

Oxfordshire Minerals and Waste Local Plan

**OXFORDSHIRE LOCAL AGGREGATE
ASSESSMENT 2019**

October 2019

Oxfordshire Local Aggregate Assessment 2019

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1. Executive Summary

- 1.1. The National Planning Policy Framework, July 2018 (NPPF) states that mineral planning authorities should prepare an annual local aggregate assessment (LAA)
- 1.2. The LAA is required to:
 - Forecast the demand for aggregates based on average 10 years' sales data and other relevant local information;
 - analyse all aggregate supply options and;
 - assess the balance between demand and supply.
- 1.3. The LAA sets the future supply of sand and gravel and crushed rock and is used to determine the minerals 'landbank.'. The NPPF states the LAA should 'forecast future demand, based on a rolling average of 10 years' sales data and other relevant information, and an assessment of all supply options'.
- 1.4. This is the seventh LAA for Oxfordshire which includes the most recent (2018) aggregate sales and reserves data for the County. The 10-year period covered by this LAA is 2009 up to 2018 and the three-year period is 2016 – 2018.

Demand

Sand and Gravel

- 1.5. Sales of sharp sand and gravel increased in 2018 but were still below the LAA 2018 provision figure of 1.015mtpa. There was an increase in the 10-year sales average (0.592mt), this being the first such increase since the LAA 2014 and reversing the previous trend of annual decreases in the 10-year average. The 3-year sales average of sharp sand and gravel increased again to 0.717mt and is 21% higher than the 10-year average. Both are still below the LAA provision figure. Having considered the sales trends and other relevant information contained within this report it is not necessary to change the LAA 2019 provision figure for sharp sand and gravel and it will remain at 1.015mtpa.
- 1.6. Sales of soft sand in 2018 remained virtually the same as in 2017, at the highest level since 2004. The 10-year sales average increased again (0.202mt), further above the LAA 2018 provision figure of 0.189mtpa. The 3-year sales average also increased again, to 29% above the LAA provision figure (0.243mt). Having considered the sales trends and other relevant information contained within this report, the LAA 2019 provision figure should be revised to 0.243mtpa to accurately reflect the current situation and to ensure soft sand provision for the future.

Crushed Rock

- 1.7. Sales of crushed rock fell in 2018 but the 10-year sales average increased (0.601mt) is and now above the LAA 2018 provision figure of 0.584mtpa. The 3-year sales average fell slightly but is still 33% higher than the LAA provision figure. Having considered the sales trends and other relevant information contained within this report, the LAA 2019 provision figure for crushed rock should be revised to 0.778mtpa to accurately reflect the current situation and to ensure provision for the future.

Rail Depots

- 1.8. Sales of crushed rock imported to Oxfordshire through rail depots were almost the same in 2018 as in 2017 and were consistent with levels over the previous 3 years. Due to confidentiality, we are unable to publish the yearly figures though we can say that they have been at a significantly higher rate than 2014 and that they are two and half times that of 2007.

Recycled and Secondary Aggregates

- 1.9. Sales of recycled and secondary aggregates recorded in the survey were 406,000 tonnes in 2018. This is almost the same as the 417,000 tonnes recorded in 2017, but as per other years there was not a complete response to the survey and the actual total sales figures are believed to be higher. Having considered the sales trends and other relevant information contained within this report, the LAA 2019 figure for recycled and secondary aggregate should be the provision figure set in the Oxfordshire Minerals and Waste Local Plan: Part 1 – Core Strategy 2017, Policy M3 which is 0.926mtpa.

Supply

Sand and gravel

- 1.10. At the end of 2018, Oxfordshire had 10 active sand and gravel quarries within Oxfordshire, a further three not yet commenced and three currently inactive. One site closed in 2018. Planning permission was granted for one extension to an existing quarry, and one new site was permitted during 2018.
- 1.11. Total permitted reserves of sharp sand and gravel in Oxfordshire at the end of 2018 were 12.925 mt. Using the LAA provision figures of 1.015mtpa, this gives a landbank of 12.3 years.
- 1.12. In terms of the plan period, the provision level figure for sharp sand and gravel of 1.015mtpa multiplied by the plan period of 18 years, gives a total provision requirement of 18.27 mt for the period 2014 to 2031. The permitted reserves of sharp sand & gravel at 31 December 2018 amount to 12.925 mt. Taking into account sales in 2014 – 2018 (total 3.558 mt), and reserves that are not expected to be worked until after the plan period (1.85 mt), the remaining requirement for the period to 2031 is 3.637 mt. ¹

¹ Calculations can be seen in Appendix 1

- 1.13. Total permitted reserves for soft sand in Oxfordshire at the end of 2018 were 3.091mt. Using the LAA provision figure of 0.243mt this gives a landbank of 12.7 years.
- 1.14. In terms of the plan period, the provision level of 0.243 multiplied by the plan period of 18 years gives a total provision requirement of 4.374 million tonnes for the period 2014 to 2031. The permitted reserves of soft sand at 31 December 2018 amount to 3.091 mt. Taking into account sales between 2014- 2018 (total 1.193 mt) and reserves that are not expected to be worked until after the plan period (0.5 mt), the remaining requirement for the period to 2031 is 0.641 mt.²

Crushed rock

- 1.15. At the end of 2018, there were 12 active crushed rock sites within Oxfordshire and a further two inactive. One site closed in 2018 and there were no new permissions for crushed rock sites.
- 1.16. Total permitted reserves for crushed rock in Oxfordshire at the end of 2018 were 7.718mt. Using the LAA provision figure of 0.778mtpa this gives a landbank of 9.9 years.
- 1.17. In terms of the plan period, the provision level figure of 0.778mtpa multiplied by the Plan period of 18 years, gives a total provision requirement of 14.004 mt of crushed rock required for the period 2014 to 2031. Taking into account sales between 2014 to 2018 (total 4.308 million tonnes), the remaining requirement for the period to 2031 is 1.978 mt.³
- 1.18. We will therefore need to identify sites for sharp sand and gravel, soft sand and crushed rock **to meet the mineral requirements over the Plan Period.**
- **Sand and Gravel - 3.637 mt.**
 - **Soft Sand - 0.641 mt**
 - **Crushed rock - 1.978 mt**
- 1.19. The Minerals and Waste Local Plan: Part 2 – Site Allocations is currently in preparation, following the adoption of the Minerals and Waste Local Plan: Part 1 - Core Strategy in 2017. We will be consulting on the Preferred Options (Reg 18) in late 2019/early 2020, with the aim of adopting the Plan by Spring 2021.

Recycled and secondary material sites

- 1.20. At the end of 2018, Oxfordshire's capacity to produce recycled and secondary aggregate in 2018, as recorded for the SEEAWP survey was approximately 860,680 t. It is noted that only around 60% of operators completed the survey and so the actual capacity is likely to be higher.

² Calculations can be seen in Appendix 1

³ Calculations can be seen in Appendix 1

Rail Depots

- 1.21. Oxfordshire has four permitted rail depots, three of which are operational. The combined sales from the three railhead depots operational in 2018 represent 88% of the total throughput capacity of these three depots. If the permitted railhead depot at Shipton on Cherwell is developed, the capacity will be increased

Relationships with other MPA's

- 1.22. Every county in the UK has to import aggregates because none possess the geology necessary to produce all the types of aggregate required. All sales which reflect supply and demand are tracked in the four (six) yearly national aggregate surveys. The last one being undertaken in 2014.
- 1.23. Comparison of the AM2009 and AM2014 results show that Oxfordshire changed from being a net importer of sand and gravel (130,000 tonnes) in 2009 to being a net exporter (104,000 tonnes) in 2014. Oxfordshire was a net importer of crushed rock in both years, and the net import level increased from 262,000t in 2009 to 440,000 t in 2014). At the same time, the quantity of crushed rock exported from the county almost doubled from 179,000 t in 2009 to 347,000 t in 2014).
- 1.24. We will continue to work with other Authorities under Duty to Cooperate and prepare Statements of Common Ground (SCGs) where necessary. We will also continue to work with SEEAWP members on position statements as and when required.

Marine Sand and Gravel

- 1.25. The AM2005, AM2009 and AM2014 reports show that Oxfordshire's consumption of marine sand was just 1,000 tonnes in 2005 (shared with Buckinghamshire and Berkshire), increasing to 16,000 tonnes in 2009 and down to 6,000 tonnes in 2014. In 2016 there were marine sand and gravel imports into Oxfordshire by rail into Sutton Courtenay, to make up for a shortfall in supply of land-won sharp sand and gravel caused by a break in production at Bridge Farm Quarry for operational reasons, though once the site resumed operation this stopped.

Factors affecting supply and demand

- 1.26. The extension to Caversham Quarry, which commenced operation towards the end of 2017, came into full operation in 2018, enabling an increase in overall sharp sand and gravel sales. Preparation for working the remaining permitted reserve at Cassington Quarry has just commenced. However, the permitted reserve at Stonehenge Farm, Stanton Harcourt still remains to be worked. New Barn Farm, Cholsey was permitted towards the end of 2018 and this is expected to commence in 2019 and thereby enable a further potential increase in overall sharp sand and gravel sales.

- 1.27. There are a number of major infrastructure projects as well as local housing and transport projects planned for over the Plan period, however there is also no evidence of significant change in factors that could affect demand for aggregate minerals in Oxfordshire over the plan period that have not already previously been considered. These include economic growth; population growth and house construction; major infrastructure projects and key developments.

Executive Summary Conclusion

- 1.28. The purpose of an annual Local Aggregates Assessment is to review the latest information available in order to forecast future demand as well as analysing all aggregate supply options and assessing the balance between supply and demand. The LAA sets the level of provision to be made for future supply of sand and gravel and crushed rock from quarries and the NPPF states the LAA should 'forecast future demand, based on a rolling average of 10 years' sales data and other relevant information, and an assessment of all supply options.'
- 1.29. Having reviewed the 2018 figures based on the 10-year sales average data, we also reviewed the 3-years sales average and assessed the implications of the continued growth that is planned across Oxfordshire. To ensure that supply continues to meet demand the **LAA Provision levels** have been determined for the LAA 2019 as follows:
- **Sand and Gravel – 1.015mtpa**
 - **Soft Sand – 0.243mtpa**
 - **Crushed rock – 0.778mtpa**
 - **Recycled and Secondary Aggregates- 0.926mtpa**
- 1.30. Using these LAA provision levels and the Oxfordshire reserves at the end of 2018, the **Landbank** can be calculated as:
- **Sand and Gravel - 12.7 years**
 - **Soft Sand - 12.72 years**
 - **Crushed Rock - 9.9 years**
- 1.31. We will need to identify sites for sharp sand and gravel, soft sand and crushed rock to meet the mineral requirements over the Plan Period.
- **Sand and Gravel - 3.637 million tonnes.**
 - **Soft Sand - 0.641 million tonnes**
 - **Crushed rock - 1.978 million tonnes**
- 1.32. This work is currently being undertaken in the preparation of the Minerals and Waste Local Plan: Part 2 – Site Allocations.

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Oxfordshire Summary of Key Data 2018

	Summary – Oxfordshire County Council 2018								
Quarry Sales	2018 Sales (Mt) & Trend ¹	Average (10-yr) Sales & Trend ¹	Average (3-yr) Sales & Trend ¹	LAA Rate (Mt) ²	Reserve (Mt)	Landbank (years)	Allocations (years)	Capacity (Mtpa)	Comments ³
Soft Sand	0.252 ↑	0.202 ↑	0.243 ↑	0.243	3.091	12.7	N/A	0.390	The LAA rate has been increased from 0.189mtpa. The landbank remains above the 7 year requirement.
Sharp Sand & Gravel	0.796 ↑	0.592 ↑	0.717 ↑	1.015	12.925	12.7	N/A	1.624	The LAA rate remains the same as LAA2014. The landbank remains above the 7 year requirement.
Crushed Rock	0.751 ↓	0.601 ↑	0.778 ↓	0.788	7.718	9.9	N/A	1.700	The LAA rate has been increased from 0.584mtpa. The landbank is now just below the 10 year requirement.

	2018 Sales (Mt) & Trend ¹	Average (10-yr) Sales	Average (3-yr) Sales & Trend ¹	LAA Rate ² (Mt)	Reserve (Mt)	Landbank (years)	Allocations (years)	Capacity (Mtpa)	Comments ³
Recycled / Secondary Aggregates	.406 ↓	.364 ↓	.452 ↓	0.926	N/A	N/A	N/A	.861	Only 60% of operators responded providing the capacity of 860.680mtpa. It is believed the actual figure is higher.
Rail Depot Sales (Sand & Gravel)	c	c	c	c	c	c	c	c	Due to confidentiality we are unable to share these figures
Rail Depot Sales (Crushed Rock)	c	c	c	c	c	c	c	c	Due to confidentiality we are unable to share these figures.

