

JOINT ANNUAL LOCAL AGGREGATE ASSESSMENT 2024

Greater Manchester, Merseyside and Halton, and Warrington

(Data for 2023)

Data for the period 1 January 2023 to 31 December 2023.

August 2026

Prepared on behalf of the following Mineral Planning Authorities:

Greater Manchester *(including Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Tameside, Trafford and Wigan)*

Merseyside and Halton *(including Knowsley, Liverpool, Sefton, St Helens and Wirral)*

Warrington Borough Council

Executive Summary

Introduction

National Planning Policy Framework (NPPF) requires Mineral Planning Authorities (MPAs) to plan for a steady and adequate supply of aggregates by preparing an annual Local Aggregate Assessment (LAA). The LAA should be 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). Furthermore, the LAA should conclude here is a shortage or a surplus of supply and, if the former, how this is being addressed.

National Planning Practice Guidance (NPPG) explains that mineral planning authorities should also look at average sales over the last 3 years in particular, to identify the general trend of demand as part of the consideration of whether it might be appropriate to increase supply.

The MPAs of Greater Manchester, Merseyside, Halton and Warrington (17 local authorities) have worked together to produce a series of joint LAAs, reflecting their status as a single aggregate apportionment sub-region under the Managed Aggregate Supply System (MASS). This is the 9th LAA to be produced in that way and covers aggregate supply in the sub-region in the year 2023.

Sand and Gravel

The sub-region had no operational quarries during 2023. The total sales figure for land-won sand and gravel in the sub-region for 2023 has been presented as a 3-year average for commercial confidentiality reasons. The most recent 3-year average sales figure is 0.11 million tonnes (mt), average 2021-23, with the 10-year figure for sand and gravel at 0.25mt (rolling average for 2014-23).

Sales do not match consumption levels for materials required to service Greater Manchester, Merseyside, Halton and Warrington. Consumption rates continue to be significantly higher, placing a greater demand on imports to meet the needs of the sub-region. Sales also fall below the land-won apportionment for the LAA sub-region of 0.43mt. Even, when land-won sand and gravel sales are combined with the total marine won sand and gravel in 2023 of 0.4mt, the LAA sub-region is below its allocated apportionment requirement for the period.

The AM2023 provides information on where imports originate from, sand and gravel is mainly imported from other parts of the North West and this is expected to continue.

Total reserves of sand and gravel were nil million tonnes at the end of 2023 following the closure of the last operational quarry. The landbank for this material is therefore nil years, which is below the 7-year national landbank requirement.

Crushed rock

There were 4 active crushed rock aggregate quarries in the sub-region during 2023. In total an estimated 0.37mt of crushed rock were sold from these quarries in 2023, up from 0.18mt in 2022. There were 3 inactive crushed rock quarries in 2023.

The most recent 3-year average sales were 0.25mt (average 2021-2023) and the 10-year average sales were 0.48mt (rolling average 2014-2023). Sales in 2023 were above the 10-year and at the 3-year average sales.

for the ability of areas to provide aggregates and apportion the requirements out across the historic regional groupings of England.

Total known reserves of crushed rock were estimated at 10.61 mt at the end of 2023. This would provide for a total of 22.1 years of sales based on the average sales over the most recent 10-year period. However, the permitted end date of 5 crushed rock quarries will be reached within the next 10 years.

Marine Aggregates

The sub-region is an important landing point for marine-won sand and gravel from the licensed dredging areas offshore and its wharves also handle significant shipments of crushed rock from quarries elsewhere in the UK. The offshore dredging areas currently operate well within their licensed extraction limits and this has always been the case. In recent years, the process to obtain a production licence has been simplified and the time taken reduced by over a third, which may instigate further interest in the area. There is currently one application pending a decision in the area, which would release an additional 0.5mt of reserve. Crown Estates has advised that as market demand is increasing, it would be possible to increase supply should market growth continue, and it is understood that a dedicated dredger is now deployed in Liverpool Bay. It is hoped that with depleting land won sand reserves, marine supply could be increased in the short to medium term to meet this need.

A total of 294,173 tonnes of material was removed from permitted dredging areas off the North West coast during 2023. This is a decrease in the overall amount of material dredged from 1,194,423 tonnes in 2022. However, there was an increase in the amount of material landed at Liverpool wharves, up from 217,884 tonnes in 2022 to 286,343 tonnes in 2023.

Future Provision

The general trend has been one of declining reserves within the sub-region, due in large part to the heavily urban nature of the area and the lack of workable aggregate resources within it.

Although the sub-region remains compliant with its land-bank obligations for crushed rock, the landbank for sand and gravel remains below 7 years. Without any new permissions coming forward, this position is unlikely to change.

The sub-region imported 86% of the sand and gravel consumed in 2019, either from elsewhere in the North West or beyond the North West; this figure has decreased to 75% in 2023. The sub-region imported 93% of crushed rock consumed in 2014; this rose to 100% for 2019 and continues in 2023. The data indicates the sub-region is increasingly reliant on imports to supply the majority of its requirements for sand and gravel and crushed rock. As such, the consumption rate of aggregates in the sub-region is more important in terms of predicting future supply needs than the sales, which reflect lower production rates. This means that there is an increasingly important role for marine-won sand and gravel going forward.

There is no easy solution to increasing the sales of either crushed rock or sand and gravel to match the consumption levels required to service Greater Manchester, Merseyside, Halton and Warrington. This is a predominantly urban sub-region, with little scope to expand existing quarries or to develop new ones. Aggregates imported from elsewhere will likely continue to be important in terms of meeting demand within the sub-region, as such, it is important to acknowledge the need to continue to engage in duty to cooperate discussions with those MPAs from which aggregates are being imported. It is also acknowledged, as a result of Duty to Cooperate discussions, that more detailed assessment of supply, demand and forecasting of need should be

undertaken going forward. For the purposes of this report, a 2% uplift has been added to calculate future demand, but this will be reviewed in the LAA 2025 (2024 data) to ensure it's still appropriate.

There is also recognition of the importance of identifying alternative sources of aggregates in order to reduce the amounts of primary aggregate required. There is an important market for recycled and secondary aggregates within the LAA area and it is hoped that this will increase to form a larger part of the sub-region's required aggregate supply in the coming years. This is also true of marine won aggregates, which the sub-region is perfectly placed to benefit from if more material is landed from the Liverpool Bay.

Going forward, all MPAs making up the LAA sub-region need to ensure that their Local Plans adequately address minerals and aggregate issues including:

- Prioritise use of secondary and recycled material.
- Safeguard wharves and associated transport infrastructure and processing facilities
- Safeguard critical transport infrastructure.
- Provide for windfall applications appropriately.
- Continue to work with industry in order to contribute to the apportionment and participate in AWP.
- Monitor landbank adequacy through annual LAA.
- Safeguarding of mineral resources

Table 1 – Executive Summary for 2024 LAA.

Aggregate	Land won Sand & Gravel	Crushed Rock	Recycled/Secondary Aggregates	Marine Sand & Gravel
Total sales 2023 (Mt)	0.11	0.37		0.29
Average 10 years (mt) as at 2023	0.25	0.48		0.27
Average 3 year sales (Mt) as at 2023	0.11	0.25		0.2
Trend (compared to 2022)	Down	Up		Up
Reserve	0 mt	10.61 mt		
Capacity	0 years	22.1 years		
Comments	Majority of demand is met through imports.	Low quality aggregate serving local markets, reducing need to import this material. Higher quality crushed rock continues to be met through imports.	Total Handled = 4,797,379.23 Total Produced = 4,588,650.58* *WDI 2023	

Table 1 conclusions - Due to no new permissions being granted the supply and landbank of land won sand and gravel has dwindled to near nil. The landbanks for local sand and gravel is therefore below the NPPF requirement of 7 years. The landbank for crushed rock is 22.1 years. Whilst this is above the NPPF requirement for a 10-year landbank, reserves have not been replaced as they are used and 5 quarries are due to close over the next few years and this situation will be monitored. It is anticipated that the demand for aggregates will continue to increase and therefore imports of material from other areas will continue to play a vital role in supporting built development and infrastructure. Given the extent of the urban area and the quality of indigenous aggregates, this situation is unlikely to change in the future. However, it is also anticipated that the supply of marine aggregates will continue to increase and the sub region is likely to become more dependent on them to provide local supply of sand and gravel.

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1. Introduction

Local Aggregates Assessment Background

- 1.1. The National Planning Policy Framework (NPPF), includes a requirement for Mineral Planning Authorities (MPAs) to plan for a steady and adequate supply of aggregates by preparing an annual Local Aggregate Assessment (LAA). This should be based on a rolling average of 10 years sales data, and other relevant local information, and an assessment of all the supply options (including marine dredged, secondary and recycled sources)². The guidelines specify that this can be done either individually or jointly by agreement with one or more mineral planning authorities. National Planning Practice Guidance (NPPG) states that MPAs should also look at average sales over the last three years, to identify the general trend of demand, as part of the consideration of whether it might be appropriate to increase supply³.
- 1.2. In May 2017, The Planning Officers Society and Minerals Products Association provided the latest version of the living document, 'Practice Guidance on the Production and use of Local Aggregate Assessments', which seeks to build on the advice in The Planning Practice Guidance (PPG) drawing on best practice since LAAs were introduced.
- 1.3. The PPG advises that an LAA should contain three elements:
 - A forecast of 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, plan allocations and capacity data.
 - An assessment of the balance between demand and supply

Production of a Joint LAA

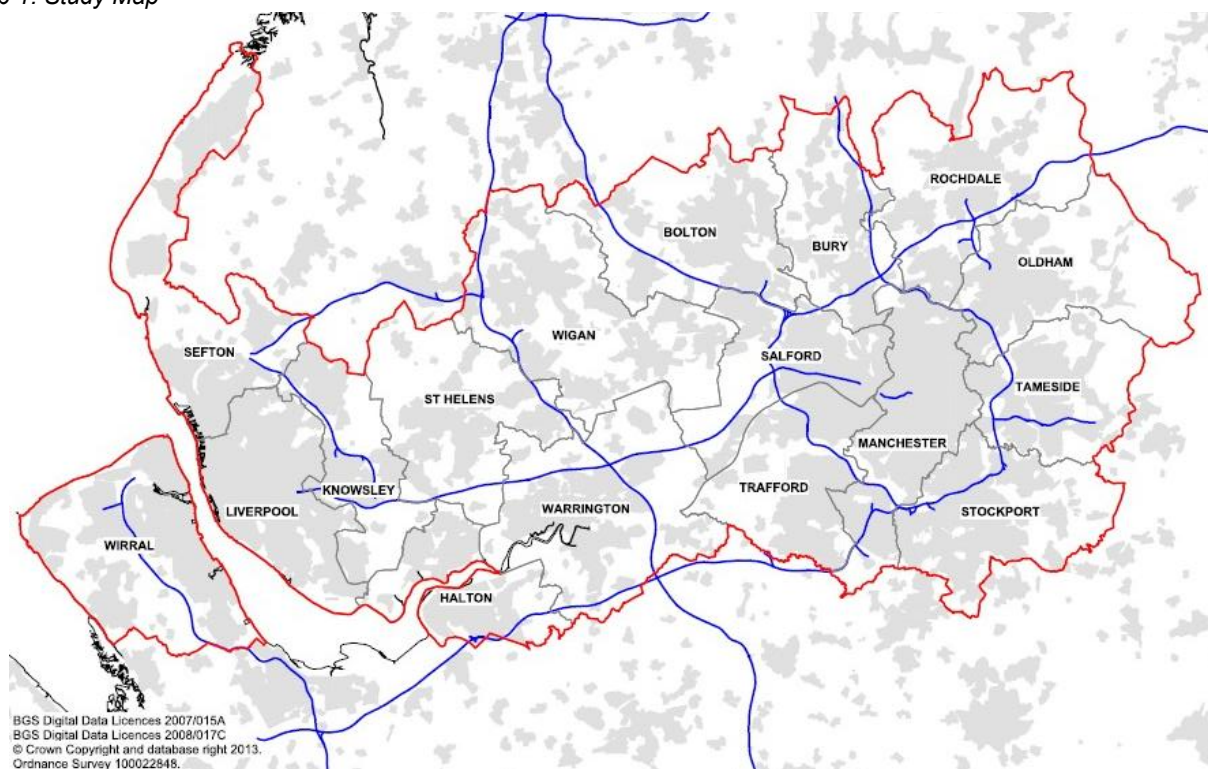
- 1.4. The Association of Greater Manchester Authorities (AGMA), the Merseyside Authorities, including Halton (working through Merseyside Environmental Advisory Service (MEAS)) and the unitary authority of Warrington (together known as the 'sub-region'), continue to work together by collaborating in the production of this document. This collaborated work is to satisfy the duty to co-operate imposed by Section 110 of the Localism Act and due to established links from previous sub-regional working under the AWP apportionment as part of MASS. The data available for the Greater Manchester and Merseyside (including Halton) Authorities and Warrington to produce the LAA is only available at this sub-regional level and cannot, for reasons of commercial confidentiality, be disaggregated to an individual authority level.
- 1.5. This LAA provides an assessment of the demand for, and supply of, aggregates in the sub-region based on an average of both 3-year and 10-year sales data, as well as other relevant local information and an assessment of all supply options. The LAA is a fact-based monitoring document that will act as an evidence base to assist the individual Mineral Planning Authorities (MPAs) in their policy formulation. A summary of the key messages for individual MPAs can be found in Section 12.

Study Area

The study area covers the ten Metropolitan Districts of Greater Manchester: the five Metropolitan Districts of Merseyside and the Unitary Authorities of Halton and Warrington. These are detailed on Map 1 below and summary statements of the components of the study area are also provided.

Paragraph 226, NPPF (2024)³ NPPG – paragraph 064, Reference ID: 27-064-201403

Map 1: Study Map



Greater Manchester

- 1.6. Greater Manchester is the third largest conurbation in the UK with a population of over 2.8 million. Much of the land is urban; however, there are large rural areas, especially in the north, which is where mineral working tends to occur. Greater Manchester is bounded by Lancashire, West Yorkshire, Derbyshire, Cheshire East, Warrington and Merseyside and is a major transport hub. The M60 motorway encircles the conurbation, with major road links leading from it. Greater Manchester relies on imports of high specification aggregates from quarries in North Wales, Derbyshire, Lancashire, Cumbria, Staffordshire, Cheshire and Peak District National Park (PDNP). Significant quantities of materials are transported by road and rail, with a number of key rail depots located within the sub-region. The Cemex site in Salford in particular, imports on average around 650,000 tonnes per annum by rail.
- 1.7. The natural landscape is very important for biodiversity, and it contains a wide variety of habitats including ancient woodlands, moorlands, mosses, broadleaf woodland, rivers and ponds, and bogs. Consequently, several sites within Greater Manchester have been designated for their biological, cultural, archaeological and heritage importance.

Merseyside and Halton

- 1.8. Merseyside and Halton is a coastal conurbation strongly influenced by the River Mersey and its estuary. Although highly urbanised with a population of approximately 1.5 million, between 33% and 50% of each of the constituent unitary local authorities is designated Green Belt and contains a high proportion of high-quality agricultural land, which remains economically significant. Previously, there has been extensive working of minerals, but the limited nature of the remaining resources and presence of significant spatial and environmental constraints has led to a significant decline in the number of working sites and their production in recent years.
- 1.9. Merseyside and Halton is bounded by Lancashire, Cheshire, Warrington, Greater Manchester and North Wales and has major road links through the M6, M62, M58, M53 and M56. Like Greater Manchester, Merseyside and Halton rely on imports of aggregates from quarries in North Wales, ,

Derbyshire, Scotland, Lancashire, Cumbria, Staffordshire and Cheshire. Materials are transported by sea, road and rail.

