

Minerals Local Plan Background Document

Draft Local Aggregates Assessment

Consultation Document

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1. Executive Summary

Purpose of the report

- 1.1. This document is the **Draft Local Aggregate Assessment for Worcestershire 2012**. It is the first time that a Local Aggregate Assessment has been prepared for Worcestershire. The final Local Aggregate Assessment for Worcestershire 2012 will set out current supply of and demand for aggregates in the County and will forecast the contribution that Worcestershire needs to make to ensure an adequate and steady supply of aggregates for the period 2012 - 2030 and beyond. Revised Local Aggregate Assessments will be produced annually as part of the Minerals Local plan monitoring procedures.
- 1.2. The document sets out a forecast of the minimum level of provision that the Minerals Local Plan will need to enable in order to ensure that the County makes an appropriate contribution to the steady and adequate provision of aggregates for national need. This forecast should not be considered a limit on production but will be used to guide the Minerals Local Plan. It is important to make sure that the Minerals Local Plan enables the working of enough minerals whilst also making sure that the levels of provision are deliverable and do not compromise long-term supply by enabling excessive development during the life of the strategy.
- 1.3. This draft is a consultation document that details the data and methods that the Council intends to use to prepare the final Local Aggregate Assessment for Worcestershire 2012 and asks questions about the data and methods proposed. It uses the methods proposed to sets out current supply and demand for aggregates and to forecast levels of future contribution. However these are only provisional and may be revised based on the responses to this consultation. The document addresses both primary and secondary aggregates.
- 1.4. A separate report has been prepared to set out how the Council will approach the issue of the steady and adequate supply of industrial and energy minerals.

Current Situation

Sand and gravel

- 1.5. The current Aggregate Working Party sub-regional apportionment for sand and gravel in Worcestershire is 0.871 million tonnes per annum. Table 1.1 shows the sales between 1999 and 2009¹. On average sales have been below the apportionment, with an overall decline in recent years (see Figure 1.1).

¹ 1999 is the first year that data for Worcestershire is available from and 2009 is the most recent data currently published. Previous data combined figures for Worcestershire with Herefordshire.

Table 1.1 Sand and gravel sales: Worcestershire 1999 – 2009 (mt)

	1999	2000	2001	2002	2003	2004 (est)	2005	2006	2007	2008	2009
Worcestershire	0.89	0.84	0.84	0.83	0.89	0.85	0.75	0.7	0.81	0.76	0.52

Source: West Midlands Regional Aggregate Working Party Annual Reports

Figure 1.1 Sand and gravel sales and apportionment: Worcestershire 1999 – 2009 (mt)



1.6. The National Planning Policy Framework² sets out that Mineral Planning Authorities should "make provision for the maintenance of landbanks of at least 7 years for sand and gravel" and that "longer periods may be appropriate to take account" of other matters. As shown in Table 1.2 the landbank in Worcestershire is below this 7 year minimum.

Table 1.2 Sand and gravel landbank: Worcestershire 2003-2009 (years)

	2003	2004	2005	2006	2007	2008	2009
Worcestershire landbank (years)	7.38	6.4	4.9	4.1	4.7	3.65	4.19

Source: West Midlands Regional Aggregate Working Party Annual Reports

1.7. Two further permissions for sand and gravel working in the County have been granted since 2009, with a combined supply of approximately 1.829 million tonnes. This equates to 2.1 years supply based on the current apportionment. This indicates that the landbank in the County is increasing, however this will not be clear until more up-to-date RAWP figures are published which taken into account both new permissions and reserves which have been worked.

1.8. The ability to increase the landbank is dependent on the industry coming forward with applications for planning permission. In Worcestershire 6 out of 8 applications for minerals development were permitted by the Council in the last 5 years and the two refused applications were later permitted on appeal, even so the increased reserves that these have permitted have not been sufficient to stem the decline in the landbank. Two further

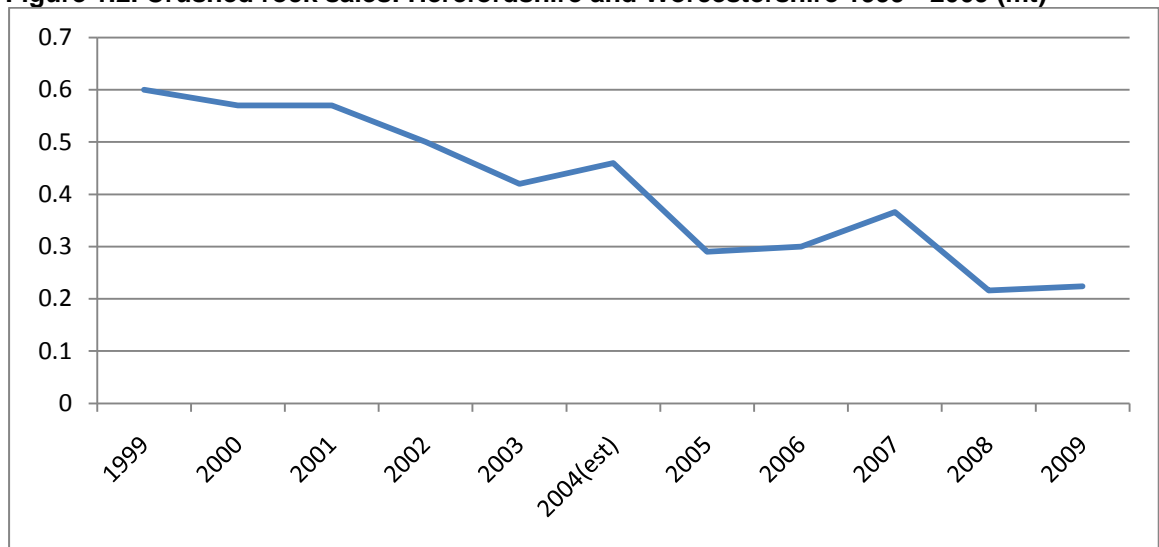
² Paragraph 145

applications, at Strensham and Holdfast are currently undetermined. If these applications were permitted they would have a combined supply of 0.833 million tonnes which equates to almost 1 years supply based on current apportionment levels.

Crushed rock

- 1.9. The current apportionment of crushed rock for Worcestershire is 0.163 mt, however sales data for crushed rock production is not available for Worcestershire due to the long standing confidentially arrangements agreed between the industry and government to protect operators' commercial interests. The only crushed rock data available for Worcestershire in the last 10 years was for 2003. In all other instances Worcestershire sales data has been combined with that for Herefordshire. As demonstrated in Figure 1.1Figure 1.2 there has been a decline in sales in the two counties since 1999.

Figure 1.2. Crushed rock sales: Herefordshire and Worcestershire 1999 - 2009 (mt)



Source: West Midlands Regional Aggregate Working Party Annual Reports

- 1.10. The National Planning Policy Framework requires that Mineral Planning Authorities maintain landbanks of at least 10 years for crushed rock. The only landbank figure published for crushed rock in Worcestershire was in 2003 with a landbank of 3.31 years. This is only a third of the 10 year minimum landbank recommended in national policy.
- 1.11. Since 2003 only one application for planning permission to extract crushed rock has been permitted³ in Worcestershire. That permission was to deepen an existing quarry to release approximately 100,000 tonnes of reserves of limestone. The site has now been fully worked and is currently being restored. This means that there are now no permitted crushed rock reserves in Worcestershire, and that Worcestershire's current landbank for crushed rock is therefore 0 years.

³ October 2008: Fish Hill Quarry, Broadway.

Recycled and secondary aggregates

1.12. There are currently no industrial processes in Worcestershire which are known to produce secondary aggregates. A significant amount of recycled aggregates are produced in the county from the management of construction and demolition waste (C&D waste). There are no reliable assessments of C&D arisings or set approaches for making estimates about waste arisings or projecting waste growth for C&D waste. However the Waste Core Strategy used a development index to estimate levels of C&D waste produced and projected arisings of C&D waste are as follows:

Table 1.3 Estimated level of C and D waste arisings in Worcestershire 2015-2030

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

1.13. It is estimated at 75% - 100% of this waste could be recycled, some of which may be suitable for use as recycled aggregate.

Future Provision

1.14. The minimum provision that the County considers that the Minerals Local Plan needs to make for aggregates is set out in Table 1.4. This should not be considered as a limit on production but will be used to guide the Minerals Local Plan by making sure it enables enough development but that it is also deliverable and does not compromise long-term supply by enabling excessive development during the life of the strategy.

Table 1.4 Aggregate provision required in the emerging Minerals Local Plan (million tonnes) 2015-2030

	Provision for the life of the Strategy
Sand and Gravel	17.94 – 34.89
Crushed Rock	3.78 – 7.05
Provision from Secondary and recycled aggregates	6.6 – 8.8 ⁴

N. B. These figures include provision for the period 2015 – 2030 plus an allowance for 7 years' landbank for sand and gravel, 10 years for Crushed Rock and 5 years for Recycled and Secondary aggregates.

1.15. The method for deriving these figures is set out in 4, with further detail in *Annex A* and *Annex B*.

⁴ The figure of 5 – 7mt from recycled and secondary aggregates set out in the consultation document is an error.

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2. Introduction

Purpose of the report

- 2.1. *"Minerals are essential to support sustainable economic growth and our quality of life. It is therefore important that there is sufficient supply of material to provide the infrastructure, buildings, energy and goods that the country needs. However, since minerals are a finite natural resource, and can only be worked where they are found, it is important to make best use of them to secure their long-term conservation."* (NPPF paragraph 142)
- 2.2. In the past the contribution that Worcestershire needed to make to ensure an adequate and steady supply of aggregate minerals was set out by National Government in a regional apportionment. The regional apportionment was based on projected national demand distributed by region according to the ability of the region to supply aggregates. The West Midlands Regional Apportionment was then divided by the West Midlands Regional Assembly into a sub-regional apportionment based on patterns of past sales. The West Midlands Regional Spatial Strategy (RSS) sets out these apportionments to 2016.
- 2.3. However the government has expressed its intention to revoke the RSS and following the abolition of regional planning bodies (including the West Midlands Regional Assembly) and the publication of National Planning Policy Framework (NPPF), the onus is now on Mineral Planning Authorities to prepare a *Local Aggregate Assessment*.
- 2.4. The role of the Local Aggregate Assessment is to ensure that Mineral Planning Authorities plan for a steady and adequate supply of aggregates and in Worcestershire it will be used to identify the level of provision which should be made for aggregates in Minerals Local Plans.
- 2.5. This document is the *Draft Local Aggregate Assessment for Worcestershire 2012*. It is a consultation document that details the data and methods that the Council intends to use to prepare the final Local Aggregate Assessment for Worcestershire 2012. Consultation questions about the data and methods proposed are set out the end of this section. The document also uses the methods proposed to set out current supply of and demand for aggregates in the County and to forecast the contribution that Worcestershire needs to make to ensure an adequate and steady supply of aggregates for the period 2015 - 2030 and beyond. However these are only provisional and may be revised based on the responses to this consultation. The document addresses both primary and secondary aggregates.
- 2.6. A separate report has been prepared to set out how the Council will approach the issue of the steady and adequate supply of industrial and energy minerals.

The general approach

- 2.7. The NPPF states that Local Aggregate Assessments (LAAs) can be done either individually or jointly by agreement with another or other mineral planning authorities⁵. In the changing policy landscape it is not clear whether Mineral Planning Authorities will continue to make provision by cooperating with each other through mechanisms such as Aggregate Working Parties (AWPs) or whether each individual authority will apply their own approach.
- 2.8. Whilst the NPPF expects Mineral Planning Authorities to participate in an AWP and take its advice into account when preparing their Local Aggregate Assessment, it is not clear at present what form the AWPs will take, what geographical area they will cover or what level of advice they will give or how much weighting should be given to this advice.
- 2.9. Worcestershire County Council has found the West Midlands AWP to be an effective forum to consider the apportionment of supply in the past and would like to pursue options for preparing the Local Aggregate Assessment in co-operation with other authorities through the AWP mechanism in preference to a stand-alone approach.
- 2.10. However the future of the West Midlands AWP is currently unclear and without the regional assembly and other regional structures of governance, relationships and agreements may take time to become established. The Council is eager to ensure that a lack of certainty about the required levels of provision does not cause unnecessary delay in the preparation of the emerging Worcestershire Mineral Local Plan.
- 2.11. It is important that we know how much mineral development we need to plan for in Worcestershire at an early stage of the plan preparation process. The current sub-regional apportionment is set out in the RSS to 2016 however the Minerals Local Plan will run until at least 2030⁶. It is therefore necessary for the Council to consider how much the county needs to contribute to ensure steady and adequate supply beyond 2016 at an early stage.
- 2.12. The report considers the best available methods for estimating the level of provision required to develop a range which should be worked towards. This approach allows flexibility in the plan preparation process and will reduce the risk of having to significantly change the levels of provision required late in the plan preparation process if agreement with other authorities is gained through an AWP or other mechanism of cross-authority cooperation.

⁵ Paragraph 145

⁶ The life of the Strategy will be a matter considered through consultation, but the plan will be for a minimum of 15 years and adoption is anticipated in 2015.

Next steps

- 2.13. The *Draft Local Aggregate Assessment for Worcestershire 2012* is a consultation document and the approach taken in the final *Local Aggregate Assessment for Worcestershire 2012* will reflect feedback on this draft document. Any comments on the document are welcomed and consultation questions which address the main points are set out on page 10 of this document.
- 2.14. It is also anticipated that the approach set out will evolve over time. National guidance on Local Aggregate Assessment is expected shortly and the future of AWP's is likely to become clearer towards the end of 2012. However the preparation of a LAA at this stage is considered to be a useful interim tool to ensure that adequate provision for aggregates is made in the Minerals Local Plan for Worcestershire early in the process.
- 2.15. Once a methodology is established the Local Aggregate Assessment (LAA) will be updated annually and its implications assessed in the Council's *Minerals and Waste Local Development Framework Annual Monitoring Report (AMR)*.

Structure of the report

- 2.16. Section 3 of this report sets out the context for aggregate supply and demand in Worcestershire, to give a basic understanding of aggregate working in the county and trends over recent years.
- 2.17. Section 4 forecasts the contribution that Worcestershire needs to make to ensure an adequate and steady supply from 2015 - 2030 and beyond. This is based on a robust assessment of alternative methods and approaches, as set out in *Annex A*. This Annex presents all of the options which the Council currently considers to be realistic alternatives that could be used in preparing a Local Aggregates Assessment. They are presented in three sections:
- the options that have previously been considered at a regional level, identifying their implications for Worcestershire;
 - alternatives which could be applied in an individual Local Aggregate Assessment for Worcestershire; and
 - opportunities for cooperation with other local authorities through mechanisms other than the West Midlands AWP.

Consultation questions

- 2.18. The responses we receive to this document will inform the approach we take to the Local Aggregates Assessment. We welcome any comments on this document but would specifically like you to consider the following questions in preparing your comments:

Data quality:

- ***Is the information on supply, demand and imports and exports of aggregates the best available?***

- ***Are you aware of any more robust or up-to-date data which could be used for making projections about future provision? If you are aware of any better information please include details.***

Methods used:

- ***What is your opinion about the 'required level of future provision' of primary aggregates being presented as a range based on the use of multiple methods, rather than a figure based on a single approach?***
- ***Do you agree with the methods that have been used to derive this range? Please give details of any merits or limitations you see with this approach. If you favour an alternative approach please specify why.***
- ***What is your opinion of the estimated future provision from recycled and secondary aggregates being presented as a range to reflect uncertainty about recycling levels?***
- ***Are there any other alternatives or evidence we should have considered?***
- ***Do you think that the 'required level of future provision' is realistic and deliverable in Worcestershire?***

Implications

- ***Do the 'required level of future provision' in this report or any alternatives that you have suggested, have any implications which you think we should be aware of?***

Consultation activities

- 2.19. This report has been sent directly to mineral operators and their representative bodies, members of the West Midlands Regional Aggregate Working Party and all Mineral Planning Authorities and Aggregate Working Parties within 45km of Worcestershire⁷. It has also been made available in parallel to the wider public consultation on the Minerals Local Plan on www.worcestershire.gov.uk/mineralsbackground for just over 12 weeks between 9th October 2012 and Friday 11th January 2013.
- 2.20. All comments should be sent to minerals@worcestershire.gov.uk or addressed to FREEPOST SWC-1253, Minerals Planning, Worcestershire County Council, Business, Environment and Communities, County Hall, Worcester, WR5 2NP.
- 2.21. For further details or to request copies of this document please contact Rebecca Schofield, 01905 766733.

