



West Yorkshire Local Aggregates Assessment

2023 Data

January 2025

Summary Dashboard

	2023 Sales (Mt) & Trend ¹	Average (10-yr) Sales & Trend (Mt) ¹	Average (3-yr) Sales & Trend (Mt) ¹	APR (Mt) ²	Reserve (Mt)	Landbank (years)	Allocations (years)	Productive Capacity (Mtpa)	Comments ³
Sand & Gravel	c	0.07 ▶	0.03 (%)	0.77 -1% ▼	1.88 -1.5% ▼	24.5 ▶	7.5	No data	APR = 16% uplift on 10-year average sales; Landbank > 7 years mainly due to 2 sites so landbank resilience remains uncertain
Crushed Rock	1.14 -5% ▼	1.01 +4% ▲	0.97 +2% ▲	1.17 +1% ▲	35.79 -12% ▼	30.7 +13% ▲	0	No data	A slight decrease in sales. Notable reduction in reserves and landbank in part due to exclusion of reserves of non-aggregates
Recycled / Secondary Aggregates	1.2 +41% ▲	No data	1.0 +16% ▲	n/a	n/a	n/a	n/a	1.2	Sales based on WDI 2023. Capacity based on max output achieved in recent yrs (2023)
Marine Sand & Gravel	0.019	No data	No data	n/a	n/a	n/a	n/a	2	Wharf stopped importing marine won S&G. Data = – HGV imports. Potential 2mt capacity of Aire & Calder Navigation Wharfs
Rock Imports by Sea	No data	No data	No data	n/a	n/a	n/a	n/a	No data	Rock is imported by rail to WY

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Rail Depot Sales (Sand & Gravel)	No data	No data	No data	n/a	n/a	n/a	n/a	There is one rail depot importing aggregate	Sales from rail depots are not surveyed
Rail Depot Sales (CR)	No data	No data	No data	n/a	n/a	n/a	n/a	There is one rail depot importing aggregate	CR is imported by rail but sales from rail depots are not surveyed

Notes:

Trend Arrows – indicates whether sales, reserves and landbanks are (compared with the previous year's LAA average sales) increasing (upwards arrow), declining (downwards arrow) or no change (level arrow).

APR = 'Aggregate Provision Rate' – The APR is the level of sales used to estimate future requirements and is based on historical sales and other relevant local information. The terms 'LAA Rate' or 'apportionment' has sometimes been used previously for the Aggregate Provision Rate.

Comments – Comments explain possible anomalies e.g., peculiarities about current sales, landbank limitations, important infrastructure changes etc.

Shading applied where aggregate supply source is not relevant.

General Comments – this provides the overall picture with reference to demand, factoring in export requirements and sustainability of supply – landbank, allocations, infrastructure capacity – to meet this. This includes whether an appropriate contribution is being made to what are understood to be the aggregate supply that is required of the area and an analysis of the adequacy of the current local plan and whether this should be reviewed.

'c' denotes where sales data is not published due to commercial confidentiality.

Abbreviations

AONB	Area of Outstanding Natural Beauty
AMS	Aggregate Mineral Survey
APR	Aggregate Provision Rate
AWP	Aggregate Working Parties
BGS	British Geological Survey
c	confidential
C&RT	Canal and River Trust
CR	Crushed Rock
CD&E	Construction, Demolition and Excavation
DD&PDLAA	Derbyshire, Derby and Peak District National Park Local Aggregate Assessment
D&RLAA	Doncaster and Rotherham Local Aggregate Assessment
FBA	Furnace bottom ash
HGV	Heavy Good Vehicles
HSA	High Specification Aggregates
PSV	Polished Stone Value
IWTS	Inland Waterway Transport Solutions
IBA	Incinerator bottom ash
LAA	Local Aggerates Assessment
LPA	Local Planning Authority
LES	Low Emissions Strategy
MPA	Mineral Planning Authority
Mt	Million tonnes
MTPA / mtpa	million tonnes per annum
NP	National Park
NPPF	National Planning Policy Framework
NYLAA	North Yorkshire Sub-region Local Aggregate Assessment
NYCC	North Yorkshire County Council

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PP / pp	Planning permission
PFA	Pulverized-fuel ash
PDNP	Peak District National Park
RAWP	Regional Aggregate Working Party
RA	Recycled Aggregate
RAP	Recycled asphalt plannings
RCA	Recycled concrete aggregate
RSA	Recycled and Secondary Aggregate
S&G	Sand and Gravel
tpa	tonnes per annum
WYCA	West Yorkshire Combined Authority
WYLAA	West Yorkshire Local Aggregates Assessment
YDNP	Yorkshire Dales National Park
YHAWP	Yorkshire and Humber Aggregates Working Party

Executive Summary

A Local Aggregates Assessment (LAA) is an annual report that provides evidence to support both the minerals industry and Mineral Planning Authorities in planning for a steady and adequate supply of aggregates. The LAA should be updated annually, and this document represents the West Yorkshire Local Aggregate Assessment incorporating 2023 data (known as the 'West Yorkshire Local Aggregate Assessment - 2023 data'). This is the eleventh LAA to be prepared by the West Yorkshire Combined Authority (WYCA) on behalf of, and jointly with, the five West Yorkshire Mineral Planning Authorities of: Bradford, Calderdale, Kirklees, Leeds and Wakefield.

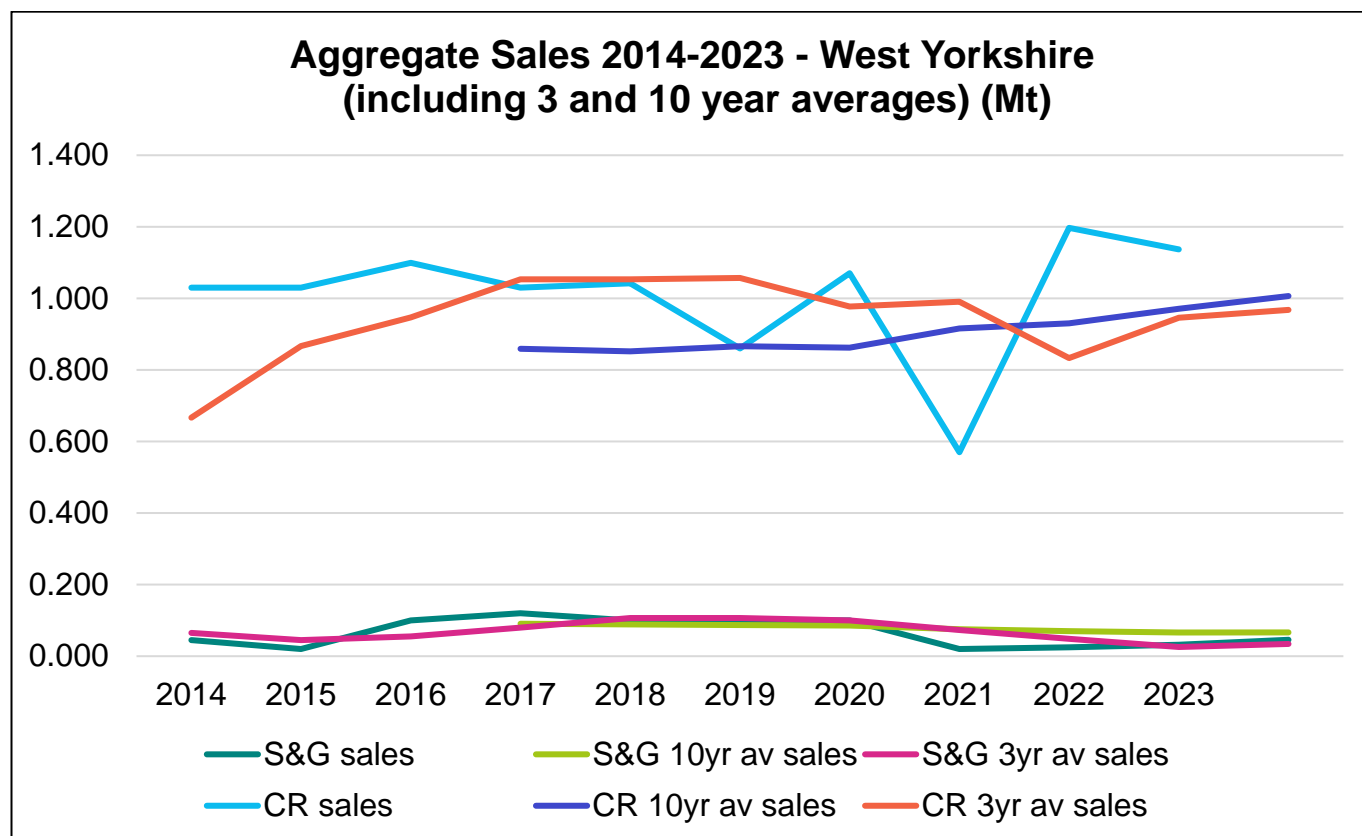
Due to its geology, West Yorkshire is heavily reliant on the importation of sand and gravel to meet its demand for this aggregate type. Sales of sand and gravel continued from a single operational sand and gravel quarry within West Yorkshire but this reached exhaustion in 2023. A new sand and gravel quarry, granted planning permission in 2022, is being developed in Wakefield district that will allow for aggregate to be transported by barge. Existing reserves of sand and gravel exist within two permitted sites but their combined productive capacity is insufficient to meet demand. Some building sand is produced as a by-product at several sandstone quarries. Although annual sand & gravel sales remain confidential, a very low 10-year annual average sales figure of 0.07 million tonnes can be reported which is the same as 2021 and 2022. West Yorkshire sand and gravel reserves, as of 31 December 2023, were 1.88 million tonnes, a slight decrease on 2022.

To supplement land won supplies, c18,700 tonnes of marine dredged sand and gravel aggregates was reported by a single operator as being imported into West Yorkshire by road in 2023. Imports of marine aggregates by barge to Knostrop Wharf in Leeds ceased in 2022 as this operation became unviable, without the wharf being lengthened to allow for an increase in imports. Import options at other wharves are being considered and in 2023 a study was published by WYCA to establish how marine aggregate might be imported into West Yorkshire, in particular by more sustainable modes of transport, i.e. rail and water. This study included an assessment of potential locations for wharves and rail depots for the importation of marine aggregates.

Survey returns for 2023 indicate crushed rock aggregate production from 23 active sites declined slightly on 2022 sales to 1.14 million tonnes but this was still well above the 10 year average sales. Except for 2019 and 2021, in the last 10 years, the level of sales of crushed rock from quarries in West Yorkshire has been relatively steady at approximately 1 million tonnes per annum, with a generally increasing trend (ignoring 2021 data). Crushed rock reserves are reported as 4.5 million tonnes less than in 2022 which is likely in part due to this year's survey requesting reserves to be reported as those estimated for aggregate use and those to be used for non-aggregate (i.e. sandstone to be used as building stone). The 10 year average sales for crushed rock was essentially static with a very slight increase to 1.01 million tonnes and the 3 year average sales increased slightly to 0.97 million tonnes (1.35mt if 2021 data is ignored).

Figure EF1 shows the aggregate sales pattern and trends for West Yorkshire between 2014 and 2023:

Figure EF1:



When assessing future demand for aggregate, and associated landbanks for West Yorkshire, ten-year sales averages alone are not considered to be adequate. This is because adopted Local Plans are anticipating an increasing rate of housing delivery and there appears to be a correlation between housing delivery and aggregate production, as shown in Figure EF2 below, recognising that new house building accounts for approximately 21% of construction output. Other major infrastructure projects are also anticipated, which will maintain, and potentially increase, the demand for aggregates.

The significant increase in house building planned for by West Yorkshire Local Planning Authorities is illustrated by Figure EF3. This remains the case despite recent significant increases in housebuilding across West Yorkshire and changes to housing need forecasting which has led to some moderation of housing delivery targets in emerging new Local Plans. It is important to note that changes to the National Planning Policy Framework anticipated in late 2024 may result in increases in Local Plan housing targets in the medium term.

Figure EF2:

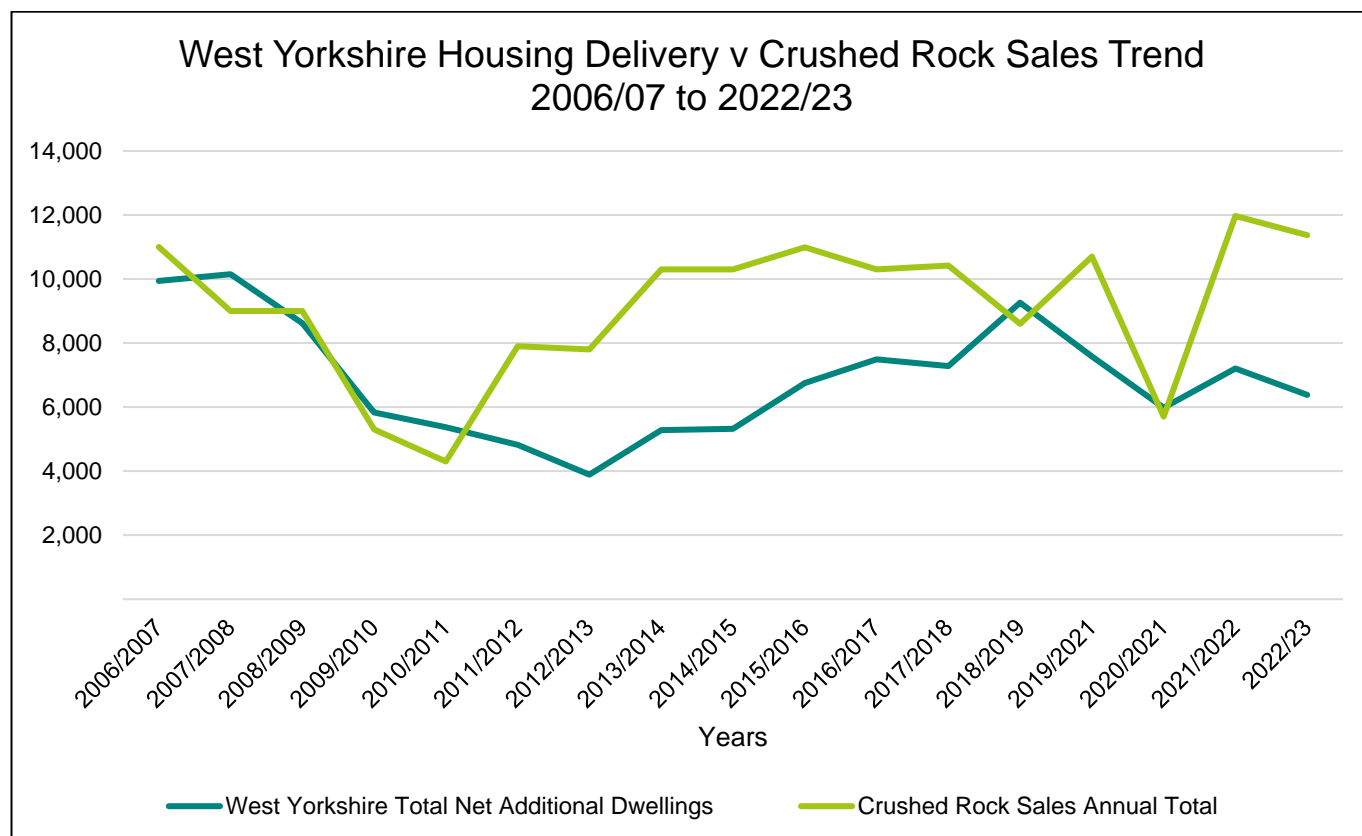
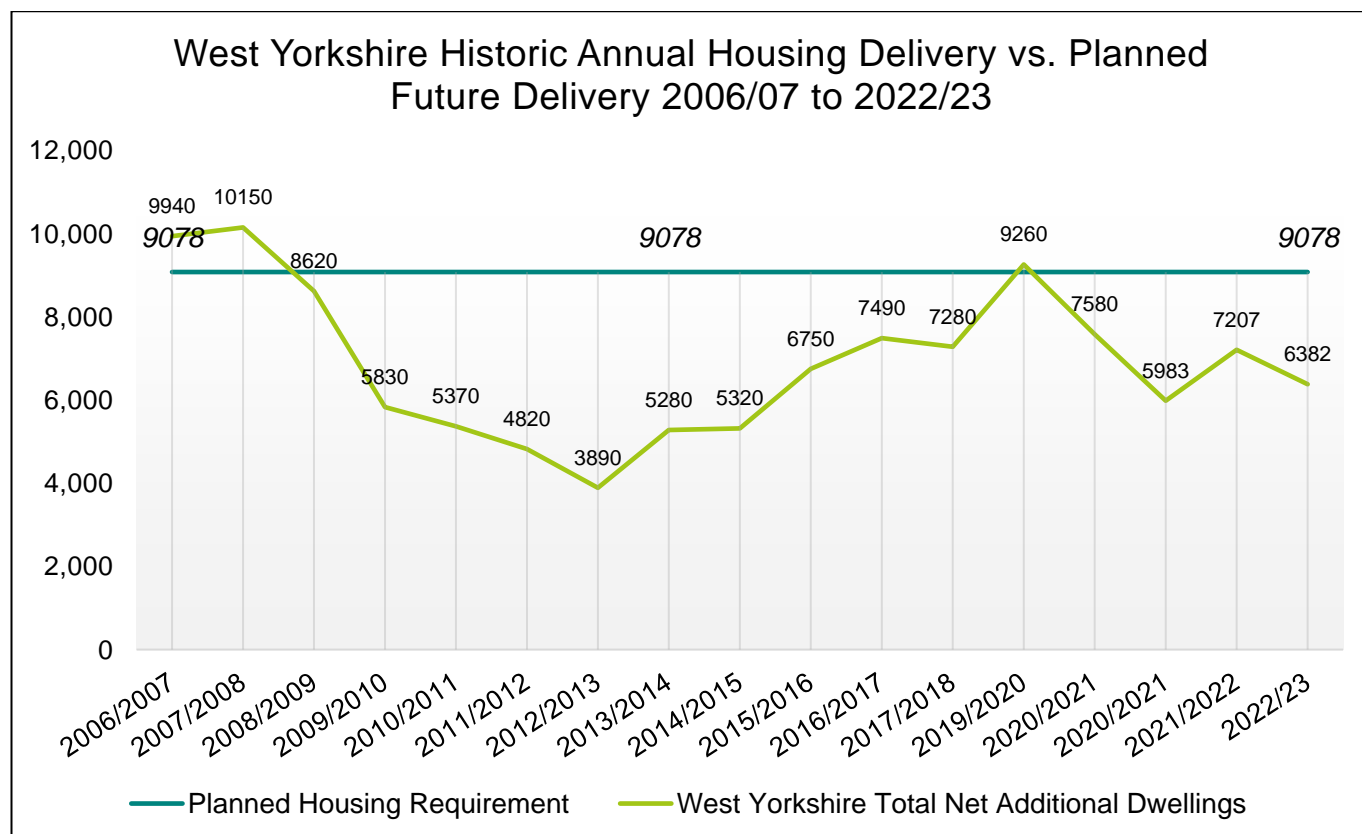


Figure EF3:



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In light of the above demand is anticipated to be above the 10 year average aggregate sales and so an uplift factor (calculated as 16% for this LAA) has been applied to the 10-year sales averages for the purpose of calculating the 'Aggregate Provision Rate' and, in turn, the West Yorkshire Aggregate Landbanks. This uplift represents an estimate of the increase in aggregate sales which would be required to deliver on planned future housing growth and associated infrastructure demands. The calculated landbanks, adjusted in accordance with the uplift, are shown in Table ES1 below. This table also shows the changes since last year's LAA.

Table ES1: West Yorkshire Aggregate Landbanks

	Reserves		10 yr Annual Sales Average		Uplifted Aggregate Provision Rate		Landbank	
	2022	2023	2022	2023	2022 (18.5%)	2023 (16%)	2022	2023
Sand and Gravel	1,910,000	1,880,000	66,200	66,300	78,400	76,900	24 Years 4 Months	24 Years 5 Months
Crushed Rock	40,530,000	35,796,000	970,799	1,006,500	1,150,400	1,167,500	35 Years 3 Months	30 Years 8 Months

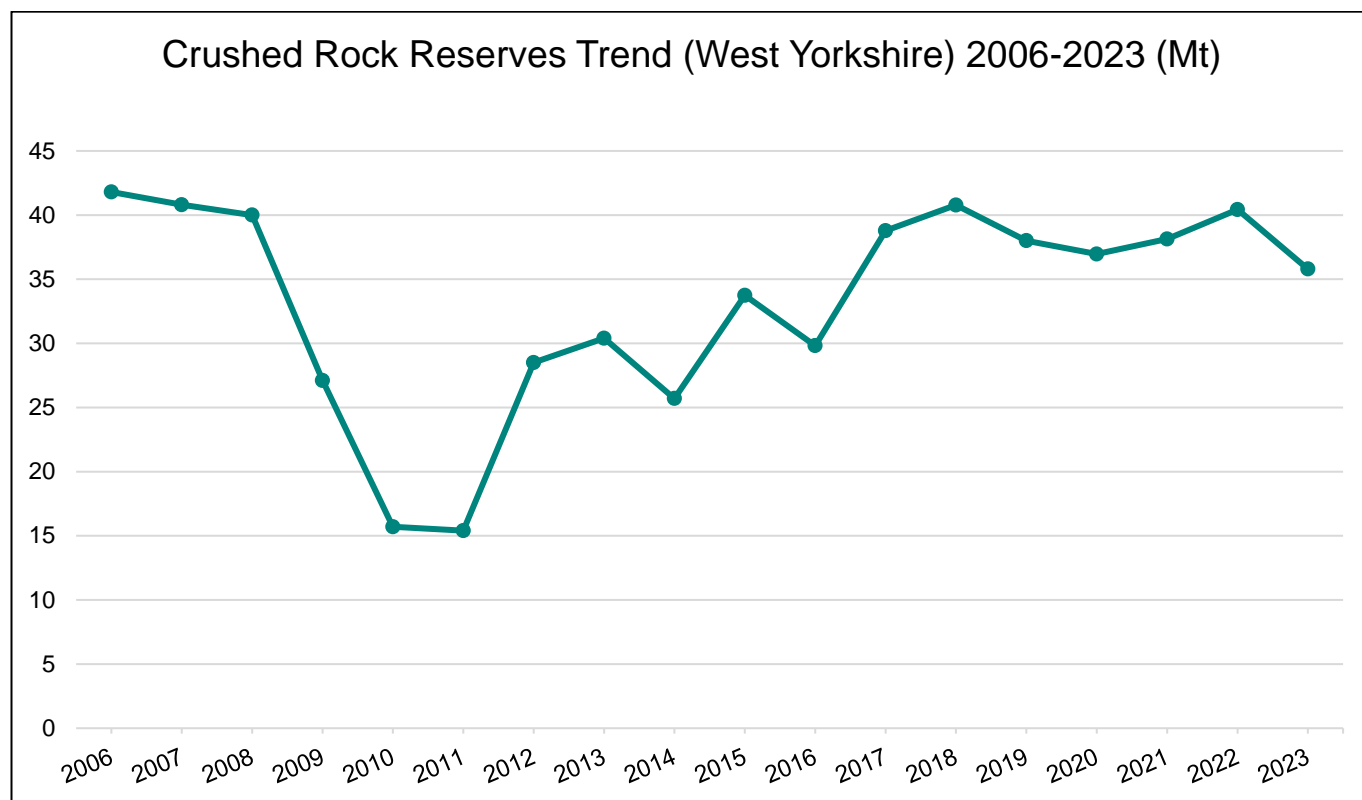
Note: All Figures in Tonnes Unless Otherwise Stated

The Sand and Gravel landbank of **24 years and 5 months** is significantly above the minimum 7 year landbank required by paragraph 226(f) of the National Planning Policy Framework (NPPF). There was essentially no change in the sand and gravel landbank since 2022. The resilience of this landbank is highly dependent on a single 1.6 million tonne site in Wakefield (Stanley Ferry) which, to date, is not producing sand and gravel.

Extraction of sand and gravel within West Yorkshire remained at a very low level - with most of the sand and gravel consumed within West Yorkshire being sourced either from quarries located in other mineral planning authority areas or from marine won sources. Once operational, the sand and gravel sites that were permitted in 2022 will result in an increase in sales in West Yorkshire, but these will still be at relatively low levels and have little positive impact on the current trade imbalance. At least the complete collapse of the sand and gravel extraction industry within West Yorkshire should be avoided in the short to medium term. c18,700 tonnes of demand for sand and gravel was met by road imports of marine aggregate into West Yorkshire. Knowledge on imports should be further improved using data from the four yearly AM survey undertaken by BGS for 2023.

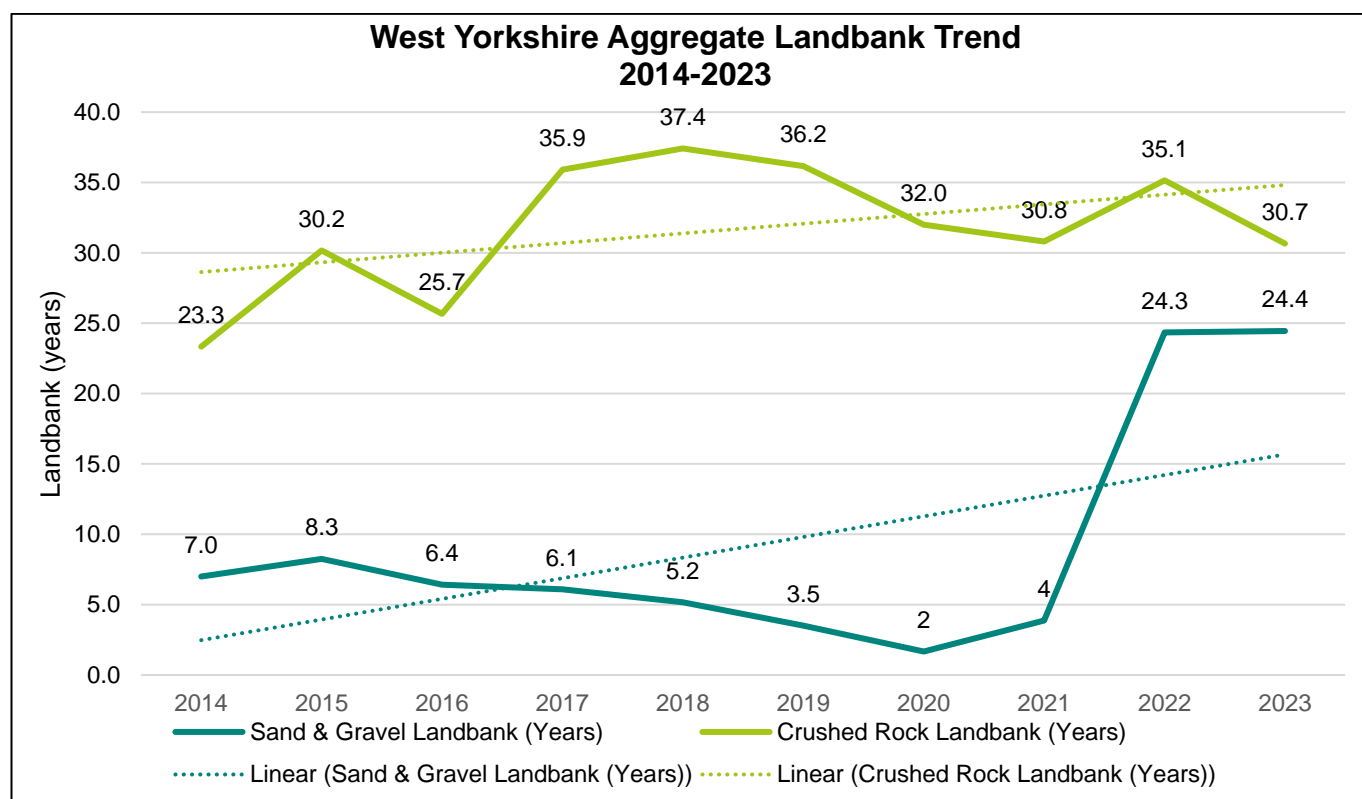
The crushed rock aggregate landbank of 30 years and 8 months shows a notable decline of 4.5 years since 2022 but remains significantly above the 10-year minimum level required by the NPPF. As illustrated in Figure EF4, despite the apparent decline in 2023, crushed rock reserves remain at around pre-recession levels and so should not necessarily be seen as excessive or problematic, particularly in light of West Yorkshire's dependence upon neighbouring regions for the supply of higher specification crushed rock aggregates.

Figure EF4



The generally upwards trend of the Crushed Rock Aggregate Landbank and apparent significant improvement in the Sand and Gravel Landbank are illustrated in Figure EF5.

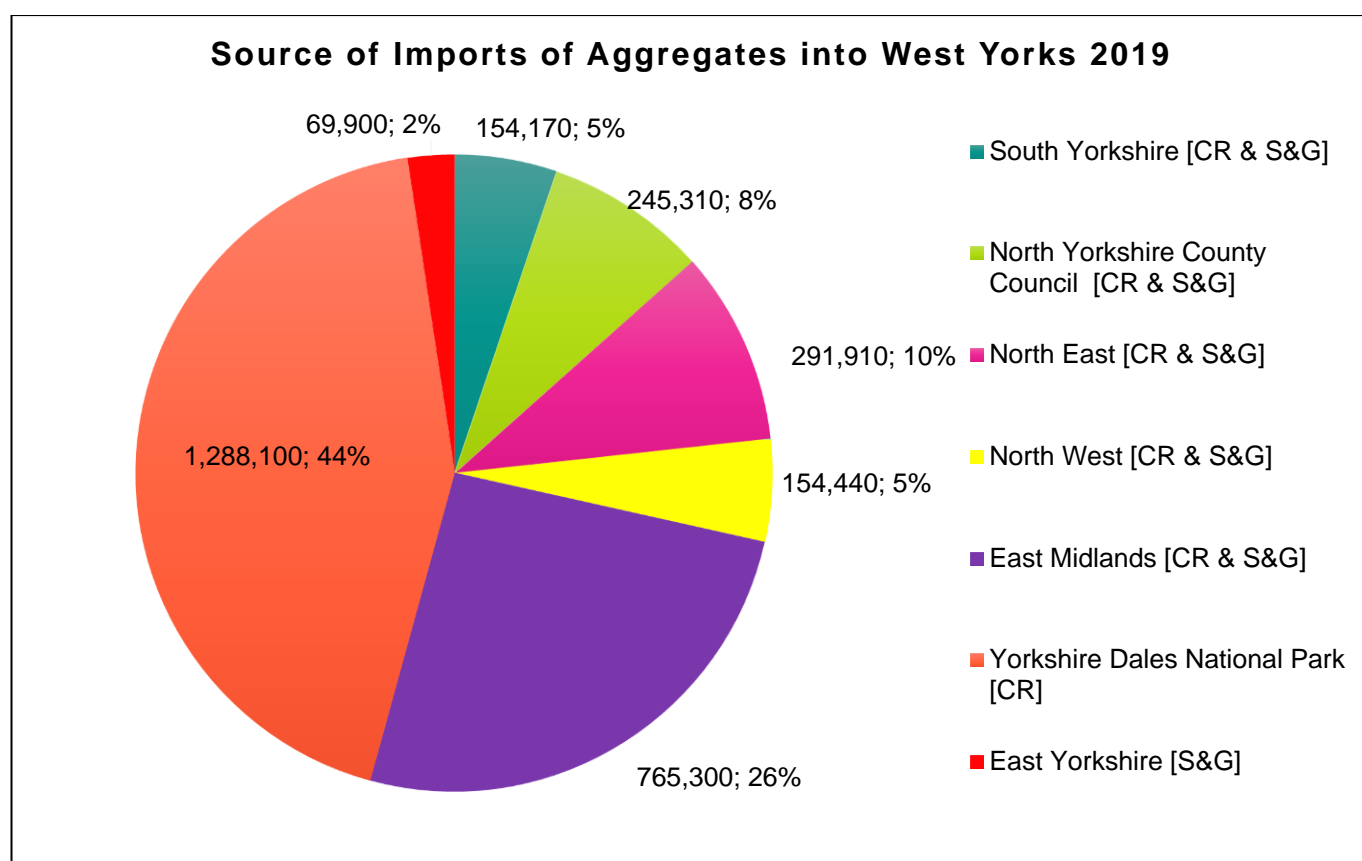
Figure EF5



The [Collation of the results of the 2019 Aggregate Minerals survey for England and Wales](#) revealed that the majority of the construction aggregate produced in England and Wales was used for either concrete manufacture (31% in 2019) or road construction (25% in 2019). For geological reasons described in detail in this report, the mineral resources which are worked within West Yorkshire are generally considered to be incapable of producing significant quantities of the higher specification aggregates required for use in either road construction or concrete manufacture. Consequently, West Yorkshire will continue to remain reliant upon the crushed rock aggregates produced in neighbouring authorities to meet certain construction aggregate needs.

The two principal sources of the high grade crushed rock aggregates consumed within West Yorkshire are the Yorkshire Dales National Park and Derbyshire. Quarries from these two areas collectively provided for over two thirds of the crushed rock aggregates consumed within West Yorkshire in 2019, according to the data tables provided by the British Geological Survey (BGS) in association with the 2019 National Aggregate Minerals Survey 2019 (AM2019). Figure EF6 below illustrates the host sources of aggregate imports into West Yorkshire. Crushed rock from the Yorkshire Dales is imported by rail to a depot in Leeds. The AM is currently being updated in 2024 and the results will be reported in next year's LAA.

Figure EF6



BGS, 2021 – Derived from Aggregate Minerals Survey for England and Wales 2019 (data tables provided to MPAs)

In addition to the length (in years) of aggregate landbanks, other relevant information should be considered when assessing the need for the release of additional aggregate reserves.

The Key Messages and relevant considerations to be taken from this LAA when preparing local plan policy (including allocations) and assessing proposals for minerals development and associated infrastructure are:

- i. **Housing and infrastructure** – While housing delivery had significantly improved in West Yorkshire, the gap between the number of houses being built and the objectively assessed need for new housing has increased in recent years. It remains to be seen whether the new government's aims for increases in housebuilding will be realised in practice but changes to policy may well have an impact in the medium term. A range of infrastructure projects are in the pipeline including Mass Transit for West Yorkshire, Northern Powerhouse Rail and upgrades of the Trans-Pennine rail route and associated Rail Interchange upgrades. Infrastructure needed to achieve net zero (e.g. wind turbines) will place further demands on aggregate minerals. Additional aggregate supplies will be required to ensure the housing delivery gap is filled and the construction aggregate demands of the infrastructure projects are met.
- ii. **The aggregate resource in West Yorkshire is limited** – The geology of West Yorkshire means that indigenous supplies of high quality land won aggregate, for use in concrete and road building, are difficult to obtain.
- iii. **West Yorkshire currently makes a small contribution to supply of construction aggregates** – West Yorkshire is a major aggregate consumer but makes a low contribution to the overall supply of construction aggregates within the Yorkshire and Humber Region, particularly in relation to sand and gravel and high specification crushed rock.
- iv. **The resilience of the sand and gravel landbank is questionable** – Reserves and production of sand and gravel within West Yorkshire are still at a very low level. The apparently healthy landbank masks the low level of sales and reserves, and the deliverability of a recent permission remains uncertain which means the landbank may not be very resilient and its high level should not be taken as an indication that there is no need for additional reserves. The industry has noted that there is an ongoing national depletion in permitted reserves and this is of significant concern.
- v. **Crushed rock landbank is healthy but includes mainly lower specification material** – Crushed rock reserves remain relatively high within West Yorkshire; however, while limestone geology exists, a substantial proportion of the currently permitted reserves are Carboniferous Sandstone which is unsuitable for higher specification uses, such as for the manufacture of concrete or as roadstone.
- vi. **West Yorkshire is very reliant on neighbouring Mineral Planning Authorities** – To meet most of its aggregate needs, particularly for uses which demand higher specifications, West Yorkshire is reliant on aggregate imports, primarily from quarries in the Yorkshire Dales National Park, Derbyshire and Durham as well as marine won aggregate imported from wharves on the Humber estuary. Areas providing land won supplies currently have healthy landbanks though this may change in the long term.
- vii. **For road surfacing West Yorkshire remains strongly reliant on aggregate imported from the Yorkshire Dales National Park** – To meet its needs for aggregate suitable for use as skid resistant road surfacing, West Yorkshire remains strongly reliant upon supplies of high specification (high Polished Stone Value) sandstone aggregates from quarries in the Yorkshire Dales National Park.
- viii. **Sustainable opportunities to increase aggregate supply in West Yorkshire** – Given West Yorkshire's reliance on adjoining authorities for higher specification aggregates, any sustainable opportunities to increase the supply of the generally lower specification aggregates produced within West Yorkshire should be considered

on their merits, particularly where such proposals would facilitate the indigenous production of building materials such as artificial stone products.

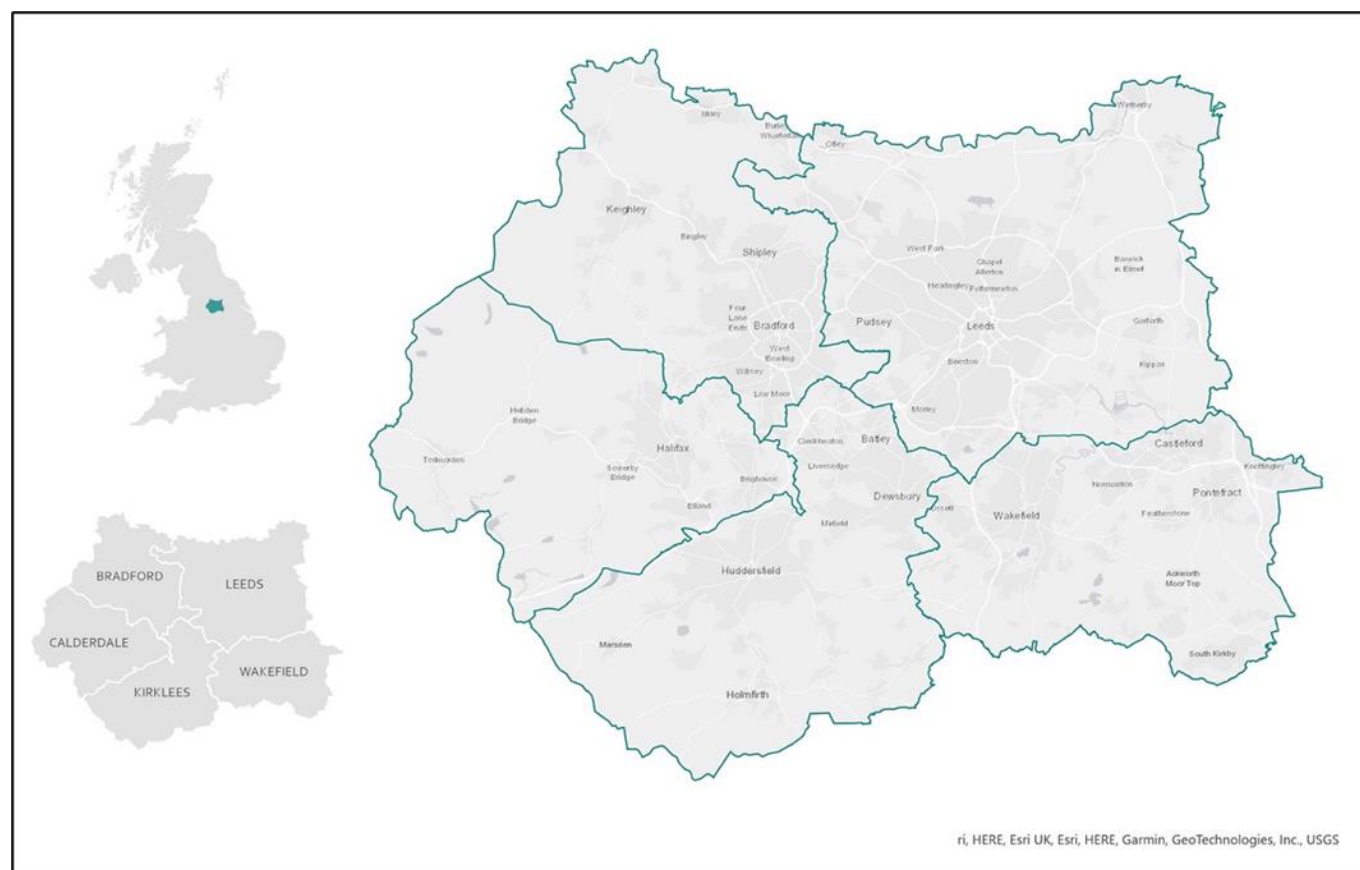
- ix. **Increase Recycled Aggregates** – Although the production of recycled aggregates is linked to economic growth, providing new and enhanced facilities for the production of such aggregates will help West Yorkshire's contribution to aggregate production and partly compensate for its reliance on primary aggregates quarried from neighbouring authorities. The safeguarding of existing facilities from redevelopment is also important.
- x. **Building Sand from Sandstone Quarries** – Production of sand from crushed rock at sandstone quarries in West Yorkshire, including building stone quarries, is a valuable additional/ alternate source of sand supply, particularly building sand.
- xi. **Safeguarding Existing, and Developing New, Rail Sidings and Wharves** – Existing rail and wharf infrastructure should be safeguarded. In light of the single wharf importing aggregate by barge ceasing operation in 2022, potential new locations for aggregate wharves and rail depots for the importation of marine aggregate should be investigated with greater urgency and their suitability for importation of crushed rock from the Yorkshire Dales should also be considered. Current industry interest in utilising waterways to transport minerals within West Yorkshire should continue to be supported. Removing HGVs from the road network to these transport modes would help improve Air Quality.
- xii. **Overarching message** – Planning for continuity in the supply of the aggregates consumed in West Yorkshire is far more dependent upon effectively cooperating with neighbouring authorities and safeguarding minerals sustainable transportation infrastructure (i.e. rail sidings and wharves) than managing land won aggregate supplies within West Yorkshire itself. While West Yorkshire may be reliant on other areas for aggregates, as a metropolitan area, it accommodates some of the other development needs which benefit other areas including housing.

