Waste (EfW) facility at Javelin Park near Gloucester, a new local source of secondary aggregate might become available in the near future\textsuperscript{25}. The EfW development allows for a processing facility for bottom ash, which has the potential to create a construction aggregate. Based on the proposed maximum throughput of 190,000 tpa of waste through the plant, it is estimated that approximately 45,000 tpa of bottom ash may be generated. The EfW development is due to be operational from 2019 onwards. Should this be realised, the contribution to the overall aggregate supply is likely to be very small – equal to around 2% of the total amount of primary land-won aggregates sourced from within Gloucestershire during 2015.

\textsuperscript{25} Available from http://planning.gloucestershire.gov.uk/publicaccess/ (Ref 13/0001/INQUIR)
Supplies of marine-won aggregates

3.10 There are no active marine dredging licences or applications for future dredging affecting Gloucestershire. There are also no ports that land marine-won aggregate. However, the 2014 Aggregate Minerals survey for England and Wales\(^26\) shows that a relatively small amount (around 28,000 tonnes) has been imported into the county compared with around 50,000 tonnes in 2009. This may have come from the nearby ports at Avonmouth near Bristol and Newport in South Wales, both of which land considerably large proportions of all marine-won aggregates attributed to the South West region or Wales. The amount imported into Gloucestershire represents around 4% of the South West’s consumption of marine sand and gravel during 2014. No evidence exists to suggest that these imports will increase.

Imports and exports of primary land-won aggregates

3.11 The AM surveys of 2009 and 2014 contain 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 reports provide a useful indicator as to the relationship that exists between markets and those areas that supply aggregates. They also enable a local aggregate consumption figure to be generated. This is the total amount of aggregate transacted in a particular area made up from local sources and imports from elsewhere.

3.12 Table 2 shows Gloucestershie’s primary aggregate consumption in 2009 and 2014 and headline origin data. In 2009 consumption stood at 1.38 million tonnes. In 2014 this figure had markedly increased to 2.45 million tonnes. Aggregates from local sources and imports appear to have increased from 2009 to 2014. The only exception is with imports of marine-won sand and gravel, which saw a decline. The increase was largest in all cases with locally sourced aggregate. This may be a sign of a greater reliance upon locally source aggregate and a reduction in the influence of imports from between 2009 and 2014.

3.13 Table 3 provides a breakdown of the destination of aggregate sales from Gloucestershire for both sand and gravel and crushed rock in 2009 and 2014. It headlines local sales (within Gloucestershire) and exports to elsewhere in the country. In 2009 total aggregate sales stood at 2.10 million tonnes. The figure for 2014 saw a small reduction to 1.94 million tonnes. Local aggregate sales increased numerically and as a proportion of all sales between 2009 and 2014. In contrast aggregate exports from the county have decreased both in terms of overall volumes and as a proportion of all sales. Local sales of aggregate in

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2014 would appear to be more dependant upon locally generated demand than was the case than in 2009.

Table 2: Gloucestershire primary aggregate consumption (including origin data) for 2009 and 2014

<table>
<thead>
<tr>
<th></th>
<th>For 2009</th>
<th>For 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Locally sourced</td>
<td>Imported</td>
</tr>
<tr>
<td></td>
<td>(as a % of consumption)</td>
<td>(as a % of consumption)</td>
</tr>
<tr>
<td>S/G Land-won</td>
<td>0.17 (49%)</td>
<td>0.18 (51%)</td>
</tr>
<tr>
<td>S/G Marine-won</td>
<td>-</td>
<td>0.05 (100%)</td>
</tr>
<tr>
<td>Crushed Rock</td>
<td>0.61 (62%)</td>
<td>0.37 (38%)</td>
</tr>
<tr>
<td>Aggregate Total</td>
<td>0.78 (57%)</td>
<td>0.60 (43%)</td>
</tr>
</tbody>
</table>

Table 3: Gloucestershire primary aggregate sales (including destination data) for 2009 and 2014