- 1.10. The Merseyside and Halton economy has a strong maritime focus with significant port facilities through which aggregate minerals are imported and processed for onward transport to the point of use. These include marine sand and gravel from off-shore dredging in the Irish Sea and crushed rock materials shipped from other land-won sources, notably the Glensanda quarry west Scotland.
- 1.11. The environment of Merseyside and Halton is highly sensitive and large areas, in particular, the coast and estuaries of the Mersey, Dee and Ribble, have protected status at international and national level due to their high value for a range of important habitats and species. The City of Liverpool has significant historic, cultural and architectural value of the maritime quarter of the city centre and docks.

Warrington

- 1.12. Warrington Borough covers 176 square kilometres and has a population of just over 209,000 (mid-year 2020 estimate). It lies at the hub of the region's communications network. The M6, M56 and M62 motorways intersect within the Borough, providing good access to all parts of the region and beyond. Warrington also lies on the region's main North-South (West Coast Main Line) and East- West (Trans-Pennine) rail routes. Two significant waterways pass through the middle of the Borough; the River Mersey, which passes close to the Town Centre and, further south, the Manchester Ship Canal. The Manchester Ship Canal is an important commercial waterway linking the Port of Manchester with the Mersey and also plays a vital role in managing fluvial flood risk along the Mersey, significantly reducing the incidence of flooding from fluvial flows.
- 1.13. The Mersey Valley Corridor constitutes a wide tract of land (exceeding 2kms in places) extending across the Borough from the former Fiddlers Ferry Power Station in the west, to Hollins Green and the flood plain of the River Bollin in the east. Its value lies in the mix of river valley habitats, notably wetlands, in the context of the Mersey Estuary as a whole - one of the largest estuaries in Europe and supporting internationally important numbers of birds.
- 1.14. Warrington also has extensive areas of high-grade agricultural land, and important areas of nature conservation value mostly within the relatively narrow gaps of open land separating Warrington from neighbouring towns and smaller settlements within and beyond the Borough.
- 1.15. Due to its largely urban nature the major transport infrastructure that dissects the Borough and the ecological habitat along the Mersey Valley Corridor, mineral activity in Warrington is limited.

Status of Mineral Planning in the Study Area

Greater Manchester

- 1.16. The Greater Manchester Joint Minerals Plan (GMJMP) was adopted by the 10 Authorities of Greater Manchester on 26 April 2013. The current Minerals Plan seeks to deliver the apportionment only and does not look at the import of minerals to meet the growth agenda.
- 1.17. Full details on the GM Places for Everyone document can be found on the Greater Manchester Combined Authority website⁴. The ten districts each have their own Core Strategy or saved policies.
- 1.18. For the time being, the Joint Minerals Plan 2013 continues as the part of the development plan governing minerals development.

⁴ <https://www.greatermanchester-ca.gov.uk/what-we-do/planning-and-housing/strategic-planning/places-for-everyone/>

Merseyside and Halton

- 1.19. The six authorities are each independently considering minerals matters within their broader Local Plans. There are no plans to produce a common plan or separate Minerals Local Plans within each authority. However, specific policies for minerals planning issues will be included within local plan documents as appropriate, and all the authorities intend to continue to work within the MASS and to participate in the NAWAP. Merseyside and Halton authorities will prepare their plan coverage in full compliance with the requirements of Duty to Co-operate. A summary of progress is provided below.
- 1.20. The Liverpool City Region Combined Authority (LCRCA) is currently preparing the LCR Spatial Development Strategy. A preliminary draft of the LCR SDS underwent non-statutory engagement between Nov 2023 and Feb 2024. The next stage of the SDS's preparation will be statutory 'Public Participation', a timetable for which has yet to be confirmed due to the revised NPPF and English Devolution White Paper.
- 1.21. Halton's Delivery and Allocations Local Plan (incorporating revised Core Strategy Policies) was adopted in March 2022. The Local Plan contains policy on minerals safeguarding and extraction but no separate Minerals Local Plan.
- 1.22. Knowsley's Core Strategy Local Plan was adopted January 2016. This contains a minerals policy but no separate Minerals Plan.
- 1.23. Liverpool's Local Plan was adopted in January 2022. This includes a minerals policy R6 which covers safeguarding and minerals development.
- 1.24. The Sefton Local Plan was adopted in April 2017. This contains Mineral Safeguarding Areas and a minerals policy. In line with regulations the Council will undertake a review of the Local Plan during 2022 to determine whether it remains up-to-date or needs replacing wholly or in part.
- 1.25. St Helen's Local Plan was adopted in July 2022. The plan includes minerals safeguarding areas and a minerals policy but there is no separate Minerals Local Plan.
- 1.26. Wirral's Local Plan was submitted for examination in October 2022 and the final Inspector's report is awaited. The Plan contains a series of minerals policies. Adoption is anticipated in Spring 2025. There will be no separate Minerals Local Plan.

Warrington

- 1.27. The Warrington Local Plan 2021/22-2038/39 was adopted on the 4th December 2023⁵. In respect of mineral issues, the Local Plan identifies Mineral Safeguarding Areas (MSAs) for the main mineral resources that are present in the borough, which are sand and gravel and sandstone. It also seeks to safeguard the clay workings near Rixton. In addition, to safeguarding mineral resources that may be of economic value, it safeguards existing and new mineral infrastructure such as rail heads, wharfs, concrete batching sites and permanent facilities for the processing and distribution of substitute, recycled and secondary aggregate material.
- 1.28. The Local Plan looks to direct minerals development to places where there are opportunities to restore land beneficially, avoiding places with a sensitive natural or built environment or that are close to existing communities. These will be places that are accessible by sustainable modes of transport and close to both the existing highway network and the end user.

⁵ The draft plan was submitted for examination in public in the spring of 2022, with the main hearing sessions being undertaken in September/October 2022 and the Inspectors Key Findings being issued in December 2022. The Council subsequently adopted the Plan on 4th December 2023.

2. Sub Regional Geology

Context

- 2.1. The oldest rocks in the sub-region are of Carboniferous age and can be found at the far eastern and northern upland fringes of Greater Manchester, where they outcrop. They comprise sequences of mainly coarse-grained sandstones and gritstones.
- 2.2. The upland areas give way to progressively younger rocks to the south and west. At first these are represented by the Carboniferous Pennine Coal Measures. These comprise of sequences of mainly coarse-grained sandstones and gritstones, these are the oldest rocks in Merseyside where they are found in the northeast, primarily in St Helens. They are found in a thick band across Greater Manchester and at the north western tip of Warrington.
- 2.3. The Pennine Coal Measures give way to progressively younger, Permo-Triassic rocks to the south and west of the sub-region. These cover much of Merseyside and Warrington.
- 2.4. Extensive areas of the sub-region are covered with superficial drift deposits of Pleistocene to recent age. These are dominated by glacial tills ('boulder clay') laid down by retreating ice sheets at the end of the Devensian cold stage some 10,000 years ago. The tills typically comprise silty clays with subordinate sands and gravels (ranging in size up to large boulders). The latest drift deposits are represented by tidal sands, river terrace sands and gravels, glacio-fluvial and glacio-lacustrine sands and gravels, alluvium and windblown sand, and peat.

Overview of Aggregate Resources in the Sub-Region

Table 2-1: Summary of Sub-Regional Aggregate Mineral Resources

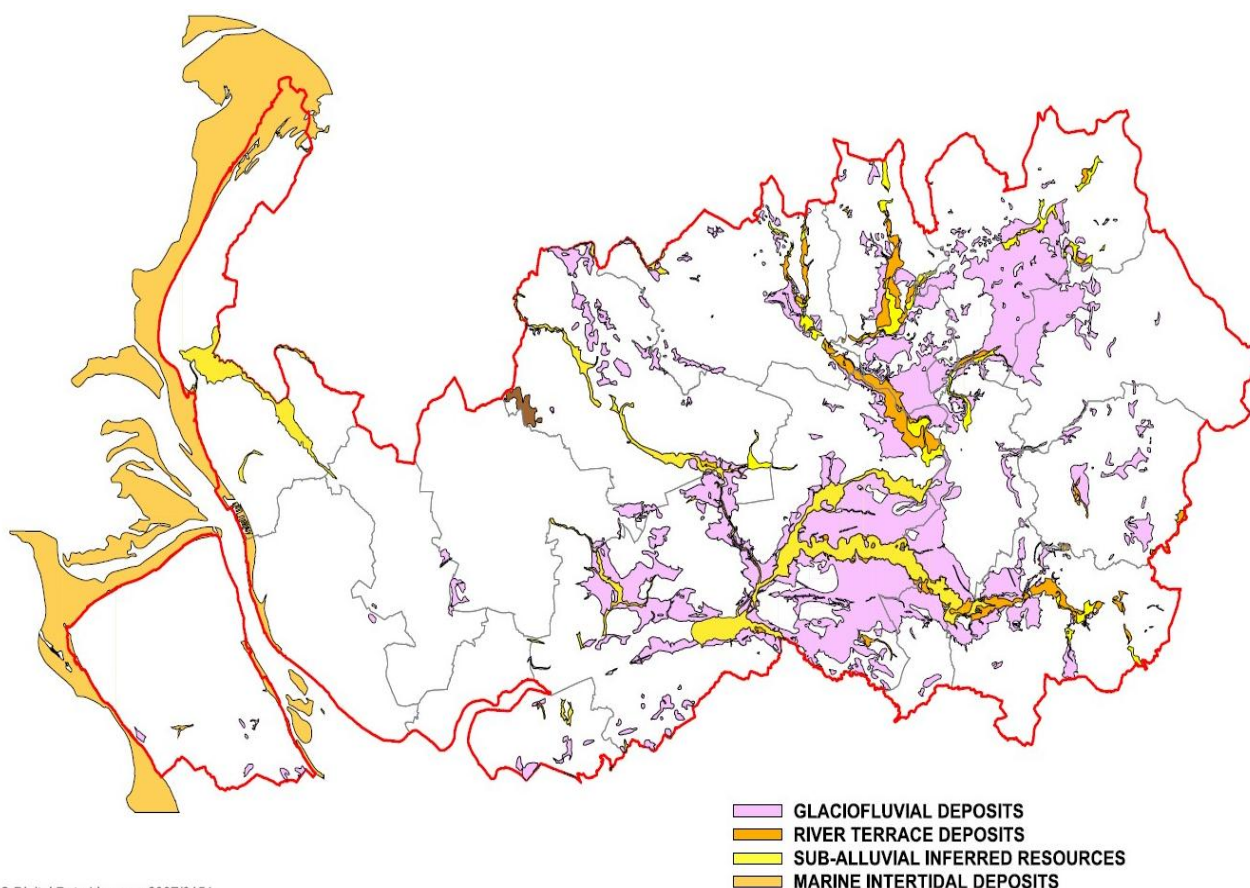
Mineral Resource	Summary of Mineral Resource	Example uses of material
Glaciofluvial sand and gravel	Sands and gravels are derived from the erosion of local bedrock by the action of ice, which is then deposited by glacial melt water. Sand and gravel is defined on the basis of particle size rather than composition, although they are usually rich in silica (quartz, quartzine and flint), but other rock types occur.	Domestic uses, e.g. garden. Building projects, e.g. concrete or mortar. Road building/repair, e.g. asphalt.
Carboniferous Millstone Grit (sandstone)	Carboniferous sandstones consist of sand-sized particles with minor pebbles, composed dominantly of quartz, but also with some feldspar, some of which are cemented by carbonaceous material and other with Kaolinitic materials. The sandstones are typically buff coloured, although locally grey, and vary from fine to coarse grained.	Dimension stone. Crushed rock fines. Bulk fill material.
Triassic (Sherwood) Sandstone	The Sherwood Sandstone Group, formerly known as the Bunter Sandstone, predominantly comprises sandstone and pebbly sandstone with lesser amounts of conglomerate and minor amounts of mudstone and siltstone. It was deposited between 230 and 260 million years ago in the late Permian and Triassic periods.	Dimension stone. Crushed rock.

Recourses and current extraction

Sand and Gravel

- 2.5. Resources of sand and gravel primarily occur within superficial or 'drift' deposits of glacial and post glacial origin. These sands and gravels are derived from the erosion of local bedrock in a variety of environments, including glaciofluvial rivers formed from melting ice and also river terraces formed after the main ice had retreated from the area. Map 2 shows the distribution of the sand and gravel resource across the sub-region.

Map 2: Sand and Gravel resource



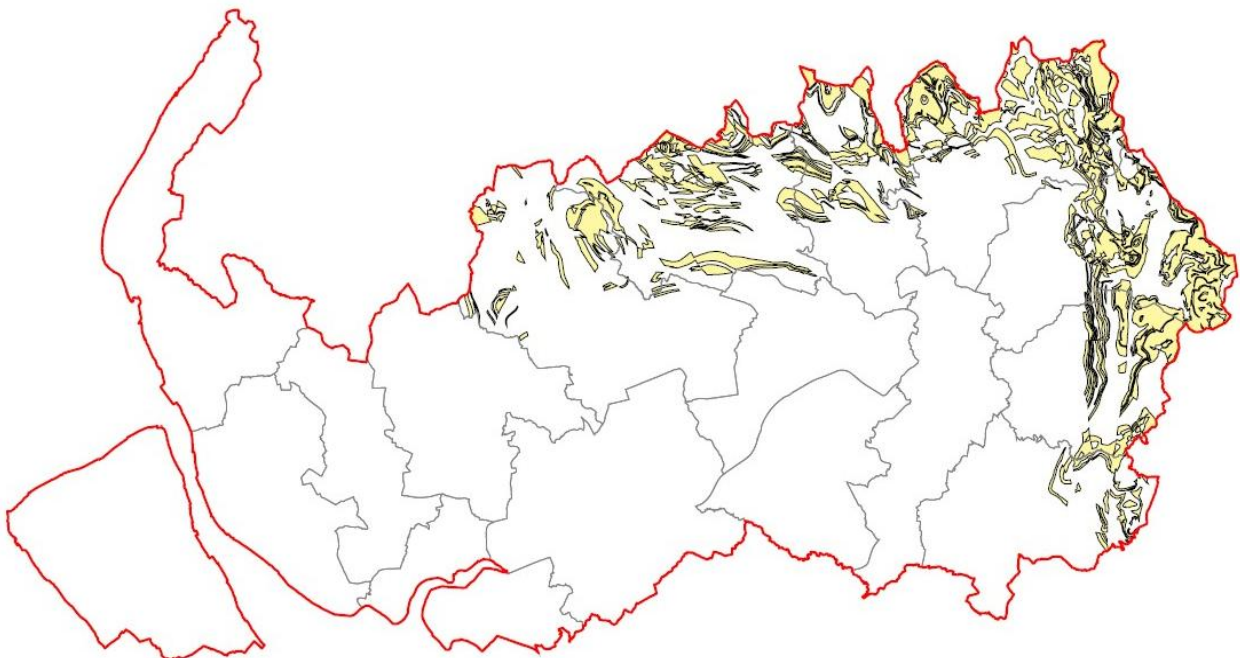
BGS Digital Data Licences 2007/015A
BGS Digital Data Licences 2008/017C
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Ordnance Survey 100022848.

- 2.6. Sand and gravel has been extracted in the past in Warrington although there are no working quarries at present. Nevertheless, there are quite extensive areas of mineral resource across the borough and the Council's Local Plan (the Warrington Local Plan 2021/22-2038/39) safeguards areas of sand and gravel deposits. Activity in Merseyside is mainly limited to the landing of marine-dredged material at coastal ports such as the Port of Liverpool and Garston. The Sefton Local Plan includes a safeguarding area proposed for the alluvial sand and gravel of the Alt floodplain, though this potential resource has not been of recent commercial interest and is often constrained by built development. In Greater Manchester, glacio-fluvial sand and gravel was worked at Astley Moss but permission ended in December 2022. Morley's Hall Quarry in Wigan did produce sand, but this worked from soft sandstone (Triassic sandstone of the Sherwood Sandstone Group) rather than from sand and gravel deposit and permission ended in December 2022.