1. Introduction / Background

1.1. Background

- 1.1.1. Minerals are important to the local and national economy and underpin the fabric of our everyday lives. Uses of minerals range from building stones to brick clay, to chemical and construction aggregates. Maintaining continuity of supply of construction aggregates is particularly vital to the economic wellbeing of the country and therefore the English planning regime provides for a 'managed aggregate supply system' (MASS) based upon Local Aggregate Assessments (LAAs).
- 1.1.2. According to the requirements of the National Planning Policy Framework (NPPF), all the local authorities within England which have responsibilities for minerals planning (Mineral Planning Authorities (MPAs)) are required to plan for a steady and adequate supply of aggregates by:
- 1.1.3. National Planning Practice Guidance confirms that LAAs should contain three elements:
 - 'preparing an annual Local Aggregate Assessment, either individually or jointly, to forecast future demand, based on a rolling average of 10 years' sales data and other relevant local information, and an assessment of all supply options (including marine dredged, secondary and recycled sources);
 - participating in the operation of an Aggregate Working Party and taking the advice of that party into account when preparing their Local Aggregate Assessment.'
 - an assessment of the balance between demand and supply, and the economic and environmental opportunities and constraints that might influence the situation. It should conclude if there is a shortage or a surplus of supply and, if the former, how this is being addressed
 - influence the situation. It should conclude if there is a shortage or a surplus of supply and, if the former, how this is being addressed.'
- 1.1.4. In addition to the government's planning practice guidance, it should be noted that the Planning Officers' Society and the Mineral Products Association jointly published a 'Practice Guidance Document on the Production and Use of Local Aggregate Assessments' in April 2015, updated in May 2017. Although non-statutory, this document sets out good practice and provides a useful health check to ensure the adequacy of an LAA.
- 1.1.5. Having a robust LAA in place is a pre-requisite to arriving at sound minerals planning policies and enabling the delivery of policies to be accurately monitored and updated. The LAA should be one of the key pieces of evidence underlying policies relevant to the supply and safeguarding of minerals within Local Plans. All five West Yorkshire Local Authorities (Bradford, Leeds, Wakefield Kirklees and Calderdale) are independently responsible for minerals planning within their respective administrative areas but have agreed to allow the West Yorkshire Combined Authority (WYCA) to coordinate the commissioning of a joint LAA on their behalf. This LAA informs the preparation of the individual authority's planning policies on the supply of aggregate and allows them to be monitored.

Figure 1: Location of the five West Yorkshire authorities



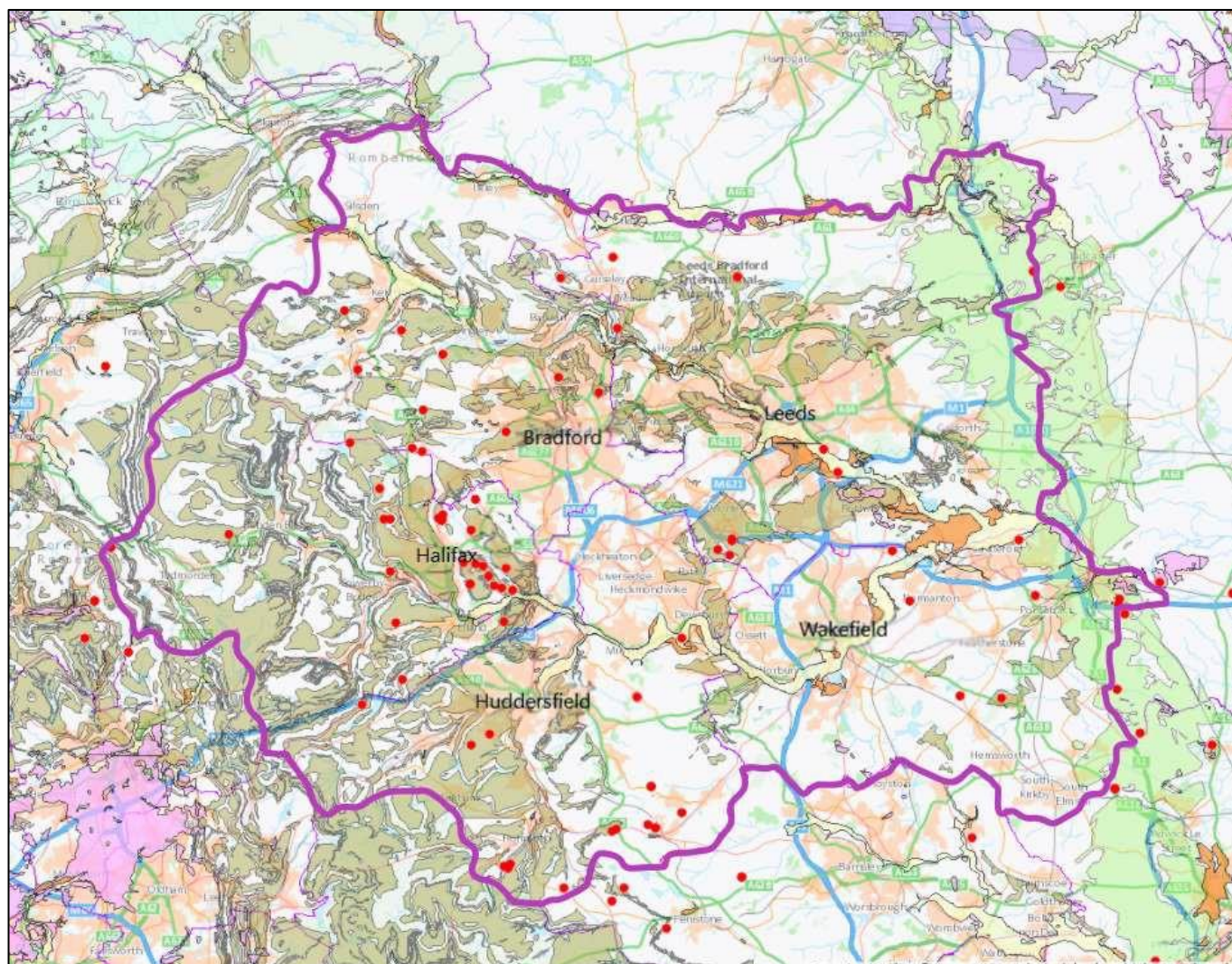
- 1.1.6. The LAA is intended to provide evidence to inform both MPAs, in exercising their forward plan making and Development Management functions, and the minerals industry, in planning their future investment decisions and informing planning application assessments.
- 1.1.7. The Yorkshire and the Humber Aggregates Working Party (AWP), an advisory body made up of MPAs across the region, the aggregates industry and other relevant expert organisations, has a role in monitoring the operation of the LAA system through providing technical advice. A draft version of the West Yorkshire Local Aggregates Assessment 2023 is submitted to the AWP for stakeholder consideration and scrutiny.

1.2. Summary of Geographical Context – Geology

- 1.2.1. Naturally occurring aggregate minerals in West Yorkshire are limestone, sandstone and sand & gravel. Figure 2 below shows the distribution of aggregate minerals within West Yorkshire.
- 1.2.2. In terms of sand and gravel, BGS research published in 2009, studied the resource in West Yorkshire with a view to establishing whether the sub-regional apportionment (in the Yorkshire and Humber Regional Spatial Strategy) was correct. The study was informed by a minerals industry consultation exercise and reported the following key findings which concern the potential of the resource:
- The industry estimates that the amount of potentially viable sand and gravel within West Yorkshire, is between 90 – 96% lower than was estimated in the phase II study.

- Only sites containing 1-1.5 million tonnes of sand and gravel (taking up 10-25ha of land) would be likely to be economically viable. Much of the potentially viable sand and gravel resource within West Yorkshire is divided by rivers, canals, railways and roads therefore there are only likely to be a very small number of viable sites.
- The Wharfe Valley is considered to have some of the largest areas of unworked high quality sand and gravel in the region; however, the industry regard it as unviable for new extraction sites due to the proximity of landscape/ environmental designations coupled with the potential for relatively strong opposition from local communities.
- The industry identified 5-10 potential sites for sand and gravel extraction within West Yorkshire; however, issues relating to access, environmental, hydrological, and/or planning restrictions were considered too problematic relative to the volumes and quality of reserves to merit developing any of them.

Figure 2: Mineral Resource Map of West Yorkshire



Key: brown: sandstone; yellow / orange: sand and gravel; green: limestone

BGS, 2021, GeoIndex Onshore; Available Online: <http://mapapps2.bgs.ac.uk/geoindex/>

- 1.2.3. In West Yorkshire sandstone is quarried primarily for building stone, however at many sites the wastage from the extraction of blocks and from sawing is crushed for aggregate. The aggregate derived from the sandstone is too weak and porous for the manufacture of concrete or for road building and is commonly used in low specification situations including for bulk fill.
- 1.2.4. Magnesian Limestones in the Yorkshire and Humber Region, which comprise the Cadeby and Brotherton formations, occur, and are worked, along the eastern edge of the Leeds and Wakefield Districts in West Yorkshire. These formations have historically been extensively quarried and continue to be an important source of construction aggregates, industrial minerals, building stones and agricultural lime.
- 1.2.5. Magnesian Limestone aggregates are generally found to be unsuitable to produce coated roadstone (asphalt) due to its insufficient resistance to polishing, however approximately 40% of Magnesian Limestone quarries are thought to be capable of producing aggregates of sufficient strength to be used as a road sub-base or as a concrete aggregate.
- 1.2.6. More detailed information on the aggregate resource in West Yorkshire is included in Appendix 1.

1.3. Summary of Geographical Context – Population

- 1.3.1. West Yorkshire is located in the north of England in the Yorkshire and Humber Region. West Yorkshire is heavily urbanised accommodating 2.3 million people (42% of the 5.5 million population of the Region)¹ within 13% of the Region's total land area.
- 1.3.2. Substantial growth in population in West Yorkshire is predicted over the next 20 years. The associated household formation will inevitably create the need for new homes, employment opportunities and improvements in transportation and other infrastructure.
- 1.3.3. The consequence of local/regional sources of construction aggregates being insufficient to meet future demand could include construction material supply failures and delays, construction costs increases and increase in aggregate haulage distances. The Minerals Products Association estimates that a typical house uses up to 200 tonnes of aggregates in its construction². This includes crushed rock as well as sand and gravel. It is therefore crucial that a steady and adequate supply of aggregate minerals is provided to the construction industry with the materials required to deliver the substantial housing and economic growth planned in West Yorkshire over relevant plan periods.
- 1.3.4. Further information on population is included in Appendix 2.

¹ [2021 Census Profile for areas in England and Wales](#)

² <https://mineralproducts.org/Mineral-Products/Aggregates.aspx>

1.4. Summary of Geographical Context – Transportation

- 1.4.1. West Yorkshire is extremely well connected, both internally and to surrounding areas, by road, rail and waterway (albeit there are capacity limitations and a need for further investment to realise the full potential of various routes/ modes of transportation).
- 1.4.2. The M62 motorway and trans-Pennine railway line provide east west transportation links between West Yorkshire, East Yorkshire and Manchester/ Liverpool. The M1/ A1(M) and the east coast mainline provides north-south links between West Yorkshire and York, Newcastle and the wider North-West Region to the north and Sheffield, Derbyshire, Nottinghamshire, London and the South-East to the south. The Settle Carlisle railway also provides rail-freight connectivity to North Yorkshire and the Yorkshire Dales – with several Yorkshire Dales Quarries being rail connected and transporting a significant proportion of their output by rail haulage.
- 1.4.3. Commercial canal/ waterway connectivity and associated wharf infrastructure remains in place to the east of Leeds, allowing waterway commerce connections between West Yorkshire and the Humber Docks via Goole. Although the Leeds-Liverpool canal remains well used for leisure traffic the infrastructure is not currently in place to allow similar commercial waterway goods transportation between West Yorkshire and Manchester/ Liverpool to the west. The Aire and Calder and associated navigations provide a further option for aggregate waterway freight between Wakefield, Leeds and Dewsbury/ Brighouse.
- 1.4.4. The BGS AM2019 survey reported that in 2019 2,723,000 tonnes of aggregates were imported into West Yorkshire, as set out in Table 15 of this report, with the majority being by road transport. Consequently, and given the acknowledged disproportionate contribution which road freight transportation makes to air pollution, it is clear that reducing aggregate road freight movements, by shifting an increasing proportion of aggregate freight transportation onto rail and waterways and away from roads, would be likely to make a significant contribution towards tackling air quality problems in West Yorkshire in accordance with the West Yorkshire Low Emissions Strategy. Transportation of aggregate by barge on inland waterways has an obvious potential to improve the sustainability of the West Yorkshire aggregate distribution system. This is particularly in terms of marine aggregate distribution connectivity between Leeds and the Humber, but also in terms of movement of minerals between quarries connected to the waterway network and construction materials manufacturing and distribution facilities. In recent years the limited size of the existing wharves has become an issue and the need for larger sites which would allow increased landings to make this mode of transport viable again has been identified. Imports of marine aggregate to Knostrop Wharf in Leeds ceased in 2022 due to issues with viability.
- 1.4.5. Section 3.4 discusses how the Canal & River Trust's 'Inland Waterway Transport Solutions' (IWTS) project has looked in more detail at the constraints on the marine transportation route between Leeds and the Humber. In 2022 WYCA published a related study³ on the potential for marine aggregate to supply the area and the need, and potential for, developing additional wharf capacity.

³ [Marine Aggregates Study, WYCA, 2022](#)

- 1.4.6. Aggregate is currently imported into West Yorkshire to rail depots in Leeds. This provides a significant reduction in the number of road miles that would otherwise be incurred.
- 1.4.7. To ensure transportation by means other than road can continue, and increase, it is essential, that existing rail depots and wharves are retained, and potential new sites are identified and safeguarded. Further detailed information on transportation and potential modal shift is included in Appendix 2.
- 1.4.8. National policy recognises the importance of safeguarding railhead and wharf capacity and local planning policy has been adopted which is intended to avoid development coming forward in a way that would impact the operation of such facilities (see section 3.2).

1.5. Summary of Geographical Context – National Parks and National Landscapes

- 1.5.1. The NPPF indicates that when determining planning applications, local planning authorities should, as far as is practical, provide for the maintenance of landbanks of non-energy minerals from outside National Parks. The West Yorkshire sub-region does not include a significant amount of national park land, other than a slight overlap of the Peak District National Park into the far southern periphery of Kirklees. However, this small area of National Park within West Yorkshire contains no active minerals extraction sites.
- 1.5.2. Nonetheless it is known that West Yorkshire does receive significant quantities of crushed rock aggregate from quarries within the Yorkshire Dales National Park (YDNP), including high specification aggregates, and also receives aggregate quarried within the Nidderdale Area National Landscape. British Geological Survey data⁴ indicates that, of the 2.3 million tonnes of crushed rock estimated to have been consumed within West Yorkshire in 2019, around 1.3 million tonnes (55%) was sourced from quarries within the YDNP (see Section 3.1 below).
- 1.5.3. Lesser, but still significant quantities of crushed rock aggregates are transported into West Yorkshire from limestone and gritstone quarries within the Peak District National Park, however policy in the Peak District Local Plan Core Strategy is to provide for a continued gradual reduction in the amount of mineral that is quarried from within the National Park, in order to protect the nationally important landscape.
- 1.5.4. The high specification sandstone aggregate produced within the YDNP is of a quality which cannot be produced within West Yorkshire or within any other areas which act as established significant sources of supply to the West Yorkshire market. In the longer-term, alternative resources may be required to replace the significant quantities of aggregates supplied into West Yorkshire from quarries located in YDNP. If new resources are not identified, there is a risk that supplies of aggregates into West Yorkshire, and in particular high specification aggregates, may not be maintained at satisfactory levels in the mid to long term, as existing National Park permitted reserves are exhausted. More information is included in Sections 1.3 and 3.1 and Appendix 2.

⁴ <https://www.gov.uk/government/publications/aggregate-minerals-survey-for-england-and-wales-2019>

1.6. Summary of Geographical Context – The West Yorkshire Plan

- 1.6.1. The West Yorkshire Plan 2040⁵ has been developed by WYCA and five Local Authorities of Bradford, Leeds, Calderdale, Kirklees, Wakefield, in consultation, and partnership, with a range of private, public, and voluntary and community sector partners. The West Yorkshire Plan 2040 does not form part of the Development Plan for the area but is instead a high level strategic framework aimed at guiding the development and growth of the West Yorkshire region in the UK over the next two decades.
- 1.6.2. The West Yorkshire Plan 2040 includes:
- The West Yorkshire story – unique regions identity
 - The future of West Yorkshire – visions and missions for 2040
 - Working together – partnerships for change
- 1.6.3. The West Yorkshire Plan 2040 includes five missions for 2040 as follows.
- Mission 1: a prosperous West Yorkshire – an inclusive economy with well paid jobs
 - Mission 2: a happy West Yorkshire – great places and healthy communities
 - Mission 3: a well-connected West Yorkshire – a strong transport system
 - Mission 4: a sustainable West Yorkshire – making lives greener
 - Mission 5: a safe West Yorkshire – a region where everyone can flourish
- 1.6.4. These missions are intended to provide a framework for future strategies and investments in West Yorkshire and are explained in detail within the Plan itself.

1.7. Summary of Geographical Context – West Yorkshire Local Plans

- 1.7.1. The five West Yorkshire authorities are at different stages of plan making, with Leeds, Wakefield, Kirklees and Bradford having some up-to-date Local Plan documents relevant to minerals planning in place. Leeds, Kirklees, and Calderdale have recently adopted Local Plans whereas Bradford's plan is undergoing consultation and examination and the inspector found the Wakefield plan (as modified) sound with it being adopted in January 2024.
- 1.7.2. Leeds City Council's adopted Local Plan sets out the Council's vision and strategy for the area until 2033 and provides the basis for decisions on planning applications. Leeds City Council is updating its Local Plan via an emerging 'Leeds Local Plan 2040'. During the late autumn of 2023 Leeds City Council consulted on the 'Local Plan Update Publication Draft Consultation', in which the consultation closed on Monday 11th December 2023. As of consultation comments, Leeds City Council announced the following:

'The support received from local residents across Leeds gives confidence to our net zero carbon ambitions. However, we must also respond positively to the practical concerns raised by developers and other stakeholders.'

⁵ <https://www.westyorks-ca.gov.uk/growing-the-economy/the-west-yorkshire-plan/>

We are therefore proposing a range of changes to the proposed Local Plan policies. These include proposing a transition period to January 2027, to allow the development industry time to update their supply chains and construction practices and become familiar with the different energy performance metrics, at which point planning permission will only be granted for fully net zero carbon schemes.

The transition period until January 2027 will not significantly impact our aim to make Leeds net zero carbon by 2030 and we will see better quality development from when the plan is adopted’.

- 1.7.3. As a result of the current timeline for the Local Plan and the current stage Leeds City Council are on the ‘Consult on the Pre-submission Changes’⁶.
- 1.7.4. Bradford is in the process of preparing a new format single Local Plan. Bradford completed its Local Plan Preferred Options (Regulations 18) stage and is currently working on the next stage of the Local Plan (Submission Draft Local Plan - Regulation 19) with publication anticipated for Spring 2025.
- 1.7.5. The Inspector’s Report on the Wakefield District Local Plan 2036 was received in November 2023 and this found the plan sound⁷. The Wakefield District Local Plan was therefore adopted in 24th January 2024 and sets out new policies and land allocations for guiding new development and protecting the environment.
- 1.7.6. Kirklees has a single Local Plan, that was adopted in February 2019, that brings together the strategy and policies document, allocations and designations document and associated policies map. A review of the Kirklees Local Plan was undertaken in 2023 and work on updating the Plan in light of this review commenced in 2024. This currently includes a ‘call for sites process’ that invites nominations of mineral sites⁸.
- 1.7.7. In March 2023 Calderdale Council adopted the Calderdale Local Plan which covers the period to 2033.
- 1.7.8. Table 1 below summarises the Local Plans within West Yorkshire and associated housing targets.

⁶ <https://www.leeds.gov.uk/planning/planning-policy/local-plan-update/introduction-summary-and-have-your-say>

⁷ [Local Plan – Inspectors Report - Wakefield Council](#)

⁸ <https://www.wakefield.gov.uk/planning/planning-policy/wakefield-district-local-plan/>

Table 1: Most Up-to-date Local Plan Documents with Housing Delivery Targets

District	Document	Current Stage	Date of Document	Planned Housing Delivery	Plan Period Start	Plan Period End	Plans Years	Annual Housing Target
Leeds	Core Strategy Selective Review ⁹	Adopted	Sep-19	54,352	2017	2033	16	3,247
Bradford	Bradford District Local Plan ¹⁰	Draft (Regulation 18)	Feb-21	30,672	2020	2038	18	1,704
Kirklees	Local Plan ¹¹	Adopted	Feb-19	31,140	2013	2031	18	1,730
Wakefield	Adopted Wakefield Local Plan: Volume 1 Development Strategy, Strategic and Local Policies Volume 2: Settlement Specific Policies ¹²	Adopted	Jan-24	26,600	2017/18	2036/37	19	1,400
Calderdale	Local Plan ¹³	Adopted	Mar-23	14,950	2018/19	2032/33	15	997a

- 1.7.9. The effect of the (generally downward) revisions to household growth forecasts for West Yorkshire, coupled with the changes to government guidance on the correct methodology to be adopted by planning authorities in order to calculate housing need, mean that the new and updated Local Plans which are being prepared by West Yorkshire Local Authorities are generally planning for the delivery of a lower number of new homes than is the case for current adopted plans. More information on the content of the Local Plans in West Yorkshire is set out in Appendix 2. The way in which future housing requirements has influenced the rate at which this LAA anticipates future demand for aggregate is set out in Section 3 and Appendix 5.

1.8. Other Relevant Local Aggregates Assessments

- 1.8.1. West Yorkshire has historically been, and remains, reliant on aggregates imported from adjoining areas to fulfil its construction needs and therefore security of the supply patterns which fulfil West Yorkshire demand is a key issue relevant to the West Yorkshire LAA. To help provide information on the aggregate supply and demand situation in adjoining areas, this section summarises the findings of the LAAs produced by those MPAs supplying aggregate into West Yorkshire, as shown in Figures 5 and 6.
- 1.8.2. The two most significant LAAs, in terms of the aggregates supplied into West Yorkshire, are the LAAs relating to the North Yorkshire Sub-region (including the

⁹ [CSSR Polices Adoption Sept 2019 Final.pdf \(leeds.gov.uk\)](https://www.leeds.gov.uk/sites/default/files/2019-09/CSSR%20Polices%20Adoption%20Sept%202019%20Final.pdf)

¹⁰ [City of Bradford Metropolitan District Council - Draft Bradford District Local Plan - Preferred Options \(Regulation 18\) February 2021 \(oc2.uk\)](https://www.bradford.gov.uk/sites/default/files/2021-02/City%20of%20Bradford%20Metropolitan%20District%20Council%20-%20Draft%20Bradford%20District%20Local%20Plan%20-%20Preferred%20Options%20(Regulation%2018)%20February%202021.pdf)

¹¹ <https://www.kirklees.gov.uk/beta/planning-policy/pdf/local-plan-strategy-and-policies.pdf>

¹² <https://www.wakefield.gov.uk/planning/planning-policy/wakefield-district-local-plan/>

¹³ <https://new.calderdale.gov.uk/sites/default/files/2023-06/Local-Plan-Written-Statement.pdf>

Yorkshire Dales National Park) and the Derbyshire, Derby and Peak District National Park LAA. However also of relevance are the LAAs for the following areas:

- Humber Area;
- Doncaster and Rotherham (South Yorkshire);
- County Durham,
- Northumberland
- Tyne and Wear; and,
- Lancashire

1.9. Other Relevant Local Aggregates Assessments – North Yorkshire LAA

- 1.9.1. The LAA for the North Yorkshire Sub-region (NYLAA)¹⁴ covers the administrative areas of North Yorkshire County Council, City of York Council, and the Yorkshire Dales and North York Moors National Park Authorities. First published in January 2013 it has subsequently been regularly updated, with the eighth review published in 2023 reporting data up to and including 2022.
- 1.9.2. The area covered by the NYLAA has historically been a significant supplier of land won aggregates to surrounding urban areas, including West Yorkshire. The main types of aggregate produced within the NYLAA Area are:
 - Crushed limestone (Carboniferous, Magnesian and Jurassic);
 - Crushed sandstone (Ordovician and Silurian - including High Specification Aggregates (HSA); and,
 - High Polished Stone Value (PSV) aggregate); and sand and gravel (including significant quantities of concreting grade material).
- 1.9.3. Table 2 shows the level of primary land-won aggregate reserves within the NYLAA Area at the end of 2022.

¹⁴ [North Yorkshire Local Aggregate Assessment, eighth review](#)

Table 2 – Primary Land-won Aggregate Reserves in North Yorkshire (end 2022)

	Sand and Gravel (mt)	Crushed Rock (mt)				
		Carboniferous Limestone	Magnesian Limestone	Jurassic Limestone	Chalk	High PSV
North Yorkshire County Council	24.3	58.9	29.0	3.3	Some available reserves but site closed	
Yorkshire Dales National Park	-	74.9	-	-	-	9.6
North York Moors National Park	-	-		-	-	-
City of York Council	-	-	-	-	-	-
Total	24.3	133.8	29.0	3.3	Some available reserves but site closed	9.6

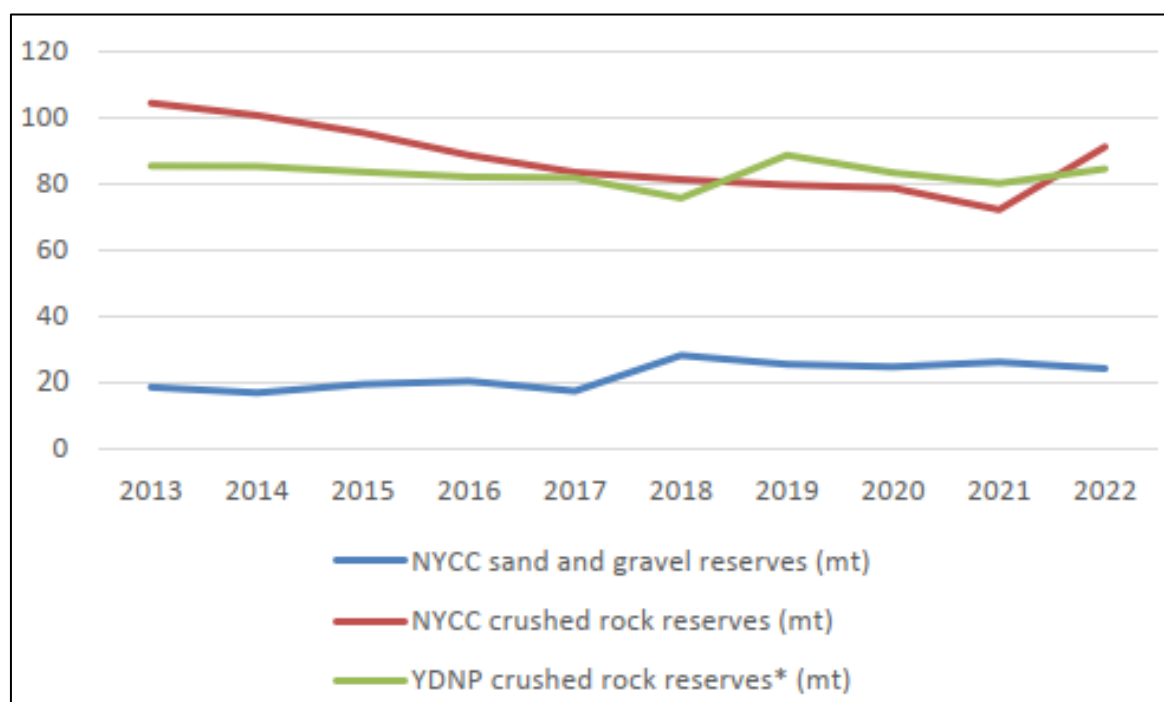
- 1.9.4. All of the sand and gravel produced within the NYLAA Area is derived from the administrative area of North Yorkshire County Council, outside of the National Parks. Reserves of sand and gravel are substantially lower than for crushed rock.
- 1.9.5. More than half of the crushed rock aggregate reserve is within the Yorkshire Dales National Park (YDNP) and the rest is within the North Yorkshire County Council area. The large majority of overall aggregate reserves comprise Carboniferous Limestone, and these are split between North Yorkshire County Council and the YDNP. Reserves of crushed rock in the North York Moors National Park were exhausted in 2007 and there are no reserves in the City of York Council area.
- 1.9.6. HSA/ High PSV aggregate is produced within the NYLAA Area from a specific type of sandstone resource within the YDNP which is not available to be quarried elsewhere and is only available from a limited number of sources nationally. The HSA/ High PSV aggregate is primarily used for the manufacture of skid resistant road surfacing asphalt.
- 1.9.7. BGS data associated with the national aggregate monitoring survey 2019 indicates that between 1.2 and 1.4 million tonnes of the aggregate extracted within YDNP in 2019 was consumed within West Yorkshire, representing a substantial proportion of the total quantity of aggregates extracted from within the YDNP. The NYLAA 2023 acknowledges that a high level of the sand and gravel and crushed rock exported from North Yorkshire is utilised within the West Yorkshire region. Specifically it notes that: sites principally the Ure Valley and the Vale of Pickering supply most of their sales into the NY sub-region or to markets in West and South Yorkshire and the Humber area.
- 1.9.8. Specific quarries identified as supplying West Yorkshire are:
- Pateley Bridge, Harrogate Borough (may become exhausted around 2035)
 - Darrington Quarry, Selby District
 - Arcow Quarry, Helwith Bridge, Settle

- Ingleton Quarry, Ingleton

Although not mentioned specifically, in light of its location on the boundary with West Yorkshire south of Pontefract, it is reasonable to assume that aggregate from Barnsdale Bar Quarry is also imported into West Yorkshire.

- 1.9.9. Yorkshire Dales National Park Local Plan (adopted December 2016) applies the national planning policy position in relation to the extraction of minerals in National Parks by restricting the development of new crushed rock quarries or the extension of existing quarries into areas of undisturbed land other than in exceptional circumstances. However, the continuity of supplies from existing extraction sites is provided for by allowing extensions, in time, extraction area or depth, in disturbed land within the boundary of an existing active quarry, where specified criteria are met.
- 1.9.10. Historically the NYLAA has suggested that future aggregate provision from within the YDNP will cease due to the particular policies which apply to minerals extraction within National Parks. The NYLAA states that 'YDNP will impact on the availability of supply from that area, although this is not expected to be significant over the period to 2030'.
- 1.9.11. The 8th review NYLAA confirms that the trend for all crushed rock has been one of gradual decline (see Figure 3).

Figure 3 – Aggregate Reserves Trends in North Yorkshire



- 1.9.12. A planning application to deepen Swinden Quarry to supply an additional 11.3mt of Carboniferous Limestone and extend its life to 2039 was approved in 2019. As this site site quarries carboniferous limestone it does not improve the security of supply of the HSA/ High PSV sandstone. Within the YDNP, Horton Quarries are the other major producers of limestone aggregate and have planning permissions until 2042. These quarries are therefore expected to maintain their contribution to supplies of limestone aggregate, principally within the YH Region and to the NW Region.

- 1.9.13. It should be noted that Swinden Quarry does not just supply aggregates to the West Yorkshire market. An increasing proportion of reserves are transported from the site by rail, as required by the Yorkshire Dales National Park Local Plan, which increases the potential to distribute quarried aggregates to more distant aggregate consumption markets.
- 1.9.14. Concerns about the availability of sufficient aggregate rail off-loading facilities in West Yorkshire, as discussed further in Section 3.5 of this report, could potentially affect the extent to which these further reserves are off-loaded in West Yorkshire to help meet demand for construction aggregate in West Yorkshire.
- 1.9.15. In relation to the future availability of HSA/High PSV aggregates, the NYLAA 8th Review assesses that the four high PSV quarries in the YDNP, Dry Rigg, Arcow, Horton and Ingleton, currently have planning permission to 2034, 2029, 2042 and 2025. The 8th review NYLAA notes that an application to deepen Arcow Quarry was received in 2016 and granted in July 2017 which will generate an additional 3.1mt of reserves of high PSV stone. Permissions have also recently been granted for Dry Rigg and Ingleton. Working of high PSV stone commenced in 2017 at Horton Quarry. There are also significant additional resources beneath the base of the Carboniferous Limestone in Horton Quarry. These schemes have significantly increased the reserves of high PSV stone. It is not expected that there will be a shortfall in supply in the short to medium term, but it is recognised that until schemes are submitted and approved the actual extent of future reserves cannot be stated with certainty.
- 1.9.16. The NYLAA 8th review indicates that 'At the current level of sales, permitted reserves of high PSV aggregate are sufficient into the mid-term'; however, acknowledging that 'there are potential policy and environmental constraints to future availability of this material'. The NYLAA states that 'Accordingly discussions are on-going with Cumbria County Council, the nearest authority with quarries producing high PSV stone, so that both authorities remain aware of the current situation in their areas.
- 1.9.17. Unless, new permissions are granted, there is potential for reserves of Magnesian Limestone in particular to be significantly depleted in the medium term. However, new permissions have increased the level of reserve so there is currently no shortfall. These reserves (and resources) are located mainly within the southern part of North Yorkshire, relatively remote from other sources of crushed rock in the subregion.
- 1.9.18. The earlier 6th NYLAA review concluded that the previous shortfall in the provision of sand and gravel from the North Yorkshire County Council identified in previous LAA's was positively influenced by new planning permissions being granted, to the extent that no shortfall was forecast in sand and gravel supply up to 2030 and beyond. The current supply patterns for concreting sand and gravel can be maintained without increasing overall haulage distances as there is no shortfall forecast in either the northwards or southwards distribution area up to 2030. Some further provision of building sand (an indicative total of 1.9mt) is also likely to be required in order to maintain supply over the period 1st January 2021 to 31 December 2030. This position is reconfirmed in the 8th review. The 8th review also states that 'In the absence of new reserves being brought forward, current reserves would become exhausted in the long term' with 'the outcome of a number of current planning applications for sand and gravel working in NYCC will be important in determining the future scale of any additional provision that may be required over the period to 2030'.

- 1.9.19. In terms of the landbanks presented within the NYLAA, the 8th review document puts the 2022 landbanks at 15.1 years for sand and gravel, 27.6 years for crushed rock (outside of YDNP) and 23.4 years for crushed rock within the YDNP.
- 1.9.20. In the case of the aggregates quarried outside of the YDNP, the future annual aggregate provision quantities upon which these landbanks are not solely informed by 10-year sales averages. Instead, the methodology employed adjusts the sales average up to reflect current national and local aspirations for growth, particularly expected growth in house building, including in West Yorkshire, which links directly to a requirement for aggregate.
- 1.9.21. Consequently, the NYLAA 8th review document confirms that 'This LAA assessment of future supply requirements on the basis of an assumed annual equivalent demand of 2.44mtpa for sand and gravel and 3.75mtpa for crushed rock for the period 1 st January 2023 to 31 December 2030 is considered appropriate for the North Yorkshire County Council area'.
- 1.9.22. This compares to 10-year sales averages of 1.6 million tonnes sand and gravel and 3.2 million tonnes for crushed rock for the NYLAA Area outside of the YDNP. The adjusted APR figures are therefore 52% and 25% higher than the historic sales averages respectively. However, it notable that no future provision rate for crushed rock from the YDNP is proposed.

1.10. Other Relevant Local Aggregates Assessments – Derbyshire, Derby and Peak District National Park LAA

- 1.10.1. The Derbyshire, Derby and Peak District National Park LAA 2024 (DD&PDLAA 2024)¹⁵ summarises aggregate sales and reserves as shown in the Table 3 below.

Table 3 – Derbyshire, Derby and Peak District National Park LAA 2024 (2023 data) Dashboard

Aggregate	Sales in 2023 (million tonnes)	Change in sales from previous year	10 year sales average (million tonnes)	3 year sales average (million tonnes)	Sales Trend (10 years)	LAA annual provision rate (million tonnes)	Permitted reserves at 31 December 2023 (million tonnes)	Change in permitted reserves from previous year	Landbank (years)	Change in Landbank from previous years
Land won Sand and Gravel	0.82	↓	0.97	1.0	↑	1.0	6.64	↓	6.64	↓
Crushed Rock	14.59	↑	11.69	13.88	↑	13.88	735.1	↑	53	↓
Marine sand and gravel	nil									
Total Primary Aggregates	15.41	↑	12.66	14.88	↑					
Secondary Aggregates	No data available	No data available	No data available	No data available	No data available	No data available	No data available	No data available	No data available	No data available
Recycled Aggregates	No data available	No data available	No data available	No data available	No data available	No data available	No data available	No data available	No data available	No data available

- 1.10.2. The LAA identifies an estimated reserve of rock for aggregate use within Derbyshire and the Peak District, at active and inactive sites (excluding dormant sites), of 735.1 million tonnes.

¹⁵ <https://www.derbyshire.gov.uk/site-elements/documents/pdf/environment/planning/planning-policy/minerals-waste-development-framework/local-aggregate-assessment-laa.pdf>

- 1.10.3. Approximately 85% of the total aggregate reserve is located within Derbyshire, with the remaining 15% being within the Peak District National Park (PDNP). The LAA identifies that this quantity of reserves would be sufficient for 53 years based on the LAA annual provision rate.
- 1.10.4. In terms of supply levels, the DD&PDLAA 2024 calculates a 10-year sales average of crushed rock aggregate for Derbyshire and the Peak District of 11.69 million tonnes. Taking account of a range of issues, particularly current and future economic growth in areas that use crushed rock from the area (including West Yorkshire), the DD&PDLAA 2024 adopts the approach of using the most recent 3-year sales figure of 13.88mt, to reflect the recent and continued increase in production of aggregate crushed rock in the area, for the purpose of calculating the landbank.
- 1.10.5. The DD&PDLAA 2024 identifies that 'Derbyshire and PDNP is a significant net exporter of aggregate grade crushed rock to other areas, currently amounting to an average of around 9-10 million tonnes each year.' The LAA further advises that Derbyshire has significant resources of hard rock compared to many other areas in the country and affirms that it will be important, therefore, to maintain this level of supply in order to sustain and stimulate national economic growth.
- 1.10.6. The LAA identifies that in 2019 only 37% of the crushed rock aggregate produced in Derbyshire and the Peak District was consumed within Derbyshire and the Peak District, with the remainder exported to supply the construction industries of other areas. The DD&PDLAA 2024 estimates that nearly 1.5 million tonnes of the crushed rock produced within Derbyshire and the Peak District (12%) was exported to the Yorkshire & Humber region. The BGS data set out in Table 17 of this report indicates that in 2019 approximately 585,500 tonnes of crushed rock aggregate extracted from Derbyshire was consumed in West Yorkshire.
- 1.10.7. The approach within the DD&PDLAA 2024, of utilising a (higher) 3 year rather than 10-year sales average figure for future aggregate provision, is partly intended to facilitate a gradual reduction in the proportion of aggregates produced within the PDNP. The PDNP has a policy in its Core Strategy (Policy MIN1) which does not allow for further new quarries or extensions to existing quarries, in order to reduce progressively the amount and proportion of aggregate grade crushed rock that is quarried from within the PDNP in order to protect the nationally important landscape.
- 1.10.8. Consequently, the DD&PDLAA reduces the future crushed rock aggregate provision rate covering the PDNP by 10%, relative to the 10-year sales average, with an equivalent increase in the aggregate provision rate for the remainder of Derbyshire outside of the national park. Whilst this policy is intended to provide for a gradual reduction in the proportion of Derbyshire's aggregate which is supplied from sources within the PDNP, it is not intended to reduce the overall quantity of aggregate supplied from Derbyshire.
- 1.10.9. In relation to sand and gravel, reserves are located within Derby and Derbyshire (not in the National Park). Total sand and gravel reserves at the end of 2023 are calculated as 6.64 million tonnes with a landbank of 6.6 years at the proposed provision figure of 1.0 million tonnes per annum. The LAA advises that projections indicate that sand and gravel output will continue to increase slightly over the next few years, with the economy continuing to recover, but the production capacity of the existing processing plants at the quarries will dictate that it cannot increase

significantly above the identified provision rate. Additional reserves are identified in the emerging Minerals Local Plan to maintain supply over the Plan period to 2038.