⁷ It is estimated by the Minerals Product Association that it is not economic to transport most aggregates more than 38km. To reflect the influence of market forces a 45km catchment is considered a reasonable distance of consideration. The Council has no evidence to suggest that aggregates in the County are being imported or exported from specific sub-regions beyond this catchment.

3. Context: Minerals Supply and Demand in Worcestershire

3.1. The following aggregates are found in Worcestershire:

Sand and Gravel

- **Solid Deposits** mainly found in the north-east of the County in the Kidderminster Formation (formerly termed the Bunter Pebble Beds), which yield coarse sand and gravel with a high gravel content capable of producing high grade concreting aggregate. Elsewhere in the formation, where the pebbly horizons are absent, building or soft sands are present. The Wildmoor Formation (formerly the Upper Mottled Sandstone Formation of the Bunter) contains sources of moulding sand used in the foundry industry.
- **River Terrace Deposits** are most widespread in the Severn and Avon Valleys. Fan gravels washed down from Bredon Hill and the surrounding hills occur south of Bredon Hill and have been partly re-deposited in river terraces.
- **Glacial Deposits** are found in association with boulder clay in the north-east of the County and to the north-west of Evesham around the Lenches.

Hard Rock

- **Silurian Limestone** present in the Abberley/ Suckley/ Malvern/ Ledbury range of Hills,
- **Oolitic Limestone** present in a small area in the extreme south-east of the County and on Bredon Hill
- **Igneous and Metamorphic Rocks** which occur in the Malvern Hills
- **Cambrian Quartzite** which forms the central axis of the Lickey Hills
- **Other sources of rock** exist in the County such as Old Red Sandstone and Jurassic limestone but do not have the necessary properties of composition, strength, durability and porosity to be considered as sources of aggregate at present.

Recycled and Secondary Aggregates

- **Secondary aggregates** is a term often used to describe mineral that is produced as a by-product of a primary product. There are currently no industrial processes in Worcestershire which are known to produce secondary aggregates.
- **Recycled** aggregates arise from several sources, notably from the demolition of buildings or from civil engineering works such as asphalt plantings from road resurfacing and railway track ballast. "Recycling" aggregates involves the processing of waste materials to remove unwanted or inappropriate material such as fines, wood, plastic and metal. It will usually include crushing and screening. The recycled aggregate is then re-used, usually for a less demanding application.

Recycled aggregates and how they should be managed are considered in the Waste Core Strategy for Worcestershire⁸.

Supply of primary aggregates

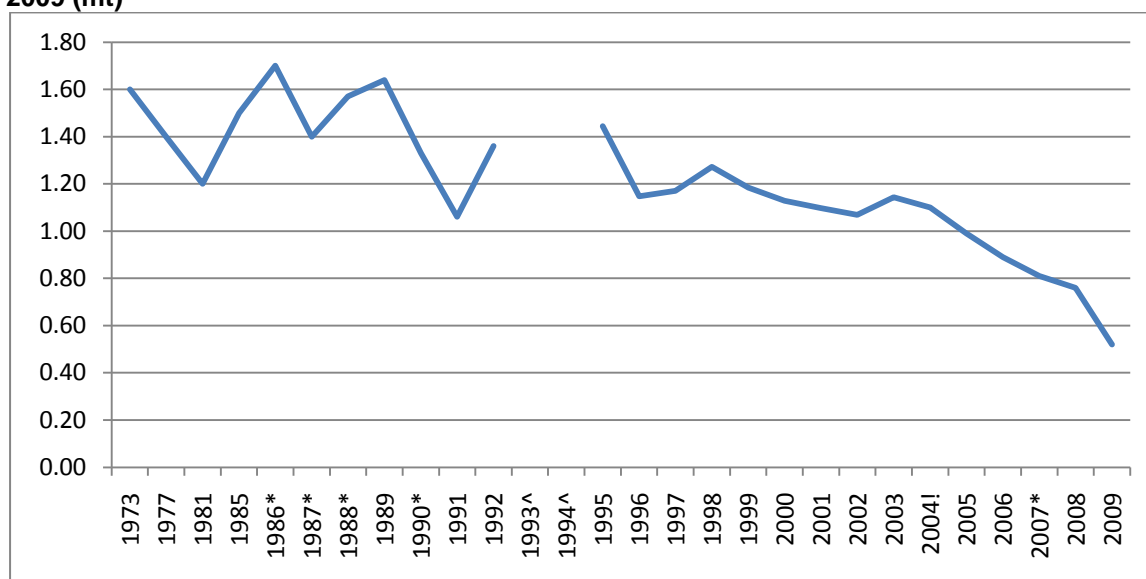
- 3.2. Sales data is commonly used when considering the supply of aggregates. This can have weaknesses as sales will vary depending on both supply and demand factors in the market, however they provide a useful indicator of supply. The section below outlines sales trends in Worcestershire and the West Midlands.

Sand and gravel supply: Sales

- 3.3. Figure 3.1 shows the levels of sand and gravel sales in Herefordshire and Worcestershire from 1973 to 2009. During much of this period Hereford and Worcester County Council existed as a single minerals planning authority, with the data collated for the entire area. However in 1998 Herefordshire and Worcestershire were split and Table 3.1 gives detail of sales in Worcestershire alone in the last 10 years (the most recent data available is for 2009).
- 3.4. It is clear that there has been a gradual decline in sales over the last 20 years when considering both data for Herefordshire and Worcestershire combined and that for Worcestershire alone. This gradual decline was followed by a sharp drop in sales following the economic crisis in 2008. This differs from the trends across the West Midlands as a whole where sales remained fairly constant for the 10 years preceding the economic crisis in 2008 and then fell sharply.

⁸ The Waste Core Strategy for Worcestershire was submitted to the Secretary of State in November 2011 and was found "sound" in July 2012. The Council will be considering whether to adopt the Waste Core Strategy at the Cabinet meeting on 27th September 2012 and at the meeting of the Full Council in November 2012. The relevant documents are available to view on www.worcestershire.gov.uk/wcs.

Figure 3.1 Historic sand and gravel sales: Herefordshire and Worcestershire 1973 – 2009 (mt)



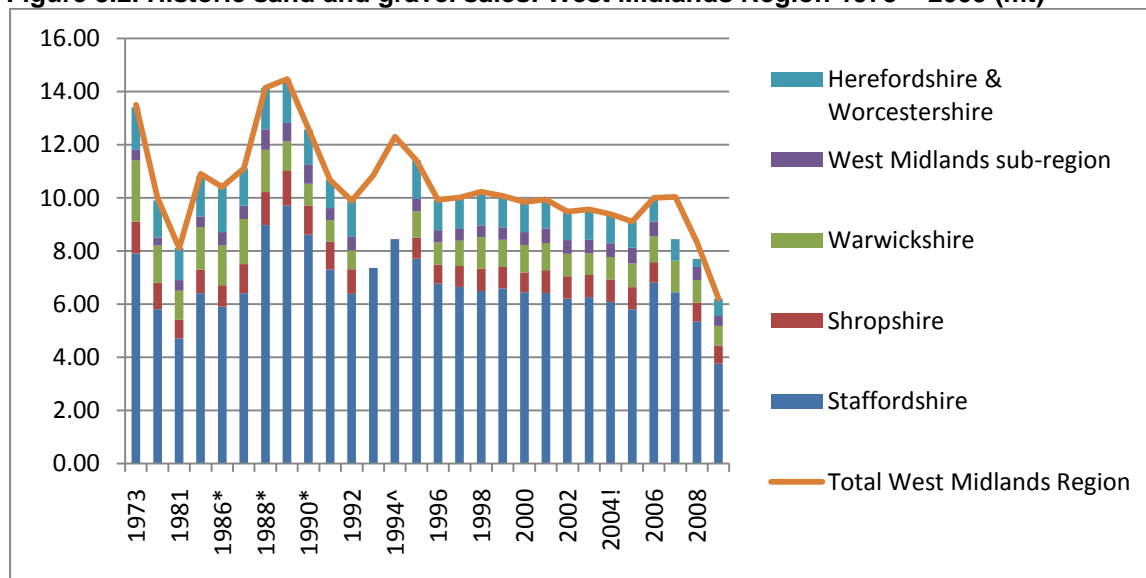
Source: West Midlands Regional Aggregate Working Party Annual Reports
 * Figures derived from Office of National Statistics not West Midlands Regional Aggregates Working Party
 ! Data includes estimates due to difficulties in data collection and error in reports for total regional sales.
 ^ Missing data (Not available in RAWP report)

Table 3.1 Historic sand and gravel sales: Worcestershire 1999 – 2009 (mt)

	1999	2000	2001	2002	2003	2004 (est)	2005	2006	2007	2008	2009
Worcestershire	0.89	0.84	0.84	0.83	0.89	0.85	0.75	0.7	0.81	0.76	0.52

Source: West Midlands Regional Aggregate Working Party Annual Reports

Figure 3.2. Historic sand and gravel sales: West Midlands Region 1973 – 2009 (mt)



Source: West Midlands Regional Aggregate Working Party Annual Reports
 * Figures derived from Office of National Statistics not West Midlands Regional Aggregates Working Party
 ! Data includes estimates due to difficulties in data collection and error in reports for total regional sales.
 ^ Missing data

Sand and gravel supply: Landbank

3.5. In aggregate planning, the landbank is the stock of reserves of minerals with planning permission for extraction within a particular area; it can be used as a tool to assess if an adequate and steady supply of aggregates can be maintained and for how long.

3.6. The length of the landbank for a particular mineral is calculated by:

$$\frac{\text{Total permitted tonnage}}{\text{Annual supply needed}} = \text{Landbank in years}$$

3.7. To date in the West Midlands the annual supply needed from each sub-region (of which Worcestershire is one) has been set out in the WMRAWP annual sub-regional apportionment. The current apportionment for sand and gravel in Worcestershire is 0.871 million tonnes per annum.

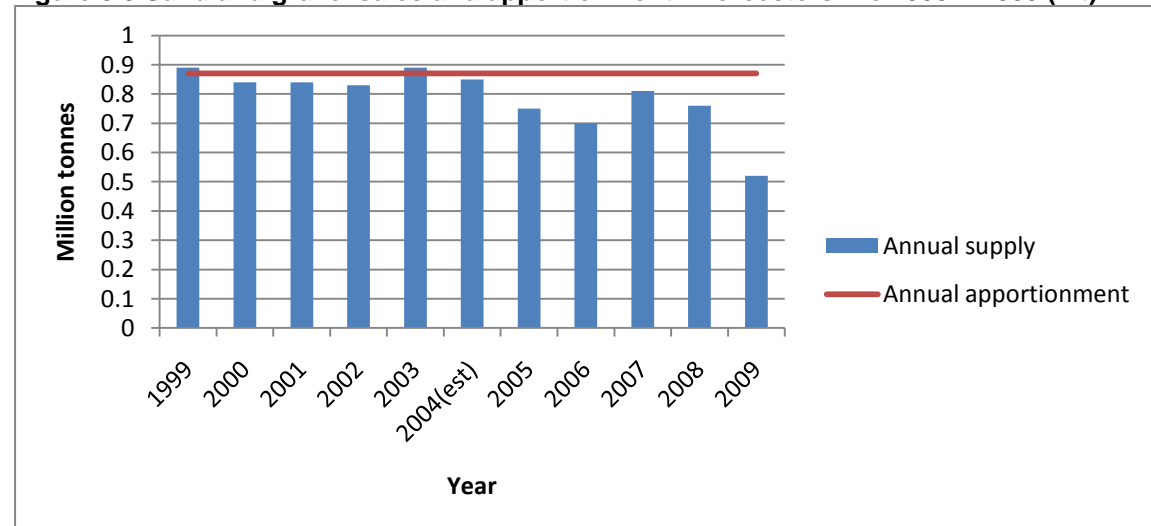
3.8. Table 3.2 shows the landbank in years for Worcestershire 2003-2009.

Table 3.2 Sand and gravel landbank: Worcestershire 2003-2009 (years)

	2003	2004	2005	2006	2007	2008	2009
Worcestershire landbank (years)	7.38	6.4	4.9	4.1	4.7	3.65	4.19

Source: West Midlands Regional Aggregate Working Party Annual Reports

Figure 3.3 Sand and gravel sales and apportionment: Worcestershire 1999 – 2009 (mt)



3.9. Two further permissions for sand and gravel working in the County have been granted since 2009, with a combined supply of approximately 1.829 million tonnes. This equates to 2.1 years supply based on the current apportionment. This indicates that the landbank in the County is increasing, however this will not be clear until more up-to-date RAWP figures are published which take into account both new permissions and reserves which have been worked.

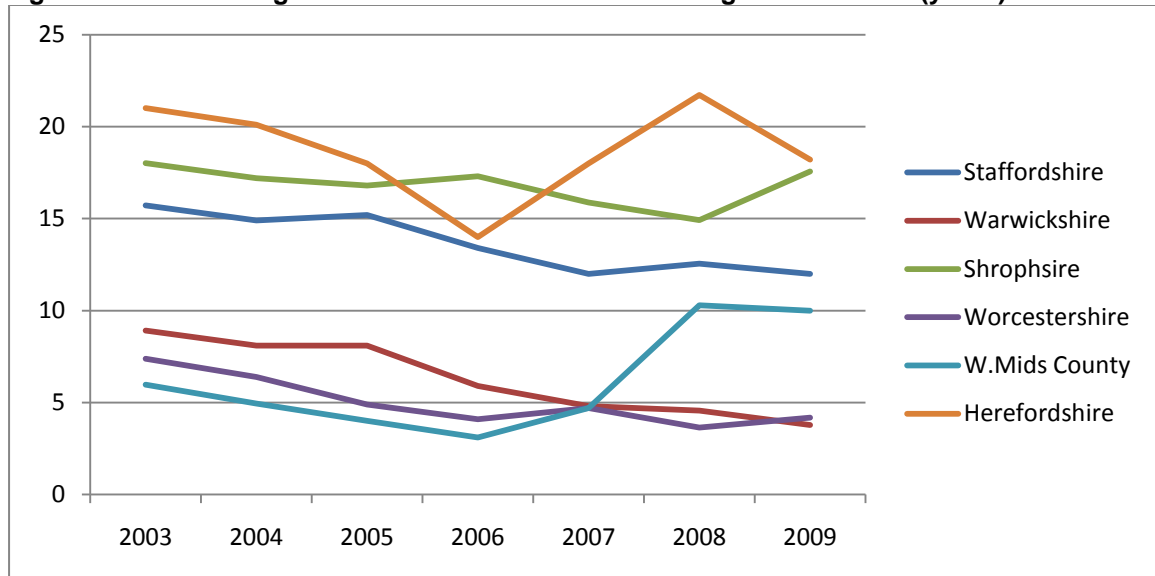
3.10. The National Planning Policy Framework⁹ sets out that Mineral Planning Authorities should "make provision for the maintenance of landbanks of at least 7 years for sand and gravel" and that "longer periods may be appropriate to take account" of other matters. It is clear that the landbank in Worcestershire is below this. However the ability to increase the

⁹ Paragraph 145

landbank is dependent on the industry coming forward with applications for planning permission.

