Herefordshire Council

Local Aggregates Assessment 2018

Table 1: Headline mineral monitoring indicators 2017-2018

		Sand & gravel Herefordshire (million tonnes)	Change from previous year	Crushed rock combined authorities* (million tonnes)	Change from previous year
Production	**2017 sales**	0.15	▲	1.27	▲
	3 year average	0.127	▲	2.23	▲
	10 year average	0.111	▼	0.926	▼
	Informative	Production guidelines are based on 10-year average. No other relevant local information which indicates a deviation from this average is required.		Production guidelines are based on 10-year average. No other relevant local information which indicates a deviation from this average is required.	
Landbank	**Reserves**	2.602	▼	104.21	▼
	Landbank	23.44 years	▼	112.05 years	▼
	Minimum landbank required	7 years		10 years	
	Informative	Projected demand forecasts and the fact there are only 3 permitted quarries in the county (only 1 of which is currently active) indicates that there may be insufficient landbanks or no permitted reserves at the end of the plan period in 2031. There is a need for additional reserves to be permitted to meet demand from 2027 onwards. The emerging draft MWLP makes suitable provision through site allocations and policy.		The Herefordshire picture for crushed rock permitted reserves and sales is unclear due to commercial sensitivities and because of a sequence of discontinuities in the time series data for sales. There are only 2 producers of crushed rock in the county, therefore information remains confidential. This report extrapolates information for Herefordshire, which suggests that the landbank of permitted reserves is likely to be significantly over the minimum level required by the NPPF.	

* Herefordshire, Staffordshire, Warwickshire & Worcestershire

Local Aggregate Assessments (LAAs)

1.1 National planning policy guidance requires Herefordshire to maintain an adequate and steady supply of aggregates during the current plan period up to 2031. The assessment report has taken account of feedback from the review of LAAs completed by the secretariat of the West Midlands Aggregates Working Party (WMAWP) in 2017. The WMAWP has agreed to use a ten-year rolling average as the principal indicator for aggregate production, consistent with national policy guidance.

1.2 The LAA establishes whether there is a shortage or surplus of supply and provides evidence for determining the level of provision of mineral aggregates to be made in the emerging Herefordshire Minerals and Waste Local Plan.

Minerals within Herefordshire

2.1 Known mineral resources in Herefordshire are relatively limited in range, primarily consisting of aggregates for use in construction and a small amount of building stone. Aggregates comprise: sand and gravel; crushed rock; and secondary or recycled materials gained from quarry and waste operations.

2.2 Herefordshire is not a significant producer of minerals, with only a small number of operational quarries. Because there are few operators in the sector, much of the data on sales is restricted for reasons of commercial confidentiality and is aggregated with data from other counties and, in some instances, it has been withheld. The difficulties in obtaining a complete and accurate understanding of the supply of minerals in Herefordshire is complicated by the fact that, in some previous years, data has been aggregated with different combination of counties, resulting in inconsistent data over time.

2.3 The first section of the LAA reviews evidence relating to the supply of aggregates in Herefordshire and then assesses other relevant information to provide a forecast for demand and the need for additional aggregate mineral resources. Headline performance indicators for minerals are illustrated in **Table 1** at the beginning of this

Assessment of Aggregates Supply

Sand and Gravel

3.1 Commercially exploitable sand and gravel is found in river terrace deposits, primarily in the river valleys of the Wye, Lugg and Arrow, but also in glacial deposits present in the north and west of Herefordshire.

3.2 There are three sand and gravel quarries permitted within Herefordshire:

- Upper Lyde Quarry;
- Shobdon Quarry; and
- Wellington Quarry.

3.3 However, only Wellington Quarry is operational at the time of writing. Due, in large part, to the openness of that operator, who has agreed that the data can be made public, it is possible to understand a reasonable level of detail about sand and gravel reserves, supply and potential demand within Herefordshire.