1.11. Other Relevant Local Aggregates Assessments – County Durham LAA

- 1.11.1. The County Durham LAA¹⁶ is an update of the LAA for the 2021 calendar year which was finalised in April 2023. It includes 2022 sales and reserves data.
- 1.11.2. As at 31 December 2022, 4.063 million tonnes of reserves remained to be worked in County Durham. These reserves are contained in five sites, four of which were active in 2022. All four active sites are expected to remain active over the short term, although all of the sites may cease working, if reserves are not replenished, due to an exhaustion of reserves prior to or around circa 2030 to 2032. Based on the annual provision rate from County Durham of 548,000 tonnes, this equates to a landbank of reserves of 7.4 years at 31 December 2022 (based upon the annual provision rate in this LAA). The general pattern both regionally and nationally has been for sales of both sand and gravel to have increased from 2017-2022 with a fall in 2020 reflecting the exceptional circumstances of the pandemic.
- 1.11.3. Both the reserve and landbank figures indicate that County Durham will have a shortfall in sand and gravel supply over the period to both 2035 and to 2038. However, through work to prepare the Council's emerging Minerals and Waste Policies and Allocations Document which reached its Publication Draft stage of consultation in November 2022 and examination in September 2023, the Council is seeking to allocate two sites to enable further sand working at Thrislington West Quarry (5,800,000 tonnes to be worked at an estimated rate of between 200,000 and 300,000 tonnes per annum) and an extension to Crime Rigg Quarry to enable the a northern extension (910,000 tonnes to be worked at an estimated rate of 40,000 tonnes per annum). Together both allocated sites, should the allocations be agreed by the Local Plan Inspectors and subsequently granted planning permission, will in quantitative terms largely address the forecast deficit in supply (over the period to 2035) and make major contribution to maintaining a seven year landbank at 2035.
- 1.11.4. In terms of the overall scale of additional provision that is required to be made, based on the current annual provision rate set out in this LAA and in order to maintain a minimum seven year landbank at 2035 it is recommended that provision is made to enable a further 7,567,000 tonnes of sand and gravel to be extracted over the period to 2035.
- 1.11.5. There are currently no areas licenced for the dredging of marine aggregates off the coast of North East England, with the closest area being the Humber dredging areas off the coast of Yorkshire and Lincolnshire.
- 1.11.6. At 31 December 2022, County Durham LAA had permitted reserves of land-won sand and gravel for aggregate uses of 4,063,000. Based on the annual provision rate figure of 548,000, this equates to a landbank of permitted reserves of 7.4 years.
- 1.11.7. As at 31 December 2022, 87.615 million tonnes of reserves remained to be worked in County Durham. Based on the recommended annual provision rate for County

¹⁶ County Durham Local Aggregates Assessment (2022)

Durham of 3,180,000 tonnes, this equates to a landbank of reserves of 27.6 years at 31 December 2022.

- 1.11.8. In terms of potential reserves. Two sites are allocated in the County Durham Plan for crushed rock working. One of these sites (an extension to Heights Quarry) was granted planning permission in June 2019 and has provided an additional 3.7 million tonnes of reserves into the landbank. The other allocation (an extension to Hulands Quarry) is at the planning application stage and has the potential to provide add an additional 8.2 million tonnes into the landbank. A further allocation for mineral working at land to the north of Crime Rigg Quarry in the emerging Minerals and Waste Policies and Allocations Document has the potential to provide a further 1.775 million tonnes of magnesian limestone and a second allocation in the emerging Minerals and Waste Policies and Allocations Document has the potential to provide a further 1 million tonnes of magnesian limestone through its sale rather than its reuse in site restoration.
- 1.11.9. In quantitative terms it is considered that County Durham does not need to seek to make any additional provision for crushed rock over the period to 2035 and 2038 as there are sufficient reserves with planning permission to deliver supply over these periods.

1.12. Other Relevant Local Aggregates Assessments – Northumberland Joint LAA

- 1.12.1. The most recent version of the Joint Local Aggregates Assessment for Northumberland County Council and Northumblerand National Park was published in January 2023 and provides a quantitative assessment of supply and reserve levels using data from 2021 as set out in Table 4 below:

Table 4 – Northumberland Joint LAA¹⁷ Aggregate Sales. Reserves and Landbank (2021 data)

	Sales in 2020 (tonnes)	Sales 2021 (tonnes)	Ten-year sales average – 2012-2021 (tonnes)	Three-year sales average – 2019-2021 (tonnes)	Trend	Annual Provision Rate (tonnes)	Permitted Reserves (tonnes)	Landbank (Years)	Comments
Land-won Sand and Gravel	276,000	303,413	354,400	297,700	↓	354,400	4,107,000	11.6	A shortfall in the medium to long-term has been identified.
Crushed Rock	1,863,000	2,216,897	1,587,600	1,940,000	↑	1,867,000	76,086,000	40.8	Substantial permitted reserves available but significant proportion contained in one site and five other quarries have end dates prior to 2036.
Marine Sand and Gravel	Confidential figure	Confidential figure	Confidential figure	Confidential figure	↔				The Crown Estate published data on landings from licenced dredging sites in the Humber area indicate landings of 17,000 tonnes at Port of Blyth in 2021.
Recycled Aggregates	89,700	101,400	89,500	107,100	↑				
Secondary Aggregates	0	0	23,300	0	↓				No sales of ash from Lynemouth Power Station in recent years.

¹⁷ Joint Local Aggregates Assessment for Northumberland January 2023

- 1.12.2. For land-won sand and gravel supply, the Northumberland Joint LAA identified that there is a shortfall in provision for sand and gravel extraction for aggregate uses to deliver the annual provision rate over the period to 2036. This is both in terms of the quantum of permitted reserves and the production capacity of the existing sites with planning permission. The Northumberland Local Plan (adopted in March 2022) does however identify site-specific allocations for sand and gravel extraction, which if granted planning permission, would be able to contribute to a sufficient landbank of permitted reserves and provide sufficient production capacity to meet the annual provision rate.
- 1.12.3. As discussed in previous iterations of the LAA, it has been considered appropriate to use a three-year sales average to calculate future demand. This is because the ten-year period included a period of depressed sales between 2009 and 2014 as a result of the economic downturn which in turn meant there were lower levels of construction activity in Northumberland and North East England. In comparison, the three-year average was considered to better reflect more recent trends in demand and those likely to be experienced in future years.
- 1.12.4. However, recent trends in sales of sand and gravel in Northumberland have not been reflective of general trends in the region nor when extended to look at the national picture. This is considered to be as a result of restrictions to supply - with all active sites currently working at, or near productive capacity - as opposed to any changes in demand. As a result, the three-year sales average is currently below the ten-year sales average and is not considered to be appropriate for calculating future demand for sand and gravel in Northumberland. Using sales over a longer period, such as a twenty-year period between 2002 and 2021 is also not deemed to be appropriate as there have been innovations that have reduced the quantities of virgin materials required in some products and applications over this period. It is therefore recommended that the ten years sales average is used to identify the annual provision rate for sand and gravel.
- 1.12.5. The recommended annual provision rate for land-won sand and gravel from Northumberland, based on the ten-year sales average, is set out below. This annual provision rate will be monitored and revisited each year through the annual update of the LAA to take account of the most up-to-date information on sales and changes to demand based on the local factors identified such as planned house building and major infrastructure and construction projects.

LAA annual provision rate for land-won sand and gravel	353,000 tonnes
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- 1.12.6. At 31 December 2021, Northumberland had permitted reserves of sand and gravel for aggregate uses of 4.1 million tonnes. Based on the annual provision rate figure of 353,000 tonnes, this equates to a landbank of permitted reserves of 11.6 years.
- 1.12.7. While a shortfall in the reserves of sand and gravel in Northumberland to meet the LAA annual provision rate is identified, it is recognised that the Northumberland Local Plan (adopted March 2022) includes three site-specific allocations that would provide additional reserves (6.8 million tonnes) and would provide production capacity to meet the annual provision rate. There is currently an active planning application for one of the allocated sites which would add 5.8 million tonnes to the landbank if granted planning permission. It is therefore considered that these site allocations would address the identified shortfall in supply.

- 1.12.8. It should also be noted that there are currently no sand and gravel quarries in the Northumberland National Park and no sand and gravel for aggregate use is currently produced from this MPA area. The Northumberland National Park Local Plan (adopted in July 2020) does not include any site-specific allocations for sand and gravel extraction and does not make provision for the extraction of this mineral. This approach was tested through the preparation of both the Northumberland National Local Plan and the Northumberland Local Plan. In addition, marine sand and gravel imported via the Port of Blyth will also make a contribution in the future and potential capacity exists to increase supply from this source.
- 1.12.9. For crushed rock, past iterations of the LAA have used the threeyear sales average to calculate future demand. This is due to the fact the tenyear sales average has includes a period of depressed sales as a result of the last economic downturn (between 2009 and 2014) whereas the three-year period (excluding 2020 which was affected by the coronavirus pandemic) reflects a period of increased construction activity and the levels that are anticipated in the coming years.
- 1.12.10. The recommended annual provision rate for crushed rock from Northumberland, based on the three-year sales average (2018, 2019 and 2021) is set out below. This annual provision rate will be monitored and revisited each year through the annual update of the LAA to take account of the most up-to-date information on sales and changes to demand based on the local factors identified such as planned house building and major infrastructure and construction projects.

LAA annual provision rate for crushed rock	1,867,000 tonnes
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- 1.12.11. At 31 December 2021, Northumberland had permitted reserves of crushed rock for aggregate uses of 76 million tonnes. Based on the annual provision rate figure of 1,867,000 tonnes, this equates to a landbank of permitted reserves of 40.8 years.
- 1.12.12. When considered in isolation, the reserve and landbank figures indicate that there are sufficient reserves of crushed rock with planning permission in Northumberland to meet the LAA annual provision requirement up to 2036.
- 1.12.13. However, it is also important to understand whether there are any restrictions on the capacity of the sites containing these reserves that could influence the ability of these to contribute to crushed rock supply in line with the LAA annual provision rate. The issues that potentially impact on the future availability of reserves and the capacity of sites to meet supply include:
- A large part of the permitted reserves of crushed rock in Northumberland (estimated to be in the region of 60%) are contained within one quarry;
 - The current planning permissions for five of the quarries have extraction end-dates before 2036 but it is recognised that the remaining reserves within these sites may not be exhausted by the current enddates of the planning permissions for these sites;
 - Within some of the individual quarries that are currently contributing to supply, the permitted reserves are projected to be exhausted before 2036 and this will impact on the overall operational capacity available to contribute to supply; and

- Some of the permitted reserves in Northumberland are contained in sites that are currently 'inactive' (estimated to be around 10% at 31 December 2021). These sites have not been operational for significant periods of time and there is some uncertainty about whether these will become operational in the coming years and be able to contribute to supply.

1.12.14. The Northumberland Local Plan includes five site-specific allocations that would provide for the extraction of additional rock reserves and provide further production capacity (see Appendix 6 for details of estimated reserves and production capacity). The Northumberland National Park Local Plan has policy to consider proposals at Harden Quarry. A planning application to extend Harden Quarry and continue supply from this site until 2054 was submitted in 2022 and a decision is pending. It is considered that the provision made in the Local Plans would address the issues identified above and support a steady and adequate supply from Northumberland to 2036 (and beyond). The acceptability of extracting the resources at these allocated would need to be tested both through the determination of applications for planning permission.

1.13. Other Relevant Local Aggregates Assessments – Tyne and Wear LAA

- 1.13.1. The Tyne and Wear LAA¹⁸ has been jointly prepared by Gateshead Council, Newcastle City Council, North Tyneside Council, South Tyneside Council, and Sunderland City Council and covers Tyne and Wear. The LAA is updated on an annual basis and this version has been updated using sales and permitted reserves data from 2022. The Tyne and Wear LAA was published in 2023
- 1.13.2. The LAA includes the following key conclusions for sand and gravel and crushed rock:
- 1.13.3. For land-won sand and gravel supply, the assessment of the balance between supply and demand indicates that Tyne and Wear has sufficient permitted reserves of sand and gravel to meet the calculated LAA annual provision rate. Supply is however currently restricted to a single quarry within Tyne and Wear, which limits the future scale of production to the capacity of that site.
- 1.13.4. There are no site-specific allocations in current and emerging Local Plans or relevant planning applications currently pending that make additional provision for the extraction of this material in Tyne and Wear. Local Plans and decisions on planning applications should, in principle, support additional areas for extraction where environmentally acceptable to avoid a reliance on supply from a single site (Paragraph 226 of the NPPF seeks to ensure that large landbanks bound up in very few sites do not stifle competition) or even the eventual cessation of the extraction of this resource when reserves at Eppleton Quarry are exhausted.
- 1.13.5. At 31 December 2022, Tyne and Wear Joint LAA had permitted reserves of land-won sand and gravel for aggregate uses of 4,930 thousand tonnes. Based on the annual provision rate figure of 288 thousand tonnes, this equates to a landbank of permitted reserves of 21.6 years.

¹⁸ Tyne and Wear Joint Local Aggregates Assessment (2022)

- 1.13.6. For crushed rock, the assessment of the balance between supply and demand indicates that Tyne and Wear does not have sufficient permitted reserves of crushed rock to meet the calculated LAA provision rate over the period to 2037 and the landbank is 11.3 years (as outlined below), slightly above the minimum level required by the NPPF.
- 1.13.7. It is anticipated that the permitted reserves of crushed rock at Marsden Quarry will be exhausted when the current planning permission for extraction expires in 2027. Following this, Eppleton Quarry would not have sufficient productive capacity to meet the LAA annual provision rate. There are no site-specific allocations in current and emerging Local Plans that could address this shortfall and no relevant planning applications are currently pending.
- 1.13.8. Without additional provision, Tyne and Wear will not be able to meet the LAA provision rate and there would be an increased reliance on supply from other areas to meet needs within Tyne and Wear. Emerging Local Plans and decisions on planning applications within Tyne and Wear should therefore support additional areas for extraction where suitable resources are identified, and proposals would be environmentally acceptable.
- 1.13.9. At 31 December 2022, Tyne and Wear Joint LAA had permitted reserves of crushed rock for aggregate uses of 4,710 thousand tonnes. Based on the annual provision rate figure of 418 thousand tonnes, this equates to a landbank of permitted reserves of 11.3 years.
- 1.13.10. Other factors to note are Marine dredged sand and gravel which makes an important contribution to the overall provision of aggregates in Tyne and Wear. It is anticipated that supply from these wharves is likely to be maintained. These sites also have the capacity to increase supply in the future, particularly if the currently mothballed sites are brought back into use.
- 1.13.11. Recycled aggregates in Tyne and Wear are typically produced from construction, demolition and excavation wastes and road planings. Levels of recycled aggregates have risen steadily over the last two years. It is anticipated that the supply of recycled and secondary aggregates is likely to continue at similar levels as in recent years, particularly in the short-term. However it is worth noting that the supply of material is likely to be directly related to the overall function of the economy and the levels of construction and demolition activity taking place.

1.14. Other Relevant Local Aggregates Assessments – Doncaster and Rotherham LAA

- 1.14.1. An updated LAA (2022 data) for Doncaster and Rotherham (D&RLAA 2022)¹⁹ was published in November 2023 with a summary of aggregate sales and reserves as shown in the Table 5 below.

¹⁹ Doncaster and Rotherham Local Aggregate Assessment
<https://www.rotherham.gov.uk/downloads/file/3443/local-aggregates-assessment-2023>

Table 5 – Doncaster and Rotherham LAA 2023 (2022 data) Dashboard

	Performance in 2021 (Mt)	Performance in 2022 (Mt)	In comparison to previous year (Mt)
Land won sand and gravel sales (tonnes) (mostly soft sand)	0.62Mt	0.69Mt	▲
Permitted reserves of sand & gravel (tonnes) (mostly soft sand)	7.0Mt	7.1Mt	▲
Sand and gravel landbank ¹ (years) (based on ten year average sales)	18.5 years	16.4 years	▼
Sand and gravel landbank (years) (based on 3 year average sales)	12.2 years	12.4 years	▲
Sand and gravel landbank (years) (using local provision of 0.42Mt)	16.7 years	16.9 years	▲
Land won crushed rock sales (tonnes)	3.2Mt	2.7Mt	▼
Permitted reserves of crushed rock (tonnes)	44Mt	41Mt	▼
Crushed rock landbank ¹ (years) (based on ten year average sales)	21.6 years	18.5 years	▼
Crushed rock landbank (years) (based on 3 year average sales)	16.5 years	15.4 years	▼
Crushed rock landbank (years) (using fixed rate of 2Mt)	22 years	20.5 years	▼

- 1.14.2. According to BGS data (2019), Doncaster provided up to 10% of the crushed rock consumed within West Yorkshire in 2019.
- 1.14.3. The D&RLAA 2021 proposes aggregate provision rates based on historic average sales figures. Magnesian Limestone is the only aggregate rock type and is worked in the Doncaster and Rotherham area.
- 1.14.4. In relation to crushed rock the D&RLAA advises that the landbank based on 10 years average sale is 18.5 years. The three year average landbank is 15.4 years and the fixed rate local plan annual provision landbank is 20.5 years. This is well above the ten year landbank requirement as set out in national policy, but decreasing annually. The previous 2019 LAA indicated that between 70 to 90% of the material produced in Doncaster is utilised within South Yorkshire and West Yorkshire, with 20% to 30% of West Yorkshire's crushed rock aggregate consumption being sourced from Doncaster. The D&RLAA 2022 does not raise any concerns regarding the supply of crushed rock with the crushed rock reserve for 2022 being 41Mt.
- 1.14.5. In relation to sand and gravel the reserve for D&RLAA for 2022 is 7.1Mt. Based on ten-year average sales, the landbank is 16.4 years. The three year average sale landbank is 12.38 years and the fixed rate local plan annual provision landbank is 16.9 years. This is well above the seven year landbank requirement as set out in national policy, but decreasing annually. However, the LAA advises that only a small

proportion of the remaining permitted reserve in Doncaster is sharp sand suitable for use as concreting aggregate and that the South Yorkshire sub-region will continue to be dependent on external sources to meet their sand and gravel needs including imports from Nottinghamshire, Lincolnshire and the East Riding. The LAA states that the only source of sand and gravel is in the Doncaster area with there being no new permissions for sand and gravel extraction being approved in 2022.

- 1.14.6. The 2022 landbanks suggest there is currently sufficient provision of crushed rock and sand and gravel, however it should also be noted that Doncaster and Rotherham is (and will remain) reliant on imports of sand and gravel from other areas to meet development needs.
- 1.14.7. Previous D&RLAAs have advised that crushed rock is increasingly replacing sand and gravel for concreting manufacturing. Therefore, whilst any flows of concreting sand and gravel from South Yorkshire to West Yorkshire are unlikely to be sustained into the future, the substantial remaining limestone reserves may play a role in meeting West Yorkshire's future demands both for concreting and non-concrete construction purposes. This issue is explored further in the WYCA report on Magnesian Limestone²⁰ (see Appendix 1).

1.15. Other Relevant Local Aggregates Assessments – Humber Area LAA

- 1.15.1. The Humber Area LAA²¹ covers the East Riding of Yorkshire, Hull, North Lincolnshire and North-East Lincolnshire. The latest version was published in 2023 and includes the 2021 data reporting period. The version including data for 2022 has not yet been published.
- 1.15.2. The Sand & Gravel landbank is 7.7 years (see Table 6) (based on the average 10 year sales (0.85 mtpa) and reserves of 6.53 million tonnes) which is a decrease from the last LAA data which was based on 2018 data. Based on the Humber aggregate sand and gravel apportionment (0.94 mtpa), the landbank is 6.95 years which just under the seven years required by the NPPF. This is the first year the formal Humber apportionment has been used.

²⁰ West Yorkshire Combined Authority. [kirklees.gov.uk/beta/planning-policy/pdf/examination/city-region-evidence/CD173 The Quarrying of Magnesian Limestone for Aggregate in the Yorkshire and Humber Region.pdf](https://kirklees.gov.uk/beta/planning-policy/pdf/examination/city-region-evidence/CD173%20The%20Quarrying%20of%20Magnesian%20Limestone%20for%20Aggregate%20in%20the%20Yorkshire%20and%20Humber%20Region.pdf). February 2017

²¹ Humber Area Local Aggregate Assessment. June 2023

Table 6 – Humber LAA (2021) Sand & Gravel Sales and Landbank

Table 3: Landbanks for Sand & Gravel in the Humber Area (2021)	
2021 aggregate sales (Mt)	1.10
Reserves as at 31.12.2021 (Mt)	6.53
Average annual sales (20012 – 2021) (Mt) (10 years)	0.85
Average annual sales (2016 – 2018) (Mt) (3 years)	0.83
Landbank based on 10 year average sales (years)	7.7
Landbank based on 3 year average sales (years)	7.9

- 1.15.3. The Humber LAA indicates that for crushed rock that based on the last 10 year sales average (0.74 mtpa), the landbank is 84.2 years, which is a big increase from the last LAA. The landbank for crushed rock for the Humber LAA is shown in Table 7.

Table 7 – Humber LAA (2021 data) Crushed Rock Sales and Landbank

Table 6: Landbanks for Crushed Rock in the Humber Area (2021)	
2021 aggregate sales (Mt)	1.05
Reserves as at 31/12/2021 (Mt)	62.3
Average annual sales 2012 – 2021 (Mt) (10 years)	0.74
Average annual sales 2019 – 2021 (Mt) (3 years)	0.93
Landbank based on 10 year average sales (years)	84.2
Landbank based on 3 year average sales (years)	67.0




- 1.15.4. The Humber LAA (2021 data) confirms that the Humber Area continues to be a net importer of aggregates, however the 2019 BGS data indicates that between 10% and 20% of the sand and gravel consumed within the West Yorkshire came from the Humber Area (East Yorkshire). This amounts to between 47,000 tonnes and 93,000 tonnes.
- 1.15.5. The Humber LAA notes that marine aggregates provide a potential source of aggregates to the Yorkshire & Humber Region, including West Yorkshire, and beyond.
- 1.15.6. At paragraph 6.15 the Humber Area LAA 2021 recognises that *‘In Yorkshire and Humber, there are concerns about the long term supply of concreting sand in the South and West Yorkshire, in particular in the Doncaster and Leeds/Bradford areas. As a result, it is possible that increasing amounts of sand and gravel will have to be imported into these areas from other parts of the region or elsewhere. If the demand and supply to West and South Yorkshire increases, then the forecast demand in the future Humber LAAs (particularly for sand and gravel) may need to be revisited. This*

could potentially have an impact on the level of sand and gravel that will need to be extracted in the Humber area, above and beyond what is already exported’.

1.16. Other Relevant Local Aggregates Assessments – Joint Lancashire LAA

- 1.16.1. Lancashire County Council published the latest Joint Lancashire Local Aggregate Assessment in October 2023 (reporting 2022 data) . The LAA summarises the landbank position as shown in Table 10 below:

Table 8 – Joint Lancashire Local Aggregate Assessment October 2023 (2022 data) – Dashboard

Executive Summary									
	Sales (Mt)	Av (10yr Sales ¹ (Mt)	Av (3yr Sales (Mt)	Trend ²	LAA Rate ³ (Mt)	Permitted Reserves ⁴ (Mt)	Landbank (Yr) ⁵	Capacity (Mt/Yr) ⁶	Comments
Land won sand and gravel	0.029	0.37	0.14		0.37	4.46	12		Production capacity is significantly reduced. Runshaw, which represents most of the permitted reserves, has yet to start working.
Limestone	2.38	2.25	2.52		2.52	43.59	17.3		Number of quarries set to reduce during the forecast period.
Gritstone	1.04	1.04	1.03		1.04	71	71		Approximately 70% of the permitted reserve is held in Whitworth Quarry

- 1.16.2. Although West Yorkshire is within relatively close proximity to Lancashire, there is no evidence that there are any significant aggregate flows between the two areas. However, given the national and local aspirations to limit mineral extraction in National Parks and the potential future constraints on sand and gravel extraction within North Yorkshire, there are likely to be future changes in flows, including new supplies entering the West Yorkshire market. Such changes could potentially lead to an increase in cross-boundary aggregate flows between Lancashire and West Yorkshire, particularly in terms of sand and gravel. This is recognised within the Joint Lancashire LAA 2022 as follows:

‘If particular quarries in neighbouring authorities were to cease production it could have an impact on the market in the Plan area, and affect the rate of consumption of permitted reserves at particular quarries. Current exports are included in the forecast of demand; current imports will be reflected in neighbouring mineral planning authorities’ average of 10 years sales data. Should the industry be unable to maintain these outputs then these assumptions, and the forecast demand, may need to be revisited. This matter will be addressed through the duty to cooperate and local plan making, should neighbouring authorities, or those from wider afield, have a quantified shortfall in supply’.

2. Aggregate Reserves and Sales

2.1. General

- 2.1.1. **Minerals resources** are minerals thought to be present within a given geographical area, which available geological evidence²² suggests may be of a quantity and quality which would be of economic interest. Resources allocated for future extraction are mineral resources which have been identified within Local Plans as being potentially suitable for extraction within the relevant Plan Period. However, release of these resources for extraction is subject to planning permission being obtained and any relevant environmental or access issues being addressed. Therefore, allocated resources are not considered to constitute mineral reserves for the purposes of the LAA.
- 2.1.2. **Mineral reserves** are resources which have been granted planning permission for extraction. Certain old minerals planning permissions have been registered as 'dormant - these are reserves which, while being permitted, could not be worked without further permissions being obtained.
- 2.1.3. **Changes in reserves** will usually relate to either new reserves being permitted, existing reserves being exhausted or operator reassessments of the quantities of reserves present at their site - which may be refined as working progresses and may change significantly over the lifetime of a quarry. Any significant change in reserves year on year may be a factor of any one, or a combination, of these causes.

2.2. Assmptions Affecting Data Accuracy and Findings

- 2.2.1. In preparing this Local Aggregates Assessment (LAA), several assumptions have been made that may influence the accuracy of the data and the conclusions drawn. These assumptions are discussed below and are important in understanding the context and limitations of the findings presented in this report. While every effort has been made to ensure the accuracy and reliability of the data, these assumptions highlight areas where caution should be exercised.
- 2.2.2. **Survey Response Rate** – The data presented in this report is based on the annual survey responses from quarry operators within West Yorkshire. For 2023, 27 out of 38 operators in West Yorkshire responded to the survey. It is assumed that the response rate is sufficiently high to provide a representative sample of the total aggregate production and supply. However, variations in response rates can introduce biases, particularly if non-responding operators have significantly different production levels.
- 2.2.3. **Consistency of Reporting** – It is assumed that all quarry operators have reported their data consistently and accurately. Differences in interpretation of survey questions or reporting standards can lead to inconsistencies. Efforts have been made to standardise the survey process and in some cases initial responses have been double checked with operators, but some variability is inevitable.

²² Mineral Resource Information in Support of National, Regional and Local Planning: West Yorkshire (Comprising Metropolitan Boroughs of Bradford, Calderdale, Kirklees, and Wakefield and City of Leeds), BGS, 2006

- 2.2.4. Economic and Market Conditions – The assessment assumes that the economic and market conditions during the survey period are reflective of typical conditions. Fluctuations in demand due to economic cycles, construction activity, or policy changes can affect aggregate production and supply. These factors are considered in the report, but sudden changes, such as that experienced during the Covid pandemic, can impact the accuracy of projections.
- 2.2.5. Resource Availability – Other than by the depletion of reserves due to extraction, the availability of aggregate resources is assumed to remain stable over the assessment period. This includes assuming existing quarries remain viable and there are no new constraints on operations for example resulting from the designation of areas protected from development e.g. sensitive habitats. Unexpected changes in resource availability, such as regulatory restrictions or depletion of reserves, can alter supply dynamics. Estimates of available reserves may change from year to year in light of periodic surveys of the geology and based on changes to the quality of the reserve that is revealed by extraction.
- 2.2.6. Technological and Operational Changes – It is assumed that there are no significant technological or operational changes affecting quarry operations during the survey period. Advances in extraction technology or changes in operational practices can influence production efficiency and output, potentially impacting the data. An example of this is the increasing use of washing equipment applied to primary and recycled aggregate resulting in a wider range of products.
- 2.2.7. Environmental and Regulatory Factors – The assessment assumes that environmental and regulatory conditions remain constant. Changes in environmental regulations, land use policies, or community opposition can affect quarry operations and aggregate supply. These factors are monitored, but unforeseen changes can introduce uncertainties.
- 2.2.8. Data Extrapolation – In cases where data is incomplete or missing, reasonable extrapolations have been made based on available information. These extrapolations are necessary to provide a comprehensive assessment but introduce a degree of uncertainty. Typically where no survey return for annual sales an estimate has been made based on the average of the previous 3 years' sales.

2.3. Sand and Gravel Reserves

- 2.3.1. The sand and gravel resources within West Yorkshire of potential economic value can be found in the Calder Valley (Kirklees and Wakefield) at the confluence of the Aire and Calder (Wakefield and Leeds) and in the Wharfe valley (Leeds) There is also a small resource area with limited potential in the upper Aire valley (within Leeds) and adjacent to the river Aire in the area east of Esholt (Bradford).
- 2.3.2. Table 9 below indicates the current extent of sand and gravel site allocations within West Yorkshire. The figure for potential total reserves is a rough estimate based upon certain broad assumptions about the extent, depth and quantity of the sand and gravel resource within the allocated sites/areas. The release of the allocated resource for extraction would depend upon the resource being deemed to be commercially viable by the extractive industry and an environmentally acceptable development scheme being proposed.

Table 9 – West Yorkshire Sand & Gravel Allocations

Site	Type of Allocation
Leeds	
Midgley Farm, Otley	Allocated Site
Methley, Leeds	Extensive Area of Search
Kirklees	
Bradley Island (Bradley)	Area of Search
Wakefield	
Foxholes, North of Altofts LP1268	Allocated as Mineral Reserves
Penbank, Castleford LP1269	Allocated as Mineral Reserves
The Strands, Horbury Bridge L1267	Allocated as Mineral Reserves
Potential Total Reserve	C. 7.5 million tonnes

2.3.3. Reserves at dormant minerals sites normally form part of the BGS standard landbank calculation methodology. However, given the low level of sand and gravel reserves and output, it is considered that the inclusion of dormant reserves within West Yorkshire would lead to the calculation of a misleadingly inflated landbank figure. Therefore, such reserves have not been included for the purpose of calculating the West Yorkshire sand and gravel landbank.

2.3.4. As of 31 December 2023, there were two sites within West Yorkshire with permitted reserves of sand and gravel:

- Hallas Rough (Bradford)
- Stanley Ferry (Wakefield)

Sand and gravel extraction at Forge Lane in Kirklees completed during 2023.

2.3.5. In 2022 permission was granted for the extraction of an estimated 1.6 million tonne River Terrace deposit of Sand and Gravel at Stanley Ferry in Wakefield district. It is anticipated that extraction would occur at a rate of c.0.15 million tonnes per annum, with all mineral being transported exclusively by waterway (barge) to processing and distribution depots in either Ravensthorpe or Leeds. This permission accounts for a significant proportion of the overall sand and gravel reserves though it is likely that implementation may take some time given the need to provide the necessary infrastructure (i.e. wharf) required to facilitate waterborne transportation of the mineral.

2.3.6. In 2022 some limited additional sand reserves were also permitted at Hallas Rough by Bradford City Council. It is within the public domain that a mineral operator is interested in developing a new sand and gravel quarry of circa 2 million tonne reserves at Coney Moor, near Methley (Leeds)²³.

²³ <https://www.coneymoorproposals.co.uk/>

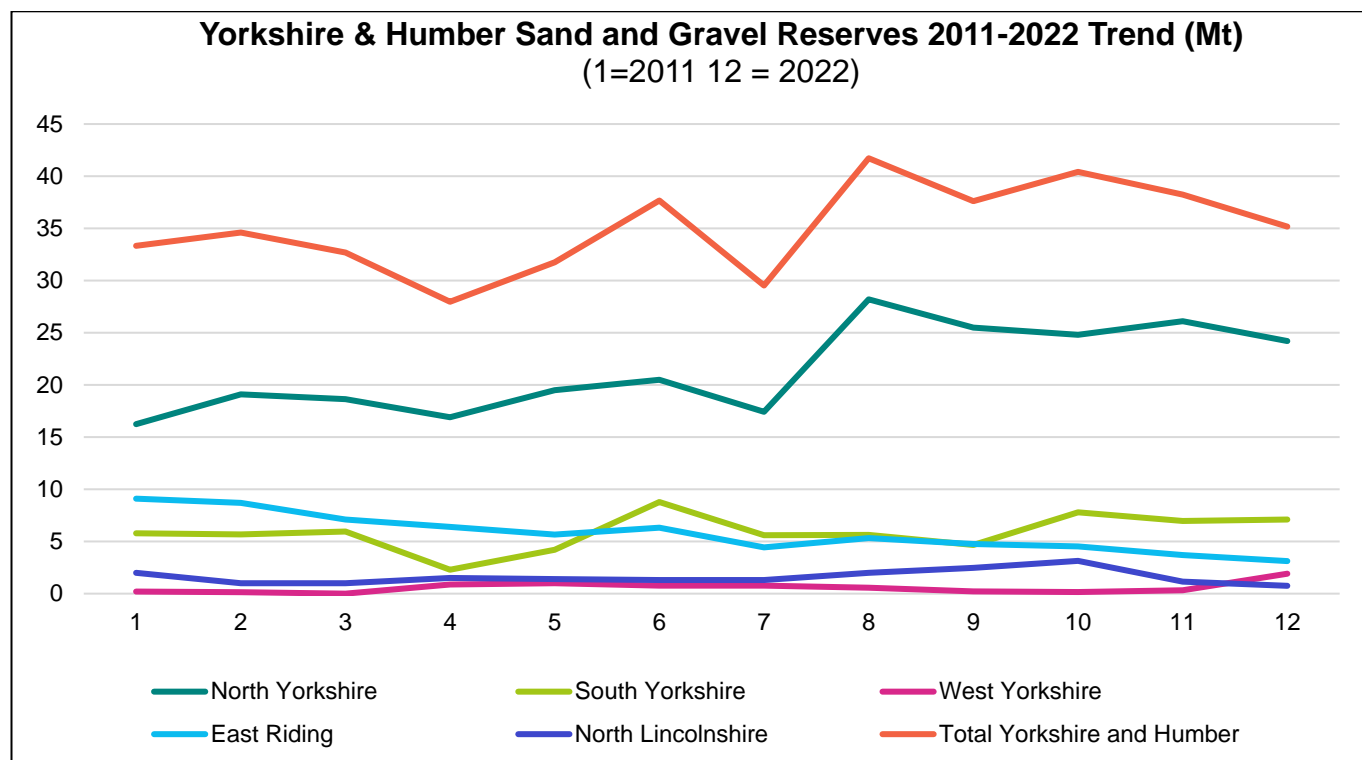
- 2.3.7. Although BGS mapping indicates that limited sand and gravel resources may remain within Calderdale, no permitted reserves are currently present within this District.
- 2.3.8. The total West Yorkshire reserve of Sand and Gravel as of 31 December 2023 was 1.88 million tonnes. Table 10 below sets out regional level sand and gravel reserves data, as presented within the draft Yorkshire and Humber Aggregate Working Party Annual Monitoring Report 2023. It is notable from Figure 4 that total regional sand and gravel reserves declined relatively rapidly after 2012 and dipped again in 2017. However, after 2017, regional sand & gravel reserves recovered well and in 2018 were at the highest level seen for over a decade.
- 2.3.9. West Yorkshire consistently makes a relatively insignificant contribution to the overall regional reserves, with only 5% of the 2022 Yorkshire and the Humber Sand and Gravel Reserve situated within West Yorkshire.

Table 10 – Yorkshire & Humber Sand and Gravel Reserves 2011-2022²⁴ (Mt)

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
North Yorkshire	16.24	19.1	18.63	16.9	19.5	20.5	17.43	28.2	25.5	24.8	26.1	24.2
South Yorkshire	5.79	5.67	5.95	2.29	4.2	8.78	5.6	5.63	4.66	7.8	6.97	7.1
West Yorkshire	0.2	0.14	0	0.88	0.99	0.77	0.77	0.57	0.22	0.15	0.33	1.91
East Riding	9.1	8.7	7.1	6.4	5.66	6.32	4.43	5.32	4.76	4.52	3.69	3.12
North Lincolnshire	2	1	1	1.5	1.4	1.3	1.3	2	2.47	3.14	1.15	0.75
Total Yorkshire and Humber	33.33	34.61	32.68	27.97	31.75	37.67	29.53	41.72	37.61	40.41	38.24	35.17

²⁴ [YHAWP Annual Monitoring Report 2023 \(2022 data\) \(Published December 2023\)](#)

Figure 4 – Yorkshire & Humber Sand and Gravel Reserves Trend 2011 – 2022



2.3.10. As noted in previous LAAs, the post 2014 upwards trend in regional land won sand and gravel sales and reserves was likely to be difficult to sustain due to resource limitations, particularly those noted within the North Yorkshire and Doncaster and Rotherham LAAs. This situation necessitates finding new sources of supply – including potentially marine dredged resources and/or greater substitution of crushed rock – to ensure the needs of the regional construction industry continue to be met.

2.4. Sand and Gravel Sales

- 2.4.1. Sales of sand and gravel originating from West Yorkshire have steadily declined for over 20 years, which reflects the number of operating sites and their size. Sites which have closed have not been replaced. Gravel for concreting purposes is no longer produced. Between 2015 and 2021 the West Yorkshire sand and gravel extraction industry comprised only a single modestly sized sand and gravel extraction site.
- 2.4.2. Table 11 below sets out regional level sand and gravel sales data as presented within the Draft Yorkshire and Humber Aggregate Working Party Annual Monitoring Report 2023 (2022 data).

Table 11 – Yorkshire & Humber Sand and Gravel Sales 2014 – 2022²⁵ (Mt)

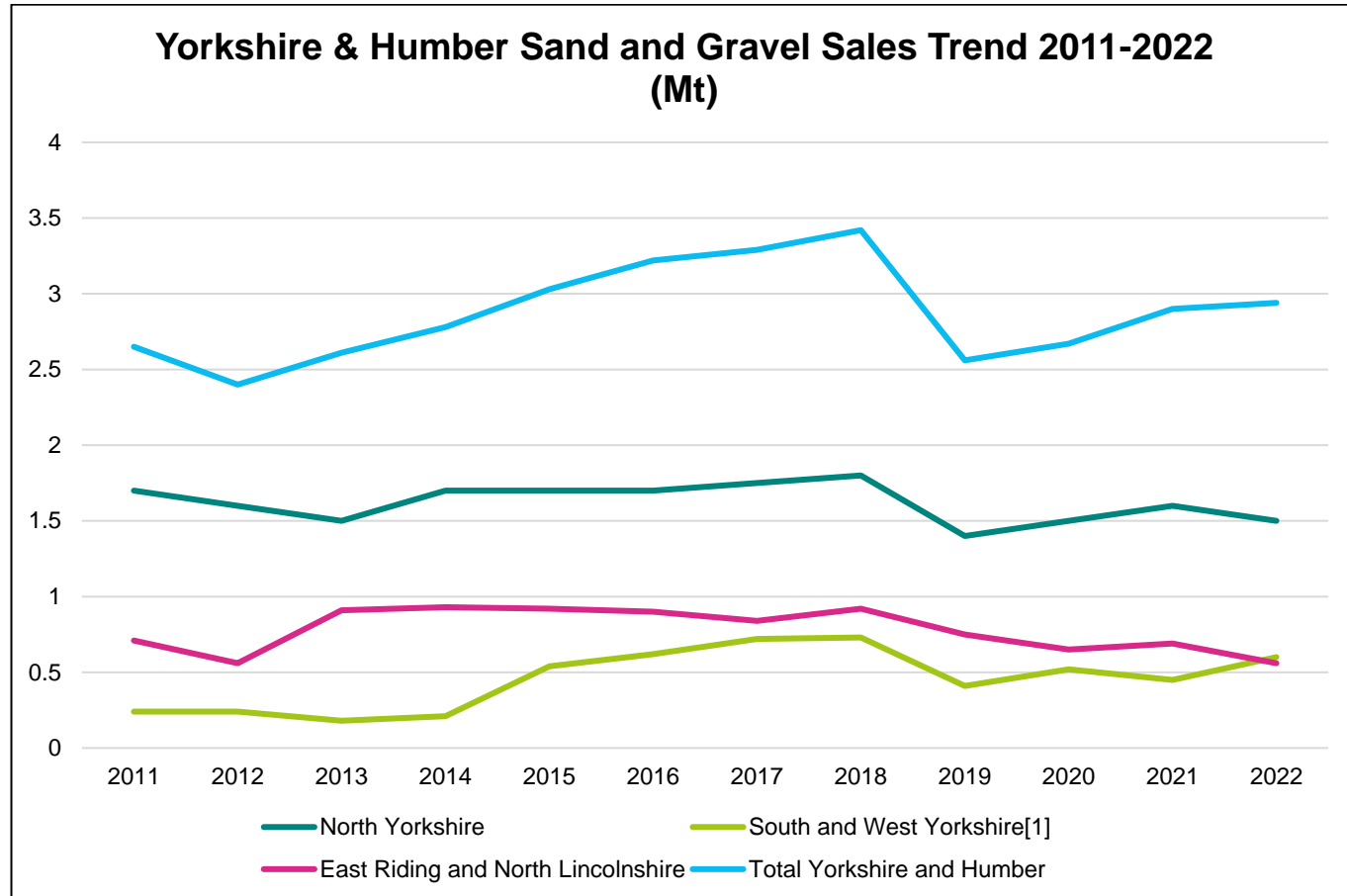
Sub-Region	2014	2015	2016	2017	2018	2019	2020	2021	2022
North Yorkshire	1.7	1.7	1.7	1.75	1.8	1.4	1.5	1.6	1.5
South and West Yorkshire ²⁶	0.21	0.54	0.62	0.72	0.73	0.41	0.52	0.45	0.6
East Riding and North Lincolnshire	0.93	0.92	0.9	0.84	0.92	0.75	0.65	0.69	0.56
Total Yorkshire and Humber	2.78	3.03	3.22	3.29	3.42	2.56	2.67	2.9	2.94

- 2.4.3. West and South Yorkshire sales of Sand and Gravel comprised 20% of the Regional Total in 2022, with most of the output being confined to the administrative area of Doncaster Council.
- 2.4.4. Figure 4b shows that after declining to a historic low in 2010 and flat lining thereafter until 2014, an upwards trend in sales was detectable in the combined sand and gravel output for South and West Yorkshire as part of a discernible Region wide upwards trend. However, in 2019 and 2020 this local and regional upward sales trend reversed. In particular, West Yorkshire sales have remained at a very low level. In 2022 there was a significant increase in reserves in West Yorkshire though the impact on sales remains to be seen.