- 3.11. In Worcestershire 6 out of 8 applications for minerals development were permitted by the Council in the last 5 years and the two refused applications were later permitted on appeal, even so these have not been sufficient however to stem the decline in the landbank. Two further applications, at Strensham and Holdfast are currently undetermined. If these applications were to be permitted they would have a combined supply of 0.833 million tonnes which equates to almost 1 years supply based on current apportionment levels.
- 3.12. In general, authorities across the West Midlands region have a landbank which exceeds the 7 year minimum in national policy, however Staffordshire and Warwickshire, like Worcestershire have also seen a similar trend in declining landbank in recent years.

Figure 3.4. Sand and gravel landbank: West Midlands Region 2003-2009 (years)

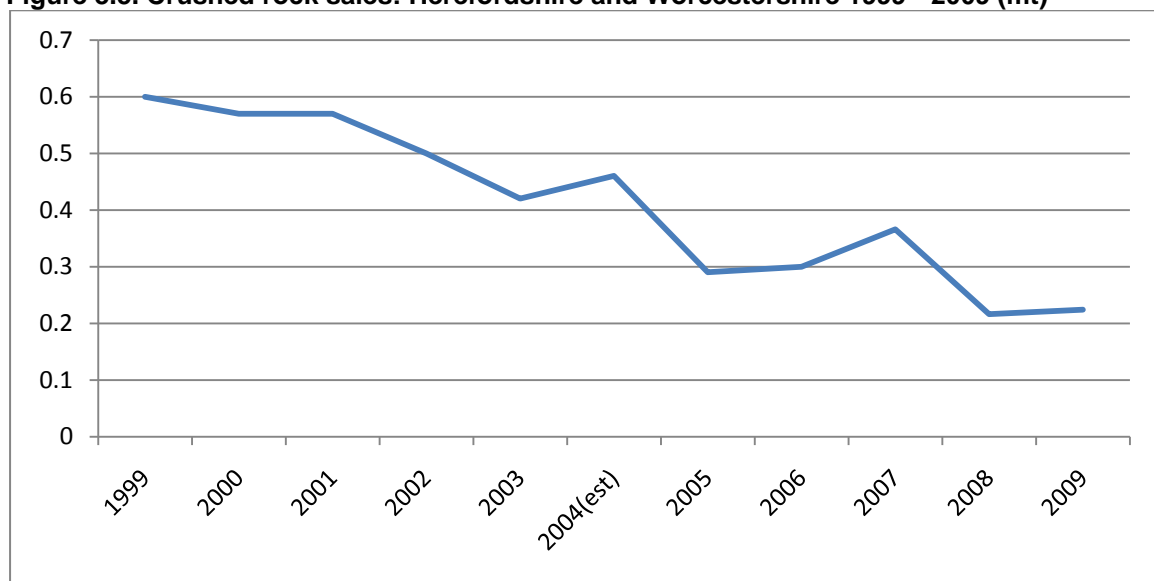


Crushed rock supply: Sales

- 3.13. Sales data for crushed rock production is not available for Worcestershire due to the long standing confidentially arrangements agreed between the industry and government to protect operators' commercial interests. This means that sales data will not be released or published where there are less than 3 operational sites in an area. The last time there were three operating crushed rock producing quarries in Worcestershire was 2003 and since then crushed rock sales data for Worcestershire has been combined with that for Herefordshire. The same situation applies for Staffordshire and Warwickshire and their figures are now combined.
- 3.14. The current apportionment for Worcestershire is 0.163 mt per annum. However with limited sales data it is difficult to assess whether Worcestershire is meeting this apportionment. Officers intend to contact operators in Herefordshire and Worcestershire to request that they allow publication of this RAWP data separately for each county, however at present the combined data remains the best information available.

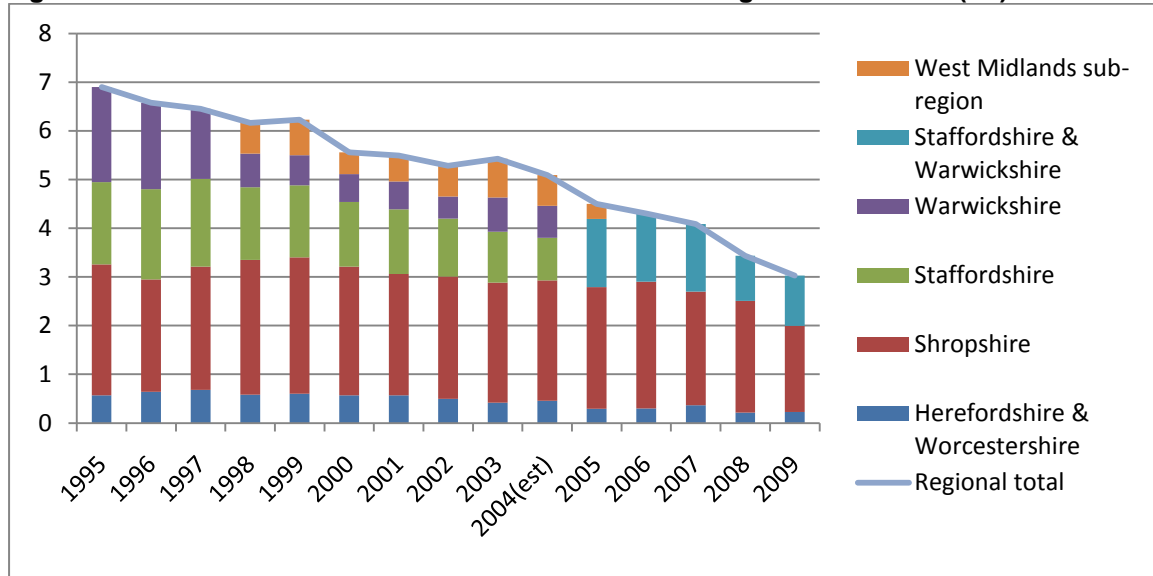
- 3.15. Officers have also contacted the Office for National Statistics and have gained agreement that the AMRI 2012 survey (due to be despatched January 2013) will include separate details for Herefordshire and Worcestershire, rather than combining them as has been the case in the past.
- 3.16. Figure 3.4 shows that the combined figures for crushed rock sales in Herefordshire and Worcestershire have declined in the past 10 years. This trend is true of all sub-regions within the West Midlands (see Figure 3.4). The most recent data available is for 2009, however officers are aware that the only currently permitted crushed rock site in Worcestershire ceased operation in March/April 2012 and is currently being restored. There are therefore currently no operational crushed rock quarries in Worcestershire.
- 3.17. In the West Midlands Region as a whole crushed rock sales have halved in the last 15 years, with a decline in sales in all sub-regions except Shropshire.

Figure 3.5. Crushed rock sales: Herefordshire and Worcestershire 1999 - 2009 (mt)



Source: West Midlands Regional Aggregate Working Party Annual Reports

Figure 3.6. Historic crushed rock sales: West Midlands Region 1995 – 2009 (mt)



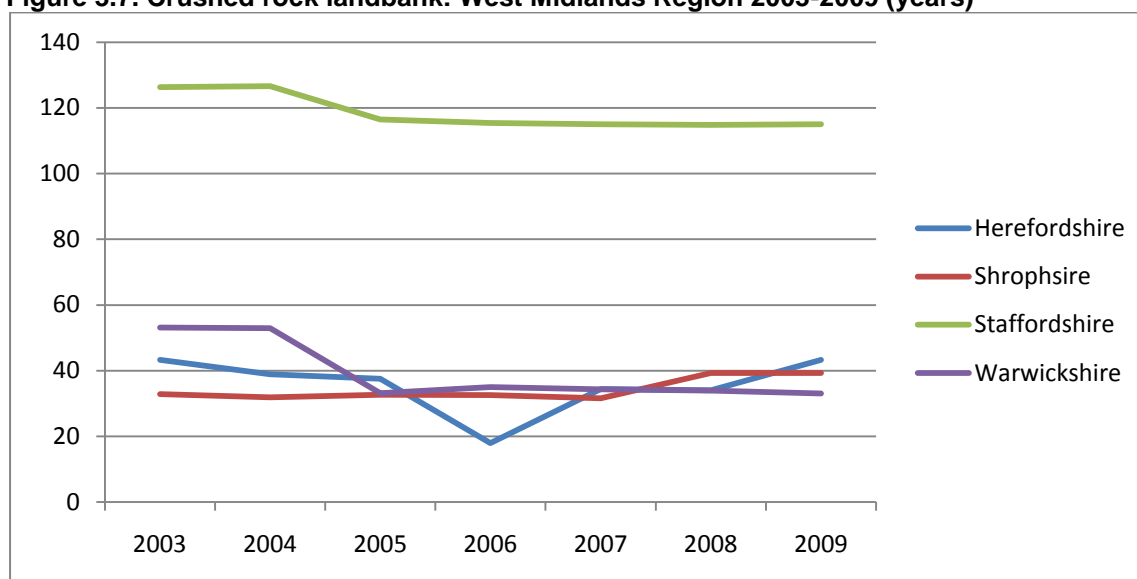
Source: West Midlands Regional Aggregate Working Party Annual Reports

Crushed rock supply: Landbank

- 3.18. The most recently published landbank figure for crushed rock in Worcestershire was 3.31 years in 2003. Later data cannot be published for the County due to the confidentiality of this information.
- 3.19. The National Planning Policy Framework requires that Mineral Planning Authorities maintain landbanks of at least 10 years for crushed rock. The landbank in 2003 was only a third of this and since then only one application for crushed rock has been permitted¹⁰. That permission was to deepen an existing quarry to release approximately 100,000 tonnes of reserves of limestone. The site has now been fully worked and is currently being restored. This means that there are no other permitted crushed rock reserves in Worcestershire, and that Worcestershire's current landbank for crushed rock is therefore 0 years.
- 3.20. The ability to increase the landbank in Worcestershire depends on the industry coming forward with proposals. No permissions for crushed rock workings have been refused by the Council in the last 10 years.
- 3.21. All other sub-regions in the West Midlands, with the exception of the west midlands conurbation sub-region had more than 10 years landbank for crushed rock in 2003-2009.

¹⁰ October 2008: Fish Hill Quarry, Broadway.

Figure 3.7. Crushed rock landbank: West Midlands Region 2003-2009 (years)



Source: West Midlands Regional Aggregate Working Party Annual Reports

Demand

3.22. There is no universally accepted way to calculate demand for aggregates at a local scale. Table 3.3 estimates levels of demand based on typical consumption of aggregates per head of population and uses the population of the county to give an estimated level of demand for Worcestershire. This does not take into account significant factors such as the intensity of building and infrastructure activities in the area but does provide a useful indication of levels of demand.

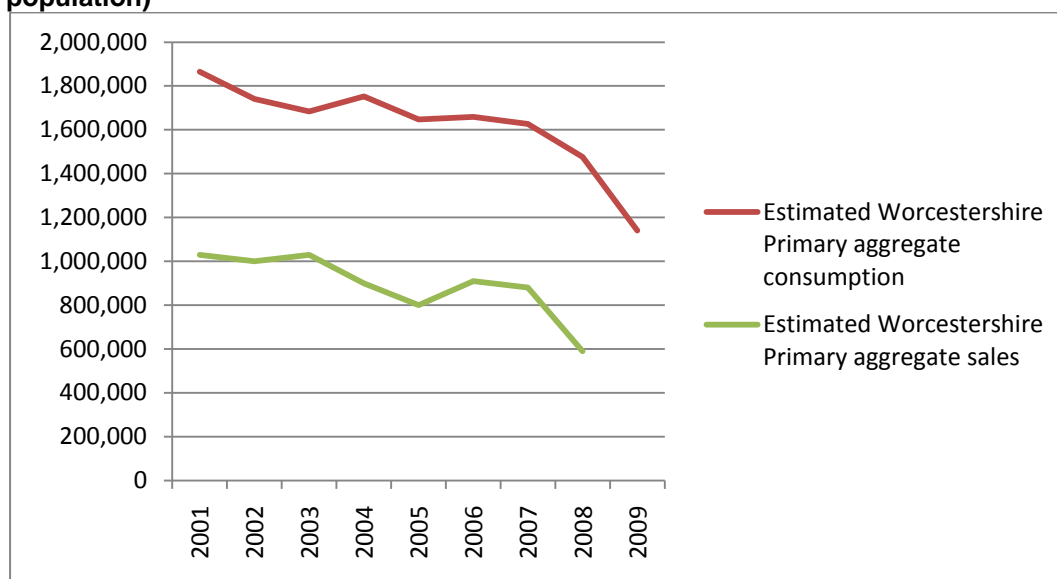
Table 3.3. Estimated demand for aggregates in Worcestershire 2000 - 2009 (based on population)

Year	England primary aggregate sales	England Population	England average: Tonnes Primary agg per head	Worcestershire Population	Estimated Worcestershire Primary agg consumption	Estimated Worcestershire Primary aggregate production
2001	169,202	49,138,831	3.44	542,100	1,864,824	1,030,000
2002	158,967	49,652,000	3.20	544,100	1,741,120	1,000,000
2003	153,342	49,866,000	3.08	546,500	1,683,220	1,030,000
2004	160,135	50,111,000	3.20	547,600	1,752,320	900,000
2005	151,431	50,466,000	3.00	549,300	1,647,900	800,000
2006	152,757	50,762,900	3.01	551,000	1,658,510	910,000
2007	150,059	51,092,000	2.94	553,400	1,626,996	880,000
2008	136,848	51,456,500	2.66	555,300	1,477,098	590,000
2009	106,195	51,809,700	2.05	556,500	1,140,825	70,000

Source: Adapted from Oxfordshire County Council, ONS, RAWP

Estimated Worcestershire Primary Aggregate Production based on RAWP records of Sand and Gravel sales in Worcestershire and Crushed Rock sales in Herefordshire and Worcestershire divided on a 2:1 ratio.

Figure 3.8. Estimated demand for aggregates in Worcestershire 2000 - 2010 (based on population)



3.23. It is clear from this estimate that aggregate consumption in Worcestershire exceeds the levels which are supplied within the County. This could be for many reasons, but the geology of the area limiting the availability of material with suitable specification is likely to be a significant factor. The use of broad terms, such as "sand and gravel" can refer to very wide ranges of materials with different specifications and therefore different uses. Demand for different specifications will also change and fluctuate.

3.24. Minerals can only be worked where they exist. The volume, nature, quality and accessibility of any particular mineral is an accident of geology; demand for them has to be met by moving minerals from where they occur to where they are wanted. Therefore patterns of imports and exports are important.

Secondary and Recycled Aggregates

3.25. It is estimated that about 28% of national aggregate provision is from recycled and secondary aggregates¹¹ and they play an increasingly important role in the country.

Secondary aggregates

3.26. The term "secondary aggregate" is often used to describe mineral that is produced as a by product of or ancillary activity to the primary product. They are usually defined as:

¹¹ Minerals Product Association response to "Competition Commission investigation into the markets for the supply of aggregates, cement and ready-mix concrete in GB" May 2012
http://www.competition-commission.org.uk/assets/competitioncommission/docs/2012/aggregates-cement-and-ready-mix-concrete/statement_of_issues_mpa_third_party_submission.pdf

- aggregates obtained as a by product of other quarrying and mining operations, such as china clay waste, (used in some areas as mortar and concreting sand) slate or colliery waste, (widely used as bulk fill); or
 - aggregates obtained as a by product of other industrial processes, such as blast furnace/steel slag, (wide uses, including being ground as a cementitious material) power station ash, (used as a cement substitute) incinerator ash or spent foundry sand.
- 3.27. There are currently no industrial processes in Worcestershire which are known to produce secondary aggregates.
- 3.28. There is potential for some provision of secondary aggregates in the future, with an Energy from Waste Plant recently being granted planning permission at Hartlebury. This plant is predicted to produce 40,000 tonnes per annum of incinerator bottom ash, which is capable of use as aggregate.

