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Liverpool City Region Strategic Housing & Economic Development Needs Assessment

Strategic B8 Land Use Forecasts Paper

Iceni Projects Limited on behalf of Liverpool City Region
Combined Authority

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ON BEHALF OF LIVERPOOL
CITY REGION COMBINED
AUTHORITY

Liverpool City Region Strategic
Housing & Economic Development
Needs Assessment
STRATEGIC B8 LAND USE FORECASTS PAPER

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A1. CURRENT WAREHOUSE FLOORSPACE

INTRODUCTION

- 1.1 The Liverpool City Region Combined Authority (LCRCA) is in the process of preparing a Spatial Development Strategy (SDS) which is intended to set the spatial pattern for future development across the Liverpool City Region, including identifying strategic areas of growth, associated strategic infrastructure, and policies addressing health inequalities and climate change.
- 1.2 To inform the Spatial Development Strategy, the Combined Authority has commissioned Icení Projects to prepare a Strategic Housing and Economic Development Needs Assessment (HEDNA).
- 1.3 The main HEDNA Report included consideration of employment land needs in Section 9. This Paper supplements the analysis therein.
- 1.4 MDS Transmodal (MDST) have been supporting Icení, through analysis of the need for strategic B8 development comprising warehouse and distribution units of over 9,000 sq.m. This Paper presents the results of the modelling undertaken by MDST. It should be read alongside Section 9 in the HEDNA Report.

MARKET CONTEXT

Occupational Demand and Take-Up

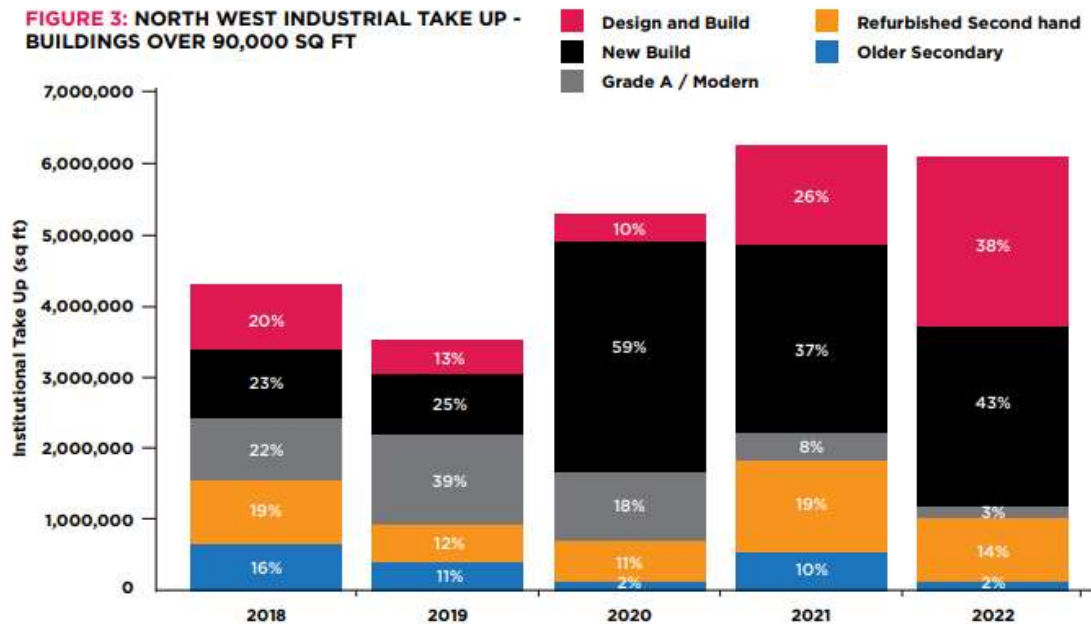
2. 2.1 The 2020 – 2022 period has seen strong levels of demand for large warehousing and distribution units (> 9,000 sq.m / 100,000 sq.ft) in the North West. 2021 saw take-up recorded as 6.2 million sq.ft across 31 transactions with take-up levels which were 16% up on those in 2020 (5.20 million sq.ft), based on data from B8 Real Estate (B8RE). 2022 saw 'big box' take up of 6.1 million sq.ft across 23 transactions, which was slightly down on the previous year, hindered by a dwindling supply of good quality units, but notably above the five year average for the latest period (5.06 million sq.ft pa).

