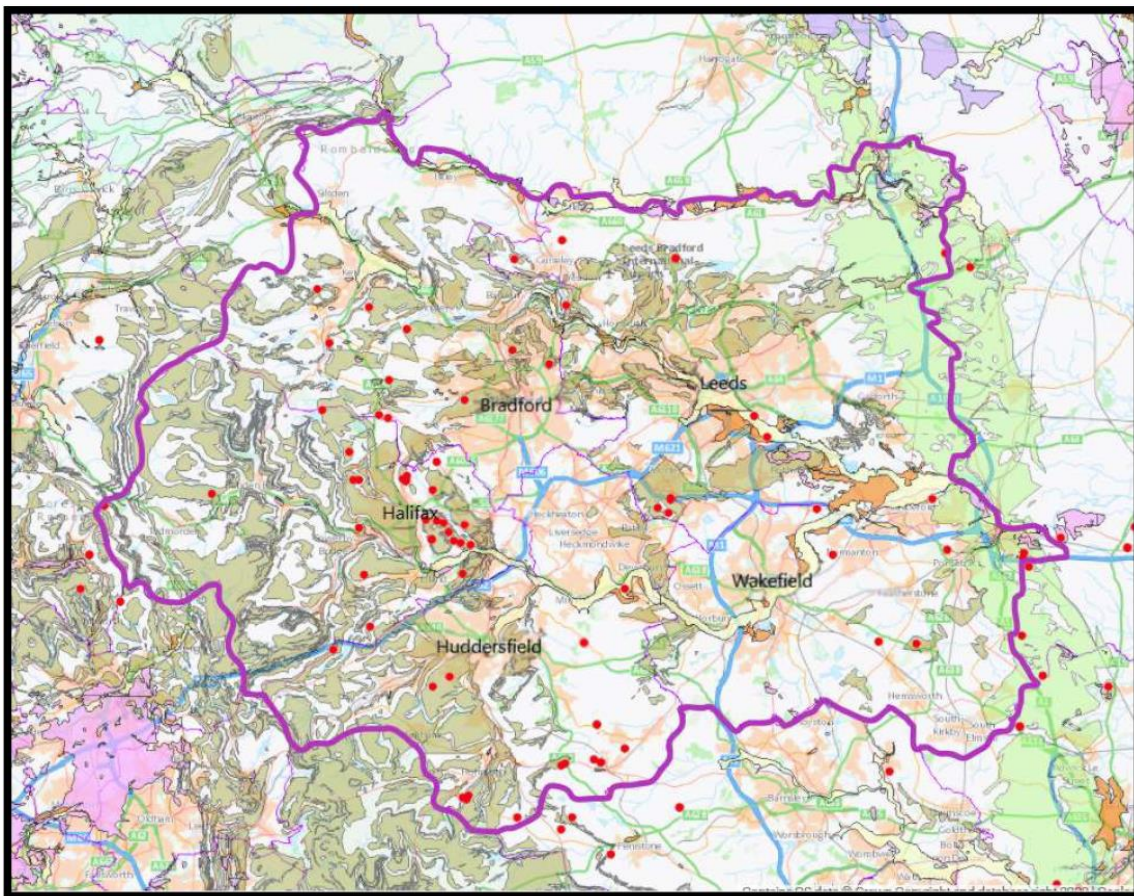


West
Yorkshire
Combined
Authority

Tracy
Brabin
Mayor of
West Yorkshire



West Yorkshire Local Aggregate Assessment - 2022 data



Adopted – December 2023



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Summary 'Dashboard' – West Yorkshire (for the calendar year 2022)

	2022 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)	Capacity (Mtpa)	Comments ³
Sand & Gravel	c	0.07 (no change)	0.03	0.78 ↓	1.91 ↑	24.35 ↑	7.5	No data	APR = 18.5% uplift on 10-year average sales; Significant increase in reserve and landbank (now >7yrs) due to 2 sites granted pp. Landbank resilience uncertain.
Crushed Rock	1.20 ↑	0.97 ↑	0.95 ↑	1.16 ↑	40.53 ↑	35.23 ↑	0	No data	A significant increase in sales. Continued increase in reserve and landbank mainly to reassessment of sites in Calderdale
Recycled / Secondary Aggregates	0.85 ↓	No data	0.86 ↓	n/a	n/a	n/a	n/a	1.0	Sales based on WDI 2022. Capacity based on max output achieved in recent yrs
Marine Sand & Gravel	No data	No data	No data	n/a	n/a	n/a	n/a	2	Wharf stopped importing marine won S&G – currently HGV only. 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
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 (Crushed Rock)	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** – indicates whether the average sales are (compared with the previous year's LAA average sales) increasing (upwards arrow), declining (downwards arrow) or no change (level arrow).

2. **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.
3. **Comments** – Comments explain possible anomalies e.g., peculiarities about current sales, landbank limitations, important infrastructure changes, soft sand sales at wharves, origins of aggregate imports by sea/rail etc.
4. **Shading** applied where aggregate supply source is not relevant.
5. **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.
6. **'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
MTPA or 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
PP or 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 Aggregate Assessment
YDNP	Yorkshire Dales National Park
YHAWP	Yorkshire and Humber Aggregates Working Party

EXECUTIVE SUMMARY

A Local Aggregates Assessment (LAA) is an annual report designed to provide evidence to support both the minerals industry and Mineral Planning Authorities in planning for the future provision of aggregates. The LAA should be updated annually, and this document represents the West Yorkshire Local Aggregate Assessment incorporating 2022 data (known as the 'West Yorkshire Local Aggregate Assessment - 2022 data'). This is the tenth LAA to be prepared by the West Yorkshire Combined Authority (WYCA) on behalf of the five West Yorkshire Mineral Planning Authorities of: Leeds, Bradford, Kirklees, Wakefield and Calderdale.

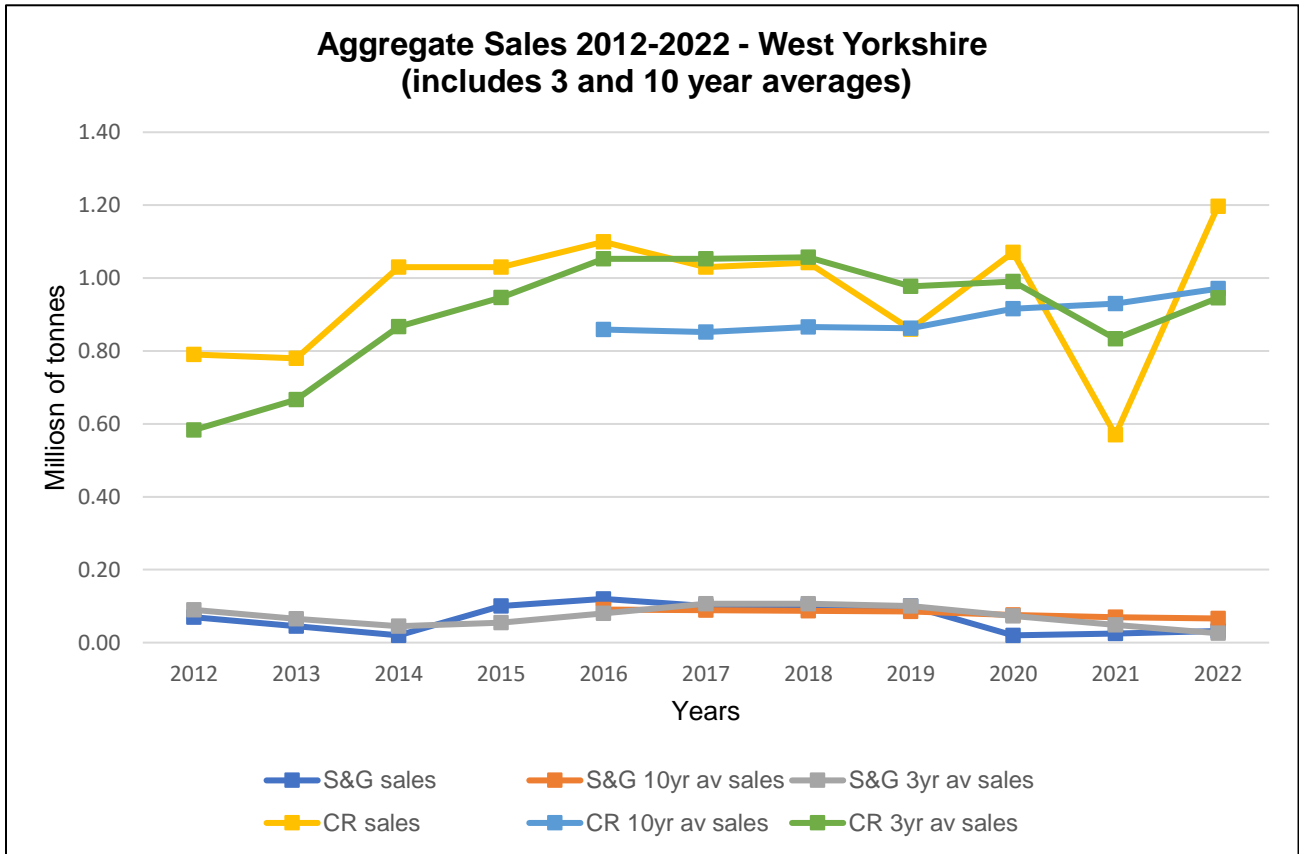
Due to its geology, West Yorkshire is heavily reliant on the importation of sand and gravel to meet its demand for this type of aggregate. Sales of sand and gravel continued to take place from the single working sand and gravel quarry within West Yorkshire which is nearing exhaustion. Further reserves will need to be permitted if any primary sand and gravel extraction is to continue within West Yorkshire, beyond the production of building sand as a by-product at several sandstone quarries. Although annual sand & gravel sales remain confidential, a 10-year annual average sales figure of 0.07 million tonnes can be calculated and reported which is the same as 2021. West Yorkshire sand and gravel reserves, as of 31 December 2022, were 1.91 million tonnes, an increase of 1.58 million tonnes.

Marine dredged sand and gravel aggregates continue to enter the West Yorkshire market and, despite an attempt to quantify the level of imports, the full extent to which marine aggregates may compensate for declining supplies, and quality, of land won material is not understood. Imports of marine aggregates by barge to Knostrop Wharf in Leeds ceased in 2022 as, without the wharf being extended to allow an increase in imports this activity is currently no longer viable. 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 importing marine aggregate. 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.

Survey returns for 2022 indicate crushed rock aggregate production increased to 1.2 million tonnes suggesting that the significant dip in sales reported for 2021 was an anomaly most likely due to a reporting error. Except for 2019, in the last 7 years, sales from quarries in West Yorkshire have been relatively steady at approximately 1 million tonnes per annum, albeit showing an increasing trend (if 2021 data is ignored). Reserves are reported as 2 million tonnes greater than in 2021 which is largely due to a reassessment of sites in Calderdale. The 10 year average sales for crushed rock increased to 0.97 million tonnes and the 3 year average sales declined to 0.95 million tonnes (1.04mt if 2021 data is ignored).

Figure EF1 shows the aggregate sales pattern and trends for West Yorkshire between 2012 and 2022:

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 there appears to be a strong relationship housing delivery and aggregate production, as shown by Figure EF2¹, and Local Plans are anticipating an increasing rate of housing delivery. Other major infrastructure projects are also anticipated, which are likely to impact on 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.

¹ Note the divergence shown in 2020/21 may be due to the effects of the lockdown associated with the Covid pandemic.

Figure EF2

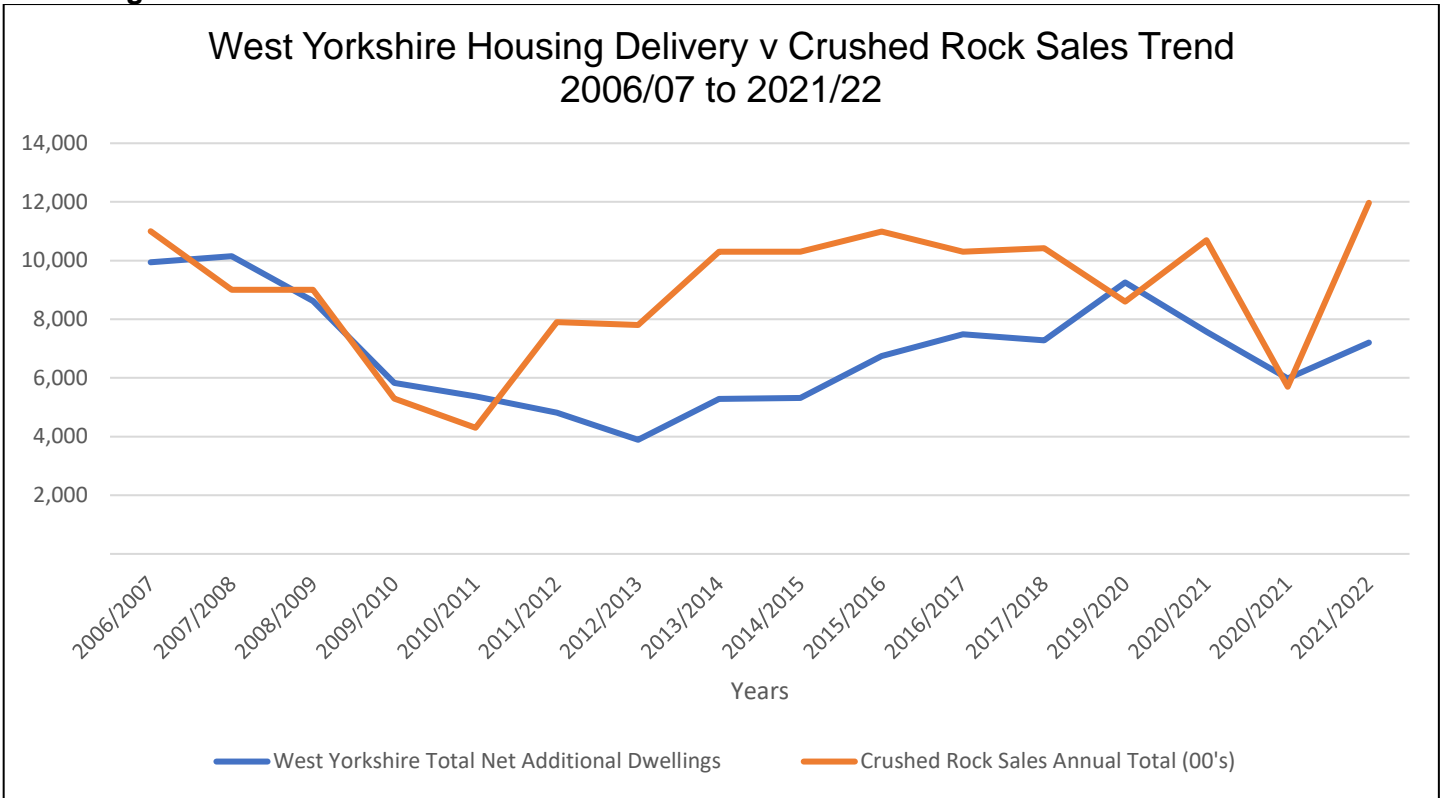
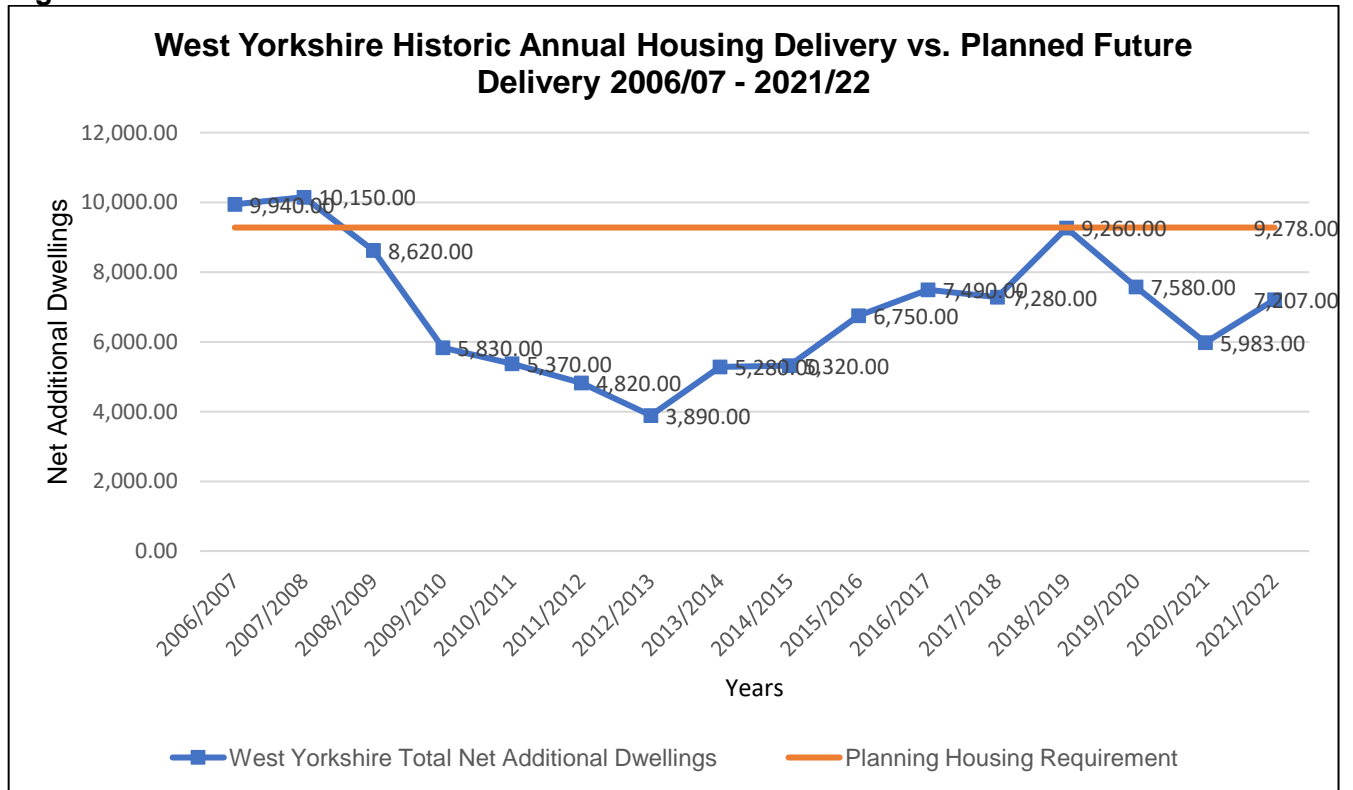


Figure EF3



Consequently, an uplift factor (calculated as 18.5% for this LAA) has been applied to the 10-year aggregate 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 the table below.

West Yorkshire Aggregate Landbanks

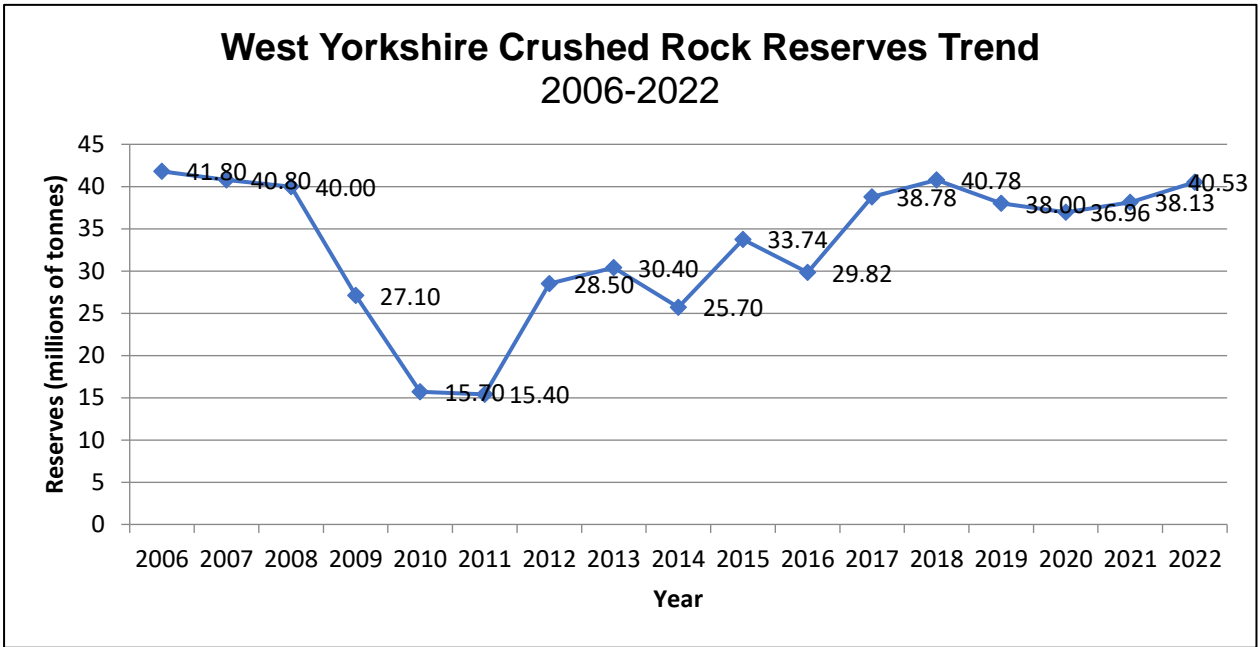
Note: All Figures in Tonnes Unless Otherwise Stated	Reserve 2022	10 yr Annual Sales Average 2012- 2022	18.5% Uplifted Aggregate	Landbank
Sand and Gravel	1,910,000	66,200	78,447	24 Years 4 Months
Crushed Rock	40,530,000	970,799	1,150,397	35 Years 3 Months

The Sand and Gravel landbank of **24 years and 4 months** is significantly above the minimum landbank required by paragraph 213(f) of the National Planning Policy Framework (NPPF). This apparent improvement in the landbank is due mainly to planning permission having been granted in 2022 for the new sand and gravel quarry in Wakefield with a 1.6 million tonne estimated reserve to be worked at a rate of 150,000 tonnes per year. Another, much smaller, site was granted permission in Bradford and together these additional reserves helped result in a landbank exceeding the minimum 7 year requirement for the first time in seven years, however the resilience of this landbank is highly dependent on the newly permitted site in Wakefield which is not yet fully operational and 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 newly permitted sites will result in an increase in sales in West Yorkshire, but these will still be at relatively low levels and have little 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. An attempt at quantifying the degree to which demand is met by imports of marine aggregate into West Yorkshire was made by surveying the main suppliers of such aggregate however this was unsuccessful due to the limited response received.