General Comments⁶

There is likely to be a continued increase in aggregate demand in Oxfordshire given the increase in planned future infrastructure delivery. The LAA Rate of 1.015.Mt for sharp sand and gravel as set in the AMR2014 and each subsequent year, has been maintained is felt this reflects the level of future demand and the current sales figures. However, following review and to more accurately reflect current sales and meet future demand, the LAA rate for Soft Sand and Crushed Rock have been increased. Soft Sand has been increased to 0.243mt and Crushed Rock increased to 0.788mt. The change to the Crushed Rock LAA Rate means that we are below the required 10-year landbank, and this situation highlights the importance of the emerging Minerals & Waste Local Plan: Part 2 Site Allocations.

Footnotes:

1. **Trend** – indicates whether the average sales are (compared with the previous year's LAA average sales) increasing (upwards arrow), declining (downwards arrow) or no change (level arrow)
2. **LAA Rate** – There should be LAA Rate for not only quarried aggregates but also aggregate sales at wharves, rail depots and recycled/secondary sites
3. **Comments** – limit comments to explain possible anomalies e.g. peculiarities about current sales, landbank limitations, important infrastructure changes, soft sand sales at wharves, origins of aggregate imports by sea/rail etc
4. **All sand and gravel** – data only required if AM confidentiality requirements breached by separately presenting information on soft sand and sharp sand and gravel
5. **Shading** – apply where aggregate supply source is not relevant
6. **General Comments** – explain overall picture with reference to demand, factoring in export requirements and sustainability of supply – landbank, allocations, infrastructure capacity - to meet this. If possible, should state **whether the mpa considers it is making an appropriate contribution to what are understood to be the aggregate supply that is required of the mpa area and include an analysis of the adequacy of the current mineral/local plan and whether this should be reviewed**

2. Demand

Land Won Aggregate

Sharp Sand and Gravel Past Sales

- 3.1 Sales of sharp sand and gravel from quarries in Oxfordshire for the period 2009 – 2018 are shown in Table 3.1. These figures are taken from the aggregates monitoring surveys undertaken annually by the County Council on behalf of the SEEAWP.

Table 3.1: Sales of Sharp Sand and Gravel 2009 – 2018 (million tonnes)
(Sources: SEEAWP Aggregates Monitoring Surveys)

2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	10 year average	Last 3 year average
0.462	0.455	0.489	0.559	0.401	0.639	0.768	0.651	0.703	0.796	0.592	0.717

- 3.2 Sales of sharp sand and gravel from quarries in Oxfordshire and England, and the Oxfordshire sales as a percentage of England sales, for the period 2003 – 2018 are shown in Appendix 1 Historic Sales.
- 3.3 Sales of sharp sand and gravel in Oxfordshire have generally increased over the baseline period, with slight dips in 2010, 2013 and 2016. 2018 has the highest recorded sales over the period and looking at historic sales, they are the highest sales⁴ since 2007.
- 3.4 Sales between 2009 and 2013 show the effects of the economic recession.
- 3.5 The closure of Caversham Quarry during 2013 due to exhaustion of reserves in 2012, pending grant of permission for an extension (approved in August 2014 but not commenced until 2017), is likely to have affected the total sales in 2013.
- 3.6 There was also 15% fall in sales of sharp sand and gravel from quarries in Oxfordshire from 2015 to 2016. Most of this decrease was accounted for by sales at one quarry - Bridge Farm, Sutton Courtenay. The fall in sales at this quarry in 2016 was caused primarily by a break in production whilst the determination and issue of the planning permission to work the full depth of gravel in Phase 4b at Bridge Farm was awaited; the permission was issued on 17 May 2016. The shortfall in supply from Bridge Farm during this time was made up by imports of marine dredged material, delivered by rail from East London into Appleford Sidings, Sutton Courtenay Depot. Crushed rock (limestone) was also imported by rail into this depot, from Somerset, and used to substitute sand and gravel. In 2017 sales of

⁴ Appendix 1 – Historic Sales

sand and gravel extracted from Bridge Farm, Sutton Courtenay Quarry returned to the 2015 level; and overall sales of sharp sand and gravel in Oxfordshire increased again.

- 3.7 Based on linear trend analysis shown in Figure 3.1, the average rate of increase over the period 2009 to 2018 in Oxfordshire was 0.0388mtpa, giving a total increase of 0.388mtpa over the 10-year period with 3 intervals of decline. The periods of decline are discussed in 3.4-3.6 This represents an average 2.7% increase on the previous 10-year baseline period⁵ and reversing the previous trend of annual decreases in the 10-year average.
- 3.8 The 3-year sales average of sharp sand and gravel increased again to 0.717mt and is 21% higher than the 10-year average.

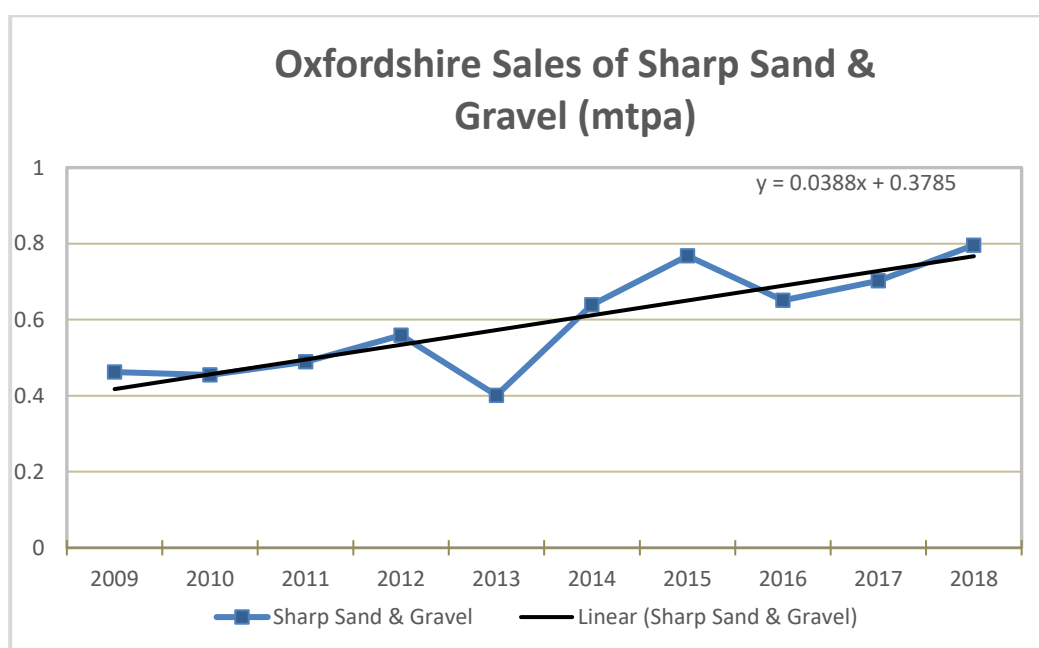


Figure 3.1 Linear trend analysis - Sharp sand and gravel sales (mtpa)

Soft Sand Past Sales

- 3.9 Sales of soft sand from quarries in Oxfordshire 2008–2018 are shown in Table 3.2. These figures are from aggregates monitoring surveys undertaken annually by the County Council on behalf of the SEEAWP and AMRI surveys.

2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	10 year average	3 year average
0.165	0.142	0.201	0.155	0.165	0.230	0.233	0.227	0.251	0.252	0.202	0.243

Table 3.2: Sales of Sharp Sand and Gravel 2009 – 2018 (million tonnes) (Sources: SEEAWP Aggregates Monitoring Surveys)

⁵ Oxfordshire County Council LAA2017

- 3.10 Historic sales of soft sand from quarries in Oxfordshire and England, and the Oxfordshire sales as a percentage of England sales, for the period 2003 – 2018 are shown in Appendix 1 – Historic Sales.
- 3.11 Over the last 10 years, there has been an overall steady increase in the sales of soft sand in Oxfordshire. Linear trend analysis (Figure 3.3) over the period 2009 to 2018 reveals an average rate of increase of 0.0012mtpa for Oxfordshire, representing a total of 0.012mt (with four periods of decline). This is a 5% increase on the previous 10-year baseline period. This is the highest level since 2004.
- 3.12 The 3-year sales average of soft sand has increased again to 0.243mtpa and is 20% higher than the 10-year average.

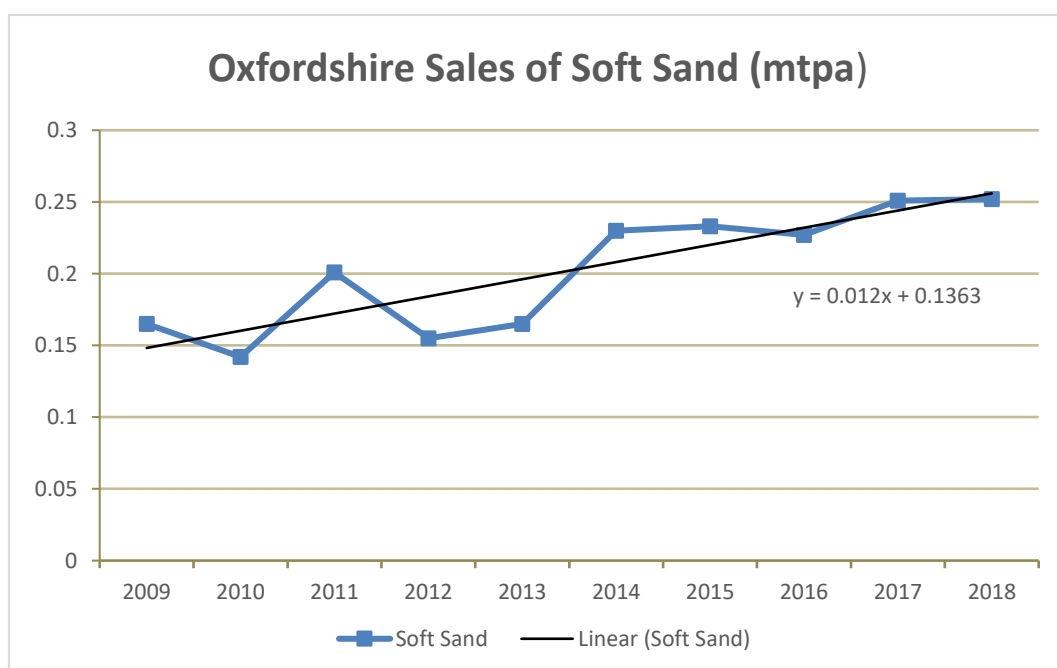


Figure 3.2 Linear trend analysis – Soft sand sales

Crushed Rock Past Sales

- 3.13 Sales of crushed rock from quarries in Oxfordshire for the period 2008– 2018 are shown in Table 3.6. These figures are from aggregates monitoring surveys undertaken annually by the County Council on behalf of the SEEAWP, and AMRI surveys.

Year	Oxfordshire Crushed Rock Sales (million tonnes) ⁶
2009	0.363
2010	0.272

⁶ SEEAWP Aggregates Monitoring Surveys

Year	Oxfordshire Crushed Rock Sales (million tonnes) ⁶
2011	0.322
2012	0.242
2013	0.502
2014	1.061
2015	0.914
2016	0.715
2017	0.867
2018	0.751
10 year average	0.601
Last 3 year average	0.778

Table 3.3: Sales of Crushed Rock 2003 – 2018 (million tonnes) (Sources: SEEAWP Aggregates Monitoring Surveys, and AMRI Surveys)

- 3.14 Historic sales of crushed rock from quarries in Oxfordshire and England, and the Oxfordshire sales as a percentage of England sales, for the period 2003 – 2018 are shown in Appendix 1 – Historic Sales.
- 3.15 Linear trend analysis of crushed rock sales (Figure 3.3) over the period 2009 to 2018 reveals an average rate of increase of 0.074mtpa for Oxfordshire. The resulting overall increase over that period is 0.74mt (5 periods of decline).
- 3.16 The 2014 LAA identified that the impact of the prolonged recession on crushed rock sales was more pronounced in Oxfordshire. This was attributed to the fact that Oxfordshire's crushed rock is generally suitable only for relatively low specification works, and might therefore have been less resilient to the economic downturn than the higher specification rock types found in other parts of the country.
- 3.17 There was a slight decrease in crushed rock sales in 2018 but this is similar to those in 2016 and is still a 4.6% increase on the previous 10-year baseline period and a 18.5% increase on the 2005 – 2014 baseline period. (Appendix 1)
- 3.18 The 3-year sales average fell slightly to 0.788mtpa but is still 33% higher than the LAA provision figure.