Crushed Rock

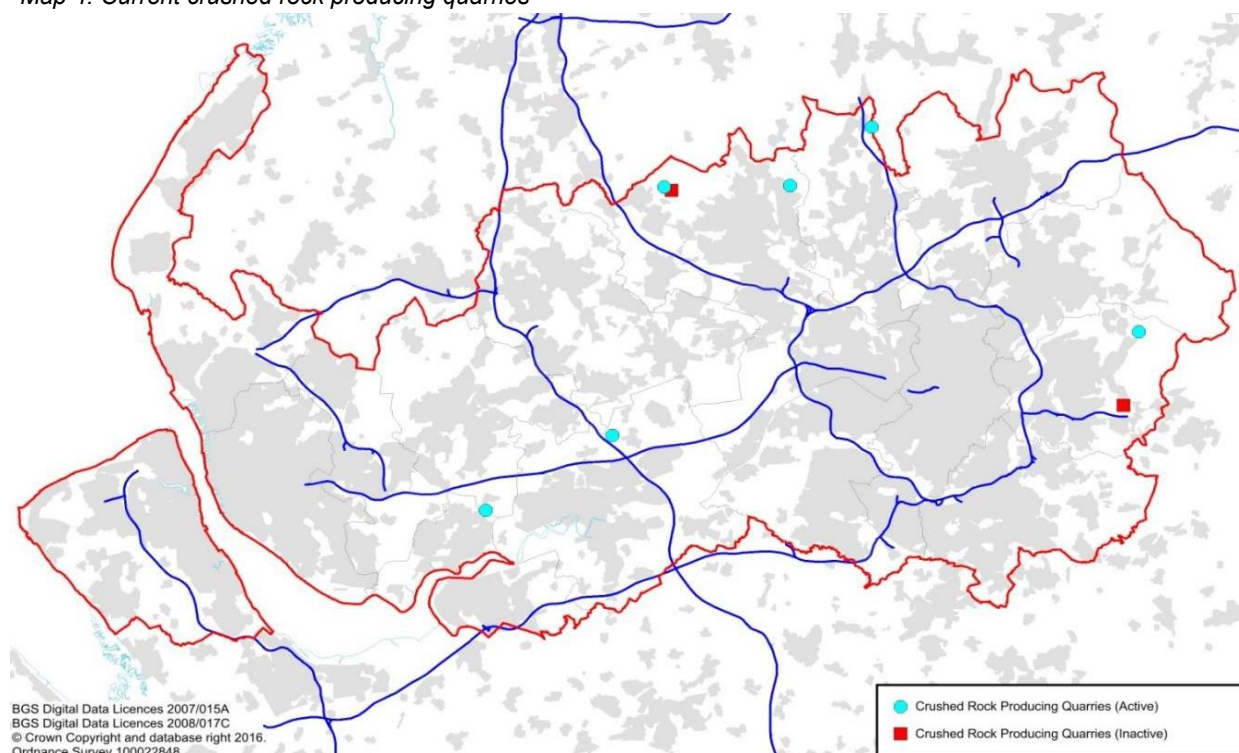
- 2.7. Crushed rock resources are associated with Carboniferous and Permo-Triassic rocks of the area (see Map 3).
- 2.8. Extraction of crushed rock aggregate in Greater Manchester is confined to a broad strip running north-south along the eastern margin and east-west along the northern margin of the GM administrative area. There are six crushed rock aggregate quarries in Greater Manchester which are concentrated in the north and east of the sub-region. Four of the six quarries are currently active for the production of aggregates (Buckton Vale, Fletcher Bank, Harwood and Montcliffe); the others are inactive and did not produce any aggregate during the period covered by this report (Harrop Edge and Pilkington).
- 2.9. The only aggregate producing quarry in Warrington is operated by Gaskell Brothers Ltd for the extraction of sandstone at Southworth Quarry in Croft Parish. The site produces crushed rock aggregate primarily for bulk fill purposes. Planning permission for this operation is valid until 2025. The site also contains a significant aggregate recycling facility and the quarry void is being backfilled with inert wastes.
- 2.10. There is one quarry in Merseyside with an active planning consent for production of crushed aggregate, Bold Heath in St Helens. It produces low grade crushed sandstone for use as construction fill and should continue to contribute apportionments until September 2025. It is anticipated a time extension for extraction will be submitted during 2025.
- 2.11. British Geological Survey (BGS) explain that isolated mineral workings may occur in areas that are shown as having no mineral resource. This explains why there are some crushed rock quarries identified in Map 4 which do not correspond with the sandstone/gritstone resource identified in Map 3.

Map 3: Crushed rock (sandstone/gritstone)



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BGS Digital Data Licences 2008/017C
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Ordnance Survey 100022848.

Map 4: Current crushed rock producing quarries



Site Name	Map Ref	Operator	Grid Ref	Mineral	Status	MPA	Permission end date
Astley Moss	2-A	Breedon Aggregates	SJ 371 500	Sand and Gravel	Active	Salford City Council	31.12.2022 No reserves(in restoration). **
Bold Heath Quarry	5-BH	D Morgan	SJ 530 885	Sandstone	Active	St Helens Council	29.08.2025
Buckton Vale Quarry	5-B	W Maher & Sons Ltd	SD 992 016	Sandstone	Active	Tameside Council	31.02.42
Fletcher Bank Quarry	5-F	PP O Connor	SD 804 170	Sandstone	Active	Bury Council	31.12.2042
Harrop Edge Quarry	5-HE	Chartrange (Quarry products)	SJ 982 959	Sandstone	Inactive	Tameside Council	2042
Harwood Quarry	5-H	Booth Ventures	SD 747 124	Sandstone	Active	Bolton Council	31.12.2026
Montcliffe Quarry	5-M	Armstrongs	SD 656 124	Sandstone	Active	Bolton Council	20.02.2037
Morleys Hall Quarry	2-M	Casey	SJ 685 990	Sand and Gravel	Inactive	Wigan Council	31.12.2024 No permitted reserves
Pilkington Quarry	5-P	Armstrongs	SD 622 121	Sandstone	Inactive	Bolton Council	31.12.2026
Southwoth Quarry	5-S	Gaskell Bros	SJ 619 940	Sandstone	Active*	Warrington	31.12.2025

*Active for recycled aggregate

** Some sales of stockpiled material during this reporting period.

3. Supply and Demand (Sales and reserves)

Land-won Sand and Gravel

Sales

- 3.1. Sales of land-won sand and gravel originating in the sub-region from 2009 and 2023 are shown in Figure 3-1 and the last 10 years in Table 3-1.
- 3.2. The total sales of land-won sand and gravel over the monitoring period that this report covers is 0.11mt. the total for 2014-2023 is 2.52mt with an average of 0.25mt. The only land-won sand and gravel sales made during the reporting period were from stockpiled material at Astley Moss Quarry, Salford, and therefore this data is confidential. There are no remaining reserves at Astley Moss Quarry and the site is being restored. The majority of the need for this material is therefore met through imports into Greater Manchester, Warrington and Merseyside and Halton.
- 3.3. Land-won sand and gravel sales were only made from stockpiled material from a single quarry, during the reporting period. Due to the commercial confidentiality where there is only one operational site, the sales figures for aggregate land-won sand and gravel in for all years, have been based on 3-year averages. It is acknowledged that this approach is not ideal, and concerns have been raised through the AWP and DtC discussions. However, in lieu of any other sites producing sales figures for sand and gravel, there is no other suitable alternative approach. The sub-region is committed to exploring whether or not there are other approaches that could be employed for future LAA iterations, although it is not clear how long stockpiled material will continue to be sold for.

Figure 3-1: Land won sand and gravel sales in the sub region, 2009 – 2023 (million tonnes)

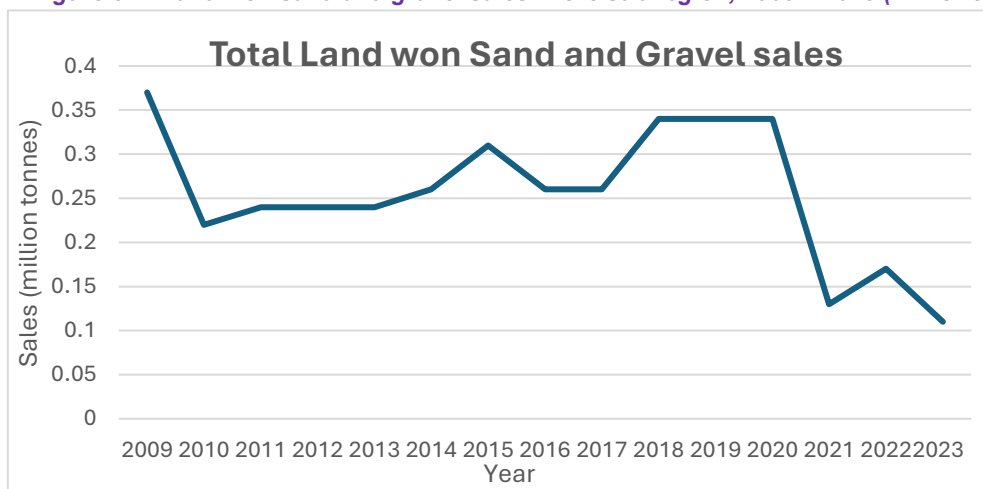


Table 3-1: Land won sand and gravel sales in the sub region, 2014 – 2023 (million tonnes)

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Sales	0.26	0.31	0.26	0.26	.034	0.34	0.34	0.13	0.17	0.11

Reserves

- 3.4. There are no permitted reserves of sand and gravel in the sub-region, as the last quarry (Astley Moss) has reached its permitted end date on 31st December 2022 and is being restored. The sub-regional landbank is therefore nil. There are no current planning applications for sand and gravel quarries in the sub-region.
- 3.5. Reserves of land-won sand and gravel originating in the sub-region from 2009 to 2023 are shown in Figure 3-2 and the last 10 years of reserves in Table 3-2.

Figure 3-2: Land won sand and gravel reserves in the sub region, 2009 – 2023 (million tonnes)

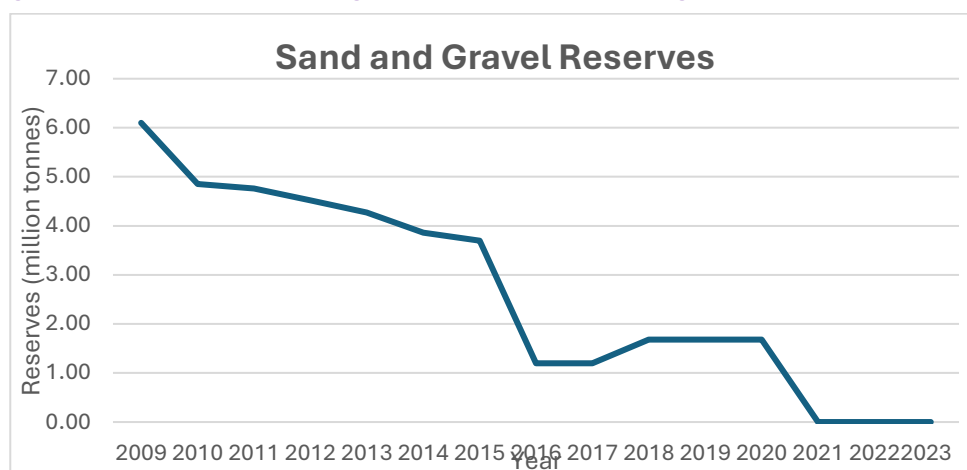


Table 3-2: Land and won sand and gravel reserves in the sub region, 2014 – 2023 (million tonnes)

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Reserves	3.86	3.7	1.2	1.2	1.68	1.68	1.68	0	0	0

- 3.6. It has not been possible to report reserves since 2020 due to commercial confidentiality, where there is only one operational quarry. Reserves have dwindled from 3.86 million tonnes in 2014 to 0 in 2023, as quarries have closed. The last remaining quarry closed in 2022 and therefore the land bank for sand and gravel in 2023 was 0 years. This falls below the requirements in NPPF for a 7-year sand and gravel landbank.
- 3.7. Table 3-3 below shows the aggregate land-won sand and gravel landbank as of 31 December 2018 - 2023.

Table 3-3: Land won sand and gravel landbank in the sub region (31.12.2023) (million tonnes)

Year	Aggregate Sales (MT)	Permitted reserves at the end of calendar year (Mt)	Average annual sales, precious 3-years (Mt)	Average annual sales 10 years (Mt)	Landbank at end of calendar year (based on 10 years average sales)
2018	0.26	1.68	0.29	0.27	6.2 years
2019	0.34	1.68	0.31	0.27	6.2 years
2020	0.34	1.68	0.34	0.28	6 years
2021	0.13	-	0.27	0.27	-
2022	0.17	-	0.21	0.27	-
2023	0.11	0	0.11	0.25	0 years

Land-won Crushed Rock

Sales

- 3.8. Sales of crushed rock (sandstone) originating in the sub-region from 2014 to 2023 are shown in Figure 3-3 and the last 10 years of sales Table 3-4.
- 3.9. Figure 3-3 shows that total sales of aggregate crushed rock have been falling since 2016 although sales of locally won material have been more variable. Total sales show an upturn in 2023, with both local sales and sales of imported material having increased slightly. It is important to note that although sales remain low, demand for this material has remained constant and most of the need for this material is currently met through imports into Greater Manchester Warrington and Merseyside and Halton, this is discussed in further detail later in this report.

Figure 3-3: Crushed rock sales in the sub region, 2009 - 2023 (million tonnes)

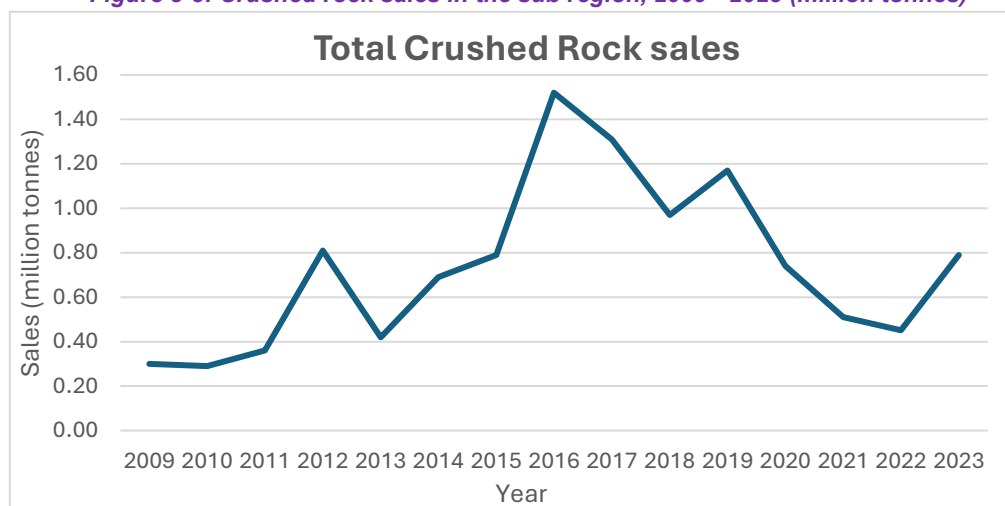


Table 3-4: Crushed rock sales in the sub region 2014 – 2023 (million tonnes)

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Sales Local	0.69	0.79	0.87	0.78	0.65	0.1*	0.165*	0.2*	0.18*	0.37*
Sales Imported (via Seaforth Dock) ⁶	-	-	0.65	0.53	0.32	1.07	0.575	0.31	0.271	0.42
Total Sales	0.69	0.79	1.52	1.31	0.97	1.17	0.74	0.51	0.451	0.79

*based on estimates

Reserves and Landbank

Crushed rock

3.10. Crushed rock aggregate reserves have decreased from 11.67 million tonnes in 2022 to 10.61 million tonnes in 2023. Figures have been estimated for some quarries due to the low number of operators providing information. The crushed rock landbank as at 31st December 2023 was 22.1 years. The proportion of imports (landed and reported through Liverpool Docks) to locally sourced aggregate has also increased over the last few years. It is now estimated that the imported crushed rock sold in the sub-region exceeds the locally sourced crushed rock. The landbank of crushed rock in the sub-region is above 10-year minimum landbank required by NPPF but it is reducing over time and reserves are not being replaced through new planning permissions. The landbank therefore does not present an accurate reflection of need in the sub-region and so the LAA area is heavily reliant on imports from neighbouring areas and further beyond.