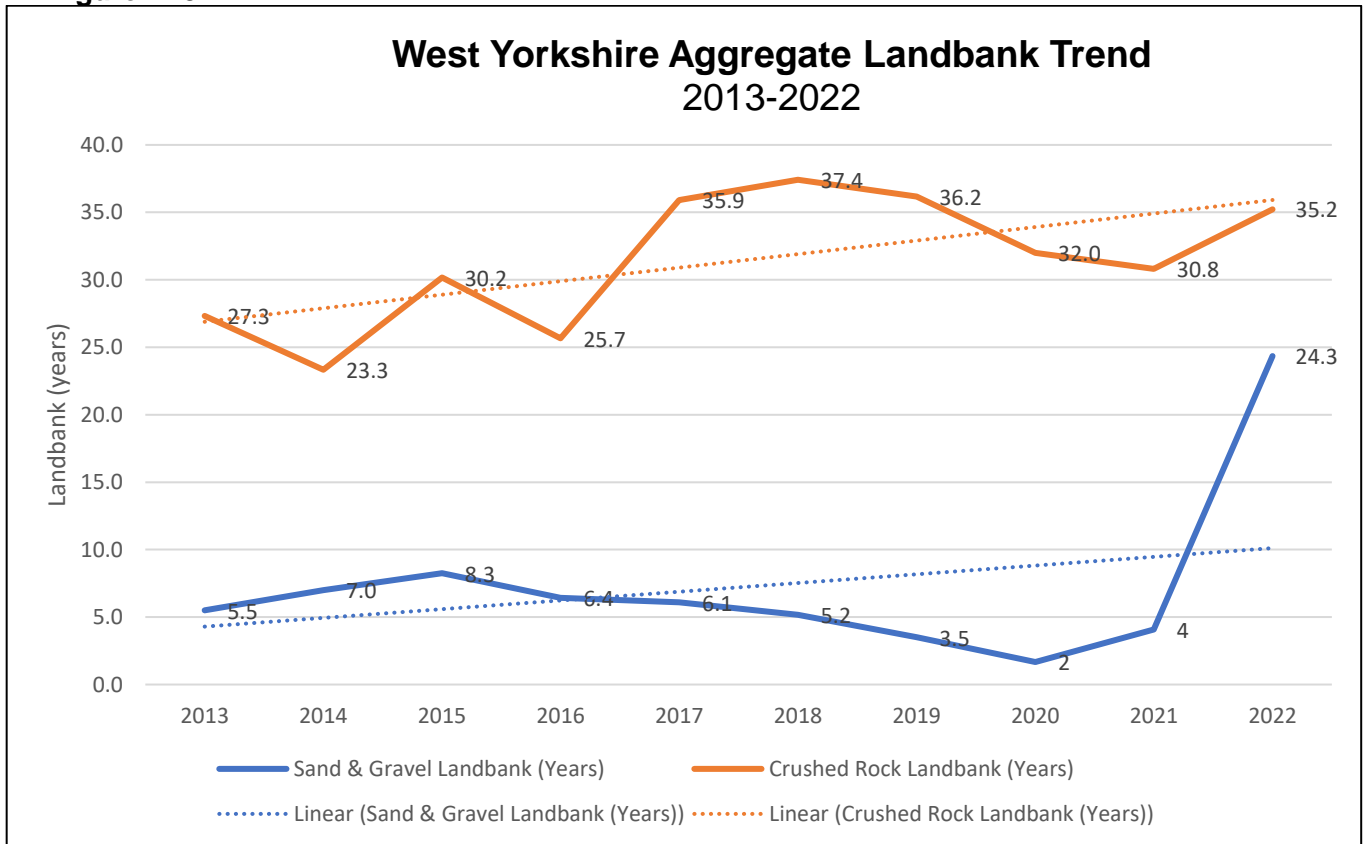
The crushed rock aggregate landbank of **35 years and 3 months** is significantly above the 10-year minimum level required by the NPPF. However, as illustrated by Figure EF4, crushed rock reserves remain just below pre-recession levels and so should not necessarily be seen as excessive or problematic, 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.

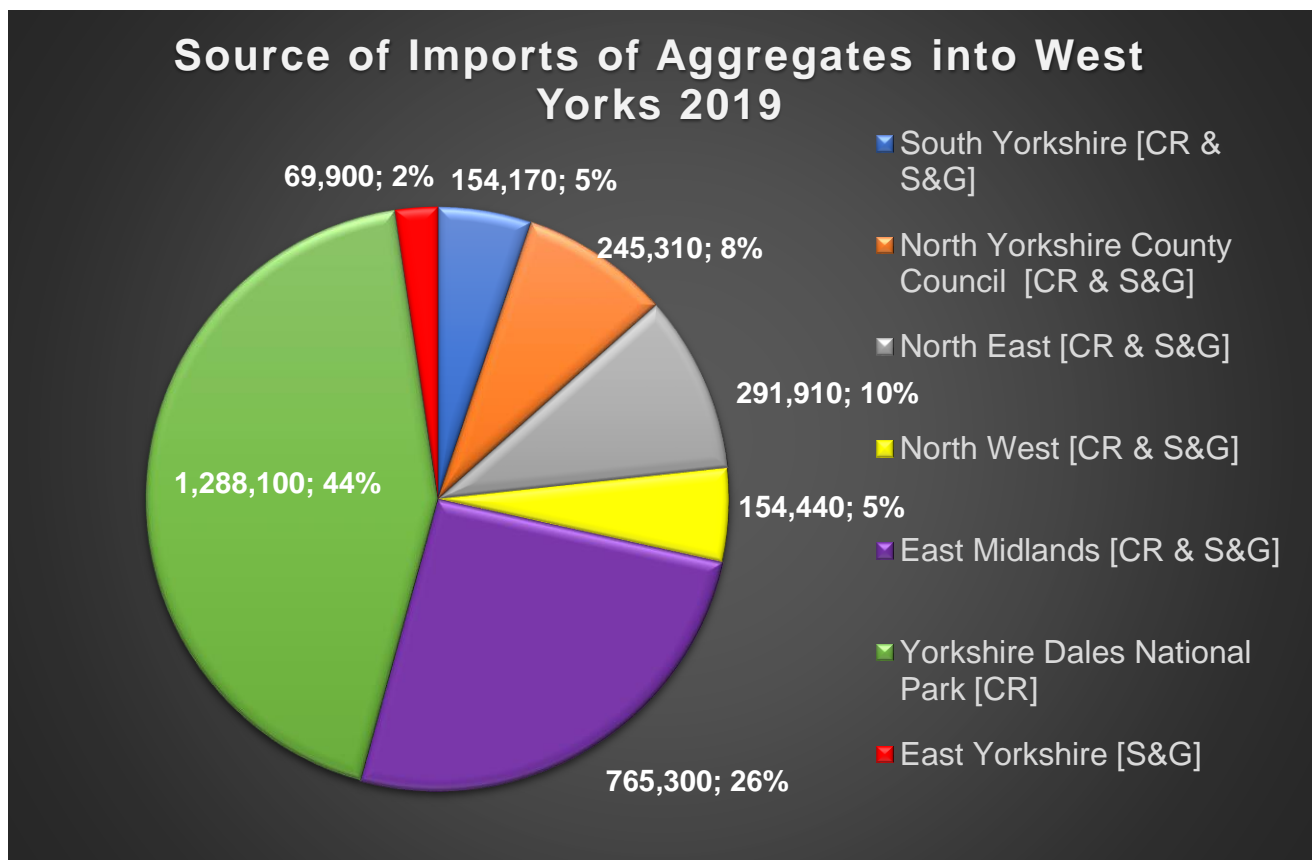
Figure EF5



According to the [Collation of the results of the 2019 Aggregate Minerals survey for England and Wales](#) 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 thought 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 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 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 (AMS2019). Figure EF6 below illustrates the distribution of aggregate imports into West Yorkshire between relevant MPA. The AMS is to be updated in 2024 and the results will be reported in next year’s LAA.

Figure EF6²



² BGS, 2021 – Derived from Aggregate Minerals Survey for England and Wales 2019 (data tables provided to MPAs)

In addition to the length 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 assessing proposals and allocations for minerals development and associated infrastructure are:

- i. **Additional aggregate supplies will be required for housing and infrastructure** - Housing delivery has significantly improved in West Yorkshire in recent years; however, there remains a gap between the number of houses being built and the objectively assessed need for new housing. However, in the coming years recessionary effects may impact on housing delivery. 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, if not impossible 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 apparent significant improvement in the landbank is due to the low level of sales and permissions granted in 2022, however the deliverability of one of the new permissions is 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.
- v. **Crushed rock landbank is healthy but includes mainly lower specification material** - Crushed rock reserves remain relatively high within West Yorkshire; however, 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. These areas 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** - Providing new and enhanced facilities for the production of recycled aggregates will assist in West Yorkshire's contribution to aggregate production & help to compensate for its reliance on primary aggregates quarried from neighbouring authorities.
- 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 urgency³ 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.

³ The WYCA Marine Aggregates Study (2022) will be updated in 2024.

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:

- *'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.'*

1.1.3. National Planning Practice Guidance confirms that LAAs should contain three elements:

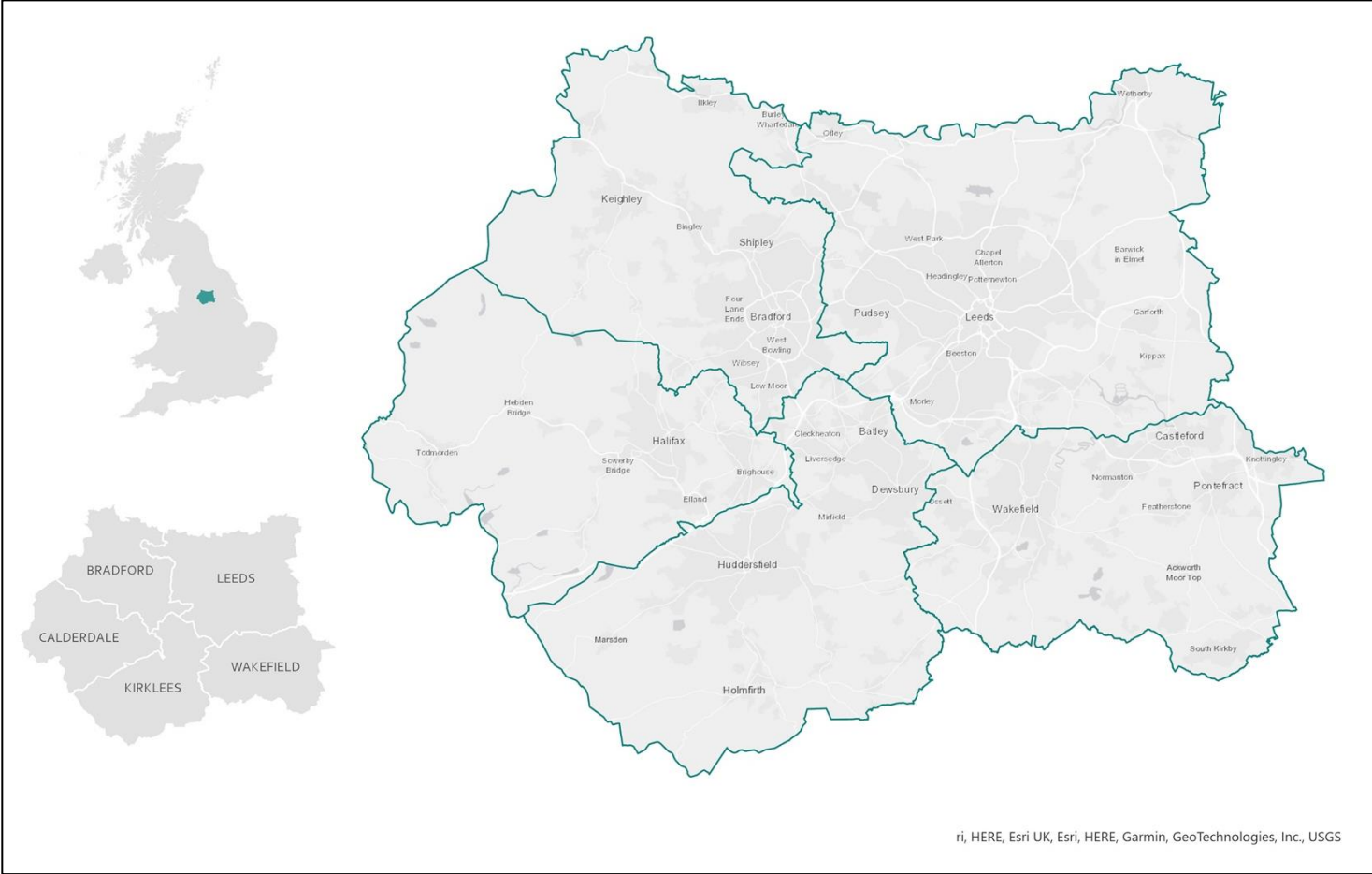
- *'a forecast of the demand for aggregates based on both the rolling average of 10-years sales data and other relevant local information;*
- *an analysis of all aggregate supply options, as indicated by landbanks, mineral plan allocations and capacity data e.g. marine licences for marine aggregate extraction, recycled aggregates and the potential throughputs from wharves. This analysis should be informed by planning information, the aggregate industry and other bodies such as local enterprise partnerships; and*
- *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.'*

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.

FIG. 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 2022 is submitted to the AWP for stakeholder consideration and scrutiny. Following consultation with the AWP, the LAA is updated to take account of comments and then presented to the Heads of Planning of the five authorities for ratification.

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.

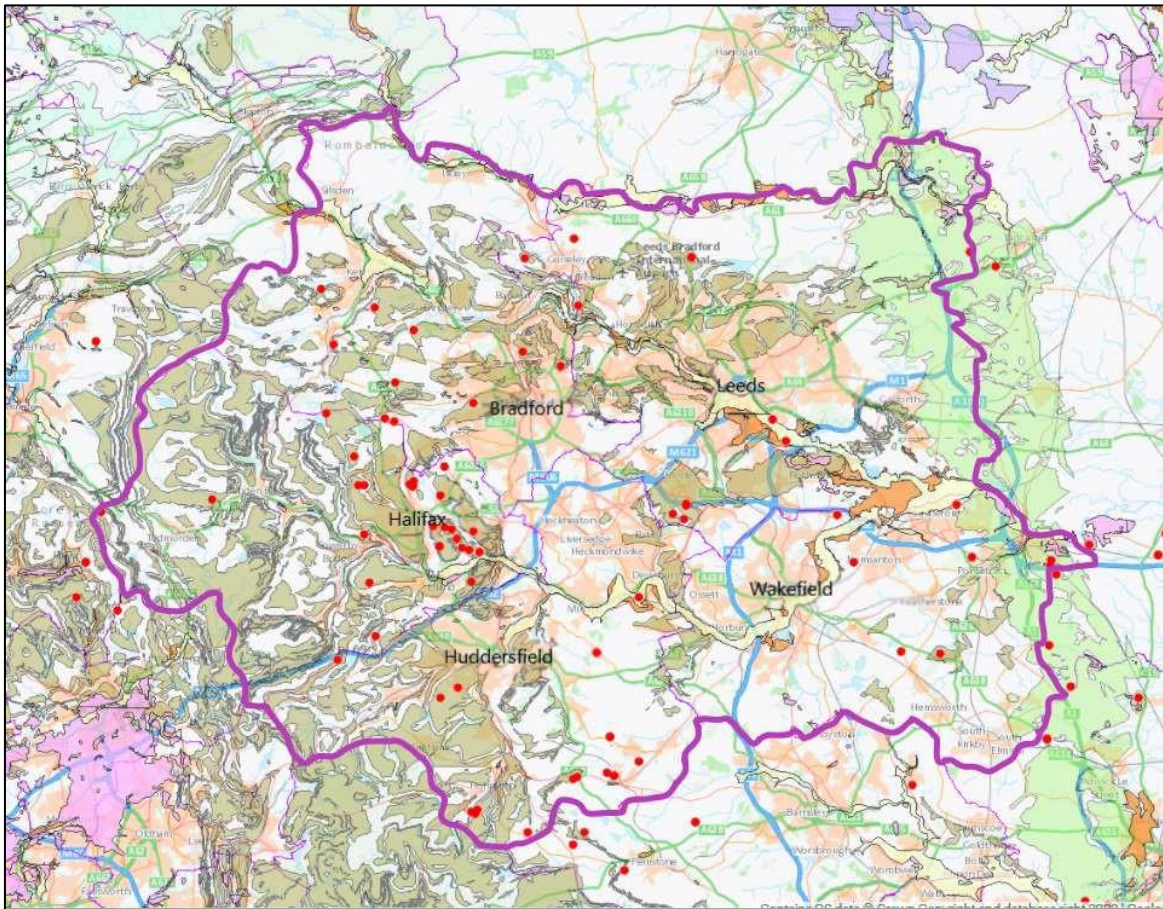
1.2.2. In terms of sand and gravel, BGS research⁴ published in 2009, studied the resource in West Yorkshire with a view to establishing whether the sub-regional apportionment (in the Yorkshire and Humber Regional Spatial Strategy) was correct. The study was informed by a minerals industry consultation 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.

⁴ West Yorkshire sand and gravel resources: Investigating the potential for an increased sub-regional apportionment.

FIG. 2 Mineral Resource Map of West Yorkshire⁵

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



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

⁵ BGS, 2021, GeolIndex Onshore; Available Online: <http://mapapps2.bgs.ac.uk/geoindex/>

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.

Population

- 1.2.7. 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)⁶ within 13% of the Region's total land area.
- 1.2.8. Substantial growth in population in West Yorkshire is predicted over the next 20 years and the associated household formation will inevitably create the need for new homes, employment opportunities and improvements in transportation and other infrastructure.
- 1.2.9. 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. It is therefore crucial that a steady and adequate supply of 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.
- 1.2.10. Further information on population is included in Appendix 2.

Transportation

- 1.2.11. 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).
- 1.2.12. 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.
- 1.2.13. 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.

⁶ [2021 Census Profile for areas in England and Wales.](#)

- 1.2.14. The BGS estimate 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 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. 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.
- 1.2.15. 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 study⁷ on the potential for marine aggregate to supply the area and the need and potential for developing additional wharf capacity.
- 1.2.16. 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.
- 1.2.17. 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.
- 1.2.18. 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).

National Parks and Areas of Outstanding Natural Beauty

- 1.2.19. 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.
- 1.2.20. Nonetheless it is known that West Yorkshire does receive significant quantities of crushed rock aggregate from quarries within the Yorkshire Dales National Park (YDNP),

⁷ [Marine Aggregates Study, WYCA, 2022](#)

including high specification aggregates, and also receives aggregate quarried within the Nidderdale Area of Outstanding Natural Beauty (AONB). British Geological Survey data⁸ 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).

1.2.21. 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.

1.2.22. 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.

The West Yorkshire Plan

1.2.23. The West Yorkshire Plan 2040⁹ 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.

1.2.24. 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

1.2.25. 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

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.

⁸ <https://www.gov.uk/government/publications/aggregate-minerals-survey-for-england-and-wales-2019>

⁹ West Yorkshire Plan 2040, <https://www.westyorks-ca.gov.uk/growing-the-economy/the-west-yorkshire-plan/>

West Yorkshire Local Plans

1.2.26. 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 Wakefield plan recently received the report of the inspector which found the plan (as modified) sound.

1.2.27. 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 late autumn 2023 and the following winter Leeds City Council intends to undertake the following:

- Publish a plan showing the sites that have been suggested through the call for sites;
- assess all the sites submitted through call for sites;
- analyse new evidence developed and use it, along with the comments received through the scoping consultation, to develop options for new policies;
- consider the infrastructure required to support different growth and policy options;
- consult and engage on options for growth, sites and planning policies.

1.2.28. 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 mid 2024.

1.2.29. The Inspector's Report on the Wakefield District Local Plan 2036 was received in November 2023 and this found the plan sound¹⁰. The Council had previously published main modifications for consultation in summer 2023.

1.2.30. 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 will commence in 2024.

1.2.31. In March 2023 Calderdale Council adopted the Calderdale Local Plan which covers the period to 2033.

1.2.32. Table 1 below summarises the Local Plans within West Yorkshire and associated housing targets:

¹⁰ The Inspector's Report is available to view [here](#), along with the final schedule of recommended main and minor modifications

TAB1 – Most Up-To Date Local Plan Documents with 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 ¹¹	Adopted	Sep-19	54,352	2017	2033	16	3,397
Bradford	Bradford District Local Plan ¹²	Draft (Regulation 18)	Feb-21	30,672	2020	2038	18	1,704
Kirklees	Local Plan ¹³	Adopted	Feb-19	31,140	2013	2031	18	1,730
Wakefield	Publication Draft Plan: Development Strategy Strategic and Local Plan Policies ¹⁴	Inspector's Report received finding the Plan sound	Feb 23	26,600	2017/18	2036/37	19	1,400
Calderdale	Local Plan ¹⁵	Adopted	March-23	14,950	2018/19	2032/33	15	997

1.2.33. 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.

1.3. Other Relevant Local Aggregate Assessments

1.3.1. 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.

1.3.2. The two most significant LAAs, in terms of the aggregates supplied into West Yorkshire, are the LAA relating to the North Yorkshire Sub-region (including the 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);

¹¹ Leeds City Council, Core Strategy Selective Review (adopted September 2019) [CSSR Polices Adoption Sept 2019 Final.pdf \(leeds.gov.uk\)](https://www.leeds.gov.uk/sites/default/files/2019-09/CSSR_Polices_Adoption_Sept_2019_Final.pdf)

¹² 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 \(oc2.uk\)](https://www.bradford.gov.uk/sites/default/files/2021-02/Bradford%20District%20Local%20Plan%20-%20Preferred%20Options%20(Regulation%2018)%20February%202021.pdf)

¹³ Kirklees Council. Local Plan (adopted February 2019) <https://www.kirklees.gov.uk/beta/planning-policy/pdf/local-plan-strategy-and-policies.pdf>

¹⁴ Wakefield Council. Draft Local Plan publication (draft February 2023) <https://www.wakefield.gov.uk/media/fixf510v/sd-11-wakefield-district-local-plan-2036-publication-draft-plan-volume-1-development-strategy-strategic-and-local-policies.pdf>

¹⁵ Calderdale. Local Plan (adopted March 2023) <https://www.calderdale.gov.uk/sites/default/files/2023-06/Local-Plan-Written-Statement.pdf>

- County Durham, Northumberland and Tyne and Wear; and,
- Lancashire

North Yorkshire LAA

1.3.3. The LAA for the North Yorkshire Sub-region (NYLAA)¹⁶ 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 sixth review published in December 2021.

1.3.4. 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)
- High Polished Stone Value (PSV) aggregate); and sand and gravel (including significant quantities of concreting grade material).

1.3.5. Table 2 shows the level of primary land-won aggregate reserves within the NYLAA Area¹⁷ at the end of 2020.

TAB.2 – Primary Land-won Aggregate Reserves in North Yorkshire, 2020

	Sand and Gravel (mt)	Crushed Rock (mt)				
		Carboniferous Limestone	Magnesian Limestone	Jurassic Limestone	Chalk	High PSV
North Yorkshire County Council	24.8	62.1	9.8	6.9	Some available reserves but site closed	-
Yorkshire Dales National Park	-	76.12	-	-	-	7.22
North York Moors National Park	-	-	-	-	-	-
City of York Council	-	-	-	-	-	-
Total	24.8	138.22	9.81	6.9	Some available reserves but site closed	7.22

1.3.6. 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.

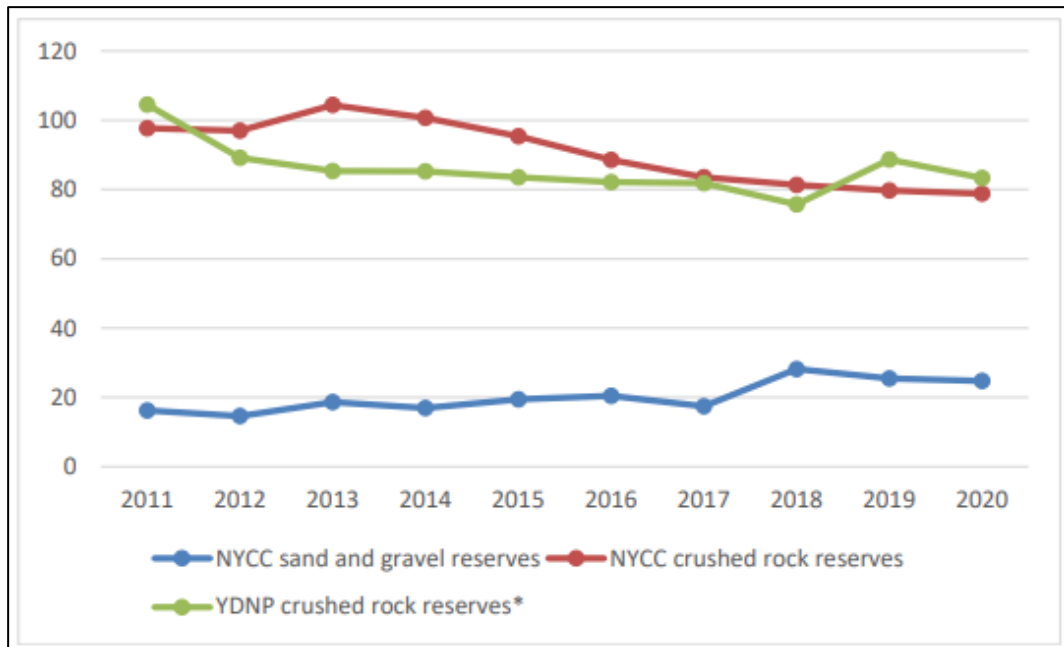
¹⁶ North Yorkshire Local Aggregate Assessment, sixth review, 2021 (published December 2022) [Local aggregate assessment for the North Yorkshire sub-region - sixth review 2021](#)

¹⁷North Yorkshire Local Aggregate Assessment, sixth review, 2021 (published December 2022) [Local aggregate assessment for the North Yorkshire sub-region - sixth review 2021](#)

- 1.3.7. 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.
- 1.3.8. 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.
- 1.3.9. 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 2021 acknowledges that a high level of the sand and gravel and crushed rock exported from North Yorkshire is utilised within the West Yorkshire region.
- 1.3.10. The 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.
- 1.3.11. 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'*.
- 1.3.12. The 6th review NYLAA confirms that the trend for all crushed rock has been one of gradual decline (see Figure 3) ¹⁸.