<table>
<thead>
<tr>
<th></th>
<th>For 2009</th>
<th>For 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Local Sales</td>
<td>Exports</td>
</tr>
<tr>
<td></td>
<td>(as a % of total sales)</td>
<td>(as a % of total sales)</td>
</tr>
<tr>
<td></td>
<td>All data in million tonnes</td>
<td></td>
</tr>
<tr>
<td>S/G Land-won</td>
<td>0.17 (18%)</td>
<td>0.76 (82%)</td>
</tr>
<tr>
<td>Crushed Rock</td>
<td>0.61 (52%)</td>
<td>0.56 (48%)</td>
</tr>
<tr>
<td>Aggregate Total</td>
<td>0.78 (37%)</td>
<td>1.32 (63%)</td>
</tr>
</tbody>
</table>

3.14 Figure 2 below set out export destinations for primary land-won sand & gravel from Gloucestershire during 2009 and 2014. It shows that in 2009, only 18% of the county’s supply remained within Gloucestershire. The rest was exported, mostly to the neighbouring authorities of Wiltshire (46%) and Oxfordshire.
For 2014, the level of exports dropped significantly. The majority of sand & gravel was retained (77%) for use and / or additional processing within the county. The only notable exports in 2014 were to Wiltshire, equal to 20% of total sand & gravel supplies from Gloucestershire. These percentage changes suggest that sand and gravel sourced from Gloucestershire has latterly, mostly contributing towards meeting local demand rather than demand generated from outside of the county. It should also be noted that this has occurred within an overall environment of decreasing sales between the two survey years (from 0.93 million tonnes in 2009 to 0.43 million tonnes in 2014).

3.15 Figure 3 below presents export data for primary land-won crushed rock from Gloucestershire in 2009 and 2014. It shows that in 2009, 52% of the county’s crushed rock supply remained within Gloucestershire. The authority areas of Worcestershire and Herefordshire (18%) and Swindon and Wiltshire (10%) accepted noteworthy proportions of exported crushed rock during the year. For 2014 a similar pattern to that observed with sand & gravel has occurred. The percentage of crushed rock retained within Gloucestershire significantly grew to 81% and whilst Wiltshire wasn’t identified as a key export destination, Worcestershire and Herefordshire (10%) and elsewhere (7%) accepted the county’s crushed rock exports. However, unlike sand & gravel, the amount of crushed rock sales increased between the two survey years by as much as 0.34 million tonnes.
3.16 Overall the 2009 and 2014 sales suggest that primary land-won aggregates from Gloucestershire are now mostly contributing towards local demand from within the county rather than demand generated within surrounding mineral planning areas. In numerical terms, the like-for-like exports for sand and gravel and crushed rock from 2009 and 2014 show a decline of 0.66 million tonnes and 0.27 million tonnes respectively. However, whilst for the same two years total sand & gravel sales have also decreased by 0.5 million tonnes, for crushed rock they have actually increased by 0.34 million tonnes.

3.17 However, a potential qualifying factor may exist with an element of sand & gravel sales between 2009 and 2014, specifically in respect of the significant reduction in exports. In 2009, Swindon and Wiltshire were notable recipients of sand & gravel (46%) sourced from Gloucestershire. However, it is possible that a proportion of this mineral may have only moved into Wiltshire for processing before re-entering Gloucestershire as a saleable product and making a contribution to local demand. This particular local supply dynamic relates to the cross-boundary nature of sand & gravel resources sourced from within the Upper Thames Valley / Cotswold Water Park resource area\textsuperscript{27}.

\textsuperscript{27} At present no detailed studies have been made of mineral movements within the Cotswold Water Park, but there may be opportunities to explore this further in the future.
3.18 Limited information is available regarding imports into Gloucestershire during 2009. However, anecdotally it is understood that crushed rock from the West of England area (mainly from nearby South Gloucestershire), high specification sandstone from South Wales and near border sand & gravel working in Wiltshire represented important sources of imports that contributed to Gloucestershire’s aggregate supply.

3.19 Figure 4 presents origin data for primary aggregates in Gloucestershire for 2014. This covers local supplies and imports of land-won sand and gravel; marine-won sand and gravel and crushed rock. Of the imports of land-won sand & gravel into the county (40% of the total local consumption) the majority arrived from the rest of the South West of England. In the case of marine-won sand & gravel, for which 100% was imported, this also was predominately from the South West of England. The pattern of imports has continued with crushed rock, whereby nearly all imported supply has arrived from producing areas located within the South West of England.