Table 2.1 Occupational Take-Up in 2021 – Big Sheds (90,000 sq.ft+)

	Floorspace (sq.ft)	% Take-Up	Transactions
Design and Build	1,600,000	26%	4
Speculative Build	2,300,000	37%	12
Grade A (2nd Hand)	472,000	8%	3
Grade B (2nd Hand)	1,180,000	19%	21
Grade C (Second Hand)	630,000	10%	5
Total	6,182,000	100%	45

Source: B8 Real Estate, Market Report – Jan 2022

Figure 2.1: North West Industrial Take-Up – Units of > 90,000 sq.ft to 2022



Source: B8 Real Estate, Market Report – Jan 2023

Table 2.2 Occupational Take-Up in the North West in 2022 – Big Sheds (90,000 sq.ft+)

	Floorspace (sq.ft)	% Take-Up	Transactions
Design and Build	2,320,000	38%	5
Speculative Build	2,630,000	43%	11
Grade A (2nd Hand)	111,000	3%	1
Grade B (2nd Hand)	858,000	14%	5
Grade C (Second Hand)	137,000	2%	1
Total	6,182,000	100%	23

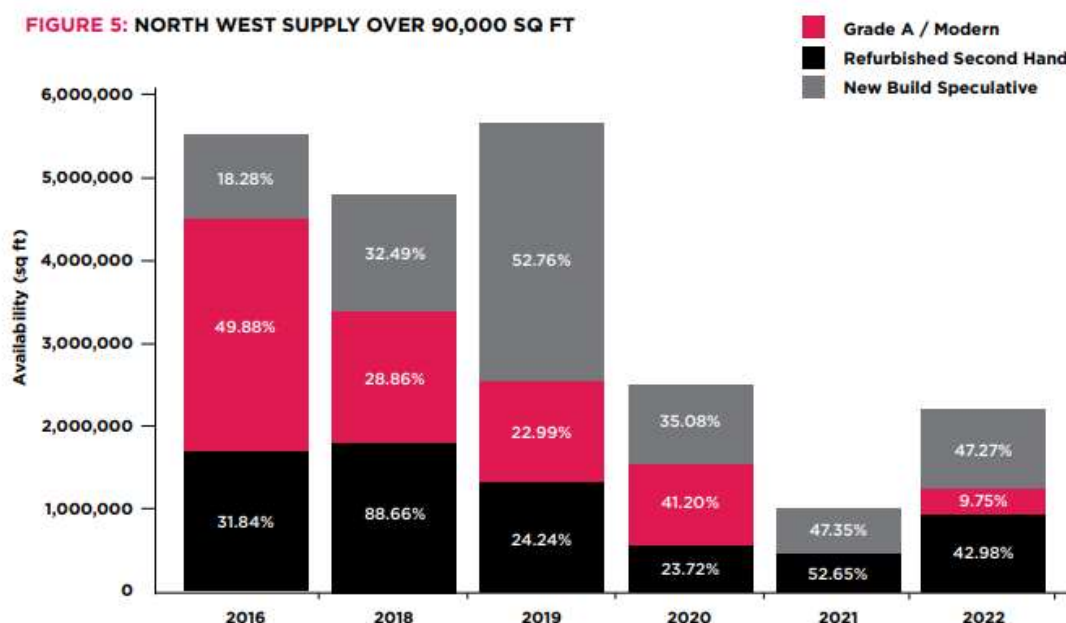
Source: B8 Real Estate, Market Report – Jan 2022

- 2.2 As Table 2.2 above shows, whilst take-up across the North West was lower overall in 2022 it was much more focused towards new-build development, with a combined total of almost 5.0 million sq.ft occupied in the year.
- 2.3 Speculative development has been significant reflecting the strength of the market. 2021 saw 2.3 million sq.ft brought forward in across 12 transactions across the region; with 2.6 million sq.ft delivered in 2022. 1.98m sq.ft (75%) of speculative units were let within 6 months of practical completion, with 60% let prior to practical completion . Since mid 2022 market conditions have however dampened and uncertainty in the funding market however means moving forwards speculative development can be expected to be more limited in the short-term; with more design and build development.
- 2.4 E-commerce continues to be the dominant sector in the North West market, accounting for 70% of total take-up in 2021, with Amazon alone taking 1.44 million sq.ft of space. Manufacturing occupier demand increased to 1.88 million sq.ft across 8 transactions and accounted for 30% of activity, influenced by the need for increased stock holding linked partly to Brexit and associated supply-chain issues.