3.11. Reserves of crushed rock originating in the sub-region from 2014 to 2023 are shown in Table 3-5.

3.12. Table 3-6 below shows the aggregate crushed rock landbank as of 31 December 2023.

Table 3-5: Crushed rock reserves in the sub-region 2014-2023 (Million tonnes)

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Reserves	21.18	20.43	19.59	18.37	17.5	12.42	12.05	11.85	11.67	10.61

⁶ These figures relate to land won sand and gravel imported from Glensanda Quarry in Scotland.

3.13. Although there is a healthy landbank for crushed rock in the North West region, the reserves for the sub-region have dwindled over the last few years. The permitted end dates of quarries in Table 2-2 show that, unless new planning permissions are granted in the interim, three of the nine active crushed rock sites within the sub-region are due to cease operations by December 2026. While the material extracted in the sub-region is considered to be of low quality it plays an important local role in

reducing vehicle movements of this type of material, the situation will be monitored closely to identify if applications are coming forward.

Table 3-6: Crushed rock landbank in the sub region (31.12.2018- 31.12.2023) (million tonnes)

Year	Local Aggregate Sales (Mt)	Permitted Reserves at the end of calendar year (Mt)	Average annual local sales, previous 3 years (Mt)	Average annual sales previous 10 years (Mt)	Landbank as of end of calendar year (based on 10 years average sales)
2018	0.65	17.5	0.77	0.60	29.2
2019	0.1	12.42	0.51	0.57	21.4
2020	0.165	12.05	0.31	0.56	21.5
2021	0.2	11.85	0.16	0.55	21.6
2022	0.18	11.67	0.18	0.49	23.8
2023	0.37	10.61	0.25	0.48	22.1

Marine sand and gravel

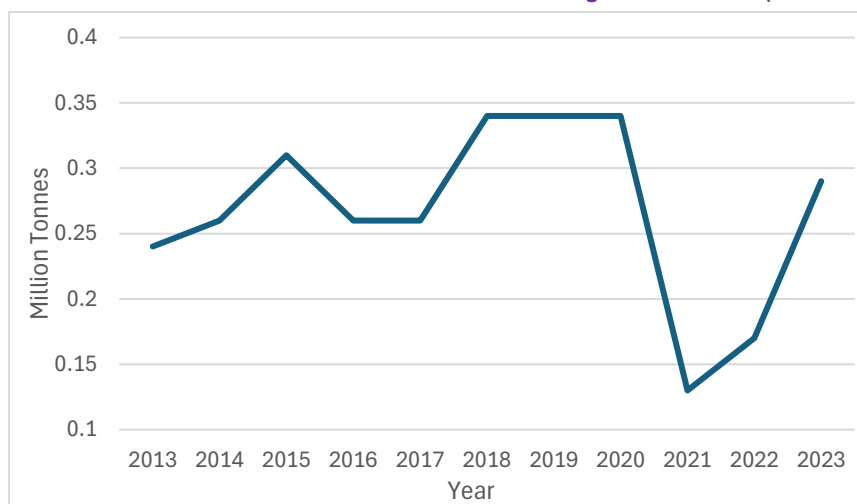
3.14. Marine sand and gravel continue to be an important source of aggregate for the sub region, and is likely to become more so, as the land won sources in the sub region dwindle.

3.15. Marine sand and gravel sales in the sub-region from 2014 to 2023 are shown in Figure 3-4 and Table 3-7.

Table 3-7: Marine sand and gravel sales in the sub region 2014 – 2023 (million tonnes)

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Sales	0.26	0.31	0.26	0.26	0.34	0.34	0.34	0.13	0.17	0.29

Figure 3-4: Marine Sand and Gravel sales in the sub-region 2013-2023 (million tonnes)



3.16. The AM2023⁷ shows that there is a continued decline of land-won mineral resources in the region.

3.17. According to the National Survey in the North West Region the sales for land won sand and gravel decreased by 36% but marine sand and gravel increased by 195% giving an overall decrease of 26% between 2019 and 2023. The sales for crushed rock decreased by 10% over the same period. Overall, there was a 5% increase in aggregate sales for the North West between 2014 and 2019. The 2023 report shows a decrease of 14% between 2019 and 2023. Crushed rock was supplied to the region from the East Midlands, North Wales, the West Midlands, Yorkshire and Humber, South Wales, North Wales and Scotland. According to the Report the majority of crushed rock imported into England and Wales originated from either Scotland or Norway, which shows 1.1mt for the North West. For the sub region returns have identified one source of crushed rock to be the Glensanda Quarry in Scotland.

⁷ AM2023 Aggregate minerals survey for Great Britain, 2023 - GOV.UK

- 3.18. The level of reserves for England and Wales decreased between 2019 and 2023 by 10%. For England there were 3130mt of aggregate in Reserves, in 2023 the North West had 254.4mt which is approximately 8.13% of the Reserves in England which is an increase of 0.38% from 2019.
- 3.19. The AM2023 shows that the majority of aggregate sourced in the sub-region was used within the North West region.

Future Demand

- 3.20. Whilst the 10-year rolling sales average is the starting point for a LAA, any other relevant local information should also be considered in order to forecast future demand for aggregates within the sub-region. The Minerals Planning Practice Guidance states that other relevant information may include levels of planned construction and housebuilding in the area⁸.
- 3.21. The Planning Officers Society and the Minerals Products Association provide further guidance on other indicators that can be used including Gross Domestic Product, population, planned housing and infrastructure demand⁹.
- 3.22. In order to understand the behaviour of the aggregates market within the sub region, this LAA has analysed some key demographic housing and economic indicators to illustrate to what degree the recorded trends in aggregate sales reflect wider economic conditions. Employment in the construction sector, housing completions and GVA forecasts have all also been used as indicator.

Housing Indicators

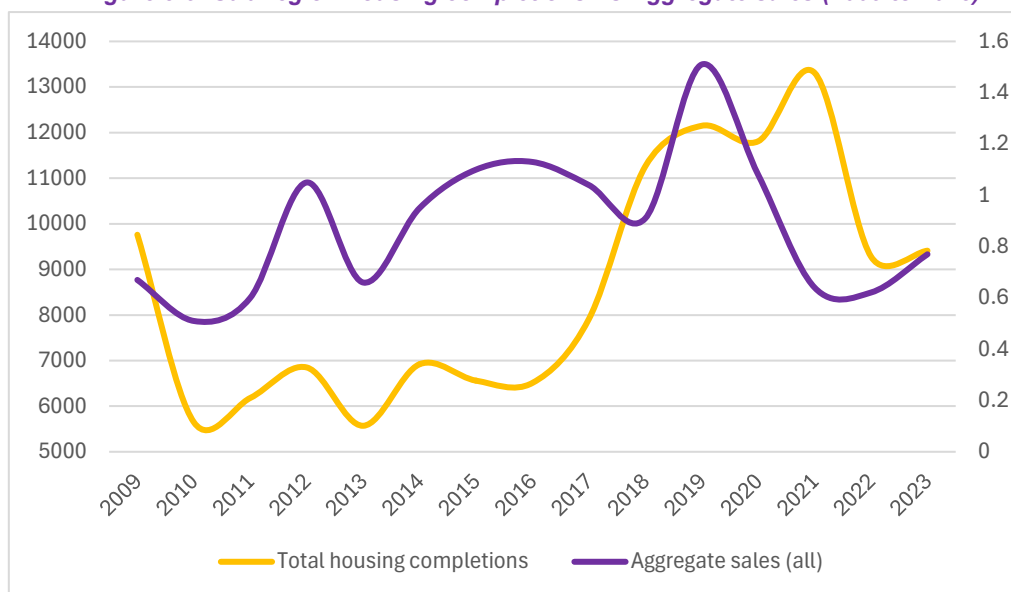
- 3.23. POS and MPA guidance states that where possible, planned levels of growth (housing provision) should be compared to actual growth (housing completions) to provide an indication of relative scale and therefore of potential implications for demand and supply, especially if provision is higher than the 10-year average being considered¹⁰.
- 3.24. As an accepted key indicator of construction sector activity, it is necessary to assess whether past aggregate sales correlate with past housing completion statistics. The 10-year annual average number of housing completions was 7,317 in 2018/19. The 10-year average as of 2023/24 is now at 9,512 housing completions showing an increase on previous year's average.
- 3.25. Figure 3-5 shows a broad correlation but as detailed in Table C Appendix A, statistically the correlation coefficient between the two variables could not be described as strong. This is largely like to be a result of the sub-regions reliance on imported materials.

⁸ Para 064 Reference ID - 27-064-20140306 <https://www.gov.uk/guidance/minerals#Local-Aggregate-Assessments>

⁹ Practice guidance on the production and use of local aggregate assessments, living document, May 2017
https://mineralproducts.org/documents/LAA_GUIDANCE_May2017.pdf

¹⁰ Practice guidance on the production and use of local aggregate assessments, living document, May 2017
https://mineralproducts.org/documents/LAA_GUIDANCE_May2017.pdf 8 Practice guidance on the production and use of local aggregate assessments, living document, May 2017 https://mineralproducts.org/documents/LAA_GUIDANCE_May2017.pdf

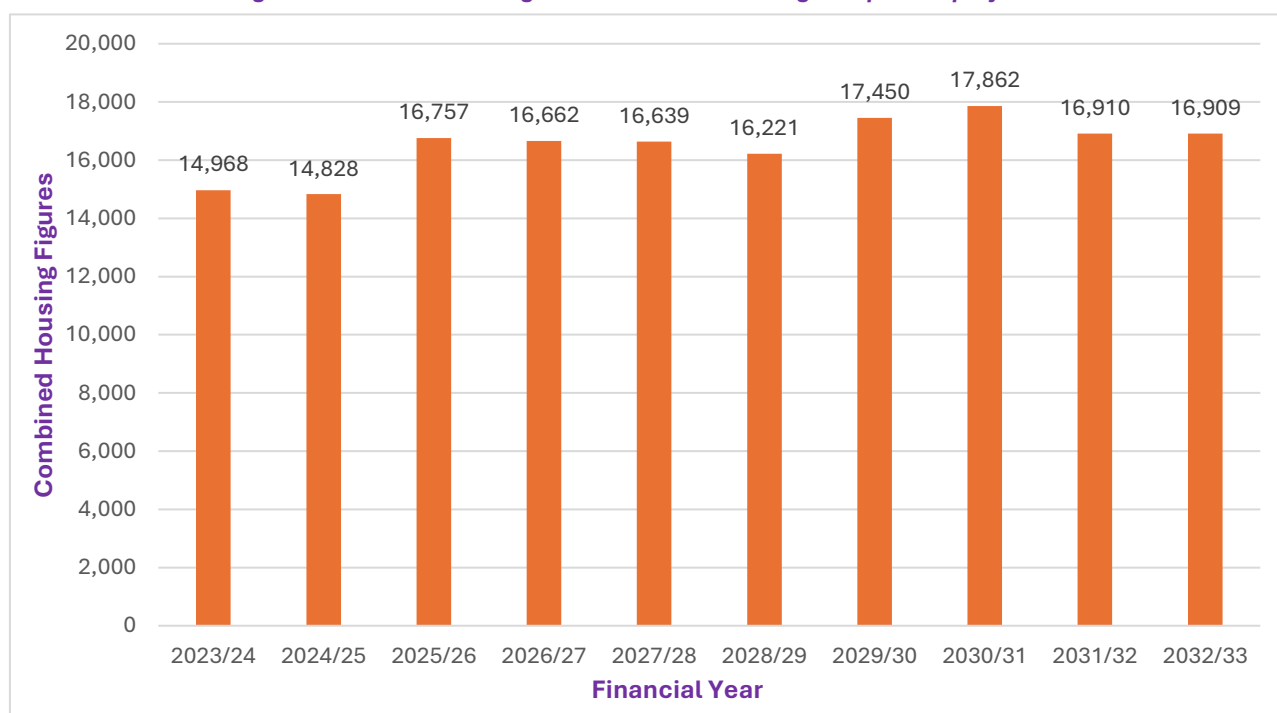
Figure 3-5: Sub-region housing completions Vs Aggregate sales (2009 to 2023)



3.26. In terms of predicted growth, the combined Local Development Plans within the sub-region propose around 163,400 new dwellings from 2023-2032 which equates to 16,340 housing completions per annum.

3.27. Figure 3-6 show the combined proposed numbers of new dwellings within the sub-region within that time period (in total and per annum).

Figure 3-6 10 Year Sub-regional combined housing completion projections



3.28. It is estimated that 200 tonnes of aggregate are required to build one house. The predicted aggregate requirement for new housing (not including apartments) within the sub-region would therefore be around 33 million tonnes up to 2032. If the European Aggregates Association estimates are used, those figures rise to 400 tonnes of aggregate per house which would equate to around 65 million tonnes in total. This would equate to between 2mt and 4mt of aggregate per year.

- 3.29. It should be noted that housebuilding can only be used as a partial guide to future demand as aggregate sales reflect much wider demands, including refurbishment of the housing stock, commercial development, new infrastructure provision and maintenance of existing infrastructure.

Economic Indicators

- 3.30. The 2020 Greater Manchester Forecasting Model produced by Oxford Economics (2020 GMFM) predicts that, over the period to 2037, construction industry in Greater Manchester will grow by 26,000 jobs (1.3% per annum). Total employment is forecast to grow at 0.6% per year in GM, equating to a net increase of 183,000 employees 2017 to 2037, compared to 122,100 in the previous GMFM-2018 published model.
- 3.31. Between now and 2037, the GMFM predicts that GVA growth will average 1.6% per year in Greater Manchester.
- 3.32. The Oxford Economics and Cambridge Econometrics Forecasts represent two realistic projections for how jobs might change in Warrington to 2038, reflecting factors such as the economic impacts of Covid-19 and the Christmas 2020 Brexit Deal, as they were understood in early 2021. These Forecasts were analysed in the Council's most recent Economic Development Needs Assessment (EDNA August 2021)¹¹ and used as a potential scenario to calculate the Council's employment land need between 2021 and 2038.
- 3.33. Based on Standard Industrial Classification Coding, an amalgamated 12-sector category level analysis concludes (including job losses in identified sectors), that over the 2021-2038 period, between 12,500 (Oxford Economics predictions) and 17,300 new jobs (Cambridge Econometrics Forecasts predictions) would be created in Warrington.
- 3.34. Since the pandemic, the LCR has seen a return to growth with real GVA demonstrating a 4% uplift. However, longer term growth in the LCR has typically been slower than the UK average at just 1%.
- 3.35. Over the ten years 2015-2024 total GVA growth in the LCR of 22% is anticipated, while the forecast for the construction sector over the same period is a similar 24%. This is indicative of an expected return to more normal economic conditions with average annual growth a little above 2%.
- 3.36. In terms of the wider sub-region, the GVA is expected to grow by an average of around 1.9% per annum up to 2030. It should be noted that these projected levels of growth do not consider the potential impacts of the Covid-19 pandemic and Brexit on the UK economy. It may well be the case that the UK economy will take several years to rebound from the shock of those two 'events', which could in turn have an impact on the demand for minerals across the UK and the UK and the sub-region. This will have to be closely monitored going forward.
- 3.37. Furthermore, the Minerals Products Association Regional Overview and Forecast of Construction and Minerals Products Markets (2024 Edition) indicates that the NW will see a 2.2% growth in construction output over the period 2024-25.