3.20 It is clear from the data on imports that aggregates arriving from the rest of the South West of England remain hugely influential, albeit the overall amount of imports appear to have declined since 2009.

Figure 4: Gloucestershire primary aggregate (imports) origins for 2014
3.21 The summary results from 2014 AM survey for England and Wales are publicly available\(^{28}\). However, some of the outputs concerning Gloucestershire have been re-assessed locally\(^{29}\). This has created a number of differing outputs between the 2014 AM survey and Gloucestershire LAA.

3.22 For clarification purposes, the outputs contained within this LAA represent the most accurate data on the supply of primary aggregates including imports and exports.

**Additional permissions granted since 01/01/2016**

3.23 The data set out in this LAA are for the year up to the end of 2015. Collated reserves are based only on extant permissions granted before 01/01/2016. The next (sixth version) Gloucestershire LAA will be the place where data up to the end of 2016 will be formally published. Nevertheless, during the preparation of this report, some new permissions have been granted, which will impact upon local aggregate supply. In the case of crushed rock there has been an increase by around 0.3 million tonnes of additional reserves. For sand and gravel no additional reserves have been recorded. However, a proposal for up to 3 million tonnes at Manor Farm, Kempsford has been approved by the County Council.

**Planning proposals for aggregate working still to be determined**

3.24 At the time of preparing this version of the Gloucestershire LAA, a number of undetermined planning proposals for aggregate working were being considered by the MPA. In total, these proposals contain theoretical yields amounting to approximately 14 million tonnes of crushed rock and around 3 million tonnes of sand & gravel. One proposal also includes an increase in the permitted annual sales limit.

3.25 There is no guarantee that any potential provision contained within undetermined planning proposals will eventually become part of the county’s supply. Furthermore, even if permissions are forthcoming it is impossible at this time to know when aggregate working might commence. Operational restrictions (e.g. time constraints or sales limits) could also apply. Table 4 provides details of the undetermined planning proposals for aggregate working currently being considered within Gloucestershire.

\(^{28}\) Information on the national (four-yearly) aggregate mineral survey (AM) can be found online on the BGS web resource – Minerals UK and can be viewed at: - [https://www.bgs.ac.uk/mineralsuk/statistics/UKStatistics.html](https://www.bgs.ac.uk/mineralsuk/statistics/UKStatistics.html)

\(^{29}\) This reassessment occurred following disclosures between members of the South West Aggregates Working Party that there had been some miscalculations in the 2014 survey. The specific details cannot be published for reasons of commercial confidentiality.
### Table 4: Undetermined planning proposals for the working of aggregates as at June 2017

<table>
<thead>
<tr>
<th>Proposal Site</th>
<th>Aggregate type</th>
<th>Current estimated aggregate yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stowe Hill / Clearwell Complex</td>
<td>Crushed Rock</td>
<td>14 + million tonnes³⁰</td>
</tr>
<tr>
<td>Stubbs Farm, Kempsford</td>
<td>Sand &amp; Gravel</td>
<td>Less than 0.1 million tonnes</td>
</tr>
<tr>
<td>Whetstone Bridge</td>
<td>Sand &amp; Gravel</td>
<td>Variation of condition which would allow for the release of c. 0.2 million tonnes</td>
</tr>
</tbody>
</table>

**Potential future aggregate supply contained within undeveloped preferred areas contained within the adopted Gloucestershire Minerals Local Plan (MLP)**

3.26 The adopted Gloucestershire MLP contains a number of preferred areas for aggregate extraction. These were included as a means of facilitating future aggregate provision to meet expected demand at the time the MLP was prepared. The preferred areas consider future provision for both crushed rock and sand & gravel. Presently the MLP includes a number of undeveloped preferred areas that have yet to be subject to successful planning proposals. It is estimated that these preferred areas contain yields totalling around 25+ million tonnes of crushed rock and around 9 million tonnes of sand & gravel.