²⁵ [YHAWP Annual Monitoring Report 2023 \(2022 data\) \(Published December 2023\)](#) (Latest regional data available)

²⁶ West Yorkshire and South Yorkshire sales combined for confidentiality

Figure 4b – Yorkshire & Humber Sand and Gravel Sales 2011 – 2022

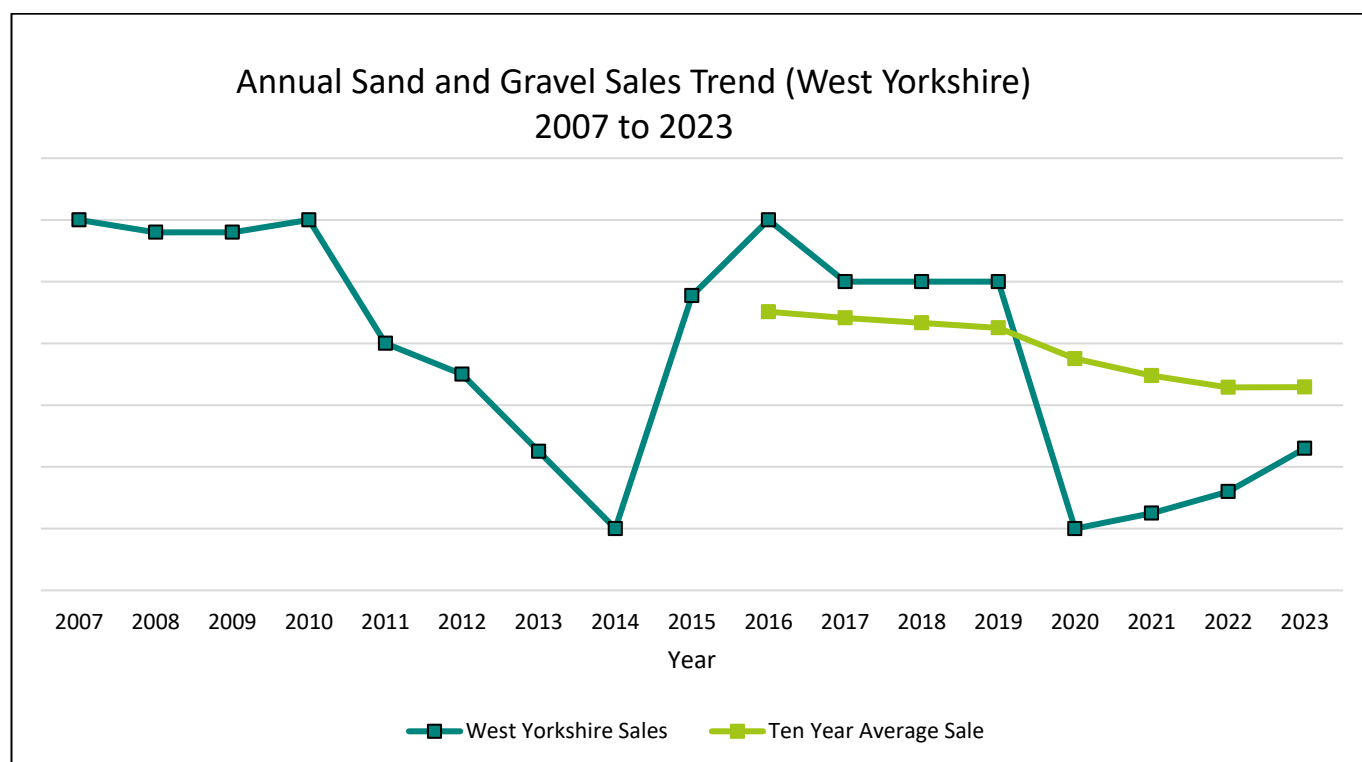


2.4.5. The first West Yorkshire LAA calculated a 2012 West Yorkshire sand and gravel sales figure from direct operator reporting and separated out 2004- 2011 combined sales data using a % proxy. Table 12 below shows the West Yorkshire figures calculated within the first LAA and includes a 2013 figure for West Yorkshire based upon direct reporting by the relevant Planning Authorities. The 2014 to 2023 values, which have been used to calculate the 10- year sales average yearly sales, are obscured within the table for commercial confidentiality reasons. Figure 5. illustrates the ten-year sales trend, with the Y Axis removed for confidentiality reasons.

Table 12 – West Yorkshire Sand and Gravel Sales 2012 – 2023 (million tonnes)

[illegible]

Figure 5 – Annual Sand and Gravel Sales Trend (West Yorkshire) 2007 to 2023



2.5. Sand and Gravel Landbank

- 2.5.1. Although annual sales are confidential, a 10-year annual average sand & gravel sales figure of 0.06 million tonnes can be calculated and reported for West Yorkshire. West Yorkshire sand and gravel reserves, as of 31 December 2023 were 1.88 million tonnes and therefore the landbank of sand and gravel within West Yorkshire, based on a simple 10-year average sales value, can be calculated as being **28 years and 4 months**.
- 2.5.2. The above landbank figure represents a decrease of 6 months from 10-year average sales based landbank figure calculated in the West Yorkshire LAA (2022 data) (28 years and 10 months).
- 2.5.3. The slightly improved landbank is due to reduction in the 10 year sales average rather than any increase in reserves. The landbank remains above the 'at least' 7 years national policy expectation. However, this is in very large part due to the single site at Stanley Ferry which makes up 84% of the reserves. This reliance on the production capacity of a single site means that the actual resilience of the supply position is somewhat questionable.
- 2.5.4. Furthermore, implementation of the Wakefield permission would just allow the previous relatively low level of sand and gravel production within West Yorkshire to be maintained but would not significantly bridge the large gap between West Yorkshire sand and gravel supply and demand. This permission, and the limited additional reserve at Hallas Rough, should not therefore be seen as solutions to a sand and gravel landbank shortage or to mean that the release of additional reserves is not necessary. Other information relevant to setting a sand and gravel Aggregate Provision Rate and deriving an appropriate landbank for sand and gravel is assessed in Section 3 below.

2.6. Crushed Rock Reserves

- 2.6.1. Minerals resources within West Yorkshire capable of producing crushed rock aggregates include the Carboniferous Sandstones found throughout a large proportion of West Yorkshire, but particularly prevalent in the administrative Districts of Bradford, Calderdale and Kirklees, and the Dolomitic (Magnesian) Limestones found in a ridge running along the eastern boundaries of the Districts of both Leeds and Wakefield.
- 2.6.2. The characteristics of these resources are described further in Section 1 and Appendix 1; however, it is worth reiterating the fact that 'In general, the Carboniferous sandstones in Yorkshire are too weak and porous and susceptible to frost damage for them to be used for good quality roadstone or concrete aggregate'²⁷. Nonetheless it is possible to utilise the sand which can be produced by crushing the Carboniferous Sandstones as a building and/or concreting sand and to produce reconstituted stone building blocks.
- 2.6.3. As of 31 December 2023, 27 quarries existed within West Yorkshire which either actively produce or have in the recent past produced crushed sandstone or limestone aggregates (see Appendix 3). Crushed rock aggregate is produced in all five West Yorkshire districts, sometimes in significant quantities, but more frequently in small quantities as a by-product of building stone quarrying. At some quarry sites, especially in Calderdale and Bradford, the amount of aggregate product is insignificant. However relatively significant quantities of crushed sandstone aggregates are incorporated into artificial stone paving and walling products. Howley Park, Shepley and Moselden quarries are also known to be major suppliers to the concrete works at Southowram.
- 2.6.4. Conversely Dolomitic Limestone, which is potentially capable of producing a higher quality concrete and road stone grade aggregate, is currently only actively produced in Wakefield, at two locations near Knottingley. At Darrington Quarry, mineral is hauled beneath the M62 to a processing plant. This aggregate is washed to remove fines, thereby achieving a higher specification for its after use. The total West Yorkshire reserve of Crushed Rock Aggregate as of 31 December 2023 is estimated to have been 35.8 million tonnes. This decrease of nearly 5 million tonnes will in part be due to reserves being worked but also the fact that this year's survey requested reserves to be reported as those estimated for aggregate supply and those to be extracted for for non-aggregate uses (in this case sandstone used as building stone). It is also quite likely that some reassessment of reserves at existing sites has taken place.
- 2.6.5. Table 13 below sets out regional level crushed rock aggregate reserve data for the 2011-2022 period. Table 14 provides the West Yorkshire reserve figures for the period 2008-2023. In terms of the degree of confidence which should be placed upon these figures it should be noted that in several instances, where site operators have not provided survey returns, reserves have been estimated. There is also likely to be some variation in the accuracy of operator assessments of the proportion of reserves which are to be used for building stone vs. aggregates as this may not be apparent until the stone has been won (as mentioned above).

²⁷ A British Geological Survey, 1996. A geological Background for Planning and Development in the City of Bradford Metropolitan District, Volume 2: A Technical Guide to Ground Conditions. BGS: Nottingham, page 37.

Table 13 – Yorkshire & Humber Crushed Rock Reserves 2011 – 2022 (Mt)²⁸

Sub-Region	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
North Yorkshire	97.7	102.6	104.4	100.6	95.4	88.6	83.5	81.3	79.7	78.8	69.4	91.2
Yorkshire Dales National Park	104.5	89.22	85.39	85.31	83.59	82.08	81.79	75.74	88.65	83.34	79.7	84.6
South Yorkshire	61.23	60.8	59.5	57.6	56.58	52.1	51.7	53.3	21.05	48.9	43.8	41
West Yorkshire	15.44	28.5	30.4	25.7	33.74	29.82	38.78	40.78	38	36.96	35	40.6
East Riding	6.6	6.7	6.5	6.3	6.2	6.6	8.7	8.7	7.6	7.8	9.2	21.9
North Lincolnshire	4.18	4.18	6.2	6.6	7.2	6.5	5.8	4.7	33.9	33.2	54.2	45.2
Total Yorkshire and Humber	289.65	292	292.39	282.16	282.7	265.69	270.22	264.52	268.89	288.99	291.52	324.48

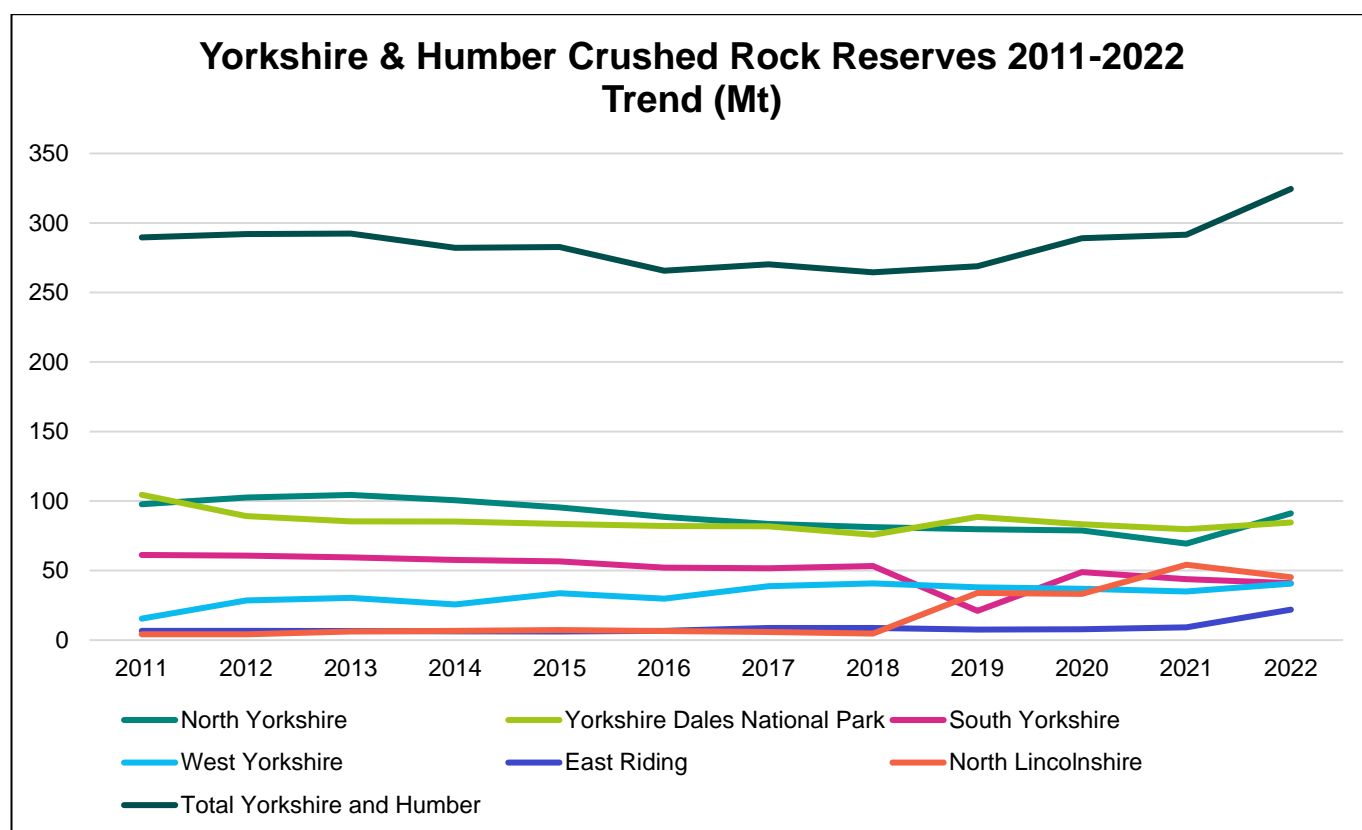
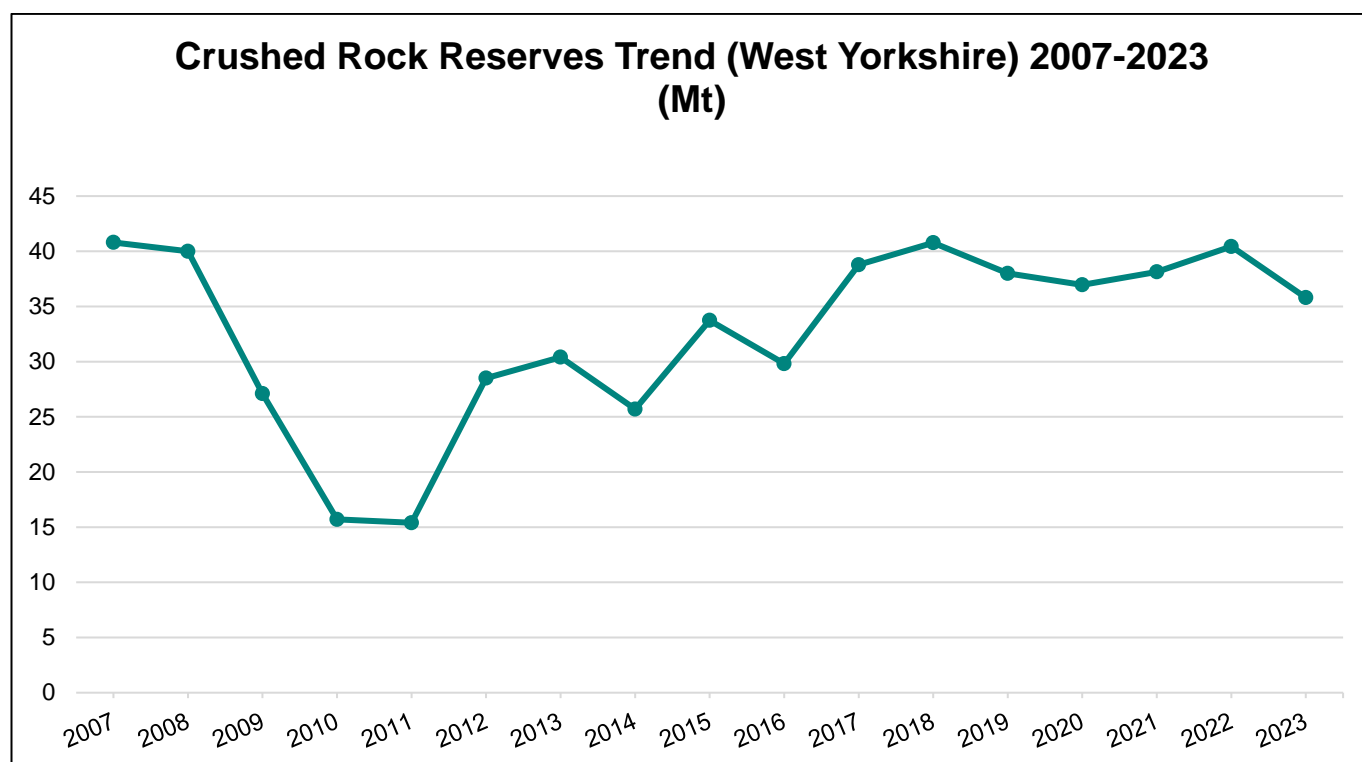
Figure 6 – Yorkshire & Humber Crushed Rock Reserves Trend 2011 – 2022

²⁸ YHAWP Annual Monitoring Report 2023 (2022 data) (Published Dec 2023) (Latest regional data available)

Table 14 – West Yorkshire Crushed Rock Reserves 2008 – 2023 (million tonnes)

Crushed Rock Reserves Trend (West Yorkshire)															
'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23
40.0	27.1	15.7 ²⁹	15.4	28.5	30.4	25.7	33.7	29.8	38.8	40.8	38.0	37.0	38.1	40.5	35.8

Figure 7 – West Yorkshire Crushed Rock Reserves Trend 2007 – 2023

- 2.6.6. Crushed Rock Aggregate reserve levels within West Yorkshire had been resuming a slightly increasing trend reflecting the gradual, discernible, upwards trend since the recession low of 2010/2011. Estimated reserves are now tracking just below pre-recession levels.
- 2.6.7. It is considered likely that the improvement in economic conditions since 2011 has been a factor in the generally upwards trajectory in reserve levels since that time. This positive association between an improving economy and increasing aggregate reserves may be due to new reserves being permitted but it may also be partly due to higher minerals values leading to operators reassessing the viability of extracting those existing quarry reserves which may have previously been considered uneconomic due to quality or stripping ratio factors, and consequently increasing their reported reserve estimates.
- 2.6.8. If pre-recession reserve levels were to be used as a benchmark for optimum West Yorkshire crushed rock aggregate reserve levels, then it could be argued that West Yorkshire Reserves remain just below their optimum level. However optimum reserve levels are complicated to assess as they relate to factors such as the geological diversity of the reserve, distribution of the reserve between different quarries/

²⁹ Figures for 2008 & 2009 taken from RAWP Annual Monitoring Reports; figures in orange are acknowledged to be incomplete

geographical areas/ geological formations and the relative rates of working and types of aggregate products produced at the quarries. It should be noted that, within West Yorkshire, a small number of large quarries make up a disproportionately large proportion of the apparent reserves, with the majority of the 27 quarries listed at Appendix 3 being relatively small building stone quarries with limited reserves and output, many of which only sporadically produce aggregates.

2.7. Crushed Rock Sales

- 2.7.1. Table 15 and Figure 8 below sets out regional level crushed rock aggregate sales data for the 2011-2022 period. Table 16 and Figure 9 provide ten-year West Yorkshire sales data for the 2011-2023 period.

Table 15 – Yorkshire & Humber Crushed Rock Sales 2011 – 2022³⁰

Sub-Region	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
North Yorkshire	1.9	2.4	2.8	3.4	3.7	3.28	3.2	3.5	3	3.2	3.3	3.1
Yorkshire Dales and National Park	2.64	2.63	2.85	3.09	3.34	3.39	3.48	3.35	2.37	2	3.2	3.32
South Yorkshire	1.05	1.14	1.27	2.25	2.4	2.6	2.01	2.4	1.8	2.4	3.16	2.66
West Yorkshire	0.43	0.79	0.78	1.03	1.03	1.1	1.03	1.04	0.86	1.07	0.57	1.2
East Riding	0.13	0.1	0.1	0.08	0.13	0.23	0.27	0.38	0.17	0.22	0.47	0.49
North Lincolnshire	0.1	0.11	0.11	0.67	0.62	0.62	0.59	0.6	0.68	0.68	0.61	0.59
Total Yorkshire and Humber	6.25	7.17	7.91	10.52	11.22	11.22	10.58	11.27	8.88	9.57	11.31	10.36

³⁰ YHAWP Annual Monitoring Report 2023 (2022 data) (Published Dec 2023) (Latest regional data available)

Figure 8 – Yorkshire & Humber Crushed Rock Sales Trend 2011 – 2022

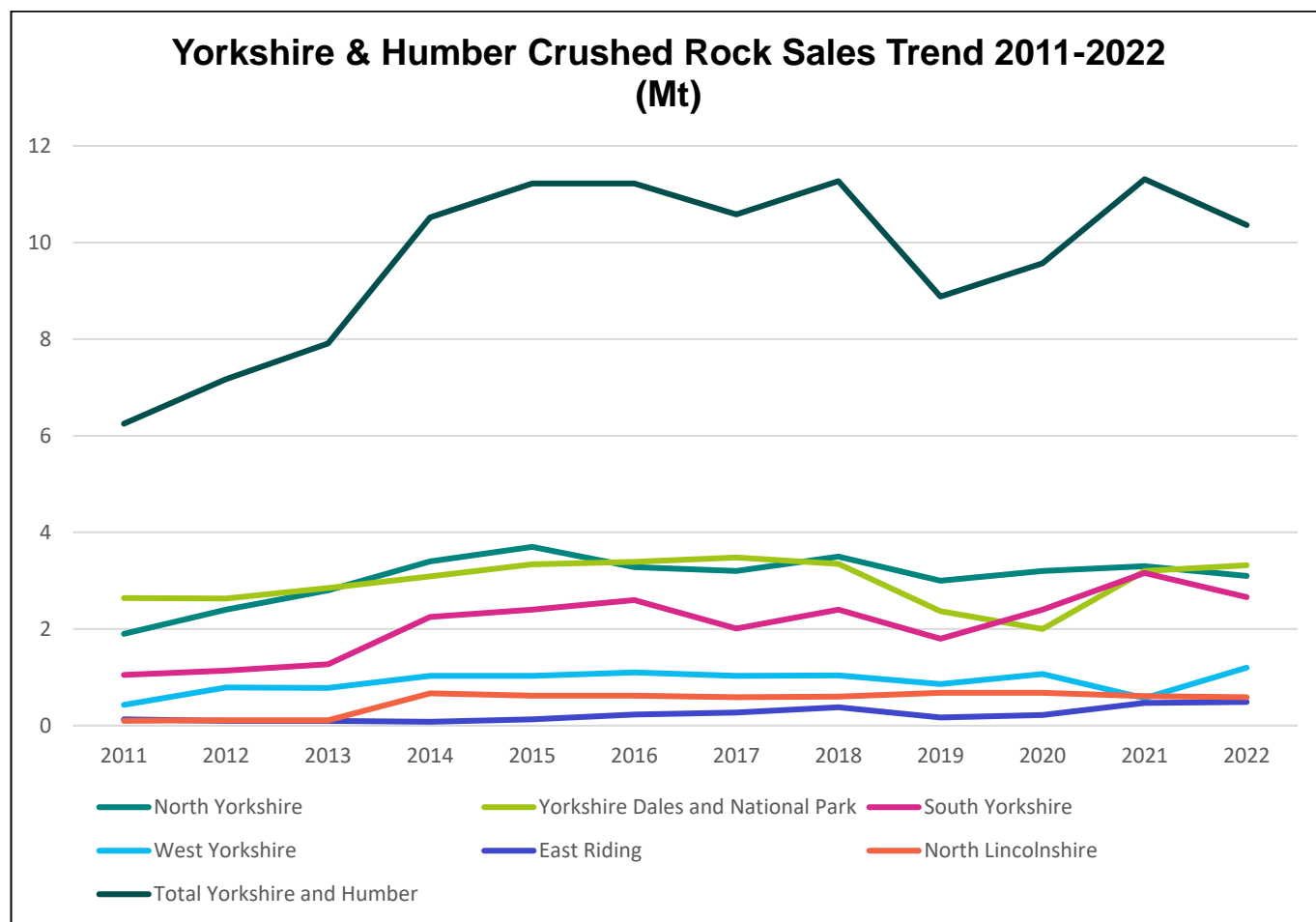
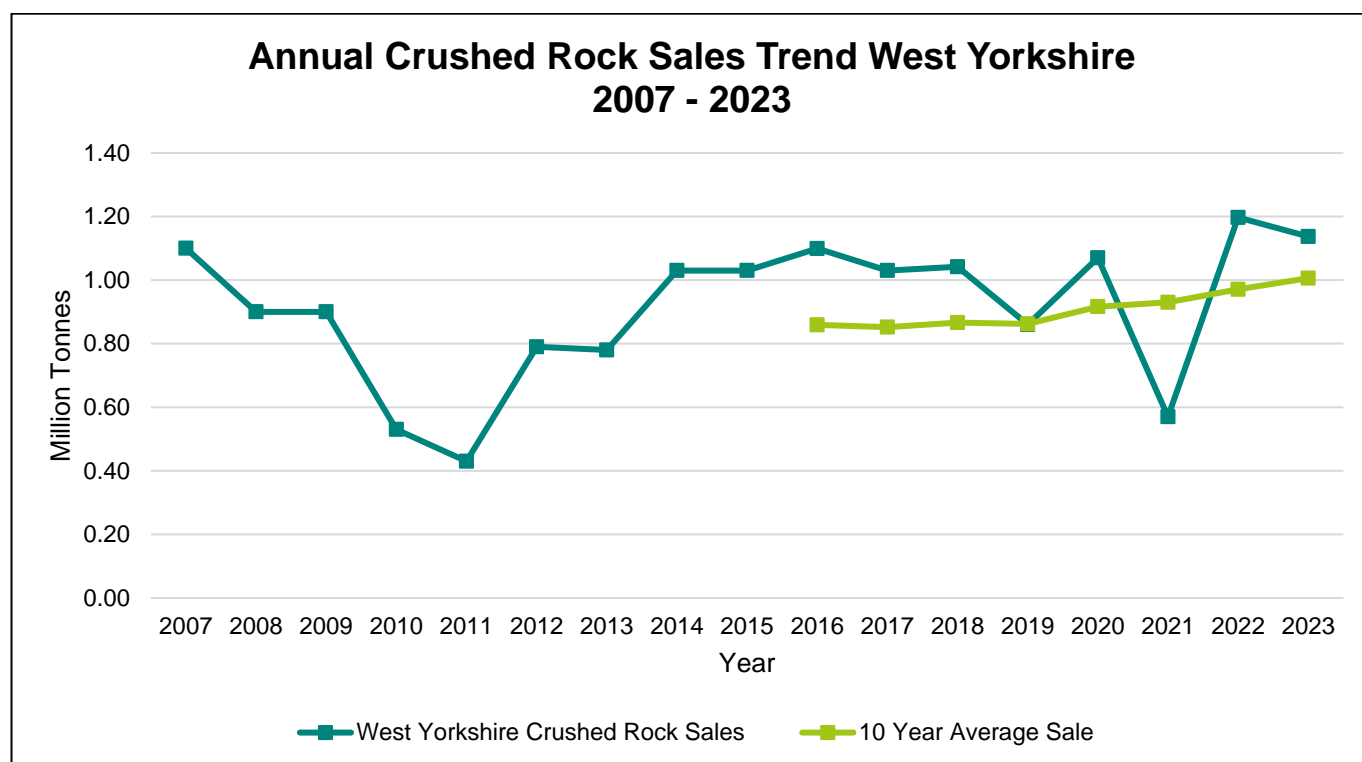


Table 16 – West Yorkshire Crushed Rock Sales 2011 – 2023 (Mt)

'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	10-yr avg.
0.43	0.79	0.78	1.03	1.03	1.10	1.03	1.04	0.86	1.07	0.57	1.197	1.137	1.01

Figure 9 – West Yorkshire Crushed Rock Sales Trend 2007 – 2023



2.7.2. It should be noted that, following recovery to near pre-recession levels observed in 2014, sales of crushed rock remained relatively flat, however the survey of sales in 2022 and 2023 indicate a generally increasing trend with the drop in sales observed in 2021 appearing as a distinct anomaly. Total quarry output for West Yorkshire had remained within a range from 1 million to 1.1 million tonnes per annum between 2014 and 2022 except for 2019 (and ignoring 2021). 2019 is considered to be an anomalous year due to the difficulties associated with undertaking a minerals survey during the Covid-19 crisis. The observed marked decline in 2021 may have been due to the return of inaccurate sales data but may also have been due to:

- A high level of sales in 2020 resulting in a high level of stocks maintained 'off site' which did not need replenishing in 2021 as they were not needed in 2020 due to reduced construction activity resulting from Covid; and/or
- A site closing at the end of 2020, beginning 2021 (no data to suggest this).

2.7.3. Regional level crushed rock sales data to 2020 also show a clear recovery from the recession low of 2010/ 2011 followed by a period of relative stability. 2019 and 2020 showed a marked decline in sales but this was followed by a recovery in 2021 and 2022.

2.8. Crushed Rock Landbank

2.8.1. The West Yorkshire 10-year crushed rock sales average 2014-2023 stands at 1.01 million tonnes. With reserves as of 31 December 2023 at 35.79 million tonnes the simple landbank of crushed rock aggregates within West Yorkshire, based on 10-year average sales levels, can therefore be calculated as being 35 years and 7 months.

2.8.2. This landbank figure represents an decrease of 6 years and 1 month from the simple landbank figure calculated in the West Yorkshire LAA (2022 data), which was 41

years and 8 months. The very significant level of the crushed rock aggregate landbank in West Yorkshire, has to be viewed in the context of a substantial proportion of reserves being tied up in old Building Stone quarries with low intensity/intermittent working. Therefore, parts of the apparent West Yorkshire crushed rock aggregate reserve may be unlikely to yield significant quantities of aggregate in the short/mid-term.

- 2.8.3. Furthermore, as discussed more extensively elsewhere in this report, it must be acknowledged that the West Yorkshire aggregate reserve is dominated by material which is unlikely to be capable of meeting the specifications required for the two principal construction aggregate uses of concrete manufacture and road construction. It is therefore likely to continue to rely on imports for high quality construction aggregates to meet these demands. Other information relevant to setting an appropriate crushed rock provision rate for use in the landbank calculation is assessed in Section 3 below.

3. Appraisal of Other Relevant Information

3.1. Background

- 3.1.1. In addition to appraising aggregate reserves and sales data, paragraph 213 of the National Planning Policy Framework makes it clear that Local Aggregate Assessments should consider 'other relevant local information' and include an assessment of all supply options (including marine dredged, secondary and recycled sources) before arriving at a landbank calculation methodology.
- 3.1.2. This section sets out the other information which the West Yorkshire Mineral Planning Authorities consider to be relevant to the assessment of the minerals supply situation within West Yorkshire. This information has been used to inform the calculation of the Aggregate Provision Rates and related landbanks set out in Section 4.

3.2. Aggregate Flows to and from West Yorkshire

- 3.2.1. West Yorkshire is and will continue to be a significant net importer of aggregates. This is primarily due to the simple fact that West Yorkshire accommodates 42% of the population of the Yorkshire and Humber Region within 13% of the Region's total land area. Demand for aggregates is high, the nature of the geology is limited (in terms of its ability to produce certain higher specification aggregates), and the accessibility of the remaining un-worked aggregate resource is constrained.
- 3.2.2. The inability of West Yorkshire to meet its own aggregate needs is evidenced by tables 17, 18 and 19 below, which provide figures indicating the proportion of aggregate consumption which is met by imports for the four sub-regions of Yorkshire and Humber. The figures set out in these tables are taken from the 2014 and 2019 BGS Aggregate Minerals Survey³¹ and exclude imports from marine dredged sources - with reported wharf landings automatically assigned to the MPA in which the wharf is situated.
- 3.2.3. Despite the BGS AM2019 report, which inaccurately reported both aggregate wharf numbers and marine aggregate consumption in West Yorkshire as 0, it is known that marine aggregates are being hauled and, until 2022, barged into West Yorkshire in addition to the imports listed in the tables below.. Data from the Crown Estate for 2023 shows that a total of 213,715 tonnes was imported to the Yorkshire and Humber region with 83,8919 imported from Humber wharves and 128,896 imported from wharves on the East Coast. The minerals processing facilities at Cross Green (Leeds) is known to receive marine dredged aggregate and, until 2022, c75,000tpa was barged to Knostrop Wharf; Data for 2023 suggested that c 18,700 tonnes of marine won sand and gravel was imported by road into West Yorkshire in 2023. This is the first year of this data and so it is not currently possible to establish and trends though this is much less than that known to have been previously imported by barge. This is clearly an area where further data would be beneficial given the known existing contribution of marine aggregates to West Yorkshire consumption and the potential for marine aggregates to make up an increasingly significant proportion of

³¹ <https://www.gov.uk/government/publications/aggregate-minerals-survey-for-england-and-wales-2019>

West Yorkshire sand and gravel demand, as land won sources become increasingly constrained.

Table 17 – Crushed Rock Consumption – Y&H Sub-regions (thousand tonnes)

	Crushed Rock Imports		Crushed Rock Consumption		% of Consumption met by Imports	
	2014	2019	2014	2019	2014	2019
Humber (East Riding, North Lincolnshire, and North East)	700	851	724	979	97%	87%
North Yorks, Yorkshire Dales, and North York Moors National Parks	526	408	2,801	2,901	19%	14%
South Yorkshire	971	1,056	2,124	2,870	46%	37%
West Yorkshire	1,997	2,257	2,536	2,342	79%	96%

Table 18 – Sand and Gravel Consumption – Y&H Sub-regions (thousand tonnes)

	Sand & Gravel Imports		Sand & Gravel Consumption		% of Consumption met by Imports	
	2014	2019	2014	2019	2014	2019
Humber (East Riding, North Lincolnshire, and North East)	305	50	424	408	72%	12%
North Yorks, Yorkshire Dales, and North York Moors National Parks	207	271	1,116	1,263	19%	21%
South Yorkshire	751	414	760	454	99%	91%
West Yorkshire	685	466	702	466	98%	100%

Table 19 – Total Aggregate Consumption – Y&H Sub-regions (thousand tonnes)

	CR and S&G Imports		CR and S&G Consumption		% of Consumption met by Imports	
	2014	2019	2014	2019	2014	2019
Humber (East Riding, North Lincolnshire, and North East)	1,005	901	1,148	1,387	88%	65%
North Yorks, Yorkshire Dales, and North York Moors National Parks	733	679	3,917	4,164	19%	16%
South Yorkshire	1,722	1,470	2,884	3,324	60%	44%
West Yorkshire	2,682	2,723	3,238	2,808	83%	97%

3.2.4. The consumption figures included in the above tables are calculated using sales by destination data, including sales within the home region (i.e. Yorkshire and Humber),

imports from other regions and imports from outside England and Wales. It should be noted that the BGS report cautions that the figure for total consumption slightly underestimates true consumption because for some regions unallocated sales have an unknown destination. Furthermore, consumption figures are calculated from the principal destination of aggregate flows and final sales, whereas, particularly for rail-borne aggregates, the aggregate may actually be consumed in other regions (by haulage away from the rail depot). Additionally, as noted above, consumption of marine aggregates is incorrectly reported as 0 for West Yorkshire.

- 3.2.5. Despite the above limitations, it is considered that the quality of the data is sufficient to draw broad conclusions about the relative reliance of the different parts of the Yorkshire and Humber Region upon aggregate imports. The data broadly shows that all sub-areas of the Yorkshire and Humber Region, except for North Yorkshire, are heavily reliant on aggregate imports to meet demand for primary aggregates. This data will be updated using the BGS AM Survey for 2023 in next year's LAA.

3.3. Sand and Gravel Imports

- 3.3.1. The data also indicates that in 2019 the sand and gravel consumption figures were roughly equal to the sand and gravel import figures for both South and West Yorkshire, indicating that both sub-regions are heavily reliant upon sand and gravel imports to meet demand. This is unsurprising given the highly urban nature and constrained indigenous resources of both sub- regions.

3.4. Crushed Rock Imports

- 3.4.1. For crushed rock the 2019 consumption and imports data clearly indicate that West Yorkshire is the sub-region which is most reliant upon imports to meet its crushed rock aggregate consumption needs. In 2019 West Yorkshire had the worst 'trade balance' in terms of indigenous production vs. imports with the level of imports roughly equating to the magnitude of consumption.
- 3.4.2. Some comparative analysis is possible between the AM2014 and AM2019 data. This comparative analysis indicates that the level of reliance of West Yorkshire upon aggregates produced in neighbouring authorities is increasing. This trend is not apparent in the three other sub-regions where some progress appears to have been made in terms of increasing the proportion of aggregate consumption which is met by indigenous production.
- 3.4.3. Conversely, as described in more detail in the following section of this report, the scale of urban development present within West Yorkshire means that it has very substantial recycled and secondary aggregate (RSA) resources. Discussions with a selection of RSA producers indicate that although the majority of RSA produced within West Yorkshire is also consumed within West Yorkshire, substantial quantities are also hauled elsewhere. Estimates range from one producer stating that 50% is sent out of the county to another producing stating that all RSA which they produce is thought to be consumed locally
- 3.4.4. West Yorkshire appears therefore to have some significance as an RSA exporter, counterbalancing to a degree the imports of primary aggregate. However, there is no available reliable data on the spatial distribution of flows of RSA between regions/

sub-regions, and therefore the precise trade balance between primary aggregate and RSA imports/ exports cannot be quantified.

- 3.4.5. In terms of the sources of the aggregate imported into West Yorkshire to meet its needs, available data is not comprehensive; however, data derived from the BGS AM2014 and AM2019 is set out in tables 20 and 21 to provide a comparative analysis of 2014 vs. 2019 data. The figures have been derived by applying the percentages to the stated total consumption figure for West Yorkshire and taking a mid- point between the 10% wide import estimate data ranges provided in the tables. Some caution should be attached to this analysis, due to the shortcomings of the data, the fact that the 2019 survey took place during the COVID-19 crisis and the degree of accuracy of the import ranges stated in the table. However, the data does appear to imply that a substantial shift has taken place in minerals supply flows between 2014 and 2019.

Table 20 – Estimated Origins of Sand and Gravel Supplied into West Yorkshire (tonnes)

Source	2014	2019	Change
North Yorkshire	315,900	116,500	-199,400 ▼
East Yorkshire	175,500	69,900	-105,600 ▼
East Midlands (Nottinghamshire)	105,300	25,630	-79,670 ▼
East Midlands (Lincolnshire)	38,610	25,630	-12,980 ▼
North-East (Durham)	38,610	163,100	+124,490 ▲
North-West (Cheshire West / Cheshire East)	38,610	25,630	-12,980 ▼
West Midlands (Staffordshire)	38,610	0	-38,610 ▼
South Yorkshire (Doncaster)	3,861	25,630	+21,769 ▲
Total West Yorkshire Consumption	702,000	466,000	-236,000 ▼

Table 21 – Estimated Origins of Crushed Rock Supplied into West Yorkshire (tonnes)

Source	2014	2019	Change
Yorkshire Dales National Park	887,600	1,288,100	+400,500 ▲
South Yorkshire (Doncaster)	634,000	128,810	-505,190 ▼
North Yorkshire County Council	380,400	128,810	-251,590 ▼
East Midlands (Derbyshire)	139,480	585,500	+446,020 ▲
East Midlands (Leicestershire)	13,948	128,810	+114,862 ▲
North-East (Durham)	139,480	128,810	-10,670 ▼
North-West (Cumbria CC)	13,948	128,810	+114,862 ▲
Total West Yorkshire Consumption	2,536,000	2,342,000	-194,000 ▼

- 3.4.6. Figure 10 below illustrates the estimated spatial distribution of aggregate flows into West Yorkshire, with the size of the arrow indicating the approximate relative quantity of aggregate estimated to flow from the producing area. A pie chart is also included at Figure 9 providing a more precise breakdown of the estimated sources of the construction aggregates supplied into West Yorkshire in 2019. As previously noted, the data does not include the marine aggregates which are known to be supplied into West Yorkshire from the Humber Docks.