¹¹Warrington EDNA Refresh, BE Group, August 2021

¹² ONS National Population Projections 2018 -

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/nationalpopulationprojections/2018based>

Demographic Indicators

- 3.38. Figure 3.6 shows the projected change in housing completions from 2022 to 2032, housing completions generally are increasing year on year.
- 3.39. The population of the sub-region is predicted to increase by around 425,000 to reach 4.9m by 2043¹².

Major Infrastructure Projects

- 3.40. Several significant developments and infrastructure projects have been identified that are due to commence or have already commenced. These could require substantial amounts of aggregates and include Port Salford; Liverpool and Wirral Waters; and the Omega employment site in Warrington/St Helens. There are 6 key growth locations across Greater Manchester where homes and workplaces will be delivered along with public transport infrastructure. Further information is available here - [Greater Manchester's Growth Locations](#).
- 3.41. The Department for Transport (DfT) awarded Warrington Council funding to develop the business case for a potential new road, which would link the A56 Chester Road in Higher Walton with the A57 Sankey Way in Great Sankey (Warrington Western Link). This would be a significant infrastructure project. However, the Council has subsequently completed a Gateway Review of the scheme, which has concluded that the scheme costs have increased from those within the original Outline Business Case.
- 3.42. Progress is being made with several projects related to Liverpool Waters and Wirral Waters, and there are also a number of strategic infrastructure projects in the pipeline across the LCR including several large sustainable urban extensions comprising mixed residential and employment uses and several urban garden villages each comprising between 1,000 -1,800 dwellings.
- 3.43. The analysis shows that statistically there are not enough strong long-term relationships between aggregate sales and past trends in the identified key indicators to be able to extrapolate from them a definitive projection of future aggregate demand. It is likely that local aggregate production is probably determined by the interaction of a much wider range of factors.
- 3.44. That being the case, average growth rates for a wider range of demographic, economic and housing indicators have also been used as a guide to help identify as robust a projection for future aggregate sales growth as possible.
- 3.45. Figures were included up to 2032 where possible and consisted of a combination of past and projected growth rates. Figures were included up to 2032 where possible and consisted of a combination of past and projected growth rates. These included a range of relevant Office for National Statistics (ONS) forecasts for population, households and economic growth as well as the housing trajectories included within the Local Development Plans within the sub-region.
- 3.46. The vast majority of the key indicators show between 0.5% and 2% per annum increase in growth. Given the above referenced predicted increase in the economy of the sub-region over the next decade it would seem reasonable to assume that demand for aggregates will also increase at a similar rate. In view of the general level of growth proposed within the sub-region, and the general level of growth of all of the key indicators that have been assessed, it is considered that the 2% projected GVA figure is a reasonable proxy for future aggregate demand in the sub-region. Table 3.9 below shows the predicted annual sub-regional demand for aggregates (sand & gravel and crushed rock) based upon a 2% uplift.

3.47. Using data from previous national Aggregate Minerals Surveys, this indicates total primary consumption of around 3.2 million tonnes.

Table 3-8 Comparison of Table 11 Consumption of Primary Aggregates by Sub-region in between 2009 and 2023 from relevant Aggregate Minerals Surveys

Year	Land won sand and gravel	Marine won sand and gravel	Total sand and gravel	Crushed Rock	Total Primary aggregates (thousand tonnes)
2009	748		748	3822	4569
2014	277	3	280	3465	3744
2019	380	45	425	4021	4446
2023	218	40	257	2945	3202

3.48. Using forecast housing figures for the LAA Area, over the next 15 years, and calculating average aggregate requirements based on 200 tonnes per dwelling, a proxy for aggregate consumption has been calculated of between 3,020,600 tpa in 2022/23 to 3,428,400 tpa in 2036/37. Taking account that this is only part of the aggregate consumption, this reflects quite closely with the 3,202,000 tonnes total primary aggregates consumed in 2023.

3.49. Using a 2% annual uplift a proxy for aggregate consumption based on housing figures has been calculated ranging from 3,020,600 tonnes per annum in 2022/23 to 3,496,960 tpa in 2036/37, again closely reflecting previously reported consumption figures.

Table 3-9 predicted annual sub-regional demand for aggregates (sand & gravel and crushed rock) based upon a 2% uplift

Year	Housing Total	Aggregates Total (tonnes)	Total Aggregate with 2% annual uplift (tonnes)
2022/23	15,103	3,020,600	3,020,600
2023/24	14,968	2,993,600	3,081,012
2024/25	14,828	2,965,600	3,024,912
2025/26	16,757	3,351,400	3,418,428
2026/27	16,662	3,332,400	3,399,048
2027/28	16,639	3,327,800	3,394,356
2028/29	16,221	3,244,200	3,309,084
2029/30	17,450	3,490,000	3,559,800
2030/31	17,862	3,572,400	3,643,848
2031/32	16,910	3,382,000	3,449,640
3032/33	16,909	3,381,800	3,449,436
3033/34	17,270	3,454,000	3,523,080
3034/35	17,438	3,487,600	3,557,352
3035/36	17,325	3,465,000	3,534,300
3036/37	17,142	3,428,400	3,496,968
Total	234,264	49,896,400	50,861,864.00

Table 3-10: Forecast sub-regional production based on 10-year supply (2023)

	Aggregate (Mt)	
	Sand and Gravel	Crushed Rock
10-year average sales (2014 to 2023)	0.25	0.48
3-year rolling average of sales	0.11	0.25
Predicted annual production	0.0Mt	0.58Mt
Total Production (2023 to 2037)	0Mt	8.7Mt
Permitted reserves as at 31/12/2023	0Mt	10.61

Landbank as at 31/12/2023	0 years (based on existing planning permissions)	22.1 years
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- 3.50. The forecast production for sand and gravel is 0mt, due to the lack of sand and gravel quarries operating in the area currently this, signifies that the sub region will not be able to fulfil its annual apportionment requirement of 0.43mt unless extraction permissions are either renewed or new sources of sand and gravel are successful in gaining permission.
- 3.51. The forecast production for crushed rock is 0.58mt, due to the lack of local quarries meaning the annual apportionment requirement of 1.32 mt cannot currently be met.
- 3.52. The landbank for sand and gravel is below the requirement set out in NPPF for a landbank of at least 7 years. The landbank for crushed rock meets the requirement set out in NPPF of at least 10 years but 4 quarries will reach their permitted lifespan within the 15 year period. Again, it is important to note that landbanks are based on production rather than consumption, with consumption rates known to be higher for the sub-region and only relate to the contribution the sub-region makes to meeting its needs.
- 3.53. Based on these figures and MASS requirements, the sub-region would need to make provision for the production of 19.8 million tonnes of crushed rock aggregate for the 15-year period 2023–2037. Operators should therefore be approached regarding the renewal of current planning permissions and possible new sources of crushed rock sought for the sub region. The sub-region should make provision to produce 6.45 million tonnes of sand and gravel for the 15-year period 2023–2037. However, again due to confidentiality issues, the landbank for sand and gravel is set at zero, and therefore below the minimum required by NPPF and further permissions are required to ensure the sub region fulfils its landbank requirement and becomes more self-sufficient. The sub-region will have a greater reliance on marine won sand and gravel in the interim. Also, it would be helpful if all new major infrastructure projects included a Resource Assessment and considered supply chains. This would ensure best value and help avoid competition for the same resources.

4. Supply

- 4.1. Paragraph 63 of the PPG advises that the LAA should consider all aggregate supply options including the following:
- Recycled aggregates;
 - Secondary aggregates;
 - Marine aggregates;
 - Imports to and export from the MPA area; and
 - Land-won resources.

Recycled and Secondary Aggregates

- 4.2. Recycled Aggregates, which include inert materials such as concrete, stone, brick and other similar materials, are reprocessed materials previously used for construction purposes and which are often taken from the Construction, Demolition and Excavation (CD&E) waste stream. Secondary aggregates are usually by-products of quarrying and mining or industrial processes and can include materials such as clay waste, bottom ash and slag.
- 4.3. The use of secondary and recycled materials not only reduces the requirement for new production of primary aggregate but also reduces the need for disposal to landfill of CD&E waste materials. Paragraph 223 of the National Planning Policy Framework recognises this and strongly promotes the use of secondary and recycled materials as an alternative to primary aggregate.
- 4.4. Data on secondary and recycled aggregate production and use is variable and incomplete. This is because, while some sites operate under permit and can be monitored, much recycling and re-use occurs on individual construction sites, is temporary in nature and does not produce data. The Mineral Products Association (MPA) has published data on the likely contribution that secondary and recycled materials make to the aggregates market, reporting that nationally these materials made up 29% of the market in 2017¹³.
- 4.5. The use of secondary and recycled aggregate materials is acknowledged to be of some importance to the sub-region, as it is heavily urban in nature and therefore is likely to have production levels significant enough to offset considerably against the apportionment figures.
- 4.6. With regards to sourcing data on CD&E waste, the last regional survey was carried out in 2007¹⁴. Coupled with the fact that there are generally poor responses from both the waste and construction industry when surveyed about this waste stream, the Environment Agency's database 'Waste Data Interrogator' provides perhaps the best available information.
- 4.7. Table 4-1 shows the amount of CD&E waste produced and handled at sites in the sub-region as per the WDI 2019-2023. Figures will be very dependent on the amount of demolition and construction taking place across the LAA. The amount of recycled aggregate produced was hovering around 90% of total aggregates handled but increased to 96% in 2023, as there was a larger increase in the amount produced than the amount handled.
- 4.8. Furthermore, it should be noted that the figures Table 4-1 will not reflect the true amount of CD&E waste produced and managed in the sub-region because it only shows the waste that moves through licenced sites and does not include waste that is reused on site or disposed of at exempt facilities. That being the case, the true figures will likely be higher than those shown below.

¹³ Mineral Products Association – Profile of the UK Mineral Products Industry 2018 Edition

¹⁴ Study to Fill the Evidence Gaps for Construction, Demolition and Excavation Waste Streams in North West England, Smiths Gore, July 2007

Table 4-1: CD&E Waste Produced and Handled in the Sub-region, 2019-2023 (tonnes) ¹⁵

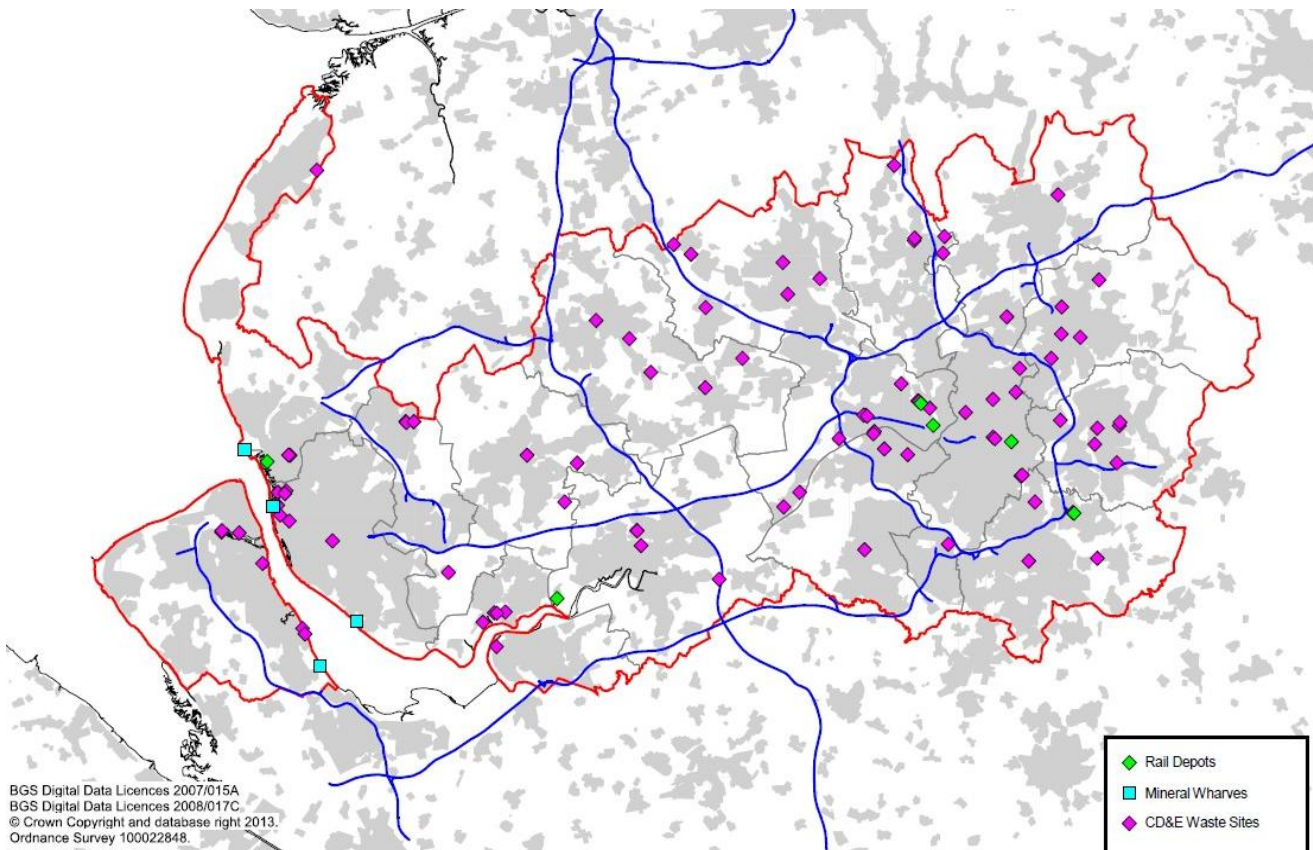
MPA	2019		2020		2021		2022		2023	
	Produced	Handled	Produced	Handled	Produced	Handled	Produced	Handled	Produced	Handled
Merseyside & Halton	1,119,409.62	1,347,653.73	930,088.14	1,039,904.27	913,955.79	1,008,986.33	882,472.00	993,667.00	928,317.30	1,074,084.43
Warrington	336,354.00	346,484.00	461,006.06	472,177.32	447,715.00	467,967.04	406,963.00	431,774.00	370,285.13	392,572.30
Greater Manchester	2,512,053.26	2,694,719.26	2,332,150.69	2,500,092.10	2,967,051.82	3,163,828.24	2,907,492.00	3,199,384.00	3,290,048.15	3,330,722.50
Total	3,967,816.88	4,388,856.99	3,723,244.89	4,012,173.69	4,328,722.61	4,640,781.61	4,196,927.00	4,624,826.00	4,588,650.58	4,797,379.23

- 4.9. The locations of the CD&E waste management facilities are identified in Map 5 (Page 37). As mentioned, due to the aforesaid challenging nature of collecting data on this particular waste stream, some local authority licensed sites may not be identified on Map 5. In addition, the quality of the spatial information on Map 5 is varied, as site co-ordinates in the EA interrogator do not necessarily match the site address.
- 4.10. With regards to secondary waste, one of the primary sources within the sub-region is Pulverised Fuel Ash (PFA) / Furnace Bottom Ash (FBA) from the Fiddler's Ferry Power Station in Warrington. The most recent figures shows 150,000 tonnes for 2023. It should be noted that as of March 31st 2020, Fiddlers Ferry ceased operations. Whilst the site has significant reserves of wet PFA which constitute in excess of 25 years supply based on recent average sales rates, the sales average is decreasing year on year.
- 4.11. Similarly, another facility in Runcorn recycled 198,257.51 tonnes of Incinerator Bottom Ash in 2023 (based on EA Incinerator reports 2023). Hooton Bio Power is also now in operation and along with Widnes Biomass, Suez Bolton and Clinical waste incinerator in Oldham and Bolton provide information through the EA Incinerator Reports. In combination with Fiddlers Ferry, an estimated 387,549.86 tonnes of secondary aggregates are being produced per annum within the sub-region across these 7 facilities.
- 4.12. It should be noted that these figures are a minimum and there may well be larger quantities of secondary aggregate being produced within the sub-region. Consequently, efforts will continue to be made to further investigate other potential sources of secondary aggregates within the sub- region.