3.27 Similar to undetermined planning proposals for aggregate working, it is impossible at this time to establish how much of the undeveloped preferred areas will ultimately contribute towards Gloucestershire’s future aggregate supply. However, some degree of planning certainty remains with these preferred areas as they still form part of the development plan for the county. Furthermore, the MPA is currently working on a replacement Minerals Local Plan for Gloucestershire, which has considered the potential of retaining some of the undeveloped preferred areas as candidate plan allocations. In addition, some undeveloped preferred areas are also subject to planning proposals, which have yet to be determined. These are discussed under paragraphs 3.23 and 3.24. Details of undeveloped preferred areas contained within the adopted MLP are provided within table 5.

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³⁰ The proposal at the Stowe Hill / Clearwell complex also includes an increase in permitted sales from 0.6mpta to 0.8mtpa
Table 5: Undeveloped preferred areas contained within the adopted Gloucestershire Minerals Local Plan (MLP)

<table>
<thead>
<tr>
<th>Undeveloped MLP preferred area</th>
<th>Aggregate type</th>
<th>Current estimated aggregate yield (as of March 2017)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stowe Hill / Clearwell*</td>
<td>Crushed Rock – limestone</td>
<td>Around 2 million tonnes</td>
</tr>
<tr>
<td>Drybrook*</td>
<td>Crushed Rock – limestone</td>
<td>Around 4 million tonnes</td>
</tr>
<tr>
<td>Stowfield</td>
<td>Crushed Rock – limestone</td>
<td>Negligible</td>
</tr>
<tr>
<td>Daglingworth*</td>
<td>Crushed Rock – limestone</td>
<td>Around 9 million tonnes</td>
</tr>
<tr>
<td>Huntsmans*</td>
<td>Crushed Rock – limestone</td>
<td>10+ million tonnes</td>
</tr>
<tr>
<td>Dryleaze Farm</td>
<td>Sand &amp; Gravel</td>
<td>Negligible</td>
</tr>
<tr>
<td>Cerney Wick</td>
<td>Sand &amp; Gravel</td>
<td>0.5 million tonnes</td>
</tr>
<tr>
<td>Horcott / Lady Lamb Farm*</td>
<td>Sand &amp; Gravel</td>
<td>2.5+ million tonnes</td>
</tr>
<tr>
<td>Kempsford / Whelford**</td>
<td>Sand &amp; Gravel</td>
<td>Less than 3 million tonnes</td>
</tr>
</tbody>
</table>

* Part / or all of these undeveloped MLP preferred areas are currently being considered in the emerging MLP as potential candidate site allocations.
4 Assessment of balance between supply and demand

4.1 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 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 future local supply

4.2 Gloucestershire’s aggregate landbanks as of the end of 2015 indicate that additional provision will probably be required over the coming years for both crushed rock and sand & gravel, to help meet future demand requirements. This fact is reinforced when maintaining minimum landbank levels is also taken into account31.

4.3 In the case of crushed rock, countywide reserves are theoretically sufficient to meet projected annual demand until the end of 2032. Additional reserves would need to be available from 2033 onwards. To accommodate a minimum rolling 10-year crushed rock landbank the timeframe reduces to 2022. For sand & gravel, countywide reserves are anticipated to expire much sooner – by the end of 2023. Where maintaining a 7-year minimum sand & gravel landbank is concerned, new reserves would be required even earlier, from now onwards.

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

Influence of productive capacities

4.5 Productive capacity is concerned with how much aggregate that can be worked and sold from a site over a period of time and is usually controlled over an annual period – an annual sales limit. Capacities can also be affected by time restrictions on mineral working. These place a ceiling upon the delivery of supply from a site and are particularly significant where a sales limit is also in existence on condition of a planning permission. Time restrictions are normally applied by a condition on a planning permission through the use of hours of working and through an end date for working to cease.

31 National Planning Policy Framework (NPPF), paragraph 145, bullet point 6 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
4.6 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.

4.7 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 down to a number of sites not always working up to their sales limits and being subject to a time limit which prevent sites from reaching exhaustion. The last recession has also had an impact on the availability of reserves by curtailing sales. This circumstance has created a bigger difference to emerge between ‘actual’ sales and the imposition of sales limits at many aggregate sites across the county.