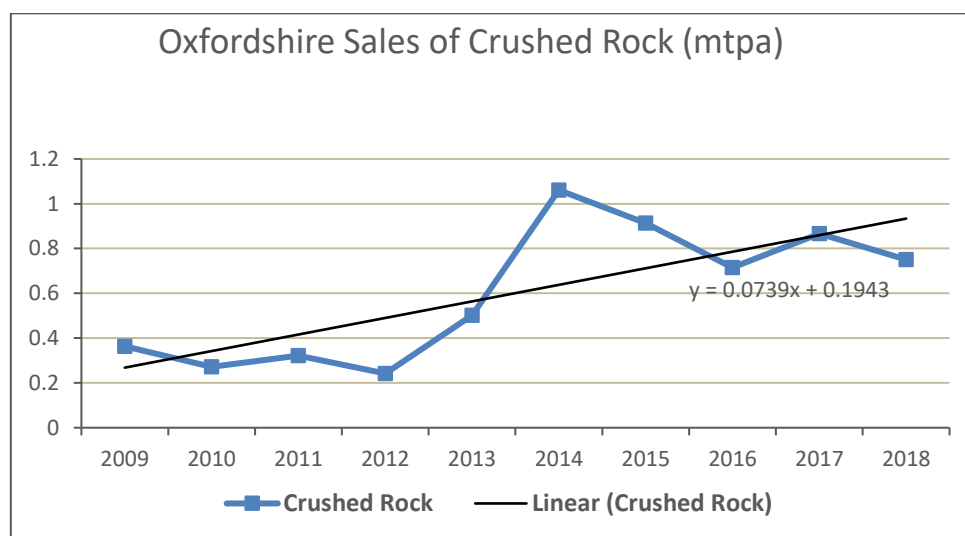


Figure 3.3 Linear trend analysis – Crushed rock sales

Secondary and Recycled Aggregate

- 3.19 Although reasonable data on recycling capacity is available for Oxfordshire, and whilst that may be indicative of increasing production and sophistication, there is only partial information on the actual levels of production and use of these materials. Past aggregates monitoring surveys, for example, have not produced a full response from secondary and recycled aggregates site operators. This year has seen a 60% return rate. As a result, recorded sales of secondary and recycled aggregates in Oxfordshire for particular years (notably 2010, 2011 and 2014), are believed to be significantly less than the total actual production. The surveys in the years 2013 and 2015 to 2017, particularly 2016, had better response rates
- 3.20 Table 3.4 shows the secondary and recycled aggregate sales since 2009. Unlike Sand and Gravel and Crushed Rock, figures are not available for earlier years. Total recorded sales in 2018 were 406,000. As mentioned above, 2018 only had a 60% response rate from operators.

Year	Sales (tonnes)
2009	286,000
2010	152,000
2011	236,000
2012	466,000
2013	422,000
2014	271,000
2015	453,000
2016	534,000

Year	Sales (tonnes)
2017	417,000
2018	406,000
10 year annual average (2009 – 2018)	364,300
Average of last 3 years 2016 -2018	452,333

Table 3.4: Secondary and Recycled Aggregates Sales in Oxfordshire (Source: SEEAWP Aggregates Monitoring Surveys)

- 3.21 In a recent MPA⁷ Report, it is suggested that an alternative approach for considering secondary and recycled aggregate demand would be to assume 30% of all aggregates sales originate from recycled and secondary aggregate sites. This proportion has been assumed by industry for some years at the GB level. However, it is acknowledged there is lots of variation that depends on type of construction activity occurring and amount of hard demolition waste available. If we were to apply this to Oxfordshire to all sand and gravel and crushed rock sales in 2018, this would give a recycled and secondary figure of 538,700tonnes, which is considerably higher than our survey returns.

Imports of Secondary Aggregates

- 3.22 No secondary aggregates are currently transported into Oxfordshire. This is largely due to the costs of transporting the material, and because the exemptions from the aggregates levy, that gave secondary aggregates a cost advantage over primary aggregates were withdrawn in April 2014.
- 3.23 One potential exception to this is China Clay sand, produced as a by-product of China Clay (Kaolin) extraction in Cornwall and Devon. This commands prices high enough to justify the cost of long-distance sea or rail transport. These conditions do not, however, currently apply in Oxfordshire. There is no opportunity to transport by sea. Import by rail would be difficult both because of the need to double handle the material and because there is a current shortage of network capacity.

Rail Depots

- 3.24 There are three railhead depots in Oxfordshire used for importing aggregates, namely at Banbury, Kidlington and Sutton Courtenay and these are safeguarded in the Oxfordshire Minerals and Waste Local Plan: Part 1 Core Strategy. These depots import crushed rock aggregates from the South West (Somerset) and the East Midlands (Leicestershire). There is planning permission for a further railhead aggregate depot at Shipton on Cherwell, but this has not yet been developed. There is also a depot at Hinksey Sidings, Oxford but this is used solely by the rail industry to bring in rail ballast for internal use on the rail network; it is currently

⁷ Construction and Markets – South East MPA: Mineral Products Association - November 2018

operational but its use for the transshipment of rail ballast has been intermittent in the past.

- 3.25 Figures for imports of crushed rock by rail collected by Oxfordshire County Council are only available from 2007 onwards. Prior to that year only the regional totals are available. The Oxfordshire figures are confidential because they are derived from returns for only two companies. The figures incorporate imports by rail from Somerset, Leicestershire and elsewhere, but also include significant quantities (from South Wales, South Gloucestershire and Kent) that are delivered to the rail depots by road, thus distorting the true picture for rail transportation (but at least providing quantification of those road imports). The figures do not include imports of crushed rock to Hinksey Sidings, Oxford, which was brought in by rail and despatched by rail for use as rail ballast on the rail network (over a wider area than just Oxfordshire).
- 3.26 Although the raw data is confidential, it is possible to report the variations over time (from 2007 onwards) in overall sales from the rail depots from the two reporting companies. Table 3.8 below, expresses the annual sales from rail depots for 2008 to 2017 as proportions of the sales figure for 2007.

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Proportion of 2007 sales of subsequent year sales	1.0	1.1	0.7	0.9	1.2	1.0	1.0	2.4	2.2	2.4	2.5	2.5

Table 3.5: Pattern of sales from Oxfordshire rail depots 2007-2017 (Source: Oxfordshire County Council Aggregates Monitoring Survey)

- 3.27 Table 3.5 shows that the figures vary from one year to another but that up to 2013 the fluctuation is less marked than those for sales of sand & gravel. Since 2013, the situation has changed, with annual rail imports for 2014 to 2018 being consistently around two and a half times that imported in 2007.
- 3.28 The combined sales from the three railhead depots that were operational in 2018 represent 88% of the total throughput capacity of these three depots, indicating that there is currently little headroom for further increase in imports of crushed rock by rail. If the permitted railhead depot at Shipton on Cherwell is developed, the capacity will be increased.

3. Factors affecting demand

- 4.1 Although the NPPF requires that the level of future provision within the LAA should be based, in part, on the rolling average of 10 years' sales figures. it also requires "other relevant local information" to be taken into account.
- 4.2 We need to consider whether or not the historical 10 year average for land-won primary aggregate production can be relied upon as a guide to future levels of provision, or whether this needs to be changed in order to reflect other factors which may influence either the supply (availability) and/or the demand for aggregates produced within Oxfordshire, in future years.

Economic forecasts

- 4.3 In considering Economic growth on the supply and demand of aggregates, several national forecasts have been considered⁸. To consider economic forecasts this section considers Gross Domestic Product (GDP) and construction rates.
- 4.4 The Gross Domestic Product (GDP) is only available at UK level but it does provide a background indicator as to the relative changes in economic activity likely to be experienced in Oxfordshire over time. Table 4.1 below shows the annual out-turn Real GDP figures for the UK as a whole for the 10-year baseline period. These clearly show the deepening of the recession in 2009 and the following prolonged period of fluctuating but generally limited economic growth thereafter. The average rate of growth in the UK over the baseline 10-year period was 1.35%

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	10 year average
UK	-4.2%	1.7%	1.6%	1.4%	2.8%	2.9%	2.3%	1.8%	1.8%	1.4%	1.35%

Table 4.1: Changes in UK Real GDP over the baseline period (SOURCE: Eurostat Website)

- 4.5 The slow growth forecasts as set out in Table 4.2 by the Office of Budget Responsibility, reflect the ongoing and political uncertainty relating to the outcome of Brexit. In general, in the short-term they predict a slowing in growth of GDP and the construction industry, but do not foresee a dramatic decline.

⁸ PricewaterhouseCoopers (PwC) (July 2017) UK Economic Outlook.

HM Treasury, Forecasts for the UK economy: a comparison of independent forecasts, Macroeconomic Prospects Team, No. 387 September 2019 .

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/832071/forecasts_for_the_uk_economy_September_2019.pdf

<https://www.pwc.co.uk/services/economics-policy/insights/uk-economic-outlook/ukeo-march-2019.html>

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Annual average
UK GDP	1.4%	1.2%	1.4%	1.6%	1.6%	1.6%	Not yet forecast				1.47%

Table 4.2: Forecast future changes in UK GDP (OBR Economic and Fiscal Outlook Report, March 2019)

- 4.6 Although the forecasted annual average for the period 2018 to 2023 (1.47%) is less than the average for the previous 10 years (1.84%)⁹, this figure can only be used with considerable caution. As demonstrated very clearly by the data for the previous decade, the first six years cannot be relied upon as a predictor of subsequent economic growth.
- 4.7 There are similar findings by the PwC. Using their main scenario which assumes an orderly exit from the EU with a transition period, the PwC project that UK growth would dip to be 1.1% in 2019 and 1.6% in 2020. The HM Treasury Comparison of independent forecasts found that commentators were predicting the average GDP growth (per cent) as 1.2% for 2019 and 1.0% for 2018.
- 4.8 The MPA have recently published¹⁰ regional profiles which are intended to be regularly updated. The regional construction outlook for the South East indicates an annual growth rate of 1.1% for the five years 2018-2022. This is equivalent to 5.5% and 11.45% growth over five and ten years respectively.
- 4.9 Therefore, and notwithstanding the uncertainty over the effects of Brexit, based on this information, it is perhaps unlikely that another deep and prolonged recession will be experienced so soon after the last one and it may therefore be prudent to assume that the average rate of UK growth over the period from 2019 to 2029 will be somewhat higher than seen in the preceding decade.
- 4.10 It would be beneficial if consideration could be given to any indicators of more local economic growth. Unfortunately, no quantitative information is available on this, though, it can be said that Oxfordshire clearly has a very positive growth agenda, as set out in the current Oxfordshire Strategic Economic Plan and in the Oxfordshire Growth Board's Oxfordshire Infrastructure Strategy (OXIS).

Economic Forecast Conclusion

- 4.11 It seems reasonable to assume that growth will be at least in line with the indications given by National GDP projections and the MPA construction outlook. Therefore, it would be prudent to assume that future levels of economic growth activity and thus demand for construction aggregate, are likely to be higher in the future than has historically been the case. Unfortunately, no evidence is available to quantify the level of increase likely to be experienced, but it seems reasonable to assume that at least a modest level.

⁹ LAA2017

¹⁰ Construction & Markets – South East (MPA)

Major Infrastructure Projects/Key Development

4.12 Major infrastructure projects, including those at the national scale, and key developments throughout Oxfordshire should be considered alongside housing and associated infrastructure development in terms of their likely influence on the future demand for construction aggregates. In assessing the overall impact of major infrastructure projects/key development and the justification for departure from the historical sales average, the number of new homes to be developed in Oxfordshire, as outlined below, has not been considered here. This is because the previous section on population growth and house construction has already considered those impacts. Housing figures have been included here solely for completeness. The OXIS¹¹ identifies a range of infrastructure development required to support population and housing growth. These include: Oxford to Cambridge Expressway; West Oxfordshire A40 strategies and the Oxford Flood Alleviation Scheme. Other developments across Oxfordshire include:

- The National Infrastructure Delivery Plan – For Oxfordshire projects such as HS2 and National Satellite Test Facility at Harwell
- Oxfordshire Growth Deal ¹² : Provides £60m for affordable housing and £150m for infrastructure improvements, including road and rail. Supports the ambition of building 100,000 new homes across Oxfordshire between 2011 and 2031 to address the county's severe housing shortage and expected economic growth.
- Partnering for Prosperity: a new deal for the Cambridge – Milton Keynes – Oxford Arc
- The National Infrastructure Commission – East West Rail Project (though most of the work is outside the County)
- Oxfordshire Knowledge Spine, which includes Science Vale Oxford¹³, Bicester and Oxford¹⁴.
- Science Vale Oxford. It is the largest concentration of research and development in Europe: 20,000 new jobs and around 20,000 new homes.
- Growth in Bicester including Bicester Village, North West Bicester Eco Town and other developments
- Highway schemes - predicted spend on highway schemes in the Local Investment Plan¹⁵ is £56.6 million

4.13 It is difficult to assess the overall impact of those infrastructure and major development proposals, in terms of their demand for construction aggregates, without being able to compare this information with equivalent data for the baseline period (2009 - 2018). At the very least, however, there appears to be no evidence to suggest that this element of demand is likely to reduce and, if anything, it seems likely that there will be increased activity.