Supply Position

- 2.5 There was 2.17 million sq.ft of big box stock available (excluding Grade C) at the end of 2022 across the North West. This was an improvement from the availability level of just 474,000 sq.ft at the end of 2021. The level of available supply equates to a position of 0.43 years' supply set against take-up which by any measure remains very low.

Figure 2.2: North West Industrial Availability – Units > 90,000 sq.ft



Source: B8 Real Estate, Market Report – Jan 2023

2.6 There has been a growing trend of second hand units benefitting from Grade A refurbishments influenced by Environmental and Social Governance (ESG) credentials to meet occupier and investor requirements. This in part reflects the limited supply position: in the North West, across all grades there were only 2 units above 200,000 sq.ft available immediately at the end of 2022; with 12 units in the 90,000 – 200,000 sq.ft bracket available across the region.

Rents and Land Values

2.7 The evident supply/demand imbalance in recent years has driven rental growth with current prime rents for big box units reaching £7.25 - £8.00 per square foot (psf) In secondary locations, rents are £5.50 - £5.75 psf. B8RE identify that with a continuing lack of stock, further rental growth could be supported with prime quoting rents of £8.50 - £8.95 psf.

2.8 A combination of strong occupier demand, limited development pipeline, rental growth and yield compression led to strong growth in land values in 2020 and 2021. In 2022, land values have fluctuated due to changing market conditions with prime values now of £1.0 million per acre for sites in the best locations, which includes South/West Manchester and Warrington. This super prime market would include schemes in St Helens close to the M6. Secondary locations, which would include much of the LCR, are seeing values of £400,000 - £500,000 per acre.

2.9 Investment demand has weakened over the course of 2022, influenced by wider economic factors including the war in Ukraine and associated inflationary pressures. This is limiting the appetite in the

short-term for speculative development; however the continued strength of the occupational market and rental growth can be expected to continue to help to support investor interest in warehousing and distribution development.