4.8 Figures 5 and 6 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. 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 2015 (i.e. the projected annual demand level) has also been illustrated within each figure.

Figure 5: Modelled scenario of crushed rock productive capacity compared with the present 10-year average sales (i.e. forecast annual demand)
4.9 The two modelled scenarios clearly indicate that productive capacity – by virtue of sales and time limits will influence the ability of Gloucestershire’s aggregate supply to contribute to forecast projected demand. This influence will be of increasing significance over the coming years. In the case of crushed rock, the productive capacity of working sites will be sufficient to meet projected demand for aggregates only up until 2023-2024. However, for sand & gravel it will be notably shorter, until 2017-2018.

Influence of inactive mineral working sites

4.10 As of the end of 2015, there were four inactive crushed rock aggregate working sites. Of these, three show no indication of re-opening in the foreseeable future. One site however has recently received permission for a time extension. There were three sand & gravel working sites classified as inactive in 2015. There are indications that all three will be worked in the near future.

4.11 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 would be significantly curtailed.
Influence of dormant mineral sites

4.12 Three crushed rock aggregate working sites were categorised as dormant within Gloucestershire up to the end of 2015. There were no dormant sand & gravel sites recorded during the year.

4.13 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 supply\textsuperscript{32}. 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. Nevertheless, no evidence has been presented by landowners and/or operators 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 several sites before any serious consideration may be given to any future aggregate working.

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

4.14 As explained within paragraph 3.3, 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 type of aggregate materials being supplied\textsuperscript{33}. 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 has occurred.

4.15 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.

4.16 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 useful tool in helping to determine how much aggregate provision

\textsuperscript{32} National Practice Guidance Notes (NPPG) – Planning for Aggregates Section, paragraph: 083 Reference ID: 27-083-20140306

\textsuperscript{33} The Carboniferous limestone extracted in the Forest of Dean is generally harder and has a wider range of end-uses than the Jurassic limestone extracted in the Cotswolds
should be facilitated through the adopted Gloucestershire MLP. 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 due to reasons of commercial confidentiality.

4.17 Nevertheless, to illustrate the potential impact of the supply trend continuing unchanged into the future, separate crushed rock landbanks have been calculated applying the 2015 data. These indicate a notable difference would exist in the anticipated length of remaining reserves in comparison to the countywide landbank indicator (see paragraph 4.3). The difference is equal to around 3 years less reserves from within the Forest of Dean resource area. But for the Cotswold resource area it represents a potential extension of time amounting to about 5 more years.

4.18 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 01/01/2016**

4.19 Paragraph 3.23 establishes the amount of additional aggregate reserves created since the beginning of 2016. In the case of crushed rock, the contribution equates to just over 1% of the total countywide landbank as at the end of 2015. This is not deemed to be significant and therefore not likely to be a major influence upon future supply. For sand & gravel a proposal for around 3mt at Manor Farm, Kempsford has been granted approval. This will add around 4 years to the sand & gravel landbank based on the current 10 year rolling averages figure.

4.20 The potential impact of additional aggregate reserves since the beginning of 2016 is also likely to be diminished further as a consequence of operational restrictions being in place. These impose limits upon the amount of aggregate sales that can be attributable to these additional reserves, usually over an annual period.
Impact of recycled aggregate on supply

4.21 From the limited data on recycled aggregate that is presented onto the open market, it is unlikely to have a significant contribution to overall aggregate supplies from Gloucestershire (see paragraph 3.7). There is also no evidence to suggest that the volumes generated are likely to change in the foreseeable future. However, the impact of recycled aggregates should not be understated, particularly as its applications are far more widespread than simply as an alternative open market supply to other aggregate sources (i.e. primary land-won, marine-won or secondary aggregates). 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. Nevertheless, without any firm evidence that the pattern of new development will offer greater opportunity to exploit recycled aggregate (e.g. an increased focus on re-development and regeneration), its future influence is likely 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

4.22 Albeit that in the coming years, some secondary aggregates may be produced within Gloucestershire, the anticipated volumes generated are deemed very small in comparison to the overall annual supply and remaining aggregate reserves (see paragraph 3.9). As a result locally produced secondary aggregates are unlikely to be influential with future aggregate supply from Gloucestershire.