¹⁸ North Yorkshire Local Aggregate Assessment, sixth review, 2021 (published December 2022) [Local aggregate assessment for the North Yorkshire sub-region - sixth review 2021](#)

FIG.3 – Aggregate Reserves Trends in North Yorkshire



1.3.13.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. It should also be noted that this site quarries carboniferous limestone, which is primarily used as a concreting aggregate and so the extension does not improve the security of supply of the HAS/ High PSV sandstone. It should be noted that 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.

1.3.14.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.

1.3.15.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 and help meet demand for construction aggregate in West Yorkshire.

1.3.16.In relation to the future availability of HSA/ High PSV aggregates, the NYLAA 6th Review assesses that that 'although potential future resources of high PSV material are limited by geological conditions at the three existing quarries'.

1.3.17. The 6th review NYLAA notes that an application to deepen Arcow Quarry was received in 2016 and granted in July 2017, 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.

1.3.18. The NYLAA 6th 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 *'Liaison between Cumbria County Council and the YDNPA in relation to supply of high PSV aggregate would be useful and is already taking place'*.

1.3.19. Unless, new permissions are granted, there is potential for reserves of Magnesian Limestone in particular to be significantly reduced in the mid-term.

1.3.20. The reserve of sand and gravel reported within the North Yorkshire LAA 5th review document¹⁹ has increased substantially between 2017 and 2018 (by 62% from 17.4 million tonnes to 28.2 million tonnes) due to new permissions being granted – as forecast within previous LAAs. This has also been expressed within the North Yorkshire LAA 6th review document due to new permissions the reserves for sand and gravel have increased.

1.3.21. The 6th review has concluded that the previous shortfall in the provision of sand and gravel from the North Yorkshire County Council identified in previous LAA's has been positively influenced by new planning permissions being granted, so much so that there is currently no shortfall 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.

1.3.22. In terms of the landbanks presented within the NYLAA, the 6th review document puts the 2022 landbanks at 15.5 years for sand and gravel, 26.2 years for crushed rock (outside of YDNP) and 26.9 years for crushed rock within the YDNP.

1.3.23. 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, which links directly to a requirement for aggregate.

1.3.24. Consequently, the NYLAA sixth 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 1st January 2021 to 31 December 2030 is considered appropriate for the North Yorkshire County Council area'*.

¹⁹ North Yorkshire Local Aggregate Assessment, fifth review, 2019 (published October 2019)
northyorks.gov.uk/sites/default/files/fileroot/planning_migrated/minerals_and_waste_plan/LAA_2019_5th_review_Final_-_accessible.pdf

1.3.25. This compares to 10-year sales averages of 1.6 million tonnes sand and gravel and 3.0 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 is notable that no future provision rate for crushed rock from the YDNP is proposed.

Derbyshire, Derby and Peak District National Park LAA

1.3.26. The Derbyshire, Derby and Peak District National Park LAA 2022 (DD&PDLAA 2022)²⁰ summarises aggregate sales and reserves as shown in the Table 3 below.

TAB.3 –Derbyshire, Derby and Peak District National Park LAA 2022 (2021 data) Dashboard

Aggregate	Sales in 2021 (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 2021 (million tonnes)	Change in permitted reserves from previous year	Landbank (years)	Change in Landbank from previous years
Land won Sand and Gravel	0.99	↑	0.93	0.78	↓	0.93	9.34	↓	10.1	↓
Crushed Rock	12.27	↑	10.39	11.55	↑	11.55	759.1	↑	65	↑
Marine sand and gravel	nil									
Total Primary Aggregates	13.26	↑	11.32	12.33	↑					
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

1.3.27. 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 768.4 million tonnes. This reserve comprises 759 million tonnes of limestone and 9.34 million tonnes of sandstone/gritstone.

1.3.28. 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 65 years based on the LAA annual provision rate.

1.3.29. In terms of supply levels, the DD&PDLAA 2022 calculates a 10-year sales average of crushed rock aggregate for Derbyshire and the Peak District of 10.39 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

²⁰Derbyshire, Derby and Peak District National Park LAA 2022 <https://www.derbyshire.gov.uk/site-elements/documents/pdf/environment/planning/planning-policy/minerals-waste-development-framework/local-aggregate-assessment-laa.pdf>

2022 adopts the approach of using the most recent 3-year sales figure of 11.55mt to reflect the recent and continued increase in production of aggregate crushed rock in the area for the purpose of calculating the landbank.

- 1.3.30. The DD&PDLAA 2022 identifies that *'Derbyshire and PDNP is a significant net exporter of aggregate grade crushed rock to other areas, amounting to an average of around 7-8 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.
- 1.3.31. 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 2022 estimates that 66 % of the crushed rock (8.2 million tonnes) produced within Derbyshire and the Peak District was exported to other areas, the main destinations being the North West, West Midlands and Yorkshire & Humber regions. 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.
- 1.3.32. The approach within the DD&PDLAA 2022, 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.
- 1.3.33. 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.
- 1.3.34. 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 2021 are calculated as 9.34 million tonnes with a landbank of 10.1 years at the proposed provision figure of 0.93 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.

County Durham, Northumberland and Tyne and Wear Joint LAA

- 1.3.35. The most recent version of the Joint Local Aggregates Assessment for County Durham, Northumberland and Tyne and Wear was published in April 2022 and provides a

quantitative assessment of supply and reserve levels using data from 2019 and 2020 as set out in Table 4 below:

TAB.4 – County Durham, Northumberland and Tyne and Wear²¹ Aggregate Sales and Reserves (2019 and 2020 data)

Sub-area	Resource	Permitted Reserves 2019	Permitted Reserves 2020	Annual demand Requirement	Demand 2021 to 2036	Balance Between Demand and Supply 2021 to 2036
County Durham	Crushed rock	111,060	97,468	3,125	50,000	47,468
	Sand and gravel	5,600	5,247	438	7,008	-1,761
Northumberland	Crushed rock	80,070*	79,060*	1,717	25,755	53,305
	Sand and gravel	5,585*	4,594*	356	5,340	-746
Tyne and Wear	Crushed rock	5,948e	5,496e	467	7,472	-1,976
	Sand and gravel	5,701e	5,498e	240	3,840	1,658
Joint LAA Area	Crushed Rock	197,078	182,024	5,309	84,944	97,080
	Sand and gravel	16,886	15,339	1,034	16,544	-1,205

1.3.36. The LAA includes the following key conclusions:

- County Durham has sufficient permitted reserves of both crushed rock and sand and gravel to meet the future need from quarries in this sub-area in the long term. However, previous consideration of the composition of the crushed rock landbank has led to a need being identified for additional carboniferous limestone working, this has been reflected in the adopted County Durham Plan (October 2020) and two allocations for further working have been made, one of which has now been granted planning permission. The Council should seek to allocate further permitted reserves of sand and gravel to meet longer term need through future work to prepare its Minerals and Waste Policies and Allocations Document. Several crushed rock quarries and one sand and gravel quarry have been inactive for a number of years, whilst two crushed rock and three sand and gravel quarries all have end dates before 2036.
- Northumberland has sufficient permitted reserves of crushed rock to meet the calculated demand. However, the overall picture is more complex as there are issues around the distribution of reserves, the productive capacity of sites and the end dates of some sites, indicating a need to allocate further sites in the Northumberland Local Plan.
- For sand and gravel in Northumberland, the figures indicate that there is a shortfall in permitted reserves to meet the calculated demand. Annual sales from Northumberland have fallen steadily from historic levels in recent years despite a general pattern of increasing sales across North East England. It is unclear whether the fall in sales from Northumberland has been caused by identified issues with

²¹ Source: Joint Local Aggregates Assessment for County Durham, Northumberland and Tyne and Wear December 2022

productive capacity of sites or a re-balancing of supply. Given the lack of significant imports to the region, it is not thought appropriate to adjust Northumberland's annual demand requirement at this stage, however this will be closely monitored.

- Tyne and Wear has sufficient permitted reserves of crushed rock and sand and gravel to meet the calculated demand from quarries in this sub-area. However, it does not have sufficient permitted reserves of crushed rock to meet the calculated demand from quarries in this sub-area.

1.3.37. Previously the LAA reported AM2014 data which indicated that, at that time, there were no significant minerals flows from the North East to West Yorkshire, however a very different picture is indicated by AM2019 data which points to substantial quantities of aggregate now being transported from the North East into West Yorkshire (primarily crushed rock but also sand and gravel).

Doncaster and Rotherham LAA

1.3.38. An updated LAA (2021 data) for Doncaster and Rotherham (D&RLAA 2021)²² was published in December 2022 with a summary of aggregate sales and reserves as shown in the Table 5 below.

TAB.5 – Doncaster and Rotherham LAA 2022 (2021 data) Dashboard

	Performance in 2020 (Mt)	Performance in 2021 (Mt)	In comparison to previous year (Mt)
Land won sand and gravel sales (tonnes) (mostly soft sand)	0.53Mt	0.62Mt	▲
Permitted reserves of sand & gravel (tonnes) (mostly soft sand)	7.8Mt	7.0Mt	▼
Sand and gravel landbank ¹ (years) (based on ten year average sales)	23.8 years	18.5 years	▼
Sand and gravel landbank (years) (based on 3 year average sales)	13.9 years	12.2 years	▼
Sand and gravel landbank (years) (using local provision of 0.42Mt)	18.7 years	16.7 years	▼
Land won crushed rock sales (tonnes)	2.4Mt	3.2Mt	▲
Permitted reserves of crushed rock (tonnes)	48.9Mt	44Mt	▼
Crushed rock landbank ¹ (years) (based on ten year average sales)	26.9 years	21.6 years	▼
Crushed rock landbank (years) (based on 3 year average sales)	21.6 years	16.5 years	▼
Crushed rock landbank (years) (using fixed rate of 2Mt)	24.5 years	22 years	▼

1.3.39. According to BGS data (2019), Doncaster provided up to 10% of the crushed rock consumed within West Yorkshire in 2019.

²² Doncaster and Rotherham Local Aggregate Assessment [2022 Local Aggregates Assessment \(rotherham.gov.uk\)](https://www.rotherham.gov.uk/2022-Local-Aggregates-Assessment)

- 1.3.40. 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.
- 1.3.41. In relation to crushed rock the D&RLAA advises that the landbank was 24.5 years. 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 in the short and medium term.
- 1.3.42. In relation to sand and gravel, based on ten-year average sales, the landbank is 18.5 years. 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.
- 1.3.43. The 2021 landbanks suggest there is currently sufficient provision of crushed rock and sand and gravel, however, it should be noted that South Yorkshire is, and will remain, reliant on imports of sand and gravel from other areas to meet development needs.
- 1.3.44. 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 Limestone²³ (see Appendix 1).

Humber Area LAA

- 1.3.45. The Humber Area LAA²⁴ 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.
- 1.3.46. 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 is just under the seven years required by the NPPF. This is the first year the formal Humber apportionment has been used.

²³ 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://www.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). February 2017

²⁴ Humber Area Local Aggregate Assessment. June 2023 (Date up to 2021)

TAB.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

1.3.47. 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.

TAB.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

1.3.48. 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.

1.3.49. The Humber LAA notes that marine aggregates provide a potential source of aggregates to the Yorkshire & Humber Region, including West Yorkshire, and beyond.

1.3.50. 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’.

Joint Lancashire LAA

1.3.51. Lancashire County Council published the latest Joint Lancashire Local Aggregate Assessment in November 2022 reporting 2021 data)²⁵. The LAA summarises the landbank position as shown in Table 10 below:

TAB.8 – Joint Lancashire Local Aggregate Assessment November 2022 (2021 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	0.13	0.41	0.26	↓	0.41	4.43	11		A majority of the remaining quarries are worked out, production capacity is therefore significantly reduced. Runshaw, which represents most of the permitted reserves, has yet to start working. Sales are significantly reduced.
Limestone	2.93	2.16	2.43	↑	2.43	39.92	19		Number of quarries set to reduce during the forecast period. Sales are increasing. Reassessment at one quarry has reduced the permitted reserves
Gritstone	1.04	1.03	1	↔	1.03	73.67	72		Approximately 70% of the permitted reserve is held in Whitworth Quarry Sales are returning to precession levels

1.3.52. 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’.

²⁵ Joint Lancashire Local Aggregate Assessment (November 2022) [Local Aggregate Assessment \(lancashire.gov.uk\)](https://www.lancashire.gov.uk/local-aggregate-assessment/)

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 evidence²⁶ 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. Sand & Gravel Reserves

- 2.2.1. 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).
- 2.2.2. Table 9 below indicates the 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.

²⁶ 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

TAB.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 (sand and gravel) LP1268	Allocated as Mineral Reserves
Penbank, Castleford (sand and gravel) LP1269	Allocated as Mineral Reserves
The Strands, Horbury Bridge (sand and gravel) L1267	Allocated as Mineral Reserves
Potential Total Reserve	C. 7.5 million tonnes

2.2.3. 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.

2.2.4. As of 31 December 2022, there were three sites within West Yorkshire with permitted reserves of sand and gravel:

- Forge Lane (Kirklees)
- Hallas Rough (Bradford)
- Stanley Ferry (Wakefield)

Reserves at Arthington Quarry were reported as sand and gravel in the previous LAA but in this LAA have been reassigned to crushed rock in light of further information. The Forge Lane site in Kirklees, began production in late 2014. At the current rate of extraction reserves at this site will be exhausted within 4 years.

2.2.5. A new application was permitted for the extraction of an estimated 1.6 million tonne River Terrace deposit of Sand and Gravel at Stanley Ferry in Wakefield in 2022²⁷. The applicant of the proposed new working in Wakefield is the operator of the only currently existing sand and gravel quarry within Kirklees and would extract 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 new permission has resulted in a significant increase in 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.

2.2.6. In 2022 some limited additional sand reserves were also permitted at Hallas Rough by Bradford City Council.

²⁷ Note that Stanley Ferry reserves have not been factored into land bank calculations in this LAA as permission was granted after this LAA's monitoring period (2021)

2.2.7. Although BGS mapping indicates that limited sand and gravel resources may remain within Calderdale, no permitted reserves are currently present within this District.

2.2.8. The total West Yorkshire reserve of Sand and Gravel as of 31 December 2022 was 1.9 million tonnes, a significant increase of just under 1.6 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 2021. It is notable that total regional sand and gravel reserves declined relatively rapidly after 2012 and in 2014. However, after 2014, regional sand & gravel reserves recovered well and in 2018 were at the highest level seen for over a decade.

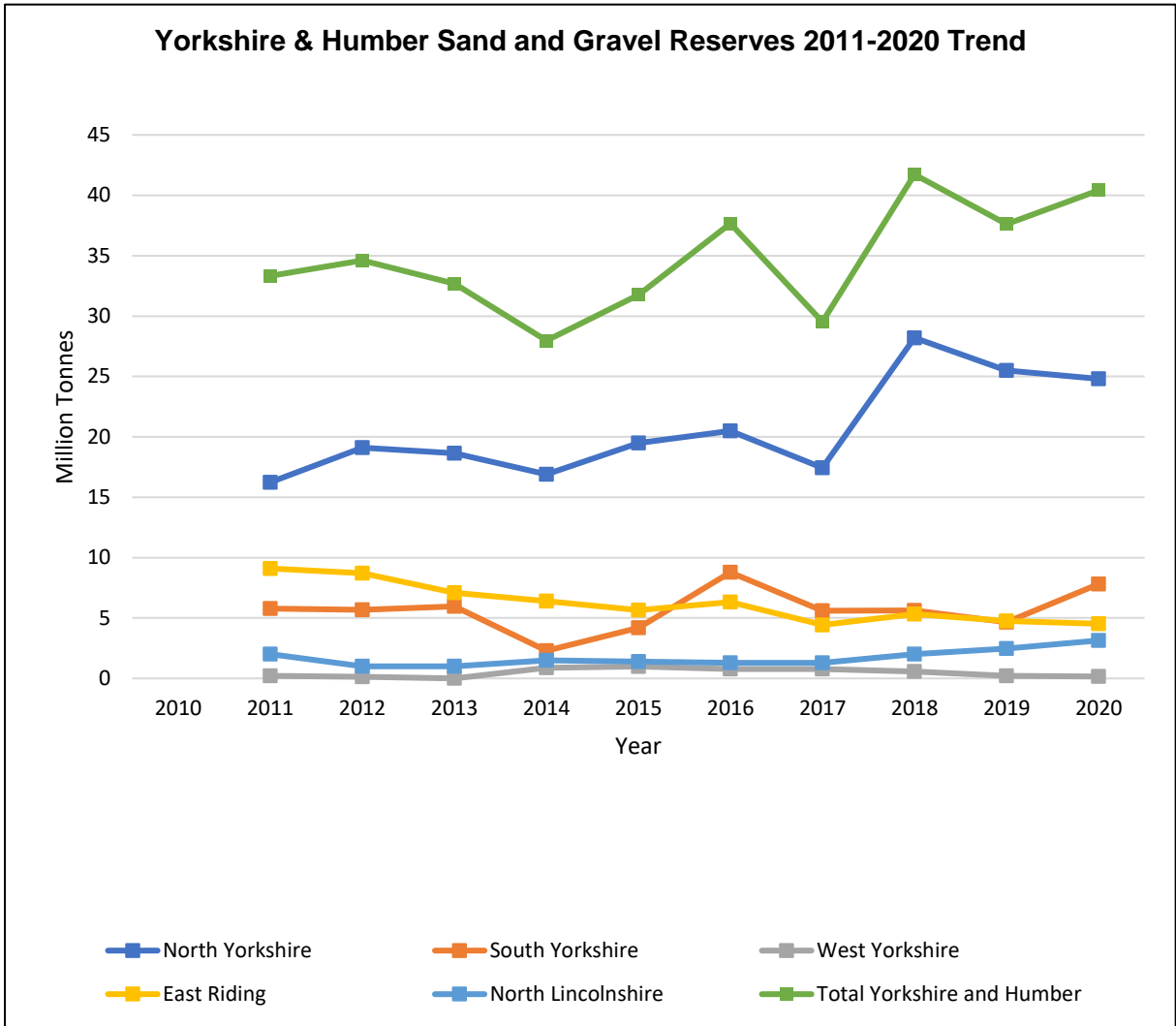
2.2.9. West Yorkshire consistently makes a relatively insignificant contribution to the overall regional reserves, with less than 1% of the 2020 Yorkshire and the Humber Sand and Gravel Reserve contained within West Yorkshire.

TAB.10 – Yorkshire & Humber Sand and Gravel Reserves 2011-2020²⁸

Sub-Region	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Sand and Gravel Reserves										
North Yorkshire	16.24	19.1	18.63	16.9	19.5	20.5	17.43	28.2	25.5	24.8
South Yorkshire	5.79	5.67	5.95	2.29	4.2	8.78	5.6	5.63	4.66	7.8
West Yorkshire	0.2	0.14	0	0.88	0.99	0.77	0.77	0.57	0.22	0.15
East Riding	9.1	8.7	7.1	6.4	5.66	6.32	4.43	5.32	4.76	4.52
North Lincolnshire	2	1	1	1.5	1.4	1.3	1.3	2	2.47	3.14
Total Yorkshire and Humber	33.33	34.61	32.68	27.97	31.75	37.67	29.53	41.72	37.61	40.41

²⁸ [YHAWP Annual Monitoring Report 2021 \(including data from 2019 and 2020\) \(Published Jan 2023\)](#)

FIG.4 – Yorkshire & Humber Sand and Gravel Reserves Trend 2011- 2020



2.3. Sand & Gravel Sales

- 2.3.1. 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.
- 2.3.2. 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 2021.

TAB.11 – Yorkshire & Humber Sand and Gravel Sales 2011-2020²⁹

Sub-Region	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Sand and Gravel Sales										
North Yorkshire	1.7	1.6	1.5	1.7	1.7	1.7	1.75	1.8	1.4	1.5
South and West Yorkshire ³⁰	0.24	0.24	0.18	0.21	0.54	0.62	0.72	0.73	0.41	0.52
East Riding and North Lincolnshire	0.71	0.56	0.91	0.93	0.92	0.9	0.84	0.92	0.75	0.65
Total Yorkshire and Humber	2.65	2.4	2.59	2.84	3.16	3.22	3.31	3.45	2.56	2.67

- 2.3.3. West and South Yorkshire sales of Sand and Gravel comprised 19% of the Regional Total in 2020, with most of the output being confined to the administrative area of Doncaster Council. After declining to a historic low in 2010 and flat lining thereafter until 2014, an upwards trend had been 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 has reversed. In particular, West Yorkshire sales have remained at a very low level and reserves have continued to decline in light of resource limitations and very limited industry investment in extracting those resources which do remain available for working. In 2022 there was a significant increase in reserves in West Yorkshire though the impact on sales remains to be seen.
- 2.3.4. 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.
- 2.3.5. 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 2013 to 2022 values have been used to calculate the 10- year sales average yearly sales are obscured within the table for commercial

²⁹ YHAWP Annual Monitoring Report 2021 (including data from 2019 and 2020) (Published Jan 2023) (Latest regional data available)

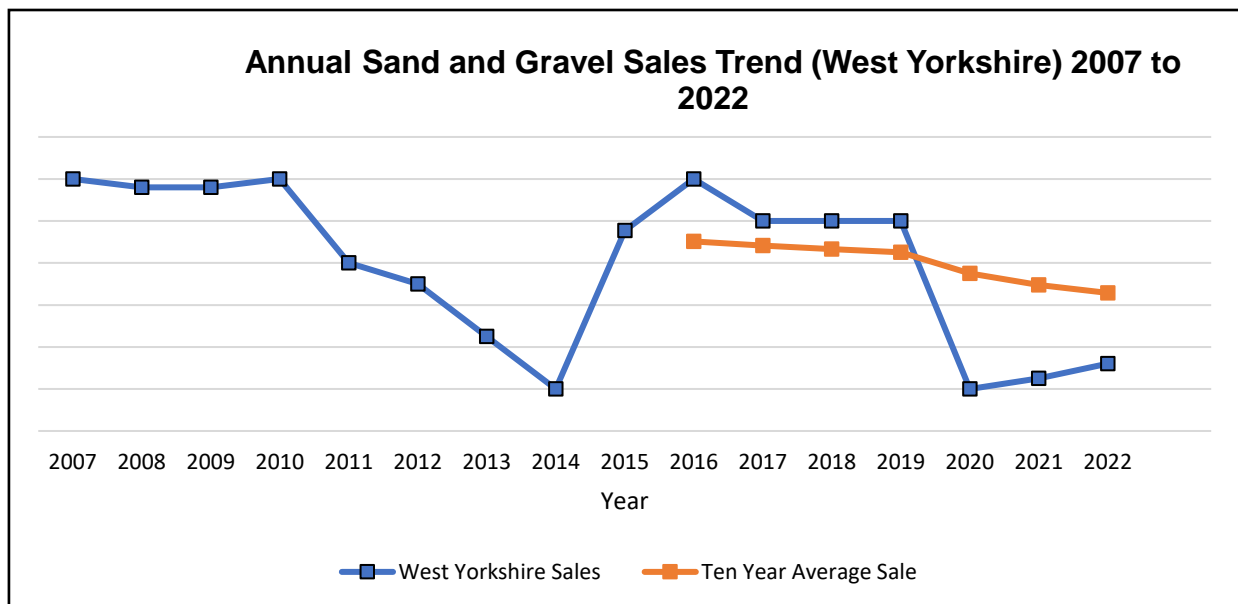
³⁰ West Yorkshire and South Yorkshire sales combined for confidentiality.

confidentiality reasons. Figure 5. illustrates the ten-year sales trend, with the Y Axis removed for confidentiality reasons.