STRATEGIC B8 LAND USE FORECASTS

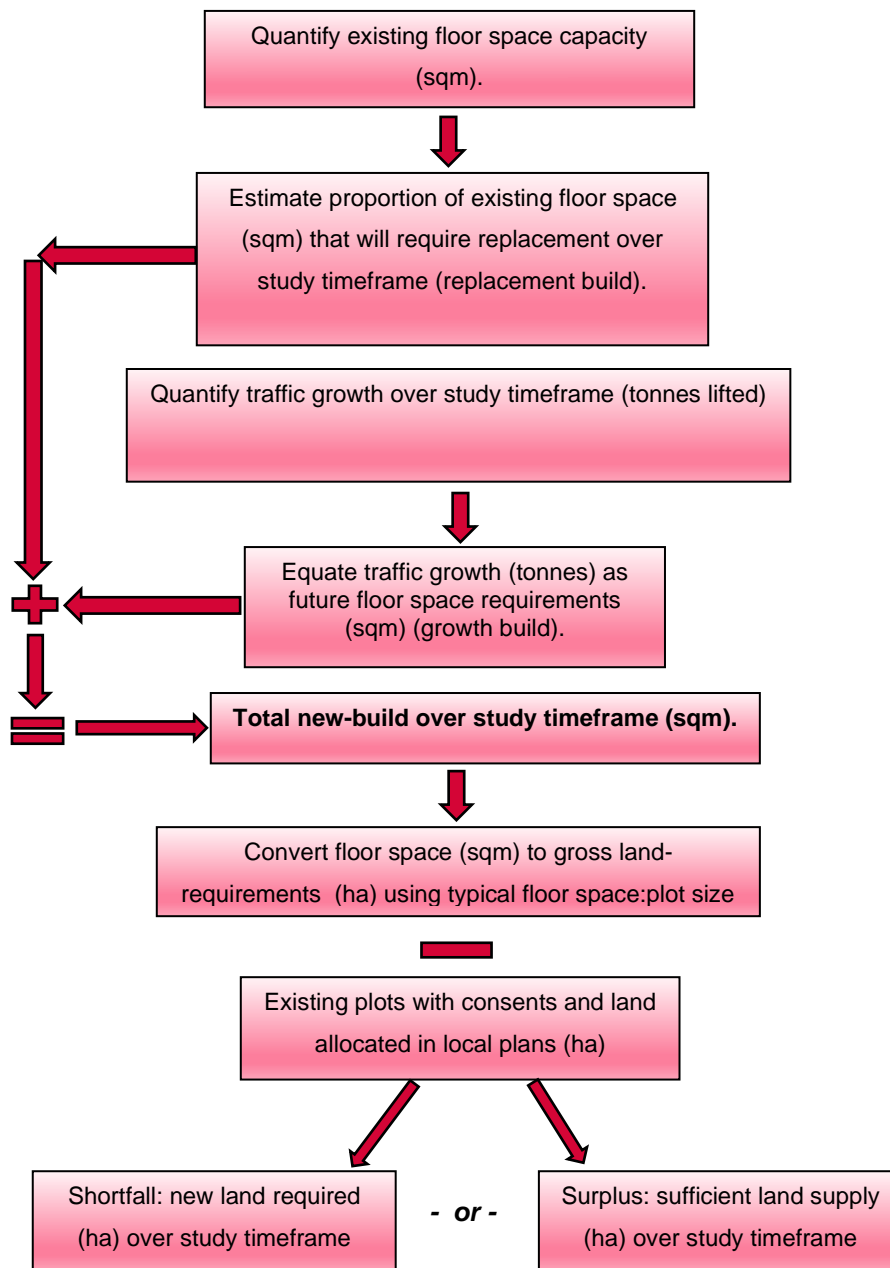
Methodology – Background

3. 3.1 Land-use forecasting for other commercial sectors, such as offices or retail, often seeks to relate employment growth to the need for additional floor space, using consistent and robust employment densities. This methodology is potentially unsuitable for the logistics sector for three reasons:
- Warehousing units have a much shorter functional or economic life than other types of commercial property (developers/investors will often write-down their assets over a 25-30 year timeframe). There is a consequent need to develop new units, much of which is needed to replace existing life-expired capacity (due to functional or physical obsolescence);
 - Employment densities for warehousing and distribution can vary significantly influenced by the type of space and occupiers. The primary function of warehousing is to handle cargo, with demand for floor space driven by factors such as cargo type/commodity, volumes and dwell times. This in turn dictates employment requirements (numbers, skills etc..). Cargo with high throughput rates and picked at less than pallet-load quantities (such as grocery) requires higher employment levels when compared with slower moving lines re-distributed at pallet-level. Consequently, warehouses with broadly the same quantum of floor space can have significantly different employment levels; and
 - Increasing automation within warehouses, particularly for e-commerce, suggests future employment densities will be lower than today.
- 3.2 In order to overcome these apparent weaknesses, the land-use forecast methodology used herein is derived from the following key factors relating to new logistics warehouse facilities:
- The continual need to build new large-scale warehousing as a replacement for existing capacity which, over time, becomes life-expired due to functional or physical obsolescence (**replacement build**); and
 - Long-term growth in the demand for goods in the wider economy and the subsequent need for additional floor space in order to handle that growth (**growth build**).
- 3.3 Existing warehouse capacity can be quantified from available data sources, with a view then reached as to the likely replacement ('churn') rate based on experience of the logistics sector. Freight traffic growth (a proxy for growth in the demand for goods) can be forecast using economic or traffic models, in this case the MDST GB Freight Model (used to produce forecasts for Network Rail and TfN among other bodies). The growth is then related to floor space using cargo storage density and throughput

rates expected at a modern distribution centre. Adding the replacement and growth build elements together generates the forecast of future new-build rates.

- 3.4 The methodology used is essentially consistent to that adopted in the 2017 Strategic Housing & Employment Land Market Assessment (SHELMA).
- 3.5 The base line forecast year adopted for this forecast exercise is 2021. The key primary output is total new-build rates over a future time period (i.e. future demand for new-build units), measured as square metres of warehouse floor space. In this case, new-build rates up to 2044 have been forecast, with the intervening year 2039 also estimated. The forecasts are for the Liverpool City Region study area and the wider North West region.