Recycled aggregates

- 3.29. Recycled aggregates arise from several sources notably from the demolition of buildings or from civil engineering works such as asphalt planings from road resurfacing and railway track ballast. "Recycling" aggregates involves the processing of waste materials to remove unwanted or inappropriate material such as fines, wood, plastic and metal. It will usually include crushing and screening. The recycled aggregate is then re-used, usually for a less demanding application.
- 3.30. A significant amount of recycled aggregate is produced in the county from the management of construction and demolition waste (C&D waste). In order to ensure that adequate provision was made in the Waste Core Strategy for the recycling of construction and demolition waste in Worcestershire, background work was undertaken to estimate how much waste was produced.
- 3.31. There are no reliable assessments of C&D arisings or set approaches for making estimates about waste arisings or projecting waste growth for C&D waste. The Waste Core Strategy background document: *Arisings and Capacity* considered several alternative approaches. A "preferred methodology" was developed based on the method used in RSS Phase 2 Future Capacity Requirements Study (WMRA) and this formed the evidence base for the Waste Core Strategy.
- 3.32. In summary, this method uses a development index to disaggregate estimates of regional C&D arisings into a county-level figure. The method assumes that development will initially be concentrated on previously developed (brownfield) land and that such sites will generate considerable volumes of C&D waste. It assumes that over time more new development will take place on greenfield sites and that this will result in wastes produced from redevelopment decreasing. This approach has been

subject to examination for the Phase 2 Review of the West Midlands RSS and the Worcestershire Waste Core Strategy and was considered sound.

3.33. The projected arisings of C&D waste in Worcestershire based on this approach are set out in Table 3.4.

Table 3.4. Projected Arisings of Commercial and Industrial Waste (Worcestershire Waste Core Strategy)

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

3.34. The Waste Core Strategy is based on a target that a minimum of 75% of this material could be diverted from landfill and the Strategy identifies the need for additional capacity to recycle C&D waste of 105,000 tpa over the period to 2025/26 to meet this.

3.35. This is not a cap on recycling capacity, but gives an indication of proportion of C&D waste which it is realistic to anticipate being recycled. Based on these figures it is likely that the availability of secondary aggregates would be 314,640 - 419,520 tonnes per annum between 2015/6 and 2035/36, depending on whether 75% or 100% of C&D waste is recycled.

3.36. The *Phase 2 Future Capacity Requirements Study* identifies that much, if not all of this capacity could be provided by mobile plant in Worcestershire. The Waste Core Strategy nonetheless makes provision for at least 25% of that capacity to be met from static sites and the land requirement in the Strategy reflects this.

3.37. Static C&D recycling facilities in Worcestershire currently have the capacity to manage about 122,000 tonnes per annum of inert waste. Mobile plants are also known to operate in the county and appear to process significant volumes of material. However it is not possible to assess the tonnage processed or the proportion of this which is used as aggregates at present.

Imports and exports

3.38. The best source of information about imports and exports is the *aggregate minerals survey for England and Wales*. This survey is undertaken about every 4 years and one aspect that it considers is the movement of material. It sets out clear information relating to the inter-regional flow of aggregates. These patterns of movement are illustrated on Figure 3.9 and Figure 3.10.

Figure 3.9. Sand and gravel inter-regional flows, 2009

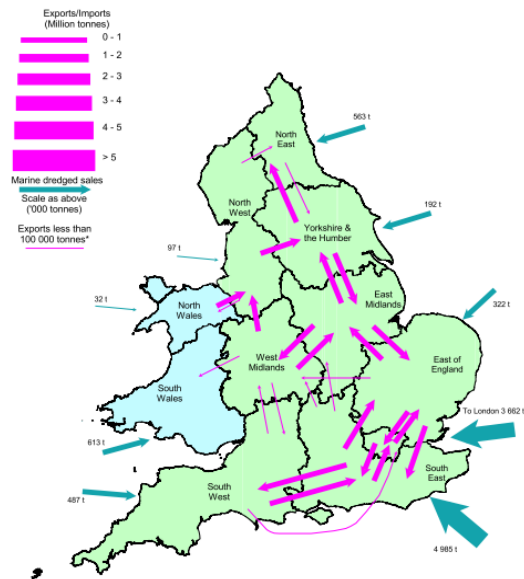
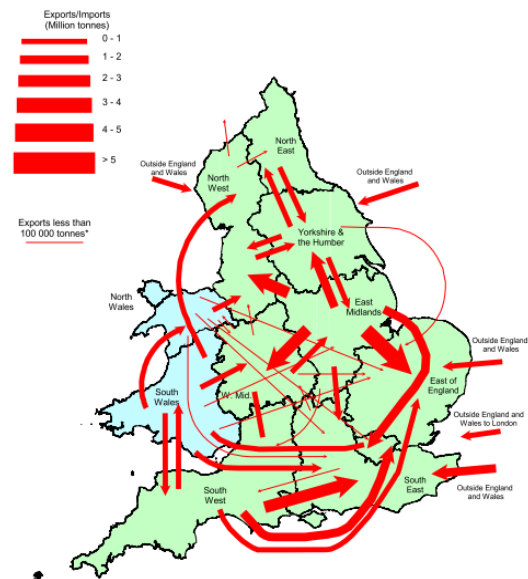


Figure 3.10. Crushed rock inter-regional flows, 2009



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

3.39. The data which is available for Worcestershire in the *aggregate minerals survey for England and Wales (2009)* is presented in Table 3.5 and Table 3.6, whilst Table 3.7 sets out a basic analysis of this data and shows that although Worcestershire was an overall net importer of aggregate in 2009, Worcestershire was also a net exporter of sand and gravel during this period.

Table 3.5. Exports: Sales of primary aggregates from Worcestershire by principal destination sub-region in 2009

Destination	Land-won sand and gravel	MPA %	Crushed rock	MPA %
Worcestershire	114,000	52%	0	-
West Midlands	59,000	27%	0	-
Elsewhere	45,000	21%	0	-
Total	218,000	-	0	-

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

Table 3.6. Imports: Sales of primary aggregates to Worcestershire in 2009

	Land-won sand and gravel	Marine sand and gravel	Total sand and gravel	Crushed Rock	Total primary aggregates
Worcestershire	45,000	13,000	58,000	192,000	250,000

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

Table 3.7. Balance of aggregate exports and imports in Worcestershire 2009

	Exports	Imports	Balance
Sand and Gravel	104,000	58,000	Net exporter
Crushed rock	-	192,000	Net importer
Total Primary aggregates	104,000	250,000	Net importer

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

3.40. It is not possible to assess how much of this material is imported into Worcestershire from outside of England.

4. Appraisal of methods for forecasting the level of aggregate provision required 2015 – 2030

- 4.1. This section sets out a forecast of the minimum level of provision that the Minerals Local Plan will need to enable in order to ensure that the County makes an appropriate contribution to the steady and adequate provision of aggregates for national need. This forecast should not be considered a limit on production but will be used to guide the Minerals Local Plan. It is important to make sure that the Minerals Local Plan enables the working of enough minerals whilst also making sure that the levels of provision are deliverable and do not compromise long-term supply by enabling excessive development during the life of the strategy.
- 4.2. The West Midlands Regional Spatial Strategy (2008) is currently still part of the development plan, however it only sets out the sub-regional apportionment up to 2016. It is therefore necessary to develop a method for calculating how much provision should be made in the Minerals Local Plan beyond this period. The method has been developed based on the considerations in the National Planning Policy framework.

The requirements of the National Planning Policy Framework

- 4.3. The National Planning Policy Framework (NPPF) states that¹²:

“Minerals planning authorities should plan for a steady and adequate supply of aggregates by:

- *preparing an annual Local Aggregate Assessment, either individually or jointly by agreement with another or other mineral planning authorities, based on a rolling average of 10 years sales data and other relevant local information, and an assessment of all supply options (including marine dredged, secondary and recycled sources);*
- *participating in the operation of an Aggregate Working Party and taking the advice of that Party into account when preparing their Local Aggregate Assessment; making provision for the land-won and other elements of their Local Aggregate Assessment in their mineral plans taking account of the advice of the Aggregate Working Parties and the National Aggregate Coordinating Group as appropriate. Such provision should take the form of specific sites, preferred areas and/or areas of search and locational criteria as appropriate;*
- *taking account of published National and Sub National Guidelines on future provision which should be used as a guideline when planning for the future demand for and supply of aggregates;*

¹² Paragraph 145.

- *using landbanks of aggregate minerals reserves principally as an indicator of the security of aggregate minerals supply, and to indicate the additional provision that needs to be made for new aggregate extraction and alternative supplies in mineral plans;*
- *making provision for the maintenance of landbanks of at least 7 years for sand and gravel and at least 10 years for crushed rock, whilst ensuring that the capacity of operations to supply a wide range of materials is not compromised. Longer periods may be appropriate to take account of the need to supply a range of types of aggregates, locations of permitted reserves relative to markets, and productive capacity of permitted sites;*
- *ensuring that large landbanks bound up in very few sites do not stifle competition; and*
- *calculating and maintaining separate landbanks for any aggregate materials of a specific type or quality which have a distinct and separate market.”*

4.4. Worcestershire County Council has taken these requirements into account in developing the methodology proposed in this *Draft Local Aggregates Assessment*. The issue of joint working and participation in AWP has been addressed in the introduction to this report (page 9). The other considerations highlighted in the *NPPF* are addressed in this section and *Annex A*.

Summary of alternative methods for forecasting of the level of primary aggregate provision

4.5. Several alternatives have been considered in developing the *Draft Local Aggregate Assessment*. These can be broadly categorised as those which could be pursued at a regional level through cooperation with an AWP, those that could be pursued by Worcestershire alone and those which could be pursued through cooperation with other authorities. Options for cooperation with other authorities are yet to be fully developed. *Annex A* sets out all of these approaches in detail, however they are summarised below:

West Midlands regional co-operation

- **Method R.1: Historic West Midlands approach: Sales-based**
This is the regional apportionment set out in the *National and Regional Guidelines for Aggregates Provision 2005-2020* (CLG June 2009) disaggregated to a sub-regional level. In essence it is based on the regional distribution of primary aggregate sales in the last 10 years. This is the method that has historically been used in the West Midlands to establish sub-region apportionments for primary aggregates.
- **Method R.2: Sales-led with other considerations.** This option was considered in the review of the West Midlands approach to

apportionment of primary aggregates. It disaggregates the regional apportionment to a sub-regional level on the basis of factors weighted as follows: 70% past sales, 10% demand, 10% the resource, 10% constraints. This takes into account a range of considerations, but retains the focus on past sales as an indication of the ability of an area to supply primary aggregates.

- **Method R.3: Phased transition from method R1 to method R2.** This option is a phased transition from R.1 to R.2.

If all authorities in the region adopt the same approach any of these methods could enable adequate provision to be made to deliver the regional apportionment. However it is not clear whether there will be agreement over these issues. Therefore alternative for a 'Worcestershire only' approach have also been considered.

'Worcestershire only' approaches

- **Method W.1: Last 10 year average sales in Worcestershire**
Figures for the sales of primary aggregates in Worcestershire over the last 10 years have been considered to establish an average. For crushed rock this has been done based on the assumption that one third of crushed rock sales are from Worcestershire and two-thirds are from Herefordshire¹³.
- **Method W.2: Last 12 year average sales in Worcestershire, excluding highest and lowest** Figures for the sales of primary aggregates in Worcestershire over the last 12 years have been considered, with the highest and lowest excluded when establishing an average. For crushed rock this has been done based on the assumption that one third of crushed rock sales are from Worcestershire and two-thirds are from Herefordshire¹⁴. This approach allows peaks and troughs to be balanced out, moderating the impact of the economic downturn on 2008/2009 sales figures.
- **Method W.3: Equivalent self-sufficiency (supply equal to demand based on population estimates)** Estimates of national demand for primary aggregates per head of population have been applied to the population projections for Worcestershire up to 2030 to estimate likely demand in the County.

Cooperation with other authorities

- These alternatives are yet to be fully developed but some potential alternatives are considered in Annex A.

¹³ It is known that between 1999 and 2001 about a third of crushed rock sales were from Worcestershire and two-thirds from Herefordshire (RAWP Annual Report 2009). This is the most up-to-date data clearly showing sales from Worcestershire available and has been used to derive and estimate which can be applied to other years.

¹⁴ It is known that between 1999 and 2001 about a third of crushed rock sales were from Worcestershire and two-thirds from Herefordshire (RAWP Annual Report 2009). This is the most up-to-date data clearly showing sales from Worcestershire available and has been used to derive and estimate which can be applied to other years.

Required annual provision for sand and gravel using these methods

4.6. Table 4.1 sets out the annual provision for primary aggregate supply from sand and gravel that would be required under each method at five yearly intervals. More detail of these calculations is set out in Annex A.

Table 4.1. Sand and gravel: estimated annual provision needed, all methods at 5 year intervals (million tonnes per annum)

Method	2015	2020	2025	2030	2035
WMRSS	0.87	-	-	-	-
R.1	0.87	0.87	0.87	0.87	0.87
R.2	1.01	1.01	1.01	1.01	1.01
R.3	0.94	1.02	1.02	1.02	1.02
W.1	0.78	0.78	0.78	0.78	0.78
W.2	0.79	0.79	0.79	0.79	0.79
W.3	1.45	1.47	1.52	1.55	1.57
Range	0.78 – 1.45	0.78-1.47	0.78-1.52	0.78-1.55	0.78-1.57

Required annual provision for crushed rock using these methods

4.7. Table 4.2 sets out the annual provision for primary aggregate supply from crushed rock that would be required under each method at five yearly intervals. More detail of these calculations is set out in Annex A.

Table 4.2. Crushed rock: Annual provision all methods at 5 year intervals (million tonnes per annum)

	2015	2020	2025	2030	2035
WMRSS	0.163	-	-	-	-
R.1	0.16	0.16	0.16	0.16	0.16
R.2	0.16	0.16	0.16	0.16	0.16
R.3	0.14	0.15	0.15	0.15	0.15
W.1	0.14	0.14	0.14	0.14	0.14
W.2	0.14	0.14	0.14	0.14	0.14
W.3	0.25	0.26	0.26	0.27	0.28
Range	0.14-0.25	0.14-0.26	0.14-0.26	0.14-0.27	0.14-0.28

Assessment of the alternative methods

NPPF requirement: Consideration of 10 years rolling sales data and other relevant local information

- 4.8. Methods W.1 and W.2 are derived directly from past sales and methods. R.1, R.2 and R.3 distribute the regional apportionment based on patterns of past sales in the region to varying degrees. The NPPF promotes the consideration of past sales in developing the LAA and this clearly an important consideration as minerals can only be worked where they are found and sales can give a clear and quantifiable indication of this.
- 4.9. However the NPPF also calls for the consideration of other relevant local information. A key consideration in Worcestershire is that based on current apportionments permitted reserves of sand have been below the 7 year

landbank for the last 6 years and those for crushed rock have been below the 10 year landbank since at least 2003. It is therefore important that we are careful to consider whether this is because the reserves are not available and the current apportionment is too high, or because of other considerations such as the economic downturn and the limited number of unworked areas of search in the adopted Minerals Local Plan. Even if these questions cannot be answered, the issue is important because any assessment of future provision on the past sales data alone (methods W.1 and W.2) could exacerbate low levels of supply in recent years by extrapolating these levels into the future.

- 4.10. This risk can be balanced out to some extent in other methods which consider future demand and environmental constraints. One of the benefits of the regional approaches (R.1, R.2 and R.3) is that they allow for the consideration of future need to some extent: the starting point for these methods is the regional apportionment which has need derived from estimated levels of national need, as set out in the national guidelines. Methods R.2 and R.3 develop this further as they use future demand as one of the factors in making sub-regional apportionments.
- 4.11. There is however an inherent concern that all of the regional methods require cross-authority agreement, so at local level considering methods W.1 and W.2 which are sales based and balancing this against method W.3 which is based purely on estimated demand, could provide an alternative. However this would need to be carefully balanced as W.3 pays no regard to the geology of the County and the minerals that are found here.
- 4.12. Other local factors include the quality of the environment and the availability of unsterilised mineral resources. Methods R.2 and R.3 have some regard to environmental constraints and the proportion of aggregate resources that are not sterilised, however it is difficult to do this at local level as these issues are often relative. As such it has not been possible to develop an approach which takes account of these considerations for Worcestershire alone.