¹⁵ 'Produced' refers to the quantity of useable material produced from the recycling process, whereas 'Handled' refers to the quantity of material processed within the area, not all of which will be reusable, i.e. the 'handled' material is the raw input material and 'produced' material is the end product.

Marine Won Aggregates and Wharves

- 4.13. The sub-region contains significant marine infrastructure, most notably in the Port of Liverpool, but also other dock facilities at Garston and a range of smaller wharf facilities on the Wirral and along the Manchester Ship Canal to its terminus in Salford. There are significant primary landings of aggregate materials in the Port of Liverpool and at Garston. Most onward trans-shipment is by road.
- 4.14. The Port of Liverpool handles landings of significant quantities of crushed rock aggregate shipped from the Glensanda quarry in the West of Scotland. In 2023, 0.13mt of igneous rock from the Glensanda super quarry was landed at Liverpool Wharf and used in a variety of specialist uses including roadstone. This material is transported by road mostly within the sub-region but also to Cheshire, Lancashire, North Wals, Shropshire and North Yorkshire. Furthermore, 0.28mt of screened and graded construction materials landed which was a by-product from Glensanda. This was also used largely with the sub-region.
- 4.15. There are now two marine aggregates operations based at Garston wharf.
- 4.16. Map 5 identifies wharves in the sub-region where marine-won aggregates are landed.
- Map 5: Aggregate rail depots, mineral wharfs and construction, demolition and excavation waste sites*



- 4.17. The Crown Estate and British Marine Aggregate Producers Association (BMAPA) publish annual dredge and reserves statistics on an annual basis. The 'Marine Aggregates the Crown Estate Licences Summary of Statistics Report 2024, provides summary statistics relating to the dredging and landing of marine dredged aggregate sand. Reserve information is published by The Marine Aggregate Annual Review 2024. In addition, The Crown Estate and BMAPA publish a summary of the extraction activity in the 'Area Involved Report', each year with the 26th report published in 2023.
- 4.18. Table 4-2 provides detail of the North West dredging areas. During the 2020-2023 monitoring period there were three active dredging licences operating in water off the North West coast, plus one new dredging application.

Table 4-2: North West marine licences and dredging areas 2018¹⁶

Area No	Area Name	Licence Type	Licence Holder	Operational status 2023
392	Hilbre Swash	Active dredge area/ application area	Tarmac Marine Dredging Active Limited	Active
393	Hilbre Swash	Active dredge area/ application area	Norwest Sand and Ballast Co	Active
457	Liverpool Bay	Active dredge area/ application area/ Option area	Westminster Gravels Ltd	Active

4.19. A total of 294,173 tonnes of material was removed from 2 licences off the North West coast during 2023; of this, 286, 343 tonnes was landed at permitted Liverpool Wharves. Landings at Liverpool ports increased by 69,459 tonnes in 2023 from 217,884 tonnes landed in 2022¹⁷.

4.20. Table 4-3 shows the dredging and landing trends in the North West in general, and the landings at the Liverpool wharves, up to 2023.

4.21. This is 31% increase in off take compared to 2022 and is greater than both the 3 year and 1- year average of take of 0.26mt (Marine Aggregates Annual Review 2023). It is expected that marine aggregates may play an increasingly important role and with an annual capacity of 1,200,000 tonnes there is sufficient capacity for this to occur. This can be seen with the renewal for a 15-year period of the Hilbre Swash (off North Wales) licences at the start of 2014, and with Hanson Aggregates Marine Ltd being awarded a new Option and Exploration Agreement in 2014. The 2018 tender round resulted in a licence to extract a further 500,000 tonnes capacity, however, this has subsequently been surrendered by the operator. The 2021/22 tender round does not include any options for exploration or extraction in the NW region. Nevertheless, there remains considerable potential to increase the substitution of marine dredged sand for that which is land-won.

4.22. The Aggregate Annual Review 2024 report indicates that there are currently 10.19mt of primary marine aggregate reserves in the north west dredging areas, when compared to the 10-year average annual off take rate, would provide a reserve life of approximately 39 years.

Table 4-3: Regional Dredging and Landing Statistics 2015 – 2023 (tonnes)

Year	NW licence area – dredged (tonnes)	NW license area – landed (tonnes)	Liverpool Wharves	Barrow (Cumbria)	Penrhyn (N Wales)
2015	2,046,899	252,856	209,939	5,905	37,012
2016	1,161,600	302,431	260,398	10,226	31,807
2017	321,090	314,113	278,617	8,327	27,169
2018	288,496	281,839	258,070	0	23,769
2019	229,003	229,033	205,132	0	22,191
2020	153,555	153,555	146,022	0	7,533
2021	929,221	257,360	254,238	0	23,769
2022	1,194,423	217,884	217,884	0	0
2023	294,173	286,343	286,343	0	17,830

4.23. In addition to aggregate won from the marine licence areas, a production licence has been issued by the Crown Estate for beneficial re-use of maintenance dredgings from Bromborough Bar in the Mersey. This saw the re-opening of the sand depot at Eastham with landings pumped from D33 mooring pontoon. During 2023, some 75,000 tonnes of sand was landed and drained before onward transport by road to construction industry.

4.24. It is understood that one of the biggest restriction on medium term market development for marine aggregates relates to the supply chain from the wharf to the consumer. With

¹⁶ <https://explore-marine-plans.marineservices.org.uk/>

¹⁷ Marine Aggregates - The Crown Estate Licences - Summary of Statistics 2020, 2021, 2022

intermodal transport limited and further work is required to understand and potentially develop solutions around this question. However, discussions with the Crown Estate indicate that the volumes of landed aggregate can be accommodated easily by road transport currently. Furthermore, rail transport becomes more viable from longer distances beyond the north west of England.

- 4.25. Generally, it was considered there is enough marine aggregate to help the sand and gravel supply in the North West, but currently not enough demand, or the right infrastructure in place to deliver the aggregate material. A further issue is the high cost of renting land in ports. Also, access to berths in some ports can be difficult as vessels with lower value non-perishable cargo such as aggregates can be left at sea for longer periods, but this has significant cost attached.
- 4.26. In the main, from the LAA perspective a watching brief needs to be maintained and along with open dialogue with the Crown Estate and marine aggregate operators. Primarily, the rail infrastructure issue needs to be resolved. Distribution and logistics for movement of marine aggregates remains a target for the Crown Estate.

Movement of Aggregates – Imports/Exports

- 4.27. Information on imports and exports of aggregates into and out of the sub-region is taken from the Aggregates Minerals Survey 2023 undertaken jointly between the Department of Communities and Local Government (DCLG) and the British Geological Survey (BGS). This is the most up-to-date data available on flows of aggregate materials. The data tables express the movement of minerals in percentage ranges, so there are limitations in the precision of the data. This report also provides vital information on consumption rates of aggregates, which for the sub-region indicates a high reliance on imports for maintenance of future supply.
- 4.28. The Aggregate Minerals Survey 2023 reports that the North West consumed 13,671 thousand tonnes of primary aggregate which is a decrease from 2019. 52% of which originated within the North West and 48% of which was imported into the region. Not all is consumed within this LAA sub-region but there is no separate data for the LAA sub-region published. Table 4-4 shows net imports and exports into/out of the region in 2023. In summary, the North West region is a net importer of sand and gravel and of crushed rock.

Table 4-4: North West Net Imports/Exports 2023 (Thousand tonnes)

	Import	Export	Balance
Sand & Gravel (land and marine won)	573	98	+475 (net import)
Crushed Rock	5,948	236	+5,712 (net import)

- 4.29. In order of volume (in tonnes), the North West imported crushed rock from the following regions in 2023:

- East Midlands (2,503,000)
- North Wales (1,303,000)
- Scotland (1,004,000)
- Yorkshire & Humber (835,000)
- West Midlands (150,000)
- South Wales (95,000)
- Outside GB (51,000)
- North East (7,000)

- 4.30. In order of volume (in tonnes), the North West imported sand and gravel from the following regions in 2023:

- North Wales (469,000)
- West Midlands (60,000)
- East Midlands (27,000)
- Yorkshire & Humber (7,000)
- East of England (6,000)
- Scotland (2,000)
- North East (1,000)

4.31. The AM2023 provides information on where sub-region imports originate from. Sand and Gravel is mainly imported from other parts of the North West shown in Table 4-5. With Land-won being imported mostly from Cheshire West and Chester (40-50%) and Cheshire East also importing significant amounts (1-10%). Flintshire also imported a significant amount (20-30%). The sub-region therefore imports significant quantities of sand and gravel from land won sources and this trend is expected to continue. Marine-won is likely to all come from within Liverpool City Council and so is self-sufficient.

Table 4-5: Consumption of land and marine won sand and gravel in Merseyside & Halton, Greater Manchester, and Warrington for aggregate use in 2023 by source, identifying the principal supplying Mineral Planning Authorities.

Source MPA	Land-Won Sand & Gravel	Marine-won Sand & Gravel
Central Bedfordshire Council	<1%	
Staffordshire Country Council	1-10%	
Cheshire East Council	1-10%	
Nottinghamshire County Council	10-20%	
Wigan Metropolitan Borough Council	10-20%	
Flintshire County Council	20-30%	
Cheshire West & Chester	40-50%	
Liverpool City Council		90-100%
Total Consumption (tonnes)	218,000	40,000

4.32. The reported position with Crushed Rock is more complex. Very significant imports to the sub-region are reported from the Derbyshire County Council (20-30%). As well as the Yorkshire Dales National Park, Peak District National Park and outside of England & Wales (10-20%). There are 10 sub-regions recorded with 1-10%, and a further 2 sub-regions recorded with smaller shipments, as shown in Table 4-6. This reflects the need for high quality crushed rock in the sub-region and the lack of local resources to supply it. However, there was 1,076,000 tonnes less imported in 2023 compared to 2019.

Table 4-6: Consumption of crushed rock in Merseyside & Halton, Greater Manchester and for aggregate use in 2023 by source, identifying the principal supplying Mineral Planning Authorities.

Source MPA	Import Percentage
Rhondda Cynon Taf County Borough Council	<1%
Denbighshire County Council	<1%
Leicestershire County Council	1-10%
Shropshire County Council	1-10%
Telford and Wrekin Council	1-10%
Cumberland Council	1-10%
Lake District National Park	1-10%
Lancashire County Council	1-10%
Westmorland and Furness Council	1-10%
Powys County Council	1-10%
Conwy Council Borough Council	1-10%
Flintshire County Council	1-10%
Outside England & Wales	10-20%
Peak District National Park	10-20%
Yorkshire Dales National Park	10-20%
Derbyshire County Council	20-30%
Total Consumption (tonnes)	2,945,000

4.33. Table 4-7 shows sub-regional imports and consumption of primary aggregates in 2023. It shows that the sub-region consumed 100% of the crushed rock imported, either from elsewhere in the North West or beyond. It does not seem to take account of the fact that the sub-region does produce some crushed rock. This can be explained by the fact that the quality of crushed rock extracted in the sub-region is of a lower quality than that required for many construction activities and is understood to be mainly used as bulk fill. Therefore, the sub-region must import the higher quality crushed rock aggregate for use in construction projects as it is not available locally and it is likely that this will

continue. Again, this is a trend which is not expected to change in coming years, especially as a high proportion of existing sub-regional sites are due to close in the next 7 years. The sub-region has undertaken duty to co-operate discussions by contacting areas outside the sub-region (see Appendix B for full list).

Table 4-7: Sub-regional imports and consumption of primary aggregates in 2023¹⁸

	Import (tonnes)	Consumption (tonnes)	Net imports as a % of consumption
Sand & Gravel (including Marine)	192,000	257,000	75%
Crushed Rock	2,945,000	2,945,000	100%
Total Aggregate	4,387,000	4,446,000	99%

- 4.34. The sub-region imported 86% of the sand and gravel consumed in 2019, either from elsewhere in the North West or beyond the North West; this figure has decreased to 75% in 2023. The sub-region imported 93% of crushed rock consumed in 2014; this rose to 100% for 2019 and continues in 2023. The data indicates the sub-region is increasingly reliant on imports to supply the majority of its requirements for sand and gravel and crushed rock. As such, the consumption rate of aggregates in the sub-region is more important in terms of predicting future supply needs than the sales, which reflect lower production rates. This means that there is an increasingly important role for marine-won sand and gravel going forward.
- 4.35. As mentioned in 4.32, a significant proportion of the crushed rock imported into the sub-region comes from Derbyshire and the Peak District National Park (PDNP). The 2022 LAA between Derbyshire County Council, Derby City Council and the Peak District National Park Authority sets out their joint approach to apportionment. The National Park's provision figure was reduced by 10% with a compensatory equivalent increase to Derbyshire County Council's figure. Their current LAA apportionment figure is therefore 11.81 million tonnes per annum (8.85mtpa for Derbyshire and 2.96mtpa for the PDNP). There are currently no indications to suggest that production will not continue around this rate for the foreseeable future. However, production of aggregate crushed rock will continue to be monitored on an annual basis and, along with other factors such as the NPPF requirement to maintain landbanks outside National Parks, will inform the review of provision rate figures in future LAAs.
- 4.36. The 2023 BGS survey noted that 835,000 tonnes of stone were sold from Yorks and Humber to the North West region. Sub-regional data shows Merseyside and Halton, Greater Manchester and Warrington got 10-20% of their crushed rock imported from the Yorkshire Dales National Park. Which equates to between 294,500 and 589,000 tonnes.
- 4.37. Despite the NPPF seeking to reduce reliance on the National Parks as a source of crushed rock aggregate, as far as is practical, there is still a very large proportion of both PDNP and YDNP crushed rock being exported, of which the urban sub-region of Greater Manchester/Merseyside/Warrington benefits. Both National Park LAAs recognise this and, in general, state that there is good potential to maintain the overall supply of limestone crushed rock from within their sub-regions over the period to 2030 at levels similar to those sustained in recent years.
- 4.38. North Wales, especially Wrexham and Flintshire, is an important source of both sand and gravel and crushed rock imported into the North West in general and the sub-region in particular. The AM2023 stated that 469,000 tonnes of sand and gravel was imported from North Wales (source of the highest import tonnage), whilst 1,303,000 tonnes of crushed rock were imported from North Wales the second highest import tonnage). Co-operation with the North Wales authorities will be important going forward.

Table 4-8: Sub-regions export destinations and tonnes of primary aggregates in 2023.