Figure 1.1: Overview of Replacement Demand and Traffic Growth Forecasting Methodology



Existing Warehouse Capacity

3.6 Given the above, the starting point of the land-use forecasting process is therefore to quantify the existing supply of large-scale logistics and distribution floor space capacity within the North West region and for the Liverpool City Region study area. The data (as set out in Appendix A1) has been derived from MDST's warehouse database, which has been compiled from the Valuation Office Agency (VOA) non-domestic Rating List records (a record of all commercial property in England and Wales by floor space function and location, collated for Business Rates purposes). We have interrogated the raw database and extracted floor space data within commercial buildings with a designation 'warehouse' or a similar classification. For clarification, this includes:

-
- Floor space designated as ‘warehouse’ or similar within a building whose primary classification is ‘Warehouse and Premises’ i.e. a building purposely built to receive, store and distribute cargo (the classic distribution centre); and
 - Floor space designated as ‘warehouse’ or similar within a building that has some other primary classification e.g. a ‘Factory and Premises’ which contains floor space used to store and distribute goods manufactured at that site.

3.7 Property where the warehouse floor space (as defined) is greater than 9,000 square metres in total has been included, this broadly equating to buildings around 100,000 sq ft or larger, the logistics industry’s recognised definition of a large-scale distribution centre (aka large-shed or ‘big-box’). Other ancillary floor space designations (e.g. offices) have been excluded i.e. the total ‘headline’ size of a commercial property will be greater once these other floor space functions are included. Further, while the total quantum of ‘warehouse’ or similar floor space within an individual property is greater than 9,000 square metres, the actual floor space may be distributed over two or more different areas (zones) within the individual commercial property.

3.8 Across England and Wales a total of 2,438 buildings covering 51 million square metres of floor space can be identified from the VOA Rating List data (as at April 2021). A breakdown of these figures by Government Office Region are presented in the table below. The equivalent commercial property data in Scotland is collated by the Scottish Assessors Association (SAA). For reference, Scotland current accommodates around 1.4 million square metres of large-scale warehouse floor space, of which around 1.1 million square metres is located in the ‘Central Belt’.

Table 3.1 Current (2021) Large Scale Warehouse Capacity England and Wales, by Region

Region	000s sq m	Number Units	sqm/unit
East Midlands	10,142	402	25,228
North West	8,328	419	19,876
West Midlands	7,559	385	19,634
Yorkshire and The Humber	7,064	336	21,023
East	5,576	270	20,651
South East	4,021	204	19,710
South West	2,903	132	21,994
North East	1,947	90	21,637
London	1,870	121	15,454
Wales	1,588	79	20,102
Total	50,998	2,438	20,918

Source: MDS Transmodal warehouse database (VOA Rating List)

Table 3.2 Relative Market Share of Large-Scale B8 Warehousing by Region

	Market Share (%)	
	Floor Space	Number Units
East Midlands	20%	16%
North West	16%	17%
West Midlands	15%	16%
Yorkshire and The Humber	14%	14%
East	11%	11%
South East	8%	8%
South West	6%	5%
North East	4%	4%
London	4%	5%
Wales	3%	3%

Source: MDS Transmodal warehouse database (VOA Rating List)

3.9 The table shows that the East Midlands region hosts just over 10.1 million square metres of floor space across 402 commercial properties. It is the largest region in terms of total floor space (20% market share), though the North West has a greater number of units. The North West region has the second largest concentration of large-scale warehousing in England and Wales, with over 8.3 million square metres (16% market share when measured by floor space). The average floor space per commercial property in the North West is around 19,900 square metres, compared with the national average of 20,900 square metres per unit.

- 3.10 Table A1 in the Appendix to this Paper presents a breakdown of large-scale warehouse floor space within the North West region by Billing Authority (i.e. planning authority level). Oldham has the largest concentration of warehousing in the region with just under 0.7 million square metres of floor space across 32 properties. There are also further significant concentrations of floor space in Rochdale, Warrington, Cheshire (East and West) and Trafford. The position with respect to the Liverpool City Region study area is shown in the table below.