Major Infrastructure Projects/Key Development Conclusion

¹¹ Oxfordshire Infrastructure Growth Board's work on the Oxfordshire Infrastructure Strategy (OXIS),

¹² <https://www.gov.uk/government/publications/oxfordshire-housing-deal>

¹³ A global hot spot for enterprise and innovation in science, high technology and the application of knowledge - <http://www.sciencevale.com/>

¹⁴ Oxfordshire LEP (2014) Strategic Economic Plan: Driving Economic Growth Through Innovation.

¹⁵ Spatial Planning and Infrastructure Partnership (2013) Oxfordshire Local Investment Plan

4.14 Whilst it is difficult to quantify, there are some indications that planned infrastructure and major development within the County may be greater during the Plan Period than was the case during the baseline period, and it would therefore be prudent to anticipate at least a modest increase in demand for construction aggregates from this sector.

Population and Housing Growth

4.15 In considering the future projections we also need to consider population growth and local authority housing forecasts.

4.16 OXIS forecasts that in the period 2016-2040, 123,500 additional homes will be built in Oxfordshire, the equivalent of 5,100 homes being built per year; and that population will increase by 39% from 688,000 to approximately 956,000. OXIS explains that major sites for new homes had been identified over the five local authority areas in Oxfordshire:

- Cherwell - concentrated around Bicester, Banbury and the former RAF site at Upper Heyford.
- Oxford City - Concentrated at Barton Park, Northern Gateway and Oxpens
- South Oxfordshire - Concentrated around Chalgrove Airfield and the Didcot Garden Town in conjunction with Vale of White Horse, with further strategic and brownfield sites across the district
- Vale of White Horse - Concentrated around the Didcot Garden Town, Wantage and Abingdon, i.e. the Science Area
- West Oxfordshire - Concentrated at Cotswold Garden Village Eynsham, North Witney and Chipping Norton.

4.17 Population figures are published by Oxfordshire Insight¹⁶. Up until 2017 there was a steady increase over the baseline period, but a 6,000 decline in the Oxfordshire population in 2017. Population has risen again in 2018 but it is still not at 2016 levels. (Appendix 4). The demand for sharp sand and gravel and soft sand, however increased in 2017 and 2018. Crushed rock also increased in 2017 though this did not continue in 2018. Therefore, it is difficult to correlate the demand for aggregates with population totals - at least at a county level and on the scale associated with year-on-year variations.

4.18 A more useful measure, however, may be the average rate of population growth over a period. Over the ten year period to 2018 there was an overall growth in the population of Oxfordshire of 44,405 people (+7%) (an average of 0.7% per year, similar to the increase across England¹⁷ (+7.2%). Oxfordshire County Council population forecasts(2017-based) predict a total population in Oxfordshire of 822,200 by 2027, a growth of 134,800 (20%). Over the same period the ONS projections show an increase of +3%¹⁸¹⁹

¹⁶ Available at: <http://insight.oxfordshire.gov.uk/cms/population-0>

¹⁷ Available at:

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/timeseries/enpop/pop>

¹⁸

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/localauthoritiesinengland/table2>

¹⁹ Oxfordshire Insight, 2017 <http://insight.oxfordshire.gov.uk/cms/population-0>

- 4.19 Whilst there is no statistical justification for assuming that rates of population growth will correlate with changes in demand for aggregates, they do at least provide a mechanism for looking further ahead than the current economic forecasts. They suggest that there will be continued pressure for new housing and associated infrastructure development which is likely to be reflected in an increase in the demand for construction aggregates. This is echoed in the Oxfordshire Strategic Economic Plan which states that “Our vision is Oxfordshire as a vibrant, sustainable, inclusive, world leading economy, driven by innovation, enterprise and research excellence”; and also that “Both activity and employment rates are higher than the regional average – and substantially higher than the national average”.
- 4.20 This can be examined further by considering data on rates of house construction (see Appendix 4). For the 10-year baseline period (2009-2018) the average housing completion rate in Oxfordshire was 2,677.6 homes per year²⁰, slightly higher than the previous LAA baseline (2003 – 2014) figure of 2,334.3 homes per year. However, if we took the last 3 years average (2016-2018), the housing completion rate in Oxfordshire is 4,312 homes per year.
- 4.21 Looking forward, the Oxfordshire Strategic Housing Market Assessment (SHMA)²¹ has identified that 93,560 to 106,560 additional homes are needed across Oxfordshire over the period 2011-2031²². This equates to an average construction rate of between 4,678 and 5,328 homes per annum. (This is consistent with the OXIS forecast noted above that in the period 2016-2040 an average of 5,100 additional homes per year will be built.) Whilst there is considerable uncertainty in Oxfordshire about the deliverability of these figures, taken at face value and the last 3 years housing completion rates, suggest a markedly upward trend in the associated demand for construction aggregates (with an implied doubling, at least, of the rate experienced over the baseline period).
- 4.22 In March 2018, the six Oxfordshire authorities signed the Oxfordshire Housing and Growth Deal. It committed the authorities to collectively delivering 100,000 homes and infrastructure across the county between 2011 and 2031.
- 4.23 Information provided to Oxfordshire County Council by the Mineral Products Association suggests that new housing construction (including estate roads and services) tend to account for roughly 20% of all aggregate sales, with a further 15% being related to major road construction or improvements, some of which may be directly linked to major housing developments. They estimate that “a new house requires some 60 tonnes of aggregates” and “every year over three tonnes of aggregates are needed per head of the population in the UK”²³. It may therefore be deduced that something between 20% and 35% of the overall annual aggregate demand within Oxfordshire could be significantly increased - perhaps even doubled over the Plan Period, compared with the baseline period.

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/localauthoritiesinenglandtable2>

²⁰ Oxfordshire County Council 2014.

²¹ GL Hearn (2014) Oxfordshire SHMA. Available at: <https://www.oxfordshiregrowthboard.org/wp-content/uploads/2018/04/Final-SHMA-Report.pdf>

²³ Minerals Products Association,; http://www.mineralproducts.org/iss_industry01.htm

Population and Housing Growth Conclusion

4.24 It is clear that we need to consider the implications of population and housing growth on the minerals provision over the plan period. The indications are that demand could be significantly higher during the Plan period than previously.

Conclusion

4.25 The evidence available suggests that Economic Forecasts, Major Infrastructure Projects/Key Development and Population Growth and Housing are all expecting some form of growth over the plan period and that recent demand would continue for the foreseeable future.

4.26 For sharp sand and gravel, sales in 2018 were still below the LAA level of 0.189mtpa but the generally upward trend in sales continued and there was an increase in the 10-year sales average, reversing the previous trend of decreases. The 3-year sales average increased and is 21% higher than the 10-year average, although still below the LAA provision level. This is consistent with the expectation of increasing demand and consequent sales when the LAA 2014 provision level figure was set at 1.015 mtpa, which has been continued in subsequent LAAs. This comparison can be seen in Figure 4.1. Available evidence indicates that supply is likely to increase further in response to rising demand. In conclusion, at this time there is no justification for a change in the LAA provision level figure from the current level of 1.015 mtpa and this should continue to apply in the LAA 2019.

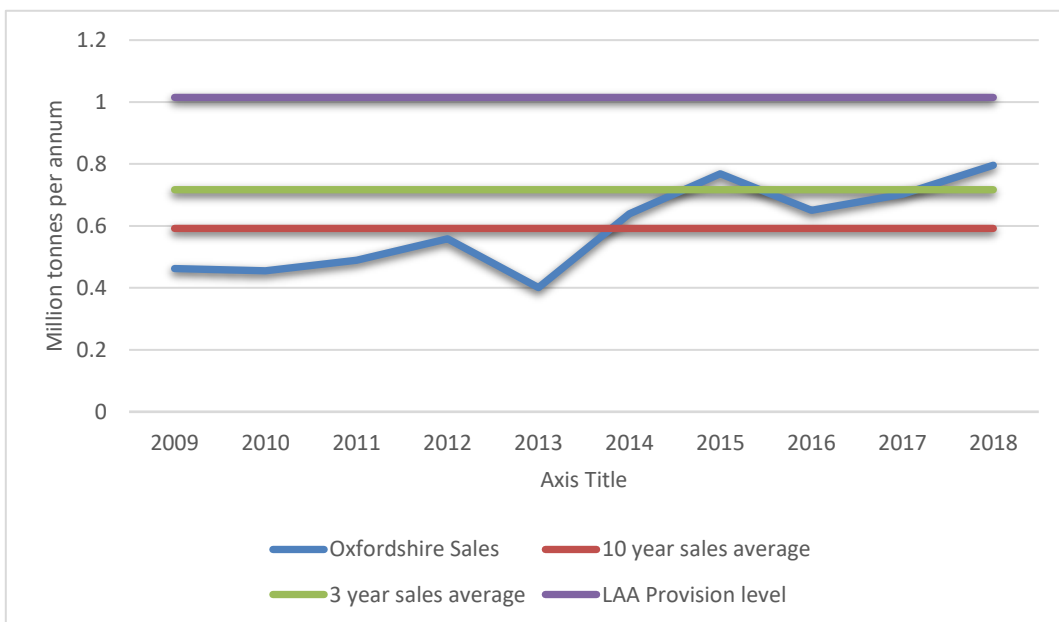


Figure 4.1 Actual sharp sand and gravel sales compared with the average sales(mtpa) and the LAA 2019 provision level .

4.27 In the case of soft sand, the LAA 2018 provision level figure of 0.189mtpa was set in the LAA 2014 on the basis of the 10-year sales average at that time. Since 2014, sales of soft sand have been at levels between 22% and 33% higher than the current LAA figure. There have now been 5 years (2014 – 2018) of sales of soft sand consistently at levels significantly above pre-2014 sales levels and above the LAA figure. This 5-year period of sales at a consistently higher level is considered

sufficient for it to be concluded that this reflects an increased level of demand for soft sand that is likely to continue for the foreseeable future. See Figure 4.2. Therefore, in conclusion, it is now appropriate to increase the LAA provision for soft sand to the current 3-year sales average: 0.24mtpa.

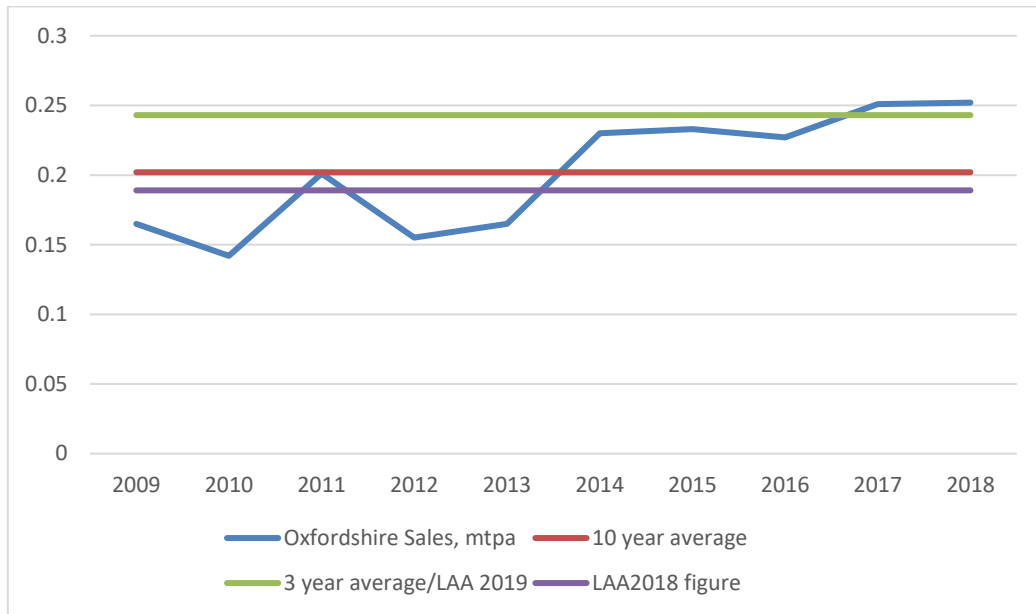


Figure 4.2 Comparison of actual soft sand sales compared with the average sales and the LAA 2019 and LAA 2018 Provision levels (mtpa).

4.28 In the case of crushed rock, the current LAA provision level figure of 0.584mtpa was set in the LAA 2014 on the basis of an upward adjustment of the 10-year sales average at that time; and this has been continued in subsequent LAAs. Since 2014, sales of crushed rock have been at levels between 22% and 82% higher than the current LAA figure. There have now been 5 years (2014 – 2018) of sales of crushed rock consistently at levels significantly above pre-2014 sales levels and above the LAA figure. This 5-year period of sales at a consistently higher level is considered sufficient for it to be concluded that this reflects an increased level of demand for crushed rock that is likely to continue for the foreseeable future. See Figure 4.3. Therefore, in conclusion, it is now appropriate to increase the LAA provision level figure for crushed rock to the current 3-year sales average: 0.778 mtpa.