Conclusion: Consideration of 10 years rolling sales data and other relevant local information

- 4.13. The weighting given to the use of sales data needs to be carefully balanced. The ability to supply will ultimately be the dominant factor as issues such as the limited hard rock resources and quality of sand and gravel reserves in Worcestershire and this will inevitably have an impact on the activities that operators wish to bring forward. It would be misleading not to fully reflect this.

NPPF requirement: assessment of all supply options

Imports and exports

- 4.14. The consideration of cross-boundary movements of aggregates is a complex issue. Methods R1, R2 and R3 have the advantage of being based on the national guidelines which consider exports and imports

outside of England and take account of the need for cross-authority movements of aggregates through calculating a national need and then apportioning this to individual regions based on the ability to supply. This method includes the assumption that the West Midlands will import aggregates from Wales, but does not make specific references to the reliance of any particular sub-region on these imports.

- 4.15. Since the national guidelines were produced the Welsh Assembly Government has expressed its intention not to make specific provision for the export of minerals to England and therefore these assumptions may be a little dated. Such imports could take place as part of the normal workings of the market but in the absence of both a clear definition of what volume of aggregates can be predicted to be imported from outside England into Worcestershire or a commitment from the Welsh Assembly to make any such commitments, the Council will not make any reliance on imports from outside of England.
- 4.16. None of the 'Worcestershire-only' methods incorporate consideration of cross-boundary movements. The Council is aware that cross-boundary movements of aggregates are important and the most recent figures show that although the County is a net importer of primary aggregates it is a net exporter of sand and gravel (see imports and exports in Section 3). However there is no robust evidence regarding the origin of imports into Worcestershire either from MPA sub-region or from outside of the UK. This is an issue that will be explored during the development of the MLP but at present the council has not taken these movements into account in methods W1, W2 or W3.

Marine aggregates

- 4.17. Marine aggregates can have special qualities and the most recent sales data (2009) shows that about 5% of imports into Worcestershire are from marine aggregates. The *National Guidelines* do not however make any special provision for, or reliance on, the importation of marine aggregates into the West Midlands generally or Worcestershire in particular. The Council does not therefore intend to rely on any such imports. None of the assessments considered therefore make any express reliance on the importation of specific volumes of marine aggregates into Worcestershire.

Secondary or recycled aggregates

Methods with West Midlands regional co-operation

- 4.18. The regional methods have the advantage of being derived from the *National and Regional Guidelines for Aggregate Provision in England 2005-2020* (the *Guidelines*). These guidelines are based on a national assessment of total aggregate needs for construction purposes, which takes account of the use of aggregates in construction as measured by tonnes used per £1,000 spend on construction projects. The total aggregates need is then divided into the various elements of Primary Aggregates and Alternative (recycled and secondary) Aggregates. This division takes account of recent trends in the supply and utilisation of

alternative aggregates, and other factors, including forecasts of economic activity, the aggregates levy and other policy changes. Account is also taken of the potential supply of imports from outside of England and marine aggregates. The Primary Aggregate element of the forecast is then divided between the regions to give the "regional apportionment".

- 4.19. The regional division takes account of differences in geology and the historic patterns of movements of aggregates between regions. The regional division also takes account of historic and forecasted levels of demand for both Primary Aggregate and Alternative Aggregate in each region. The demand arising for total aggregates in each region is then projected for each year of the forecast period. The total figure is again broken down between the different elements of supply as available in each region, including assumptions about alternative aggregates, marine sand and gravel, and imports from outside England.
- 4.20. The guidelines make specific reference to the import of materials from Wales into the West Midlands. It is therefore considered useful to consider the regional methods when calculating level of provision required. However it must be remembered that any regional methods would require cross-authority agreement across the MPAs in the region if they are to be effective.

'Worcestershire-only' approach

- 4.21. The ability to undertake an assessment of all supply options is limited at the county-level as there is currently limited information about the import and export of aggregate materials at this geographic scale.
- 4.22. The NPPF states that the LAA should be based on an assessment of all supply options including secondary and recycled sources¹⁵. There is no guidance in the NPPF about how these supply options should be assessed.

Summary of alternative methods

- 4.23. There are several alternatives that have been considered in developing an approach to secondary and recycled sources in the *Draft Local Aggregate Assessment* which could be applied to a Worcestershire-only approach. These can be broadly categorised in to two approaches; those which are based on projected levels of C&D waste arisings and those which use assumptions about levels of primary aggregate provision (see *Annex A*) to derive levels of recycled and secondary aggregate provision.
- 4.24. *Annex B* sets out these approaches in detail, however they are summarised below:

Methods based on projected levels of C&D waste arisings

¹⁵ Paragraph 145.

- **Method A: Assume provision of secondary and recycled aggregates is equal to projected recycling levels of construction and demolition waste.**

This method uses the projections of C&D waste made in the Waste Core Strategy and assumes that between 75% and 100% of this waste will be available for use as recycled aggregate. There are no known producers of secondary aggregate in the County and these sources are not considered.

Methods using assumptions about levels of primary aggregate provision to derive levels of recycled and secondary aggregate provision

- **Method B: Applying a ratio of 71% primary aggregates, 25% recycled or secondary aggregates to all sales based methods (R.1, R.2, R.3, W.1 and W.2)**

The National and Regional Guidelines for Aggregates Provision 2005-2020 are development based on the assumption that nationally 71% of aggregates are anticipated to be from primary sources, 25% from recycled and secondary sources and 4% from imports from outside of England.

This method uses the assumption that the levels of provision required from primary aggregates as identified for methods R.1, R.2, R.3, W.1 and W.2 in Annex A account for 71% of total requirements to derive the requirement for recycled and secondary aggregates (25%).

- **Method C: Applying assumptions about the share of regional primary aggregates apportionment to recycled and secondary aggregates.**

This method considers the total provision which should be made from secondary and recycled aggregates in the West Midlands as set out in the National and Regional Guidelines for Aggregates Provision 2005-2020. It then derives a 'Worcestershire share' based on the proportion of the West Midlands primary aggregates that Worcestershire is required to make under methods R.1, R.2, R.3 in *Annex A*.

4.25. Table 4.3 below summarises the levels of secondary and recycled aggregate provision from recycled aggregates using each of these methods.

Table 4.3: Options for recycled and secondary aggregate provision (million tonnes per annum)

	2015	2020	2025	2030	2035
Option A					
75% Recycling	0.31	0.31	0.31	0.31	0.31
100% Recycling	0.42	0.42	0.42	0.42	0.42
Option B					
R.1	0.36	0.36	0.36	0.36	0.36
R.2	0.33	0.36	0.36	0.36	0.36

R.3	0.33	0.36	0.36	0.36	0.36
W.1	0.27	0.27	0.27	0.27	0.27
W.2	0.28	0.28	0.28	0.28	0.28
Range	0.27-0.36	0.27-0.36	0.27-0.36	0.27-0.36	0.27-0.36
Option C					
R.1	0.45	0.45	0.45	0.45	0.45
R.2	0.57	0.57	0.57	0.57	0.57
R.3	0.74	0.68	0.68	0.68	0.68

Assessment of the alternatives

- 4.26. Option A is based on the ability of Worcestershire to supply secondary and recycled aggregates as it is derived from projections C&D waste arisings. These are based on the best available data and have been tested at examination. The 75% target is in line with the Waste Core Strategy which has been developed to reflect local circumstances. The 100% recycling target shows the maximum that could be realised from this source without increasing arisings of C&D waste. To encourage any increase in C&D waste would be contrary to the Waste Framework Directive and the Waste Hierarchy which seeks to reduce waste arisings in the first instance. It is however unclear what proportion of recycled C&D waste is suitable for use as recycled and secondary aggregate. Flexibility is therefore necessary to ensure that this approach would be deliverable.
- 4.27. Options B and C both use levels of provision of primary aggregates as a starting point for deriving secondary and recycled aggregate provision. These methods have considerable merit in calculating the provision of primary aggregates as they give consideration to the ability to supply based on the geology of the area. However there is no direct link between this and the ability to supply recycled aggregates which is more closely related to construction activity in the area. The validity of basing recycled aggregate provision on these figures is therefore limited as it does not reflect the ability of Worcestershire to supply secondary or recycled aggregates.
- 4.28. In addition, Option B is based on the assumption that primary aggregate provision in Worcestershire will reflect the national assumption that primary aggregate production is equal to 71% of the total need for aggregates. Although this may be the case as a national average, we do not have sufficient evidence to determine what proportion of Worcestershire's aggregate need is met by current primary production. This means that using this as a basis for deriving secondary and recycled aggregate figures is flawed. A more robust option would be to consider total aggregate need rather than sales data as the starting point to calculate the proportion primary production contributes in Worcestershire. However these figures are not known (method W3 is based on demand for primary aggregates rather than total aggregate demand).

Conclusions: assessment of all supply options

- 4.29. As discussed above there are many issues to consider and each method has merits and limitations. It is anticipated that the government will issue guidance on the preparation of Local Aggregate Assessments in Autumn

2012, however in the interim Worcestershire County Council has decided to base the level of provision to be made from recycled and secondary aggregates in this *Draft Local Aggregate Assessment* on Option A. In order to avoid spurious accuracy and to allow for flexibility a range will be used of between 75% and 100% recycling.

NPPF requirement: Taking account of national and sub-national guidelines on future provision

- 4.30. As outlined above the regional methods identified (R.1, R.2 and R.3) are derived from *National and Regional Guidelines for Aggregate Provision in England 2005-2020*. It is hoped that the AWP will continue to play a role in apportioning the sub-national provision to a local level in the future, but at present there is no clear indication regarding how this will be done.
- 4.31. There is limited scope to take national and sub-national guidelines into account if a 'Worcestershire-only' approach is taken.

Conclusions: Preferred methods for calculating the annual levels of provision required – primary, recycled and secondary aggregates

- 4.32. As discussed above there are many issues to consider and each method has merits and limitations. It is anticipated that the government will issue guidance on the preparation of Local Aggregate Assessments in Autumn 2012, however in the interim Worcestershire County Council has decided to develop the *Draft Local Aggregate Assessment* on the following basis:
- **Primary Aggregates:** set out as a range using all of the methods assessed.
 - **Secondary Aggregates:** consider likely levels of secondary and recycled aggregates as set out in the Waste Core Strategy, based on 75% - 100% of C&D waste arisings.

Table 4.4. Annual primary, secondary and recycled aggregate provision at 5 yearly intervals (million tonnes per annum)

	2015	2020	2025	2030	2035
Sand and gravel	0.78 – 1.45	0.78-1.47	0.78-1.52	0.78-1.55	0.78-1.57
Crushed rock	0.14-0.25	0.14-0.26	0.14-0.26	0.14-0.27	0.14-0.28
Secondary & recycled aggregate	0.31-0.42	0.31-0.42	0.31-0.42	0.31-0.42	0.31-0.42

- 4.33. Using several alternative robust methods to derive a range for primary aggregates is considered an appropriate approach to balancing past sales data against other local considerations. It also ensures that the County does not either close itself off to, or rely on cooperation through the AWP. The use of a range provides some degree of certainty about the general levels of provision that will need to be made through the Minerals Local Plan but creates flexibility in the plan making process to respond to opportunities to cooperate with authorities with regard to setting levels of provision without substantially altering the direction of the plan. This

cooperation could be either through an AWP or other appropriate mechanisms.

- 4.34. Presenting the level of aggregate provision required for Worcestershire as a range has the advantage of being flexible to respond to changing market situations.
- 4.35. The method for secondary and recycled aggregates is considered to be the only method which provides figures that are deliverable without inadvertently encouraging an increase in C&D waste, which would be contrary to the Waste Framework Directive and the Waste Hierarchy which seek to reduce waste arisings in the first instance.

NPPF requirement: The maintenance of appropriate landbanks

- 4.36. In order to calculate the landbank it is necessary to first work out what the annual provision should be. This is summarised at 5 yearly intervals in Table 4.4 above and set out in Annex A at yearly intervals.
- 4.37. The forecasts below have then been calculated based on annual requirement for the life of the plan (which is currently anticipated to be 2015– 2030) plus an additional 7 year landbank at the end of the strategy for sand and gravel and 10 years for crushed rock. This is more ambitious than the NPPF prescribes but the Council is concerned that there should be no obstacles to development from shortages of primary materials in Worcestershire. The Plan proposes therefore to ensure that adequate landbanks for aggregates will be in place at the end of the Plan period. The Council will monitor progress annually through its AMRs and anticipates reviewing the Plan about every 5 years. If this were to be an unrealistic overprovision it could therefore be corrected.
- 4.38. It is not considered that any of the aggregate minerals in Worcestershire have such special qualities or a distinct market that would warrant the consideration of a separate landbank. The section below therefore considers the need to supply sand and gravel and crushed rock but does not draw attention to the need for landbanks for any more specific materials.
- 4.39. It must be noted that the figures in this section are likely to change annually to respond to the NPPF's requirement to base provision on rolling 10 years' sales data. As preparation of the Minerals Local Plan progresses and near the date of submission, existing permitted reserves may also be taken into account in calculating the additional provision which should be made, however with three mineral applications pending consideration¹⁶ it is not considered appropriate to undertake this calculation at present.

Cumulative provision required for primary aggregates

Sand and gravel

¹⁶ As at 2nd October 2012: Strensham, Holdfast, Chadwich Lane

4.40. To work out how much provision needs to be made in the Minerals Local Plan this needs to be presented as a cumulative figure. Table 4.5 below sets out the cumulative total for 5-yearly spot years with an additional 7 years to allow for at least a 7 year landbank at the end of the plan period. 2015 is the start year for the purpose of this calculation.

Table 4.5. Sand and Gravel: Primary aggregates, cumulative provision required (million tonnes)

	2015	2020	2025	2030	Plus 7 years
Top of range	1.45	8.8	16.15	23.9	34.89
Bottom of range	0.78	4.68	8.58	12.48	17.94

4.41. The minimum provision that the Minerals Local Plan needs to make for sand and gravel is 17.94 – 34.89 million tonnes.

4.42. Although the top end of this range would require almost twice as much provision to be made in the Minerals Local Plan, at the bottom end of the range the quantities are still relatively small. The annual requirements for example still only account for between 8% and 15% of the provision that needs to be made by the current West Midlands AWP area.

Crushed rock

4.43. To work out how much provision needs to be made in the Minerals Local Plan this needs to be presented as a cumulative figure. **Error! Reference source not found.** below sets out the cumulative total for 5-yearly spot years with an additional 10 years to allow for at least a 10 year landbank at the end of the plan period. 2015 is the start year for the purpose of this calculation.

Table 4.6. Crushed Rock: Primary aggregates: cumulative provision required (million tonnes)

	2015	2020	2025	2030	Plus 10 years
Top of range	0.25	1.55	2.85	4.2	7.05
Bottom of range	0.14	0.84	1.54	2.24	3.78

4.44. The minimum provision that the Minerals Local Plan needs to make for crushed rock is 3.78 – 7.05 million tonnes. Although the higher figure is almost double the lower figure, a range of 3.27 million tonnes is not a significant difference of the life of the strategy. On an annual basis the lower end of the range equates to about 2.5% of current west midlands regional apportionment and the upper end for about 4%. The difference in these figures is therefore relatively small, reflecting the low potential for significant crushed rock working in the County.