Table 3.3 Current (2021) Large-Scale Warehouse Floor Space by LPA

Local Authority	000s sq m	Number Units
St Helens	401	16
Knowsley	388	17
Liverpool	387	18
Halton	317	15
Wirral	111	9
Sefton	103	7
LCR Total	1,707	82
North West	8,328	419
LCR Market Share	21%	20%
Mean sqm/unit	20,821	

Source: MDS Transmodal warehouse database (VOA Rating List)

- 3.11 Just over 1.7 million square metres of large-scale warehouse floor space is located in the Liverpool City Region study area. This represents around 21% of the North West regional total. Over 85% of the supply is focused in four local authorities – Liverpool, Knowsley, St Helens and Halton.
- 3.12 The mean size per unit of larger warehousing units in the Liverpool City Region is broadly the same as the national average and slightly larger than the regional average. This suggests that the Liverpool City Region study area accommodates units serving both a national hinterland (both traditional NDCs plus e-commerce focused customer fulfilment centres or CFCs) and the North West regional market.
- 3.13 The table below shows the quantum of large-scale logistics floor space that has been developed at rail-served sites in the North West region.

Table 3.4 Current (2021) Rail-served Large Scale Warehousing in North West Region

	000s sq m
3MG	77
Seaforth (Port of Liverpool)	83
Knowsley	8
Trafford Park	432
Total - Rail-served	600
% regional capacity	7%

Source: MDS Transmodal warehouse database (VOA Rating List)

* Sidings alongside for conventional box wagons

- 3.14 Rail-served warehousing capacity in the North West is 0.6 million square metres, equating to around 7% of current floor space capacity. The Mersey Multi-modal Gateway (3MG) is the only recognised Strategic Rail Freight Interchange (SRFI) in the North West (and LCR area).
- 3.15 There is currently around 83,000 square metres of warehousing (across various units) within the Port of Liverpool at Seaforth. A small Knowsley facility is dedicated to the transfer of non-recyclable waste to rail wagons (for transport to an energy recovery facility in Teesside). Trafford Park is the major rail-served industrial and distribution estate in the North West region. It is served by two intermodal terminals (Freightliner Trafford Park and the Euroterminal operated by Maritime Transport), each handling trains from the major deep-sea ports. There are no further rail-served warehousing sites in the North West.

Replacement Build

- 3.16 Most newly built floor space is a replacement for existing warehouse stock which is 'life expired'. While this can refer to physical obsolescence (i.e. older buildings that become structurally unsound and require demolition), they also cover more modern buildings that have become functionally obsolete. This is particularly the case concerning the growth of e-commerce, where many older buildings cannot accommodate the equipment and facilities required for on-line sales, or the ability to handle distribution to retail outlets alongside direct to home e-commerce deliveries under the same roof. Many existing retailers have therefore commissioned more modern facilities (to service their e-commerce platforms) which have directly replace older distribution buildings. Also, new floor space has been built for emerging e-commerce only retailers, such as Amazon or ASOS, much of which has effectively replaced floor space previously operated by 'bricks and mortar' retailers which have either ceased trading or have radically downsized to address the fall in 'high street' sales.
- 3.17 A second factor is the ability, when compared with 20-30 years ago, to operate much larger distribution buildings. This has been facilitated by advances in modern ICT inventory management systems which have permitted much larger warehouses to be operated more efficiently than was

previously the case. As a result, many operators have sought economies of scale through merging operations based at multiple sites to one new location. Finally, changing market conditions, both within specific companies/sectors and in the wider economy, means that warehouse operations might need to relocate in order to remain competitive. Occupiers who previously sourced goods from domestic suppliers but now predominantly import from deep-sea markets may seek a new location at a rail-linked site in order to remain competitive.