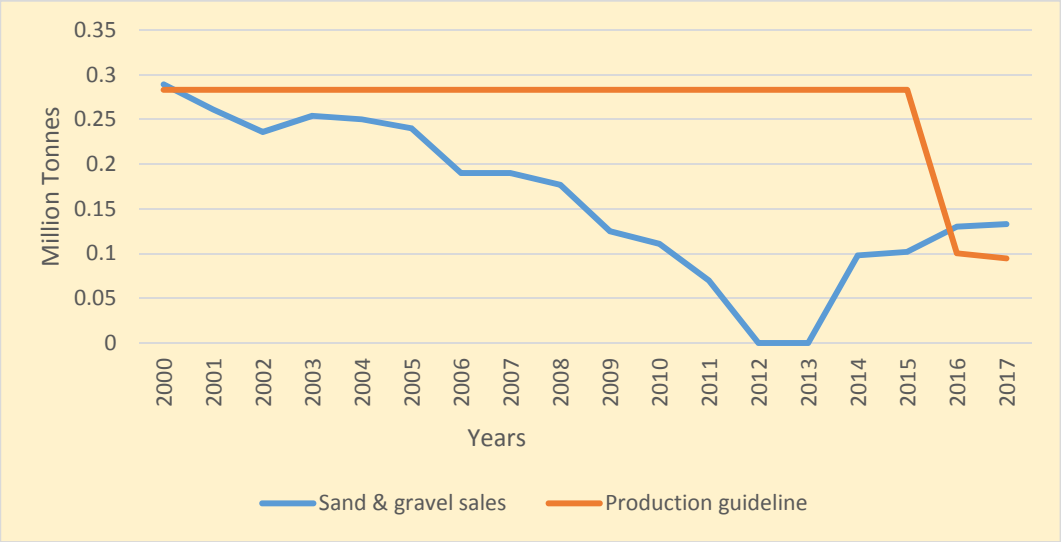
Sales

3.4 The data shows that sales of sand and gravel have shown some volatility since 2000. The general trend was of decline up until three years ago, when sales began to rise. They have now reached a level similar to that of 2008/9 prior to the economic recession. The data for 2017 shows that, at 0.133mt, production in Herefordshire is now above the 10 year rolling average for sand and gravel sales (0.111mt) and also above the 3 year average (0.122mt). However, sales remain a considerable way off the high levels recorded at the beginning of the millennium (see **Table 2** and **Figure 1**)

Table 2: Herefordshire sand & gravel sales and production guideline 2007 - 2017

Year	Sand & gravel sales (mt)	Production guideline (mt)
2007	0.19	0.283
2008	0.177	0.283
2009	0.125	0.283
2010	0.111	0.283
2011	0.07	0.283
2012	0.081*	0.283
2013	0.086*	0.283
2014	0.098	0.283
2015	0.102	0.283
2016	0.13	0.1003^
2017	0.133	0.0946
* Extrapolated data from original figures combined with Worcestershire County Council		
^ 2016 saw the introduction of a 10-year sales based production guideline		

Figure 1: Herefordshire sand & gravel sales and production guideline 2000 – 2017



Imports, exports & consumption

3.5 The destination of sand and gravel produced in Herefordshire is documented in the DCLG Annual Monitoring Surveys of 2005, 2009 and 2014. Sales of aggregates and their principle destinations are set out in **Table 3**.

Table 3: Sales & principal destinations of land-won sand & gravel from Herefordshire

Destination	2005	2009	2014
	Tonnes		
Herefordshire	156,000	111,000	69,000
Elsewhere in the West Midlands	49,000	5,000	24,000
Elsewhere	11,000	6,000	4,000
Unknown	19,000	0	0

3.6 The DCLG Annual Monitoring Surveys also provide data on the level of imports of sand and gravel into the county and consumption within Herefordshire, reproduced in **Table 4**.

Table 4: Import & consumption of sand & gravel in Herefordshire, 2005, 2009 & 2014

Year	2005	2009	2014
	Tonnes		
Imports			
Land-won sand & gravel	121,000	63,000	83,000
Marine sand & gravel	12,000	4,000	1,000
Consumption			
Land-won sand & gravel	603,000	174,000	153,000
Marine sand & gravel	12,000	4,000	1,000

3.7 The data shows a significant drop in sales and consumption in 2009 compared with 2005. A significant drop in sales is seen again in 2014, with a limited drop in consumption, but imports were slightly increased.

3.8 The initial drop in these factors can be explained by the economic recession, which began around 2008 and led to a significant reduction in construction and other economic activity. A change of 20,000 tonnes between 2009 and 2014 may be due to data inaccuracies and is not considered material; the level of import and consumption can reasonably be considered to be fairly constant. However, the successive drop in sales is more relevant to plan making and may indicate the need for greater robustness in sand and gravel supply.

3.9 The figures also show that about half of Herefordshire's consumption is met by imports of sand and gravel from outside the county. The need for mineral operators to obtain the correct specification for market products, such as ready-mix concrete, can dictate some of this movement, where such materials are not available from local deposits.