Secondary and recycled aggregates

- 4.45. It is useful to know what share secondary and recycled aggregates are anticipated to contribute towards total supply over the life of the plan. This is set out in 7.
- 4.46. However for secondary and recycled aggregates the annual capacity of processing facilities is also important and the Waste Core Strategy sets out the minimum annual capacity which is required to enable recycling levels of at least 75% for C&D waste, this is a realistic estimate of the provision that can be made to aggregate supply from recycled aggregates in Worcestershire.
- 4.47. It is not possible to predict how much could be generated from secondary aggregate. However for the purpose of setting a range the council considers that an assumption that 100% of C and D waste could be used for aggregates does at least provide a parameter for discussion.
- 4.48. Such provision would be:

Table 4.7. Annual secondary and recycled aggregate provision at 5 yearly intervals (million tonnes per annum)

	2015	2020	2025	2030	2035
Secondary & recycled aggregate Bottom of range (75%)	0.31	0.31	0.31	0.31	0.31
Top of range (100%)	0.42	0.42	0.42	0.42	0.42

The cumulative effect of this would be:

Table 4.8. Secondary and recycled aggregates: cumulative provision required 2015-2030 (million tonnes)

	2015	2020	2025	2030	2035
Top of range	0.31	1.55	3.1	4.65	6.6
Bottom of range	0.42	2.1	4.2	6.3	8.8

Annex A: Method Statement – Primary Aggregates

- 4.49. This method statement considers the alternative approaches which could be used in preparing a Local Aggregate Assessment.

1. Regional cooperation: potential approaches

Current approach to sub-regional apportionment

R1. Historic West Midlands approach: Regional apportionment disaggregated based on sales

- 1.1. This is the approach currently being used by the West Midlands Regional Aggregate Working Party (WMRAWP) to monitor production.
- 1.2. For the past 35 years the Managed Aggregate Supply System (MASS) has been used by government to forecast the long term demand for aggregates and set out production figures for each region in England (before devolution these figures also applied to Wales). Regional Aggregate Working Parties then divided this apportionment sub-regionally to identify the provision which should come from each sub-region (of which Worcestershire is one).

National and Regional Guidelines for Aggregate Provision

- 1.3. The current system involves a national assessment of total aggregate needs for construction purposes. This takes account of the use of aggregates in construction as measured by tonnes used per £1,000 spend on construction projects. The total aggregates need is then divided into the various elements of Primary Aggregates and Alternative Aggregates. This division takes account of recent trends in the supply and utilisation of alternative aggregates, and other factors, including forecasts of economic activity, the aggregates levy and other policy changes. Account is also taken of the potential supply of marine aggregates. The Primary Aggregate element of the forecast is then divided between the regions to give the "regional apportionment".
- 1.4. This information is published in the *National and Regional Guidelines for Aggregate Provision in England 2005-2020* which sets out the provision which should come from each region and seeks to ensure that there is an adequate supply of aggregates into the UK economy with no geographical imbalances.
- 1.5. The regional division takes account of differences in geology and the historic patterns of movements of aggregates between regions. The regional division also takes account of historic and forecasted levels of demand for both Primary Aggregate and Alternative Aggregate in each region. The demand arising for total aggregates in each region is then projected for each year of the forecast period. The total figure is again

broken down between the different elements of supply as available in each region, including assumptions about alternative aggregates, marine sand and gravel, and imports from outside England.

- 1.6. *National and Regional Guidelines for Aggregate Provision in England 2005-2020* published by the Department for Communities and Local Government in June 2009 estimates that the West Midlands would require 370 million tonnes of material between 2005 and 2020. These guidelines assume that:
- 100mt will be provided from alternative aggregate sources (secondary and recycled materials)
 - 23mt of primary aggregate will be imported from outside the region (principally Wales).
 - Primary Aggregate requirement will be 247mt comprising of:
 - 165mt of sand and gravel
 - 82mt of crushed rock

Sub-regional apportionment

- 1.7. In the West Midlands the regional apportionment was broken down into a sub-regional apportionment for each of the minerals planning authorities based on the average proportional production of each sub-region over the years 1999 – 2001 and dividing the result by 16 years to produce an annual figure. This assumes that production will remain at similar levels throughout the 16 year period covered by the *National and Regional Guidelines for Aggregate Provision in England 2005-2020*.
- 1.8. The annual provision required from each authority is set out in Table 1.1 and Table 1.2. Between 1999 and 2001 sand and gravel sales in Worcestershire accounted for 8.6% of regional sales and crushed rock sales account for 2.8%. This has formed the basis for these calculations.

Table 1.1. Method R.1 Sand and Gravel provision required

	Apportionment of Regional Guidelines	Annual Provision
Herefordshire	162mt x 2.8% ÷ 16	0.283 mt
Worcestershire	162mt x 8.6% ÷ 16	0.871 mt
Shropshire	162mt x 8.1% ÷ 16	0.820 mt
Staffordshire	162mt x 65.2% ÷ 16	6.602 mt
Warwickshire	162mt x 10.3% ÷ 16	1.043 mt
W. Midlands County	162mt x 5% ÷ 16	0.506 mt
Regional Total		10.125mt

Table 1.2. Method R.1 Crushed Rock provision required

	Apportionment of Regional Guidelines	Annual Provision
Herefordshire	93mt x 7.3% ÷ 16	0.424 mt
Worcestershire	93mt x 2.8% ÷ 16	0.163 mt
Shropshire	93mt x 45.8% ÷ 16	2.662 mt
Staffordshire	93mt x 24.2% ÷ 16	1.395 mt
Warwickshire	93mt x 10.2% ÷ 16	0.593 mt
W. Midlands County	93mt x 9.9% ÷ 16	0.575 mt
Regional Total		5.812 mt

Source: *Sub-regional Apportionment of Aggregate Provision in the West Midlands Region 2005-2020 Final Report* (2010) prepared for West Midlands Regional Assembly by Land Use Consultants

- 1.9. This is also the apportionment for Worcestershire which is set out in policy M2 of the West Midlands Regional Spatial Strategy 2008. The policy addresses the period up to 2016 but does not go beyond it.

Statement of annual provision required in Worcestershire using method R.1

- 1.10. Provision required based on R.1 Historic West Midlands Approach:
Sand and Gravel: 0.871 mt per annum
Crushed Rock: 0.163 mt per annum

Appraisal of the method

National and Regional Guidelines for Aggregate Provision

- 1.11. The *National and Regional Guidelines for Aggregate Provision in England 2005-2020* identify national need and make regional provision taking into account past production trends, projections about future need, and all supply options including provision of secondary and recycled aggregate and anticipated levels of imports and exports.
- 1.12. The economic demand forecasting used is often considered to be overly complex, too difficult to understand and has been unreliable in the past¹⁷, however it is a generally robust approach which takes into account many of the factors highlighted by the NPPF including the assessment of all supply options and past sales data.
- 1.13. It is possible that the long-term estimates of provision lack the flexibility to adapt to changing market forces. The apportionment for the West Midlands for example assumes that 23mt of primary aggregate will be imported from outside the region with this principally being from Wales.
- 1.14. The most recent figure (Aggregate Minerals Survey 2009) relating the imports and exports from Wales show that there were some imports of Crushed Rock from Wales into the West Midlands however cross boundary movements with the East Midlands were greater and this doesn't appear to be considered in the apportionment figures. In addition the West Midlands was a net exporter of sand and gravel to Wales according to the 2009 figures.

Sub-regional apportionment

- 1.15. The current apportionment of the regional supply figures to a sub-regional level is based on past sales figures. While the basis for the apportionment is logical and reasonably robust, it is essentially derived from past rates of production, rather than an appraisal of future needs and the likely availability of materials, taking into account a more strategic analysis of environmental and other constraints. The degree to which other local factors can be taken into account is therefore limited. This approach is also contentious because it can continue historic supply patterns, which may become more difficult to sustain in the future.

¹⁷ British Geological Survey (2008) *Managing Aggregate Supply in England: A review of current system and future options* page 1-2

Alternative approaches to sub-regional apportionment

- 1.16. The West Midlands Regional Assembly as the Regional Planning Body commissioned a study on sub-regional apportionment which was undertaken by Land-use Consultants (LUC)¹⁸. The LUC report was published in March 2010. West Midlands Regional Assembly. The Assembly was abolished before any decisions about future methods of apportionment were made.
- 1.17. However the LUC report put forward several options for consideration, giving different weighting to each of the following factors shown in Table 1.3. The options and the weighting given to each factor are set out below.

Table 1.3. Factors considered in LUC study

Demand	Future demand - where building materials are likely to be required in large quantities in the future, i.e. future housing Current demand – based on current population Future:current demand weighted at 6:4 ratio
Past sales	Based on RAWP data.
Unsterilised resource	Resources outside of international designations ¹⁹ Excluding resources sterilised by the primary road network, railways, urban areas, worked-out sites
Constraints	Sites of Special Scientific Interest (SSSI) Areas of Outstanding Natural Beauty (AONBs) National Nature Reserves National Parks Scheduled Ancient Monuments Registered Parks and Gardens Registered Battlefields Listed Buildings

- **Option A: Supply-led** weighted:
 - ▶ 70% location of the unsterilised resource
 - ▶ 10% demand (with a 6:4 ratio for future: current demand)
 - ▶ 10% past sales
 - ▶ 10% constraints
- **Option B: Growth-led** weighted:
 - ▶ 70% demand (with a 6:4 ratio for future: current demand)
 - ▶ 10% location of unsterilised resources
 - ▶ 10% past sales
 - ▶ 10% constraints
- **Option C: Environment-led** weighted:

¹⁸ *Sub-regional Apportionment of Aggregate Provision in the West Midlands Region 2005-2020 Final Report* (2010) prepared for West Midlands Regional Assembly by Land Use Consultants

¹⁹ Special Areas of Conservation, Special Protection Areas, RAMSAR sites, World Heritage Sites. The Malvern Hills were also removed from calculations due to the protection afforded by the Malvern Hills Act 1924 and the 1953 decision of the Minister of Housing and Local Government.

- ▶ 70% constraints
- ▶ 10% demand (with a 6:4 ratio for future: current demand)
- ▶ 10% location of unsterilised resources
- ▶ 10% past sales
- **Option D: Equal weighting** weighted:
 - ▶ 25% for all the factors (with a 6:4 ratio for future : current demand); plus an additional option:
- **Option E: Demand and resource** weighted:
 - ▶ 40% demand (with a 6:4 ratio for future: current demand),
 - ▶ 40% supply
 - ▶ 10% past sales
 - ▶ 10% constraints
- **Option F: Past sales-led** weighted:
 - ▶ 70% on past sales
 - ▶ 10% constraints
 - ▶ 10% demand (with a 6:4 ratio for future: current demand)
 - ▶ 10% location of unsterilised resources

1.18. Following technical consultation, LUC decided to only proceed with sales-led options. These were 'option F' and 'Refined option F':

- **Option F: Past sales-led** weighted 70% on past sales, and 10% for each of the other factors (with a 6:4 ratio for future : current demand); and

Table 1.4. Weighting for option F of LUC report

Factor		Option F: Past sales-led (weighting per factor)	Option F: Past sales-led (weighting once factor 1a:1b ratios have been applied)
1: Demand	a: future housing/infrastructure	10%	6%
	B: current refurbishment and redevelopment	-	4%
2: Past Sales		70%	70%
3: The resource		10%	10%
4: Constraints		10%	10%

Source: Sub-regional Apportionment of Aggregate Provision in the West Midlands Region 2005-2020 Final Report (2010) prepared for West Midlands Regional Assembly by Land Use Consultants

- **Refined Option F: Past sales led but with phasing** weighted 100% on past sales in the early years of the apportionment period (2011-2012), 90% weighting to past sales 2013-2015 decreasing to 70% in 2016-2020, so still the highest weighting to past sales, and distributing equal weighting to the remaining factors.

Table 1.5. Weighting for refined option F of LUC report

Factor		2005-2010	2011-2012	2013-2015	2016-2020
1: Demand (split 60/40 between 1a: 1b:)	a: future housing/ infrastructure	Current apportionment	0%	2%	6%
	B: current refurbishment and redevelopment			1.3%	4%
2: Past Sales			100%	90%	70%
3: The resource			0%	3.3%	10%
4: Constraints			0%	3.3%	10%

Source: *Sub-regional Apportionment of Aggregate Provision in the West Midlands Region 2005-2020 Final Report* (2010) prepared for West Midlands Regional Assembly by Land Use Consultants

1.19. These two options are considered in detail below.

R.2 Sales-led with other consideration

1.20. This is essentially Option F as present in the LUC report. It calculates apportionment of future provision based on a weighting of 70% on past sales, 10% demand (with a 6:4 ratio for future: current demand), 10% available resources and 10% constraints.

Sand and Gravel

1.21. The sub-regional sand and gravel apportionment that would result from this option is shown in Table 1.6 below. This has been expressed as a percentage of the regional total that each sub-region will need to provide for each resource type. The current apportionment is also included in this table for comparison.

Table 1.6. Summary of sand and gravel sub-regional apportionment options from LUC report Option F: Percentage

Sub-region	Option F: Past sales-led	Current apportionment
Herefordshire	4.48%	2.80%
Shropshire	14.51%	8.10%
Staffordshire	54.91%	65.20%
Warwickshire	11.19%	10.30%
West Midlands County	5.12%	5.00%
Worcestershire	9.79%	8.60%
West Midlands	100%	100%

Source: *Sub-regional Apportionment of Aggregate Provision in the West Midlands Region 2005-2020 Final Report* (2010) prepared for West Midlands Regional Assembly by Land Use Consultants. Table 6.1: Summary of sand and gravel sub-regional apportionment options with ten years sales data (percentages)

1.22. This equates to the annual apportionment for Worcestershire as shown in Table 1.7.

Table 1.7. LUC Option F for sand and gravel broken down by phase and expressed as a volume (mt)

	Annual contribution for 2005-10	Annual contribution for 2011-12	Annual contribution for 2013-15	Annual contribution for 2016-20	Total contribution for 2005-20
Option F	1.01	1.01	1.01	1.01	16.15

Source: *Sub-regional Apportionment of Aggregate Provision in the West Midlands Region 2005-2020 Final Report* (2010) prepared for West Midlands Regional Assembly by Land Use Consultants Table 6.4: Refined option F for sand and gravel broken down by phase and expressed as a volume (mt)

Hard Rock

1.23. The sub-regional apportionment that would result from this option is shown in Table 1.8 below. This has been expressed as a percentage of the regional total that each sub-region will need to provide for each resource type. The current apportionment is also included in this table for comparison.

Table 1.8. Summary of hard rock sub-regional apportionment options from LUC report Option F: Percentage

Sub-region	Option F: Past sales-led	Current apportionment
Herefordshire	7.12%	7.30%
Shropshire	51.66%	50.75%
Staffordshire	23.61%	24.01%
Warwickshire	14.54%	15.14%
West Midlands County	0%	0%
Worcestershire	3.08%	2.81%
West Midlands	100%	100%

Source: *Sub-regional Apportionment of Aggregate Provision in the West Midlands Region 2005-2020 Final Report* (2010) prepared for West Midlands Regional Assembly by Land Use Consultants. Table 6.5: Summary of crushed rock sub-regional apportionment options F and Refined F (percentages).

1.24. This equates to the annual apportionment for Worcestershire as follows:

Table 1.9. LUC Option F for hard rock broken down by phase and expressed as a volume (mt)

	Annual contribution for 2005-10	Annual contribution for 2011-12	Annual contribution for 2013-15	Annual contribution for 2016-20	Total contribution for 2005-20
Option F	0.16	0.16	0.16	0.16	2.53

Source: *Sub-regional Apportionment of Aggregate Provision in the West Midlands Region 2005-2020 Final Report* (2010) prepared for West Midlands Regional Assembly by Land Use Consultants

Statement of annual provision required in Worcestershire using method R.2

1.25. Annual provision required based on R2. Sales-led with other considerations using this method.

Sand and Gravel: 1.01 mt per annum

Crushed Rock: 0.16 mt per annum

Appraisal of the method

1.26. As with method R.1 the starting point is the regional provision identified in the *National and Regional Guidelines for Aggregate Provision in England*

2005-2020 therefore the issues highlighted in paragraphs 1.11 - 1.13 also apply here.

- 1.27. The method however differs from R1 in the way in which it apportions provision to a sub-regional level. The consideration of other factors in addition to sales data allows for a consideration of local factors, namely:
- **demand** based on patterns of future housing and demolitions and population;
 - **the resource availability** based on resources which have not been sterilised by urban development and associated infrastructure, international designations or worked out sites; and
 - **constraints** such as national level environmental, heritage and landscape designations.
- 1.28. This allows for some local factors to be taken into account taking a more strategic analysis of environmental constraints and an appraisal of future needs; however it is weighted to retain a focus on past sales. This can be useful in providing an indication of the quality of material and the viability of extraction in each sub-region but could be considered to continue historic supply patterns which may become more difficult to sustain in the future.