TAB.12 – West Yorkshire Sand and Gravel Sales 2012-2022 (million tonnes)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Ten Year Average
W Yorks Sales	0.07	0.05	c	c	c	c	c	c	c	c	c	0.07

FIG.5 – Annual Sand and Gravel Sales Trend (West Yorkshire)



- 2.3.6. Although annual sales are confidential, a 10-year annual average sand & gravel sales figure of 0.07 million tonnes can be calculated and reported for West Yorkshire. West Yorkshire sand and gravel reserves, as of 31 December 2022 were 1.9 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 10 months**.
- 2.3.7. The above landbank figure represents an increase of 24 years and 2 months from 10-year average sales based landbank figure calculated in the West Yorkshire LAA (2021 data) (4 years and 8 months).
- 2.3.8. The improved landbank is due to additional reserves being permitted at Stanley Ferry in Wakefield and Hallas Rough in Bradford. This is the first time the landbank has exceeded the ‘at least’ 7 years national policy expectation in seven years. However, this improved position is in very large part due to a single new site (Stanley Ferry) which makes up 84% of the reserves. This reliance on a single site means that the actual resilience of the supply position could be questionable.
- 2.3.9. 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 the current West Yorkshire 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.

2.4. Crushed Rock Reserves

- 2.4.1. 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.
- 2.4.2. 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'*³¹. 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.
- 2.4.3. As of 31 December 2022, 28 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.
- 2.4.4. 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 2022 is estimated to have been 40.4 million tonnes. This increase of nearly 5 million tonnes is based on a reassessment of existing sites rather than new permissions.
- 2.4.5. Table 13 below sets out regional level crushed rock aggregate reserve data for the 2011-2020 period. Table 14 provides the West Yorkshire reserve figures for the period 2008-2022. 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

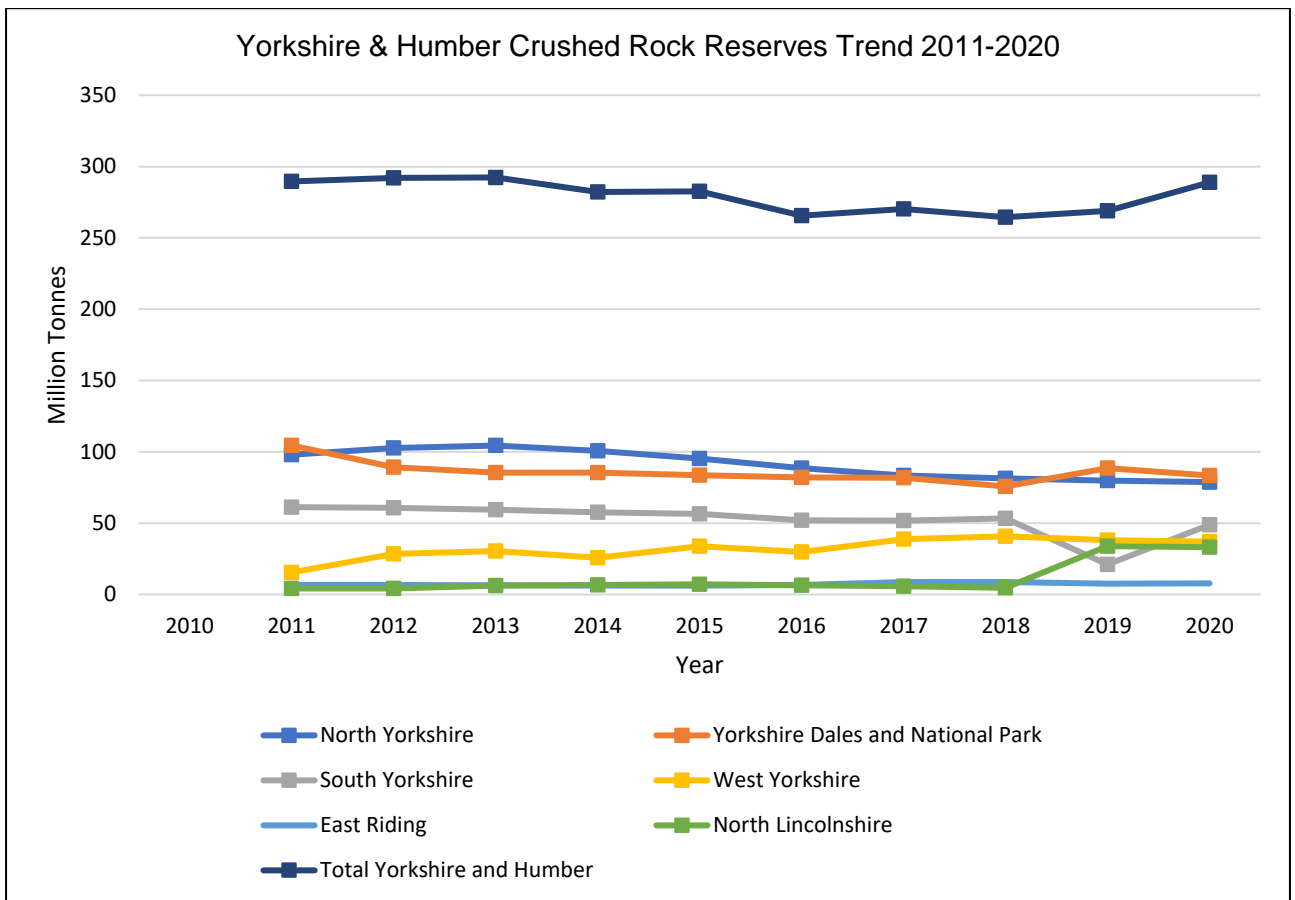
³¹ A British Geological Survey, 1996. A geological Background for Planning and Development in the City of Bradford Metropolitan District, Volume 2: A Technical Guide to Ground Conditions. BGS: Nottingham, page 37.

are to be used for building stone vs. aggregates as this may not be apparent until the stone has been won.

TAB.13 – Yorkshire & Humber Crushed Rock Reserves 2011-2020³²

Sub-Region	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Crushed Rock Reserves										
North Yorkshire	97.7	102.6	104.4	100.6	95.4	88.6	83.5	81.3	79.7	78.8
Yorkshire Dales National Park	104.5	89.22	85.39	85.31	83.59	82.08	81.79	75.74	88.65	83.34
South Yorkshire	61.23	60.8	59.5	57.6	56.58	52.10	51.70	53.30	21.05	48.9
West Yorkshire	15.44	28.5	30.4	25.7	33.74	29.82	38.78	40.78	38.00	36.96
East Riding and North Lincolnshire	10.78	10.88	12.7	12.95	13.39	13.09	14.45	13.40	41.49	40.99
Total Yorkshire and Humber	289.65	292	292.39	282.16	282.7	265.71	270.22	264.12	268.89	288.99

FIG.6 – Yorkshire & Humber Crushed Rock Reserves Trend 2011- 2020



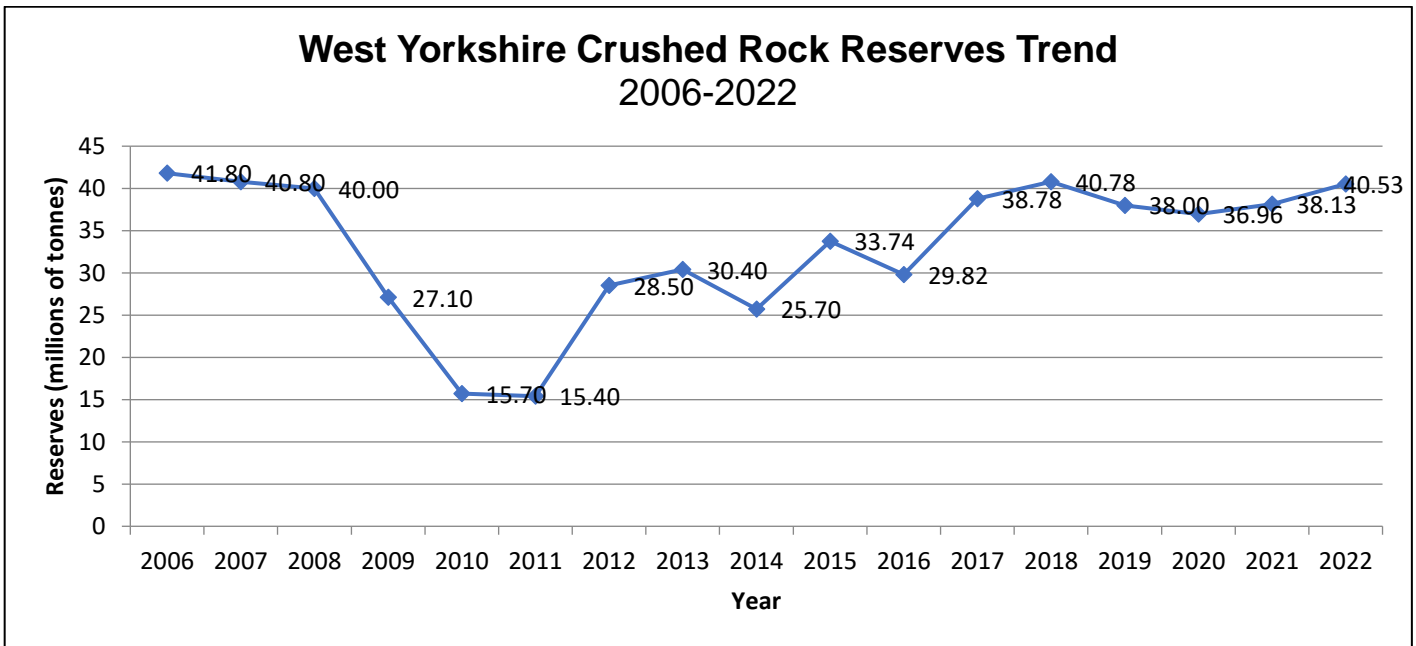
³² YHAWP Annual Monitoring Report 2021 (including data from 2019 and 2020) (Published Jan 2023) (Latest regional data available)

TAB.14 – West Yorkshire Crushed Rock Reserves 2008-2022

Crushed Rock Reserves Trend (West Yorkshire)														Note: All Figures in million tonnes	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
West Yorkshire	40.00	27.10	15.70	15.40	28.50	30.40	25.70	33.74	29.82	38.78	40.78	38.00	36.96	38.13	40.53

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

FIG.7 – West Yorkshire Crushed Rock Reserves Trend 2006-2022



2.4.6. Crushed Rock Aggregate reserve levels within West Yorkshire appear to be 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.

2.4.7. 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. However, 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.

2.4.8. 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/ 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 28 quarries listed at Appendix 3 being relatively small building stone quarries with limited reserves and output, many of which only sporadically produce aggregates.

2.5. Crushed Rock Sales

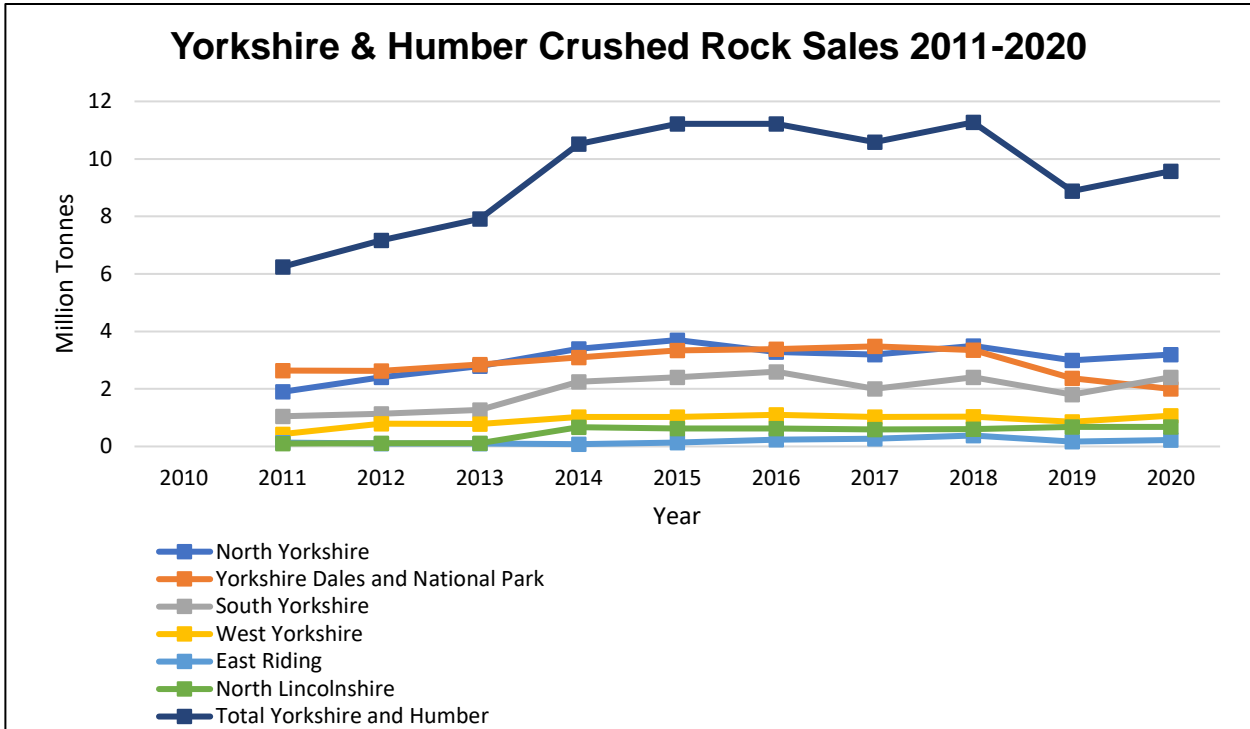
2.5.1. Table 15 and Figure 8 below sets out regional level crushed rock aggregate sales data for the 2011-2020 period. Table 16 and Figure 9 provide ten-year West Yorkshire sales data for the 2011-2022 period.

TAB.15 – Yorkshire & Humber Crushed Rock Sales 2010-2020³³

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

³³ YHAWP Annual Monitoring Report 2021 (including data from 2019 and 2020) (Published Jan 2023)

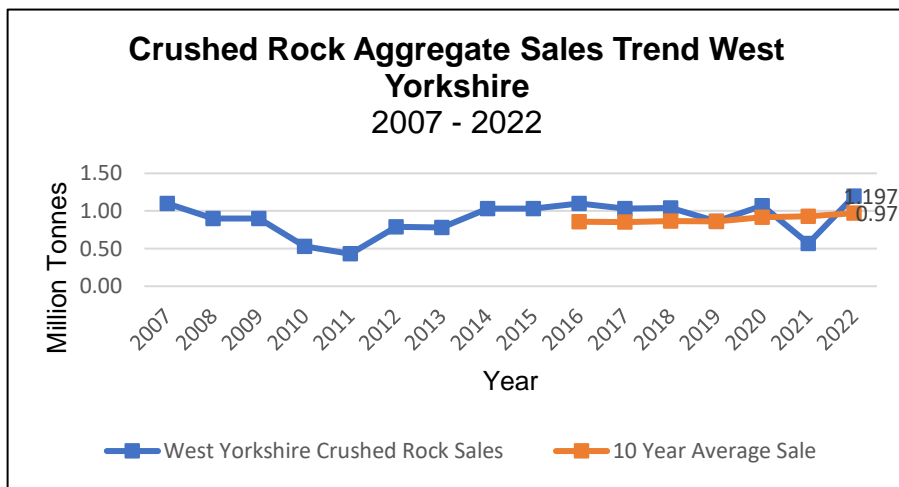
FIG.8 – Yorkshire & Humber Crushed Rock Sales 2011- 2020 Trend



TAB.16 – West Yorkshire Crushed Rock Sales 2011-2022

Note: All Figures in million tonnes	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Ten Year Av
West Yorkshire Crushed Rock Sales	0.43	0.79	0.78	1.03	1.03	1.10	1.03	1.04	0.86	1.07	0.57	1.197	0.97

FIG.9 – West Yorkshire Crushed Rock Sales Trend 2007-2022



- 2.5.2. It should be noted that, following recovery to near pre-recession levels in 2014, sales of crushed rock remained relatively flat, however the survey of sales in 2022 indicate an increasing trend with the drop in sales observed in 2021 an 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 2020 is likely to 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).
- 2.5.3. 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. However, the most recent reported years of 2019 and 2020 show a marked decline in sales but it is too soon to draw any conclusions about a change in the regional sales trend.
- 2.5.4. The West Yorkshire 10-year crushed rock sales average 2012-2022 stands at 0.97 million tonnes. With reserves as of 31 December 2022 at 40.53 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 **41 years and 8 months**.
- 2.5.5. This landbank figure represents an increase of 4 years and 1 months from the simple landbank figure calculated in the West Yorkshire LAA (2021 data), which was 37 years and 7 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.
- 2.5.6. Furthermore, as discussed more extensively elsewhere in this report, it must be acknowledged that the West Yorkshire aggregate reserve is predominated 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. 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

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.

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.

3.1. Aggregate Flows to and from West Yorkshire

- 3.1.1. 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.
- 3.1.2. 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 Survey³⁴ and exclude imports from marine dredged sources - with reported wharf landings automatically assigned to the MPA in which the wharf is situated.
- 3.1.3. Despite the BGS AMS2019 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. 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; however, despite a recent (unsuccessful) survey of operators, no reliable data on the total quantity of marine aggregate flows into West Yorkshire is currently available. Despite the lack of response from related mineral operators to the 2023 survey, 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 West Yorkshire sand and gravel demand, as land won sources become increasingly constrained.

³⁴ <https://www.gov.uk/government/publications/aggregate-minerals-survey-for-england-and-wales-2019>

TAB.17 – Crushed Rock Consumption - Y&H Sub-regions

NB. Figures are in thousands of 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%

TAB.18 – Sand and Gravel Consumption - Y&H Sub-regions

NB. Figures are in thousands of 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%

TAB.19– Total Aggregate Consumption - Y&H Sub-regions

NB. Figures are in thousands of 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%

3.1.4. 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.

3.1.5. 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.

Sand Gravel Imports

3.1.6. 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.

Crushed Rock Imports

3.1.7. 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.

- 3.1.8. 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.
- 3.1.9. Conversely, as described in more detail in the subsequent section, 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.
- 3.1.10. 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.
- 3.1.11. 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 AMS2014 and AMS2019 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.

TAB.20 – Estimated Origins of Sand & Gravel Supplied into West Yorkshire

	Annual Imports of Sand & Gravel into West Yorkshire (Tonnes)		
Source	2014	2019	Change
North Yorkshire County Council	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 (Chesh West/ Chesh 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 W Yorks Consumption	702,000	466,000	-236,000

TAB.21 – Estimated Origins of Crushed Rock Supplied into West Yorkshire

Source	Annual Imports of Crushed Rock into West Yorkshire (Tonnes)		Change
	2014	2019	
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 W Yorks Consumption	2,536,000	2,342,000	-194,000

3.1.12. 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.

FIG.9 – Aggregate Imports to West Yorkshire

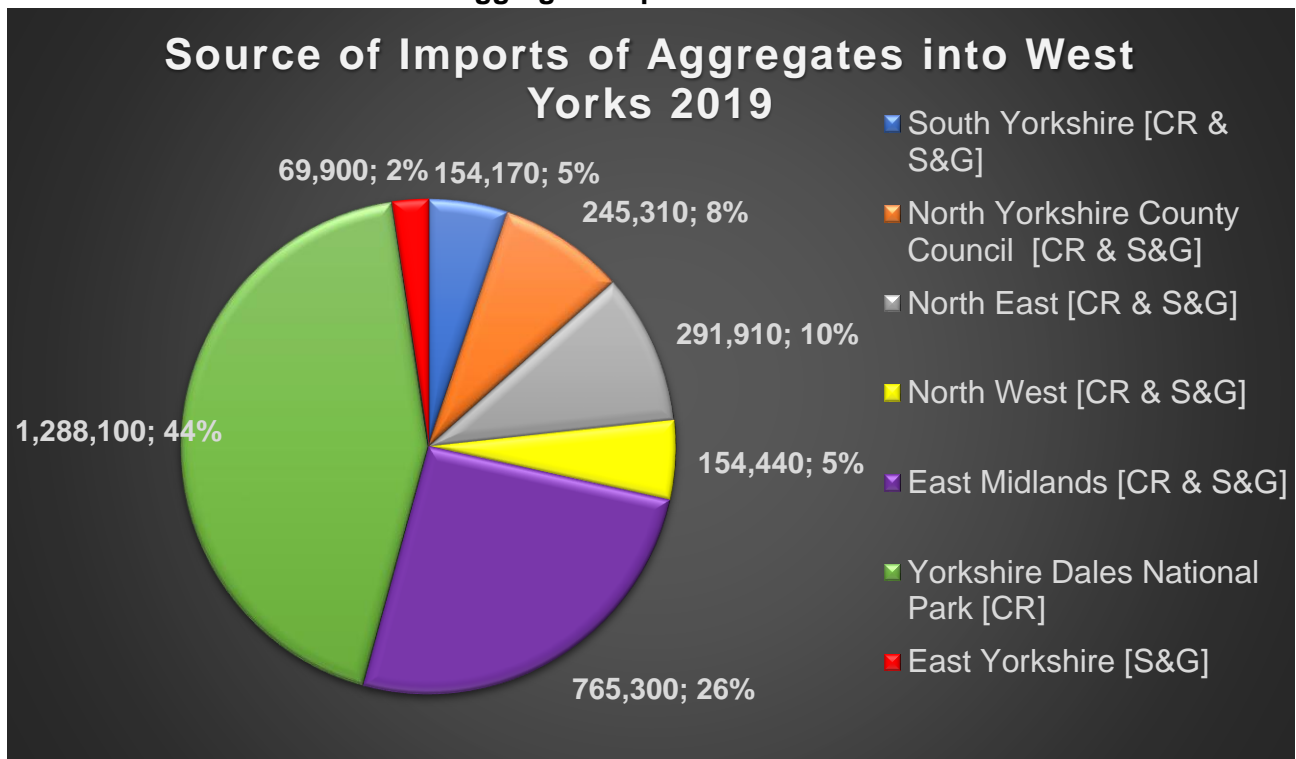
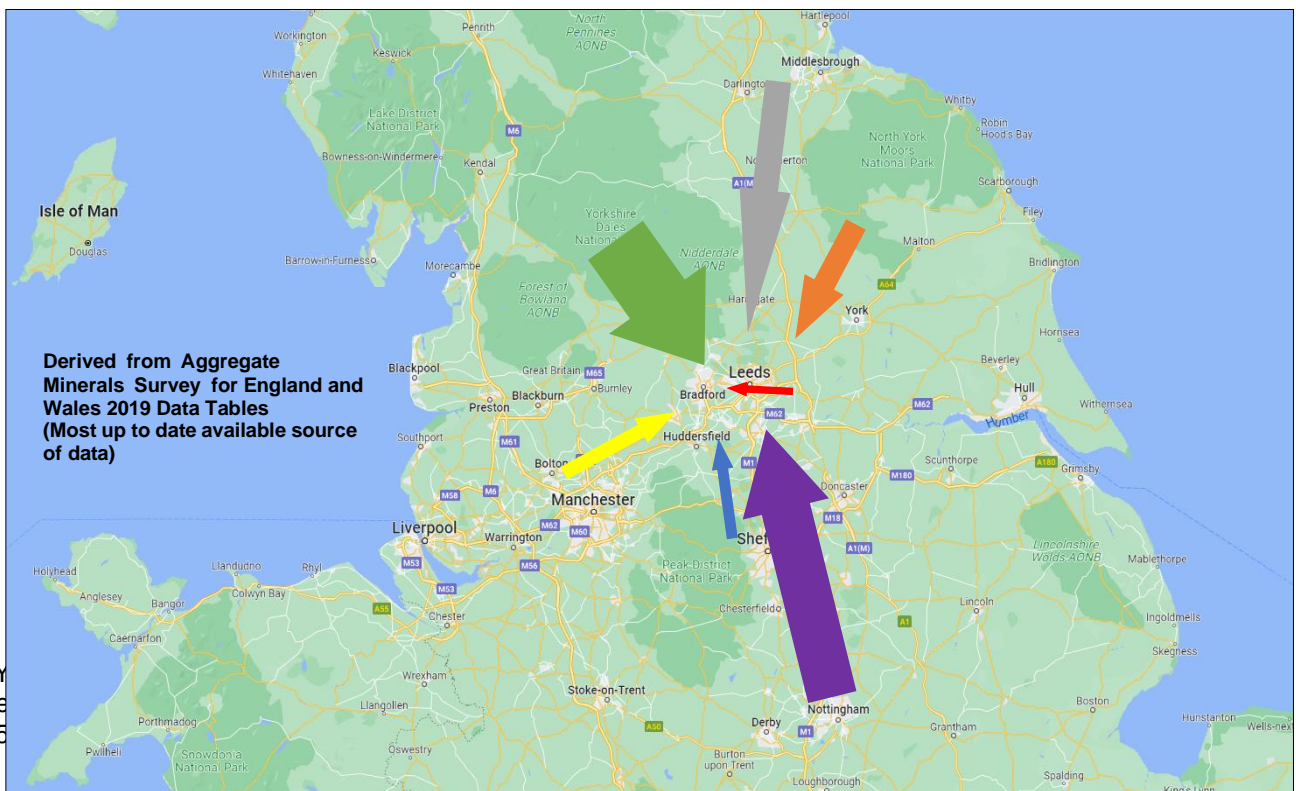


FIG.10 – Flows of Aggregate Imports to West Yorkshire



3.1.13. 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.