3.10 Herefordshire has no marine reserves, but a small amount is imported into the county, constituting about 1% of total sand and gravel consumption in 2014. Marine aggregates can have special qualities that meet particular specifications.

3.11 BGS prepared information on the consumption of total sand and gravel (land-won and marine dredged) for aggregate in 2014, identifying for each sub-region the principal supplying minerals planning authorities. This data has not been verified by the BGS, but is the only such data set available. It indicates that Herefordshire was 40% to 50% self-sufficient in sand and gravel provision in 2014. Importations are primarily from Staffordshire (30% to 40%) and Worcestershire (10% to 20%). The primary destination is Worcestershire (10% to 20%).

Landbank

3.12 The NPPF seeks a minimum landbank of seven years for sand and gravel provision. With permitted reserves in Herefordshire standing at 2.602mt in 2017 and a ten year average annual sales figure of 0.111mt, this gives a landbank of **23.44 years** under current conditions.

Crushed Rock

4.1 Significant outcrops of Silurian limestone occur in the north-west of the county, with smaller outcrops in the Woolhope area to the east of Hereford and on the western side of the Malvern Hills and Ledbury.

4.2 The picture for crushed rock permitted reserve and sales is unclear due to commercial sensitivities and because of a sequence of discontinuities in the time series data for sales. This is due to change in the amalgamation of sales data across several different groupings of counties over the ten year period.

4.3 There are only two producers of crushed rock in Herefordshire. Data for reserves and sales of crushed rock from quarries within the county therefore remains confidential.

Sales

Table 5: Crushed rock sales & permitted reserves in Herefordshire, Worcestershire, Staffordshire & Warwickshire 2008 to 2017

Year	Permitted reserves in Herefordshire[1]	Total combined authority sales[2]
	Million tonnes	
2008	14.40	1.15*
2009	15.00	1.2*

[1] Table 4, West Midlands Aggregate Working Party, Annual Monitoring Report 2016, incorporating 2016 and 2017 data

[2] Table 3, West Midlands Aggregate Working Party, Annual Monitoring Report 2016, incorporating 2016 and 2017 data

2010	12.20	0.8*
2011	11.00	0.81*
2012	11.79	0.71*
2013	11.54	0.82*
2014	197.2*	0.66*
2015	200.27*	0.61*
2016	202.14*	1.23*
2017	104.21*	1.27*
Total 10-year sales		**9.255***
Average 10-year sales		**0.9255***

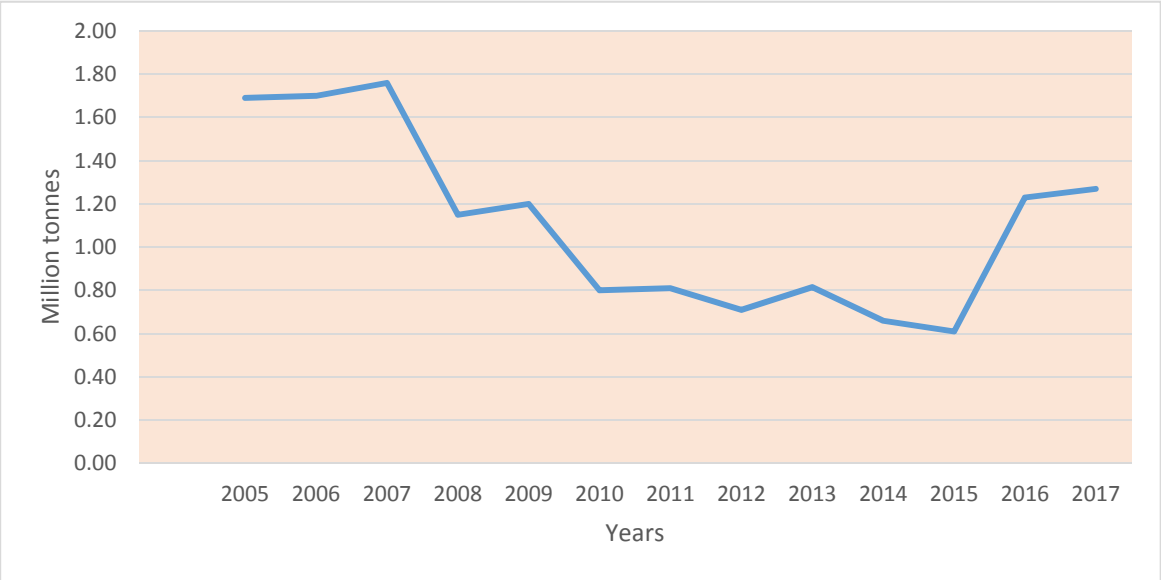
* Figures are for Herefordshire, Staffordshire, Warwickshire & Worcestershire councils combined