R.3 Phased transition from R.1 to R.2

- 1.29. This is essentially refined Option F as presented in the LUC report²⁰. It calculates apportionment of future provision based on a weighting of 100% past sales in the early years of the apportionment period (2011-2012), 90% weighting to past sales 2013-2015 decreasing to 70% in 2016-2020, so still the highest weighting to past sales, and distributing equal weighting to the remaining factors (demand, available resources, constraints).

Sand and Gravel

- 1.30. The sub-regional apportionment for sand and gravel that would result from this option is shown in Table 1.10 below. This has been expressed as a percentage of the regional total that each sub-region will need to provide for each resource type. The current apportionment is also included in this table for comparison.

²⁰ *Sub-regional Apportionment of Aggregate Provision in the West Midlands Region 2005-2020 Final Report (2010)* prepared for West Midlands Regional Assembly by Land Use Consultants

Table 1.10. Summary of sand and gravel sub-regional apportionment options from LUC report: Percentage

Sub-region	Refined Option F: Phased sales (Averaged over 2005-2020)	Current apportionment
Herefordshire	3.38%	2.80%
Shropshire	10.59%	8.10%
Staffordshire	61.27%	65.20%
Warwickshire	10.59%	10.30%
West Midlands County	5.13%	5.00%
Worcestershire	9.04%	8.60%
West Midlands	100%	100%

Source: *Sub-regional Apportionment of Aggregate Provision in the West Midlands Region 2005-2020 Final Report* (2010) prepared for West Midlands Regional Assembly by Land Use Consultants
 Table 6.1: Summary of sand and gravel sub-regional apportionment options with ten years sales data (percentages)

1.31. This equates to the annual apportionment for Worcestershire as shown in Table 1.11.

Table 1.11. LUC options: Option F and Refined option F for sand and gravel broken down by phase and expressed as a volume (mt)

	Annual contribution for 2005-10	Annual contribution for 2011-12	Annual contribution for 2013-15	Annual contribution for 2016-20	Total contribution for 2005-20
Refined Option F	0.87	0.89	0.94	1.02	14.92

Source: *Sub-regional Apportionment of Aggregate Provision in the West Midlands Region 2005-2020 Final Report* (2010) prepared for West Midlands Regional Assembly by Land Use Consultants Table 6.4: Refined option F for sand and gravel broken down by phase and expressed as a volume (mt)

Hard Rock

1.32. The sub-regional hard rock apportionment that would result from this option is shown in Table 1.12 below. This has been expressed as a percentage of the regional total that each sub-region will need to provide for each resource type. The current apportionment is also included in this table for comparison.

Table 1.12. Summary of hard rock sub-regional apportionment options from LUC report: Percentage

Sub-region	Refined Option F: Phased sales (Averaged over 2005-2020)	Current apportionment
Herefordshire	7.24%	7.30%
Shropshire	51.06%	50.75%
Staffordshire	23.87%	24.01%
Warwickshire	14.93%	15.14%
West Midlands County	0%	0%
Worcestershire	2.9%	2.81%
West Midlands	100%	100%

Source: *Sub-regional Apportionment of Aggregate Provision in the West Midlands Region 2005-2020 Final Report* (2010) prepared for West Midlands Regional Assembly by Land Use Consultants Table 6.5: Summary of crushed rock sub-regional apportionment options F and Refined F (percentages)

1.33. This equates to the annual apportionment for Worcestershire as shown in Table 1.13.

Table 1.13. LUC options: Option F and Refined Option F for hard rock broken down by phase and expressed as a volume (mt)

	Annual contribution for 2005-10	Annual contribution for 2011-12	Annual contribution for 2013-15	Annual contribution for 2016-20	Total contribution for 2005-20
Refined Option F	0.16	0.13	0.14	0.15	2.38

Source: *Sub-regional Apportionment of Aggregate Provision in the West Midlands Region 2005-2020 Final Report* (2010)

Statement of annual provision required in Worcestershire using this method

1.34. Annual provision required using method R.3:
Sand and Gravel: 0.87 – 1.02 mt per annum (average 0.93 mt)
Crushed Rock: 0.13 - 0.16 mt per annum (average 0.15 mt)

Appraisal of the method

1.35. As with method R.1 and R.2 the starting point is the regional provision identified in the *National and Regional Guidelines for Aggregate Provision in England 2005-2020* therefore the issues highlighted in paragraphs 1.11 - 1.13 also apply here.

1.36. The method is similar to R.2 in the way in which it apportions provision to a sub-regional level. The consideration of other factors in addition to sales data allows for a consideration of local factors, namely:

- **demand** based on patterns of future housing and demolitions and population;
- **the resource availability** based on resources which have not been sterilised by urban development and associated infrastructure, international designations or worked out sites; and
- **constraints** such as national level environmental, heritage and landscape designations.

However it allows for a more phased transition from R.1 to R.2. This would provide a more predictable and stable approach.

1.37. This method, like R.2 allows for some local factors to be taken into account taking a more strategic analysis of environmental constraints and an appraisal of future needs however it is weighted to retain a focus on past sales. This can be useful in providing an indication of the quality of material and the viability of extraction in each sub-region but could be considered to continue historic supply patterns which may become more difficult to sustain in the future.

Appraisal of the other LUC options

1.38. The other options put forward in the LUC report were not carried forward to develop apportionment options, however they are considered briefly below for completeness.

- **Option A: Supply-led** weighted 70% on the supply (i.e. the location of the unsterilised resource), and 10% for each of the other factors (with a 6:4 ratio for future:current demand);

This option has been developed into Option F, with refined option F giving a phased transition from existing apportionment based on 100% past sales and towards this approach by 2016. Its strengths are that it recognises that minerals can only be worked where they exist and that of all the criteria, supply is the easiest to identify.

- **Option B: Growth-led** weighted 70% on demand (with a 6:4 ratio for future: current demand), and 10% for each of the other factors;

Whilst the merits of considering demand are clear, particularly with transport costs of minerals being high, there is no direct relationship between demand and the ability of an area to supply. In addition, with the intended revocation of the RSS there is less clarity regarding anticipated levels and patterns of future demand.

- **Option C: Environment-led** weighted 70% on constraints (i.e. the area of unsterilised resource outside of environmental, landscape and heritage constraints), and 10% for each of the other factors (with a 6:4 ratio for future : current demand);

Constraints are a significant factor; however minerals can only be worked where they are found. Whilst the NPPF requires landbanks to be maintained outside National Parks, the Broads, Areas of Outstanding Natural Beauty and World Heritage sites, Scheduled Monuments and Conservation Areas where practicable it does not preclude mineral development from happening in these areas. It could be argued therefore that this option does not pay sufficient regard to supply factors and past-sales which may themselves indicate resource availability and viability.

- **Option D: Equal weighting** weighted 25% for all the factors (with a 6:4 ratio for future : current demand);

This option incorporates both all the strengths and all the weaknesses of the other methods and necessarily assumes that they are of equal weight. The weighting in this option appears to be arbitrary rather than a balanced consideration the relative importance of particular issues.

- **Option E: Demand and resource** weighted 40% on demand (with a 6:4 ratio for future: current demand), 40% on supply (the location of the unsterilised resource) and 10% each for past sales and constraints.

Minerals can only be worked where they are found and this option takes into account the location of unsterilised resources. It retains the focus on viability, whilst moving away from a reliance on past-sales data and therefore avoiding the risk of continuing historic supply patterns. However the quality and quantity of resources available are often uncertain across the region, with geological data being very poor in some areas and the reliability of this approach is therefore questionable. The significant weight given to demand also has merits and limitations as discussed above.

Summary

- 1.39. It is widely acknowledged an approach based on past sales can continue historic supply patterns, which may become more difficult to sustain in the future. The methods considered in the LUC report present alternatives to this approach. Each of these methods has merits and limitations.
- 1.40. The methods which give significant weight to demand fail to fully grasp the fundamental consideration that minerals can only be worked where they are found, however demand can be a useful consideration where it is given less weighting as it can allow for the considerations such as transport and development pressures. On the other methods that give significant weight to supply are limited by the availability of data.
- 1.41. Taking this into account, of these options, LUC option A is considered to give the most appropriate weighting to the relevant factors. In any case is not possible to consider the other methods further, as they have not been used to calculate any apportionment figures.

2. Worcestershire only – Potential approaches

- 2.1. If the sub-regional apportionment is not pursued by all authorities in the region the effectiveness of using Worcestershire's sub-regional apportionments as the basis for the emerging Minerals Local Plan becomes questionable as the process depends upon all parties meeting their share.
- 2.2. The Council has therefore considered several alternatives which could be used to determine an appropriate level of provision in Worcestershire. These consider issues such as supply, demand and other factors.
- 2.3. In developing these options the Council has been mindful of the requirement in the NPPF to base the Local Aggregate Assessment on 10 years sales data, other relevant local information and an assessment of all supply options (NPPF paragraph 145).

W.1 Future provision based on last 10 year average sales in Worcestershire

- 2.4. The last 10 years of sales data for Worcestershire could be used as the basis for calculating the provision which should be made in the Minerals Local Plan.
- 2.5. This method would assume that the current balance of imports, exports and provision from alternative aggregate sources remains constant.
- 2.6. Data is available for sand and gravel sales in Worcestershire and is reported annually by the RAWP. However in order to protect confidentiality, sales data is only published where there are more than 3 sites operating in the area. This means that sales data for crushed rock is only published combined with Herefordshire. It is however known that between 1999 and 2001 about a third of crushed rock sales were from Worcestershire and two-thirds from Herefordshire (RAWP Annual Report 2009). This is the most up-to-date data clearly showing sales from Worcestershire available. Based on this information the estimates presented in the 4th column of Table 2.1 have been made for crushed rock sales in Worcestershire.

Table 2.1. Method W.1 Sand and Gravel and Crushed Rock provision required: Primary Aggregates

Year	Sand and Gravel sales (Worcestershire)	Crushed Rock sales (Herefordshire and Worcestershire combined)	Estimated Crushed Rock sales (Worcestershire)
2000	0.839 mt	0.57 mt	0.19 mt
2001	0.836 mt	0.57 mt	0.19 mt
2002	0.833 mt	0.5 mt	0.17 mt
2003	0.89 mt	0.42 mt	0.14 mt
2004(est)	0.85 mt	0.46 mt	0.15 mt
2005	0.75 mt	0.29 mt	0.10 mt
2006	0.7 mt	0.3 mt	0.10 mt
2007	0.81 mt	0.366 mt	0.12 mt
2008	0.758 mt	0.216 mt	0.07 mt
2009	0.524 mt	0.224 mt	0.07 mt
Average	0.779 mt	0.392 mt	0.14 mt

Statement of annual provision required in Worcestershire using W.1

- 2.7. Provision required based on this method:
Sand and Gravel: 0.78 mt per annum
Crushed Rock: 0.14 mt per annum

Appraisal of the method

- 2.8. This approach is based on past sales figures. While this approach is logical and reasonably robust, it is essentially derived from past rates of production, rather than an appraisal of future needs and the likely availability of materials, taking into account a more strategic analysis of environmental and other constraints.
- 2.9. It does not robustly consider all supply options or anticipated levels of imports and exports and is based on the assumption that the current situation will continue. This may be a fair assumption but as the data relating to imports, exports and alternative aggregates is limited there is no way to confirm this. In addition this method also does not take into account other local information.
- 2.10. A key limitation with this method locally is the limited availability of Worcestershire sales data for Crushed Rock. The consideration of sales at a 2:1 ratio is based on the best available data but this data is over 10 years old and may well show historic rather than current or future trends.

W.2 Future provision based on last 12 year average sales in Worcestershire, excluding highest and lowest years to give 10 years sales data

- 2.11. In order to take account of sales trends rather than peaks and troughs, 12 years of sales data for Worcestershire could be used. The highest and lowest could then be discounted when calculating a 10 year average. This method would assume the current balance of imports, exports and provision from alternative aggregate sources remains constant.
- 2.12. Data is available for sand and gravel sales in Worcestershire and is reported annually by the RAWP, however in order to protect confidentiality sales data is only published where there are more than 3 sites operating in the area. This means that sales data for crushed rock is only published combined with Herefordshire. 1997 data for sand and gravel sales is also combined with Herefordshire because at that time Herefordshire and Worcestershire were a combined authority. It is however known that between 1999 and 2001 about a third of crushed rock sales were from Worcestershire and two-thirds from Herefordshire (RAWP Annual Report 2009). This is the most up-to-date data available. Based on this information the estimates presented in the 4th column of Table 2.2 have been made for crushed rock sales in Worcestershire.

**Table 2.2. Method W.2 Sand and Gravel and Crushed Rock provision required
(Primary aggregates)**

Year	Sand and Gravel sales (Worcestershire)	Crushed Rock sales (Herefordshire and Worcestershire combined)	Estimated Crushed Rock sales (Worcestershire)
1998	-0.968 mt	0.58 mt	0.19 mt
1999	0.887 mt	-0.6 mt	0.2 mt
2000	0.839 mt	0.57 mt	0.19 mt
2001	0.836 mt	0.57 mt	0.19 mt
2002	0.833 mt	0.5 mt	0.17 mt
2003	0.89 mt	0.42 mt	0.14 mt
2004(est)	0.85 mt	0.46 mt	0.15 mt
2005	0.75 mt	0.29 mt	0.10 mt
2006	0.7 mt	0.3 mt	0.10 mt
2007	0.81 mt	0.366 mt	0.12 mt
2008	0.758 mt	-0.216 mt	0.07 mt
2009	-0.524 mt	0.224 mt	0.07 mt
Average	0.815 mt	0.428 mt	0.142 mt

Statement of annual provision required in Worcestershire using this W.2

2.13. Provision required based on this method:

Sand and Gravel: 0.789 mt per annum

Crushed Rock: 0.142 mt per annum

Appraisal of the method

2.14. This approach is based on past sales figures. While the basis for the apportionment is judged to be logical and reasonably robust, it is essentially derived from past rates of production, rather than an appraisal of future needs and the likely availability of materials, taking into account a more strategic analysis of environmental and other constraints.

2.15. It does not robustly consider all supply options or anticipated levels of imports and exports and is based on the assumption that the current situation will continue. This may be a fair assumption but as the data relating to imports, exports and alternative aggregates is limited there is no way to confirm this. In addition this method also does not take into account other local information.

2.16. Key limitations with this method are the availability of Worcestershire sales data for Crushed Rock and the lack of an assessment of other sales options.

W.3 Equivalent self-sufficiency (Supply equal to demand based on population estimates)

2.17. The population of Worcestershire is expected to grow by 10% between 2010 – 2030 as set out in Table 2.3. This information could be used to estimate aggregate demand.

Table 2.3. Projected population growth

	2010	2015	2020	2025	2030	2035	change 2010-30	Percentage change 2010-30
Worcestershire	558.6	572.8	587.9	602.7	615.8	627.2	57.2	10.2%

2.18. There is currently no estimate of what resource demand per head of population will be in the future, but Table 3.3 in section 3 shows the average demand per head of population. Based on this data the average consumption of primary aggregates per head of population in England in the last 10 years was 2.95 tonnes.

2.19. This gives an estimated consumption for Worcestershire as set out in Table 2.4.

Table 2.4. Estimated aggregate demand (tpa) based on population growth

	2010	2015	2020	2025	2030	2035
Population	558,600	572,800	587,900	602,700	615,800	627,200
Consumption	1,647,870	1,689,760	1,734,350	1,777,965	1,816,610	1,850,240

2.20. However this approach is for total aggregate demand. To be useful in the local aggregate assessment this needs to be broken down to consider sand and gravel and crushed rock provision separately. There are two alternative approaches to this:

- a) breaking the total consumption down based on the ratio of sand and gravel to crushed rock consumption in the UK. This is approximately 2:3²¹; or
- b) breaking the total consumption down based on the ratio in the current sub-regional apportionment where 15% of the total aggregate apportionment is from crushed rock and 85% from sand and gravel

²¹ Based on United Kingdom Minerals Yearbook 2011 (BGS) Aggregates Summary table. Consumption calculated on the basis of production plus imports minus exports.