3.1.14. 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.

3.1.15. 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.

3.1.16. 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.

3.1.17. 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.

3.1.18. 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.

3.1.19. 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.

3.1.20. 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.

3.1.21. The next AMS will be undertaken by BGS in 2024 and will survey 2023 sales and so it should be possible to update the information above in next year's LAA.

3.2. Recycled and Secondary Aggregates (RSA)

3.2.1. Paragraph 210(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 213 confirms that Local Aggregates Assessments should be based upon an assessment of all supply options (including marine dredged, 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 the region).*

3.2.2. RSA can include the following materials:

TAB.22 – Types of Recycled and Secondary Aggregate³⁵

Recycled	Secondary	
	Manufactured	Natural
Recycled aggregate (RA)	Blast furnace slag	Slate aggregate
Recycled concrete aggregate (RCA)	Steel slag	China clay sand
Recycled asphalt	Pulverized-fuel ash (PFA)	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	

Secondary Aggregate

3.2.3. 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 IBA processing facilities.

TAB.23 – Energy Facility Bottom Ash Derived Secondary Aggregate, 2022³⁶

LPA	Site Name (source)	Destination Site	Tonnes
Wakefield	Ferrybridge Multifuel 2	Ferrybridge IBA Facility	237,603
Wakefield	Ferrybridge Multifuel Plant		
Leeds	Leeds Recycling & Energy Recovery Facility	Sheffield IBA Facility	35,830
Kirklees	Kirklees Energy from Waste Plant	Cleveland IBA Facility	24,056

3.2.4. 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 78,400 tonnes in 2022.

³⁵ Source, WRAP, 2013, Available online at: http://aggregain.wrap.org.uk/more_information.html

³⁶ Source: Environment Agency Waste Data Interrogator 2022

3.2.5. 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 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.

Recycled Aggregate

3.2.6. 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 comprises a rich potential source of recycled aggregates. The WDI 2022 identifies a total of 2,041,176 tonnes of CD&E waste was generated in West Yorkshire that was received at permitted waste management sites in 2022. This consists of 622,899 tonnes of construction & demolition waste, 1,407,525 tonnes of soils/excavation waste and 10,751 tonnes of dredging spoil/waste from soil remediation.

3.2.7. Most CD&E waste originating from West Yorkshire is managed within West Yorkshire whilst the only significant "exports" were to adjacent authorities within the Yorkshire and Humberside region. Exported CD&E waste accounted for less than 15% of estimated arisings and 81% of these exports remained within the Yorkshire and Humberside region.

3.2.8. Whilst c85% 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 location of landfill and processing plants within different authority areas. Table 24 below shows the arisings of CD&E waste by source LPA and fate.

TAB.24 – Estimated management of CD&E produced in West Yorkshire (2021 and 2022) (tonnes)³⁷

Source Authority	CD&E Permanent Deposit		CD&E Recycling/Treatment inc. waste managed through transfer and storage	
	2021	2022	2021	2022
Bradford City	52,305	111,318	130,592	108,704
Calderdale	77,118	56,658	101,967	105,065
Kirklees	142,579	155,878	171,808	166,597
Leeds	135,748	373,407	561,419	440,975
Wakefield	327,139	300,492	105,697	108,191
West Yorks (general)	56,089	45,711	54,469	68,180
Totals	790,978	1,043,465	1,126,158	997,711

³⁷ Source: Environment Agency Waste Data Interrogator 2021 (Waste Received & Waste Removed datasets)

3.2.9. Clean soils constituted 90% 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). The remaining waste is managed through intermediate facilities that would likely be suitable for conversion to recycled aggregate. The figures set out in Table 24 do not represent the total quantity of construction, demolition and excavation wastes produced in West Yorkshire, but rather the total quantities of such waste received at permitted facilities – i.e. sites where an Environmental Permit is in place (issued by the Environment Agency) that reported returns in 2022. 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 used as Recycled Aggregate.

3.2.10. 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.

TAB.25 – Target RA Feedstock Waste Managed at West Yorkshire Intermediate Facilities in 2021 and 2022 from all source WPAs (tonnes)

Material Type	2021	2022
Hardcore Feedstock input ³⁸	395,026	440,978
Mixed C, D & E waste (skip waste) ³⁹	291,210	222,925

3.2.11. In recent years RSA producers have been included in the annual aggregate 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)⁴⁰, 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 receiving waste from West Yorkshire where the waste identified in TAB 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 aggregate, hence the derived recycled aggregate values are regarded as having been 'inferred'. This method follows that set out in guidance mentioned above and yielded the figures set out in Table 26 below.

³⁸ EWC code 170101 (concrete) 170102 (bricks), 170103 (tiles & ceramics), 170107 (mixtures of previous)

³⁹ EWC code 170904 (mixed construction and demolition wastes)

⁴⁰ *Recycled Aggregates Data: Guidance on Assessing Levels of Recycled Aggregates* (May 2022)

TAB.26 – Estimates of Recycled Aggregate Production in West Yorkshire, 2022⁴¹

LPA	Inferred recycled aggregate production ⁴²		Hardcore produced for recovery	
	2021	2022	2021	2022 ⁴³
Bradford	67,116	47,332	72,024	38,642
Calderdale	17,721	13,856	2,237	1,179
Kirklees	76,932	83,242	590	690
Leeds	331,956	293,539	25,716	33,454
Wakefield	244,198	168,565	13,031	8,550
Total	737,922	606,533	113,598	82,516

3.2.12. The approximately 0.61 million tonnes of recycled aggregate estimated to have been produced in West Yorkshire in 2021 is a decrease of 130,000 tonnes from the 740,000-tonne estimate reported in the WYLAA 2021. Added to the IBA processed at Ferrybridge of c240,000 tonnes, gives a total RSA production estimate of just below 0.85 million tonnes.

3.2.13. 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. It is likely to remain the case that a high proportion of the RSA aggregate produced is not suitable for high specification uses.

3.2.14. In terms of the safeguarding of site producing recycled aggregate it should be noted that the Leeds Natural Resources and Waste Local Plan⁴⁴ 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)⁴⁵ policy EN6 'strategic waste management' provides the steer, including targets, for waste management across the District.

3.2.15. The following policies safeguard RSA within West Yorkshire:

- Bradford Waste Management (adopted October 2017) DPD46 policy WDM3 'Applications Resulting in the Loss of a Proposed or Existing Waste Management Facility' safeguards aggregate recycling sites.

⁴¹ 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)

⁴² See Table A4.1 in Appendix 4 for site by site breakdown.

⁴³ See Table A4.2 in Appendix 4

⁴⁴ Leeds Natural Resources and Waste Local Plan (adopted January 2013) [Natural Resources and Waste Local Plan Adoption \(leeds.gov.uk\)](https://www.leeds.gov.uk/natural-resources-and-waste-local-plan)

⁴⁵ Leeds Core Strategy (adopted September 2019) [Leeds LDF Core Strategy Draft 'Publication' Document](#)

⁴⁶ Bradford Waste Management Development Plan Document (adopted October 2017) [01 Waste Management Development Plan Document – October 2017.PDF \(bradford.gov.uk\)](#)

- Kirklees Local Plan (adopted February 2019)⁴⁷ policy LP39 ‘Protecting existing and planned minerals infrastructure’⁴⁸. Policy LP45 ‘Safeguarding waste management facilities’ also safeguards sites in Kirklees where RSA production could potentially be taking place.
- Calderdale Local Plan, newly adopted (March 2023) policy WA3 ‘safeguarded waste sites’⁴⁹.
- Wakefield Local Development Framework does not safeguard aggregate recycling facilities. The emerging Wakefield Local Plan (publication draft plan October 2020 – Inspector’s report received)⁵⁰ includes safeguarding of existing waste management facilities in Policy WSP16.

3.3. Mineral use in aggregate

3.3.1. 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 virgin aggregate (see Figure 11 below). Product refinement has also begun to allow recycled aggregates to be substituted for a limited proportion of higher quality virgin aggregates in ready mix concrete and asphalt.

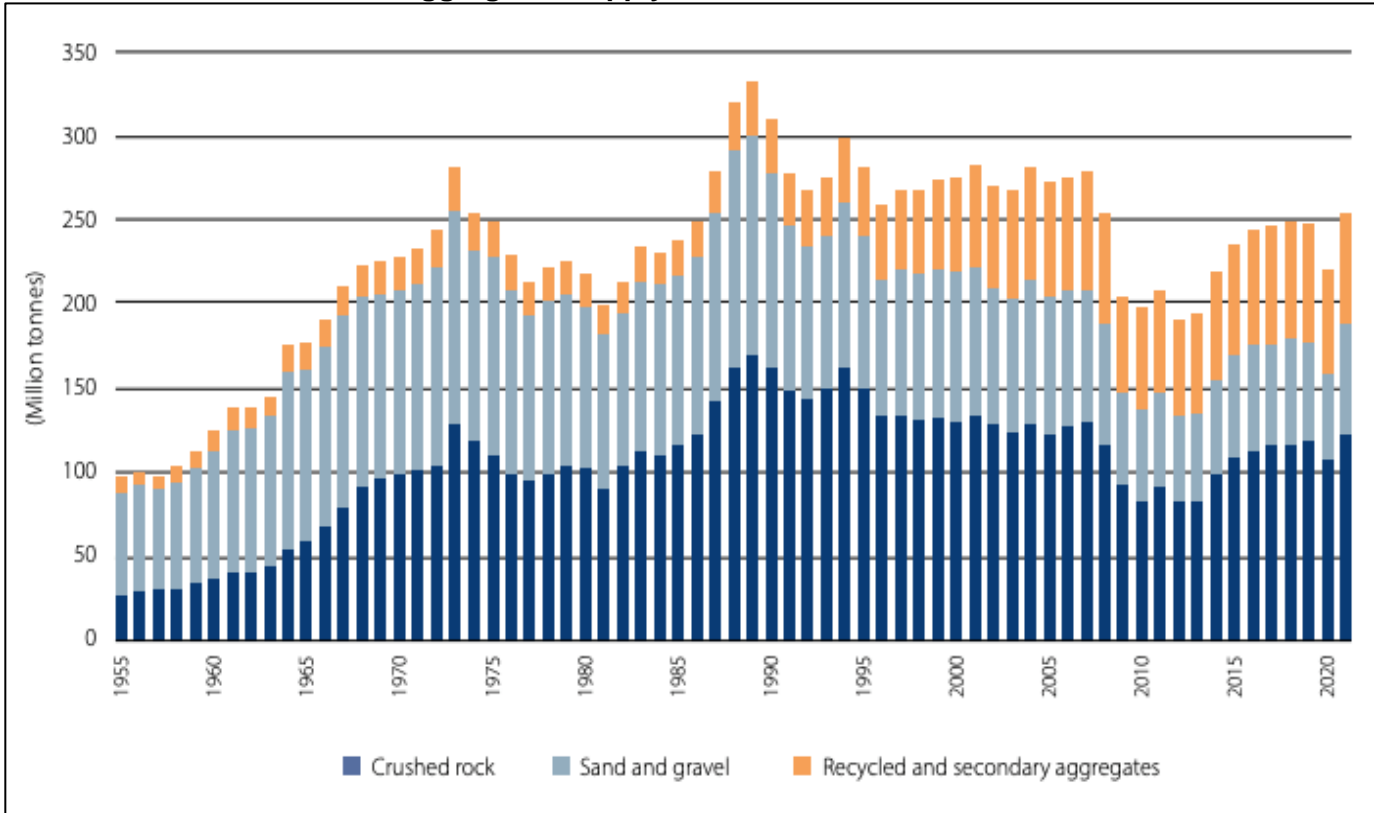
⁴⁷ Kirklees Local Plan (adopted February 2019) [Kirklees Local Plan Strategy and Policies](#)

⁴⁸ Some of the sites safeguarded by Policy LP39 are also subject to a Waste Safeguarding designation.

⁴⁹ Calderdale Local Plan (adopted March 2023) [Calderdale Local Plan Written Statement](#)

⁵⁰ Wakefield Local Plan (publication draft plan October 2020) [Cover.cdr \(wakefield.gov.uk\)](#)

FIG.11 - Total Aggregates Supply in Great Britain 1955-2021⁵¹



3.3.2. 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. Currently good concreting sand from land won sources in West Yorkshire is not abundant, so that some 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.

3.3.3. 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.

3.3.4. 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.

⁵¹ Source: The Contribution of Recycled and Secondary Materials to Total Aggregates Supply in Great Britain – Estimates for 2021, Mineral Products Association

3.3.5. 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 WYCA⁵² identifies that substantial reserves of Magnesian Limestones potentially suitable for concrete manufacture exist within North and South Yorkshire and Derbyshire.

3.3.6. 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.

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

3.4.1. 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.

3.4.2. 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 Britain⁵³.

3.4.3. The WYCA Marine Aggregates Study (December 2022)⁵⁴ reported that there were 10 production licences for sand and gravel in the Humber marine region with an estimated total lifespan of 19 years' worth of production (assuming production is maintained at historic average levels).

3.4.4. A table illustrating the estimated permitted reserves, rate of dredging and reserve life, from the Crown Estate Marine Aggregates Annual Review 2023 is reproduced below (See Figure 12).

⁵² [West Yorkshire Combined Authority: The quarrying of Magnesian Limestone for aggregate in the Yorkshire and Humber Region \(2017\)](#)

⁵³ The Crown Estate. Marine Aggregates Annual Review 2023 [marine-aggregates-annual-review-2023.pdf](#) ([thecrownestate.co.uk](#))

⁵⁴ 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](#))

FIG.12 – Data on Marine Aggregate Reserves⁵⁵

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 2022)	Regional reserve life at 10-year average annual offtake
		Primary (construction aggregate)				
Humber	40.57	2.47	3.57	3.69	6.88	16.46
East Coast	38.97	4.01	3.26	4.72	7.13	9.71
Thames Estuary	35.78	1.44	1.55	1.94	4.35	24.93
East English Channel	146.80	4.08	4.36	4.65	9.92	36.02
South Coast	70.65	3.39	3.61	3.99	8.13	20.86
South West	29.41	1.25	1.34	1.43	2.80	23.61
North West	8.75	0.27	0.21	0.38	0.70	32.77
Total	370.93	16.89	17.90	18.10	39.89	21.96

All figures are in millions of tonnes
Totals are national averages and peaks, not the sum of regional figures

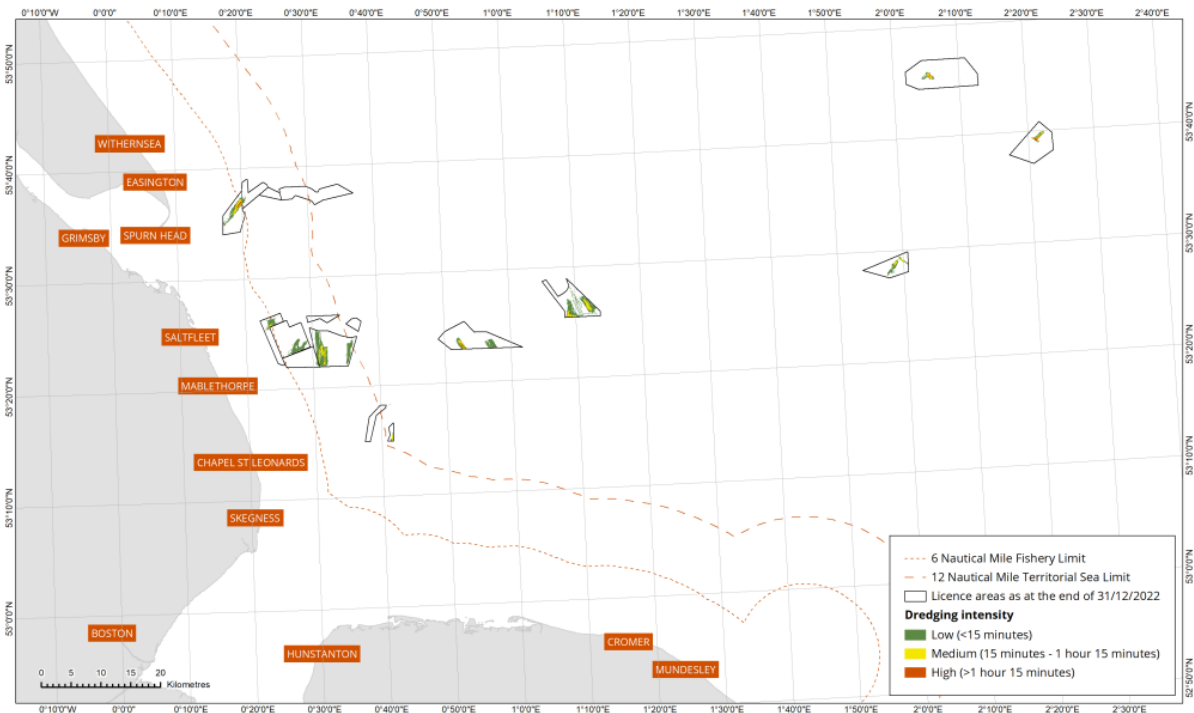
3.4.5. The Crown Estate advise that, although marine sand and gravel resources are vast, the resource is finite and therefore, in consultation with industry, the Crown Estate are seeking to progressively reduce the area of seabed which is licensed for dredging year on year. Nonetheless, as discussed 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.

3.4.6. The Crown Estate Marine Aggregates Annual Review 2023 indicates that within the Humber area during 2021 (two years after the impacts of Covid-19), 3.5 million tonnes of primary aggregate were dredged. The total permitted licensed tonnage of 6.88 million tonnes relates to 10 production licences. Figure 13 shows the Humber Region Marine aggregate extraction area⁵⁶.

⁵⁵ The Crown Estate. Marine Aggregates Annual Review 2023 marine-aggregates-annual-review-2023.pdf (thecrownestate.co.uk)

⁵⁶ The Crown Estate & Mineral Products Association. Marine Aggregate extraction 2022 (the area involved 25th Annual report) [2021 Area Involved Report \(thecrownestate.co.uk\)](#)

FIG.13 – Humber Region Marine Aggregate Extraction Area.



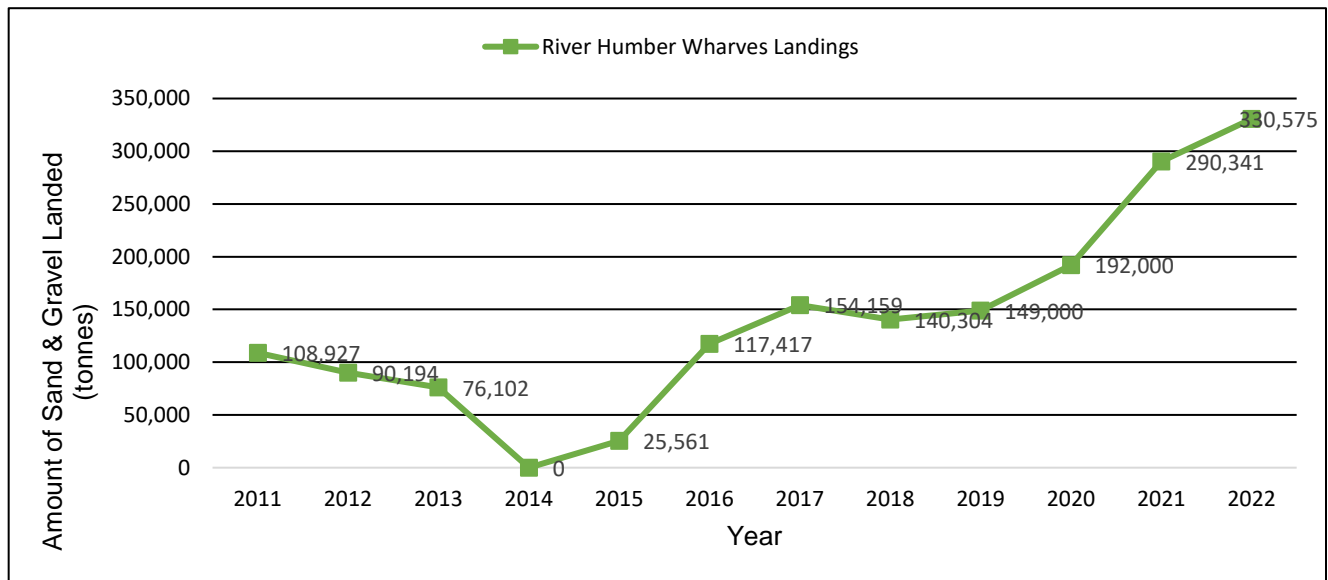
3.4.7. Of the total material transported, approximately 176,000 tonnes of extracted marine aggregate was landed at wharves on the River Humber. The Humber LAA (2021 data) advises that *'The majority of landings that took place on the Humber were at the relocated Humber Sand and Gravel facility at King George Dock 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..'*

3.4.8. Data on Humber landings is presented in Table 27 below and illustrated in Figure 14 showing an upwards trend in sales since 2015, albeit with a levelling out between 2017 and 2018. 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 landed at the Humber Docks, (most notable between 2020 and 2021) which may be indicative of increases in demand, improving competitiveness and or constraints on land won resources.

TAB.27 – River Humber Landings ⁵⁷

Marine Aggregates Crown Estate Licence Statistics 2011-2021												
*Figures in tonnes	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
River Humber Wharves Landings	108,927	90,194	76,102	0	25,561	117,417	154,159	140,304	149,000	192,000	290,341	330,575

FIG.14 – River Humber Landings Trend



3.4.9. The data above suggests that marine aggregates are underexploited within the Yorkshire and Humber Region relative to the national picture. Furthermore, the data indicates that almost three quarters of the material dredged from the Humber Marine Area is exported to mainland Europe (70.1% or 2.45 million tonnes)⁵⁸.

3.4.10. In addition to landings on the Humber, in 2021, 267,000 were landed at wharves on the River Tees and 247,000 tonnes were landed at wharves on the Tyne⁵⁹.