4.4 The landbank of crushed rock across the four combined authorities is 112.6 years (104.21/0.9255 = 112.6).

4.5 **Figure 2** shows the crushed rock sales across the four combined authorities graphically. It shows a period of significant decline from 2009 to 2010, which can be attributed to the economic recession. Sales have continued to decline more gradually, with a slight recovery in 2013, followed by the lowest level of sales over the past 10 years in 2015. In 2016 significant growth was seen and this level of sales was maintained in 2017.. Whilst there has been considerable volatility over the last ten years, after a period of fairly stable levels of sales, the last two years have indicated a noticeable recovery towards pre-recession levels. It remains to be seen if this is the beginning of a longer term trend of increased sale tonnages.

4.6 Due to the lack of a consistent time series for Herefordshire separately from other counties, this data has to be used for context setting only, rather than placing confidence on sales trends for Herefordshire.

Figure. 2: Crushed rock sales Herefordshire, Worcestershire, Staffordshire & Warwickshire (mt)



Imports, exports and consumption

4.7 Sales of crushed rock from Herefordshire are confidential due to the small number of operators in the county. However, the DCLG Annual Monitoring Surveys of 2005, 2009 and 2014 do provide data for imports and consumption of crushed rock for Herefordshire. These are reproduced in **Table 6**.

Table 6: Imports & consumption of crushed rock in Herefordshire

Year	2005	2009	2014
	Tonnes		
Import of crushed rock	1,522,000	421,000	533,000
Consumption of crushed rock	1,691,000	435,000	700,000

4.8 The data shows a significant drop in both imports and consumption in 2009 compared to 2005. This can be accounted for by the economic recession, which began around 2008 and led to a significant reduction on construction activity. Consumption in 2014 significantly increased, indicating some growth, and whilst imports also increased, this was by a lesser factor, indicating that Herefordshire may have decreased its reliance on crushed rock from elsewhere.

4.9 Nevertheless, the data indicates that Herefordshire remains a significant importer of crushed rock. The need for mineral operators to obtain the correct specification for market products such as ready-mix concrete can dictate some of this movement, where such materials are not available from local deposits.

4.10 BGS prepared data on the consumption of crushed rock for aggregate use in 2014, identifying each sub-region in the principal supplying mineral planning authorities (not verifies by the BGS, but it is the only such available data set). It indicates that Herefordshire was 20% to 30% self-sufficient on crushed rock provision in 2014, which is reflected in **Table 6** above. Crushed rock is overwhelmingly imported from Powys (40% to 50%), but also from Somerset (10% to 20%). This indicates that crushed rock travels very much further than sand and gravel, indeed the rail head at Wellington Quarry is used to transport crushed rock from Tarmac quarries in wales to the south east of England, primarily London. Again, the primary destination is Worcestershire (10% to 20%), which is known to have little crushed rock reserve.

Landbank

4.11 The NPPF seeks a minimum landbank of ten years for crushed rock provision. Permitted reserves data is presented separately from other counties only up to 2014, with the preceding years showing some interesting fluctuations. Some disaggregation of this data is required in order to determine a landbank to use for Herefordshire crushed rock reserves.

4.12 One method would be to consider the proportion of crushed rock contributed by Herefordshire in 2013 (the most recent year available) to the combined authorities' total in that year.

- Herefordshire crushed rock permitted reserves 2013: 11.54 mt
- Staffs, Warks & Worcs crushed rock permitted reserves 2013: 188.61 mt
- Total permitted reserves across all four counties 2013: 200.15 mt
- Herefordshire proportion 2013: 5.77%

4.13 The combined reserve in 2017 was 104.21 million tonnes, 5.77% of which is 6.013 mt.This indicates that the crushed rock reserves in Herefordshire have decreased. There has been no new permitted reserve since 2013 and site visits to both operating quarries showed that they were substantially worked out.

4.14 In the absence of other publically available data, a more arbitrary approach may also be employed, which seeks to balance out some of the vagaries of the data presented in the West Midlands Annual Monitoring Report (AMR). This approach assumes that in 2008 there was 14 million tonnes of permitted crushed rock reserve in Herefordshire, and that this has been worked at one million tonnes per year. This is presented in **Table 7**.