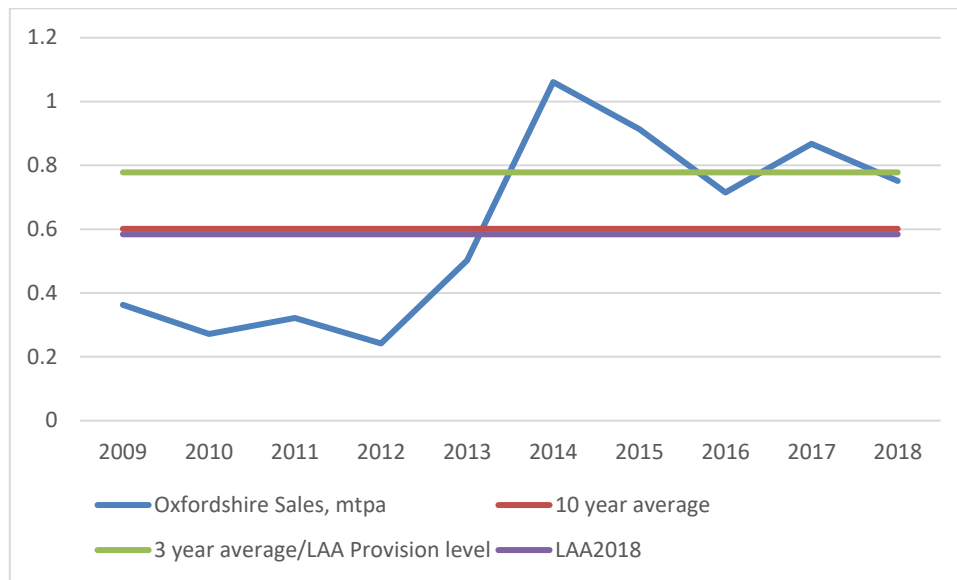


Figure 4.3 Comparison of actual crushed rock sales compared with the average sales and the LAA 2019 and LAA 2018 Provision levels (mtpa).

- 4.29 In addition to setting provision level figures for local land-won aggregates, the LAA should also include provision levels for other relevant sources of aggregates supply to ensure that future demands are met. In the case of Oxfordshire these are recycled and secondary aggregates and aggregate rail depots.
- 4.30 In the case of recycled and secondary aggregates, it is considered that the appropriate figure to use in the LAA is the provision rate set in the Oxfordshire Minerals & Waste Local Plan: Part 1 – Core Strategy (2017) policy M3. This is 0.926mtpa.
- 4.31 In the case of aggregate rail depots, sales of crushed rock from Oxfordshire rail depots have been at a significantly higher level since 2014. This 5-year period of increased sales is considered sufficiently long for it to be concluded that it reflects an increased level of demand that is likely to continue. However due to confidentiality we are unable to provide a LAA 2019 provision figure at this stage.

LAA 2019 provision figures

Sharp Sand and Gravel	1.015mtpa	Unchanged from 2018
Soft Sand	0.234mtpa	Increased from 2018
Crushed Rock	0.788mtpa	Increased from 2018
Recycles and Secondary Aggregate	0.926mtpa	No previous figure

4. Supply

Oxfordshire Supply

- 5.1 Oxfordshire is rich in mineral resources. Those which are used for primary aggregate production comprise extensive alluvial sand and gravel resources along the River Thames and its tributaries, smaller deposits of glacio-fluvial sand and gravels in the north east of the county, deposits of soft sand mainly in the south west, and extensive areas of limestone in the north west and of ironstone in the north.
- 5.2 Oxfordshire also produces some secondary aggregates and a wide range of recycled aggregate materials. Further detailed information of the geological resources of Oxfordshire can be found in the LAA2014 (LUC and Cuesta Consulting Limited).

Recycled and Secondary Aggregate

- 5.3 As recorded by the SEEAWP Aggregates Monitoring Survey, Oxfordshire's capacity to produce recycled and secondary aggregate in 2018 was approximately 860,680 tonnes per annum.
- 5.4 This is an increase from 2017 (812,000tpa) and similar to the figures for 2016 (874,000tpa) and closer to the 2013 figure (973,000 tpa)^{24,25}. However, the SEEAWP surveys do not get a full response from all operators and therefore the actual capacity figures are likely to be higher than the recorded figures.
- 5.5 Table 5.1 below presents a fuller picture, showing the estimated capacity for the production of recycled and secondary aggregates at each site in 2018, sub-divided between operational and non-operational sites.
- 5.6 Of a total capacity of approximately 1,300,200 tpa: 1,209,700 tpa is at operational facilities and 90,500 tpa is currently non-operational. Of the operational capacity, the capacity of sites with planning permission to the end of the plan period (2031) or beyond is 672,200 tpa, whereas the capacity of sites with permissions that expire before the end of 2031 is 365,000tpa.

²⁴ SEEAWP Aggregates Monitoring Survey 2013, 2016, 2017 and 2018. Figure includes both CD&E waste and industrial/mineral waste.

²⁵ The total capacity of 860,680tpa is lower than that included in Table 5.1 (1,120,000tpa) as the total of 860.680tpa is based on operator returns to the 2018 South East Aggregates Monitoring Survey; whereas the total in Table 5.1 has been calculated by OCC using information from planning applications and permissions.

Facility Name	Operator	Planning Life	Production Capacity (tpa)
Operational Recycled Aggregate Production Facilities with Permanent consent or Time-Limited consent to end of Plan Period (2031)			
Grove Industrial Park	Aasvogel	Permanent	40,000
Rear of CEMEX batching plant, Hardwick	Fergal Contracting	Permanent	20,000 *
Drayton Depot	Oxfordshire CC Highways (road planings)	Permanent	75,000 *
Ferris Hill Farm, Hook Norton	Matthews / Banbury Skips	Permanent	1,000 *
Hundridge Farm, Ipsden, Wallingford	G D Parker / Onsyany Skips	Permanent	5,000
Lakeside, Standlake	Micks Skips	Permanent	2,000
Newlands Farm, Milton Road, Bloxham	Smiths of Bloxham	Permanent	32,000
New Wintles Farm, Eynsham	David Einig	Permanent	170,000 *
Playhatch Quarry, Playhatch	Grabloader	Permanent	75,000 *
Rumbold's Pit, Ewelme	Hazell & Jeffries	Permanent	20,000
Sandfields Farm, Over Norton	K J Millard	Permanent	9,600 *
Shipton Hill, Fulbrook	Hickman Brothers	Permanent	12,600 *
Worton Farm, Cassington	David Einig	Permanent	48,000
Gill Mill Quarry, Ducklington	Smiths of Bletchington	2040	150,000 *
Ewelme No.2 Landfill	Grundon	2031	12,000 *
Total Operational Production Capacity at Recycled Aggregate Production Facilities available throughout the Plan period			672,200
Operational Recycled Aggregate Facilities with Time-Limited consent ending before end of Plan Period (2031)			

Dix Pit Complex	Sheehan	2029	95,000
Shipton on Cherwell Quarry	Earthline	2025	75,000 *
Prospect Farm, Chilton	Raymond Brown	2022	75,000
Shellingford Quarry	Earthline	2021	100,000
Enstone Airfield	Markham Farms / David Einig	2021	20,000 *
Total Operational Recycled Aggregate Capacity at Time-Limited Facilities			365,000
Total Operational Recycled Aggregate Production Capacity			1,037,200

Facility Name	Operator	Planning Life	Production Capacity (tpa)
Operational Secondary Aggregate Facilities with Permanent consent or Time-Limited consent to end of Plan Period (2031)			
Ardley ERF (IBAA facility)	Fortis IBA	2049	60,000
Operational Secondary Aggregate Facilities with Time-Limited consent ending before end of Plan Period (2031)			
Sutton Courtenay Block Recycling	Hanson (reject building blocks & concrete used in block making)	2030	62,500
Sutton Courtenay Asphalt Recycling Plant	Hanson	2030	50,000
Total Operational Secondary Aggregate Capacity			172,500
Overall Total Operational Capacity at 'Permanent' Facilities (facilities available throughout the Plan period)			732,200
Overall Total Operational Capacity at Time-Limited Facilities (facilities with consent ending before end of 2031)			477500
Overall Total Operational Capacity			1,209,700

Non-Operational Facilities

Facility Name	Operator	Planning Life	Production Capacity (tpa)
Burford Quarry (Pavestone factory)	Pavestone / Smiths (broken blocks etc from factory)	2024	500
Upwood Quarry, Besselsleigh	Hills Quarry Products	2029	15,000 *
Stonepitt Barn	S.Belcher	Permanent	75,000
Total Non-Operational Capacity			90500

Operational and Non-Operational Facilities

Total Operational and Non-Operational Capacity (tpa)	1,300,200
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Table 5.1: Estimated Capacity in Oxfordshire for the Production of Recycled and Secondary Aggregates in Oxfordshire at end of 2018 (tpa) (Source: OCC, Statement for Core Strategy Examination, M2/1, August 2016, updated Oct. 2017, Nov. 2018, Sept. 2017 & 18)

*=updated estimate

Imports and Exports

- 5.7 Every county in the UK has to import aggregates from elsewhere because the geology means that no single county area produces exactly the profile of different types of aggregate in the exact amounts or proportions consumed therein. As part of the Local Aggregate Assessment we should consider demand and supply factors from other MPAs.
- 5.8 All sales of aggregate are the result of commercial decisions by both buyers and sellers and the resulting movements reflect the relative locations of supply and demand. Where these movements cross a county boundary, they are tracked in the four (or five) yearly national aggregates monitoring surveys, the latest of which were in 2005, 2009 and 2014. The 2005 survey report is generally referred to as AM2005, and the 2009 and 2014 equivalents as AM2009 and AM2014
- 5.9 Some neighbouring MPAs have limited resources of their own, particularly Northamptonshire and Warwickshire for crushed rock, and Berkshire, Wiltshire, and Swindon & Gloucestershire for sand & gravel. These authorities therefore rely on Oxfordshire to supply some of their needs. Other MPAs have traditionally supplied aggregates into Oxfordshire e.g. Somerset, South Gloucestershire and Leicestershire provide crushed rock to supplement the County's own production and to cater for higher specification requirements from harder rock resources.

- 5.10 Comparison of the AM2009 and AM2014 (Appendix 2) results show that Oxfordshire changed from being a net importer of sand and gravel (130,000 tonnes) in 2009 to being a net exporter (104,000 tonnes) in 2014. Whilst Oxfordshire was a net importer of crushed rock in both years, and the net import level increased (from 262,000 tonnes in 2009 to 440,000 tonnes in 2014), the quantity of crushed rock exported from the county almost doubled (from 179,000 tonnes in 2009 to 347,000 tonnes in 2014).
- 5.11 The 2018 Aggregates Monitoring Survey did not include movements of aggregates between mineral planning authorities. The most up to date information on imports and exports of aggregates remains that from the 2014 survey. There is no other evidence of significant change in import and export factors that we are aware of.
- 5.12 As we are mainly dependent on historic data to assess imports and exports, we acknowledge that situations may have changed, however until other information comes forward to indicate otherwise, we will continue to consider these figures as we have done. Imports and Exports will therefore remain a consideration in planning for future provision. These shall be monitored under Duty to Cooperate and, if necessary, Statements of Common Ground between Authorities.

Marine Sand and Gravel

- 5.13 Marine sand and gravel is principally used for the same purposes as sharp sand and gravel. Information on sales of marine sand and gravel is available from AMRI, and also from the AM surveys. The AM2005, AM2009 and AM2014 reports show that Oxfordshire's consumption of marine sand was just 1,000 tonnes in 2005 (shared with Buckinghamshire and Berkshire), increasing to 16,000 tonnes in 2009 and down to 6,000 tonnes in 2014. In 2016 there were marine sand and gravel imports into Oxfordshire by rail into Sutton Courtenay, to make up for a shortfall in supply of land-won sharp sand and gravel caused by a break in production at Bridge Farm Quarry for operational reasons.

Quarries

Sharp sand and gravel

- 5.14 In Oxfordshire, at the end of 2018, there are 11 sites with planning permission for sharp sand and gravel extraction, 5 of which are active. 3 are inactive, 3 not yet commenced. Information on these sites is summarised in Table 5.2, including the operator and a summary of the current status of each site.

Quarry Site	Operator	Current Status at December 2018
Cassington	Hanson Aggregates	Inactive: reserve remaining under plant site. Plant being removed ready for final extraction in 2019
Caversham	Lafarge Tarmac	Active: extension of 1.86 million tonnes permitted August 2014; commenced August 2017.
Finmere	AT Contracting	Inactive: intermittent small scale past working; reserve remaining.