Impact of marine-won aggregates on supply

4.23 The figure for marine imports presented earlier within paragraph 3.10 shows that ports within Gloucestershire do not land any marine-won aggregates and there are no plans to do so in the future. It also indicates that the county has not been a major importer and that the small amount that has arrived has only made a very limited contribution to the annual supply. The amount imported has declined since 2009. In the absence of any evidence to the contrary, it is anticipated that marine-won aggregate will not make a significant contribution to future aggregate supply from Gloucestershire.
Impact of imports and exports of primary land-won aggregates on supply

4.24 Tables 2 and 3 show there has been a significant increase in overall aggregate consumption within Gloucestershire between the two survey years 2009 and 2014. The change is equal to 1.11 million tonnes. This may be a sign of economic recovery following a number of years of recession. However, at the same time the county’s export market does not appear to have recovered to pre-recession levels and has declined when compared to local production (from 63% of total aggregate consumption in 2009 to 20% of total aggregate consumption in 2014).

4.25 More specifically the market for sand & gravel has seen a considerable fall in exports by a much as 0.66 million tonnes. This has made a significant contribution to the overall fall in sand & gravel sales from Gloucestershire over the two years. It has also overshadowed a small rise in local sales (by 0.16 million tonnes) and imports (by 40,000 tonnes).

4.26 For crushed rock local sales have also improved notably by half million tonnes. However, exports have fall by 0.27 million tonnes, which also represents a proportional decline from 48% in 2009 to just 19% in 2014. Numerically, imports have also increased during the same period by 0.32 million tonnes, although this actually represents a small proportional decrease when viewed against overall consumption – from 38% to 36%.

4.27 This difference in both the proportion and amount of aggregate exports from the county observed in 2009 and 2014 could be an indicator of a decreasing influence of ‘out-of county’ supplies and a potential increasing ‘localisation’ of local supplies. This may be heightened by a comparatively small fall in the proportion of imports, albeit the actual tonnage of imports has increased between the two years.

4.28 Overall Gloucestershire’s aggregate supplies between 2009 and 2014 would appear to have shifted away from local sales combined with notable exports (most significantly with sand & gravel) and imports to more local sales with considerably less exports and a less significant proportional decline in imports, albeit this has actually experiencing a tonnage increase between the two survey years.

Impact of growth on demand – future house building

4.29 Figure 11 sets out historic data on housing completions and aggregate sales for the previous 10 years within Gloucestershire. It shows a potential relationship may exist between local house building and the supply of primary land-won aggregates from Gloucestershire. Over the 10-year period there has been a general decline in the level of local house building that is reasonably well
tracked by a fall in total aggregate sales. However, a number of deviations in this trend are also present. These deviations could be explained by the presence of other influential factors, which go beyond a simple assumption that the level of local supply is dictated by local demand. These factors may include: - 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 11: Glouceshershire housing completions and primary land-won aggregate sales between 2006-07 and 2015-16**

4.30 Nevertheless, whilst accepting likely 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 a rise over the coming years should forecast housing growth across the county occur (see figure 1). As illustrated in figure 1, it is anticipated there is strong possibility there will be a considerable uplift in local housing completions compared to the previous 10 years. For the period up to 2021, forecast local house building is expected to never drop below a 50% increase on the level experienced in 2014-15. 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 capacity of the local construction industry to achieve the resulting housing completion rates in such a short time frame.
4.31 However, it remains unclear as to how significant an impact future local housing growth will have upon local aggregate sales. Aggregate import data would suggest that Gloucestershire has become more reliant on supplies from outside of the county plus more minerals produced within the county have remained within 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 primary land-won aggregate is unlikely to have a major impact and therefore have an influence upon the relationship between future local house building and aggregate sales (see paragraphs 3.6 to 3.10).
5 LAA conclusion and recommendations for planning purposes

Demand

5.1 As at the end of 2015, the basic projected demand for primary land-won aggregates from Gloucestershire over the coming years stood at 1.468 million tonnes per annum for crushed rock and 0.744 million tonnes per annum for sand & gravel. This projection employs 10-year rolling average sales for each aggregate type between 2006 and 2015 inclusive.