- 3.18 A suitable example of these three issues is the on-line retailer very.co.uk (formerly Littlewoods and the Shop Direct Group). They have recently closed three older (functionally-obsolete) warehouse units in the Manchester area. The combined operations have been replaced by a modern purpose-built warehouse at the new East Midlands Gateway SRFI near Derby which can accommodate mezzanine levels and significant levels of automation. Economies of scale will be gained by merging three facilities into a single operation under one roof, and the East Midlands Gateway location was selected as it gave them direct access to an intermodal rail terminal, both as a means to reduce transport costs from the deep-sea container ports and 'future proofing' with regards to de-carbonisation.
- 3.19 Essentially, buildings reach the end of their useful economic life and are no longer suitable for their original designed use; a more modern replacement facility is therefore required. Older buildings can either be substantially refurbished for new occupiers or for a different use or demolished and the plot 'recycled' for new buildings (which may or may not be warehousing). However, a consequence of this process is that new sites need to be brought forward (or new plots at existing sites) in order to allow occupiers to re-locate to new buildings, thereby releasing the existing facility for refurbishment or demolition.
- 3.20 In order to estimate the 'replacement build' element to 2044 (i.e. floor space which will become functionally obsolete or in some cases physically obsolete), the existing stock of large-scale warehousing in the North West region and the Liverpool City Region needs to be considered.
- 3.21 On the basis that the average useful economic life of a modern warehouse building is 30 years, up to 2044 we could expect around 77% of the existing warehouse stock in the areas being considered to require replacement (i.e. $23 \text{ years}/30 \text{ years} = 77\%$). Likewise, up to 2039 we could therefore expect around 60% of the existing warehouse stock to require replacement. This can be considered the 'high replacement build' scenario. We have also considered a position where the rate of replacement begins to slow compared with historical trends, taking account of the capital values of units and potential for refurbishment rather than redevelopment. This may extend the useful life to around 40 years. This suggests that around 58% of the existing stock will require replacement up to 2044. This can be considered the 'low replacement build' scenario.

3.22 The table below shows the estimated 'replacement build' analysis under both scenarios for the North West and Liverpool City Region up to 2044.

Table 3.5 Replacement Build Analysis to 2039 and 2044

	000s sqm	
	2039	2044
High Replacement Scenario		
Liverpool City Region	1,024	1,309
North West	4,997	6,385
Low Replacement Scenario		
Liverpool City Region	768	982
North West	3,748	4,789
High		
% replacement assuming	60%	to 2039
30 years economic life	77%	to 2044
Low		
% replacement assuming	45%	to 2039
40 years economic life	58%	to 2044

Source: MDST Warehouse Database and estimated replacement rates

Growth Build

3.23 Demand for warehouse floor space is driven by the need to handle, store and re-distribute cargo. Therefore, future economic growth in the wider economy along with forecast population increases will lead to a growth in the volume of consumer goods handled. This in turn will lead to increasing demand for additional warehouse floor space. Consequently, new warehouses are constructed partly to accommodate growing traffic volumes over the long term (the 'growth build' element).

3.24 In order to estimate the growth build element two factors need to be considered, namely:

- The current (2021) volume of goods which are delivered directly to large-scale distribution centres in the North West and Liverpool City Region (i.e. only including those commodities which pass through large-scale distribution centres, so excluding bulk and semi-bulk cargoes such as aggregates and forest products); and
- Likewise, the volumes of goods that can be expected to be delivered directly to large-scale distribution centres in the North West and Liverpool City Region in 2039 and 2044.

- 3.25 Both current and forecast volumes (as described) have been produced using the MDS Transmodal GB Freight Model. This is an analytical tool which can estimate existing freight flows (by origin-destination, mode, commodity and port of entry/departure for international traffics) and generate forecasts for future years (on the same basis) under different policy and economic scenarios. It has recently been used to generate forecasts for the DfT, Network Rail, TfN and Midlands Connect.
- 3.26 In 2020, MDS Transmodal produced an updated set of rail freight demand forecasts for Network Rail¹ for the years 2023, 2033 and 2043 (to inform their long term planning process). We have therefore extracted the relevant rail and road forecast traffic volumes from the ‘central’ scenario (Scenario E) Network Rail forecasts. Values for 2039 and 2044 were interpolated from the 2033 and 2043 outputs.
- 3.27 The table below shows the total volume of cargo currently destined for the Liverpool City Region (for commodities which pass through large-scale warehouses) alongside the proportion estimated to be delivered directly to large scale distribution centres. Based on previous projects, we estimate this to be 45% of total tonnage delivered by road freight, while all inbound containerised rail traffic is assumed to be destined for a large-scale warehouse. On the same basis, projected volumes for the forecast years up to 2044 are presented. The table following shows the equivalent figures for the North West region.