3.4.11. Table 28 (and Figure 15) show the total tonnage of marine aggregate landed in each region.

⁵⁷ The Crown Estate. Marine Aggregates Statistics 2022 (published 2023) [2023-summary-statistics.pdf \(thecrownestate.co.uk\)](https://www.thecrownestate.co.uk/2023-summary-statistics.pdf)

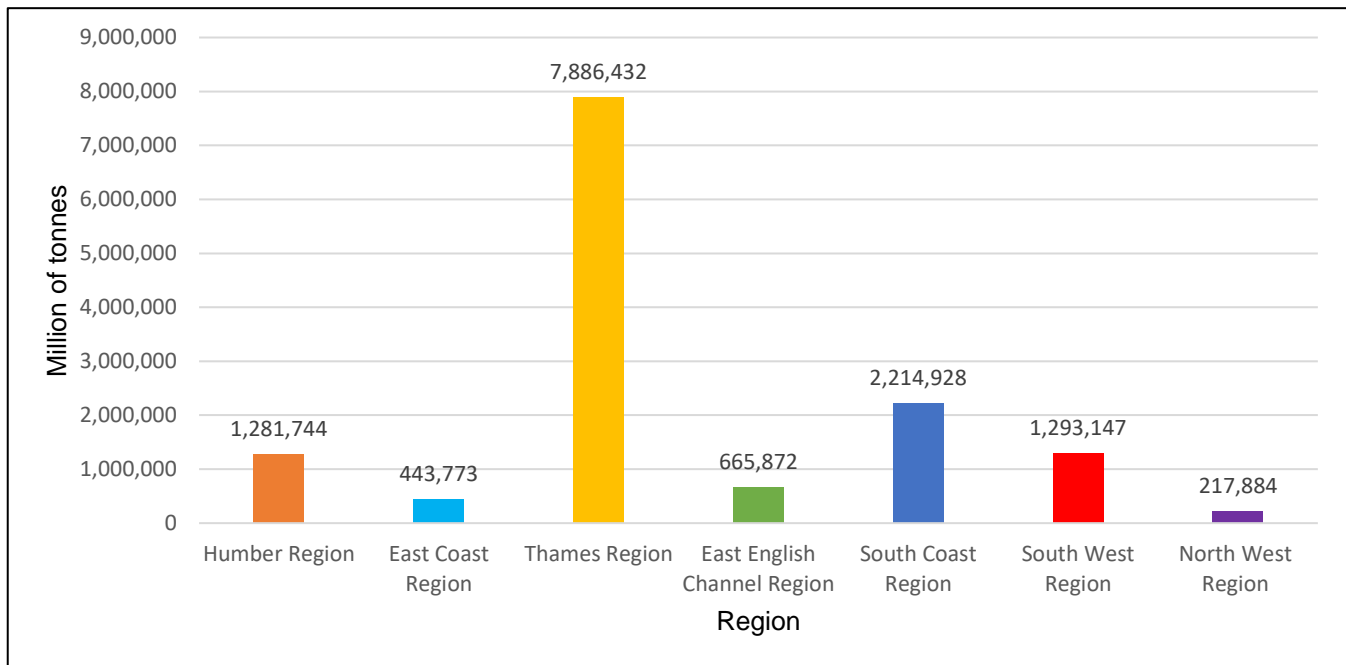
⁵⁸ West Yorkshire Combined Authority Marine Aggregates Study (December 2022) [royal-haskoningdhv-report-for-the-wyca-marine-aggregates-study-redacted-21dec2022-inc-app.pdf \(westyorks-ca.gov.uk\)](https://www.wyca.gov.uk/royal-haskoningdhv-report-for-the-wyca-marine-aggregates-study-redacted-21dec2022-inc-app.pdf)

⁵⁹ The Crown Estate. Marine Aggregates Annual Review 2023 [marine-aggregates-annual-review-2023.pdf \(thecrownestate.co.uk\)](https://www.thecrownestate.co.uk/marine-aggregates-annual-review-2023.pdf)

TAB.28 Landings of Marine Aggregate by Region ⁶⁰

Region	Landings of Marine Aggregate (tonnes)
Humber Region	1,281,744
East Coast Region	443,773
Thames Region	7,886,432
East English Channel Region	665,872
South Coast Region	2,214,928
South West Region	1,293,147
North West Region	217,884

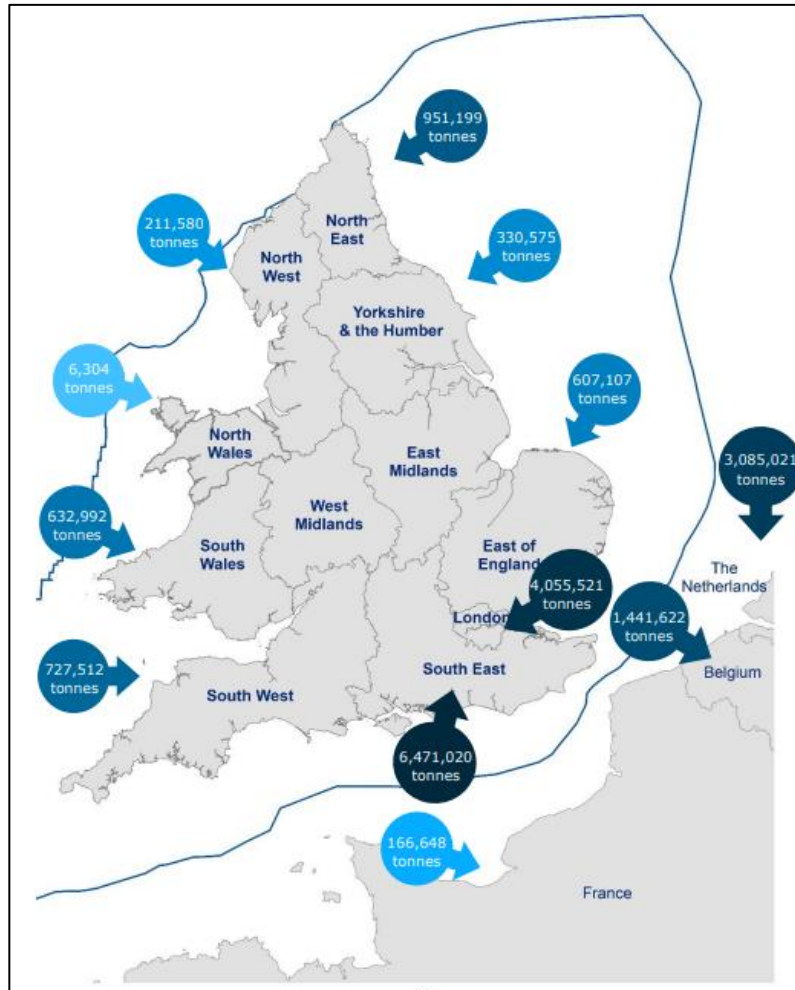
FIG.15 – Landings of Marine Aggregate by Region



3.4.12.A further 19.60% (0.69 million tonnes) was moved to Humber and North East and 9.60% (0.34 million tonnes) went to the Thames Estuary. The remainder (0.7% or 0.02 million tonnes) of the tonnage dredged was delivered to the East English Channel. In London over 50% of primary aggregate supply is now from marine dredged sand and gravel. Of the total material transported, approximately 176,000 tonnes of extracted marine aggregate was landed at wharves on the River Humber. In addition, 267,000 were landed at wharves on the River Tees and 247,000 tonnes were landed at wharves on the Tyne.

⁶⁰ The Crown Estate. Marine Aggregates Statistics 2022 (published 2023) [2023-summary-statistics.pdf \(thecrownestate.co.uk\)](https://www.thecrownestate.co.uk/2023-summary-statistics.pdf)

FIG.16 – Marine Dredged Aggregate Landings in England and Wales⁶¹



3.4.13. 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.

3.4.14. The WYCA Marine Aggregates Study (December 2022)⁶² 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.

3.4.15. However, landings by barge at Knostrop Wharf temporarily ceased in 2022 and all marine aggregate is now coming into West Yorkshire by HGV. This is because of an

⁶¹ The Crown Estate. Marine Aggregates Statistics 2022 (published 2023) [2023-summary-statistics.pdf \(thecrownestate.co.uk\)](https://www.thecrownestate.co.uk/2023-summary-statistics.pdf)

⁶² West Yorkshire Combined Authority Marine Aggregates Study (December 2022) [royal-haskoningdhv-report-for-the-wyca-marine-aggregates-study-redacted-21dec2022-inc-app.pdf \(westyorks-ca.gov.uk\)](https://www.westyorks-ca.gov.uk/royal-haskoningdhv-report-for-the-wyca-marine-aggregates-study-redacted-21dec2022-inc-app.pdf)

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 the 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.

3.4.16. 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.

3.4.17. 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 Yorkshire⁶³, 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.

3.4.18. 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.

3.4.19. 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 wharves. 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.

3.4.20. 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

⁶³ West Yorkshire Combined Authority Marine Aggregates Study (December 2022) [royal-haskoningdhv-report-for-the-wyca-marine-aggregates-study-redacted-21dec2022-inc-app.pdf \(westyorks-ca.gov.uk\)](#)

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.

3.4.21. 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.

TAB.29 – Wharf sites and Rail sites identified within the 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)	250,000
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

3.4.22. Although not mentioned above, it should be noted that the Stanley Ferry scheme in Wakefield, was granted planning permission (March 2022). The permitted sand and gravel working at Stanley Ferry 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).

3.4.23. As well as identifying the sites above, the Marine Aggregate Study identified two areas for immediate action as follows:

- More effectively safeguard wharfs and rail sidings from being compromised by incompatible development; and
- invest in upgrading waterway and rail infrastructure.

3.4.24. The Marine Aggregate Study is likely to be reviewed in 2024 and the findings included in future versions of this LAA.

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

3.4.25. 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) project⁶⁴.

3.4.26. 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.

3.4.27. 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.

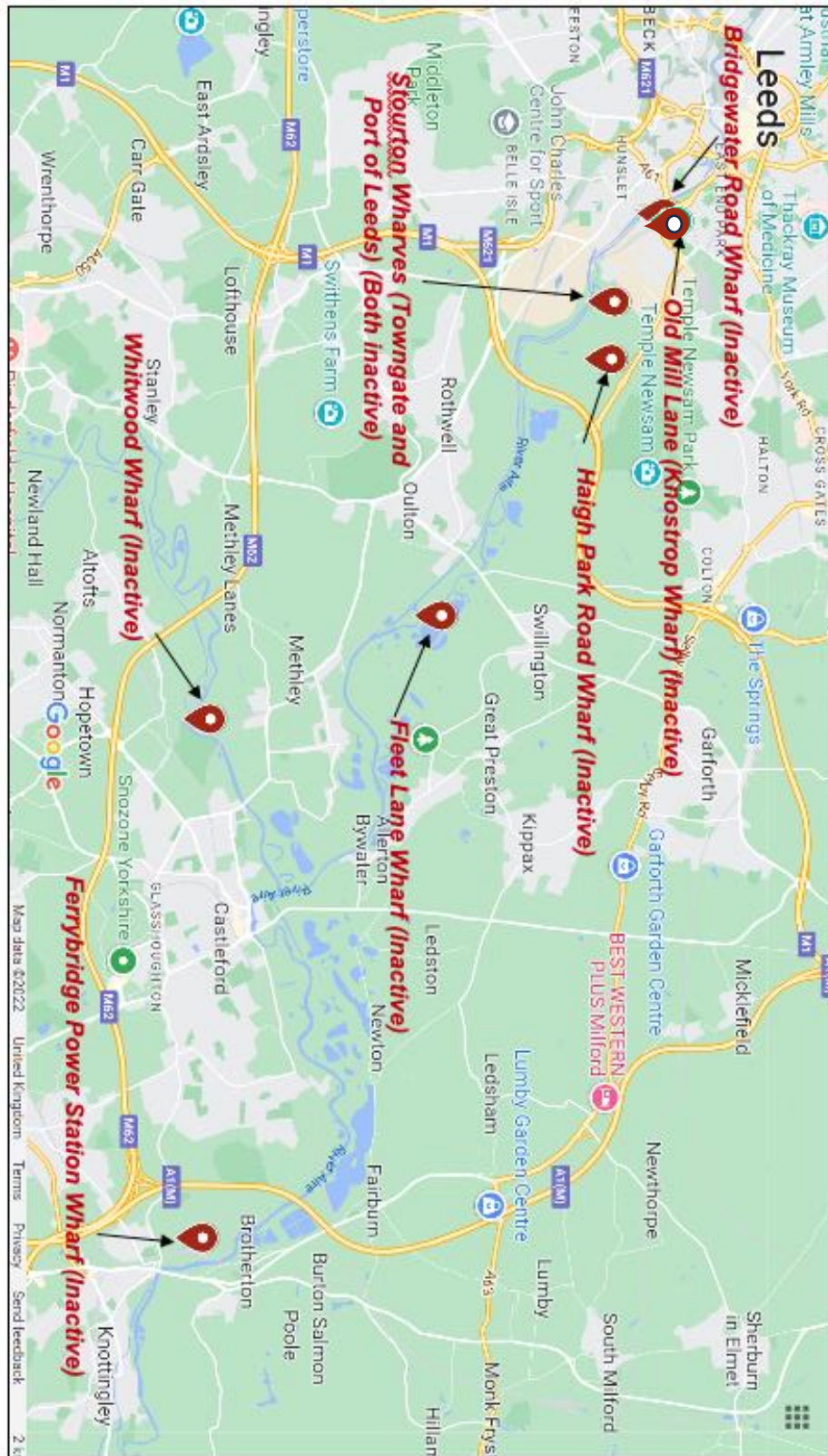
3.4.28. The C&RT have indicated that the scope of works which would be required to "create a new coherent, feasible, more viable and more resilient transport option between the northern cities, the Humber and Europe" would include:

- Construction of new wharves;
- Minor channel dredging;
- Enhancements to Bulholme and Castleford Lock; and
- Improvements to air draft at several key bridges.

3.4.29. Figure 17 shows the status and location of aggregate wharf sites in West Yorkshire (also see Table A2-2 in Appendix 2).

⁶⁴ [IWTS website](#)

FIG 17 – Location of Safeguarded / Known Aggregate Capable Wharfs



Need for annual surveys of wharfs and rail depots

3.4.30. 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.

3.5. Potential for Improved Aggregate Rail Freight Connections

3.5.1. 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:

(1) 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;

(2) Existing rail off-loading facilities at Cross Green in Leeds are limited;

(3) Poor Air Quality is a particular problem for West Yorkshire, as described in the West Yorkshire Low Emissions Strategy and the Transport Strategy 2040⁶⁵. 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

(4) 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.

Rail transport of aggregates from the Yorkshire Dales National Park

3.5.2. 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,

⁶⁵ West Yorkshire Low Emissions Strategy and the Transport Strategy 2040 westyorks-ca.gov.uk/media/2379/transport-strategy-2040.pdf

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)⁶⁶ is seeking a minimum of a 50% reduction in the road haulage of quarry products and is consequently imposing increasingly tighter restrictions on quarry 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.

- 3.5.3. 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 aggregate⁶⁷.
- 3.5.4. 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.
- 3.5.5. 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 on 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.
- 3.5.6. 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.

⁶⁶ Yorkshire Dales National Park Local Plan 2015 -2030 (adopted 2016)

⁶⁷ RailEngineer, 5th January 2017, Rail News Report, *Get Connected*.

FIG.18 – Rail Link Between West Yorkshire and the Yorkshire Dales



Source: Base Map from Google Maps 2017

3.5.7. 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).

3.5.8. 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.

3.5.9. The main finding regarding rail depots was that there is potential for development of additional rail depot capacity at:

- Stourton, Leeds; and
- Wakefield Europort.

3.5.10. 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)⁶⁸.

3.6. Factors Which May Influence Future Aggregate Demand

- 3.6.1. A key element of an LAA is the consideration of whether there are any known factors which may affect future demand for aggregate. Such factors can include population growth, economic trends or significant infrastructure projects.
- 3.6.2. The approach taken in the first West Yorkshire LAA was to recognise that several factors may affect future demand but to revert to the 10-year average sales method of land bank calculation, given the acknowledged difficulties associated with attempting to predict future changes in demand with any degree of accuracy. However, a commitment was made to reviewing this position during the preparation of subsequent LAAs and taking advantage of any evidence, which became available in the future, to adjust the Aggregate Provision Rate (APR) (used to calculate the landbank) having regard to likely future changes in demand.
- 3.6.3. Considering the above, in recent years, the West Yorkshire LAA has derived an APR that applies an uplift factor to the 10-year sales average. This uplift factor takes account of anticipated increases in the rate of housing development which are needed to meet Local Plan targets.
- 3.6.4. The method applied is set out in Appendix 5 and is based on a method originally applied by North Yorkshire that was ratified by the Yorkshire and Humber AWP on 28 September 2016. The method involves linking future aggregate demand to the predicted rate of change of future house building using a comparison of 10-year average annual net additional dwellings with the target future house building rates set out in relevant Local Development Plans.
- 3.6.5. For the purposes of deriving figures which are specifically relevant to West Yorkshire, 10-year average annual net additional dwellings statistics are compared with the target future house building rate set out in relevant Development Plans for Bradford, Leeds, Calderdale, Wakefield and Kirklees. These data have been taken from the live housing data tables published by the government and the emerging or adopted Local Plan Documents for the relevant Local Authorities. The results of this comparison are set out in Tables 30, 31 and 32 below, and illustrated in Figures 19 and 20:

TAB.30 – Planned Housing Delivery in West Yorkshire

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 ⁶⁹	Adopted	Sep-19	54,352	2017	2033	16	3,247

⁶⁸West Yorkshire Combined Authority Marine Aggregates Study (December 2022) [royal-haskoningdhv-report-for-the-wyca-marine-aggregates-study-redacted-21dec2022-inc-app.pdf \(westyorks-ca.gov.uk\)](#)

⁶⁹ Leeds City Council, Core Strategy Selective Review (adopted September 2019) [CSSR Polices Adoption Sept 2019 Final.pdf \(leeds.gov.uk\)](#)

Bradford	Bradford District Local Plan ⁷⁰	Draft	Feb-21	30,672	2020	2038	18	1,704
Kirklees	Local Plan ⁷¹	Adopted	Feb-19	31,140	2013	2031	18	1,730
Wakefield	Publication Draft Plan: Development Strategy Strategic and Local Plan Policies ⁷²	Draft	Feb 23	26,600	2017/18	2036/37	19	1,400
Calderdale	Local Plan ⁷³	Adopted	March-23	14,950	2018/19	2032/33	15	997

TAB.31 – Comparison of Housing Targets vs. Average Net Additional Dwellings

	Population data (2021 census data)	Planned Annual Housing Requirement	2012/13-2021/22 Average Net Additional Dwellings	Increase in Average Annual Net Additional Dwellings Required to Meet Planned Housing Delivery Target <i>values in brackets from LAA 2022</i>	% Uplift Required in Housing (2022 LAA in brackets)
Leeds	811,953	3,247	2,630	618 (898)	23% (36)
Bradford	546,412	1,704	1,122	582 (642)	52% (60)
Kirklees	443,216	1,730	999	731 (707)	73% (69)
Wakefield	353,370	1,400	1,343	57 (8)	4% (2)
Calderdale	206,631	997	399	598 (605)	150% (154)
West Yorkshire Total	2,351,582	9,078	6,606	2472 (2,703)	37% (44)

TAB.32 – Government Net Additional Dwelling Data⁷⁴

Year	District					West Yorkshire Total
	Leeds	Bradford	Kirklees	Wakefield	Calderdale	
2006/2007	2,820	2,340	2,660	840	1,280	9,940
2007/2008	3,070	1,400	2,680	1,690	1,310	10,150
2008/2009	3,320	2,200	1,490	1,120	490	8,620
2009/2010	1,730	1,760	1,090	680	570	5,830
2010/2011	1,180	1,460	1,250	970	510	5,370

⁷⁰ 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 \(oc2.uk\)](https://www.bradford.gov.uk/media/fix5f50v/sd-11-wakefield-district-local-plan-2036-publication-draft-plan-volume-1-development-strategy-strategic-and-local-policies.pdf)

⁷¹ Kirklees Council. Local Plan (adopted February 2019) <https://www.kirklees.gov.uk/beta/planning-policy/pdf/local-plan-strategy-and-policies.pdf>

⁷² Wakefield Council. Draft Local Plan publication (draft October 2020) <https://www.wakefield.gov.uk/media/fix5f50v/sd-11-wakefield-district-local-plan-2036-publication-draft-plan-volume-1-development-strategy-strategic-and-local-policies.pdf>

⁷³ Calderdale. Local Plan (adopted March 2023) <https://new.calderdale.gov.uk/sites/default/files/2023-06/Local-Plan-Written-Statement.pdf>

⁷⁴ Government. National Statistics, Housing supply: net additional dwellings, England: 2012 to 2022 (published November 2022) [Housing supply: net additional dwellings, England: 2012 to 2022 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/statistics/housing-supply-net-additional-dwellings-england-2012-to-2022). Table 122 housing supply: net additional dwellings, by local authority district, England.

2011/2012	1,930	730	940	850	370	4,820
2012/2013	1,560	720	580	530	500	3,890
2013/2014	2,230	870	1,040	810	330	5,280
2014/2015	1,980	1,130	520	1,130	560	5,320
2015/2016	2,470	900	1,130	1,920	330	6,750
2016/2017	2,820	1,490	980	1,820	380	7,490
2017/2018	2,280	1,620	1,330	1,760	290	7,280
2018/2019	3,430	1,610	1,550	2,110	560	9,260
2019/2020	3,330	1,010	1,130	1,760	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

FIG.19 – Housing Delivery Trend vs. Planned Future Delivery Levels

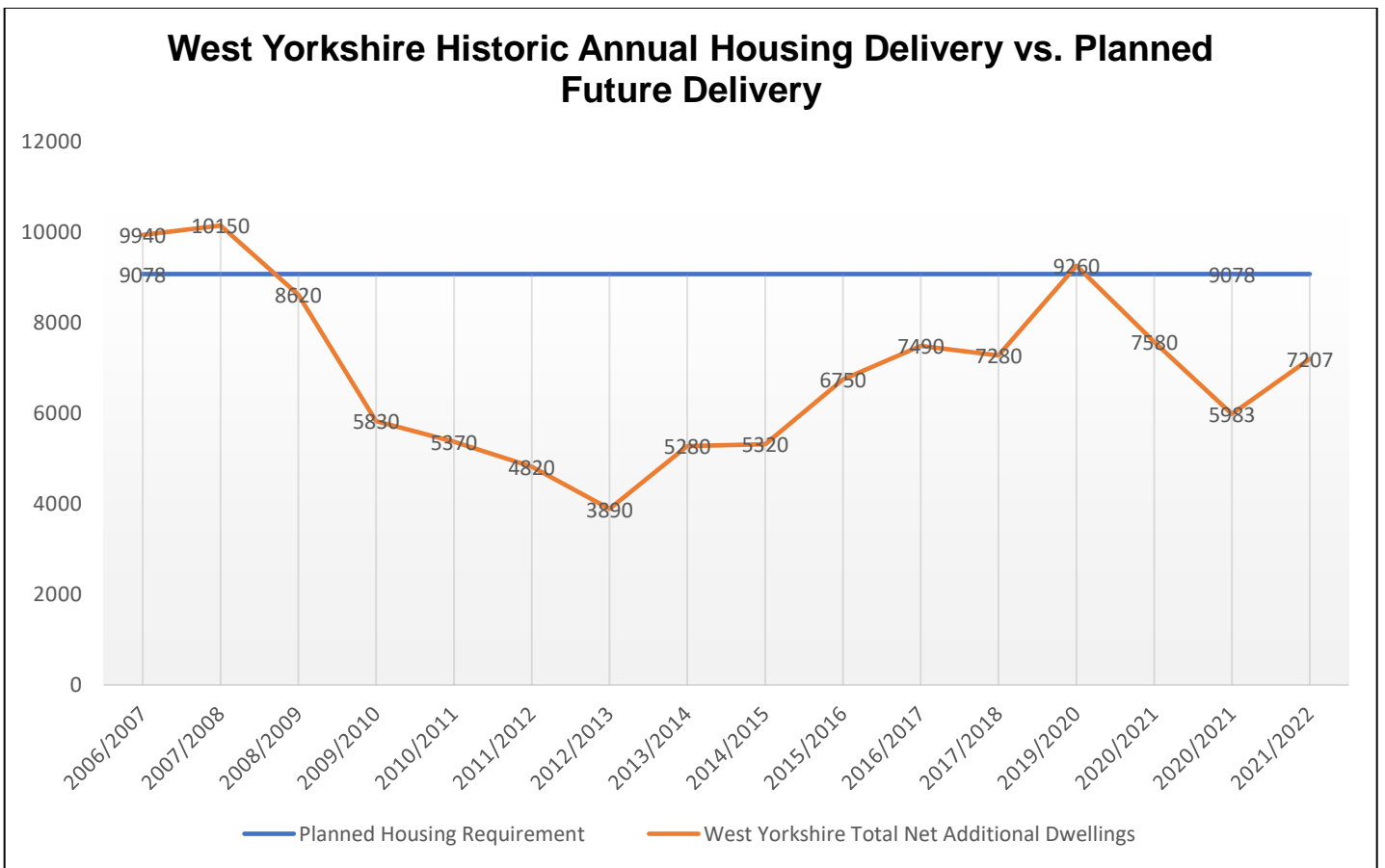
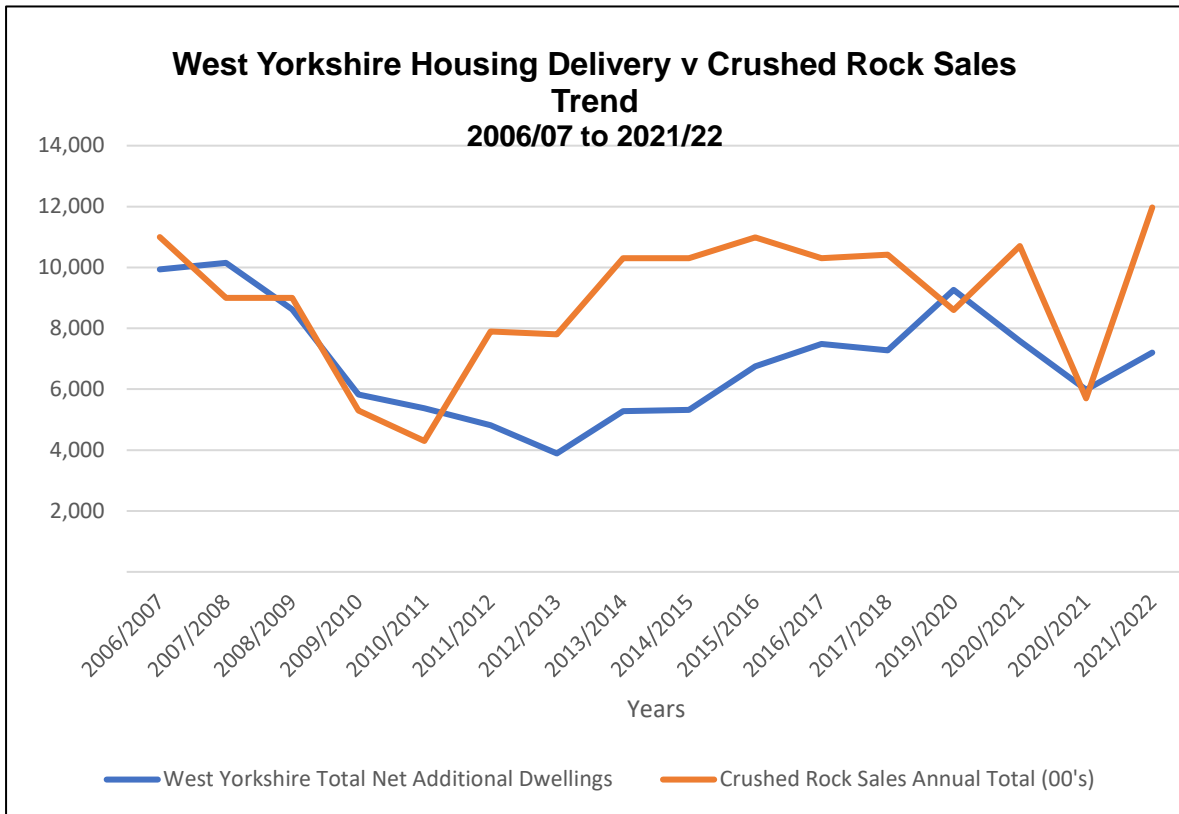


FIG.20 – Housing Delivery Trend vs. Crushed Rock Sales



Note: Please note that the net housing completion data included in the above tables and charts is data published by the government as part of their live tables on housing supply: net additional dwellings. Each of the West Yorkshire Local Authorities also publish their own housing completion figures, which may vary with the figures published by the government. The use of the government published housing completion figures in the LAA is to ensure consistency and for the specific purpose of calculating the uplift to be applied to the aggregate landbank. These figures should not be used for any other purpose and should not be seen as conflicting with or contradicting the different housing completion figures published by each of the West Yorkshire Local Authorities for planning and monitoring purposes.