5.2 An alternative projection using 3-year rolling average annual sales between 2013 and 2015 has also been analysed. It presents a lower projected demand than observed with the 10-year rolling average annual sales.

5.3 Other information that might show a different pattern of demand has been investigated. This includes levels of planned development. Whilst significant increases in local house building are anticipated to occur over the coming years, it remains unclear at this stage what impact this might have on local aggregate demand and to what extent it could cause a materially significant deviation in the current projection using 10-year rolling average sales. It presently contradicts the use of an alternative ‘lower’ projection using 3-year rolling average annual sales.

5.4 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.

5.5 In conclusion, there is insufficient evidence available at present to justify deviating from a rolling annual average of 10 years sales data for the purpose of projecting future aggregate demand for Gloucestershire.

Supply

5.6 The countywide landbank for crushed rock as at 01/01/2016 stands at 25.23mt. It is an indicator that crushed rock aggregate reserves may be available to meet projected demand for just over 17 years. In the case of sand & gravel the landbank as at 01/01/2016 was 5.29mt. The remaining length of this landbank is close to 7 years.

5.7 However, in ensuring minimum landbanks are maintained, the availability of crushed rock reserves becomes more of a medium term issue (e.g. between 5-10 years), while for sand & gravel reserves it develops into an immediate concern (e.g. less than 2 years).
5.8 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 2015, the use of local landbanks for the county’s two crushed rock resource areas (i.e. Forest of Dean and the Cotswolds) revealed a notable 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 will deplete around 3 years sooner, but in the Cotswolds, the availability of reserves will be extended by about 5 years.

5.9 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 and thus reduce the prospect they will be sufficient to keep pace with projected demand for many more years into the future.

5.10 It also remains uncertain at this stage as to the anticipated future impact upon the local supply of aggregates from imports and exports. The 2014 data suggests that primary-land won aggregates sourced from Gloucestershire are now making more of a contribution towards meeting local demand than demand from outside of the county. This in numerical terms at least has declined considerably between 2009 and 2014\textsuperscript{34}.

\textsuperscript{34} It should be noted that this is a market-driven function and not a desire or policy requirement of the MPA. Maintaining use of the 10 year average rather than the 3 year average should enable demand from outside the county to continue to be met if required. Furthermore, these are two snapshot years and it is possible that the data may not necessarily represent an established trend.
Appendix 1 | Consultation draft version of the 5th LAA

A draft version of the 5th LAA was subject to targeted consultation between 11th April – 23rd May 2017. The organisations invited to make representations were as follows:

- Aggregate Industries UK Limited;
- Allstone Sand & Gravel Trading Company;
- Breedon Aggregates;
- British Aggregates Association;
- British Geological Survey;
- Complete Utilities;
- Cotswold Stone Quarries;
- Crown Estates;
- David Jarvis Associates Ltd;
- Derbyshire County Council;
- Elliott & Sons Ltd;
- Environment Agency;
- Forest of Dean Stone Firms Ltd;
- GFirst LEP;
- H T Waste Recycling;
- Hampshire County Council;
- Hanson UK;
- Herefordshire Council;
- Hills Quarry Products;
- Johnston Quarry Group;
- Keyway (Glos) Ltd;
- Land & Mineral Management;
- Leicestershire County Council;
- Lincolnshire County Council;
- Marine Management Organisation;
- Mineral Products Association;
- Monmouthshire County Council;
- Moreton C Cullimore;
- Mr D K Symes;
- North Somerset Council;
- Nottinghamshire County Council;
- Oxfordshire County Council;
- Smiths (Gloucester) Ltd;
- Solihull Borough Council;
- 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;
- Swindon Borough Council;
- Tarmac Trading Ltd;
- Urbaser-Balfour Beatty;
- Valley Trading Ltd;
- Warwickshire County Council;
- West Midlands Aggregates Working Party;
- Wiltshire Council;
- Worcestershire County Council.

Comments were received from four consulted organisations:

- Oxfordshire County Council;
- South West Aggregates Working Party;
- Wiltshire Council; and
- Worcestershire County Council.