Table 7: Identifying crushed rock reserve, Herefordshire 2017

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
	Million tonnes									
WM AMR 2017	14.40	15.00	12.20	11.00	11.79	11.54	Not available for Herefordshire alone			
Assumed reserve	14.00	13.00	12.00	11.00	10.00	9.00	8.00	7.00	6.00	5.00

4.15 This approach results in a permitted reserve of 5 million tonnes of crushed rock in Herefordshire in 2017. It presents some alignment with the data of the West Midlands AMR, but also indicates sales much greater than those seen across the combined authorities.

4.16 If sales were really happening at this rate, it would mean that Herefordshire would only have **5 years** of reserve remaining, below the minimum sought by the NPPF.

4.17 This approach appears to overestimate the rate at which permitted reserves are being worked, and consequently underestimate the landbank. However, at site visits, both sites were observed to be substantially worked out and both operators indicated a need for extensions in the foreseeable future.

Secondary and Recycled Aggregates

5.1 The Mineral Products Association estimates that secondary and recycled aggregates constituted 28% of total aggregate consumption in 2015[3].

5.2 There are currently no industrial processes in Herefordshire which are known to produce secondary aggregates. With technical improvements, there may be potential for some provision of secondary aggregates from existing quarry operations. Although technology is moving apace in this field, at present however, none is proposed. It is also understood, from site visits, that some hard rock dust from quarries in Wales is used in concrete block manufacture within Herefordshire.

5.3 Recycled aggregates are currently being produced within Herefordshire, principally at the CD&E waste recovery facility at Former Lugg Bridge Quarry.

[3] The Mineral Products Industry At A Glance: 2016 Edition, Mineral Products Association, 2016

Demand for Aggregates

6.1 The available evidence indicates that within Herefordshire there will be a need to identify additional sand and gravel reserves within the plan period. There will also be a potential shortfall in crushed rock reserves up to 2031.

6.2 Looking forward, demand for aggregates can be estimated in a number of different ways. The methods most commonly used are:

- Gross Value Added forecasts;
- Population projections;
- Household or housing projection; and/or
- Core Strategy infrastructure requirements.

6.3 The updated Herefordshire Minerals Needs Assessment, which forms part of the evidence base for the emerging Herefordshire Minerals and waste Local Plan, sets out a detailed methodology for forecasting aggregate demand. Although this has only been possible in such detail for sand and gravel, since there is, generally, a lack of data in relation to crushed rock.

Sand and Gravel

7.1 **Table 8** provides a summary of the estimates calculated on the basis of a selection of forecasts for sand and gravel. These figures are calculated based on the assumption that Herefordshire would continue to be reliant on imports of sand and gravel to meet 54% of its needs, a figure taken from the AMS 2014. This information has been based on various forms of data and will be updated as new information becomes available.

Table 8: Main findings from selected forecasts of sand & gravel demand, assuming current level of import

Current level of import scenario	**At year 2031**			**Tonnage required to maintain 7 year landbank**
	Demand (tonnes)	**Permitted Reserve (tonnes)**	**Landbank**	
GVA growth (highest)	171,000	468,000	3.0	636,000
Population growth, demand at 4.6 tonnes of aggregate per head	55,000	1,847,000	34.04 years	0
Core Strategy housing trajectory	150,000	678,000	4.5 years	368,000
Current level of import scenario	**At year 2035**			**Tonnage required to maintain 7 year landbank**
	Demand (tonnes)	**Permitted Reserve (tonnes)**	**Landbank**	
GVA growth (highest)	183,000	0	0 years	1,432,000
Population growth, demand at 4.6 tonnes of aggregate per head	56,000	1,625,000	29.5 years	0
Core Strategy housing trajectory	n/a	n/a	n/a	n/a

7.2 **Table 8** shows that, depending on the forecast method used, there may be sufficient permitted reserves of sand & gravel remaining for the lifetime of the MWLP, or there may be an insufficient landbank remaining at the end of the plan period. By 2035, if the highest GVA growth projection is used, the landbank will have fallen to zero. Using population growth as the basis for a forecast, the landbank would still be sufficient in 2035.

7.3 If Herefordshire were to be self-sufficient in sand and gravel, only the forecast using population growth as a basis predicts a sufficient landbank in 2031 if no new reserve were permitted, and this will fall below the minimum 7 year requirement by 2035.