Table 2.5. Estimated sand and gravel and crushed rock (Primary aggregates only) demand (tpa) based on population growth

	2010	2015	2020	2025	2030	2035
Total Consumption	1.65	1.70	1.73	1.78	1.82	1.85
a) Sand and gravel	0.66	0.68	0.69	0.71	0.73	0.74
a) Crushed Rock	0.99	1.02	1.04	1.07	1.09	1.11
b) Sand and gravel	1.4	1.45	1.47	1.52	1.55	1.57
b) Crushed Rock	0.25	0.25	0.26	0.26	0.27	0.28

2.21. Option a takes no account of the ability of Worcestershire to supply aggregates, so option b will be used.

Statement of annual provision required in Worcestershire using W.3

2.22. Provision required based on this method:

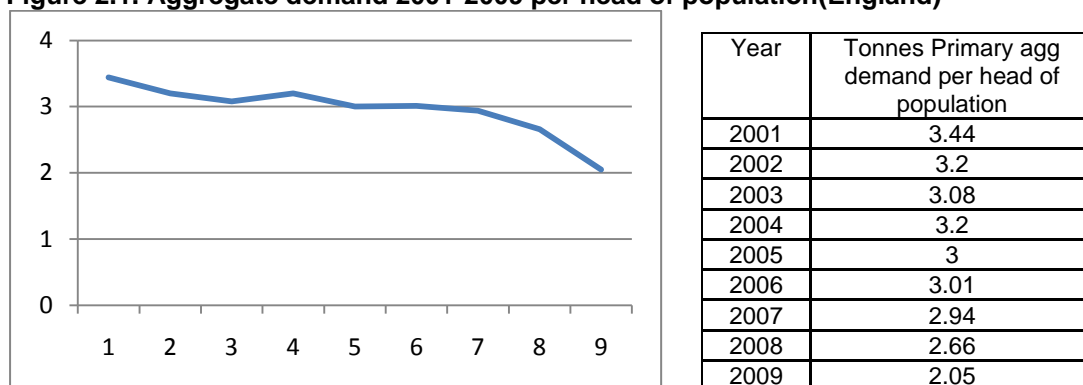
Total primary aggregate: 1.65-1.85 mt (Average 1.75 mt)
Sand and gravel 1.4 – 1.57 mt
Crushed rock 0.25 – 0.28 mt

Appraisal of the method

2.23. This method is largely based on demand rather than ability to supply. As minerals can only be worked where they are found the ability to supply needs to be given significant weight. Although some weight is given to this through the use of option b to disaggregate the overall requirements this is very limited.

2.24. There are also limitations to using average consumption over the last 10 years to calculate as current trends show a 40% decrease in demand between 2001 and 2009. It is not clear to what extent this is due to long-term factors such as increased use of recycled or secondary aggregates, changing construction methods and a de-coupling of resource consumption from economic growth, or how much of the reduction is due to the economic downturn.

Figure 2.1. Aggregate demand 2001-2009 per head of population(England)



3. This method does not take into account the variation of mineral demand nationally which will alter due to the greater concentration of construction activity in some areas compared to others.

4. Other cross-authority cooperation

0.1 Cooperation with Herefordshire

- 4.1. As much of our data is combined with Herefordshire there could be advantages to undertaking a Joint Local Aggregate Assessment. The merits of this approach will need to be discussed with Herefordshire Council.
- 4.2. This may be less of an issue in the future as ONS have agreed to a request from Worcestershire County Council to present the AMRI 2012 data separately for Herefordshire and Worcestershire as long as there are enough operators in both counties to allow them to do this.

0.2 Cooperation with Authorities we import from

- 4.3. The flows of material are important and if the geology of Worcestershire is such that cannot provide equivalent self-sufficiency alone then cooperation will be needed. In the past this strategic role has been undertaken by the Managed Aggregate Supply System. It is not clear how this will continue in the future.
- 4.4. One alternative that could be considered is cooperation with areas which we import minerals from. However there is limited data regarding these movements.

0.3 Cooperation with Authorities we export to

- 4.5. The flows of material are important and if the geology of Worcestershire is such that cannot provide equivalent self-sufficiency alone then cooperation will be needed. In the past this strategic role has been undertaken by the Managed Aggregate Supply System. It is not clear how this will continue in the future.

- 4.6. One alternative that could be considered is cooperation with areas which we export minerals to. However there is limited data regarding these movements. In addition most of the aggregates produced in Worcestershire are low value and are unlikely to be transported long distances.

Annex B: Method Statement – Secondary Aggregates

Summary of alternative methods

- 1.1. Several alternatives on how the need for primary aggregates could be determined have been considered in developing the *Draft Local Aggregate Assessment for Worcestershire Consultation Document*. These can be broadly categorised as those which could be pursued at a regional level through cooperation with an AWP, those that could be pursued by Worcestershire alone and those which could be pursued through cooperation with other authorities.
- 1.2. Options for cooperation with other authorities are yet to be fully developed and will be considered in future consultations. This report applies the same methods used in the *Draft Local Aggregate Assessment for Worcestershire Consultation* to identify what contribution recycled and secondary aggregates could contribute to the total.
- 1.3. There are several alternative which could be used to calculate recycled aggregate provision:
 - A) Assume provision of secondary and recycled aggregates is equal to projected recycling levels of construction and demolition waste.
 - B) Applying a ratio of 71% primary aggregates, 25% secondary aggregates and 4% imports as set out in the *National and Regional Guidelines for Aggregates Provision 2005-2020* to the levels of aggregate provision identified in the *Draft Local Aggregate Assessment for Worcestershire Consultation Document*
 - C) Applying assumptions about the share of regional primary aggregates apportionment to secondary aggregates

Option A: Assume provision of secondary and recycled aggregates is equal to projected recycling levels of construction and demolition waste

- 1.4. This method takes the projections of C&D arisings which informed the Waste Core Strategy to calculate the recycled aggregate provision which could be realised in the County from projected arisings of construction and demolition waste. Table 4.1 sets out a range of provision based on 75% recycling (the target set in the Waste Core Strategy) and 100% recycling which is the maximum provision which could be met from this source without any increase in waste arisings. It should however be noted that not all C&D waste recycled will be suitable for use as aggregate.

Table 4.1 Construction and Demolition waste recycling

	2015	2020	2025	2030	2035
75% Recycling					

per annum	314640	314640	314640	314640	314640
cumulative	314640	1887840	3461040	5034240	6607440
100% Recycling					
per annum	419520	419520	419520	419520	419520
cumulative	419520	2517120	4614720	6712320	8809920

1.5. There are no processes in Worcestershire which produce secondary aggregates at present and therefore secondary aggregates will not be included in this method. However this will be monitored and will be revised if the Council becomes aware of any new process. This might include the recently permitted Energy from Waste Facility to Hartlebury once the proposals progress and the end-use of the bottom ash becomes clearer.

Appraisal of the method

1.6. This method is based on the availability of material. The projections of arisings are based on the best available data and have been tested at examination. The 75% target is inline with the Waste Core Strategy which has been developed to reflect local circumstances. The 100% recycling target shows the maximum that could be realised from this source without increasing arisings of C&D waste. To encourage any increase in C&D waste would be contrary to the Waste Framework Directive and the Waste Hierarchy which seeks to reduce waste arisings in the first instance.

Option B: Applying a ratio of 71% primary aggregates, 25% secondary aggregates and 4% imports to the levels of aggregate provision identified used in the Draft Local Aggregate Assessment for Worcestershire

4.7. The *National and Regional Guidelines for Aggregates Provision 2005-2020*²² are based on the assumption that aggregate provision in England will be comprised of as follows:

- 71% Primary Aggregates
- 25% Secondary and recycled aggregates
- 4% Imports from outside England.

4.8. The *Draft Local Aggregate Assessment* has identified the provision of primary aggregates. This option assumes that primary aggregate provision will be 71% of Worcestershire's total aggregate provision and calculate how much must come from secondary aggregates if it is to account for 25% of Worcestershire's total provision.

4.9. Several alternatives have been considered in developing the *Draft Local Aggregate Assessment*. These can be broadly categorised as those which could be pursued at a regional level through cooperation with an AWP, those that could be pursued by Worcestershire alone and those which could be pursued through cooperation with other authorities. Options for cooperation with other authorities are yet to be fully developed. *Annex A* of

²² 2009

the *Draft Local Aggregate Assessment* sets out these approaches in detail. In summary they are:

West Midlands Regional co-operation

- **R.1 Historic West Midlands approach: Sales-based**
This is the regional apportionment set out in the *National and Regional Guidelines for Aggregates Provision 2005-2020* (CLG June 2009) disaggregated to a sub-regional level. In essence it is based on the distribution of sales in the last 10 years. This is the method that has historically used in the West Midlands.
- **R.2 Sales-led with other considerations.** This option was considered in the review of the West Midlands approach to apportionment. It disaggregates the regional apportionment to a sub-regional level on the basis of factors weighted as follows: 70% past sales, 10% demand, 10% the resource, 10% constraints. This takes into account a range of considerations, but retains the focus on past sales as an indication of the ability of an area to supply aggregates.
- **R.3 Phased transition from R1 to R2.** This option is a phased transition from R.1 to R.2.

If all authorities in the region adopt the same approach all of these methods could enable adequate provision to be made to deliver the regional apportionment. However it is not clear whether there will be agreement over these issues.

Worcestershire only

- **W.1 Last 10 year average sales in Worcestershire** Sales figures in Worcestershire over the last 10 years have been considered to establish an average. For crushed rock this has been done based on the assumption that one third of crushed rock sales are from Worcestershire and two-thirds are from Herefordshire²³.
- **W.2 Last 12 year average sales in Worcestershire, excluding highest and lowest** Sales figures in Worcestershire over the last 12 years have been considered, with the highest and lowest excluded when establishing an average. For crushed rock this has been done based on the assumption that one third of crushed rock sales are from Worcestershire and two-thirds are from Herefordshire²⁴. This approach allows peaks and troughs to be

²³ It is known that between 1999 and 2001 about a third of crushed rock sales were from Worcestershire and two-thirds from Herefordshire (RAWP Annual Report 2009). This is the most up-to-date data clearly showing sales from Worcestershire available and has been used to derive and estimate which can be applied to other years.

²⁴ It is known that between 1999 and 2001 about a third of crushed rock sales were from Worcestershire and two-thirds from Herefordshire (RAWP Annual Report 2009). This is the most up-to-date data clearly showing sales from Worcestershire available and has been used to derive and estimate which can be applied to other years.

balanced out, moderating the impact of the economic downturn on 2008/2009 sales figures.

- **W.3 Equivalent self-sufficiency (supply equal to demand based on population estimates)** Estimates of national demand for aggregates per head of population have been applied to the population projections for Worcestershire up to 2030 to estimate likely demand in the County.

Cooperation with other authorities

- These alternatives are yet to be fully developed but some alternatives are considered in Annex A.

4.10. Table 4.2 sets out the annual primary aggregate provision which would be required for each of these methods and the recycled aggregate provision which would be required applying the 71%, 25%, 4% breakdown.

Table 4.2 Option B - Recycled and secondary aggregates

	2015	2020	2025	2030	2035
R.1					
Primary	0.87	0.87	0.87	0.87	0.87
Recycled and Secondary	0.36	0.36	0.36	0.36	0.36
R.2					
Primary	1.01	1.01	1.01	1.01	1.01
Recycled and Secondary	0.33	0.36	0.36	0.36	0.36
R.3					
Primary	0.94	1.02	1.02	1.02	1.02
Recycled and Secondary	0.33	0.36	0.36	0.36	0.36
W.1					
Primary	0.78	0.78	0.78	0.78	0.78
Recycled and Secondary	0.27	0.27	0.27	0.27	0.27
W.2					
Primary	0.79	0.79	0.79	0.79	0.79
Recycled and Secondary	0.28	0.28	0.28	0.28	0.28
Range					
Primary	0.78-1.45	0.78-1.47	0.78-1.52	0.78-1.55	0.78-1.57
Recycled and Secondary	0.27-0.36	0.27-0.36	0.27-0.36	0.27-0.36	0.27-0.36

Appraisal of the method

- 4.11. This method is broadly in line with the national approach, however it does not take into account the ability of Worcestershire to supply recycled and secondary aggregates.
- 1.7. Methods R.1, R.2, R.3, W.1 and W.2 use past sales of primary aggregates as the basis for calculating provision, although other factors are considered to varying degrees. This has various merits and limitations as outlined in the Draft Local Aggregate Assessment, however one of the main merits is that these methods give consideration to the ability to supply based on the geology of the area. However there is no direct link between this and the ability to supply recycled aggregates which will be related to construction activity in the area. The validity of basing recycled aggregate provision on these figures is therefore limited as it does not reflect the ability of Worcestershire to supply secondary or recycled aggregates. Using past sales of primary aggregates alone has no bearing on the ability of Worcestershire to supply recycled aggregates.
- 1.8. It is possible that levels of provision of recycled aggregates could be greater than that set out above, depending on the proportion of C&D waste which can be used for these purposes. There is therefore a danger relying on past sales could continue existing patterns of aggregate supply in the County which currently reflect relatively low levels of C and D recycling. Limiting the amount primary production contributes to aggregate supply in the Minerals Local Plan should however encourage the production and use of recycled aggregates and encourage market innovation and the development of new recycling and treatment methods. The increased cost and difficulty of landfilling materials in both national and local policy (in the Worcestershire Waste Core Strategy) should significantly assist this.
- 1.9. Option C. Applying assumptions about the share of regional primary aggregates apportionment to secondary aggregates
- 1.10. The *National and Regional Guidelines for Aggregates Provision 2005-2020* (CLG June 2009) identify that 100 million tonnes of aggregates should come from alternative materials (namely secondary and recycled aggregates) between 2005 - 2020. The annual provision of secondary and recycled aggregates required in the West Midlands is therefore 6.67 million tonnes per annum.
- 1.11. Each of the regional methods considered in the Draft Local Aggregates Assessment apportion a different share of the West Midlands primary aggregate provision to Worcestershire:
- **Method R.1 Historic West Midlands approach: Sales-based**
6.7% of West Midlands primary aggregate provision from Worcestershire.
 - **Method R.2 Sales-led with other considerations**
8.49% of the total regional primary aggregate production.
 - **Method R.3 Phased transition from R1 to R2.**
8.57% of the total regional primary aggregate production 2011-12
8.97% of the total regional primary aggregate production 2013-15

9.79% of the total regional primary aggregate production 20016-20

1.12. Table 4.3 sets out the secondary and recycled aggregate provision in Worcestershire if the 6.67 million tonnes per annum of West Midlands regional secondary and recycled requirements were apportioned on the same basis.

Table 4.3 Recycled and Secondary Aggregates: Option C

	2015	2020	2025	2030	2035
R.1	446,000	446,000	446,000	446,000	446,000
R.2	566,000	566,000	566,000	566,000	566,000
R.3	743,590	681,308	681,308	681,308	681,308

Appraisal of the method

1.13. Methods R.1, R.2 and R.3 uses past sales of primary aggregates to varying degrees as the basis for calculating provision. Using past sales of primary aggregates alone has no bearing on the ability of Worcestershire to supply recycled aggregates. Using this approach and applying it to R.1, R.2 and R.3 gives figures for the level of provision that is required that are higher than the known arising of C&D waste in the County. To encourage greater level of recycled aggregate provision than the level of C&D waste projections for the county would need an increase in waste arisings and any increase in C&D waste would be contrary to the Waste Framework Directive and the Waste Hierarchy which seeks to reduce waste arisings in the first instance.