Figure 9 – Aggregate Imports to West Yorkshire

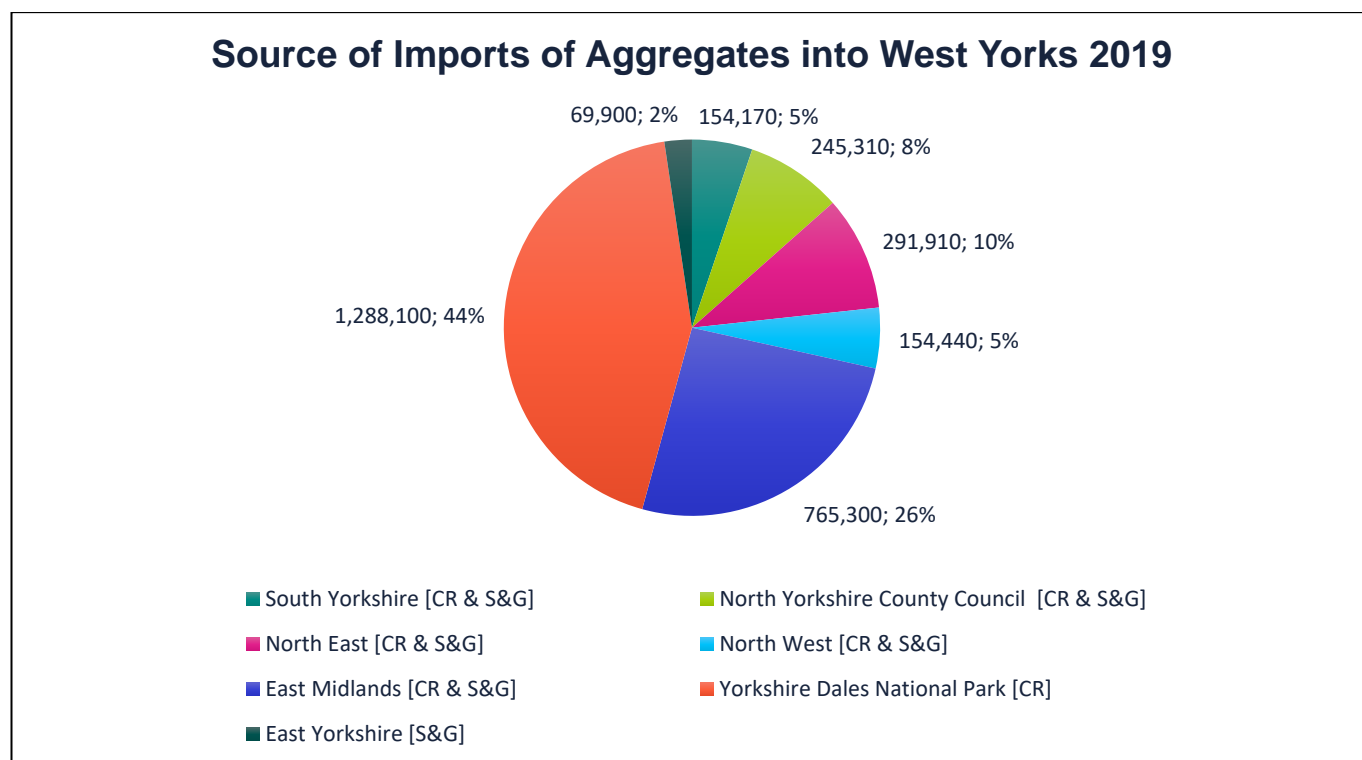
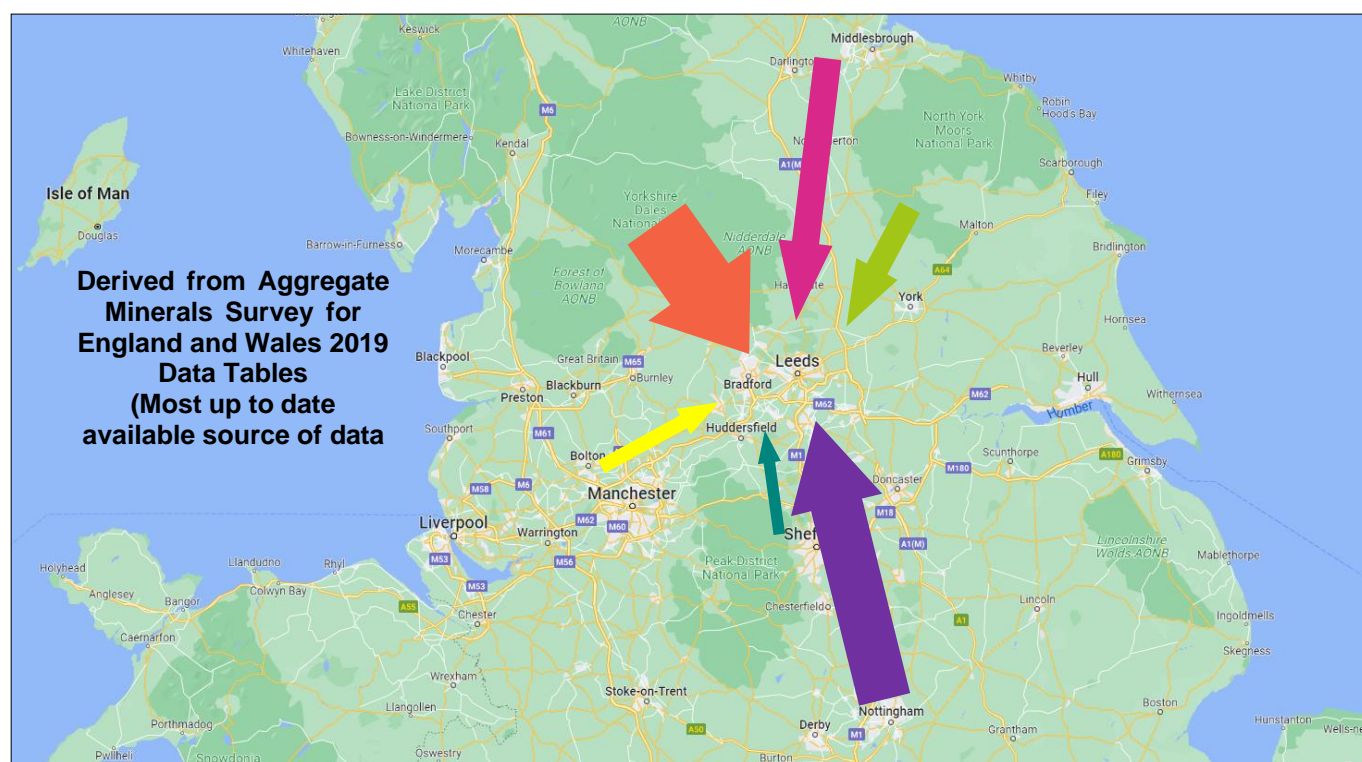


Figure 10 – Flows of Aggregate Imports to West Yorkshire



- 3.4.7. The key points arising from the data and information presented above, in terms of changes in the pattern of construction aggregate flows into West Yorkshire between 2014 and 2019, are considered to be:
- The almost complete reliance of West Yorkshire on the continued supply of aggregates produced outside of its area to meet the needs of its dense urban population in terms of construction and other industrial uses;
 - Minerals supply patterns are inherently dynamic with new supply routes opening up as flows contract from quarries within existing supply areas as illustrated by:
 - An apparent significant increase in crushed rock aggregate flows into West Yorkshire from the Yorkshire Dales National Park and Derbyshire;
 - An apparent significant decrease in crushed rock aggregate flows into West Yorkshire from Doncaster and North Yorkshire;
 - An apparent significant reduction in sand and gravel flows into West Yorkshire from North Yorkshire and (to a lesser extent) East Yorkshire;
 - An apparent increase in sand and gravel flows into West Yorkshire from the North East (County Durham).
 - An apparent increase in the haulage distances of aggregate imports which stresses the importance of shifting to more sustainable modes of aggregate transportation.
- 3.4.8. The very significant apparent change in minerals supply flows into West Yorkshire between 2014 and 2019 highlights the importance of regularly monitoring minerals supply information through the LAA. Without this information West Yorkshire MPAs would not be aware of changes in the key sources of the aggregates consumed within West Yorkshire and, in turn, the host Minerals Planning Authorities with which to discuss security of supply issues. Next years LAA will update this section using data collected for 2023 by the BGS for the five yearly national collation of aggregates data.
- 3.4.9. In addition to the primary aggregate flows identified above, the BGS data tables also indicate that smaller quantities of aggregates are supplied into West Yorkshire from several other locations, including:
- Staffordshire;
 - Lancashire;
 - Northumberland;
 - Powys; and,
 - Rhondda Cynon Taff.
- 3.4.10. Supplies from these locations were identified as representing less than 1% of consumption and so they should not be attributed too much significance - as the quantities could potentially be very small (with no lower threshold specified) and could represent small consignments of aggregate procured for a specialist purpose/ specific project rather than part of the general construction aggregate supply market. However, this is perhaps again indicative of a shift in supply patterns to more distant locations.

- 3.4.11. The fact that aggregate flows into West Yorkshire appear to be shifting to more distant supply areas is of some concern in terms of the increased environmental effects and climate change impacts associated with hauling minerals over longer distances. This places even more importance upon the need to facilitate aggregate haulage modal shift by investing in rail and waterway infrastructure upgrades and safeguarding rail depots and wharfs capable of offloading minerals in West Yorkshire. This has been promoted with some success in the Yorkshire Dales National Park.
- 3.4.12. The Yorkshire Dales National Park remains far and away the most important supplier of crushed rock aggregates into West Yorkshire, with supplies from the National Park now accounting for over 50% of the crushed rock aggregates consumed within West Yorkshire. Significant quantities of crushed rock aggregates are also supplied from the East Midlands (Derbyshire, The Peak District and Leicestershire), with lesser, but still significant, quantities supplied from the North-East, North Yorkshire, South Yorkshire and the North-West.
- 3.4.13. In relation to Sand and Gravel, County Durham and the North Yorkshire County Council administrative area are highlighted as the key suppliers into West Yorkshire. Lesser, but still potentially significant, quantities of sand and gravel also thought to be transported into West Yorkshire from East Yorkshire, Nottinghamshire, Lincolnshire, Cheshire and Doncaster. There are also known to be substantial and increasing quantities of marine aggregates both barged and hauled into West Yorkshire and the rail and waterway routes between the Humber Docks and West Yorkshire Wharfs and Rail Depots should be seen as key strategic aggregate supply routes.
- 3.4.14. As discussed further in following sections, it is clear, that **planning for continuity in the supply of the aggregates consumed in West Yorkshire is far more dependent upon effectively cooperating with neighbouring authorities and safeguarding minerals transportation infrastructure than managing aggregate supplies within West Yorkshire itself.** It is also clear that the future of aggregate extraction within the Yorkshire Dales National Park is of key strategic economic importance to West Yorkshire.

3.5. Recycled and Secondary Aggregates (RSA)

- 3.5.1. Paragraph 223(b) of the National Planning Policy Framework (NPPF) advises planning authorities to, so far as practicable, take account of the contribution that substitute or secondary and recycled materials and minerals waste would make to the supply of materials, before considering extraction of primary materials, whilst aiming to source minerals supplies indigenously. NPPF paragraph 226 confirms that Local Aggregates Assessments should be based upon an assessment of all supply options including secondary and recycled sources. WRAP defines recycled and secondary aggregates (RSA) as follows:
- Recycled Aggregates: derived from reprocessing materials previously used in construction. Examples include recycled concrete from construction and demolition waste material and railway ballast.'
 - Secondary Aggregates: usually by-products of other industrial processes not previously used in construction. Secondary aggregates can be further sub-divided into manufactured and natural, depending on their source. Examples of manufactured secondary aggregates are pulverised fuel ash (PFA) and metallurgical slags. Natural secondary aggregates include china clay sand and slate aggregate (neither of these are produced in West Yorkshire).

- 3.5.2. RSA can include different materials as set out in Table 22 below. Figure 11 in the section 3.3 below shows how RSA makes a contribution to production of aggregate overall in Great Britain.

Table 22 – Types of Recycled and Secondary Aggregate³²

Recycled	Secondary	
	Manufactured	Natural
Recycled aggregate (RA)	Blast furnace slag	Slate aggregate
Recycled concrete aggregate (RCA)	Steel slag	China clay sand
Recycled asphalt	Pulverised-fuel ash	Colliery spoil
Recycled asphalt planings (RAP)	Incinerator bottom ash (IBA)	
Spent rail ballast	Furnace bottom ash (FBA)	
	Used foundry sand	
	Spent oil shale	
	Recycled glass	
	Recycled plastic	
	Recycled tyres	

- 3.5.3. Several multi-fuel or energy from waste plants operate within West Yorkshire which are significant sources of bottom ash derived secondary aggregate. Table 23 below shows the quantities, origin and fate of bottom ash from these plants sent to incinerator bottom ash (IBA) processing facilities.

Table 23 – Energy Facility Bottom Ash Derived Secondary Aggregate, 2022³³

LPA	Site Name (source)	Destination Site	Tonnes
Wakefield	Ferrybridge Multifuel 2	Ferrybridge IBA Facility	249,817
Wakefield	Ferrybridge Multifuel Plant		
Leeds	Leeds Recycling and Energy Recovery Facility	Sheffield IBA Facility	35,994
Kirklees	Kirklees Energy from Waste Plant	Cleveland IBA Facility	26,011

- 3.5.4. In addition to IBA facilities in Table 23, there is a specialist Aggregates Manufacturing Facility in Leeds receiving fly ash and air pollution control residues to produce aggregate. This facility received c 89,500 tonnes in 2023.
- 3.5.5. Very little aggregate derived from mineral waste has been generated in West Yorkshire for many years. Materials such as metallurgical slags, burnt colliery spoil, power station waste and other furnace ash has largely been produced outside of the

³² Source, WRAP, 2013, Available online at: http://aggregain.wrap.org.uk/more_information.html

³³ Source: Environment Agency Waste Data Interrogator 2022

area. In the past, colliery spoil tip sites within Wakefield represented a potential source of supply of secondary aggregate, however these have now been largely restored and so this potential source no longer exists.

- 3.5.6. Recycled Aggregate is primarily produced from construction, demolition and excavation (CD&E) waste arising from the demolition of buildings, clearance of sites and construction of new developments. A large proportion of West Yorkshire is covered by urban development which is a rich potential source of recycled aggregates. A total of 1,474,055 tonnes³⁴ of CD&E waste was generated in West Yorkshire that was received at permitted waste management sites as reported in The Environment Agency Waste Data Interrogator 2023. This consisted of 549,003 tonnes of construction & demolition waste, 924,821 tonnes of soils/excavation waste and 231 tonnes of dredging spoil/waste from soil remediation.
- 3.5.7. Most CD&E waste originating from West Yorkshire was managed within West Yorkshire whilst the only significant exports were to adjacent authorities within the Yorkshire and Humberside region. 16% of estimated arisings of CD&E waste was managed outside West Yorkshire, 78% of which was managed within the Yorkshire and Humberside region.
- 3.5.8. Whilst c84% of CD&E waste is managed within the sub region there is a significant transfer of this waste between the individual West Yorkshire Authorities due to the distribution of permanent deposit to land sites (including landfill) and processing plants across different authority areas. Table 24 below shows the arisings of CD&E waste by source LPA and management method.

Table 24 – Estimated management of CD&E produced in West Yorkshire (2021 to 2023) (tonnes)³⁵

Source Authority	CD&E Permanent Deposit			CD&E Recycling/Treatment inc. waste managed through transfer and storage		
	2021	2022	2023	2021	2022	2023
Bradford	52,305	111,318	32,677	130,592	108,704	117,682
Calderdale	77,118	56,658	16,910	101,967	105,065	82,743
Kirklees	142,579	155,878	118,968	171,808	166,597	134,850
Leeds	135,748	373,407	316,269	561,419	440,975	365,043
Wakefield	327,139	300,492	188,032	105,697	108,191	100,880
West Yorks (general)	56,089	45,711	-	54,469	68,180	-
Totals	790,978	1,043,465	672,857	1,126,158	997,711	801,198

³⁴ Note that this is a drop of c567,000 tonnes from 2022 as the WDI 2022 included 'West Yorkshire' as a WPA as well as the individual districts. The WDI 2023 has no entries under 'West Yorkshire' as a WPA. It is uncertain where this waste is now categorised in the WDI 2023 and a query has been submitted to the Environment Agency.

³⁵ Source: Environment Agency Waste Data Interrogator 2021 (Waste Received & Waste Removed datasets)

- 3.5.9. Clean soils constituted 92% of the recorded CD&E waste permanently deposited on land either at landfills or recovery to land sites. The use of soils to backfill mineral workings is classed as other recovery (rather than disposal) under national policy, meaning that soil deposited in landfill under the Environment Agency classification was not considered to be disposed. The remaining waste that would likely be suitable for conversion to recycled aggregate was managed through intermediate facilities.
- 3.5.10. The figures set out in Table 24 represent the quantity of construction, demolition and excavation wastes received at permitted facilities – i.e. sites where an Environmental Permit is in place (issued by the Environment Agency) that was reported in the WDI 2023 as arising in West Yorkshire. Given significant tonnages of hardcore may be processed into recycled aggregate on construction sites and either retained for use on the site or exported for sale from it, the figures neither confirm the total quantity of the potential Recycled Aggregate resource within West Yorkshire nor the amount of this resource which is actually converted into Recycled Aggregate. To better understand the contribution that West Yorkshire construction and demolition wastes treated within West Yorkshire might make to recycled aggregate production, Table 25 below breaks down the figures by the key target waste types and destination.

Table 25 – Target RA Feedstock Waste Managed at West Yorkshire Intermediate Facilities in 2021 to 2023 from all source WPAs (tonnes)

Material Type	2021	2022	2023
Hardcore Feedstock input ³⁶	395,026	440,978	600,730
Mixed C, D & E waste (skip waste) ³⁷	291,210	222,925	229,373

- 3.5.11. In recent years RSA producers have been included in the annual aggregate operator survey in order to gain a more accurate understanding of RSA production in West Yorkshire. However, these returns are incomplete and so cannot be relied upon. Instead, recent guidance (2022)³⁸, prepared by the AWP, on generating an estimate of Recycled Aggregate production using the WDI has been applied. This involves analysing data within the WDI relating to the inputs and outputs at sites in West Yorkshire where the waste identified in Table 25 above was managed. Where the outputs are found to be less than the inputs, it is possible that this is due to waste outputs being classified under Chapter 19 (EWC code 19 12 12) as a mechanical processing residue. However, where the analysis finds that the quantity of processing residue does not account for the shortfall, it was assumed that the difference is due to hardcore being converted to, and leaving the site unrecorded, as recycled aggregate³⁹, hence the derived recycled aggregate values are regarded as having been 'inferred'. This method follows that set out in the guidance mentioned above and yielded the figures set out in Table 26 below.

³⁶ EWC code 170101 (concrete) 170102 (bricks), 170103 (tiles & ceramics), 170107 (mixtures of previous)

³⁷ EWC code 170904 (mixed construction and demolition wastes)

³⁸ Recycled Aggregates Data: Guidance on Assessing Levels of Recycled Aggregates (May 2022)

³⁹ N.B. Waste converted into product produced in accordance with the Aggregate Quality Protocol does not need to be reported through the WDI, as it has ceased to be classed as waste.

Table 26 – Estimates of Recycled Aggregate Production in West Yorkshire, 2022⁴⁰ (tonnes)

LPA	Inferred recycled aggregate production ⁴¹			Hardcore produced for recovery		
	2021	2022	2023	2021	2022 ⁴²	2023
Bradford	67,116	47,332	24,825	72,024	38,642	40,440
Calderdale	17,721	13,856	16,935	2,237	1,179	545
Kirklees	76,932	83,242	101,221	590	690	6,882
Leeds	331,956	293,539	411,350	25,716	33,454	66,157
Wakefield	244,198	168,565	214,425	13,031	8,550	7,129
Total	737,922	606,533	768,756	113,598	82,516	121,153

3.5.12. The approximately 0.76 million tonnes of recycled aggregate estimated to have been produced in West Yorkshire in 2021 is an increase of 158,000 tonnes from the 606,000-tonne estimate reported in last year's WYLAA (2022 data). Added to the IBA processed at Ferrybridge of c401,000 tonnes (see Table 23 and para 3.3.4), gives a total RSA production estimate of just below 1.2 million tonnes.

3.5.13. Some higher quality recycled aggregate products are now emerging, for example crushed concrete only, which can be re-incorporated as a percentage of new ready-mix concrete. Similarly, some highway planings are being reincorporated into new asphalt. One operator now claims a blend of recycled aggregate equivalent to carboniferous limestone hard core which can be successfully used in areas of paving and some load bearing reinstatements. While it remains the case that a high proportion of the RSA aggregate produced is not suitable for high specification uses, this may change in future as the industry employs more sophisticated processing techniques such as washing. This is considered further in Section 3.4 below.

3.5.14. In terms of the safeguarding of sites producing recycled aggregate it should be noted that the Leeds Natural Resources and Waste Local Plan⁴³ safeguards all but one recycled aggregate site within the District. The plan also allocates a large new site to compensate for the eventual loss of a non-safeguarded site. The adopted Leeds Core Strategy (September 2019)⁴⁴ policy EN6 'strategic waste management' provides the steer, including targets, for waste management across the District.

3.5.15. The following policies safeguard RSA elsewhere within West Yorkshire:

⁴⁰ Source: Environment Agency Waste Data Interrogator 2021 Waste Received & Waste Removed as per method set out in Recycled Aggregates Data: Guidance on Assessing Levels of Recycled Aggregates (May 2022)

⁴¹ See Table A4.1 in Appendix 4 for site by site breakdown.

⁴² See Table A4.2 in Appendix 4

⁴³ Leeds Natural Resources and Waste Local Plan (adopted January 2013) Natural Resources and Waste Local Plan Adoption (leeds.gov.uk)

⁴⁴ Leeds Core Strategy (adopted September 2019) Leeds LDF Core Strategy Draft 'Publication' Document

- Bradford Waste Management (adopted October 2017) DPD⁴⁵ policy WDM3 'Applications Resulting in the Loss of a Proposed or Existing Waste Management Facility' safeguards aggregate recycling sites.
- Kirklees Local Plan (adopted February 2019)⁴⁶ policy LP39 'Protecting existing and planned minerals infrastructure'⁴⁷. Policy LP45 'Safeguarding waste management facilities' also safeguards sites in Kirklees where RSA production could potentially be taking place.
- Calderdale Local Plan, (adopted March 2023) policy WA3 'safeguarded waste sites'⁴⁸.
- The recently adopted Wakefield Local Plan (January 2024)⁴⁹ includes safeguarding of existing waste management facilities in Policy SP17.

3.6. Mineral Use in Aggregate

- 3.6.1. Although aggregate minerals are used in a way which changes little between one year and the next, evolution of use nevertheless does take place. An example of this can be seen in the way that recycled aggregate had made an appreciable in-road into the sales of low-quality primary aggregate (see Figure 11 below). Product refinement has also begun to allow recycled aggregates to be substituted for a limited proportion of higher quality primary aggregates in ready mix concrete and asphalt.

Figure 11 – Total Aggregates Supply in Great Britain 1955 – 2022⁵⁰

⁴⁵ Bradford Waste Management Development Plan Document (adopted October 2017) 01 Waste Management Development Plan Document – October 2017.PDF (bradford.gov.uk)

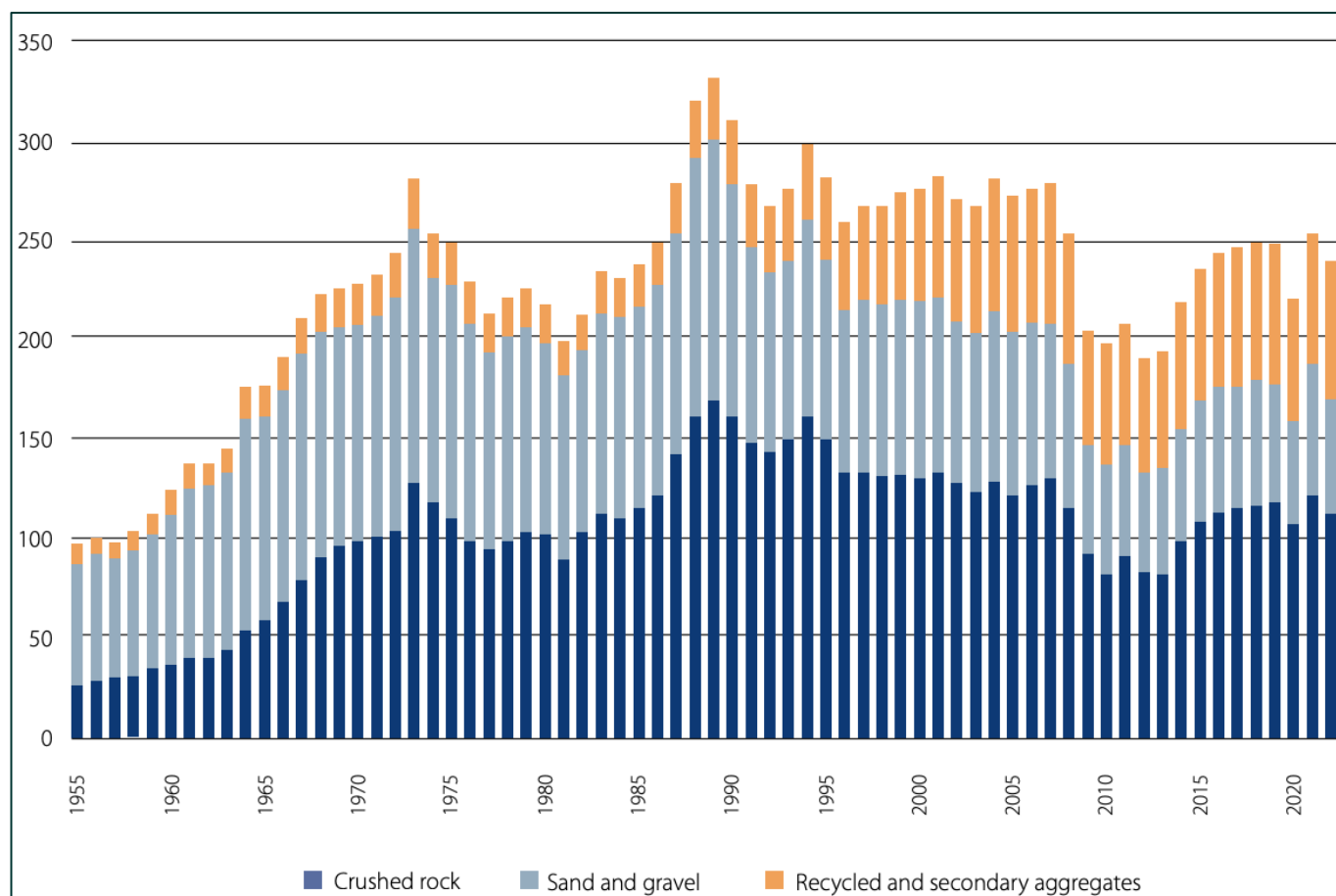
⁴⁶ Kirklees Local Plan (adopted February 2019) Kirklees Local Plan Strategy and Policies

⁴⁷ Some of the sites safeguarded by Policy LP39 are also subject to a Waste Safeguarding designation

⁴⁸ Calderdale Local Plan (adopted March 2023) Calderdale Local Plan Written Statement

⁴⁹ [Wakefield Local Plan \(January 2024\)](#)

⁵⁰ Source: [Construction Aggregates Supply in Great Britain: Primary, Recycled and Secondary Aggregates in 2022, Mineral Products Association, 2024](#)



- 3.6.2. Furthermore, in concrete making, the gravel component can be replaced by crushed rock, but this requires a greater proportion of cement to be used in the mix. Sand for asphalt differs from sand for concrete. Good concreting sand from land won sources in West Yorkshire is not abundant and so effort is being expended by the industry in making a sand from limestone grit or from crushed sandstone. It is also known that marine sand makes an excellent concreting sand and, moreover, can reduce the quantity of cement needed to make concrete of the same performance.
- 3.6.3. Many of these alternatives are technically comparable but production and transport costs vary greatly depending on which source is used. Where traditional locally sourced sand and gravel has been available it has generally been the preferred aggregate specified by industry and customers. Nevertheless, if traditional locally sources are not available, then these alternates are viable.
- 3.6.4. Nonetheless, the apparent decrease in Sand and Gravel consumption in West Yorkshire, between 2014 and 2019 indicated by the national aggregate monitoring report data for those two years appears to support the suggestion that substitution of sand and gravel for crushed rock in concrete making may be increasingly taking place. This position may be confirmed by the results of the national survey for 2023 which will be reported in next year's LAA.
- 3.6.5. Crushed Dolomitic Limestone is one of the key aggregates capable of being used in concrete manufacture. The report on The Quarrying of Magnesian Limestone for Aggregate in the Yorkshire and Humber Region (2017) produced by WYCA⁵¹

⁵¹ [West Yorkshire Combined Authority: The quarrying of Magnesian Limestone for aggregate in the Yorkshire and Humber Region \(2017\)](#)

identifies that substantial reserves of Magnesian Limestones potentially suitable for concrete manufacture exist within North and South Yorkshire and Derbyshire.

- 3.6.6. It is recognised that Magnesian Limestone will only ever supply part of the construction aggregate market, with a significant proportion of the resource only suitable for lower specification uses. However, the importance of this resource as a potential substitute concreting aggregate should not be overlooked. Further exploitation of this resource may comprise part of the strategy to compensate for anticipated constraints on the supply of other land won aggregates, such as sand and gravel, in the future.

3.7. Potential Role of Marine Aggregate (Sand and Gravel)

- 3.7.1. The part of the North Sea situated adjacent to the Yorkshire and Humber coast is known to contain hundreds of millions of tonnes of good quality sand and gravel, which is of a higher quality than most of the indigenous sand and gravel in West Yorkshire.
- 3.7.2. The sand and gravel resources found in this area range from fine sands to coarse gravels and are substitutable for land won sand and gravel, indeed marine won coarse sand is known to be a desirable product for concreting. The Crown Estate reported that in 2018 marine aggregates satisfied 22% (13.7 million tonnes) of the total construction needs for sand & gravel in Great Britain⁵².
- 3.7.3. The Crown Estate Marine Aggregates Statistics 2024⁵³ (2023 data) reported that there were 10 production licences for sand and gravel in the Humber marine region with an estimated total lifespan of 14 years' worth of production (assuming production is maintained at historic average levels).
- 3.7.4. A table illustrating the estimated permitted reserves, rate of dredging and reserve life, from the Crown Estate Marine Aggregates Statistics 2024 is reproduced below (See Figure 12).

⁵² The Crown Estate. Marine Aggregates Annual Review 2023 [marine-aggregates-annual-review-2023.pdf](https://www.thecrownestate.co.uk/marine-aggregates-annual-review-2023.pdf) (thecrownestate.co.uk)

⁵³ [The Crown Estate. Marine Aggregates Statistics 2024 \(published 2024\)](#)

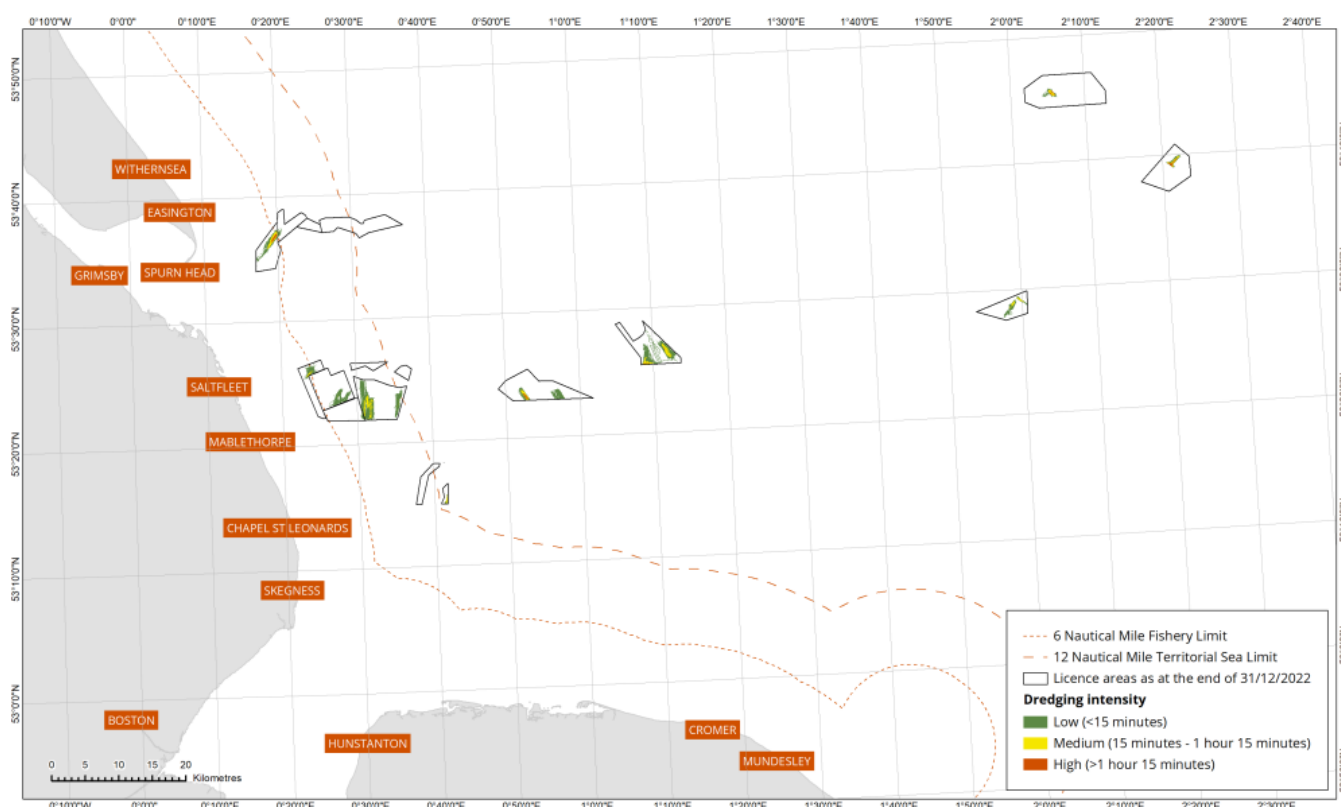
Figure 12 – Data on Marine Aggregate Reserves⁵⁴

Region	Total current primary reserves	10-year average annual offtake	3-year average annual offtake	Peak annual offtake during 10-year period*	Annual permitted offtake (as March 2024)	Regional reserve life @ 10-year average annual offtake
Humber	37.97	2.66	3.55	3.69	6.88	14.28
East Coast	34.11	3.93	3.44	4.72	7.13	8.69
Thames Estuary	33.77	1.52	1.61	1.94	4.35	22.29
East English Channel	140.69	4.09	4.19	4.65	9.17	34.39
South Coast	78.04	3.45	3.89	4.02	8.13	22.63
South West	27.20	1.28	1.35	1.43	2.80	21.33
North West	10.19	0.26	0.26	0.32	0.70	39.49
TOTAL	361.98	17.17	18.28	18.10	39.14	21.08

All figures are in millions of tonnes

*Totals are national peaks, not the sum of regional figures

Figure 13 – Humber Region Marine Aggregate Extraction Area⁵⁵



- 3.7.5. Of the total material extracted, approximately 3,465,540 tonnes⁵⁶ of extracted marine aggregate was landed at wharves on the River Humber with 83,819 tonnes being imported into the Yorkshire and Humber region. The latest Humber LAA (that reported 2021 data) advised that *'The majority of landings that took place on the Humber were at the relocated Humber Sand and Gravel facility at King George Dock*

⁵⁴ [The Crown Estate. Marine Aggregates Statistics 2024 \(published 2024\)](#)

⁵⁵ The Crown Estate & Mineral Products Association. Marine Aggregate extraction 2022 (the area involved 25th Annual report) [2021 Area Involved Report \(thecrownestate.co.uk\)](#)

⁵⁶ Source Crown Estate, 2024

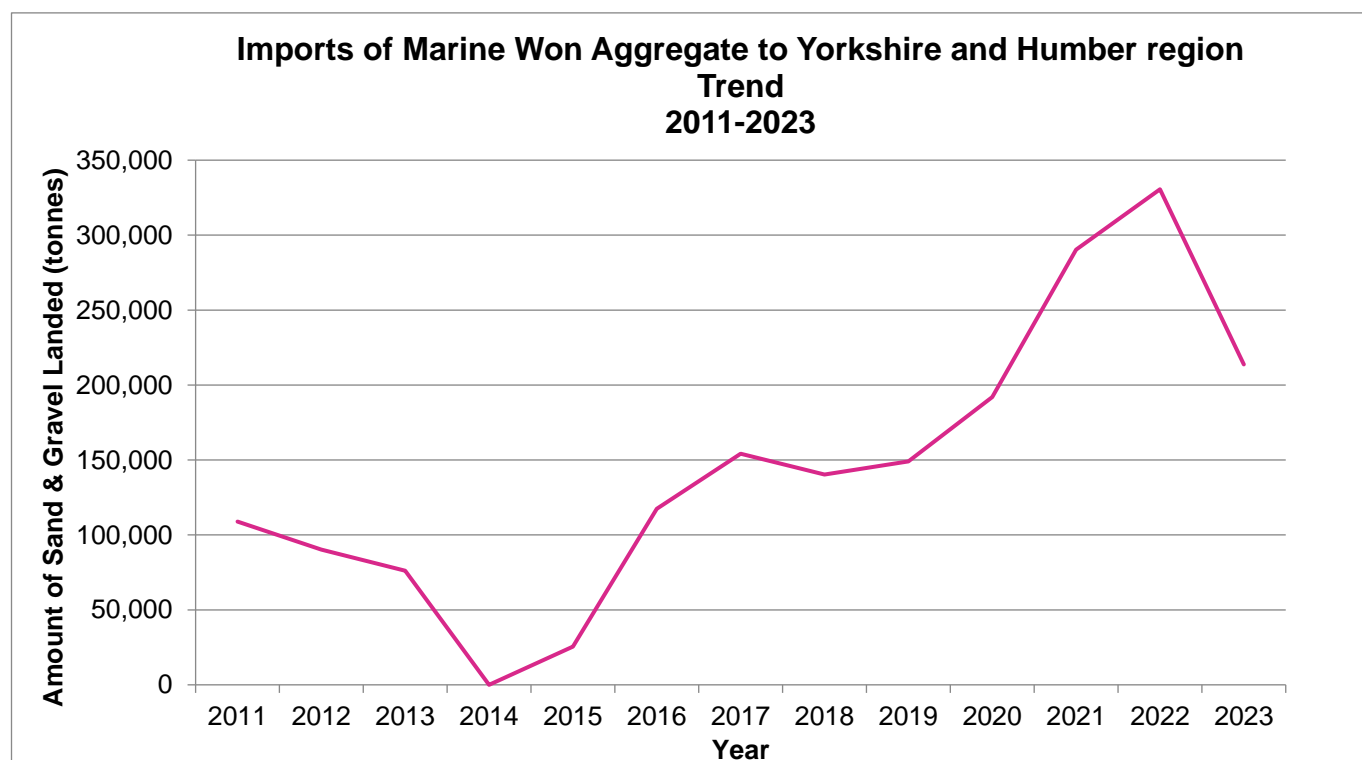
in Hull. Stema Shipping brings imports of crushed rock aggregates from their coastal quarries in Norway, and sand from Denmark to Queen Elizabeth Dock (not monitored in the figures above). The landing facility at King George Dock, can take bigger vessels than the previous facility at Alexandra Dock and is large enough to land 2 million tonnes per year. It also has the advantage of being connected to the rail network, which has the potential of improved distribution to the wider region..'

- 3.7.6. Data on marine won aggregate imported into the Yorkshire and Humber region is presented in Table 27 below and illustrated in Figure 14 showing a generally upwards trend in sales since 2015, albeit with a levelling out between 2017 and 2018 and a dip in 2023. The dip in landings between 2013 and 2016 is likely to have been due to temporary disruption to landing facilities at the Humber Docks. Nonetheless the data continues to indicate a long-term trend of steadily increasing quantities of marine dredged sand and gravel being imported into the region, (most notable between 2019 and 2022) which may be indicative of increases in demand, improving competitiveness and or constraints on land won resources.

Table 27 – Imports of Marine Won Aggregate to Yorkshire and Humber Region⁵⁷

2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
76,102	0	25,561	117,417	154,159	140,304	149,000	192,000	290,341	330,575	213,715

Figure 14 – Imports of Marine Won Aggregate to Yorkshire and Humber Region



- 3.7.7. Future monitoring will help establish if the decline in imports observed in 2023 represents a more persistent trend. Either way this does not seem to be due to marine won aggregate being displaced by land won sales as there was no significant increase in reserves the Yorkshire and Humber region in 2022. Imports to the region

⁵⁷ [The Crown Estate. Marine Aggregates Statistics 2024 \(published 2024\)](#)

comprised of 83,819 tonnes from the Humber dredging area and 129, 896 from the East Coast Region.

- 3.7.8. 3.46 million tonnes of primary aggregate were extracted out of the permitted 6.87 million tonnes from 10 licences in the Humber region which suggests that marine aggregates are underexploited within the Yorkshire and Humber Region. Furthermore, the data indicates that almost three quarters of the material dredged from the Humber Marine Area is exported to mainland Europe (71% in 2023)⁵⁸. 22% was shipped to Humber and North East and 5.9% (0.20 million tonnes) went to the Thames Estuary. 0.6% or 0.03 million tonnes was shipped to the East English Channel and 0.5% or 0.017 million tonnes was shipped to the East Coast English. In London over 50% of primary aggregate supply is now from marine dredged sand and gravel.
- 3.7.9. The Crown Estate advise that, although marine sand and gravel resources are vast, the resource is finite and therefore, in consultation with industry, the Crown Estate are seeking to progressively reduce the area of seabed which is licensed for dredging year on year. Nonetheless, as discussed elsewhere within this LAA, marine aggregates are likely to become an increasingly important component of minerals supply as current land won supplies from North Yorkshire and elsewhere become increasingly constrained.
- 3.7.10. Table 28 and Figure 15 show the total tonnage of marine aggregate landed in each region. Figure 16 shows the landings in England and Wales and mainland Europe.