Quarry Site	Operator	Current Status at December 2018
Gill Mill, Ducklington	Smiths Bletchington	Active: biggest quarry in county; extension of 5.0 million tonnes permitted June 2015; large reserve remaining.
Moorend Fam, Thame	David Einig Contracting	Inactive: very small site. Site currently closed as operator ceased trading.
Stanton Harcourt (Stonehenge Farm)	Hanson Aggregates	Inactive: original quarry worked out; extension of 1.55 million tonnes permitted on appeal October 2010; permission commenced but reserve remains.
Sutton Courtenay (Bridge Farm)	Hanson Aggregates	Active: fully operational after periods of mothballing and spasmodic working but production has fluctuated for operational reasons; extension of 0.5 million tonnes permitted June 2018.
Sutton Wick	H Tuckwell & Sons	Active: small output site; small reserve remaining beneath the plant site; extension of 0.35 million tonnes permitted March 2016.
Thrupp Lane, Radley	H Tuckwell & Sons	Inactive: Estimated 0.925 million tonnes confirmed as a permitted reserve but under ROMP procedure has gone into suspension and cannot be worked until new conditions have been approved; therefore not currently included as part of permitted reserve or landbank. It was determined that mineral working has permanently ceased, and so the County Council is now under a duty to serve a prohibition notice on this site.
Faringdon Quarry	Grundon Sand & Gravel	Active: new quarry permitted June 2013 (formerly regarded as extension to Wicklesham Quarry).
New Barn Farm, Cholsey	Grundon	Active: Permitted for 2.500,000tonnes in November 2018. Extraction is due to commence soon.

Table 5.2 Active and Permitted Sharp Sand and Gravel Extraction Sites in Oxfordshire, including Operators and Current Status (Source: OCC)

- 5.15 Total permitted reserves of sharp sand and gravel in Oxfordshire at the end of 2018 were 12.925mt, as shown in Table 5.3 below. This is taken from the South East of England Aggregate Working Party (SEEAWP) Aggregates Monitoring Survey 2018 calculated using annual operator returns. The actual operator returns for individual quarries cannot be presented due to confidentiality.
- 5.16 Production capacity is also relevant, as a large amount of reserve in a quarry with only a low production rate will make a smaller contribution to annual supply than equivalent reserves in a high producing quarry. Almost 45% of permitted reserves are held in one quarry (Gill Mill), which could limit overall output from the County. In addition, approximately 12% of the sharp sand and gravel reserves are held in two quarries (Cassington and Stanton Harcourt) that were mothballed during the recession. Cassington is expected to restart in 2019 though Stanton Harcourt remains inactive. This reduces the quantity of available reserves that contribute to

Oxfordshire's supply, thereby reducing sales from the County due to commercial decisions by operators. Caversham quarry, which has a permitted extension for 1.86 million tonnes (13% of permitted reserves) was inactive, however extraction commenced at the end of 2018 which should impact future sales figures.

- 5.17 New Barn Farm, Cholsey was granted permission for 2.5mt (19% of current reserve) at the end of 2018 and has yet to start extraction.

Table 5.3: Sharp Sand and Gravel Permitted Reserves at 31/12/18 (million tonnes)

Sharp Sand and Gravel Permitted Reserves at 31/12/18 (million tonnes)
12.925mt

Soft Sand

- 5.18 In Oxfordshire, at the end of 2018, there are eight sites with planning permission for soft sand extraction, all but one of which are active. Information on these sites is summarised in Table 5.4, including the operator and a summary of the current status of each site.

Quarry Site	Operator	Current Status
Bowling Green / Chinham Farm	Hills Quarry Products	Active: sand & limestone; extension of 1.6 million tonnes sand permitted June 2017; large remaining reserve (approximately 50% of total permitted reserve).
Duns Tew	Smiths Bletchington	Active: extension of 0.415 million tonnes permitted June 2017 and this is anticipated to commence operation in 2019.
Hatford	Hatford Quarry Ltd (Earthline)	Active: sand & limestone.
Shellingford	Multi-Agg Ltd (Earthline)	Active: sand & limestone; permissions granted April 2011 for deepening and eastern extension, total 1.05 million tonnes sand, requires extraction to end by 31.12.20 in eastern extension and 31.12.28 in existing quarry.
Upwood	Hills Quarry Products	Active: sand & limestone; large remaining reserve.
Faringdon	Grundon Sand & Gravel	Active: sharp sand & gravel and soft sand; new quarry permitted June 2013 (replaced Wicklesham Quarry).
Finmere	AT Contracting	Inactive: intermittent small scale past working; reserve remaining.
Sutton Courtenay	Hanson Aggregates	Active: fully operational after periods of mothballing and spasmodic working but production has fluctuated for

Quarry Site	Operator	Current Status
(Bridge Farm)		operational reasons; extension of 0.5 million tonnes permitted June 2018.

Table 5.3 Active and Permitted Soft Sand Extraction Sites in Oxfordshire, including Operators and Current Status

- 5.19 Total permitted reserves of soft sand in Oxfordshire at the end of 2018 were 3.091mt, as shown in Table 5.4 below. This is taken from the SEEAWP Aggregates Monitoring Survey 2018, calculated using annual operator returns. The actual operator returns for individual quarries cannot be presented due to confidentiality. However, total production capacity is also relevant, as a large amount of reserve in a quarry with only a low production rate will make smaller contribution to annual supply than equivalent reserves in a high producing quarry. Nearly 45% of Oxfordshire's soft sand reserves are contained in one site (Chinham Farm) and a further approximately 15% in another site (Upwood), which could limit overall output from the County.

Soft Sand Permitted Reserves at 31/12/18 (million tonnes)
3.091 mt

Table 5.4: Soft Sand Permitted Reserves at 31/12/18 (million tonnes)²⁶

Crushed Rock

- 5.20 In Oxfordshire at the end of 2018, there are 14 sites with planning permission for crushed rock extraction. There are 12 active sites and 2 inactive. The operator and current status of each site is provided in Table 5.5.

Quarry Site	Operator	Current Status
Dewars Farm	Smiths Bletchington	Active; limestone
Burford	Smiths Bletchington	Active; limestone
Castle Barn (Sarsden Quarry)	Great Tew Partnership	Active; small site
Chinham Farm (Bowling Green)	Hills Quarry Products	Active; sand and limestone
Duns Tew	Smiths Bletchington	Active; sand with small amounts of limestone

²⁶ SEEAWP Aggregates Monitoring Survey 2018

Quarry Site	Operator	Current Status
Faringdon Quarry	Grundon Sand and Gravel	Active; sand & gravel with small amounts of limestone
Hatford	Hatford Quarry Ltd (Earthline)	Active; sand and limestone
Rollright Quarry Phase 1	Hanson Aggregates	Inactive; limestone
Rollright Quarry Phase 2	Smiths Bletchington	Active; limestone
Shellingford	Multi-Agg Ltd (Earthline)	Active; sand and limestone; permissions granted April 2011 for deepening and eastern extension, total 1.05 million tonnes sand & 1.225 million tonnes limestone, requires extraction to end by 31.12.20 in eastern extension area and 31.12.28 in existing quarry area.
Shipton on Cherwell	Earthline	Planning permission expired 30 th September 2019
Upwood	Hills Quarry Products	Active; sand and limestone
Whitehill	Smiths Bletchington	Inactive; limestone
Wroxton	Peter Bennie	Active; ironstone

Table 5.5 Active and Permitted Crushed Rock Extraction Sites in Oxfordshire, including Operators and Current Status

5.21 Permitted reserves of crushed rock in Oxfordshire, as reported in the SEEAWP Aggregates Monitoring Survey 2018, are shown in Table 5.6 below.

Crushed Rock Permitted Reserves at 31/12/18 (million tonnes)
7.718 mt

Table 5.6: Crushed Rock Permitted Reserves at 31/12/18 (million tonnes)²⁷

²⁷ SEEAWP Aggregates Monitoring Survey 2018

Rail Depots

- 5.22 The combined sales from the three railhead depots that were operational in 2018 represent 88% of the total throughput capacity of these three depots. Due to confidentiality, we are unable to provide any further details in this LAA 2019.

Landbanks

- 5.23 Based on the provision levels that have been determined for this LAA 2019 and the permitted reserves at 31 December 2018 as set out above, the landbanks at the end of 2018 can be seen below in Table 5.7.

Permitted Reserves at 31.12.2018 by mineral type	Landbank (LAA 2019 provision figures)
Soft Sand 3.091 m. tonnes	12.72 years at 0.243mtpa
Sharp Sand & Gravel 12.925 m. tonnes	12.7 years at 1.015mtpa
Crushed Rock 7.718 m. tonnes	9.9 years at 0.778 mtpa

Table 5.7 Oxfordshire Landbank at 31/12/2018

- 5.24 As can be seen the Landbanks for Sharp Sand and Gravel and Soft Sand have the 7 years required however the Crushed Rock landbank falls below the 10-year requirement and this means that we need to identify new sites to bring forward more crushed rock to meet the required need.

5. Demand and Supply Options Balance

6.1 In concluding Oxfordshire's LAA 2019, due to clear indications of future growth in economic and construction activity, the historical baseline figures cannot solely be relied upon as a guide to future demand without potentially impacting on Oxfordshire's plans for economic growth. Therefore, future levels of aggregate provision, other than sharp sand and gravel, in Oxfordshire need to be higher than might otherwise have been supposed on the basis of the 10-year sales averages. The revised LAA 2019 level provision figures have been determined as:

- **Sand and Gravel – 1.015mtpa**
- **Soft Sand – 0.243mtpa**
- **Crushed rock – 0.778mtpa**
- **Recycled and Secondary Aggregates- 0.926mtpa**

6.2 To ensure demand meets the requirements for the plan period, we need to use these LAA 2019 provision figures with the permitted reserves as of 31 December 2018.²⁸ Where shortfalls are identified, this means that land for potential new reserves will need to be identified and allocated in the Minerals and Waste Site Allocations Plan; and that new permissions will be needed.

Sand and Gravel

6.3 The LAA provision level figure of 1.015 mtpa multiplied by 18 years, gives a total provision requirement of 18.27 million tonnes for the period 2014 to 2031.

6.4 Taking into account sales in 2014 – 2018 (total 3.558 million tonnes), and reserves that are not expected to be worked until after the plan period (1.85 million tonnes), the remaining requirement for the period to 2031 is 3.637 million tonnes.

Soft Sand

6.5 The provision level figure of 0.243 mtpa multiplied by 18 years, gives a total provision requirement of 4.374 million tonnes for the period 2014 to 2031.

6.6 Taking into account sales between 2014- 2018 (total 1.193 million tonnes) and reserves that are not expected to be worked until after the plan period (0.5 million tonnes), the remaining requirement for the period to 2031 is 0.641.

Crushed Rock

6.7 The provision level figure of 0.778 mtpa multiplied by 18 years, gives a total provision requirement of 14.004 million tonnes for the period 2014 to 2031.

6.8 Taking into account sales between 2014 to 2018 (total 4.308 million tonnes), the remaining requirement for the period to 2031 is 1.978 million tonnes.

6.9 We will therefore need to identify sites for sharp sand and gravel, soft sand and crushed rock to meet the mineral requirements over the Plan Period. This is

²⁸ Appendix 2

currently being undertaken in the preparation of the Minerals and Waste Local Plan:
Part 2 – Site Allocations Plan.

- **Sand and Gravel - 3.637 million tonnes.**
- **Soft Sand - 0.641 million tonnes**
- **Crushed rock - 1.978 million tonnes**

6.10 Provision will need to be made in the Site Allocations Plan to enable sufficient new permissions to be granted for the plan period.

6. List of Definitions and Acronyms

The Local Aggregate Assessment uses the following terminology throughout this report:

- **Alternative aggregates** - A general term which can be used to refer to anything other than primary, land-won aggregates. It can include secondary, recycled and sometimes marine aggregates.
- **Apportionment** - the quantity of aggregate for which provision needs to be made in plans within each Mineral Planning Authority in order both to satisfy local needs and to contribute fairly towards National (and former Regional) expectations of future demand.
- **Landbank** - Landbank is a measure of the stock of permitted reserves expressed in terms of the number of years that these would allow production for at a given average rate of extraction. It is a theoretical measure of the life of the reserves if these were to be worked at a consistent annual rate.
- **Land-won aggregates** - Primary aggregates extracted from land.
- **Marine aggregates** - Primary aggregates dredged from the sea, almost exclusively sand and gravel.
- **Primary aggregates** - These are aggregates produced from naturally occurring mineral deposits, extracted specifically for use as aggregate and used for the first time. They are produced either from rock formations that are crushed to produce 'crushed rock' aggregates, from naturally occurring sand and gravel deposits, or solid formations to produce soft sand.
- **Recycled aggregates** - Aggregate materials recovered from construction and demolition processes and from excavation waste on construction sites.
- **Secondary aggregates** - Aggregates derived as a by-product of other quarrying and mining operations or industrial processes, including colliery spoil, china clay waste, slate waste; power station ashes, incinerator bottom ashes and similar products.
- **Sharp sand and gravel** - Sharp sand tends to be relatively coarse and the component grains are more angular than soft sand (see below). Such sands are typically deposited within river channels, rather than in oceans, and are generally found, as part of a sequence of mixed sand & gravel, within river floodplains, river terraces, and (in areas which have been glaciated) within other types of deposit. As the name implies they have a sharper texture than soft sands and, although they can be used as building sand, they are generally not preferred for that purpose because they produce less 'workable' mortars, unless special additives are included in the mix, adding to the cost. They are better suited to use within concrete products, not least because they usually occur in

conjunction with gravels which provide the coarse aggregate component of the concrete mix.