3.6.6. Notwithstanding the apparently clear association between aggregate sales and housing delivery shown in Figure 20 above, there has been some debate about the precise relationship between increased house building and increased demand for aggregates. North Yorkshire initially proposed an estimate of house building accounting for only 15% of aggregate demand. However, the Minerals Products Association raised concerns in relation to this estimate and set out their view that it would be safer to link housing growth to 100% of demand.

3.6.7. For West Yorkshire it is acknowledged that demand for the generally lower specification aggregates produced within the sub-region relates minimally to the economic demand for the consumption of aggregates within West Yorkshire. This is particularly the case in

relation to the need for concrete grade aggregates and roadstone as these materials are not produced in significant quantities within West Yorkshire.

3.6.8. Therefore, the purpose of applying an uplift to sales averages is not to allow for the aggregates required to deliver planned housing growth (or other infrastructure) to be provided for from within West Yorkshire, instead, the uplift should be seen as a mechanism to compensate for the increased pressure future housing and economic development within West Yorkshire will place upon minerals supplies derived from neighbouring authorities by ensuring that a greater proportion of lower specification aggregates is supplied from West Yorkshire, thus relieving pressure on neighbouring authorities to supply such material.

3.6.9. Furthermore, it should be noted that the role that West Yorkshire plays in aggregate supply is dominated by crushed rock aggregates rather than sand and gravel. Therefore, applying a lower uplift to the crushed rock aggregate provision rate, the approach taken in the NYLAA, would disproportionately diminish the implied overall target for increased aggregate production from West Yorkshire.

3.6.10. In this context it is considered appropriate to apply a less conservative method within the West Yorkshire LAA. Therefore, the uplift approach adopted in the 2023 LAA, is to assume that the increase in aggregate production required to deliver planned housing growth would be approximately 50% of the required increase in house building in relation to both crushed rock and sand and gravel aggregates.

3.6.11. The West Yorkshire specific data set out in table 31 indicates that the increase in house building which would specifically be required for West Yorkshire to meet the housing requirements calculated within adopted and emerging Local Plans is 40%. On this basis it is considered appropriate to plan for a 18.5% uplift in aggregate supply within West Yorkshire to compensate for the increased demand that house building growth in West Yorkshire will place upon aggregate supplies from neighbouring authorities. Further details of the methodology used to calculate the uplift percentage can be found at Appendix 5.

3.6.12. While the current economic situation (relatively high inflation) may have exerted, and continued to exert, a downward pressure on housebuilding, a housing shortage continues to exist which means the demand for new homes remains high.

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:

TAB.33 –10 Year Aggregate Sales Average

Aggregate Type	10 Year Sales Average
Sand and Gravel	66,200 (0.07mt)
Crushed Rock	970,800 (0.97mt)

4.1.2. Significant, though mainly lower specification, reserves of crushed rock aggregate remain within West Yorkshire. There is only one site currently extracting sand and gravel in West Yorkshire, but two further sites were granted permission in 2022.

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 (2022 data) is as set out in Section 3 and summarised in Table 34 overleaf:

TAB.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 2022	846,500
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% ⁷⁵
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	18.5%

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, 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 40% increase in house building required to meet anticipated housing needs). It is concluded that applying a 18.5% 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 increased future house building

⁷⁵ 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.

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.

TAB.36 - West Yorkshire Aggregate Landbanks 2021

Note: All Figures in Tonnes Unless Otherwise Stated	Reserve	10 yr Annual Sales Average 2012-2021	18.5% Uplifted Aggregate Provision Rate	Landbank
Sand and Gravel	1,910,000	66,200	78,447	24 Years 4 Months
Crushed Rock	40,530,000	970,800	1,150,397	35 Years 3 Months

4.1.9. The Sand and Gravel landbank of 24 years and 4 months is significantly above the minimum landbank required by paragraph 213 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 35 years and 3 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 also be noted that the improved landbank is due to a reassessment of existing sites rather than the release of additional 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:

- Additional aggregate supplies will be required for housing and infrastructure** - Housing delivery has significantly improved in West Yorkshire in recent years; however, there remains a gap between the number of houses being built and the objectively assessed need for new housing. However, in the coming years recessionary effects may impact on housing delivery. 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 apparent significant improvement in the landbank is due to the low level of sales and permissions granted in 2022, however the deliverability of one of the new permissions is 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.

- v. Crushed rock landbank is healthy but includes mainly lower specification material**
 - Crushed rock reserves remain relatively high within West Yorkshire; however, 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. These areas 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** - Providing new and enhanced facilities for the production of recycled aggregates will assist in West Yorkshire's contribution to aggregate production & help to compensate for its reliance on primary aggregates quarried from neighbouring authorities.
- 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 urgency⁷⁶ 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.

⁷⁶ The WYCA Marine Aggregates Study (2022) will be updated in 2024.

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 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.’

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.’

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

5.1.3. 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;
 - ‘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's 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:

- 1) 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.
- 2) 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.
- 3) The Councils will continue to work together in the future to prepare joint or individual local aggregate assessments and also co-operate in the production of wider regional aggregate assessments within their relevant aggregate working party areas.
- 4) 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.

Agreements to be Sought

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.

Appendix 1 - Mineral Resources

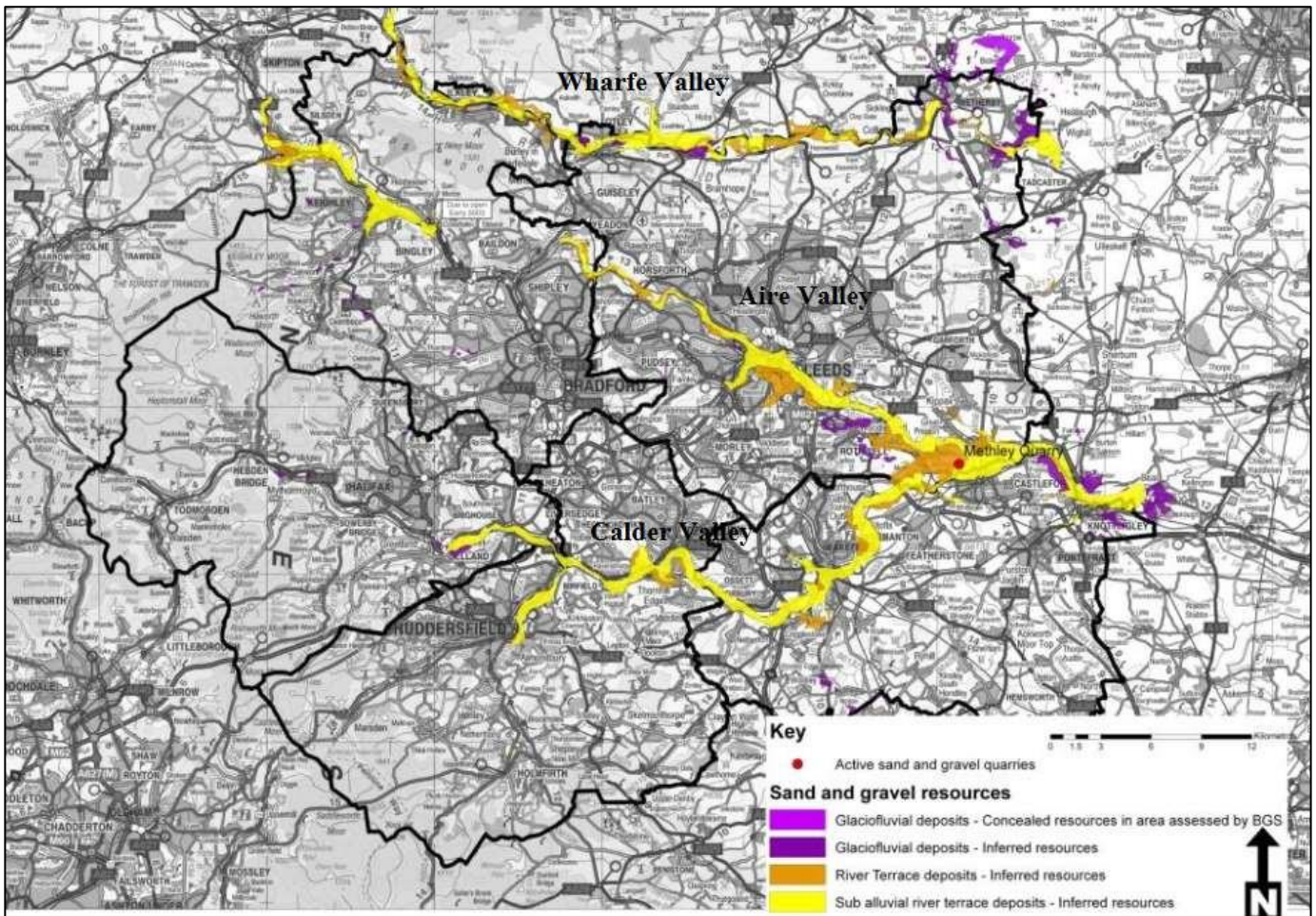
A1.1 Sand and Gravel

A1.1.1 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.

A1.1.2 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.

FIGA1-1 – West Yorkshire Sand & Gravel Resource

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



A.1.1.3 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*.

A.1.2.4 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.

A.1.2.5 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.

A.1.2.6 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*.

A.1.2.7 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.

A.1.2.8 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 one relatively small site in the District of Kirklees, with an additional/ replacement site currently at application stage in Wakefield. 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.

A.1.2.3 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.

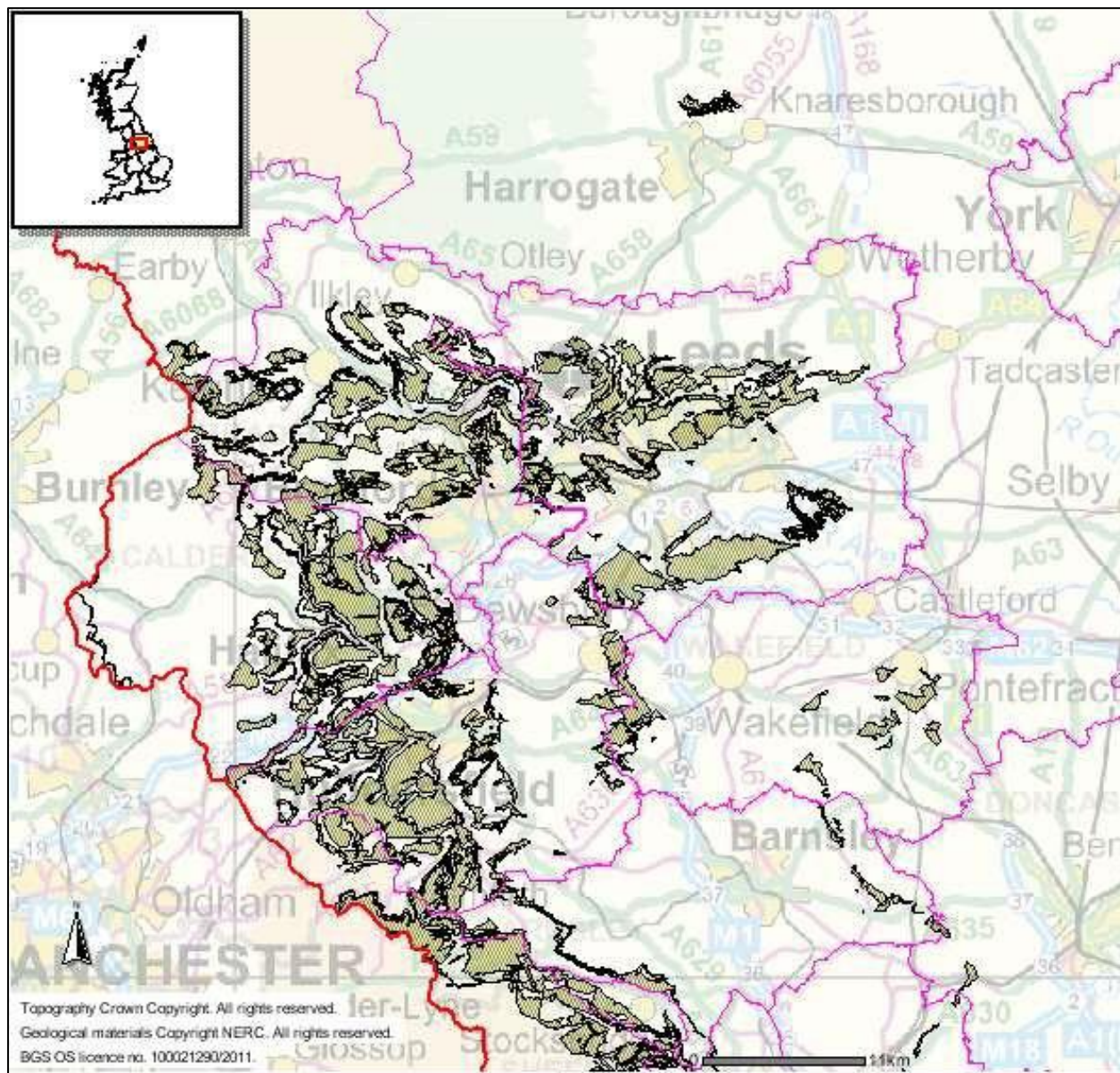
A1.3 Building Sandstone

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.

A.1.3.2 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.

A.1.3.4 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.

FIGA1-2 – West Yorkshire Sandstone Resource



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

A1.4 Limestone Aggregate

A1.4.1 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.

A.1.4.2 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).

A.1.4.3 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.

A.1.4.5 In terms of the uses of the lower strength aggregates produced at the other 60% of quarries, these are understood to include:

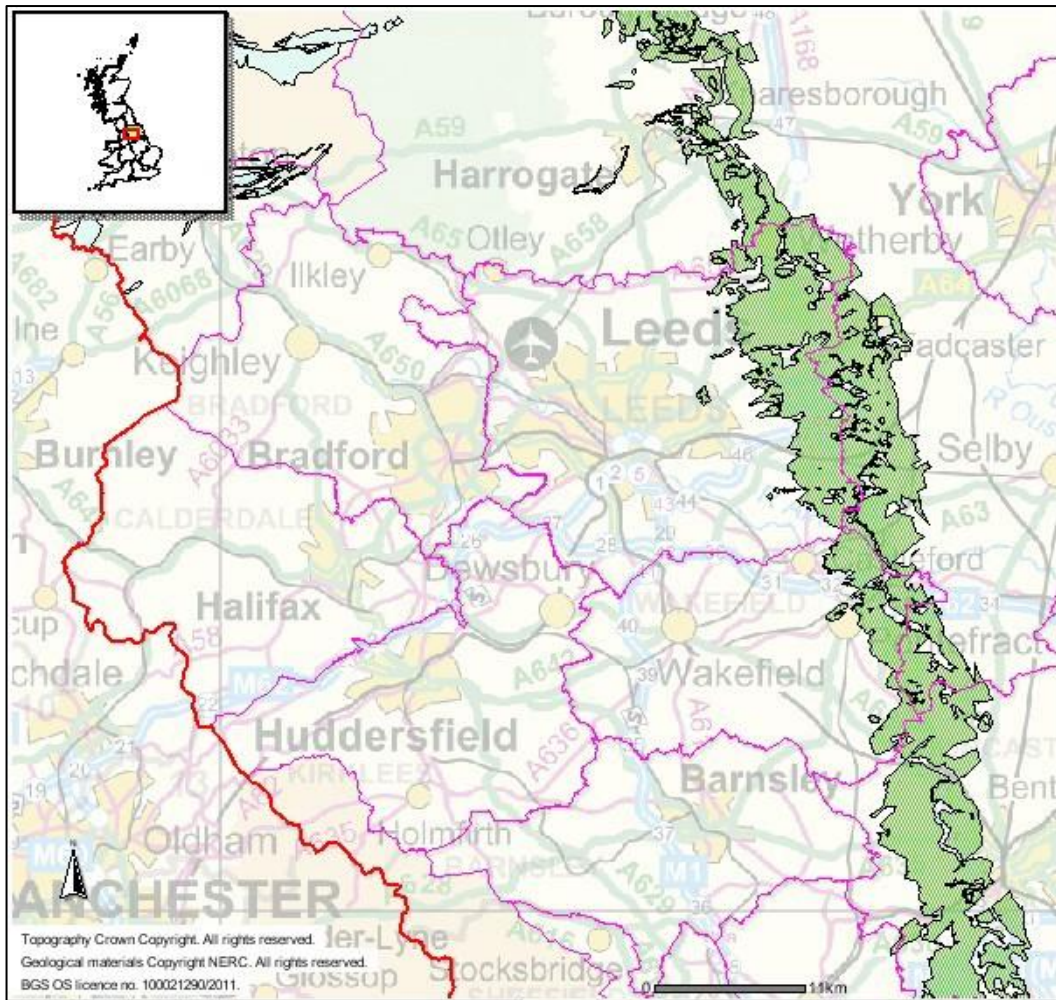
- Decorative chippings
- Bedding for permeable paving
- Pipe Bedding
- Capping material
- Chippings for footpaths, driveways & flat roofs
- Aggregate for land drainage/ filter media
- Bulk Fill
- Aggregate for gabion baskets

A.1.4.6 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.'

FIGA1-3 – West Yorkshire Limestone Resource

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



A1.5 Building Limestone

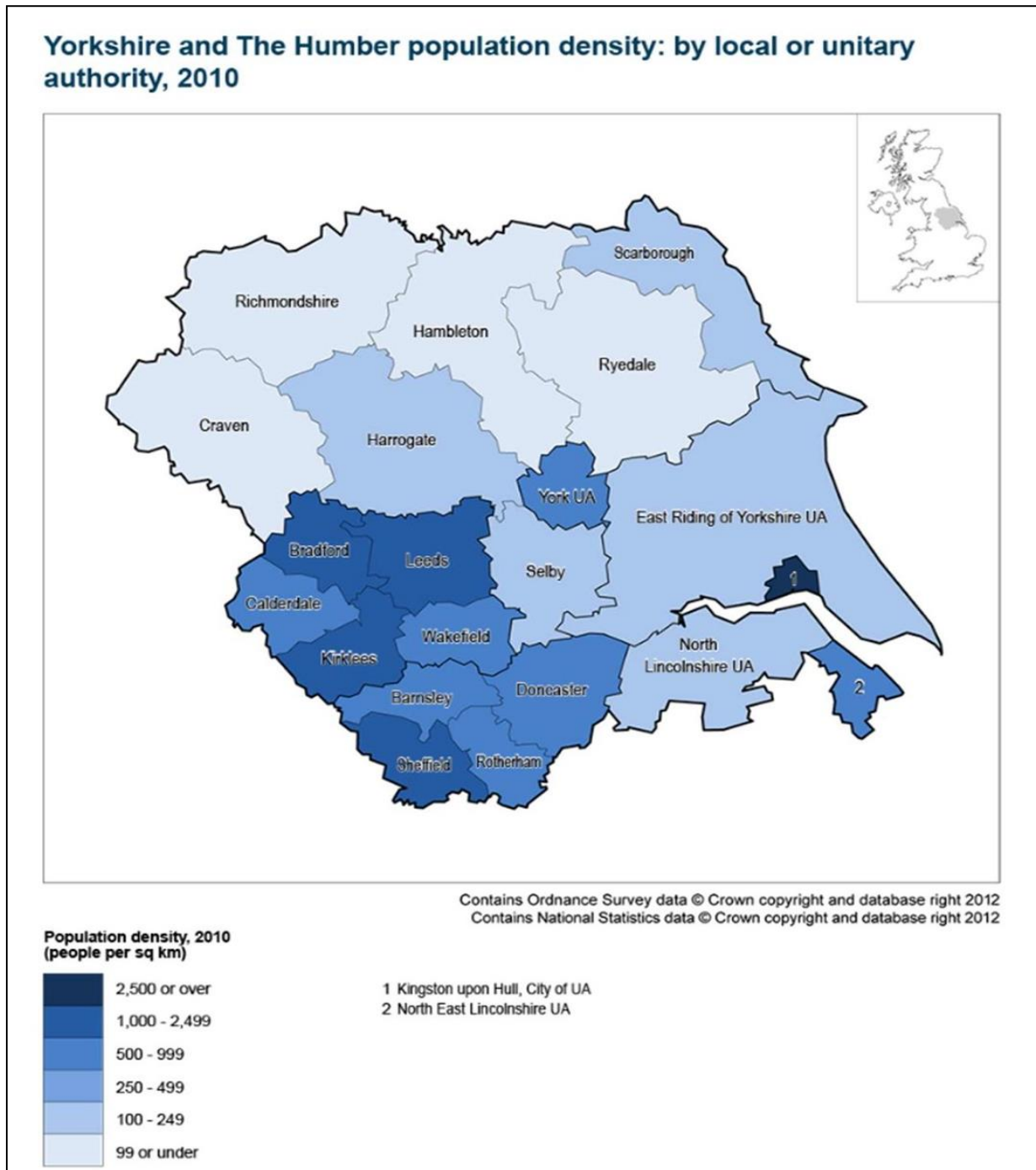
A1.5.1 The more uniform limestone strata have been extensively quarried on a small scale for local building stone. Currently there is one productive quarry, at Bramham in Leeds. This is a moderately sized unit supplying sawn stone across the region for construction use including elaborate carving. Interest 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.