Table 28 – Landings of Marine Aggregate by Dredging Region (tonnes)⁵⁹

Region	Landings of Marine Aggregate	
	2022	2023
Humber	1,281,744	1,174,528
East Coast	443,773	331,843
Thames	7,886,423	7,350,168
East English Channel	665,872	663,749
South Coast	2,214,928	2,374,739
South West	1,293,147	1,315,151
North West	217,884	294,173

⁵⁸ [The Crown Estate. Marine Aggregates Statistics 2023 \(published 2024\)](#)

⁵⁹ [The Crown Estate. Marine Aggregates Statistics 2023 \(published 2024\)](#)

Figure 15 – Landings of Marine Aggregate by Region

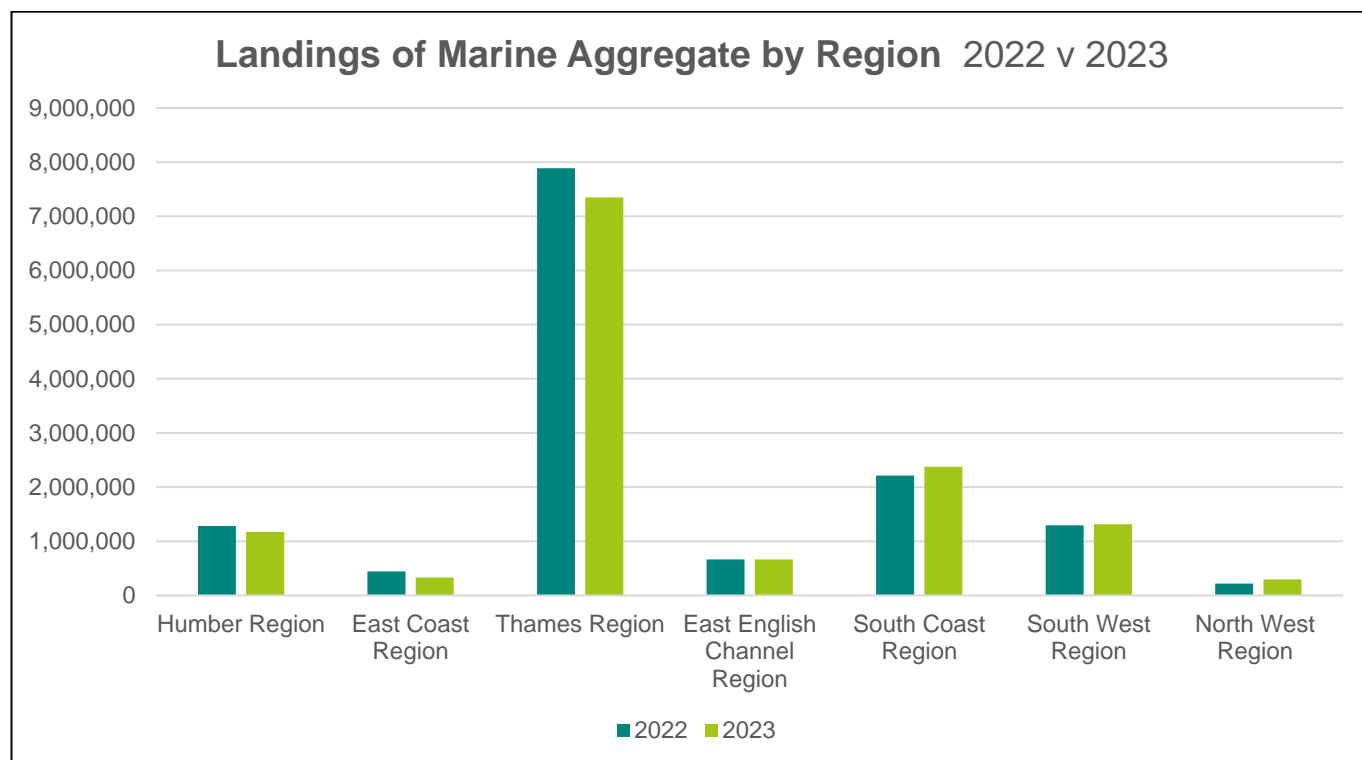
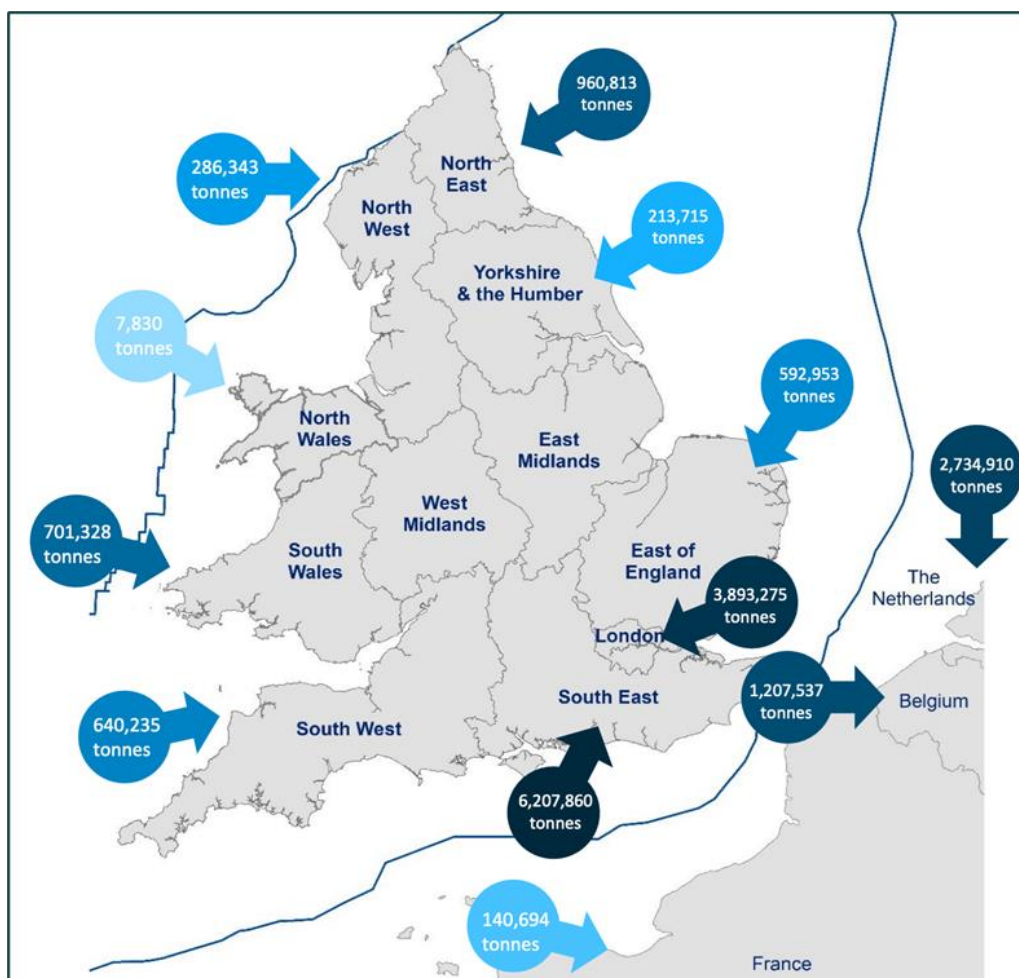


Figure 16 – Marine Dredged Aggregate Landings in England and Wales⁶⁰



⁶⁰ [The Crown Estate. Marine Aggregates Statistics 2023 \(published 2024\)](#)

- 3.7.11. Transportation of aggregate by barge on inland waterways has a significant potential to improve the sustainability of aggregate distribution in West Yorkshire, in particular movement of marine aggregates between Humber and Leeds.
- 3.7.12. The WYCA Marine Aggregates Study (December 2022) reported that a relatively limited amount of aggregate was being transported to/from and within West Yorkshire by barge. This activity comprised a single operator transporting approximately 75,000 tonnes per annum (tpa) marine won sand and gravel from the Humber by barge to Knostrop Wharf in Leeds.
- 3.7.13. However, landings by barge at Knostrop Wharf temporarily ceased in 2022 and all marine aggregate is now being transported into West Yorkshire by HGV. This is because of an increase in prices at the port which means that movement by barge is now only viable if larger volumes could be transported, however parts of Knostrop Wharf are occupied by non wharf businesses making it currently difficult to increase the quantity of landings at the wharf. In any event, Leeds City Council is investigating the possibility of developing a larger wharf at Stourton for which separate planning permission would be required. It should be noted that, in light of the ongoing demand for marine won aggregate, the operator concerned has increased its customer base in West Yorkshire despite all imports currently being transported by HGV. Indeed it is understood that c18,700 tonnes of marine won aggregate was transported into West Yorkshire in 2023. There is insufficient data to establish a trend in importation of marine won aggregate to West Yorkshire though it is known that c75,000 tonnes had previously been imported by barge.
- 3.7.14. The above issue can be said to demonstrate that as aggregate is a low value product its supply is vulnerable to changes in pricing, with even small increases having a significant effect on viability.
- 3.7.15. The Canal and River Trust (C&RT) did obtain planning permission to construct a potential aggregate wharf facility at Stourton (Leeds) and it estimated that the initial capacity of this facility would be approximately 200,000 tonnes of aggregates per year. One of the purposes of this facility is to facilitate the waterborne transportation of marine won aggregates landed at the Humber into West Yorkshire, allowing increased access of marine aggregates into the regional market. The permission for this facility lapsed in 2022 and it is expected that an application for a new planning permission for a wharf and associated mineral processing facility will be made soon.
- 3.7.16. Partially in recognition of the strategic importance of marine aggregates and associated transportation infrastructure, Leeds City Council have safeguarded potential and existing aggregate wharves through their Local Plan. The policies provide protection for existing railway sidings and canal wharves for freight use and also allocate a new wharf site and a new rail siding site. The rail siding site is specifically for minerals freight. Similarly, policy LP 39 of the adopted Kirklees Local Plan seeks to protect strategic minerals infrastructure within Kirklees including railway sidings and a wharf on the Calder and Hebble Navigation formerly used to offload coal for the former Thornhill Power Station.
- 3.7.17. Historic landings of marine aggregate at wharves in West Yorkshire are not reflected in the findings of the national Aggregate Minerals Survey 2019, which incorrectly reported that West Yorkshire neither consumed nor imported any marine aggregates

in 2019 and that Yorkshire and Humber possess no aggregate wharfs. The fact that this was not reported correctly, clearly reflects the limitations of the survey in terms of the comprehensiveness of its coverage of aggregate wharves and the robustness of data on sales by destination. As it stands there appears to be no reliable data on marine aggregate other than the dredging and landing statistics and associated information produced by the Crown Estate. An attempt to rectify this situation via a survey of marine aggregate operators in 2023, intended to inform this LAA, was unsuccessful.

- 3.7.18. In light of the potential to increase imports of marine aggregate to West Yorkshire, The WYCA Marine Aggregates Study (December 2022) report was primarily intended to examine potential sites and land requirements over the next 10 years within West Yorkshire for the import of marine won aggregate by rail and water. The study's primary purpose was to identify infrastructure requirements, land requirements and safeguarding requirements needed within West Yorkshire to facilitate a significant increase in the supply and delivery of marine aggregate into West Yorkshire for the next 15 years.
- 3.7.19. Following stakeholder engagement and a site appraisal exercise in 2022, six potential new sites for wharfs and 16 rail hubs were identified and examined as shown in Table 29.

Table 29 – Wharf sites and Rail sites identified within West Yorkshire Combined Authority Marine Aggregates Study (December 2022)

Reference	Potential Site	Capacity (tpa)
Wharf sites (6)		
W1	Old Mill Lane, Knostrop	250,000
W1a	Old Mill Lane, Knostrop – low cost variation	150,000
W2	Bridgewater, Cross Green (Total Wharf)	50,000
W3	Port of Leeds	200,000
W4	Haigh Park Road, Stourton	200,000
W5	Fleet Lane, Woodlesford	150,000
W6	Whitwood, Wakefield	150,000
Rail sites (16)		
R1	Dewsbury, Kirklees	200,000
R2	Whitehall Rail Sidings, Leeds	200,000
R3	Hunslet East (Cross Green), Leeds	250,000
R4	Stourton, Leeds	300,000
R5	Wakefield Europort	300,000
R6	Ferrybridge, Wakefield	200,000
R7	Laisterdyke, Bradford	125,000

R8	Marsh Lane, Leeds	125,000
R9	Neville Hill, Leeds	250,000
R10	Bridgewater Road South, Leeds	250,000
R11	Skelton, Leeds	250,000
R12	Healey Mills Yard, Wakefield	250,000
R13	Castleford, Wakefield	200,000
R14	Kellingley, Selby	200,000
R15	Gascoigne Wood, Selby	250,000
R16	Eggborough, Selby	250,000

- 3.7.20. Although not mentioned above, it should be noted that sand and gravel working at Stanley Ferry scheme in Wakefield, was granted planning permission in March 2022 and this includes provision of a wharf facility to allow aggregate to be transported to Ravensthorpe, Kirklees and/or Leeds. If this scheme was to be fully active, it is possible that the new wharf could be used to receive marine aggregates. Proposed volumes could reach 1.6 million tonnes over 11 years (circa 150,000 tpa).
- 3.7.21. As well as identifying the sites above, the Marine Aggregate Study identified two areas for immediate action as follows:
- More effective safeguarding of wharfs and rail sidings from being compromised by incompatible development; and
 - Investment in upgrading waterway and rail infrastructure.

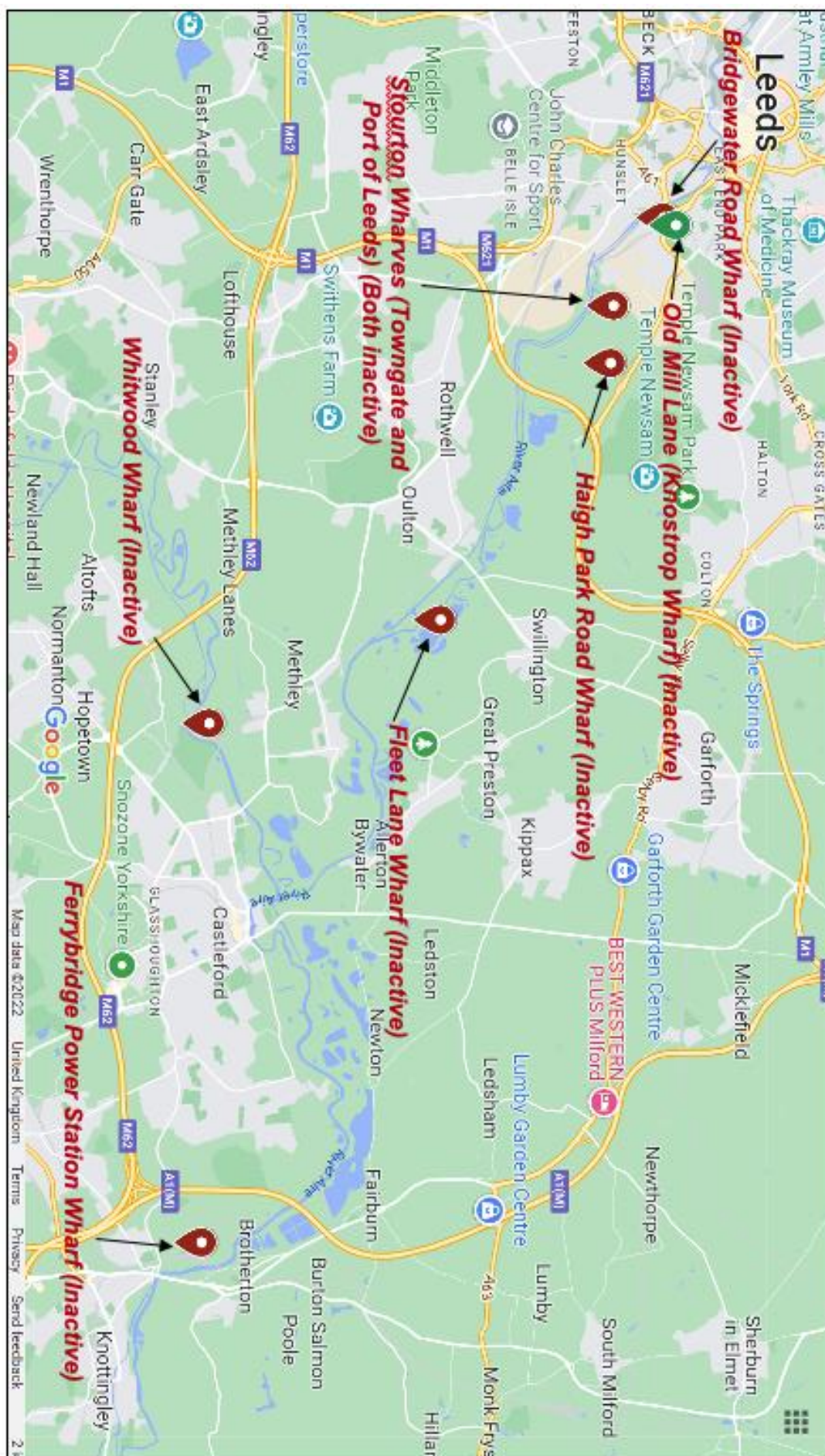
3.8. Aire & Calder Canal & River Trust's 'Inland Waterway Transport Solutions' (IWTS) Project

- 3.8.1. The C&RT was awarded 120,000 euros from, a 1.7 million euro grant from the EU Interreg funding programme (North Sea region), in July 2017 to help it deliver their freight aspirations for the Aire & Calder and their proposed Inland Port of Leeds. The funding was to deliver the Trust's 'Inland Waterway Transport Solutions' (IWTS) project .
- 3.8.2. The IWTS project officially ended on 30 June 2021. Its primary aim was to improve the infrastructure of smaller waterways to help them realise their potential. The IWTS project provided funding for a costed technical and engineering study of the Aire & Calder bottlenecks (primarily Bullholme Lock) with a view to increasing the size of ship that can sail the navigation, and subsequently the amount of freight that can be carried. Other ancillary items were financed through the project that will help to deliver freight aspirations for the Aire & Calder. However further funding is required in order to implement many of the waterway infrastructure upgrades and deliver the Port of Leeds project.
- 3.8.3. The C&RT has looked in more detail at the constraints on marine transportation in West Yorkshire and in doing so identified a need to remove bottlenecks in terms of lock capacities, etc. and to consequently increase the size of ship that can access the

WYCA region and the amount of aggregate freight that can be transported by this mode.

- 3.8.4. The C&RT have indicated that the scope of works which would be required to “create a new coherent, feasible, more viable and more resilient transport option between the northern cities, the Humber and Europe” would include:
- Construction of new wharves;
 - Minor channel dredging;
 - Enhancements to Bulholme and Castleford Lock; and
 - Improvements to air draft at several key bridges.
- 3.8.5. Figure 17 shows the status and location of aggregate wharf sites in West Yorkshire (also see Table A2-2 in Appendix 2).

Figure 17 – Location of Safeguarded / Known Aggregate Capable Wharfs



- 3.8.6. The importance of marine aggregates to the West Yorkshire construction materials market is clearly increasing and the limitations of the data currently available mean that it is not possible to publish any statistics for imports of marine aggregates into West Yorkshire or the proportion of total consumption which marine aggregates account for. Deducing this data through West Yorkshire specific survey work is likely to be problematic as marine aggregates could be received at several different sites including minerals processing facilities, rail depots and wharfs and the primary landing ports are remote from West Yorkshire and will not necessarily either keep or release accurate 'sales by destination' data. **Annual surveys of aggregates sales from wharves and rail sidings are undertaken in other regions e.g. South East, and WYCA consider that surveys of such facilities should be included as part of the Annual Aggregate Monitoring Survey undertaken in the Yorkshire and Humber region in future.** Amongst other things, annual surveys of this nature would allow the shift to more sustainable modes of transportation to be monitored.

3.9. Potential for Improved Aggregate Rail Freight Connections

- 3.9.1. The availability of infrastructure to allow aggregate to be effectively transported and distributed by rail, including the provision of adequate off-loading facilities, is a particularly significant issue for West Yorkshire. This is for four principal reasons:
- West Yorkshire is reliant upon aggregates transported from outside of the sub-region, an increasing proportion of which is likely to be distributed by rail in the future, particularly in relation to quarries located within the Yorkshire Dales National Park;
 - Existing rail off-loading facilities at Cross Green in Leeds are limited;
 - Poor Air Quality is a particular problem for West Yorkshire, as described in the West Yorkshire Low Emissions Strategy and the Transport Strategy 2040⁶¹. Road haulage of freight, including aggregates, makes a disproportionate contribution to air pollution, enhancement of rail infrastructure may facilitate a transition towards an increasing proportion of aggregates being transported by rail freight, with consequent air quality benefits; and
 - Marine aggregates may provide for an increasing proportion of the sand and gravel consumed in West Yorkshire in the future. The Humber Docks are rail connected and could be a major source of marine aggregates. Provision of adequate infrastructure to allow marine aggregates from the Humber Docks to be transported to, and off-loaded within, West Yorkshire by rail, would help to facilitate a sustainable shift to this potential new aggregate supply source.
- 3.9.2. In terms of the importance of rail to the current minerals supply flows into West Yorkshire it should be noted that aggregates from the Yorkshire Dales National Park (YDNP) provide for a very significant proportion of West Yorkshire's aggregate consumption, particularly in terms of high specification aggregates. Several quarries within the YDNP are now rail connected and the YDNP Local Plan 2015 – 2030 (adopted 2016)⁶² seeks a minimum of a 50% reduction in the road haulage of quarry products and is consequently imposing increasingly tighter restrictions on quarry

⁶¹ West Yorkshire Low Emissions Strategy and the Transport Strategy 2040 [westyorks-ca.gov.uk/media/2379/transport-strategy-2040.pdf](https://www.westyorks-ca.gov.uk/media/2379/transport-strategy-2040.pdf)

⁶² Yorkshire Dales National Park Local Plan 2015 -2030 (adopted 2016)

HGV movements. The aggregate transported by rail from quarries in the Yorkshire Dales is currently primarily offloaded at the rail aggregate depots at Cross Green in Leeds from where it is processed and transported to consumers within the relevant market area via HGV.

- 3.9.3. Aggregate is transported into Leeds by rail from Swinden Quarry, and also from Ingleton Quarry, via Ribbleshead. Additionally, Acrow and Dry Rigg Quarries were reconnected to the Settle-Carlisle railway line in late 2015/early 2016. This reconnection took place as part of a £6 million scheme funded by Tarmac Holdings Ltd (the operator of the quarries and one of the aggregate depots at Cross Green). The project essentially involved the construction of a 0.7km stretch of new railway ending in a fan siding at Acrow Quarry. At the time of opening, it was estimated that the new rail link would allow the equivalent of approximately 16,000 aggregate lorry loads per year to be transported by rail, i.e. between 100,000 and 200,000 tonnes of aggregate⁶³.
- 3.9.4. The Yorkshire Dales National Park Authority has, in the past, raised concerns about the limitations of the existing aggregate rail connections between Yorkshire Dales quarries and West Yorkshire. In particular they highlighted the shortcomings of the current infrastructure, with off-loading/ distribution depots only available at Cross Green (Leeds). Having limited off-loading points restricts the potential for aggregate transported by rail from the Yorkshire Dales to be sustainably distributed to all of West Yorkshire.
- 3.9.5. Additionally, discussions between WYCA and quarrying industry representatives indicate that, if adequate rail off-loading facilities are not provided within West Yorkshire, there is a risk that aggregates which would otherwise be supplied into West Yorkshire would be transported further to the south side of the West Yorkshire area bordering South Yorkshire and also potentially slightly further afield to serve the M1/A1/M18 and Sheffield road networks, in-effect by-passing West Yorkshire.
- 3.9.6. In addition, as discussed elsewhere in this report, the increasing substitution of land won sand and gravel with marine won aggregates is a plausible future scenario to allow minerals demand to continue to be met in West Yorkshire in the long term. New and expanded aggregate rail depots are therefore also likely to be required to provide the additional capacity necessary to offload marine dredged sand and gravel distributed by rail from the Humber Docks in the future. Figure 18 below illustrates the assumed approximate area which could benefit from an additional rail depot to offload minerals transported from the Yorkshire Dales National Park.

⁶³ RailEngineer, 5th January 2017, Rail News Report, *Get Connected*

Figure 18 – Rail link between West Yorkshire and the Yorkshire Dales



- 3.9.7. The deliverability of providing a new aggregate rail depot within West Yorkshire would depend upon both suitable land being available in an appropriate location and also either private or public sector investment being available to construct and operate the facility. The land use planning system has an important role to play through either safeguarding potentially suitable land or allocating sites for development. It should be noted that land for a new aggregate rail facility at Bridgewater Road South is allocated in the Leeds Natural Resources and Waste Local Plan (Site 21).
- 3.9.8. The potential for a new rail depot in West Yorkshire was examined as part of the 2022 WYCA Marine Aggregates Study which considered the following:
- the potential scale of benefit which developing an additional aggregate rail offloading facility in West Yorkshire would bring about;
 - the availability of potentially suitable sites for an aggregate rail depot; and,
 - the commercial viability of developing such a facility.
- 3.9.9. The main finding regarding rail depots was that there is potential for development of additional rail depot capacity at:
- Stourton, Leeds; and
 - Wakefield Europort.
- 3.9.10. Opportunities for safeguarding or allocating the land which would be required to develop a new aggregate rail off-loading facility should be considered within relevant

Development Plans. More details regarding the identification of the above sites are included in the Marine Aggregates Study (December 2022)⁶⁴.

⁶⁴ West Yorkshire Combined Authority Marine Aggregates Study (December 2022) [royal-haskoningdhv-report-for-the-wyca-marine-aggregates-study-redacted-21dec2022-inc-app.pdf \(westyorks-ca.gov.uk\)](#)

4. Summary and Conclusions

- 4.1.1. The NPPF advises that a Local Aggregate Assessment should forecast the likely future annual requirement for aggregates ('Aggregate Provision Rate') based on a rolling average of 10 years sales data and other relevant local information, and an assessment of all supply options. As set out in the main body of this report, the average annual sales over the last 10 years for both Sand and Gravel and Crushed Rock Aggregates from West Yorkshire are as follows:

Table 33 – 10 Year Aggregate Sales Average

Aggregate Type	10 Year Sales Average
Sand and Gravel	61,700 (0.06mt)
Crushed Rock	1,006,000 (1.01mt)

- 4.1.2. Significant, though mainly lower specification, reserves of crushed rock aggregate remain within West Yorkshire. There are no sites currently extracting sand and gravel in West Yorkshire, with an operational sites coming to the end of its life in 2023. Two further sites were granted permission in 2022 but these were not operational.
- 4.1.3. It is possible that the demand for primary land won aggregate may be tempered by a number of factors including:
- Improved efficiency and economy of use;
 - substitution with marine-won aggregates; and
 - by improved specifications for secondary and recycled aggregates leading to their greater market penetration.
- 4.1.4. However, it is not possible to state with any confidence at this stage that the demand for land-won aggregates is likely to significantly diminish in the foreseeable future. If adequate local supplies of aggregate cannot be maintained material will have to be procured from wider national or european supply markets at a potentially increased cost to the economy and the environment.
- 4.1.5. The quality of the primary aggregates produced within West Yorkshire generally cannot meet more demanding specifications such as those applied to concreting aggregate or roadstone and therefore, setting aggregate provision rates in this LAA is not intended to ensure the aggregate needs of the area can be met, as this is not possible. Instead, it is intended to set a level of future provision for the lower quality aggregates, which the sub-region can produce, which is sustainable and appropriate.
- 4.1.6. In summary, the other relevant local information which has been considered in preparing the West Yorkshire LAA (2023 data) is as set out in Section 3 and summarised in Table 34 below:

Table 34 – Summary of Other Data Relevant to Calculating Landbanks

Data Type	Annual Tonnage
Estimate of West Yorkshire Sand and Gravel Consumption set out in the 2019 aggregate minerals survey for England and Wales	466,000
Estimate of West Yorkshire Crushed Rock Consumption set out in the 2019 aggregate minerals survey for England and Wales	2,342,000
Estimate of Recycled & Secondary Aggregate Produced in West Yorkshire in 2023	960,000
Estimate of Land Won Sand and Gravel Imported to West Yorkshire from other Regions/ Sub-Regions in 2019	466,000
Estimate of Land Won Crushed Rock Imported to West Yorkshire from other Regions/ Sub-Regions in 2019	2,257,000
Estimated Proportion of West Yorkshire Sand and Gravel Consumption Met by Imports in 2019	100% ⁶⁵
Estimated Proportion of West Yorkshire Crushed Rock Aggregate Consumption Met by Imports in 2019	96%
Estimated Increase in Aggregate Production Required to Deliver Planned Increases in Housing Delivery within West Yorkshire	16%

- 4.1.7. Based on the information discussed in Section 3 of this report, ten-year sales averages alone are not considered to be adequate to use as the basis for calculating the aggregate landbanks for West Yorkshire. This is because the ten-year sales averages do not represent the very high level of imported aggregate consumption within West Yorkshire which needs to be compensated for.
- 4.1.8. In addition, a strong relationship is apparent between housing delivery and aggregate production, as illustrated by Figure 20 below, and the ten-year sales average figure does not allow for the increase in aggregate production which would be required to deliver the planned level of house building within West Yorkshire over the next 15 years (with a 32% increase in house building required to meet anticipated housing needs). It is concluded that applying a 16%⁶⁶ uplift to the 10 year sales averages allows aggregate provision rates to be derived which recognise the need for West Yorkshire to play a proportionate and realistic role in providing for projected

⁶⁵ As explained elsewhere in this report this figure is based upon 'sales by destination' BGS survey data and is not 100% accurate. In reality, it is likely that a significant proportion of the sand and gravel produced at the Forge Lane site in Kirklees is consumed in West Yorkshire; however, it is certainly the case that the majority of West Yorkshire sand and gravel demand is met by imports.

⁶⁶ See derivation in Appendix 5

increased future house building requirements which acknowledges the constraints of its aggregate resource. The aggregate provision rates and landbank calculations set out in table 36 below are therefore proposed for the West Yorkshire Local Aggregate Assessment (2023 data).

Table 36 – West Yorkshire Aggregate Landbanks 2021

	Reserve	10-yr avg. annual sales	16% uplifted aggregate provision rate	Landbank
Sand and Gravel	1,880,000	66,300	76,908	24 years 5 months
Crushed Rock	35,796,000	1,006,000	1,167,539	30 years 8 months

- 4.1.9. The Sand and Gravel landbank of 24 years and 5 months is significantly above the minimum 7 year landbank required by paragraph 226 (f) of the National Planning Policy Framework (NPPF), which may suggest that the release of additional reserves is no longer required. However, sand and gravel reserves and extraction rates in West Yorkshire remain very low and the landbank is a reflection of the very low 10 years sales average rather than a healthy reserves position. Indeed, most of the sand and gravel which is consumed within West Yorkshire is sourced from neighbouring mineral planning authorities, primarily North Yorkshire and Durham (based on 2019 data).
- 4.1.10. The crushed rock aggregate landbank of 30 years and 8 months is significantly greater than the 10-year minimum level required by the NPPF. However, crushed rock reserves are only just approaching pre-recession levels and are distributed across many quarries of varying sizes, many of which have very low crushed rock output. In West Yorkshire, the reality is, that there is only a very small number of larger commercial aggregate quarries which supply significant quantities of aggregates into the construction market. The length of the crushed rock landbank should therefore not necessarily be seen as excessive or problematic, or to indicate that there is no economic need for the release of additional reserves, particularly in light of West Yorkshire's dependence upon neighbouring regions for the supply of higher specification crushed rock aggregates. It should be noted that the reduced landbank is due in large part to a reassessment of existing sites as well as the working of reserves.
- 4.1.11. For geological reasons, described in more detail elsewhere in this report, the stone resources which are worked within West Yorkshire are generally thought to be incapable of producing significant quantities of the higher specification crushed rock aggregates required for use in either road construction or concrete manufacture. Consequently, West Yorkshire will remain reliant upon the crushed rock aggregates produced in neighbouring authorities to meet most of its construction aggregate needs. The two principal sources for the crushed rock aggregates consumed within West Yorkshire are the Yorkshire Dales National Park and Derbyshire. Quarries located within the Yorkshire Dales National Park supplied over half of the crushed rock aggregates consumed within West Yorkshire in 2019 according to the data tables provided by the BGS in association with 2019 Aggregate Minerals Survey.
- 4.1.12. In addition to the length of landbanks, other relevant information should be considered when assessing the need to release additional aggregate reserves and/or allocate sites in Local Plans.

- 4.1.13. To achieve a better understanding of the need for future supplies of land-won aggregate in West Yorkshire, it is recommended that additional information be gathered in the following areas:
- The extent of the market for the low grade aggregate extracted in West Yorkshire, taking account of its role in engineering applications and whether this is likely to increase or decrease.
 - The potential future demand for this low-grade aggregate, including the extent to which the relatively high levels of recycled aggregate supply from West Yorkshire are substituting, and impacting on the demand, for the low quality aggregate.
- 4.1.14. The Key Messages and relevant considerations when assessing proposals and allocations for development relating to the supply of aggregate are set out below:
- 4.1.15.
- Additional aggregate supplies will be required for housing and infrastructure** – While housing delivery has significantly improved in West Yorkshire in recent years, a significant gap between the number of houses being built and the objectively assessed need for new housing remains. It remains to be seen whether the new government's aims for increases in housebuilding will be realised in practice but changes to policy may well have an impact in the medium term. A range of infrastructure projects are in the pipeline including Mass Transit for West Yorkshire, Northern Powerhouse Rail and upgrades of the Trans-Pennine rail route and associated Rail Interchange upgrades. Infrastructure needed to achieve net zero (e.g. wind turbines) will place further demands on aggregate minerals. Additional aggregate supplies will be required to ensure the housing delivery gap is filled and the construction aggregate demands of the infrastructure projects are met.
 - The aggregate resource in West Yorkshire is limited** – The geology of West Yorkshire means that indigenous supplies of high quality land won aggregate, for use in concrete and road building, are difficult, if not impossible to obtain.
 - West Yorkshire currently makes a small contribution to supply of construction aggregates** – West Yorkshire is a major aggregate consumer but makes a low contribution to the overall supply of construction aggregates within the Yorkshire and Humber Region, particularly in relation to sand and gravel and high specification crushed rock.
 - The resilience of the sand and gravel landbank is questionable** – Reserves and production of sand and gravel within West Yorkshire are still at a very low level. The apparently healthy landbank masks the low level of sales and reserves and the deliverability of a recent permission remains uncertain which means the landbank may not be very resilient and should not be taken as an indication that there is no need for additional reserves. The industry has noted that there is an ongoing national depletion in permitted reserves and this is of significant concern.
 - Crushed rock landbank is healthy but includes mainly lower specification material** – Crushed rock reserves remain relatively high within West Yorkshire; however, while limestone geology exists, a substantial proportion of the currently permitted reserves are Carboniferous Sandstone

which is unsuitable for higher specification uses, such as for the manufacture of concrete or as roadstone.

- vi. **West Yorkshire is very reliant on neighbouring Mineral Planning Authorities** – To meet most of its aggregate needs, particularly for uses which demand higher specifications, West Yorkshire is reliant on aggregate imports, primarily from quarries in the Yorkshire Dales National Park, Derbyshire and Durham as well as marine won aggregate imported from wharves on the Humber estuary. Areas providing land won supplies currently have healthy landbanks though this may change in the long term.
- vii. **For road surfacing West Yorkshire remains strongly reliant on aggregate imported from the Yorkshire Dales National Park** – To meet its needs for aggregate suitable for use as skid resistant road surfacing, West Yorkshire remains strongly reliant upon supplies of high specification (high Polished Stone Value) sandstone aggregates from quarries in the Yorkshire Dales National Park.
- viii. **Sustainable opportunities to increase aggregate supply in West Yorkshire** – Given West Yorkshire's reliance on adjoining authorities for higher specification aggregates, any sustainable opportunities to increase the supply of the generally lower specification aggregates produced within West Yorkshire should be considered upon their merits, particularly where such proposals would facilitate the indigenous production of building materials such as artificial stone products.
- ix. **Increase Recycled Aggregates** – Although the production of recycled aggregates is linked to economic growth, providing new and enhanced facilities for the production of such aggregates will help West Yorkshire's contribution to aggregate production and partly compensate for its reliance on primary aggregates quarried from neighbouring authorities. The safeguarding of existing facilities from redevelopment is also important.
- x. **Building Sand from Sandstone Quarries** – Production of sand from crushed rock at sandstone quarries in West Yorkshire, including building stone quarries, is a valuable additional/ alternate source of sand supply, particularly building sand.
- xi. **Safeguarding Existing, and Developing New, Rail Sidings and Wharves** – Existing rail and wharf infrastructure should be safeguarded. In light of the single wharf importing aggregate by barge ceasing operation in 2022, potential new locations for aggregate wharves and rail depots for the importation of marine aggregate should be investigated with greater urgency and their suitability for importation of crushed rock from the Yorkshire Dales should also be considered. Current industry interest in utilising waterways to transport minerals within West Yorkshire should continue to be supported. Removing HGVs from the road network to these transport modes would help improve Air Quality.
- xii. **Overarching message:** Planning for continuity in the supply of the aggregates consumed in West Yorkshire is far more dependent upon effectively cooperating with neighbouring authorities and safeguarding minerals sustainable transportation infrastructure (i.e. rail sidings and wharves) than managing aggregate supplies within West Yorkshire itself.

West Yorkshire Local Aggregates Assessment: 2023 Data

While West Yorkshire may be reliant on other areas for aggregates, as a metropolitan area, it accomodates some of the other development needs which benefit other areas including housing.

5. Role of Localism in Aggregate Supply

5.1. Background

5.1.1. The Localism Act and the National Planning Policy Framework (NPPF) places a duty on local planning authorities and other bodies to cooperate with each other to address strategic issues relevant to their areas. The duty requires continued constructive and active engagement on the preparation of development plan documents and other activities relating to the sustainable development and use of land, including minerals.

5.1.2. The NPPF (para 26) confirms:

‘Effective and on-going joint working between strategic policy-making authorities and relevant bodies is integral to the production of a positively prepared and justified strategy. In particular, joint working should help to determine where additional infrastructure is necessary, and whether development needs that cannot be met wholly within a particular plan area could be met elsewhere.’

And paragraph 28 states:

‘In order to demonstrate effective and on-going joint working, strategic policymaking authorities should prepare and maintain one or more statements of common ground, documenting the cross-boundary matters being addressed and progress in cooperating to address these.’

5.1.3. This LAA document helps demonstrate the joint working taking place between authorities and will accompany the submission of Local Plan documents.

5.1.4. The ‘duty to cooperate’ is set out in Section 110 of the Localism Act. This applies to all local planning authorities, national park authorities and county councils in England. The duty relates to sustainable development or use of land that would have a significant impact on at least two local planning areas or on a planning matter that falls within the remit of a county council; It requires that councils set out planning policies to address such issues; and ‘engage constructively, actively and on an ongoing basis’ to develop strategic policies; and consider joint approaches to plan making.

5.2. Securing the Necessary Aggregate

5.2.1. Bradford, Calderdale, Kirklees, Leeds and Wakefield Councils [together with Yorkshire Dales National Park Authority, North Yorkshire County Council (NYCC), Doncaster Council, East Riding and Humberside and Derbyshire and the Peak District] have a relationship in the supply and use of primary minerals.

5.2.2. The purpose of this statement is to set out how the Councils will proceed in liaison with the AWP to ensure the development of a consistent and complementary policy approach towards minerals supply. The authorities will seek to incorporate the areas of joint or further work set out below:

- The provision and sustainable use of aggregate minerals ensuring the sufficient supply of material to provide the infrastructure, buildings and goods required to sustain the economy and deliver planned growth.
- Sharing advice and information (including aggregate monitoring information) to complement the preparation of aggregate assessments such as landbanks, locations of permitted reserves relative to the market, and capacity of reserves.
- The Councils will continue to work together in the future to prepare joint or individual local aggregates assessments and also co-operate in the production of wider regional aggregate assessments within their relevant aggregate working party areas.
- The Councils will share information as soon as available, including draft local plan consultation documents prior to the consultation taking place to allow early engagement.

5.2.3. Under the Duty to Cooperate the West Yorkshire authorities have sought, and will seek, agreement with the Minerals Planning Authorities for the areas which are the main sources of the aggregates supplied into West Yorkshire, to ensure that these authorities continue to provide for sustainable supplies of aggregates into West Yorkshire in their Local Plans. Such authorities include North Yorkshire County Council, East Riding, Doncaster, Derbyshire Yorkshire Dales, County Durham and Lancashire.

5.2.4. Such an agreement has previously been reached with NYCC and a report on the connectivity between minerals planning in West Yorkshire and the North Yorkshire Sub Region was ratified by the relevant Leeds City Region/ West Yorkshire Combined Authority Portfolio Holders on 18 September 2015. The connectivity report confirmed that: 'Consideration should also be given to a similar endorsement between WYCA and Derbyshire CC'. The report also confirmed that: *'Discussion and liaison continues to take place at officer level between North Yorkshire County Council (NYCC), Derbyshire and the West Yorkshire authorities, with the WY Lead officer for WYCA meeting/liasing with NYCC to discuss the particular connectivity issues for a range of minerals and waste matter'.*

5.2.5. A meeting between the lead officer for Minerals and Waste Planning of the West Yorkshire Combined Authority/ Leeds City Region and representatives from Derbyshire CC took place, with a view to progressing a similar connectivity agreement between Derbyshire and West Yorkshire. This document will serve to acknowledge and formalize the minerals planning linkages between West Yorkshire and Derbyshire.

5.2.6. A meeting was held in October 2017 between minerals officers representing the West Yorkshire Combined Authority, and East Riding of Yorkshire and Hull City Councils. During this meeting, cross-boundary issues were discussed including the supplies of sand and gravel into West Yorkshire from East Yorkshire and also the potential for increased marine aggregate supply into West Yorkshire from landings at the Humber Docks. The importance of safeguarding the rail and wharf infrastructure within West Yorkshire which could facilitate the sustainable transportation of marine aggregates from the Humber was acknowledged.