Destination	Land won sand & gravel (tonnes)	Marine won sand & gravel (tonnes)	Crushed Rock (tonnes)
Greater Manchester, Merseyside & Halton & Warrington	26,000	40,000	-
North West	2,000	246,00	403,000

- 4.39. The Aggregate Minerals Survey 2023 provides some details of exports from the sub-region, shown in table 4-8. However, these are limited and local, given the quality of material found and the constraints of the urban area. Given this, communication and co-operation with those authorities that import primary aggregates into the sub-region is of obvious importance.
- 4.40. Most aggregates are transported into the sub-region by road. However, there are several aggregate rail depots in the sub-region, and these are shown on Map 5. For example, the Cemex site in Salford imports significant quantities of materials by rail, averaging around 650,000 tonnes per annum. Indicators are that the material imported through Merseyside Wharves is used entirely within the North West. As a result, there is a need to safeguard this infrastructure from encroachment from other forms of development.
- 4.41. Aggregate from YDNP is transported via a railhead at Tarmac Arcow Quarry in Ribblesdale transporting stone from both Arcow Quarry and Dry Rigg Quarry (also Tarmac) to amongst other depots, the Greater Manchester rail depots at Bredbury (Stockport) and Agecroft (Salford). The Freightliner Rail Freight Terminal at Garston serves as an aggregate terminal receiving aggregate trains from the Peak District quarries for construction sector in LCR. Likewise, Tuebrook Sidings near Edge Hill serves as an aggregate terminal receiving aggregate trains from North Wales and Cumbria for the construction sector in the LCR.

Future Supply

- 4.42. The position regarding primary aggregate extraction in the sub-region should be kept under review through future LAAs, because the Sand and Gravel landbank situation is critical and needs close examination. This issue was raised with the MHCLG representative at the NWAWP meeting on 5th November 2020 and we still await their advice on the best way forward.
- 4.43. The aggregate produced in the sub-region is locally important and districts should ensure that plans/policies are in place to ensure a continued supply.
- 4.44. The national Marine Policy Statement (2011) highlights the importance of marine aggregate in UK supply and the NPPF and associated guidance also provide support for use of this source of supply. The port facilities of the Mersey Estuary are likely to continue to function as significant landing and transshipment points for aggregate materials coming into the area. The future of marine aggregate extraction in Liverpool Bay seems secure and remains economically significant but is increasingly competing with other priorities in the offshore area and it could be that available areas for extraction may become increasingly restricted in the future. In this respect, the first Marine Spatial Plan for the Irish Sea area (the North West Marine Plan), to be prepared by the Marine Management Organisation will have a significant role to play, subject to the capacity constraints of the port. The draft NW Marine Plan was issued by the MMO for consultation in January 2020 and this did indicate that different parts of the seabed would be safeguarded for specific uses.
- 4.45. Robust data on the use of alternative aggregates has proved very difficult to obtain, particularly at the local level, although production levels of recycled aggregate appear to be high based on Waste Data Interrogator information. This is a data gap that will need fine tuning in the future particularly if, as an

area that is not self-sufficient in land-won aggregates, we wish to understand more fully and address the extent to which a dependence exists on material imported from other areas. This data gap has been recognised by the AWP, which has noted it as a priority for joint action to be addressed.

- 4.46. A key issue for the sub-region is the importation of aggregates from within the North West and beyond. In order to meet construction needs, it is likely that imports will continue to be required, although there are constraints on aggregate supplies elsewhere in the region too. Therefore, safeguarding of rail depots and wharves by the MPAs is an increasingly important requirement as prescribed in the NPPF.
- 4.47. Although it is difficult to quantify, it is presumed that a higher level of aggregates will be needed to meet demand and so these levels will continue to be imported, and it is anticipated this will be at higher rates than at present. The sub-region intends to estimate future infrastructure demand to help predict future supply requirements and will continue to undertake duty to co-operate discussions with areas outside the sub-region as part of the next period of reporting to ensure it can continue to meet demand.

5. Opportunities and Constraints

Sub-Region Apportionment Position

Current Aggregate Apportionment (2005-2023)

- 5.1. Prior to publication of the first edition of the National Planning Policy Framework (NPPF) in 2012, national aggregate policy was set out by Government in Minerals Planning Statement 1 (MPS1), which required Mineral Planning Authorities (MPAs) to make provision for the sub-regional apportionment of the National and Regional Guidelines for Aggregate Provision 2005-2020²⁰, which were most recently updated in June 2009. The key regional guideline figures are reproduced in Table 5-1 along with the national figures for comparison. These figures are generally considered dated, although some Local Authorities still use them, and MHCLG has been asked to update these. In a meeting held in July 2010 the MPAs within the North West AWP voted in favour of an 8-year average model. The agreed apportionments are outlines in Table 5-2 below.

Table 5-1: Comparison of National and Regional Apportionment Guidelines for England (2009)

Region	Land-won Sand & Gravel (Mt)	Land-won Crushed Rock (Mt)	Marine Sand & Gravel (Mt) Assumptions	Alternative Materials (Mt) Assumptions	Net Imports to England (Mt) Assumptions
North West	52	154	15	117	55
England	1028	1492	259	993	136

Table 5-2: 2005-2020 North West Sub-regions - Agreed Apportionments

Sub-Region	Land – won provision		Assumptions	
	Land-won Sand & Gravel (Mt)		Land-won Crushed Rock (Mt)	
Cheshire	1.51		0.04	
Cumbria	0.7		4.1	
Greater Manchester, Merseyside & Halton & Warrington	0.43		1.32	
Lancashire	0.44		4.24	

Supply

- 5.2. Annual surveys of aggregate sales and reserves have historically been undertaken by the North West AWP and provide a basis for establishing future supply and demand. There has been a decline in sales of land won sand and gravel and an increase in the sales of crushed rock in the sub-region. It is thought that is due to:
- Closure of sand and gravel quarries, which have not been replenished;
 - Development of more efficient construction techniques requiring less aggregate;
 - Increased use of marine won aggregate and secondary and recycled aggregates.
- 5.3. Current primary mineral extraction (sand and gravel and crushed rock production) in the sub- region is extremely limited. Reasons for this could include the extent of the urban area and the quality of materials found in the sub-region. The sub-region contains several large urban areas (Liverpool, Manchester and Warrington), which restrict the land available for minerals extraction. In addition, the local geology dictates that high specification materials for construction and infrastructure projects are not locally available and must be imported.
- 5.4. As part of Warrington Borough Council's Local Plan review that commenced in 2016 the Council undertook a Call for Sites exercise between October and December 2016 in order to identify any potential mineral sites. However, no sites were nominated by consultees for consideration as part of the Local Plan Review. Therefore, in addition, as part of the Council's assessment of

²⁰ National and regional guidelines for aggregates provision in England 2005-2020 (DCLG, June 2009)

mineral resources in the borough, Urban Vision reviewed the potential sites/areas identified within the previous minerals resource assessment of 2009²⁰, including contacting those operators and landowners who originally nominated sites to establish whether they wished the sites to be considered within the Local Plan review. Only one landowner responded requesting their site be considered as part of this latest review as a potential Area of Search for Sand and Gravel. However, when this site was put through the Council's site assessment process it was not considered appropriate to allocate it as the area where the site is located is not identified in the BGS 1:100,000 Minerals Resource Map as a sand & gravel resource; there was no record of site investigations provided; and there were a number of environmental and amenity constraints. No planning applications have come forward for minerals development within the sub-region within the most recent LAA period, but it is understood that there has been some interest in reopening inactive sites in recent years with potential for extensions coming forward to existing sites.

- 5.5. National waste management policy encouraging increased recycling has led to rapid growth in the market for substitute aggregate materials and facilities for processing construction and demolition waste to produce them, this has contributed between 28-30% of total aggregates to construction for a number of years. In some circumstances materials from other industrial processes can also be used for this purpose. As mentioned previously, there are significant amounts of recycled and secondary aggregates being produced within the sub-region. Unfortunately, robust data on the production, distribution or use of alternative aggregates remains difficult to obtain, and it should also be acknowledged that secondary aggregates can be constrained by availability, quality and specification. However, the figures included previously in paragraphs 4.10-4.12 show that within the sub-region recycling and re-use falls between 90-93% over the last 6 years. This is especially relevant to the sub-region given its aforementioned urban nature and the higher levels of construction/demolition that can be expected in association with the development anticipated to come forward through the Local Plans in the area. It is anticipated that this is likely to continue to make a significant contribution towards construction aggregates and potentially help offset the need for some imports. In addition, the expectation for maintaining these higher levels of recycled and secondary aggregates is driven by policy, regulation and market factors - a position acknowledged by DEFRA in respect of its obligations to report progress against the target set by the Waste Framework Directive to recover 70% of construction and demolition waste by 2020.

Demand

- 5.6. Given the above, it is likely that imports of primary aggregate material into the sub-region will continue to be important, especially when the consumption rate of material is considered, which shows that this is the main source of aggregates, with import levels at around 4,387 thousand tonnes in 2023. It is also likely that secondary and recycled aggregates will continue to compete with primary aggregate extracted in the sub-region. However, the sub-region is an important landing point for marine-won sand and gravel from the licensed dredging areas offshore and its wharves also handle significant shipments of crushed rock from quarries elsewhere in the UK. It is understood that as market demand increases it will be possible to increase marine supply in the short to medium term to meet this need.
- 5.7. Forecasting future aggregate market conditions is difficult. Since 2010, the sub-region has experienced some post-recessionary economic growth. Whilst the pre-recessionary peak for sales was reached in 2006 with 1.94mt of recorded aggregate sales, aggregate sales data does show a general recovery in demand within the sub-region from 2010 onwards, with sales of 0.51mt in 2010 increasing to a total aggregate sales figure of 2.04mt by 2016. However, the total sales figure for the sub region has been declining since. The pandemic and subsequent economic slump has seen the total aggregate sales figure fall to 0.82mt in 2022 and further again to 0.77mt in 2023. As the economy recovers however, it is likely that consumption rates of aggregate will increase and current local supply of aggregate in the sub region suggest that demand will need to be met though the

importation of aggregates and this will continue to be important in terms of meeting the future aggregate needs of the sub-region. It is intended that a more detailed assessment of aggregate demand for wider infrastructure will be undertaken to aid future forecasting.

- 5.8. The Crown Estate has noted in their 2024 report that as the supply of land based aggregates become more constrained the need for marine dredged aggregate continues to grow. It is anticipated that marine aggregates could supply increasing amounts of aggregate to the sub-region in the coming years. Currently the North West Region has 2 licenses and can extract 1.10 million tonnes annually. As mentioned previously in this report, the LAA area will continue to work with the Crown Estate and other sub-regions to build an understanding of the size and complexity of the demand profile into the future.
- 5.9. Given the predicted increase in housing completions, employment, infrastructure projects and the economy in general across the sub-region, it is considered reasonable to apply an 'uplift' to future predicted demand for aggregates, rather than the previous 10-year average sales data. Appendix A identifies a 2% annual uplift in predicted aggregate production (based upon economic predictions outlined earlier in this report), taking the 3-year rolling sales average as the baseline figure to give a more realistic indicator for recent demand. This has been applied over the next ten years and then an average figure taken as the predicted annual production. Actual demand is higher than local production rates. The Aggregate Minerals Survey 2023 highlights the North West as one of the areas of England most heavily reliant on imports, with 45% of requirements being met by imports.
- 5.10. This LAA has been produced jointly for the 17 unitary local authorities comprising the aggregate apportionment sub-region of Merseyside, Greater Manchester and Warrington. Its principal conclusion is that the authorities of the sub-region should adopt a 2% annual uplift for predicted future production and consumption for aggregates, in line with predicted economic growth. The sub-region has not met apportionment for some time and evidence from industry is that there is limited interest or expectation in being able to take advantage of whatever aggregate materials sub-region may be able to provide. There is no indication that this position is likely to change in the immediate future, as no new proposals for quarries are currently known and feedback from industry members of the AWP suggest there is no interest in the sub-region.
- 5.11. It is acknowledged that there are serious concerns about the shortfall in aggregates within the LAA region. However, it should be noted that the constituent LAA members are being as proactive as possible with regards to addressing this issue. As mentioned earlier in this report, this matter has been raised with DLUHC, and a meeting arranged by the LAA region with the Crown Estate and the wider NWAAP area members to discuss the future possibilities for marine aggregates within the region took place in early December 2020 with a further meeting held in 2022. The situation will be kept under review through future LAAs and the MPAs of the sub-region will respond as the evidence requires. Going forward, it is acknowledged that an annual update on Duty to Cooperate (DtC) work and or meetings should be provided in order to continue to demonstrate the efforts made by the sub-region and surrounding MPAs to work together to identify and attempt to address these issues.
- 5.12. With that in mind, the sub-region will initiate further DtC discussions with those MPAs that previously indicated that they would like to be kept up to date with LAA requirements. This is detailed in Appendix B below.
- 5.13. Although the report has highlighted a number of areas where data is weak, absent or not readily applicable at MPA level, it is possible to identify a number of key issues for policy makers in individual MPAs, taking account of their local circumstances and the position for the sub-region identified by the LAA. Again, this has been pointed out to DLUHC – the returns of the Aggregate Minerals Survey 2023 is critical and the need for sub-regional guidelines is imperative. These key messages for the future direction of policy for the MPAs are set out in Table 6-1 below.

5.14. In summary, there are several broader messages that emerge from this process that apply to the strategic position in the sub-region and the strengthening of the LAA process for the future:

- Continued engagement with DLUHC on the specific issues within the LAA region and NW in general.
- Continued liaison with Crown Estate to discuss further possible supply of marine aggregates in future.
- There is a need to continue to liaise with those authorities, including relevant National Parks, that export aggregates to the sub-region as these are important to ensure future growth ambitions are realised.
- There is a need to report relevant outcomes of any Duty to Co-operate meetings held by the sub-region with those authorities, both within and outside the North West region, who import aggregates to the sub-region.
- There is a need to monitor permitted sand and gravel and crushed rock reserves as they become depleted, to ensure steady and adequate supply.
- Future marine aggregate extraction may be increasingly important to the supply of aggregates in the sub-region and North West more generally, as a result the North West Marine Plan may need to be considered in future Local Aggregate Assessments.
- There is a scope for secondary and recycled aggregates to provide a greater proportion of the sub-regions aggregate supply in the future and opportunities will be sought to increase understanding of this material and the level of supply and demand.
- There is a need to safeguard mineral resources as well as the critical transport and processing facilities that are essential for distribution and processing of aggregates.
- Currently consumption continues to be greater than production which forms a potential risk to achieving growth aspirations in the sub-region.