Appendix 2 – Geographical Context – Detailed Information

Population

A2.1 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.

FIGA2-1 – Population Density Map



A2.2 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, with the exception of the administrative area covered by North Yorkshire County Council. However, the government has announced its intention to make North Yorkshire into a single Unitary Authority which will amalgamate the County Council with the current seven Borough Councils by April 2023.

A2.3 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%⁷⁷. 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:

TAB A2-1 2018-based subnational principal population projections for local authorities in England

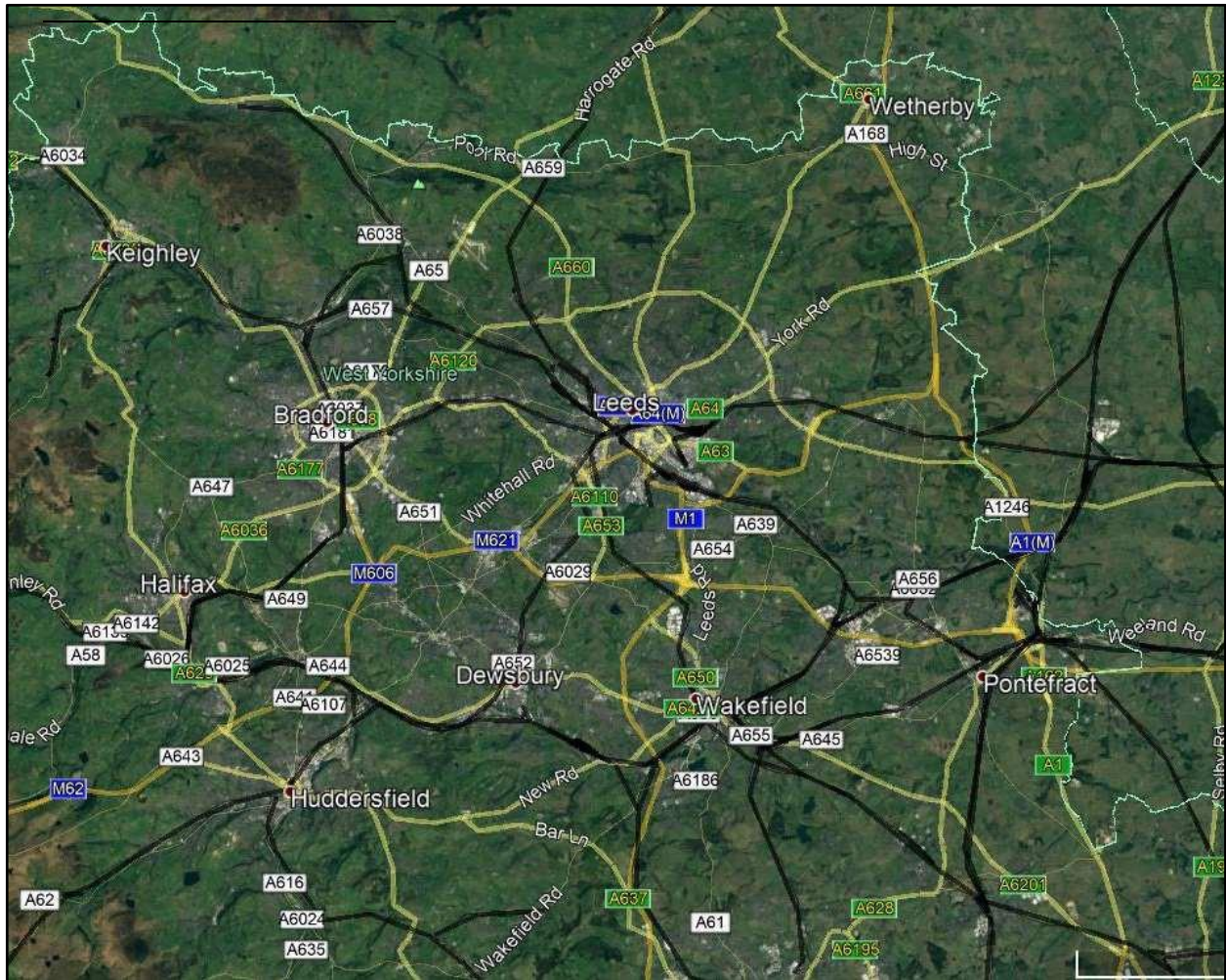
AREA	2020	2025	2030	2035	2040	2043	% Increase 2020 to 2043
England	56,678,470	58,060,235	59,181,798	60,183,914	61,157,868	61,744,098	9%
West Yorkshire	2,342,186	2,384,880	2,422,807	2,456,592	2,489,022	2,509,379	7%
Bradford	540,909	547,333	551,918	556,691	562,645	566,537	5%
Calderdale	210,958	212,645	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%

Transportation

A2.4 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):

⁷⁷ ONS, 24 March 2020, Table 2: 2018-based subnational principal population projections for local authorities and higher administrative areas in England.

FIG A2-2 – Map Illustrating Key Road & Rail Corridors (black: rail; yellow: road)⁷⁸



⁷⁸ Google Earth, 2021

FIG A2-3 – Map of navigable waterways⁷⁹



A2.5 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.

A2.6 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.

A2.7 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

⁷⁹ C&RT, 2021, <https://canalrivertrust.org.uk/enjoy-the-waterways/canal-and-river-network>

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.

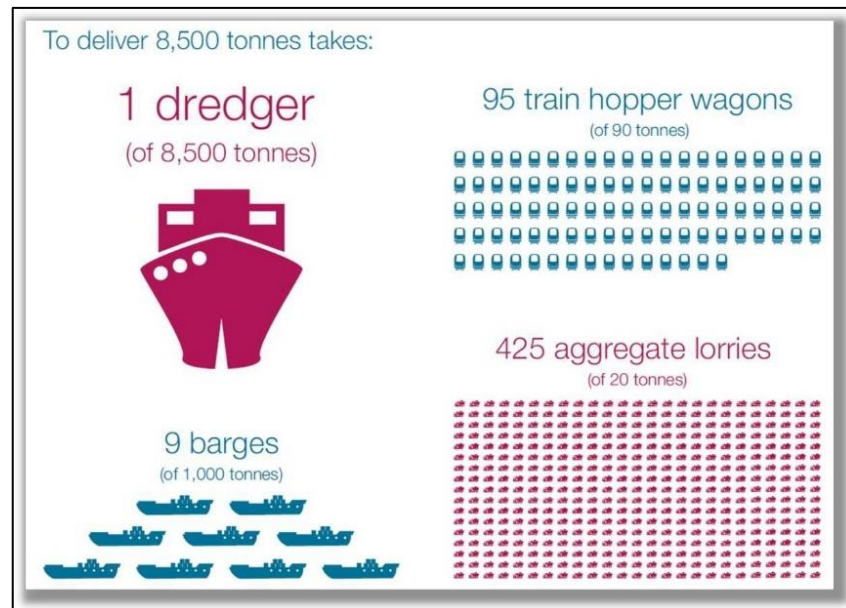
A2.8 The West Yorkshire Low Emissions Strategy 2016 to 2021 (LES) confirms that ‘in some parts of West Yorkshire ... road traffic is having a significant impact on air quality’ and that ‘the number of HGVs on the West Yorkshire road network contribute significantly to local and regional air pollution’. 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.

A2.9 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.

A2.10 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)⁸⁰. The diagram below, produced by the Crown Estate, illustrates the efficiency benefits of achieving modal change for aggregate transportation:

FIG A2-4 – Illustration of haulage capacity of different modes of transportation⁸¹



⁸⁰ Data from EU Inland Waterway Transport Solutions 2.0 website, accessed 2021: <https://project-iwts20.eu/>

⁸¹ The Crown Estate, Marine Aggregates Capability & Portfolio 2018

Transportation of Aggregates (Barge)

A.2.11 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 (Knostrap 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.

A.2.12 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.

A.2.13 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 emerging new Local Plan (LP2036) through draft policy WSP18(3)(b).

A.2.14 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.

A.2.15 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.

A.2.16 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 bridges⁸².

A.2.17 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.

TAB A2-2 Estimates of Actual Wharf Aggregate Throughput & Potential Capacity

Wharf	Status	Estimated Current Aggregate Throughput (Tonnes Per Annum)	Potential Capacity (Tonnes Per Annum)
Old Mill Lane, Knostrop	<i>Inactive</i>	(75,000) ceased operation in 2022	150,000
Bridgewater Road, Cross Green	<i>Inactive</i>	-	Unknown
Skelton Grange Road, Stourton (Port of Leeds)	<i>Inactive</i>	-	1,000,000
Haigh Park Road, Stourton	<i>Inactive</i>	-	Unknown
Fleet Lane, Woodlesford	<i>Inactive</i>	-	Unknown
Whitwood	<i>Inactive</i>	-	c150,000
Wharf adjacent to the former Ferrybridge Power Station coal stockyard	<i>Inactive</i>	Unknown	Unknown
C&RT Estimate of Total Potential Aggregate Capacity of Aire & Calder Navigation Wharfs (Subject to Infrastructure Improvements)			2,000,000

⁸² ICE – NATIONAL NEEDS ASSESSMENT, RESPONSE BY THE CANAL & RIVER TRUST, 04 March 2016

Transportation of Aggregates (Rail)

A.2.18 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.

A.2.19 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 railing of aggregates into West Yorkshire to these locations - with consequent climate change and air quality benefits.

A.2.20 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.

A.2.21 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.

A.2.22 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.

Transportation of Aggregates (Infrastructure Safeguarding)

A.2.23 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.

A.2.24 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.

A.2.25 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.'

A.2.26 The Calderdale Local Plan (Adopted 2023) safeguards the transport element of the minerals supply chain via its minerals infrastructure safeguarding policy MS3.

A.2.27 The Wakefield Local Development Framework Core Strategy policy CS9 includes a general policy for the safeguarding of rail and waterway infrastructure through policy CS9 which states that:

'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'.

A.2.28 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.

National Parks and Areas of Outstanding Natural Beauty

A.2.29 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.

A.2.30 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 of Outstanding Natural Beauty (AONB). British Geological Survey data⁸³ 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).

A.2.31 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.

A.2.32 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

⁸³ <https://www.gov.uk/government/publications/aggregate-minerals-survey-for-england-and-wales-2019>

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)⁸⁴ 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.

A.2.33 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.

Local Plans in West Yorkshire

A.2.35 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, Bradford and Wakefield'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.

A.2.36 Leeds, Wakefield 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 is due for publication in mid 2024. Wakefield District Local Plan 2026 (new format single Local Plan) is currently being examined by the Planning Inspector. 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:

TAB 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 ⁸⁵	Adopted	Sep-19	54,352	2017	2033	16	3,397
Bradford	Bradford District Local Plan ⁸⁶	Draft (Regulation 18)	Feb-21	30,672	2020	2038	18	1,704
Kirklees	Local Plan ⁸⁷	Adopted	Feb-19	31,140	2013	2031	18	1,730

⁸⁴ Derbyshire County Council, Derby City Council and the Peak District National Park Authority Local Aggregate Assessment 2022

⁸⁵ Leeds City Council, Core Strategy Selective Review (adopted September 2019) [CSSR Polices Adoption Sept 2019 Final.pdf \(leeds.gov.uk\)](https://www.leeds.gov.uk/sites/default/files/2019-09/CSSR_Polices_Adoption_Sept_2019_Final.pdf)

⁸⁶ 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 \(oc2.uk\)](https://www.bradford.gov.uk/sites/default/files/2021-02/City_of_Bradford_Metropolitan_District_Council_-_Draft_Bradford_District_Local_Plan_-_Preferred_Options_(Regulation_18)_February_2021_(oc2.uk))

⁸⁷ Kirklees Council. Local Plan (adopted February 2019) <https://www.kirklees.gov.uk/beta/planning-policy/pdf/local-plan-strategy-and-policies.pdf>

Wakefield	Publication Draft Plan: Development Strategy Strategic and Local Plan Policies ⁸⁸	Draft inc. main modifications (Regulation 19)	Feb 23	26,600	2017/18	2036/37	19	1,400
Calderdale	Local Plan ⁸⁹	Adopted	March-23	14,950	2018/19	2032/33	15	997

A.2.37 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.

A.2.38 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.

A.2.39 The West Yorkshire Combined Authority, state of region review (2022)⁹⁰ 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 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’.

A.2.40 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%.

A.2.41 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 2022 landbank to 18.5% from 25% in the WYLAA 2019, 27.5% in the WYLAA 2018 and 35% in the WYLAA 2017.

A.2.42 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

⁸⁸ Wakefield Council. Draft Local Plan publication (draft February 2023) <https://www.wakefield.gov.uk/media/fixf5l0v/sd-11-wakefield-district-local-plan-2036-publication-draft-plan-volume-1-development-strategy-strategic-and-local-policies.pdf>

⁸⁹ Calderdale. Local Plan (adopted March 2023) <https://new.calderdale.gov.uk/sites/default/files/2023-06/Local-Plan-Written-Statement.pdf>

⁹⁰ West Yorkshire Combined Authority, state of region review (2022) [state-of-the-region-2022-full-report-v2.pdf](https://www.west-yorks-ca.gov.uk/state-of-the-region-2022-full-report-v2.pdf) ([westyorks-ca.gov.uk](https://www.west-yorks-ca.gov.uk))

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.

A.2.43 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.

A.2.44 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.

A.2.45 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.

A.2.46 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.

A.2.47 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.

A.2.48 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).*

A.2.49 **Wakefield** adopted a Local Development Framework in 2009, with a series of Development Plan Documents informed by a Core Strategy. The Wakefield Core Strategy sets out a commitment to maintaining an appropriate contribution towards the regional supply of aggregates and safeguards mineral resources including the Magnesian Limestone resource in the Knottingley and Darlington area and existing permitted reserves throughout the District. The Site-Specific Policies DPD provides for the safeguarding of further minerals deposits, including clay resources in Normanton and Sand & Gravel Resources in Horbury and Stanley Ferry, as well as parts of the coalfield.

A.2.50 The replacement **Wakefield Local Development Plan 2036** received an Inspector's Report confirming its soundness in November 2023. The Local Plan covers the period to 2036 and will provide 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.

A.2.51 **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.

A.2.52 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.

A.2.53 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).

A.2.54 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.

A.2.55 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.*

Appendix 3 - Active quarries which produce aggregate as of 31 December 2022

No.	QUARRY	OPERATOR	AGG TYPE
	BRADFORD		
1	Bank Top Quarry, Harden	M&M York Stone Products	Sandstone, grit
2	Naylor Hill Quarry, Haworth	Dennis Gillson & Son	Sandstone, grit
3	Bolton Woods Quarry, Bradford	Hard York Quarries	Sandstone, fine
4	Hallas Rough	Flappit Tipping and Recycling	Sandstone
	CALDERDALE		
5	Fly Flatts Delph Quarry, Warley	Rand & Asquith	Sandstone
6	Gibb Lane Quarry/Delph Hill Quarry	Mr J Smith	Sandstone
7	Upper Pule/Scout Moor Swalesmoor	Cleanmet	Sandstone
8	Sunny Bank Farm, Southowram	Mytholm Stone Sales	Sandstone
9	Pond Quarry, Lightcliffe	Mr Gibson	Sandstone
10	Pasture House Farm, Southowram	Marshalls Natural Stone	Sandstone
11	Spring Hill Quarry, Greetland	Spring Hill Stone Sales	Sandstone
12	Elland Edge Quarries, Elland	Rand & Asquith	Sandstone
13	Pinnar Lane Quarry	D. Throp	Sandstone
	KIRKLEES		
14	Moselden Quarry, Scammonden	Marshalls Natural Stone	Sandstone, grit
15	Crosland Moor Quarries, Huddersfield	Johnson Wellfield Quarries	Sandstone, grit
16	Windy Ridge Quarry, Holmfirth	Windy Ridge Recycling Ltd	Sandstone, grit
17	Hillhouse Edge Quarry, Holmfirth	Saxon Moor Ltd	Sandstone, grit
18	Appleton Quarry, Shepley	Marshalls Natural Stone	Sandstone, grit
19	Sovereign Quarry, Shepley	Marshalls Natural Stone	Sandstone, grit
20	Temple Quarry, Grange Moor	Holgate Construction Ltd	Sandstone, grit
21	Forge Lane Sand and Gravel Quarry	Dewsbury Sand & Gravel Lt	Sand & Gravel
	LEEDS		
22	Hawthorn Quarry, Guiseley	Apperley Bridge Aggre. Ltd	Sandstone, grit
23	Moor Top Quarry, Guiseley	RG Stone Sales	Sandstone, grit
24	Blackhill Quarry, Bramhope	Mone Bros Excavations Ltd	Sandstone, grit
25	Britannia Quarry, Morley	Woodkirk Stone Sales Ltd	Sandstone, fine
26	Howley Park Quarry, Morley	Marshalls Natural Stone	Sandstone, fine
27	Arthington Quarry, Bramhope	TBC	Sandstone, grit
	WAKEFIELD		
28	Darrington Quarry (part), Knottingley	FCC Environment	Limestone, mag.
29	Plasmor Quarry, Knottingley	Plasmor Ltd	Limestone, mag.
30	Stanley Ferry ⁹¹	Wakefield Sand and Gravel Ltd	Sand & gravel
31	Barnsdale Bar Quarry	Darrington Quarries Ltd	Limestone, mag
	Sites permitted but not worked		

⁹¹ Permitted in 2022; sales anticipated to commence in 2024.

	SITE		AGG.TYPE
	Strands, Horbury - W Foxholes, Normanton - W Penbank, Castleford - W Arborary Lane Quarry - K	ROMP ROMP ROMP	Johnson's Wellfield Quarries
			Sand & gravel Sand & gravel Sand & gravel Sandstone

Appendix 4 Recycled Aggregate Production

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

Authority	Site	Input	Output	Difference = inferred recycled aggregate
Bradford City	Beckside Works	29,176	7,731	21,445
	Hallas Rough Quarry	28,782	25,330	3,452
	Neville Road	22,563	128	22,435
	Subtotal	80,521	33,189	47,332
Calderdale	Goose Recycling Aggregates Limited	6,092		6,092
	Unit 12 Station Road Industrial Park	6,730		6,730
	Wood Top Quarry	22,221	21,187	1,034
	Subtotal	35,043	21,187	13,856
Kirklees	Clayfield Works	6,680	6,522	158
	Headlands Road Depot	11,645		11,645
	Temple Quarry	71,567	129	71,438
	Subtotal	89,892	6,651	83,242
Leeds	Ashfield Way Treatment & Transfer Station	22,187	15,861	6,326
	Cross Green Recycling	79,761	127	79,634
	Fireclay	128,151	341	127,810
	J Murphy & Son	15,964	182	15,782
	J. M. Haulage (Leeds) Limited	36,658		36,658
	Leeds Soil & Aggregates Recycling Facility	16,758		16,758
	Milners Road Site	16,412	9,737	6,675
	Tarmac Trading Limited Cross Green	1,932		1,932
	Thorpe Lane Recycling Limited Treatment Facility	2,203	239	1,964
	Subtotal	320,026	26,487	293,539
Wakefield	Ash Pits Crabtree Lane	32,432	342	32,090
	Fastsorce Ltd, The Old Coal Yard	67,781	122	67,659
	Willowbridge Lane Aggregates Recycling Facility	74,656	5,840	68,816
	Subtotal	6,304	168,565	174,869

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

Authority	Site	Hardcore Sent for Recovery (Tonnes)
Bradford City	Associated Waste Management Ltd	3,105
	Bradford H W S	415
	City Of Bradford Metropolitan District Council	390
	Dealburn Road Household Waste Recycling Centre	238
	E M R	277
	Ford Hill Household Waste Site	208
	Hallas Rough Quarry	16,861
	Hammerton Street Aggregate Recycling Facility	11,375
	Keighley H W S	122
	Keighley T L S	506
	Premises At Whitewell Street	4,693
	Premises Off Ripley Road	140
	Unit 15	313
	Subtotal	38,642
Calderdale	Atlas Mill Household Waste Recycling Centre	182
	Eastwood Household Waste and Recycling Centre	83
	Halifax Household Waste Recycling Centre	252
	Kemp Waste Management Ltd	136
	T S Lee & Son Ltd	526
	Subtotal	1,179
Kirklees	J T Shingleton & Son	690
	Subtotal	690
Leeds	A W M Valley Farm Road M R F	330
	Arthington Quarry	9,266
	B W Skip Hire	3,467
	Bill Dyson Skip Hire	970
	E F R Skips (Wakefield) Limited	1,144
	Forge Recycling (U K) Limited	3,832
	L S S Waste Management Group Limited	13,118
	Milners Road	810
	St Bernards Mill M R F	277
	Thorpe Lane Recycling Limited Treatment Facility	239
	Subtotal	33,454
Wakefield	Askew Skips	1,599
	C S Skips Ltd Unit 53A	833
	Denby Dale Road Transfer Loading Station	154
	Ferrybridge 1	54
	Ferrybridge 2	11

	Glasshoughton Household Waste Recycling Centre	34
	Grace Brothers	295
	I H Equipment Ltd	1,200
	Kirkhaw Site	1,445
	Pickup Skips	2,193
	South Kirkby WMF	194
	The Store	538
	Subtotal	8,550

Appendix 5 - Detailed Explanation of Uplift Calculation Methodology

- 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.
- 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
- Figure C was calculated through interrogation of the *live tables on housing supply: net additional dwellings*⁹² - *Table 122 Net additional dwellings by local authority district, England, 2001-02 to 2021-22* published by the government, as shown in the table below:

Year	District					West Yorkshire Total
	Leeds	Bradford	Kirklees	Wakefield	Calderdale	
2006/2007	2,820	2,340	2,660	840	1,280	9,940
2007/2008	3,070	1,400	2,680	1,690	1,310	10,150
2008/2009	3,320	2,200	1,490	1,120	490	8,620
2009/2010	1,730	1,760	1,090	680	570	5,830
2010/2011	1,180	1,460	1,250	970	510	5,370
2011/2012	1,930	730	940	850	370	4,820
2012/2013	1,560	720	580	530	500	3,890
2013/2014	2,230	870	1,040	810	330	5,280
2014/2015	1,980	1,130	520	1,130	560	5,320
2015/2016	2,470	900	1,130	1,920	330	6,750
2016/2017	2,820	1,490	980	1,820	380	7,490
2017/2018	2,280	1,620	1,330	1,760	290	7,280
2018/2019	3,430	1,610	1,550	2,110	560	9,260
2019/2020	3,330	1,010	1,130	1,760	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

Note: Cells highlighted in red indicate years where current housing delivery target was missed.

- 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:

⁹² <https://www.gov.uk/government/statistical-data-sets/live-tables-on-net-supply-of-housing>

Planned Housing Delivery in West Yorkshire

	Population data (2021 census data)	Planned Annual Housing Requirement (P)	2012/13-2021/22 Average Net Additional Dwellings (C)	Increase in Average Annual Net Additional Dwellings Required to Meet Planned Housing Delivery Target values in brackets from LAA 2022	% Uplift Required in Housing (2022 LAA in brackets) (H)
Leeds	811,953	3,247	2,630	618 (898)	23% (36)
Bradford	546,412	1,704	1,122	582 (642)	52% (60)
Kirklees	443,216	1,730	999	731 (707)	73% (69)
Wakefield	353,370	1,400	1,343	57 (8)	4% (2)
Calderdale	206,631	997	399	598 (605)	150% (154)
West Yorkshire Total	2,351,582	9,078	6,606	2472 (2,703)	37% (44)

- 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.
- The result for figure H was 0.37 or 37%, i.e. a 37% increase in 10-year average house building in West Yorkshire overall will be required to meet planned housing delivery targets for West Yorkshire overall.
- 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.
- 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.
- 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
- 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.
- Having arrived at a satisfactory figure for H and A, i.e. 37% and 50% respectively the uplift in aggregate production required to deliver planned housing growth could then be calculated by applying the simple formula: H*A, i.e. 0.37*0.5 = 0.185.
- The full formula can therefore be expressed as:

$$U = (((P-C)/C) * A) * 100$$



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All information correct at time of writing



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