- 5.2.7. It was agreed that aggregate movements from East Riding of Yorkshire to West Yorkshire had been taken into account in both the Humber LAA and the East Riding and Hull Aggregates Apportionment Background Paper. The Combined Authority was content that the proposed uplift in the East Riding/Hull primary aggregate provision rate for sand and gravel will contribute to the ongoing supply of sand and gravel to West Yorkshire.
- 5.2.8. One of the outcomes of the joint working which has been undertaken with neighbouring authorities is the production of a joint Report on Magnesian Limestone, which also encompasses the extent of the resource occurring within the North and South Yorkshire. This document has identified cross- boundary minerals planning issues associated with the supply of, and demand for, Magnesian Limestone and will help to inform the approach taken to planning for this resource in relevant Local Plans and Local Aggregates Assessments.
- 5.2.9. Moving forward WYCA recognises the importance of engaging with all relevant neighbouring authorities to ensure continuity of supplies of aggregates into the future. Although, representations have been to relevant authorities, discussions taken place at the relevant AWP meetings and the supply/demand for aggregates referred to in other authorities Local Plan/LAA work, it is recognised that further and updated liaison will be required in relation to the shifting patterns of sand and gravel supply from North Yorkshire, Nottinghamshire and the implications of the shift in aggregate production away from the National Parks, particularly in terms of High Specification Aggregates and the likely need for importation of aggregates from Lancashire.
- 5.2.10. In addition, the shift in minerals supply patterns identified within the AM2019 needs to be considered in future inter-MPA engagement. In particular the increased supply of minerals from the North East (primarily County Durham). Further dialogue should include consideration of how minerals are transported from these more distant quarries and whether anything could be done to better facilitate sustainable transportation options such as use of rail and waterways.
- 5.2.11. Engagement will also be required with a range of stakeholders in relation to the supply of marine aggregates and the potential for a more significant proportion of West Yorkshire's sand and gravel needs to be met from marine dredged sources. Given the complexities of the supply chain for marine dredged sand and gravel, such liaison should involve the Crown Estate/ Marine Management Organisation as well as the Mineral Planning Authorities which host suitable landing wharfs and canal, rail and road transportation facilities. This is currently undertaken to some extent through the Yorkshire and Humber Aggregates Working Party with WYCA and Leeds City Council.
- 5.2.12. Engagement will also be required with relevant transport route operators including Network Rail and the Canal and River Trust. Preceding sections of this report discuss feasibility work initiated by the Canal and River Trust with a view to opening up canal/ navigation waterway routes for commercial transportation of goods between the Humber and Leeds. Progress towards fulfilling this objective will be monitored and will inform future inter-Minerals Planning Authority Discussions regarding marine sand and gravel opportunities, alongside other areas of work.
- 5.2.13. To this end a meeting was held in October 2017 between minerals officers representing the West Yorkshire Combined Authority and the Humber Area. During this meeting cross-boundary issues were discussed including the supplies of sand

and gravel into West Yorkshire from East Yorkshire and also the potential for increased marine aggregate supply into West Yorkshire from landings at the Humber Docks. The importance of safeguarding the rail and wharf infrastructure within West Yorkshire which could facilitate the sustainable transportation of marine aggregates from the Humber was acknowledged.

- 5.2.14. It is acknowledged that the direct liaison and engagement with relevant authorities could be improved; however, the channels of communication and sharing of information remain open, directly and via the Y&H Aggregates Working Party.

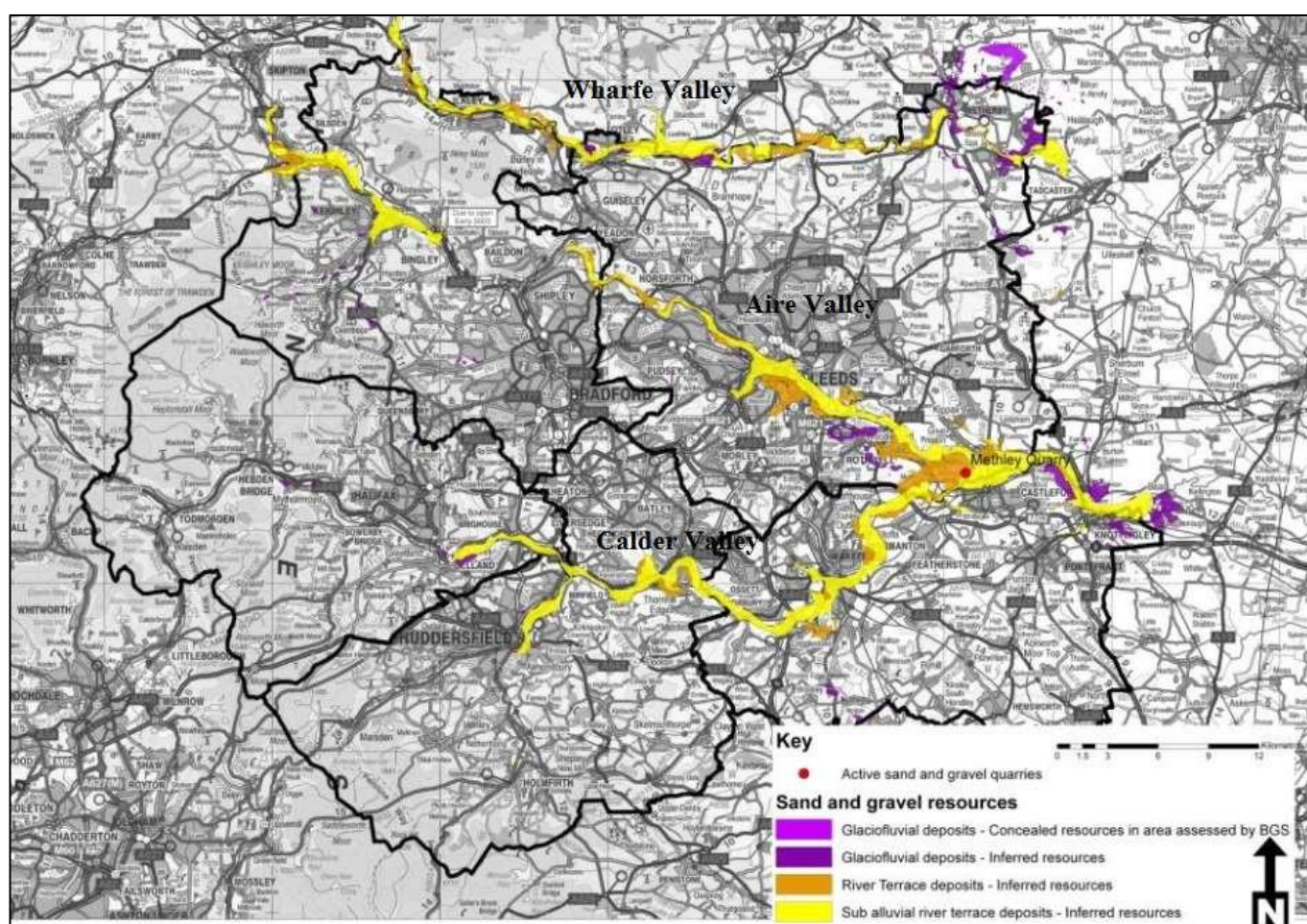
A1. Appendix 1 – Mineral Resources

A2.1. Sand and Gravel

A2.7.1. River Terrace sand and gravel deposits are present along the river valleys of the Aire, Calder and Wharfe and some tributaries, as shown in yellow on Figure A1-1 below. The extent and depth of deposits is variable. Only in the Wharfe is the sand and gravel suitable for making high quality concrete. The resource has been extensively worked since the 1930s and the areas are also now constrained by development and, in Leeds, by the Natural Resources and Waste Development Plan Document (Local Plan) adopted in Jan 2013, which indicates, through policy Minerals 6, that extraction is unlikely to be supported to the east of Pool in the Wharfe Valley.

A2.7.2. Small localised glaciofluvial deposits are also present in many areas, as shown in purple on Figure A 1-1 below. One deposit at Oulton, Leeds, was worked dry as a borrow pit in the 1960s. There was also a small sand quarry near Boston Spa until the last decade. It is not expected that any glaciofluvial sand and gravel resources could be viably extracted.

Figure A1-1 – West Yorkshire Sand and Gravel Resource⁶⁷



⁶⁷ Source: BGS, 2009. West Yorkshire sand and gravel resources: Investigating the potential for an increased sub-regional apportionment.

- A2.7.3. As discussed in the preceding section, the Yorkshire and Humber Regional Assembly had previously considered significantly increasing West Yorkshire's sand and gravel apportionment, based upon the findings of a report which they had commissioned in 2007 by Land Use Consultants entitled Phase 2 Sand and Gravel Study for Yorkshire and Humber Appraisal of Apportionment Options.
- A2.7.4. This 2007 study broadly calculated the volume of unconstrained sand and gravel resources occurring within the West Yorkshire region. The estimate was calculated using the mapped BGS sand and gravel information for West Yorkshire produced during the Phase 1 study (as shown on Figure A1-1) which was used to calculate the total surface area for sand and gravel resources within West Yorkshire.
- A2.7.5. Resources that fell within urban areas as defined by the Office of National Statistics urban area dataset was then removed and the remaining area of unconstrained un-sterilised resources was calculated. Using this area of un-sterilised resources for West Yorkshire, a two-metre average resource thickness and a density of 1.75t/m³ was applied to obtain an estimate of 147 million tonnes of un-sterilised resource. This was quoted as the minimum volume of resources, and if a thickness of 10m was assumed then the volume would be 735.3 million tonnes.
- A2.7.6. However, it is now widely accepted that this was a very significant overestimate of the amount of sand and gravel remaining within West Yorkshire which is likely to be viable for extraction. This conclusion is supported by later BGS research in the form of the 2009 study: West Yorkshire sand and gravel resources: Investigating the potential for an increased sub-regional apportionment.
- A2.7.7. This 2009 BGS study was informed by a minerals industry consultation exercise and reported the following key findings:
- The industry estimate that the amount of potentially viable sand and gravel within West Yorkshire, is between 90 – 96% lower than was estimated in the phase II study.
 - Only sites containing 1-1.5 million tonnes of sand and gravel (taking up 10-25ha of land) would be likely to be economically viable. Much of the potentially viable sand and gravel resource within West Yorkshire is divided by rivers, canals, railways and roads therefore there are only likely to be a very small number of viable sites.
 - The Wharfe Valley is considered to have some of the largest areas of unworked high quality sand and gravel in the region; however, the industry regard it as unviable for new extraction sites due to the proximity of landscape/ environmental designations coupled with the potential for relatively strong opposition from local communities.
 - The industry has identified 5-10 potential sites for sand and gravel extraction within West Yorkshire; however, issues relating to access, environmental, hydrological, and/or planning restrictions are considered too problematic relative to the volumes and quality of reserves to merit developing any of them.
- A2.7.8. The picture of low sand and gravel West Yorkshire resource viability depicted above appears to be being borne out by the current relatively rapid contraction of the sand and gravel extraction industry within West Yorkshire. West Yorkshire's remaining sand and gravel extraction industry is now limited to two sites though neither of these

were operational in 2023. There are currently fewer productive sites than at any time since 1986 and annual output is at a recorded low.

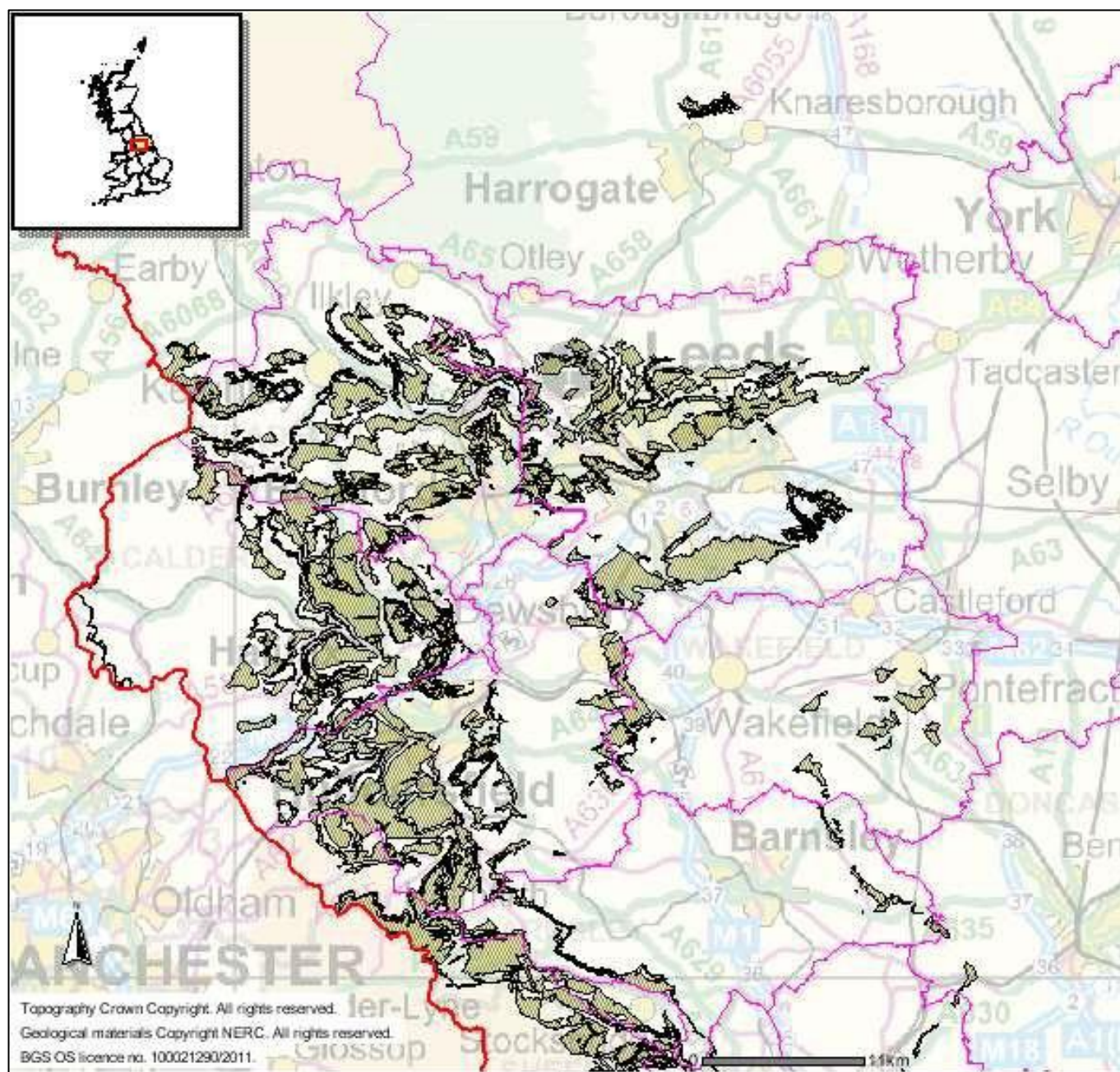
A1.2. Sandstone Aggregate

- A1.2.1. There is wide distribution of quarries producing crushed sandstone; mainly in the millstone grit series of Kirklees, Bradford and Calderdale but also in the coal measure sandstone series, notably the Thornhill Rock in Leeds. Some of the quarries are quite large such as Crosland Moor, Shepley, Bolton Woods and Howley Park, and as such can be regarded as strategically important, in terms of the availability of aggregate resources within West Yorkshire. There are no sandstone aggregate sources in Wakefield.
- A1.2.2. The sandstones are too weak and porous for the manufacture of concrete or for road building and are commonly used in low specification situations and for bulk fill. However, where investment is made in appropriate processing plant, these materials can make an important contribution and can be used to produce building sand, as well as a washed sand suitable for use in concrete products. These materials are used in large quantities in the manufacture of concrete walling and paving blocks at factories in Calderdale.
- A1.2.3. No sandstone quarry exists solely to produce aggregate within West Yorkshire; it is produced alongside the extraction of stone for the manufacture of natural stone for walling, cladding and paving. At many sites the aggregate is essentially an occasional by-product and is produced in relatively small quantities for low grade uses.

A1.3. Building Sandstone

- A1.3.1. The distribution of quarries for building stone production is the same as for sandstone aggregate – in most cases they are the same. Many of the quarries are very small with a low output tonnage. Often the quarries occupy exposed locations such as Hillhouse, Elland Edge and Harden Moor. The stone is often sawn at a quarry to specific tolerances for walling, cladding and paving.
- A1.3.2. Much of the building stone quarried in West Yorkshire is of a high quality, particularly paving products which are of national importance, and travels widely to customers across England and into Scotland. Sandstone blocks are also traded between quarries to widen the portfolio of stone types which can be offered. Some producers of cut stone do not actually manage a quarry at all.
- A1.3.3. At many sites the wastage from the extraction of blocks and from sawing is crushed for aggregate/ bulk fill. Although production of crushed rock aggregates at building stone quarries is usually undertaken on an irregular basis, the annual tonnage of aggregates produced can exceed the weight of the higher value building stones. It is also notable that sandstone is crushed down to building sand at several West Yorkshire quarries, a product which can be used as a good quality alternative to sand derived from sand/ gravel pits. Many quarries have closed since 1986 and the number of active quarry sites has significantly reduced; however, several of the remaining quarries have been enlarged, with their activities/ output intensifying.

Figure A1-2 – West Yorkshire Sandstone Resource⁶⁸



A1.4. Limestone Aggregate

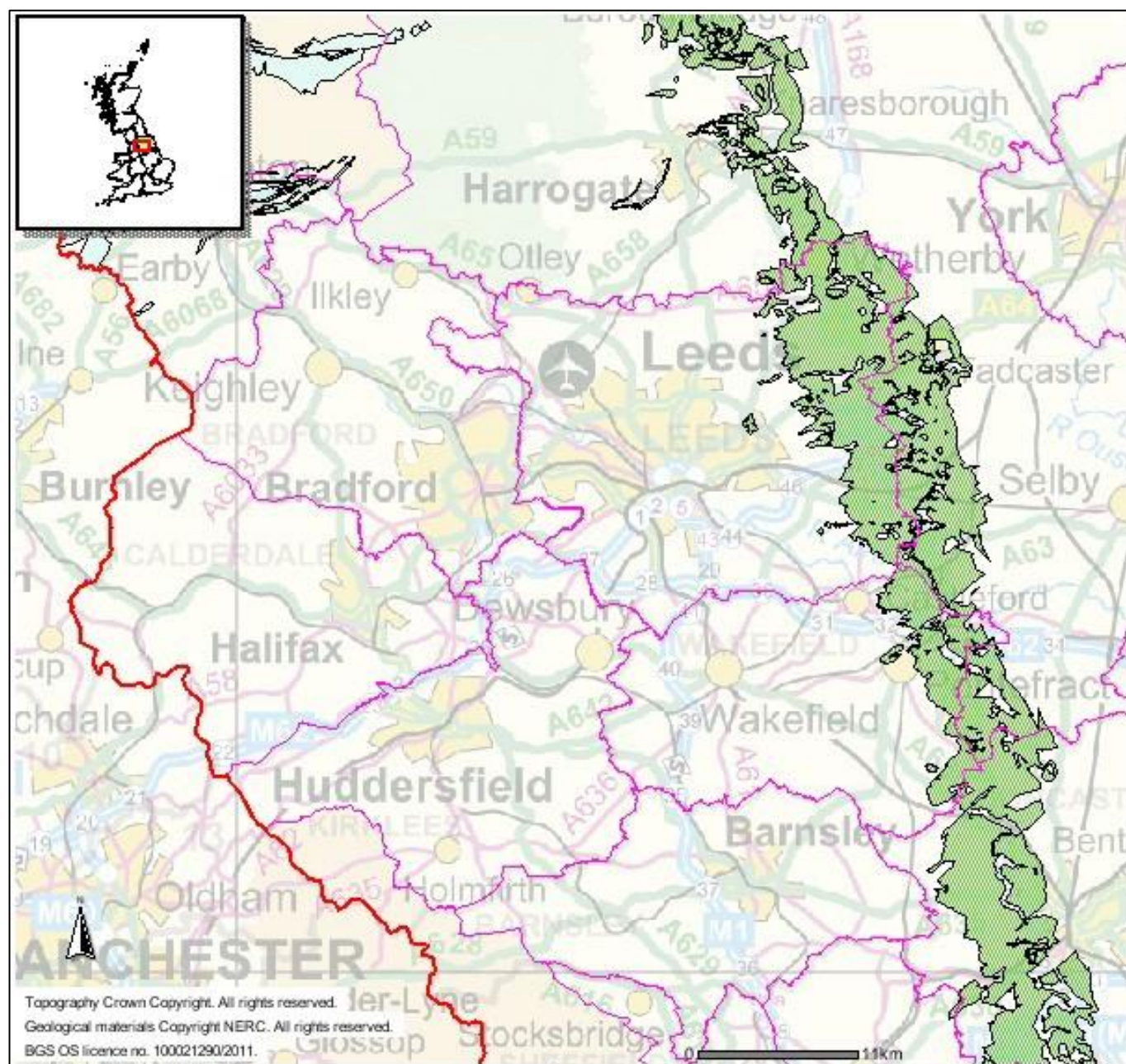
A1.5.1. Magnesian Limestone is the common name for a group of dolomite and dolomitic limestones running in a 200 kilometre long, generally 8 to 12 kilometre wide, band up the centre of northern England from Nottingham to Sunderland dating from the Permian period. The Magnesian Limestones which occur in the Yorkshire and Humber Region which comprise the Cadeby and Brotherton formations and both of these formations occur and are worked in Wakefield District in West Yorkshire (previously also worked in Leeds district). These formations have historically been extensively quarried and continue to be an important source of construction aggregates, industrial minerals, building stones and agricultural lime.

⁶⁸ Source: BGS, 2015. Minerals Information Online Available at: <http://www.bgs.ac.uk/mineralsuk/maps/maps.html>

- A1.5.2. Security of supply of aggregates derived from Magnesian Limestones is a particularly significant issue for South and West Yorkshire. This is because a significant proportion of the high volumes of construction aggregates consumed in the Leeds and Sheffield City Regions each year are supplied from Magnesian Limestone quarries. The BGS estimate that in 2019 60%- 70% of the crushed rock aggregate consumed in South Yorkshire and 1%- 10% of the crushed rock aggregate consumed in West Yorkshire was supplied from Doncaster (only Magnesian Limestone is currently worked for aggregate in Doncaster).
- A1.5.3. Magnesian Limestone aggregates are generally found to be unsuitable to produce coated roadstone (asphalt) due to its insufficient resistance to polishing, and so instead high specification road surfacing aggregate is currently primarily supplied into West Yorkshire from quarries situated within the Yorkshire Dales National Park. However approximately 40% of Magnesian Limestone quarries are thought to be capable of producing aggregates of sufficient strength to be used as a road sub-base or as a concrete aggregate.
- A1.5.4. In terms of the uses of the lower strength aggregates produced at the other 60% of quarries, these are understood to include:
- Decorative chippings
 - Bedding for permeable paving
 - Pipe Bedding
 - Capping material
 - Chippings for footpaths, driveways, and flat roofs
 - Aggregate for land drainage / filter media
 - Bulk Fill
 - Aggregate for gabion baskets
- A1.5.5. Issues associated with the supply of and demand for Magnesian Limestone Aggregates are covered more extensively in the WYCA produced 2017 report: The Quarrying of Magnesian Limestone for Aggregate in the Yorkshire and Humber Region. However, in brief this report found that:

‘Due to the variability of the resource and the limitations of its suitability for certain high specification aggregate uses, it is acknowledged that Magnesian Limestone aggregates will only ever supply a part of the overall market for construction aggregates. However, the further exploitation of remaining Magnesian Limestone resources for aggregates is likely to be an important element of meeting the demand for aggregates into the future, with industry already reporting an increase in demand and Minerals Planning Authorities in North Yorkshire and Leeds and planning for the release of substantial additional reserves.’

Figure A1-3 – West Yorkshire Limestone Resource⁶⁹



A1.5. Building Limestone

A1.5.1. The more uniform limestone strata have been extensively quarried on a small scale for local building stone. Currently there is one productive quarry, at Bramham in Leeds. This is a moderately sized unit supplying sawn stone across the region for construction use including elaborate carving. Interest in a further site has resulted in a Preferred Area for a new quarry in Leeds. As with sandstone this quarry is likely to produce a greater tonnage of aggregate. No quarries have opened or closed since 1986.

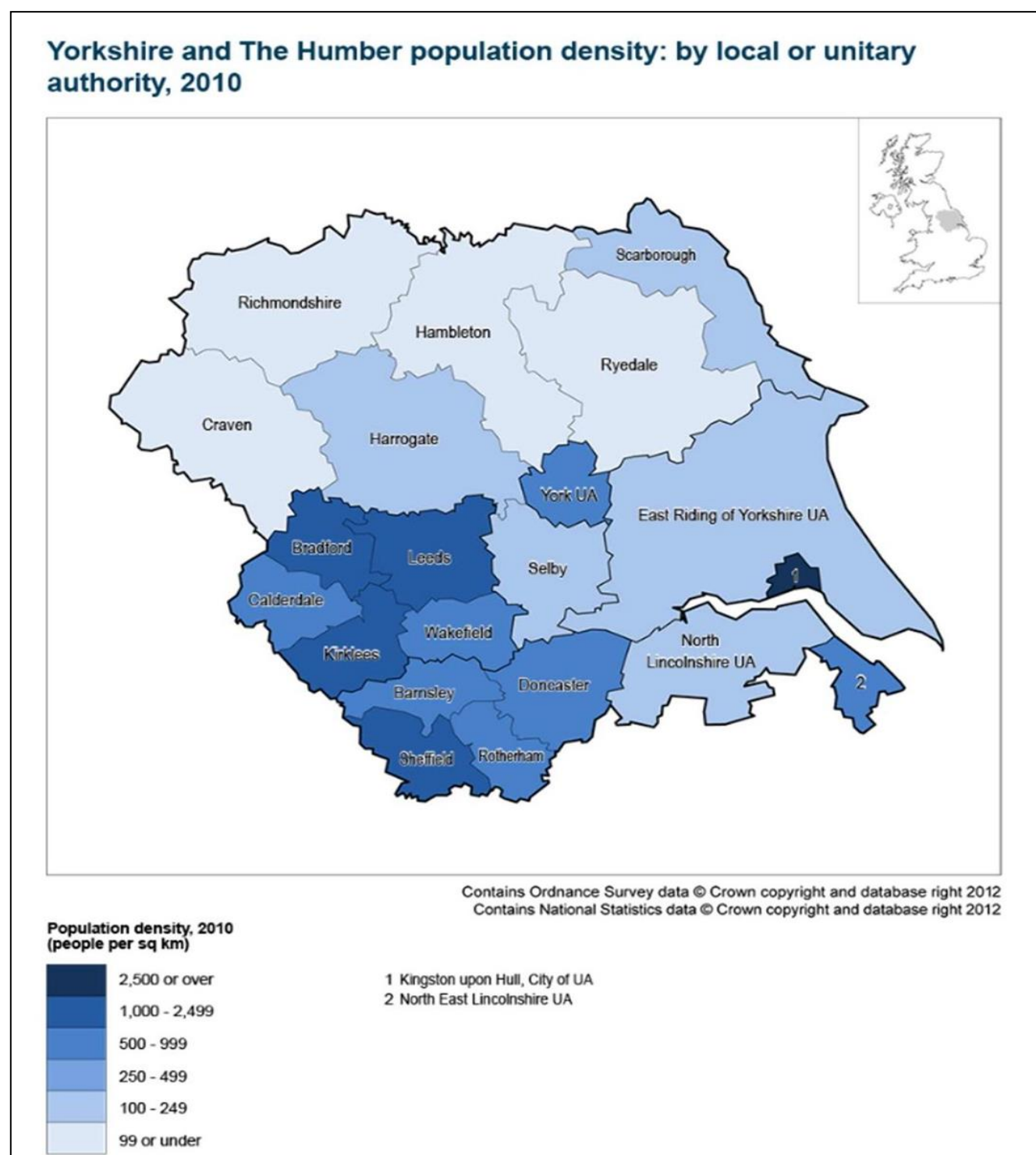
⁶⁹ Source: BGS, 2015. Minerals Information Online Available at: <http://www.bgs.ac.uk/mineralsuk/maps/maps.html>

A2. Appendix 2 – Geographical Context – Detailed

A2.1. Population

A2.1.1. Figure A2-1 below is a population density map produced by the Office of National Statistics which illustrates the high population density in West Yorkshire relative to other parts of the Region.

Figure A2-1 – Population Density Map



A2.1.2. South Yorkshire has many geographical similarities with West Yorkshire; however North and East Yorkshire contain much lower levels of urban development, but with consequently increased open countryside and accessibility of mineral resources. In terms of administrative areas, the Yorkshire and Humber Area is largely covered by Unitary Planning Authorities, each solely responsible for Minerals Planning within their administrative areas. From April 2023 this includes the unitary authority of North Yorkshire which amalgamates the County Council with the seven Borough Councils.

A2.1.3. The Office of National Statistics estimates that in 2020 West Yorkshire had a population of 2,342,000 and that by 2043 West Yorkshire's population will have increased by approximately 170,000 to 2,509,000, an increase of 7%⁷⁰. Please note that this estimated population increase is a forecast released by the ONS in March 2020 based upon 2018 data and has been revised up by C. 40,000 persons from the previous estimates based upon 2016 data. A more detailed table of population data is presented below:

Area	2020	2025	2030	2035	2040	2043	Change 2020 to 2043
Bradford	540,909	547,333	551,918	556,691	562,645	556,537	+5%
Calderdale	210,958	212,645	213,676	214,808	216,463	217,548	+3%
Kirklees	441,772	447,671	452,340	456,556	461,132	464,258	+5%
Leeds	795,565	806,609	819,468	829,842	837,250	842,176	+6%
Wakefield	352,983	370,623	385,405	398,696	411,532	418,860	+19%
West Yorkshire	2,342,186	2,384,880	2,422,807	2,456,592	2,489,022	2,509,379	+7%
England	56,678,470	58,060,235	59,181,798	60,183,914	61,157,868	61,744,098	+9%

A2.2. Transportation

- The primary national road and rail corridors relevant to West Yorkshire are illustrated in Fig. A2-2 below, with navigable waterways illustrated in Fig. A2-3. Essentially these maps illustrate that West Yorkshire is extremely well connected, both internally and to surrounding areas, by road, rail and waterway (albeit there are capacity limitations and a need for further investment to realise the full potential of various routes/ modes of transportation):

⁷⁰ ONS, 24 March 2020, Table 2: 2018-based subnational principal population projections for local authorities and higher administrative areas in England.

Figure A2-2 – Map Illustrating Key Road and Rail Corridors (black: rail; yellow: road)⁷¹

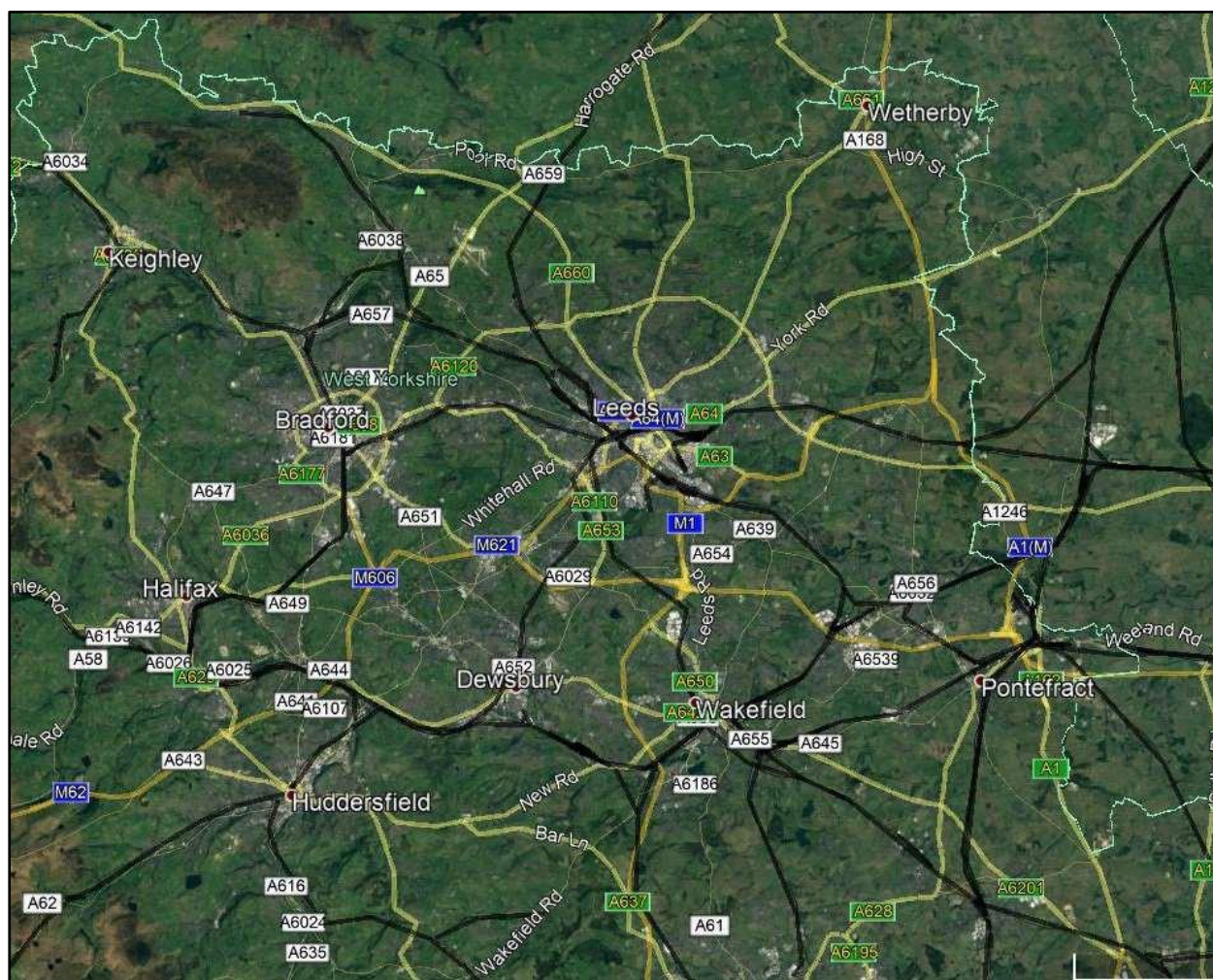


Figure A2-3 – Map of navigable waterways⁷²



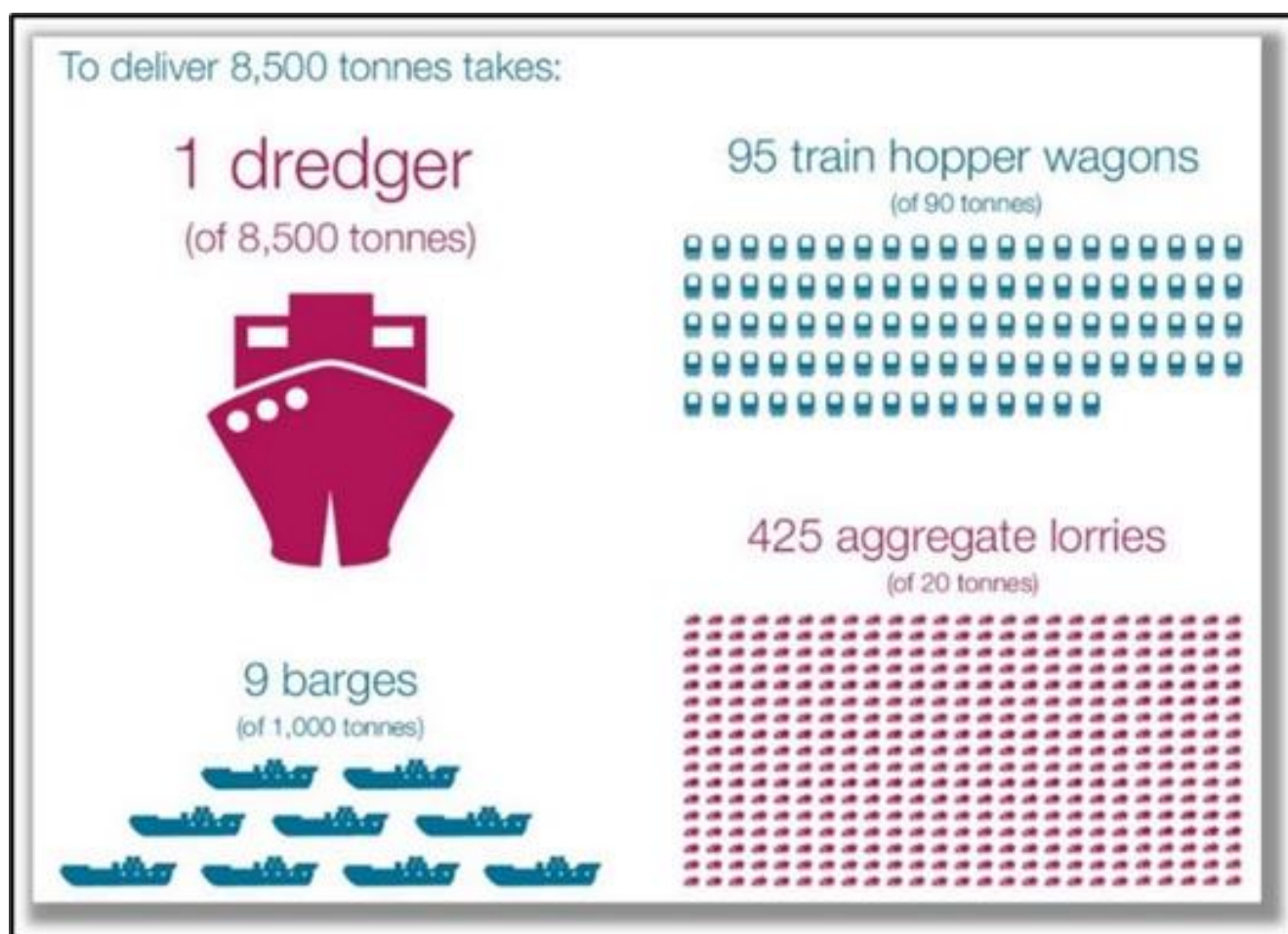
⁷¹ Google Earth, 2021

⁷² C&RT, 2021, <https://canalrivertrust.org.uk/enjoy-the-waterways/canal-and-river-network>

- A2.2.2. Commercial canal/ waterway connectivity and associated wharf infrastructure remains in place to the east of Leeds, allowing waterway commerce connections between West Yorkshire and the Humber Docks via Goole. Although the Leeds-Liverpool canal remains well used for leisure traffic the infrastructure is not currently in place to allow similar commercial waterway goods transportation between West Yorkshire and Manchester/ Liverpool to the west. The Aire and Calder and associated navigations provide a further option for aggregate waterway freight between Wakefield, Leeds and Dewsbury/ Brighouse.
- A2.2.3. Planning permission was granted in 2022 for a new sand and gravel quarry (Stanley Ferry) within the Wakefield District that proposes exclusive minerals transportation via barge, with minerals proposed to be distributed to Leeds and/ or Dewsbury for the purpose of manufacturing concrete, concrete block products and/or asphalt or for other construction uses. The proposed routes are to either barge sand and gravel east and north to a new minerals wharf in Leeds via the Aire and Calder Navigation and canalised sections of both the River Calder and the River Aire or to barge the minerals south and west, via the canalised sections of the River Calder and both the Aire and Calder and Calder and Hebble navigations, to the Newlay minerals processing and construction materials manufacturing plant in Ravensthorpe near Dewsbury. The Ravensthorpe site (Newlay Concrete) is adjacent to the canal but would require a new wharf to be constructed to receive aggregate from Stanley Ferry. Based upon the proposed rate of working at Stanley Ferry, the applicant estimated that eight barge loads (600 tonnes) of mineral would be removed per day. The intention is to operate five 80 tonne capacity barges.
- A2.2.4. However currently the vast majority of aggregate is distributed within or arrives in West Yorkshire by road based heavy goods vehicles and issues associated with the transportation of minerals by road are frequently one of the main causes for community concern in relation to minerals development. Locally, quarry vehicles can be the predominant goods vehicle on the road network at certain times of day or can significantly add to road congestion and issues associated with poor air quality.
- A2.2.5. The West Yorkshire Low Emissions Strategy 2016 to 2021 (LES) confirms that ‘in some parts of West Yorkshire ... road traffic is having a significant impact on air quality’ and that ‘the number of HGVs on the West Yorkshire road network contribute significantly to local and regional air pollution’. The West Yorkshire Transport Strategy 2040 Transport Plan further advises that:
- 61million tonnes of freight arrives into West Yorkshire annually;
 - 54 million tonnes are exported (2010);
 - 93% of goods are transported by road, only 7% by rail;
 - Heavy goods vehicles account for only 5% of vehicles on our roads but 30-45% of air pollution from road transport in UK urban areas.
- A2.2.6. The BGS estimate that in 2019 2,723,000 tonnes of aggregates were imported into West Yorkshire, as set out in Table 19 of this report, with the majority being by road transport. Consequently, and given the acknowledged disproportionate contribution which road freight transportation makes to air pollution, it is clear that reducing aggregate road freight movements, by shifting an increasing proportion of aggregate freight transportation onto rail and waterways and off roads, would be likely to make a significant contribution towards tackling air quality problems in West Yorkshire in accordance with the West Yorkshire Low Emissions Strategy.