Mineral Planning Authority	Aggregate Resource Present?	Aggregate Extraction Sites with Live Consent?	Aggregate Wharves?	Planning Implications
Greater Manchester Authorities (Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Tameside, Trafford and Wigan)	Yes	Yes	No	• The Greater Manchester Minerals Plan was adopted in April 2013, which identifies Areas of Search that could contribute to meeting any shortfall in provision of aggregates during the Plan Period if a suitable planning application was made. • Greater Manchester to continue to work with industry in order to contribute to the apportionment and participate in AWP. • Link with Minerals Plan and LAA recognised in draft Greater Manchester Spatial Framework • Safeguarding of mineral resources and processing facilities
Halton	No	No	No	• Prioritise use of secondary and recycled material. • Safeguard critical transport infrastructure and processing facilities. • Provide for windfall applications appropriately. • Continue to work with industry in order to contribute to the apportionment and participate in AWP. • Monitor landbank adequacy through annual LAA.
Knowsley	No	No	No	• Prioritise use of secondary and recycled material. • Safeguard critical transport infrastructure and processing facilities. • Provide for windfall applications appropriately. • Continue to work with industry in order to contribute to the apportionment and participate in AWP. • Monitor landbank adequacy through annual LAA. • Safeguarding of mineral resources
Sefton	No	No	Yes	• Prioritise use of secondary and recycled material. • Safeguard wharves and transport infrastructure and processing facilities. • Continue to work with industry in order to contribute to the apportionment and participate in AWP • Safeguarding of mineral resources
St Helens	Yes	Yes	No	• Prioritise use of secondary and recycled material. • Safeguard critical transport infrastructure and processing facilities. • Provide for windfall applications appropriately. • Continue to work with industry in order to contribute to the apportionment and participate in AWP. • Monitor landbank adequacy through annual LAA. • Safeguarding of mineral resources
Warrington	Yes	Yes	No	• Prioritise use of secondary and recycled material. • Safeguard critical transport infrastructure and processing facilities. • Provide for windfall applications appropriately. • Continue to work with industry in order to contribute to the apportionment and participate in AWP. • Monitor landbank adequacy through annual LAA. • Safeguarding of mineral resources
Wirral	No	No	Yes	• Prioritise use of secondary and recycled material. • Safeguard wharves and associated transport infrastructure and processing facilities • Safeguard critical transport infrastructure. • Provide for windfall applications appropriately. • Continue to work with industry in order to contribute to the apportionment and participate in AWP. • Monitor landbank adequacy through annual LAA. • Safeguarding of mineral resources

Appendix A

Table A – Key Indicators

Year	Sales of aggregate	Population	Total GVA	GVA of construction sector
2008		4,309,943	84,589	6,249
2009	0.67	4,335,315	85,206	5,255
2010	0.51	4,363,854	86,501	4,766
2011	0.6	4,394,587	86,696	4,869
2012	1.05	4,411,359	88,966	4,999
2013	0.66	4,429,167	92,330	5,208
2014	0.95	4,454,438	95,652	5,413
2015	1.1	4,484,810	99,533	5,777
2016	1.13	4,522,554	102,460	6,126
2017	1.04	4,549,958	108,761	6,776
2018	0.91	4,576,869	112,169	7,248
2019	1.51	4,606,321	117,812	7,076
2020	1.08	4,613,973	116,851	6,700
2021	0.64	4,633,001	125,453	7,635
2022	0.62	4,700,332	140,106	8,937
2023	0.77	4,768,714	154,135	10,511

Table B - % Annual Change of Sales of Aggregates and Key Indicators

Year	Sales of aggregate	Population	Total GVA	Total GVA of construction sector
2008-09		0.006	0.007	-0.159
2009-10	-0.239	0.007	0.015	-0.093
2010-11	0.176	0.007	0.002	0.022
2011-12	0.750	0.004	0.026	0.027
2012-13	-0.371	0.004	0.038	0.042
2013-14	0.439	0.006	0.036	0.039
2014-15	0.158	0.007	0.041	0.067
2015-16	0.027	0.008	0.029	0.060
2016-17	-0.080	0.006	0.061	0.106
2017-18	-0.125	0.006	0.031	0.070
2018-19	0.659	0.006	0.050	-0.024
2019-20	-0.285	0.002	-0.008	-0.053
2020-21	-0.407	0.004	0.074	0.140
2021-22	-0.031	0.015	0.117	0.171
2022-23	0.242	0.015	0.100	0.176

Table C - Correlation between Aggregate Sales and Key Indicators 2009-2018

Aggregate Sales	Population	Total GVA	GVA of construction sector
2009-2023	0.20	0.07	0.03
2009-2018	0.70	0.65	0.56
2014-2023	-0.44	-0.51	-0.52

Table C shows, there is some positive correlation between aggregate sales and the key indicators. There are very slight across the whole database and are much stronger in the first 10 years but the most recent 10 years show no correlation bringing the figure closer to a slight correlation.

Please note the GVA and population data is a live data set and as such, the information is not static year on year. Therefore, it is not easy to directly compare the data between each LAA report.

Forecasting the future need for aggregate sales

The estimated future need for aggregates takes the latest 10-year (2013-2022) sales average as its baseline figure, rather than a 3-year average (2020-2022). This is the recommended approach in the minerals planning practice guidance. A 2% uplift has been applied to the average sales figures as it reflects average GVA increases for the area. GVA growth rates take growth in productivity and technological change into account. Therefore, it is considered that GVA is the best available measure of any longer-term changes in the size of the economy. Cheshire East have also based their local aggregate assessment future need forecasts on GVA, showing that this approach is not unique to the sub-region.

In order to test the sensitivity of the forecasts to alternative assumptions the forecasts in Table E use the 3-year sales average as the baseline. The two forecasted levels of aggregate need for 2027 vary from 0.57mt to 0.43mt for sand and gravel and 0.79mt to 0.55mt for crushed rock. Table D shows the preferred 10-year average approach, under which aggregate sales are projected to be higher than the 3-year average at 0.55mt for sand and gravel and crushed rock at 0.55mt by 2037.

Table D: Forecast of aggregate sales (million tonnes) if preferred growth rate (2% pa) is applied to the 10-year sales average for the 15 year period 2023-2037

Year	Sand & Gravel	Crushed rock
2022 baseline	0.27	0.49
2023	0.29	0.51
2024	0.31	0.53
2025	0.33	0.55
2026	0.35	0.57
2027	0.37	0.59
2028	0.39	0.61
2029	0.41	0.63
2030	0.43	0.65
2031	0.45	0.67
2032	0.47	0.69
2033	0.49	0.71
2034	0.51	0.73
2035	0.53	0.75
2036	0.55	0.77
2037	0.57	0.79

Table E: Forecast of aggregate sales (million tonnes) if preferred growth rate (2% pa) is applied to the 3-year sales average for the 15 year period 2023-2037

Year	Sand & Gravel	Crushed rock
2022 baseline	0.13	0.25
2023	0.15	0.27
2024	0.17	0.29
2025	0.19	0.31
2026	0.21	0.33
2027	0.23	0.35
2028	0.25	0.37
2029	0.27	0.39
2030	0.29	0.41
2031	0.31	0.43
2032	0.33	0.45
2033	0.35	0.47
2034	0.37	0.49
2035	0.39	0.51
2036	0.41	0.53
2037	0.43	0.55

Appendix B – Duty to Cooperate

Local Aggregates Assessment Duty to Co-operate Record 2024

In 2020, based on the AM Report 2014, an assessment was made of where imports to the North West were coming from. As this information is not disaggregated into sub-regions within the NW, and given that the Greater Manchester, Merseyside and Halton and Warrington sub-regional area has the largest population in the NW, it was assumed that a significant proportion of the imported aggregate materials final destination was the sub-region. Responses were received from a number of authorities, some of whom requested that we continue to consult as further LAAs are produced.

The below includes the MPAs that will continue to be consulted on draft LAAs prior to ratification, either on request or due to known supply of aggregates from their area to the NW and the GMMHW LAA area:

- Derbyshire CC
- Leicestershire CC
- Peak District National Park
- Yorkshire Dales National Park
- North Wales (North Wales Minerals and Waste Planning Service covering Conwy, Flintshire, Gwynedd, Isle of Anglesey, Wrexham, Denbighshire and Snowdonia National Park)
- Argyll and Bute Council (location of Glensanda super quarry)
- Cheshire East Council
- Cheshire West and Chester
- Cumberland Council
- Westmoreland and Furness Council
- Lancashire CC

Appendix C – LAA comments table

Commenter	Comment	Edits Made
Richard Sharples Lancashire CC Via email	The LAA is predominantly focused on a consideration of the adequacy of the landbank, and the identification of a tonnage required to maintain the landbank, rather than the forward looking forecast of demand envisioned by the NPPF. The prediction of demand is buried in the text and quite hard to find; it does not occupy a prominent place or represent a meaningful proportion of the document, and is not presented in the summary. It is not apparent from the LAA what the predicted demand is. Para 3.48 and 3.49 are confusing, and in any event appear not to have had any influence on the predicted future demand. This prediction of demand looks to be found in table 3.10, though sets out predicted annual production. It sets out the 3 and 10 year average, but then uses a different figure that I cannot see an explanation for; no figure is presented for sand and gravel. It is not an accurate reflection of demand/need. It also does not include imports and so the predicted demand is a significant underestimate of need in the subregion.	Paragraph added Edits made to update table 3.10 to match text.
Rachel Whaley Westmorland and Furness via email 30/04/2026	Pg 13 – I wasn't sure what the map references were in this table Table 3-5 – this and some other tables (3-7) show the data from 2013-2023 (11 years) whereas others are 2014-2023 (10 years) Para 3.21 – typo on demand Para 3.29 – think should be guide not guise? 3.47 – there is still a resolved comment thread showing next to this table 4.23 – typo on transport 4.35 - ...as mentioned in 3.45? think this should ref 4.32 4.36 - ...Yorks and Humber Park ?? 4.41 – typo on Tarmac'st 4.47 – wasn't clear on wording...."will be needed to meet demand will continue to be imported...." 5.1 – use them not then? Appendix A – Table C – wasn't clear what the numbers 2, 3 and 4 in the column headings referred to? Pg 40 – on list of MPAs to engage with on future LAAs, may want to refer to Cumberland and Westmorland and Furness now rather than Cumbria.	Tables changed to show 10 years Number made into reference size number Change to guide Deleted resolved comments Corrected transport Edited to reflect para Park removed Edited tarmac Edited sentence Edited to them Removed old reference numbers Edited council names
Nathan Hughes CW & C via email 30/04/2026	We welcome the way that the LAA sets out clearly where aggregates are being imported from, and in particular paragraph 4.31 and Table 4-5 showing the recognition that Cheshire West and Chester provide a significant portion (40-50%) of land won sand and gravel to the Merseyside, Halton, Greater Manchester and Warrington areas. I was thinking that this could maybe be demonstrated in Sand and Gravel section of the executive summary? It could be helpful to show the strategic importance of ongoing cooperation with neighbouring authorities. This is intended to be more of a note/observation rather than an action for the LAA, I just wanted to flag this point and acknowledge our high supply of sand and gravel. Other than this minor comment, we support the LAA and are happy for it to be ratified.	Small paragraph added to executive summary regarding sand and gravel imports

Glossary/Acronyms

Term	Acronym	Definition
Active Permissions		Sites with vail permissions which may be working or mothballed on a temporary basis (and for which new working and reclamation schemes are not required before working can recommence)
Association of Greater Manchester Authorities	AGMA	AGMA is the local government association for Greater Manchester. It represents the ten district councils of Greater Manchester (Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, TAMESIDE, Trafford, Wigan); developing policy, lobbying government and others, running a range of services, in this capacity, AGMA directs the strategic public and social services of Greater Manchester on behalf of its ten metropolitan boroughs and the Greater Manchester Integrated Transport Authority, the Greater Manchester Police Authority, the Greater Manchester Fire and Civil Defence Authority and the Greater Manchester Waste Disposal Authority, who are all members by subscription.
Aggregate Minerals		Defined in Technical Guidance to the National Planning Policy Framework (DCLG, March 2012, paragraph 54) as sand and gravel, and crushed rock. Generally, they are used in the construction industry for purposes of making concrete, mortar, asphalt or for roadstone, drainage or bulk filling.
Aggregate Reserves		The amount of crushed rock or sand & gravel which is covered under planning permissions for working but is still to be extracted
Aggregate Resources		Deposits of crushed rock and sand & gravel which are known to be present in the ground.
Aggregate Sales		The amount of an aggregate (crushed rock, sand & gravel, secondary or recycled) sold in a set period of time.
Aggregate Working Party	AWP	The AWP is a technical working group with membership drawn from mineral planning authorities, the minerals industry and Department for Communities and Local Government (DCLG).
Construction, Demolition and Excavation Waste	CD&E	Waste arising from site construction or refurbish demolition or excavation.
Core Strategy		Document setting out the long-term spatial vision for the local planning authority area, the spatial objectives and strategic policies
Crushed Rock		Hard rock (such as limestone) which has been quarried, fragmented and graded for use as aggregate.
Department of Communities and Local Government	DCLG	The Government department responsible for planning and local government, now the Ministry of Housing, Communities and Local Government (MHCLG), now Department of Levelling Up, Housing and Communities (DLUHC).
Dormant Site		Sites which are granted planning permission after 21 July 1943 and before 1 July 1948, but in which no substantial mineral working has been carried out between 1 May 1989 and 30 April 1991.
Duty to Co-operate	DtC	Requirement in the NPPF for Planning Authorities to address strategic issues in conjunction with neighbouring authorities who must deal with the same issues.
Examination in Public	EIP	The process of determining whether a Development Plan Document meets the requirements of the relevant legislation and is 'sound'. Soundness is tested by considering whether the DPD is justified, effective and consistent with national policy. As part of that process the Inspector (appointed by the Secretary of State) will consider representations made on the soundness of the DPD by interested parties such as local residents and developers. At the end of the examination the Inspector will issue a report to the Local Planning Authority (LPA). The report will contain recommendations relating to any changes that need to be made to the DPD, to ensure it is sound, before being formally adopted. The recommendations will be binding if the LPA chooses to adopt the DPD that has been examined.
Extant Permission		Existing planning permission.
Inactive site		A minerals extraction site with planning permission but where no extraction is currently taking place.

Landbank		The sum in tonnes of all permitted reserves for which valid planning permissions are extant. This includes current non-working sites but excludes dormant sites and 'inactive sites. They are a monitoring tool to provide MPA's with early warning of possible disruption to the provision of an adequate and steady supply of land-won aggregate in their area.
Licenced Marine Aggregate Dredging Areas		Areas allocated under the sea where dredging can take place with the permission of the Marine Management Organisation.
Local Aggregate Assessment	LAA	An annual report prepared by a Mineral Planning Authority or group of Authorities which assesses the demand for and supply of aggregates now and in the future.
Local Development Framework	LDF	The folder of documents which contains all of a local authority's local development documents (including Local Plan documents, Local Development Schemes, Statements of Community Involvement and Supplementary Planning Documents).
Local Development Scheme	LDS	Document setting out the programme for preparing <i>Local Development Documents</i> (PPS12 definition).
Local Plan		The NPPF defines a Local Plan as the plan development of an area, drawn up by the local planning authority. In law this is described as the development plan documents adopted under the Planning and Compulsory Purchase Act 2004. Current Core Strategies and other planning policies, which under the regulations would be development plan documents, form part of the Local Plan. The term includes old policies which have been saved under the 2004 Act.
Marine dredged sand and gravel		Sand and gravel excavated from the sea by dredging.
Merseyside Environmental Advisory Service	MEAS	MEAS is a sub-regional service that works for Halton, Knowsley, Liverpool, Sefton, St. Helens and Wirral Councils. The service is provided by professional technical staff who assist the Merseyside Districts by providing technical advice on a wide range of environmental matters, primarily to the Planning Services of the Councils.
Mineral Planning Authority	MPA	The planning authority responsible for the control of mineral extraction and waste management development, through forward planning, determining of planning applications, monitoring and enforcement.
Mineral Safeguarding Areas	MSA	An area designated by Mineral Planning Authorities which covers known deposits of minerals which are of sufficient economic value to warrant protection from unnecessary sterilisation by non-mineral development.
Ministry of Housing, Communities and Local Government	MHCLG	Formerly the Department for Communities and Local Government (DCLG).
National Planning Policy Framework	NPPF	The document that sets out the Government's planning policies for England and how they are expected to be applied. It provides guidance for local planning authorities and decision-takers, both in drawing up plans and making decisions about planning applications.
Primary Aggregate		Crushed rock and sand and gravel directed extracted from the ground.
Recycled Aggregate		Mineral sourced from construction and demolition waste, highway maintenance waste and excavation and utility operations and then reused as aggregate.
Sand and gravel		Rock which nature has already broken into fragments mostly by weathering and erosion during the ice age.
Secondary Aggregate		Derived from a range of materials which may be used as aggregate, including power station ash and colliery spoil.
Sub-regional Apportionment		The splitting of regional supply guidelines for aggregate minerals between planning authorities or sub regions.

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Council

Bury
COUNCIL



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