- **Soft Sand** - Soft sand is generally fine-grained sand in which the individual grains are well-rounded, imparting a relatively soft texture and free-flowing nature to the sand. Such sands are commonly deposited in marine environments, where constant movement by the sea results in the rounding, polishing and sorting of the grains. The characteristics of such sands lend themselves especially to products which are required to 'flow' or be easily 'workable' by hand when they are being used - particularly mortars, but also plaster, in the case of very fine grained sand. These are collectively known as 'building sand'. Soft sand may also be used in asphalt products where it is used to stiffen the bitumen binder, and in concrete products - although sharp sand is more commonly used for that purpose.

The Local Aggregates Assessment uses the following acronyms throughout this report:

- **AMRI** – Annual Minerals Raised Inquiry Surveys
- **AWP** – Aggregate Working Party
- **BGS** – British Geological Survey
- **CLG** – Communities and Local Government
- **GDP** – Gross Domestic Product
- **LAA** – Local Aggregates Assessment
- **MASS** – Managed Aggregates Supply System
- **MPAs** – Mineral Planning Authorities
- **Mt** – Million tonnes
- **mtpa** – Million tonnes per annum
- **MWLP** – Minerals and Waste Local Plan
- **NPPF** – National Planning Policy Framework
- **OCC** – Oxfordshire County Council
- **PPG** – Planning Practice Guidance
- **RAWP** – Regional Aggregate Working Parties
- **ROMP** – Review of Old Mineral Permissions
- **SEEAWP** – South East of England Aggregate Working Party

SHMA – Strategic Housing Market Assessment

7. Appendix 1

Oxfordshire's Historical Mineral Sales

Sales of Sharp Sand and Gravel 2003 – 2017 (million tonnes) (Sources: SEEAWP Aggregates Monitoring Surveys, and AMRI Surveys)

	Oxfordshire Sharp Sand & Gravel Sales (million tonnes) ²⁹	England Sharp Sand & Gravel Sales (million tonnes) ³⁰	Oxfordshire's sales as a percentage of England's sales ³¹
2003	1.372	48.674	2.82%
2004	1.184	51.591	2.29%
2005	1.090	48.109	2.27%
2006	0.983	46.316	2.12%
2007	0.893	44.52	2.01%
2008	0.629	41.527	1.51%
2009	0.462	31.705	1.46%
2010	0.455	31.794	1.43%
2011	0.489	31.392	1.56%
2012	0.559	28.702	1.95%
2013	0.401	30.634	1.31%
2014	0.639	33.831	1.89%
2015	0.768	<i>2015 figures not available</i>	
2016	0.651	<i>2016 figures not available</i>	
2017	0.703	<i>2017 figures not available</i>	

²⁹ Source: SEEAWP Aggregates Monitoring Surveys

³⁰ Source: Mineral Extraction in Great Britain survey, Table 2 "Sand and Gravel for Construction". Please note that 2014 is the most recent published report.

³¹ Figures include data for marine dredged material. This data is allocated to the county in which the port of landing is situation.

	Oxfordshire Sharp Sand & Gravel Sales (million tonnes)²⁹	England Sharp Sand & Gravel Sales (million tonnes)³⁰	Oxfordshire's sales as a percentage of England's sales³¹
2018	0.796	<i>2018 figures not available</i>	
Rolling 10 year annual average, 2003 - 2012	0.812	40.433	2.01%
Rolling 10 year annual average, 2004 - 2013	0.715	38.629	1.85%
Rolling 10 year annual average, 2005 - 2014	0.660	36.853	1.79%
Rolling 10 year annual average, 2006 – 2015	0.628	n/a	n/a
Rolling 10 year annual average, 2007 – 2016	0.595	n/a	n/a
Rolling 10 year annual average, 2008 – 2017*	0.576	n/a	n/a
Rolling 10 year average 2009 – 2018	0.592	n/a	n/a
Average of last 3 years 2014 – 2016	0.686	n/a	n/a
Average of last 3 years 2015 – 2017	0.707	n/a	n/a
Average of last 3 years 2016 - 2018	0.717	n/a	n/a

Sales of Soft Sand 2003–2017 (million tonnes) (Sources: SEEAWP Aggregates Monitoring Surveys, and AMRI Surveys)

	Oxfordshire Soft Sand Sales (million tonnes)³²	England Soft Sand Sales (million tonnes)³³	Oxfordshire's sales as a percentage of England's sales.
2003	0.234	11.300	2.07%
2004	0.295	11.144	2.65%
2005	0.199	10.817	1.84%
2006	0.183	9.832	1.86%
2007	0.166	9.992	1.66%
2008	0.151	8.607	1.75%
2009	0.165	6.105	2.70%
2010	0.142	4.929	2.88%
2011	0.201	5.197	3.87%
2012	0.155	4.527	3.42%
2013	0.165	5.221	3.16%
2014	0.230	4.954	4.64%
2015	0.233	<i>2015 figures not available</i>	n/a
2016	0.227	<i>2016 figures not available</i>	n/a
2017	0.251	<i>2017 figures not available</i>	n/a
2018	0.252	<i>2018 figures not available</i>	
Rolling 10 year annual average (2003 – 2012)	0.189	8.246	2.34%

³² SEEAWP Aggregates Monitoring Surveys

³³ Source: Mineral Extraction in Great Britain survey, Table 2 "Sand and Gravel for Construction". Please note that 2014 is the most recent published report.

	Oxfordshire Soft Sand Sales (million tonnes)³²	England Soft Sand Sales (million tonnes)³³	Oxfordshire's sales as a percentage of England's sales.
Rolling 10 year annual average (2004 – 2013)	0.182	7.637	2.38%
Rolling 10 year annual average (2005 – 2014)	0.176	7.018	2.51%
Rolling 10 year annual average (2006 - 2015)	0.179	n/a	n/a
Rolling 10 year annual average (2007 - 2016)	0.184	n/a	n/a
Rolling 10 year annual average (2008 – 2017) *	0.192	n/a	n/a
Rolling 10 year annual average (2009 – 2018)	0.202	n/a	n/a
Average of last 3 years 2014 – 2016	0.230	n/a	n/a
Average of last 3 years 2015 – 2017	0.237	n/a	n/a
Average of last 3 years 2015 - 2019	.243	n/a	n/a

Sales of Crushed Rock 2003 – 2018 (million tonnes) (Sources: SEEAWP Aggregates Monitoring Surveys, and AMRI Surveys)

	Oxfordshire Crushed Rock Sales (million tonnes)³⁴	England Crushed Rock Sales (million tonnes)³⁵	Oxfordshire's sales as a percentage of England's sales.
2003	0.629	83.957	0.75%
2004	0.557	85.653	0.65%
2005	0.564	80.593	0.70%
2006	0.495	83.722	0.59%

³⁴ SEEAWP Aggregates Monitoring Surveys

³⁵ Source: Mineral Extraction in Great Britain Survey. Please note that 2014 is the most recent published report.

	Oxfordshire Crushed Rock Sales (million tonnes)³⁴	England Crushed Rock Sales (million tonnes)³⁵	Oxfordshire's sales as a percentage of England's sales.
2007	0.717	82.922	0.86%
2008	0.543	75.179	0.72%
2009	0.363	59.666	0.61%
2010	0.272	50.115	0.54%
2011	0.322	57.744	0.56%
2012	0.242	52.980	0.46%
2013	0.502	53.417	0.94%
2014	1.061	63.835	1.66%
2015	0.914	<i>2015 figures not available</i>	n/a
2016	0.715	<i>2016 figures not available</i>	n/a
2017	0.867	<i>2017 figures not available</i>	n/a
2018	0.751	<i>2018 figures not available</i>	n/a
Rolling 10 year annual average 2003 - 2012	0.470	71.253	0.66%
Rolling 10 year annual average 2004 - 2013	0.458	68.199	0.67%
Rolling 10 year annual average 2005 - 2014	0.508	66.017	0.77%
Rolling 10 year annual average 2006 - 2015	0.543	n/a	n/a
Rolling 10 year annual average 2007 - 2016	0.565	n/a	n/a

	Oxfordshire Crushed Rock Sales (million tonnes)³⁴	England Crushed Rock Sales (million tonnes)³⁵	Oxfordshire's sales as a percentage of England's sales.
Rolling 10 year annual average 2008 – 2017	0.580	n/a	n/a
Rolling 10 year annual average 2009 – 2018	0.601	n/a	n/a
Average of last 3 years 2014 – 2016	0.897	n/a	n/a
Average of last 3 years 2015 – 2017	0.832	n/a	n/a
Average of last 3 years 2016 – 2018	0.778	n/a	n/a

8. Appendix 2

Imports and Exports

Imports, Exports and Consumption of Primary Aggregates in Oxfordshire 2009 and 2014 (millions of tonnes) (Source: Collation of the Results of the 20109 Aggregates Minerals Survey for England and Wales, DCLG, October 2011 and Collation of the Results of the 2014 Aggregates Minerals Survey for England and Wales, DCLG, October 2016)

	Sand and Gravel 2009	Crushed Rock 2009	All Primary Aggregates 2009	Sand and Gravel 2014	Crushed Rock 2014	All Primary Aggregates 2014
A. Production / Sales in Oxfordshire	0.628	0.363	0.991	0.869	1.061	1.93
B. Exported out of Oxfordshire	0.140	0.179	0.319	0.221	0.347	0.568
C. Produced and consumed in Oxfordshire (A – B)	0.487	0.184	0.672	0.648	0.714	1.362
D. Imported into Oxfordshire	0.270	0.441	0.711	0.117	0.787	0.904
E. Total Consumption in Oxfordshire (C + D)	0.757	0.625	1.383	0.765	1.501	2.266

The equivalent figures for 2005 are not available because Oxfordshire was grouped with Buckinghamshire and Berkshire in the AM2005 Report.

No equivalent information can be derived from the earlier AM2001 Survey report, because all results are presented on a regional basis and there are no local figures.

Destinations

Destinations of Sand & Gravel Produced in Oxfordshire 2009 and 2014 (Source: Oxfordshire County Council Aggregates Monitoring Survey 2009 and 2014)

Destination	2009 Sand and Gravel (including soft sand)		2014 Sand and Gravel (including soft sand)	
	Tonnes	%	Tonnes	%
Oxfordshire	487,260	77.6	648,282	74.60
Berkshire	20,785	3.3	99,259	11.42
Buckinghamshire & Milton Keynes	13,663	2.2	9,712	1.11
Rest of South East & London	15,565	2.5	4,642	0.81
Wiltshire, Swindon & Gloucestershire	68,203	10.9	95,089	10.94
Northamptonshire & Warwickshire	4,993	0.8	9,674	1.11
TOTAL	627,783	100	866,658	100

Destinations of Crushed Rock Produced in Oxfordshire 2009 and 2014 (Source: Oxfordshire County Council Aggregates Monitoring Survey 2009 and 2014)

Destination	2009 Crushed Rock		2014 Crushed Rock	
	Tonnes	%	Tonnes	%
Oxfordshire	180,867	49.8	663,463	62.56
Berkshire	23,081	6.4	254,223	23.97
Buckinghamshire & Milton Keynes				
Rest of South East & London	0	0	5,755	0.55
Wiltshire, Swindon & Gloucestershire	29,694	8.2	14,308	1.35
Northamptonshire & Warwickshire	118,788	32.7	121,258	11.43
TOTAL	362,839	100	1,060,573	99.86

The AM2005 survey report combined figures for the destinations of aggregates sold in Oxfordshire with the destinations of sales in Berkshire and Buckinghamshire. It is therefore not possible to derive equivalent figures for 2005.