A2.2.7. Furthermore achieving improved modal shift for aggregates transportation onto rail and waterway could help mitigate the additional logistical and costs constraints upon HGV mineral haulage which will result from the Clean Air Zones to be introduced in a number of cities in the Region suffering from poor Air Quality including Leeds and Bradford. Significant greenhouse gas emissions reduction benefits would also accrue from aggregate transportation modal shift, with carbon emissions from barges estimated to be ten-times lower than HGV emissions (per payload tonne)⁷³. The diagram below, produced by the Crown Estate, illustrates the efficiency benefits of achieving modal change for aggregate transportation:

Figure A2-4 – Illustration of haulage capacity of different modes of transportation⁷⁴



A2.1. Transportation of Aggregates (Barge)

A2.3.1. Since 2022 no aggregate has been transported to/within West Yorkshire by barge. Prior to 2022 a single operator was barging marine dredged sand and gravel into Leeds (Knostrop Wharf) at a rate of approximately 75,000 tonnes per annum of material. Industry has advised of the potential to substantially increase the quantities of aggregate barged into West Yorkshire utilising existing unused commercial wharf infrastructure in Leeds and Wakefield. Lack of wharf availability is a major barrier to this expansion occurring - highlighting the key importance of safeguarding existing wharfs from alternative uses/ potentially sterilising development.

⁷³ Data from EU Inland Waterway Transport Solutions 2.0 website, accessed 2021: <https://project-iwts20.eu/>

⁷⁴ The Crown Estate, Marine Aggregates Capability & Portfolio 2018

- A2.3.2. The Canal and River Trust obtained planning permission (lapsed in 2022) to construct a new aggregate wharf facility at Stourton (Leeds) and had estimated that the initial capacity of this facility would be approximately 200,000 tonnes of aggregates per year. One of the purposes of this facility was to facilitate the water borne transportation of marine won aggregates landed at the Humber into West Yorkshire, allowing increased imports of marine aggregates into the West Yorkshire market through a transportation option which has a lower environmental cost than HGV haulage. A planning application to address the lapsed permission is anticipated in the near future.
- A2.3.3. Outside of Leeds aggregate wharf infrastructure is more limited, following the 2013 closure of the Lafarge wharf at Whitwood (Wakefield). This wharf previously received sand and gravel barged up from the Trent. Lafarge indicated that the closure was due to their merger with Tarmac, which gave them access to more local quarries to supply their concrete works. It is understood that there is industry interest in utilising this wharf again to barge c150,000 tonnes p.a. of marine won sand and gravel from the Humber; however, it is unknown whether there are availability or deliverability constraints to re-opening this wharf for aggregate landings. Re-opening the Whitwood Wharf has the potential to significantly enhance the distribution of marine won sand and gravel into West Yorkshire outside of Leeds and is explicitly supported within Wakefield's new Local Plan (LP2036) through draft policy SP19(4)(b).
- A2.3.4. Additionally, a sizeable wharf is known to remain adjacent to the former Ferrybridge Power Station coal stockyard. The coal stockyard is also served by a rail loop/sidings, with rail sidings also running to the two operational energy from waste facilities to the west of the stockyard. The wharf and rail loop were in the past utilised to transport large quantities of coal to the Power Station and the rail loop continues to be utilised by a plasterboard manufacturer (Etex) to rail in gypsum. This remaining, currently under-utilised, rail and waterway infrastructure has obvious potential to be re-used to provide an intermodal commercial freight transportation facility (including potentially aggregates). The power station is currently under demolition and the coal stockyard is redundant – releasing over 150 hectares of potential employment development land. Safeguarding both the wharf and rail infrastructure as part of any redevelopment proposals is essential to keep open the option of developing new rail waterway connected employment facilities in this location.
- A2.3.5. Existing navigable waterway infrastructure is thought to be sufficient to allow for a certain level of expansion of aggregate freight movements into West Yorkshire. However, if waterway transportation of aggregates were to be expanded very substantially (into millions of tonnes per annum levels) the Canal and River Trust have advised that infrastructure investment would be required. The infrastructure improvements likely to be required would include M&E equipment upgrades, lock widening and lifting bridges. No funding source for these infrastructure improvements has yet been identified.
- A2.3.6. As discussed more extensively in Section 3.4 of this report, the Canal & River Trust's 'Inland Waterway Transport Solutions' (IWTS) project has looked in more detail at the constraints on the marine transportation route between Leeds and the Humber. The project aims to remove bottlenecks in terms of lock capacities, etc., and to consequently increase the size of ship that can access Leeds and the amount of freight that can be carried by this mode of transportation (including aggregate). The Canal and River Trust have indicated that the scope of works which would be

required to 'create a new coherent, feasible, more viable and more resilient transport option between the northern cities, the Humber and Europe' would include:

- Construction of new wharves;
- Minor channel dredging;
- Enhancements to Bulholme and Castleford Lock, and;
- Improvements to air draft at a number of key bridges⁷⁵.

A2.3.7. Transportation of aggregate by barge on inland waterways has an obvious significant potential to improve the sustainability of the West Yorkshire aggregate distribution system. This is particularly in terms of marine aggregate distribution connectivity between Leeds and the Humber, but also in terms of movement of minerals between quarries connected to the waterway network and construction materials manufacturing and distribution facilities. A recent example is a planning permission for the development of a new sand and gravel quarry in Wakefield which proposes exclusive waterway transportation of extracted mineral and is reliant upon access to suitable wharf facilities in Leeds to deliver the project. Facilitating and investing in the required improvements and adjustments to the existing waterways, locks and wharfs to unlock the potential of waterway distribution should consequently be seen as a key priority for West Yorkshire. It is also important for Local Authorities to highlight the potential importance of this mode of aggregate transportation within relevant plans and strategies and to safeguard land and infrastructure which could be required to facilitate the enhancement of the inland waterway network and wharf facilities within Local Plans. Close engagement with the Canal and River Trust (CRT) and industry stakeholders will be important in this regard. Table A2-2 (and Figure 17) set out the currently available information on aggregate wharf sites and their capacity based upon information provided by the CRT, Leeds CC and industry stakeholders.

⁷⁵ ICE – NATIONAL NEEDS ASSESSMENT, RESPONSE BY THE CANAL & RIVER TRUST, 04 March 2016

Table A2-2 – Estimates of Actual Wharf Aggregate Throughput & Potential Capacity (tonnes per annum)

Wharf	Status	Estimated Current Aggregate Throughput	Potential Capacity
Old Mill Lane, Knostrop	Inactive	75,000 – ceased operation in 2022	150,000
Bridgewater Road, Cross Green	Inactive	-	Unknown
Skelton Grange Road, Stourton (Port of Leeds)	Inactive	-	1,000,000
Haigh Park Road, Stourton	Inactive	-	Unknown
Fleet Lane, Woodlesford	Inactive	-	Unknown
Whitwood	Inactive	-	c. 150,000
Wharf adjacent the former Ferrybridge Power Station coal stockyard	Inactive	Unknown	Unknown
C&RT Estimate of Total Potential Aggregate Capacity of Aire & Calder Navigation Wharfs (Subject to Infrastructure Improvements)	N / A	2,000,000	

A2.4. Transportation of Aggregates (Rail)

- A2.4.1. The adopted Yorkshire Dales National Park Local Plan seeks a 50% (minimum) reduction in road traffic from quarries in the National Park. If West Yorkshire is to continue to rely extensively on aggregate extracted from quarries in the Yorkshire Dales National Park, then alternative modes of transport will continue to be necessary. Crushed rock limestone is transported by train from Buxton (Derbyshire) to Stourton (Leeds) and from Dry Rigg, Acrow, Ingleton and Swinden Quarries to Cross Green (Leeds). The two aggregate offloading facilities at Cross Green are operated by Tarmac and Hanson; the Stourton facility is operated by Cemex.
- A2.4.2. It is also understood that some aggregate and cement is brought by rail to the Construction Materials plant at Bretton Street in Dewsbury. All these terminals also distribute aggregate by road to other local sites; however, a large proportion of the total road haulage distance is taken out by the rail of aggregates into West Yorkshire to these locations - with consequent climate change and air quality benefits.
- A2.4.3. Leeds City Council had stated that the Cemex aggregate rail depot in Leeds could have been lost due to the impact of HS2 and additional rail aggregate offloading infrastructure in Leeds would have been required to compensate for this capacity reduction. A site has been allocated in Leeds to provide additional rail offloading capacity however, evidence indicates that irrespective of the loss of the eastern leg of

HS2 and the allocation of this site, there will remain a shortfall in aggregate rail offloading capacity to serve West Yorkshire.

- A2.4.4. In addition, interest has recently been expressed in utilising a rail connected site off Wheldon Road (Castleford) as an aggregate rail depot. Although the site is constrained by its location within a Housing Zone, where the delivery of over 4,000 new houses is proposed, the rail depot is referenced in the current land allocation and the site has already been partly prepared under a planning consent by the laying down of a suitable hardstanding. At the time of writing this report no firm information is available on whether this potential new aggregate rail depot will be brought forward or not.
- A2.4.5. It is therefore essential, that the existing rail depots are retained, and potential new sites are safeguarded. Currently the distribution of aggregate into West Yorkshire by rail is limited by the capacity and uneven geographical spread of active aggregate capable rail depots. This is discussed in more detail in Section 3.5 of this report.

A2.5. Transportation of Aggregates (Infrastructure Safeguarding)

- A2.5.1. In recognition of the importance of maintaining existing minerals rail and waterway transportation infrastructure and promoting any further opportunities to move minerals off public roads, Leeds' Natural Resources and Waste Local Plan includes policies which safeguard existing and potential rail sidings and several existing and potential wharf sites. However, challenges have been experienced in relation to the implementation of this policy due to competing pressures for housing development.
- A2.5.2. This challenge has arisen because the Leeds policy allows for safeguarded sites to be used for alternate development if it can be demonstrated that the site is unlikely to be used for freight purposes. This issue of safeguarded rail and waterway transportation infrastructure being threatened by alternative development proposals may be exacerbated by the national planning policy set out in section 11 of the NPPF. This policy puts a strong emphasis upon the benefits of building upon previously developed and under-utilised land and advises that, where the local planning authority considers there to be no reasonable prospect of an application coming forward for the use allocated in a plan, applications for alternative uses on the land should be supported, where the proposed use would contribute to meeting an unmet need for development in the area.
- A2.5.3. Within Bradford's adopted Local Plan Core Strategy, Policy TR6: Freight sets a commitment to:
'Encourage the protection of rail connected land for future uses that require rail freight use and seek to encourage the development of intermodal interchanges and improvements to multi-modal transfer facilities.'
- A2.5.4. The Calderdale Local Plan (Adopted 2023) safeguards the transport element of the minerals supply chain via its minerals infrastructure safeguarding policy MS3.
- A2.5.5. The Wakefield Local Plan (Adopted 2024) includes a general policy for the safeguarding of rail and waterway infrastructure through policy SP14(f) which states that:

'Better use will be made of the inland waterway and rail networks in the district, including the Aire & Calder and Calder and Hebble navigation and the regional rail/road transfer facility at Wakefield Europort. Opportunities will be taken to link major freight movement origins and destinations to the rail network. Developments which generate large volumes of freight traffic or involve the transport of bulk materials will include, or be located close to, inter-modal transfer facilities, rail freight facilities or wharves and make use of rail or water for freight movements, wherever practical. Sites which are used or suitable for inter-modal transfer facilities, rail freight facilities and the loading and unloading of water-borne freight will be protected for these uses and water and rail freight connections to existing industrial sites will be retained wherever possible and the development of new inter-modal transfer facilities, new rail sidings and rail freight facilities and new wharves will be encouraged. There are significant opportunities to import seabourne aggregates from the Humber towards sites in the district and large development sites next to the waterways shall consider the use of the waterway for the import of construction materials.'

- A2.5.6. The Kirklees Local Plan safeguards several specific minerals transportation facilities through policy LP39 including: a former coal and aggregates depot and a cement depot with rail spurs in Bretton Street, Dewsbury and a former Coal Wharf on the Calder & Hebble Navigation.

A2.6. National Parks and National Landscapes

- A2.6.1. The NPPF indicates that when determining planning applications, local planning authorities should, as far as is practical, provide for the maintenance of landbanks of non-energy minerals from outside National Parks. The West Yorkshire sub-region does not include a significant amount of National Park land, other than a slight overlap of the Peak District National Park into the far southern periphery of Kirklees. However, this small area of National Park within West Yorkshire contains no active minerals extraction sites.
- A2.6.2. Nonetheless it is known that West Yorkshire does receive significant quantities of crushed rock aggregate from quarries within the Yorkshire Dales National Park (YDNP), including high specification aggregates, and also receives aggregate quarried within the Nidderdale National Landscape. British Geological Survey data⁷⁶ indicates that, of the 2.3 million tonnes of crushed rock estimated to have been consumed within West Yorkshire in 2019, in the region of 1.3 million tonnes (55%) was sourced from quarries within the YDNP (see Section 3.1).
- A2.6.3. No apportionment has been set within the North Yorkshire LAA to continue this supply of crushed rock aggregates from the Yorkshire Dales into the future. Moreover, the adopted Yorkshire Dales National Park Local Plan proposes to restrict the development of new crushed rock quarries or the extension of existing quarries into areas of undisturbed land other than in exceptional circumstances. However, very significant reserves exist in the YDNP capable of continuing to supply markets at existing rates for many years. Reserves in the YDNP have been further bolstered through the approval of a planning application by Tarmac to deepen the rail connected Swinden Quarry - which would add approximately 11 million tonnes to the existing 30 million tonne reserve of carboniferous limestone (not high specification material) within the YDNP.

⁷⁶ <https://www.gov.uk/government/publications/aggregate-minerals-survey-for-england-and-wales-2019>

- A2.6.4. Lesser, but still significant quantities of crushed rock aggregates are transported into West Yorkshire from limestone and gritstone quarries within the Peak District National Park. The Peak District Local Plan Core Strategy imposes a still tougher planning policy framework for new and extended minerals workings. Policy MIN1 confirms that proposals for new mineral extraction or extensions to existing mineral operations (other than fluorspar proposals and local small-scale building and roofing stone) will not be permitted other than in exceptional circumstances. The most recent Local Aggregates Assessment covering the Peak District (2022)⁷⁷ confirms that the purpose of this restrictive policy is to provide for a continued gradual reduction in the amount of mineral that is quarried from within the National Park, in order to protect the nationally important landscape.
- A2.6.5. In the longer-term alternative resources may therefore be required to supplant the significant quantities of aggregates supplied into West Yorkshire from quarries located in YDNP. If new resources are not identified, there is a risk that supplies of aggregates into West Yorkshire, and in particular high specification aggregates, may not be maintained at satisfactory levels in the mid to long term, as existing National Park permitted reserves are exhausted. The high specification sandstone aggregate produced within the YDNP is of a quality which cannot be produced within West Yorkshire or within any other areas which act as established significant sources of supply to the West Yorkshire market. This issue is discussed further in Section 1.3.

A2.7. Local Plans in West Yorkshire

- A2.7.1. The five West Yorkshire authorities are at different stages of plan making. However, they all have some up-to-date Local Plan documents relevant to minerals planning in place. Leeds and Bradford's adopted plans being in the format of a multi document Local Development Framework. Leeds have also completed a partial review of its Local Plan Core Strategy - mainly related to a need to adjust policies and proposed land allocations to reflect the implications of the new household growth forecasts and new methodology for calculating housing need.
- A2.7.2. Leeds and Bradford are now in the process of preparing new format single Local Plans - with Leeds at the initial scoping stage and Bradford working on producing the next stage of the Local Plan (Submission Draft Local Plan - Regulation 19) which was due for publication in mid 2024. The Wakefield District Local Plan 2026 (new format single Local Plan) was adopted in January 2024. Kirklees has a new format single Local Plan that was adopted in 2019. In March 2023 Calderdale Council adopted the Calderdale Local Plan which covers the period to 2033. Table A2-3 below provides further detail on relevant adopted and emerging local plan documents and associated housing targets:

⁷⁷ Derbyshire County Council, Derby City Council and the Peak District National Park Authority Local Aggregate Assessment 2022

Table A2-3 – Most Up-to-date LA Local Plan Documents Which Include Housing Delivery Targets

District	Document	Stage	Date of Document	Planned Housing Delivery	Plan Period Start	Plan Period End	Plan Years	Annual Housing Delivery Target
Leeds	Core Strategy Selective Review ⁷⁸	Adopted	Sep-19	54,352	2017	2033	16	3,247
Bradford	Bradford District Local Plan ⁷⁹	Draft (Regulation 18)	Feb-21	30,672	2020	2038	18	1,704
Kirklees	Local Plan ⁸⁰	Adopted	Feb-19	31,140	2013	2031	18	1,730
Wakefield	Development Strategy Strategic and Local Plan Policies ⁸¹	Adopted	Jan-24	26,600	2017/18	2036/37	19	1,400
Calderdale	Local Plan ⁸²	Adopted	Mar-23	14,950	2018/19	2032/33	15	997

A2.7.3. The effect of the (generally downward) revisions to household growth forecasts for West Yorkshire, coupled with the changes to government guidance on the correct methodology to be adopted by planning authorities in order to calculate housing need, means that the new and updated Local Plans which are being prepared by West Yorkshire Local Authorities are generally planning for the delivery of a lower number of new homes than is the case for current adopted plans.

A2.7.4. The combined total annual housing delivery target for West Yorkshire, as set out in currently emerging Local Plans, has reduced by approximately 2,000 dwellings (18%). The reduction is from 11,120 dwellings per annum in adopted (pre-review) plans to 9,070 dwellings per annum in post review Core Strategies and emerging replacement Local Plans. The selective reviews in the Leeds and Bradford Core Strategies resulted in the largest reductions in planned housing growth.

A2.7.5. The West Yorkshire Combined Authority, state of region review (2022)⁸³ states that a *'substantial number of net additional dwellings are being delivered each year in West Yorkshire, adding to the region's housing stock. However, in 2020/21 West Yorkshire saw a second consecutive annual fall against this measure, with net additional*

⁷⁸ Leeds City Council, Core Strategy Selective Review (adopted September 2019) [CSSR Polices Adoption Sept 2019 Final.pdf \(leeds.gov.uk\)](#)

⁷⁹ Bradford Metropolitan District Council. Draft Local Plan (draft February 2021) [City of Bradford Metropolitan District Council - Draft Bradford District Local Plan - Preferred Options \(Regulation 18\) February 2021 \(oc2.uk\)](#)

⁸⁰ Kirklees Council. Local Plan (adopted February 2019) <https://www.kirklees.gov.uk/beta/planning-policy/pdf/local-plan-strategy-and-policies.pdf>

⁸¹ [Wakefield Local Plan, January 2024](#)

⁸² Calderdale. Local Plan (adopted March 2023) <https://new.calderdale.gov.uk/sites/default/files/2023-06/Local-Plan-Written-Statement.pdf>

⁸³ West Yorkshire Combined Authority, state of region review (2022) [state-of-the-region-2022-full-report-v2.pdf \(westyorks-ca.gov.uk\)](#)

dwellings 35% lower than pre-pandemic'. The state of region review continues to outline that 'In 2020/21, a total of 5,983 net additional dwellings were delivered across West Yorkshire. This represents a decrease over previous years. Overall, the cumulative losses to housing stock across the region stood at 837'.

- A2.7.6. The report notes that in the last two years, all local authorities in West Yorkshire underwent a substantial decline in net additional dwellings. In the two-year period between 2018/19 and 2020/21 Bradford saw the biggest fall of 68% (down by 48% in 2020/21 alone) with other significant falls in Calderdale (-53%), Wakefield (-42%) and Kirklees (-34%). The decline in Leeds was much smaller at -14%.
- A2.7.7. Previous versions of the WYLAA have adopted the approach of planning for increases in future aggregate provision in-line with planned increases in housing delivery. This approach is considered to remain valid. However, the generally lower housing delivery targets, together with the improving trend in actual housing delivery in West Yorkshire, means that the gap between actual and planned housing delivery is reduced and consequently the level of uplift to be applied to the 10 year aggregate sales average is lower. As discussed in Section 3.6 of this report, this has resulted in a progressive reduction in the uplift factor to be applied to the WYLAA 2023 landbank to 16% from 25% in the WYLAA 2019, 27.5% in the WYLAA 2018 and 35% in the WYLAA 2017.
- A2.7.8. Changes to the NPPF published in December 2024 proposed a change to the way in which future housing requirements are calculated. The impact of these changes to the Councils in West Yorkshire are as follows:

Table A2-4 – Annual Housing Provision (no. of dwellings)⁸⁴

Council	Previous Method	New Method	Change
Bradford	2,232	1,828	-18.1%
Calderdale	742	854	+15.1%
Kirklees	1,595	1,840	+15.4%
Leeds	3,987	3,811	-4.4%
Wakefield	923	1,541 ⁸⁵	+67.0%
Total	9,479	9,874	+4.2%

- A2.7.9. The table above shows that overall an increase in housing provision of 4.2% is proposed in West Yorkshire. Whether these changes actually impact on proposed housing delivery remains to be seen as the adoption by Councils of such changes in updates to their future Local Plans will be a matter for detailed consideration.
- A2.7.10. In addition to the planned housing growth, and the local infrastructure upgrades which will be required to facilitate this growth, West Yorkshire is also planning for significant growth in employment facilities. This is reflected in the substantial additional Employment Sites being planned within the new Local Plans and is also currently visibly manifested in the large number of 'big box' B8 warehouse units either

⁸⁴ Source: Outcome of the Revised Method, MHCLG, December 2024

⁸⁵ New value does not apply in Wakefield until 5 years from adoption of the Local Plan (24 January 2029)

recently completed, under construction or in the planning pipeline in West Yorkshire. In some instances, the planned level of future employment growth is over and above the level of growth which has been delivered within previous plan periods. Additionally, a range of large infrastructure projects are in the pipeline including Mass Transit for West Yorkshire, Northern Powerhouse Rail and associated Rail Interchange upgrades.

A2.7.11. In addition to the planned housing growth, and the local infrastructure upgrades which will be required to facilitate this growth, West Yorkshire is also planning for significant growth in employment facilities. This is reflected in the substantial additional Employment Sites being planned within the new Local Plans and is also currently visibly manifested in the large number of 'big box' B8 warehouse units either recently completed, under construction or in the planning pipeline in West Yorkshire. In some instances, the planned level of future employment growth is over and above the level of growth which has been delivered within previous plan periods. Additionally, a range of large infrastructure projects are in the pipeline including Mass Transit for West Yorkshire, Northern Powerhouse Rail and associated Rail Interchange upgrades.

A2.7.12. It is acknowledged that the additional employment growth and infrastructure projects referenced above will require substantial quantities of construction aggregates which are likely to be in excess of the historic annual production rates captured through 10-year average sales figures. It is further acknowledged that uplifting 10 year sales averages to take account of forecast increases in house building is unlikely to fully capture the increased level of demand which will be generated by the planned increased employment growth in some parts of West Yorkshire together with the one off infrastructure projects in the pipeline. There is currently not considered to be any robust methodology to accurately predict the additional aggregate need which the planned increased employment growth and one-off infrastructure projects is likely to result in. To assess the role of the mainly low grade aggregate produced in West Yorkshire in future construction, further work is recommended to understand the market and its contribution.

A2.7.13. In terms of the minerals planning content of West Yorkshire Local Plans, the minerals related policies of the Leeds Local Plan are set out in their Core Strategy and Natural Resources and Waste Local Plan. The minerals planning framework set out in these documents includes a number of minerals site allocations for proposed new extraction areas and the safeguarding of existing resources and infrastructure and also includes criteria based policies for assessing applications for new minerals sites and non-minerals development on safeguarded minerals resource.

A2.7.14. Through Policy MINERALS 5, the Leeds Natural Resources and Waste Local Plan, adopted on 16th January 2013, allocates an extensive Area of Search for Sand & Gravel in the area south of Leeds, around Methley, and also allocates land at Midgley Farm in Otley for Sand & Gravel extraction. This is upon the basis that previous relatively recent commercial extraction activity and minerals industry enquiries indicate that there are likely to be economically viable sand and gravel resources remaining within this area. Furthermore, the landscape in this area is not considered to be so sensitivity that the principle of further extraction would be precluded.

A2.7.15. However, unfortunately, despite the positive minerals planning policy environment for sand and gravel extraction within these areas set out within the Leeds Local Plan, the

previous commercial interest in further undertaking further sand and gravel extraction has not been progressed to fruition. Considering the general concern regarding the availability of land won sand and gravel resources within the Region the lack of interest in further sand and gravel extraction in the allocated areas around Otley and Methley is surprising. Further discussion with minerals industry representatives in relation to this issue may be beneficial to enable a better understanding of the factors which have impeded progress.

A2.7.16. The Leeds Natural Resources and Waste Local Plan takes a different approach to the extraction of sand and gravel in the Wharfe Valley in the area east of Pool, given the area's high landscape sensitivity. Consequently, Policy MINERALS 6 states that it is unlikely the Council will support proposals for further sand and gravel extraction within this area. Therefore, it is acknowledged that the sand and gravel resource mapped by the BGS within this area is unlikely to be released for extraction within the Leeds Local Plan period.

A2.7.17. The adopted Leeds Core Strategy Selective Review alters the following main parts of their Core Strategy:

- Reduction in the amount of housing land to be allocated from land sufficient to accommodate 54,352 dwellings (gross) to land sufficient to accommodate 46,352 dwellings (gross) (15% reduction);
- Reviewing the housing distribution in SP7, and extending the Plan period to 2033;
- Introducing new policy on housing standards with minimum space standards, and accessibility standards for new housing in policies H9 and H10;
- Updating policy and requirement on affordable housing by amending Policy H5;
- Reviewing the requirement for greenspace in new housing developments by amending Policy G4;
- City Centre Green Space, making minor amendments to Policies G5 and G6;
- Incorporating new national policy regarding Code for Sustainable Homes by updating the wording of Policies EN1 and EN2 and a consequential change to EN4;
- Introducing a new Policy for Electric Vehicle Charging Infrastructure (EN8).

A2.7.18. The Wakefield Local Development Plan 2036 was adopted in January 2024. The Local Plan covers the period to 2036 and provides a comprehensive, updated planning framework of policies, site allocations and designations. The level of housing growth being planned for within the Wakefield District Local Plan 2036 is reduced by 12% (200 houses per annum) from the previous plan. Minerals policies remain substantially unchanged.

A2.7.19. Bradford Council's Local Plan Core Strategy, which includes minerals policies, was formally adopted by the Council in July 2017. The Core Strategy includes criteria-based policies for assessing new minerals planning applications and defining a minerals area of search. The policy environment depicted is broadly supportive of

building stone quarrying and sand & gravel extraction, subject to specified environmental criteria being met. The quarrying of primary aggregates is only generally undertaken in Bradford as a by-product of building stone quarrying and the Bradford Core Strategy is also broadly supportive of the continuation of aggregate production at building stone quarries, particularly where building sand would be produced.

A2.7.20. The Bradford Core Strategy also includes a minerals safeguarding policy, identifying the broad extent of the Sandstone, Sand & Gravel and Coal resources which are to be safeguarded from non-minerals surface development. However, the Bradford Core Strategy recognises the constraint on development which would result from an all-encompassing approach to minerals safeguarding, given the extent of the minerals safeguarding areas, particularly in relation to sandstone and the urban coalfield. Consequently, the Bradford minerals safeguarding policy includes a range of exceptions and focuses on facilitating prior extraction of minerals, rather than constraining development.

A2.7.21. Bradford Council are producing a replacement Local Plan. In relation to housing growth, the new Local Plan proposes a reduction in the number of new homes which the plan will provide for from 42,100 in the pre-review Core strategy to 30,672 in the Local Plan Preferred Options document. This represents a reduction in the number of new dwellings planned to be built within the Bradford District over the plan period of 27% but remains a substantial level of growth with consequent minerals supply needs. The emerging Bradford Local Plan retains a broadly similar planning framework for minerals which commits to maintaining adequate landbanks of minerals and is generally supportive of building stone quarrying and ancillary aggregate production (which is the predominant form of minerals extraction in Bradford).

A2.7.22. Following successful Examination in Public the Kirklees Local Plan was adopted in February 2019, setting out a policy framework for assessing applications for new minerals development based upon a range of criteria relating to the protection of people and the environment. The policy framework is also generally supportive of local building stone quarrying and commits to contributing towards the maintenance of adequate landbanks of aggregates in West Yorkshire. The Local Plan also provides for safeguarding of minerals and infrastructure and includes a significant number of minerals site allocations, including areas of search, preferred areas and specific extraction and infrastructure sites. Work on updating the Kirklees Local Plan has commenced which has included a Call for Sites.

A2.7.23. Calderdale Council adopted their new Calderdale Local Plan in 2023. The Calderdale Local Plan provides for the allocation of all existing quarries for continued minerals extraction and also proposes the allocation of two extensions to a sandstone quarry in Southowram and the safeguarding of a concrete batching plant. The Local Plan also includes a suite of criteria-based minerals policies based around the following stated strategy:

- The Council along with other Mineral Planning Authorities within West Yorkshire will seek to make an appropriate contribution towards the maintenance of a ten year land bank for crushed rock aggregates as identified through the West Yorkshire Local Aggregate Assessment (LAA);

- Extensions to existing mineral workings will be preferred to the opening of new workings, whilst acknowledging that minerals can only be worked where they are found;
- The Council will encourage the processing of secondary and recycled aggregates in order to reduce reliance on primary extraction;
- The Borough will identify and safeguard known mineral resources of local and national importance to ensure they are not needlessly sterilised by non mineral development;
- Proposals for extracting other types of minerals and proposals for the production of recycled and secondary aggregates will be assessed in accordance with national policy and the environmental criteria set out in Policy MS4;
- In view of the national importance of the local sandstone resource the Council will seek to encourage producers to maintain reserves at a level of 10 years projected sales;
- Applications to reopen disused stone quarries in order to repair historic buildings will be supported where the proposal is in accordance with other Mineral Policies and where it can be shown that such materials cannot be supplied from an existing quarry.

A3. Appendix 3 – Active Quarries Producing Aggregate in 2023

No.	Quarry	Operator	Aggregate Type
Bradford			
1	Hallas Rough	Flappit Tipping and Recycling	Sandstone, Sand & Gravel
Calderdale			
2	Fly Flatts Delph Quarry, Wainstalls	Rand & Asquith	Sandstone
3	Gibb Lane QuarryDelph Hill Quarry	Mr J Smith	Sandstone
4	Upper Pule/Scout Moor Swalesmoor	Cleanmet	Sandstone
5	Sunny Bank Farm, Southowram	Mytholm Stone Sales	Sandstone
6	Pond Quarry, Lightcliffe	MCS Contracting Ltd	Sandstone
7	Pasture House Farm, Southowram	Marshalls Mono Ltd	Sandstone
8	Spring Hill Quarry, Greetland	Spring Hill Stone Sales	Sandstone
9	Elland Edge Quarries, Elland	Rand & Asquith	Sandstone
10	Pinnar Lane Quarry	W.Crossley (Yorkstone Ltd.)	Sandstone
Kirklees			
11	Moselden Quarry, Scammonden	Marshalls Mono Ltd	Sandstone, grit
12	Crosland Moor Quarries, Huddersfield	Johnson Wellfield Quarries	Sandstone, grit
13	Windy Ridge Quarry, Holmfirth	Windy Ridge Recycling Ltd	Sandstone, grit
14	Hillhouse Edge Quarry, Holmfirth	Saxonmoor Ltd	Sandstone, grit
15	Appleton Quarry, Shepley	Marshalls Mono Ltd	Sandstone, grit
16	Sovereign Quarry, Shepley	Marshalls Mono Ltd	Sandstone, grit
17	Temple Quarry, Grange Moor	Holgate Construction Ltd	Sandstone, grit
18	Forge Lane Quarry	Dewsbury Sand & Gravel Ltd	Sand & Gravel
Leeds			
19	Hawksworth Quarry, Guiseley	Mytholm Stone Sales Ltd and Whitelock Developments Ltd	Sandstone, grit

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20	Blackhill Quarry, Bramhope	Mone Bros Excavations Ltd	Sandstone, grit
21	Britannia Quarry, Morley	Calder Masonry Ltd	Sandstone, fine
22	Howley Park Quarry, Morley	Marshalls Mono Ltd	Sandstone, fine
Wakefield			
23	Darrington Quarry (part), Knottingley	FCC Environment	Limestone, mag.
24	Plasmor Quarry, Knottingley	Plasmor Ltd	Limestone, mag.
Sites permitted but not worked			
	<i>Stanley Ferry⁸⁶ (W)</i>	<i>Wakefield Sand & Gravel Ltd</i>	<i>Sand & gravel</i>
	<i>Strands, Horbury (W) ROMP</i>		<i>Sand & gravel</i>
	<i>Foxholes, Normanton (W) ROMP</i>		<i>Sand & gravel</i>
	<i>Penbank, Castleford (W) ROMP</i>		<i>Sand & gravel</i>
	<i>Arborary Lane Quarry (K)</i>	<i>Johnsons Wellfield Quarries</i>	<i>Sandstone</i>
Sites permitted but not worked for aggregate⁸⁷			
	<i>Bank Top Quarry, Harden (B)</i>	<i>M&M York Stone Products</i>	<i>Sandstone, grit</i>
	<i>Naylor Hill Quarry, Haworth (B)</i>	<i>Dennis Gillson & Son</i>	<i>Sandstone, grit</i>
	<i>Bolton Woods Quarry, Bradford (B)</i>	<i>Hard York Quarries</i>	<i>Sandstone, fine</i>

⁸⁶ Permitted in 2022; sales anticipated to commence in 2024.

⁸⁷ Sites in this list are surveyed as they have been known to produce aggregate in the past

A4. Appendix 4 – Recycled Aggregate Production

Table A4-1 – Site by Site Inferred Recycled Aggregate Production (tonnes)

Site	Input	Output	Inferred RA
Bradford	86,888	62,063	24,825
Beckside Works	27,832	25,486	2,346
Midgeham Cliff End Quarry	27,914	12,915	14,999
Neville Road	6,265	0	6,265
Underwoods Recycling	24,877	23,662	1,215
Calderdale	58,441	41,506	16,935
Unit 12 Station Road Industrial Park	3,610	0	3,610
West Yorkshire Water	54,831	41,506	13,325
Kirklees	128,396	27,175	101,221
Clayfield Works	3,357	2,520	837
Myers Skip Hire Ltd	27,954	24,063	3,891
Johnsons Wellfield Treatment Plant	2,777	479	2,299
Temple Quarry	70,443	113	70,329
Windy Ridge Quarry	23,865	0	23,865
Leeds	448,671	37,321	411,350
Ashfield Way Treatment & Transfer Station	25,434	15,533	9,901
Cross Green Recycling	117,531	267	117,263
Fireclay	157,550	587	156,963
H W Martin Waste Ltd	44,247	20,915	23,332
J Murphy & Son	3,191	0	3,191
J. M. Haulage (Leeds) Limited	8,896	0	8,896
Leeds Soil And Aggregates Recycling Facility	9,831	0	9,831

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Tarmac Trading Limited Cross Green	80,934	0	80,934
Timberpak	1,057	20	1,038
Wakefield	228,022	13,598	214,425
Ash Pits Crabtree Lane	61,326	15	61,311
Fastsource Ltd, The Old Coal Yard	44,144	9	44,135
South Kirkby Plant	70,791	615	70,176
Willowbridge Lane Aggregates Recycling Facility	51,762	12,958	38,803
West Yorkshire	919,107	155,080	768,756

Table A4-2 – Site by Site Hardcore Sent for Recovery (tonnes)

Site	Hardcore Sent for Recovery (Tonnes)
Bradford	40,440
Associated Waste Management Ltd	1,219
Hallas Rough Quarry	23,517
Hammerton Street Aggregate Recycling Facility	10,607
Keighley T L S	1,880
Premises At Whitewell Street	2,168
Premises Off Ripley Road	380
Unit 15	669
Calderdale	545
Atlas Mill Household Waste Recycling Centre	196
Eastwood Household Waste And Recycling Centre	137
Halifax Household Waste Recycling Centre	194
Kemp Waste Management Ltd	0
T S Lee & Son Ltd	18
Kirklees	6,882
Dewsbury Transfer Station	111
Headlands Road Depot	2,740

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Myers Skip Hire L T D	1,312
The Reins	2,719
Leeds	66,157
A W M Valley Farm Road M R F	398
Arthington Quarry	14,327
AWM Ltd	35,336
B W Skip Hire	3,633
Bill Dyson Skip Hire	2,950
Forge Recycling (U K) Limited	5,887
Milners Road	740
Milners Road Site	1,701
Onyx Recycling Ltd	1,030
St Bernards Mill M R F	38
The Yard West Chevin Delph	100
Thorpe Lane Recycling Limited Treatment Facility	17
Wakefield	7,129
Askew Skips	1,906
Brotherton Ings Ash Disposal - EPR/RP3930BD	36
C S Skips Ltd Unit 53A	1,391
Ferrybridge 1 - EPR/SP3239FU	62
Ferrybridge 2 - EPR/XP3833DK	19
Grace Brothers	191
I H Equipment Ltd	1,000
Kirkhaw Site	820
Pickup Skips	1,266
South Kirkby WMF - EPR/VP3535CL	17
The Store	419
West Yorkshire	121,153

A5. Appendix 5 – Detailed Explanation of Uplift Calculation Methodology

A5.1.1. The uplift figure (U) is a figure intended to provide an estimate of the increase in production which would be required at quarries to meet the aggregate demands which would be associated with full delivery of the housing growth set out in emerging and adopted Local Plans.

A5.1.2. In order to undertake this calculation, the following figures are needed.

- C – Historic Average Annual Net Additional Dwellings
- P – Planned Annual Housing Delivery
- H – % increase in house building required to meet Housing Delivery Targets
- A - % of quarry output utilised for house building and associated infrastructure

A5.1.3. Figure C was calculated through interrogation of the live tables on housing supply: net additional dwellings⁸⁸ – Table 123 Housing Supply; Net additional dwellings by local authority district, England, 2001-02 to 2022-23 published by the government, as shown in the table below:

Table A5-1 – Net Additional Dwellings by Local Authority (green – target met; red – target missed)

Year	Leeds	Bradford	Kirklees	Wakefield	Calderdale	West Yorkshire Total
2007/2008	3,070	1,400	2,680	1,520	1,310	10,150
2008/2009	3,320	2,200	1,490	1,204	490	8,620
2009/2010	1,730	1,760	1,090	598	570	5,830
2010/2011	1,180	1,460	1,250	1061	510	5,370
2011/2012	1,930	730	940	852	370	4,820
2012/2013	1,560	720	580	534	500	3,890
2013/2014	2,230	870	1,040	806	330	5,280
2014/2015	1,980	1,130	520	1,132	560	5,320
2015/2016	2,470	900	1,130	1,921	330	6,750
2016/2017	2,820	1,490	980	1,816	380	7,490
2017/2018	2,280	1,620	1,330	1,759	290	7,280
2018/2019	3,430	1,610	1,550	2,114	560	9,260

⁸⁸ [LT123.ods \(live.com\)](https://live.com/LT123.ods)

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2019/2020	3,330	1,010	1,130	1,758	350	7,580
2020/2021	2,950	522	1,021	1,227	263	5,983
2021/2022	3,238	1,325	704	1,497	443	7,207
2022/2023	2,697	1,044	985	1,324	332	6,383

A5.1.4. Figure P was calculated from a review of the emerging or adopted Local Plans of the five West Yorkshire Authorities, as shown in the table below:

Table A5-2 – Planned Housing Delivery

Authority	Population	Planned Annual Housing Requirement (P)	2013/14 – 2022/23 Average Net Additional Dwellings (C)	Increase in Average Net Additional Dwellings Required to Meet Planned Housing Delivering Target (2023 values in brackets)	Uplift Required in Housing (2023 values in brackets)
Leeds	811,953	3,247	2,743	+504 (618)	+18% (23)
Bradford	546,412	1,704	1,154	+550 (582)	+48% (52)
Kirklees	443,216	1,730	1,040	+691 (731)	+66% (73)
Wakefield	353,370	1,400	1,535	-135 (257)	-9% (4)
Calderdale	206,631	997	383	+614 (598)	+160% (150)
West Yorkshire	2,351,582	9,078	6,855	+2,223 (2,672)	+32% (37)

A5.1.5. Figure H was calculated by totaling the C and P figures for West Yorkshire as a whole and applying the following formula to the totals: $(P-C)/C \times 100$.

A5.1.6. The result for figure H was 0.32 or 32%, i.e. a 32% increase in 10-year average house building in West Yorkshire overall will be required to meet planned housing delivery targets for West Yorkshire overall.

A5.1.7. A is a difficult figure to derive without the benefit of an extensive research project which analyses the output of crushed rock and sand and gravel sites and identifies the fates of all quarried material categorising these fates into A) quarried material used directly or indirectly for house building and associated infrastructure and B) quarried material not used for any purpose associated with house building.

A5.1.8. North Yorkshire CC have undertaken some research in this regard and through a process of consultation eventually came to a compromise position with the Minerals

Products Association who accepted that a figure of approximately 50% of output at sand and gravel sites could be associated with house building.

A5.1.9. More details of the methodology used to arrive at this 50% figure can be found in the following document: 'Forecasting demand for aggregate minerals Discussion Paper - July 2014', published online by North Yorkshire County Council.

A5.1.10. A lower figure was derived for crushed rock quarries; however, as West Yorkshire produces nominal amounts of sand and gravel and larger amounts of crushed rock, and the uplift figure is intended to compensate for West Yorkshire's reliance on aggregate material supplied from neighbouring authorities rather than allow for minerals needs associated with increased housing growth to be met from within West Yorkshire, it was considered appropriate to apply the higher figure of 50% for all West Yorkshire Aggregate.

A5.1.11. Having arrived at a satisfactory figure for H and A, i.e. 32% and 50% respectively the uplift in aggregate production required to deliver planned housing growth could then be calculated by applying the simple formula: $H \times A$, i.e. $0.32 \times 0.5 = 0.16$.

A5.1.12. The full formula can therefore be expressed as: $U = (((P - C) / C) \times A) \times 100$.



Find out more
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