7.4 There is one active sand and gravel quarry in Herefordshire, with permitted reserves constituting over half of the total permitted reserves in the county. Current planning conditions require that the winning and working of minerals must cease by 31st December 2026. Therefore, regardless of which forecast most closely represents the real outcome for sand and gravel over the lifetime of the MWLP, there will be a need for additional reserves for sand and gravel to become operational to meet demand from 2027 onwards.

Crushed Rock

8.1 There is, generally, a lack of data in relation to crushed rock within Herefordshire.

8.2 Two methods have been considered for forecasting the potential future demand. These have produced widely varying forecasts of demand for 2017 – 2031. Calculations have been made based on: Herefordshire continuing to reply on imports of crushed rock to meet 76% of its needs; and Herefordshire being self-sufficient in crushed rock production. These are set out in **Table 9**.

Table 9: Main findings from selected forecasts of future crushed rock demand, assuming current level of import and self-sufficiency

Scenario	Assuming imports at current level		Assuming self-sufficiency	
	Demand 2018 - 2031	Demand 2018 - 2035	Demand 2018 - 2031	Demand 2018 – 2035
Population growth, demand at 4.6 tonnes of aggregate per head	1,795,000	2,323,000	7,479,000	9,678,000
Core Strategy housing trajectory	4,572,000	n/a	19,050,000	n/a

8.3 **Table 9** shows that, depending on the forecast used, demand for crushed rock could exceed even the 11.54 million tonnes of permitted reserves data for 2013, the most recent year for which figures were available for Herefordshire separately from other counties.

8.4 Of the two operational quarries for crushed rock in Herefordshire, one is required to cease operations by 2027, and therefore could not currently contribute to meeting demand after that date. The other can continue operations until 2042. There may therefore be a need

for additional reserves of crushed rock to become operational during the lifetime of the MWLP.

Secondary and recycled aggregates

9.1 During the preparation of the emerging Minerals and Waste Local Plan for Herefordshire, evidence was produced which considered the forecasted arisings of CD&E waste in the county, based on the forecast change in GVA for the construction sector in Herefordshire and Worcestershire, produced by Experian and adjusted to take account of the presumption that not all of these waste arisings will be recovered for recycling. These forecasts indicate that up to 200,000 tonnes of recycled aggregates could be gained from non-hazardous construction and demolition waste in Herefordshire by 2035. In simple terms (i.e. not considering all the different recycled aggregates produced), this could be provided by extensions to the operations undertaken at the Former Lugg Bridge site.

LAA Conclusions

Sand and gravel

10.1 Clear data is held on the supply of sand and gravel and permitted reserves remaining. In most of the scenarios considered, additional sand and gravel reserve is required to maintain a seven year landbank at 2031 and 2035.

10.2 Regardless of the demand forecast used, the single active quarry must cease operations by the end of 2026 under current planning conditions. This quarry's permitted reserves constitute over half of the total permitted reserves in the county. There is therefore a need for additional reserves of sand and gravel to become operational before the end of the MWLP. This will be promoted through allocations and policy in the MWLP.

Crushed rock

11.1 Poor data is held on the supply of crushed rock and permitted reserves remaining. Using two methodologies, the forecast is significantly below the tonnes of permitted reserves data of 2013, the most recent year for which Herefordshire only data is available. This is based on a continuing imports of crushed rock at current levels.

11.2 If Herefordshire were to be self-sufficient in crushed rock production, the under one forecast demand would outstrip the available permitted reserves extant in 2031.

11.3 Of the two operational quarries, one is required to cease operations by 2027. There may therefore be a need for additional reserves of crushed rock to be permitted during the lifetime of the MWLP, but as the picture on reserves and sales within the county is unclear, it is not possible to know with any degree of certainty, how important it will be to secure additional permitted reserves through new planning policy and allocations as proposed in the emerging MWLP.

Recycled aggregates

12.1 Recycled aggregates could have an increasingly important role to play in reducing the county's reliance on imports of aggregates, particularly crushed rock.

12.2 Forecasts have been made using potential arisings of recycled aggregates over the plan period. These have been calculated using a baseline of per capita arisings in Herefordshire and assumed to change over the plan period in line with forecasts for the

change in GVA for the construction sector in Herefordshire and Worcestershire. This gives a 2031 maximum forecast of 191,000 tonnes of recycled aggregates. Whilst this would be a useful contribution to the supply of aggregates, this figure falls short of the predicted tonnages required to meet the estimated demand calculated by reference to the Core Strategy housing trajectory.

12.3 Policy in the waste section of the emerging MWLP will seek to encourage the increased recycling of aggregates in order to move waste up the management hierarchy and deliver the circular economy.