Destinations of Sand and Gravel Produced in Oxfordshire 2005, 2009 and 2014 (Source: AM2005, and AM2009, 2014)

Source MPA	Destination	Sand and gravel (millions of tonnes) 2005	Sand and gravel (millions of tonnes) 2009	Sand and gravel (millions of tonnes) 2014
Oxfordshire	Berkshire, Oxfordshire and Buckinghamshire	0.304	0.520 of which 0.487 in Oxfordshire	0.757 of which 0.648 in Oxfordshire
	Elsewhere in South East	0.418	0.015	0.012
	Elsewhere	0.550	0.090	0.100
	Unallocated	0.017	0	0
TOTAL		1.289*	0.627*	0.869*

*Totals may not match sub totals due to varying categories

Destinations of Crushed Rock Produced in Oxfordshire 2005 and 2009 (Source: AM2005, AM2009 and AM2014)

Source MPA	Destination	Crushed rock (millions of tonnes) 2005	Crushed rock (millions of tonnes) 2009	Crushed rock (millions of tonnes) 2014
Oxfordshire	Berkshire, Oxfordshire and Buckinghamshire	0.277	0.184 all in Oxfordshire	0.919
	Elsewhere in South East	0.134	0.025 incl. Berkshire & Buckinghamshire	0.010
	Elsewhere	0.152	0.154	0.130
TOTAL		0.564*	0.363	1.061

*May not match sub totals due to varying categories.

Sources

Sources of sand and gravel consumed in Oxfordshire 2009 (Source: BGS)

Source	Proportion	Tonnage where known (millions of tonnes)
Oxfordshire	64%	0.474
Gloucestershire	25%-20%	0.145- 0.185
Warwickshire, Bristol (marine), Hampshire, Berkshire and Leicestershire (in descending order)	Between 5% and 1% from each area	n/a
Milton Keynes, Central Bedfordshire (includes Bedford Borough), Kent, Cambridgeshire, Staffordshire, Buckinghamshire, Dorset, Wiltshire, Solihull (includes Walsall) and Hertfordshire (in descending order)	Less than 1% from each area	n/a

Sources of crushed rock consumed in Oxfordshire 2009 (Source: BGS)

Source	Proportion	Tonnage where known (millions of tonnes)
Oxfordshire	29%	0.181
South Gloucestershire	30%-25%	0.187- 0.156
Somerset	25% - 20%	0.156- 0.125
Leicestershire	15%-10%	0.093- 0.063
Rhondda, Cynon, Taf (Taff), Gloucestershire and Powys (in descending order)	Between 5% and 1% from each area	n/a
Shropshire, North Somerset and Caerphilly/Merthyr Tydfil (merged for confidentiality) and Derbyshire (in descending order)	Less than 1% from each area	n/a

Sources of sand and gravel consumed in Oxfordshire 2014 (Source: BGS)

Source	Proportion	Tonnage where known (millions of tonnes)
Oxfordshire	80-90%	0.612 - 0.6885
Wiltshire, Windsor & Maidenhead, Cambridgeshire, Leicestershire	1-10%	0.00765 – 0.0765
Devon, Gloucestershire, Hampshire, West Berkshire, Central Bedfordshire, Essex, Hertfordshire, Northamptonshire, Staffordshire, Worcestershire.	<1%	<0.00765

Sources of crushed rock consumed in Oxfordshire 2014 (Source: BGS)

Source	Proportion	Tonnage where known (millions of tonnes)
Oxfordshire	40-50%	0.6 – 0.75
Somerset	30-40%	0.45 – 0.6
Leicestershire	10-20%	0.15 – 0.3
Gloucestershire	1-10%	0.015 – 0.15
North Somerset, South Gloucestershire, Cambridgeshire, Shropshire, Powys	<1%	<0.015

9. Appendix 3

Mineral provision requirements over the Plan period.

Sand and Gravel Provision required over plan period 2014 – 2031

(As at Dec 2018)

	Sharp Sand & Gravel (million tonnes)
A. Annual Provision (from policy M2 / LAA)	1.015
B. Requirement 2014 – 2031 (policy M2) (A x 18 years)	18.270
C. Sales in 2014 – 2018 (Oxfordshire)	3.558
D. Remaining requirement (B – C)	14.712
E. Permitted Reserves at end 2018	12.925
F. Estimated permitted reserves available to be worked during remainder of plan period (from beginning 2019 to end 2031)	11.075
G. Remaining requirement to be provided for in Plan (D – F)	3.637

Notes:

1. Permitted Reserves at end 2017 (Row E) do not include approximately 1.0 million tonnes of sharp sand and gravel at Thrupp Farm Quarry, Radley (South), which were previously included. Under 'ROMP' procedure the planning permission for this site has gone into suspension, and is currently dormant, and the site cannot be worked until there has been a review of the planning conditions attached to the planning

permission. Consequently, in accordance with national Planning Practice Guidance, the 'reserves' at this site should not currently be included as permitted reserves and they do not form part of the landbank.

2. The planning application for an extension to Gill Mill Quarry (South) submitted in 2013 and permitted in 2015 is for the working of a total of 7.8 million tonnes of sharp sand and gravel (including 2.8 million tonnes previously permitted and 5.0 million tonnes in the extension area). Information in the application indicates this will be worked over 22 years from 2013, giving an average rate of working of approximately 0.35 million tonnes per annum. Mineral working at Gill Mill Quarry is therefore expected to extend beyond the end of the plan period (2031); of the total of 7.8 million tonnes, it is estimated approximately 6.65 million tonnes will be worked within the plan period and approximately 1.15 million tonnes will remain to be worked after 2031.
3. The planning application for a new quarry at New Barn Farm, Cholsey (South) submitted in 2016 and permitted in 2018 is for the working of a total of 2.5 million tonnes of sharp sand and gravel. Information in the application indicates this will be worked over 18 years from 2019, at an average rate of working of approximately 0.14 million tonnes per annum. Mineral extraction at New Barn Farm is therefore expected to extend beyond the end of the plan period (2031); of the total of 2.5 million tonnes, it is estimated approximately 1.8 million tonnes will be worked within the plan period and approximately 0.7 million tonnes will remain to be worked after 2031.
4. The permitted reserves of sharp sand and gravel available to be worked during the plan period have therefore been reduced by 1.85 million tonnes, from 12.946 million tonnes (row G) to an estimated 11.096 million tonnes (row H).

Soft Sand provision required over the Plan period 2014-2031

(Based on three year average - Dec 2018)

	Soft Sand (million tonnes)
A Annual Provision (3-year sales average 2016 – 2018)	0.243 (3-year sales average 2016 – 2018)
B. Requirement 2014 – 2031 (policy M2) (A x 18 years)	4.374
C. Sales in 2014 – 2018	1.193
D. Remaining requirement (B – C)	3.181
E. Permitted Reserves at end 2018	3.091
F. Estimated permitted reserves available to be worked during remainder of plan period (from beginning 2019 to end 2031)	2.54
G. Remaining requirement to be provided for in Plan (D – F)	0.641

Notes:

1. The planning application for an extension to Bowling Green Farm Quarry submitted in 2016 and permitted in June 2017 is for the working of a total of 1.6 million tonnes of soft sand. Information in the application indicates this will be worked over 19 years from 2018 to 2036 at an average rate of working of approximately 0.08 million tonnes per annum. Mineral working at Bowling Green Farm Quarry is therefore expected to extend beyond the end of the plan period (2031); of the total of 1.6 million tonnes, it is

estimated approximately 1.1 million tonnes will be worked within the plan period and approximately 0.5 million tonnes will remain to be worked after 2031.

2. The planning application for an extension to Duns Tew Quarry submitted in 2014 and permitted in May 2017 is for the working of a total of 0.415 million tonnes of soft sand. Information in the application indicates this will be worked over 16/17 years from 2017 to 2033/34 at an average rate of working of approximately 0.025 million tonnes per annum. Mineral working at Duns Tew Quarry is therefore expected to extend beyond the end of the plan period (2031); of the total of 0.415 million tonnes, it is estimated approximately 0.365 million tonnes will be worked within the plan period and approximately 0.05 million tonnes will remain to be worked after 2031.
3. The permitted reserves of soft sand available to be worked during the plan period have therefore been reduced by 0.55 million tonnes, from 3.209 million tonnes (row G) to an estimated 2.659 million tonnes (row H).

Crushed Rock provision required over the Plan period 2014-2031

(Based on three year average - Dec 2018)

	Crushed Rock (million tonnes)
A. Annual Provision (from policy M2 / LAA)	0.778 (3-year sales average 2016 – 2018)
B. Requirement 2014 – 2031 (policy M2) (A x 18 years)	14.004
C. Sales in 2014 – 2018	4.308
D. Remaining requirement (B – C)	9.696
E. Permitted Reserves at end 2018	7.718
F. Estimated permitted reserves available to be worked during remainder of plan period (from beginning 2019 to end 2031)	7.718
G. Remaining requirement to be provided for in Plan (D-F))	1.978

10. Appendix 4

Population

The table below presents the population figures for Oxfordshire for the 10 year baseline period (2009 to 2018).

Table 1: Oxfordshire population figures for the 10 year baseline period (2009 to 2018)³⁶

Year	Population
2009	643,095
2010	648,688
2011	654,791
2012	660,772
2013	666,100
2014	668,227
2015	675,984
2016	688,410
2017	682,400
2018	687,500

Population forecasts for Oxfordshire up to 2028³⁷

Year	Population Forecast
2019	723,140
2020	736,150
2021	751,106
2022	767,637

³⁶ http://www.nomisweb.co.uk/reports/lmp/la/1941962886/subreports/pop_time_series/report.aspx
accessed 30.9.19)

³⁷ https://public.tableau.com/views/29thAugustPopulationForecasts/MSOApopulationforecasts?%3Aembed=y&%3Adisplay_count=yes&%3AshowTabs=y&%3AshowVizHome=no#1

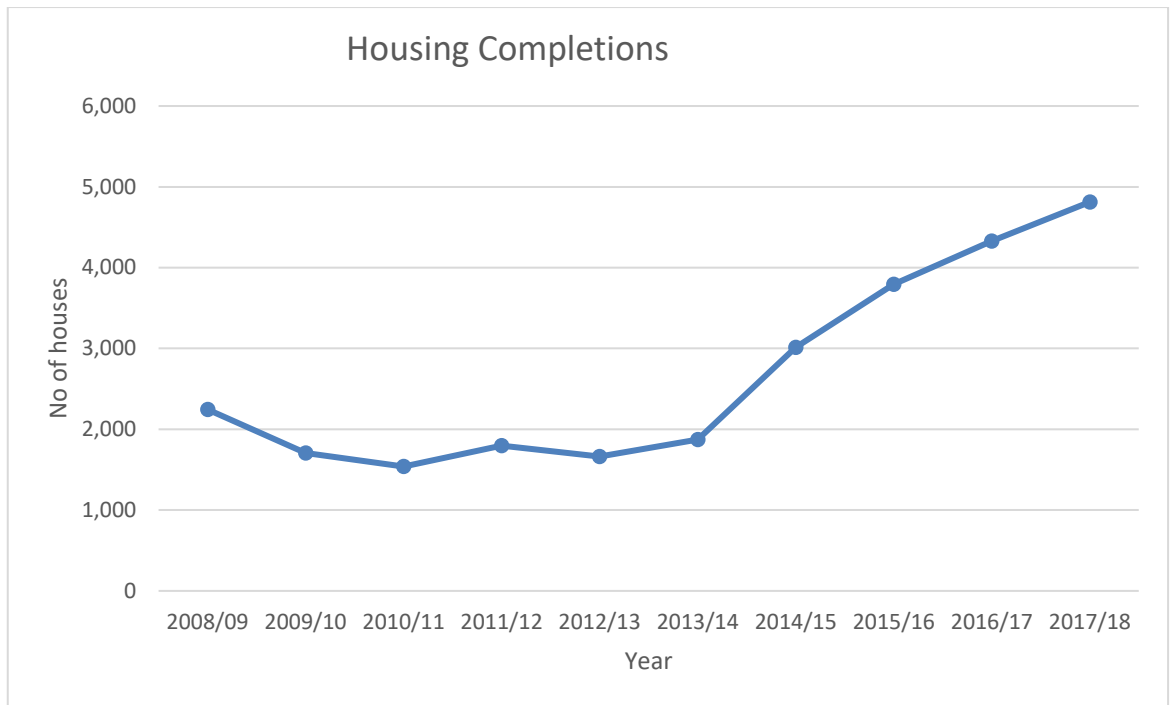
Year	Population Forecast
2023	781,780
2024	794,416
2025	805,078
2026	814,488
2027	822,238

Housing Completion Figures

Housing completions by year in Oxfordshire³⁸

2006/07	3,194
2007/08	2,807
2008/09	2,246
2009/10	1,708
2010/11	1,539
2011/12	1,799
2012/13	1,661
2013/14	1,873
2014/15	3,013
2015/16	3,795
2016/17	4,330
2017/18	4,812

³⁸ Oxfordshire County Council and District Monitoring Reports



Oxfordshire housing completions for the baseline period 2008/9 to 2017/18