Table 3.6 Forecast Traffic Growth and Additional Floorspace Required

	2039	2044
<i>Liverpool City Region</i>		
Traffic growth v 2021 (000s tonnes)	4,076	5,430
Additional floor space (000s sqm)	160	214
<i>North West</i>		
Traffic growth v 2021 (000s tonnes)	19,912	26,878
Additional floor space (000s sqm)	784	1,058

- 3.28 The forecasts take account of the growth of the Port of Liverpool, including the delivery of the Liverpool 2 terminal. The report thus takes account of the key components of the Freeport designation (whilst where relevant Freeport sites are counted within the supply-side analysis).
- 3.29 Care needs to be taken in comparing the forecasts to those presented in the 2017 SHELMA. This was based on older (2013) freight forecasts, compared to those used herein (which relate to 2020). The TfN Strategy Scenario therein additionally also assumed growth in port-centric floorspace, which

¹ <https://www.networkrail.co.uk/wp-content/uploads/2020/08/Routeing-of-rail-freight-forecasts.pdf>

hasn't substantively been brought forward, and is contingent to some degree on delivery of a new Link Road to the M57/M58 which does not have funding secured.² The Scenarios herein do not assume substantial development around the Port within the numbers included. Icenl also notes that the figures relate to different time periods (with the SHELMA adopting a 2014 baseline compared to 2021 herein) and a different geography (which previously included West Lancashire)³.

Total New-Build and Land Requirements

3.30 By combining the 'replacement build' and 'growth build' elements, the total warehouse new-build requirement can be calculated. This is shown in the tables below for the various scenarios.

Table 3.7 Forecast Strategic B8 Requirement to 2039 and 2044 – Liverpool City Region

<i>LCR</i>	000s sqm	
	2039	2044
High Replacement Scenario		
Replacement build	1,024	1,309
Growth build	160	214
Total	1,185	1,523
Land Required (ha)	296	381
Low Replacement Scenario		
Replacement build	768	982
Growth build	160	214
Total	929	1,195
Land Required (ha)	232	299

Source: MDS Transmodal GB Freight Model and Consultant estimations as described

Table 3.8 Forecast Strategic B8 Requirement to 2039 and 2044 – North West

<i>North West</i>	000s sqm	
	2039	2044
High Replacement Scenario		

² <https://nationalhighways.co.uk/our-roads/north-west/a5036-port-of-liverpool-access/>

³ The inclusion of West Lancs would increase the current floorspace by 16%

Replacement build	4,997	6,385
Growth build	784	1,058
Total	5,781	7,443
Land Required (ha)	1,445	1,861
Low Replacement Scenario		
Replacement build	3,748	4,789
Growth build	784	1,058
Total	4,531	5,846
Land Required (ha)	1,133	1,462

Source: MDS Transmodal GB Freight Model and Consultant estimations as described

NB: The North West total includes the new-build rate for Liverpool City Region

Land required: assumes floor space is 40% of total plot footprint

- 3.31 For the High Replacement scenario within the Liverpool City Region, **around 1.2 million square metres of new large-scale warehouse floor space is required to meet forecast needs 2039 and 1.5 million square metres to 2044**. We consider the relative figures to 2040, to align with the current SDS plan period, in Section 4.
- 3.32 Note the '*land required*' figure in the tables above is simply the gross area of land required to accommodate the new-build forecast assuming a 40% floorspace to plot footprint ratio; it is not the amount of new land that will need to be brought forward in plans, as no account has been made at this stage of existing consents or local plan allocations. This is considered further in Section 5. For the North West as a whole, we would expect around 7.4 million square metres of new-build floor space by 2044.
- 3.33 While 'high' and 'low' replacement forecasts have been considered above, it is the 'high replacement' scenario is perhaps more realistic. This is for three principal reasons:
1. Market evidence suggests that while many existing older buildings may be physically sound, they are increasingly becoming functionally obsolete. To a great extent, this situation is being driven by changes in the retail sector, and in particular the large growth rates for e-commerce. As noted above, many older buildings cannot accommodate the automated picking/packaging equipment required for on-line sales, or the ability to handle distribution to retail outlets alongside direct to home e-commerce deliveries under the same roof. Many existing retailers have been and are continuing to modernise their distribution facilities. A further consequence of e-commerce growth is a growing need for smaller purpose built 'cross-dock' type facilities close to urban conurbations where goods from on-line customer fulfilment centres can be transferred

directly to LGVs/MGVs for final delivery to residential properties. This requirement is effectively replacing the traditional Regional Distribution Centre (RDC) warehouse in the e-commerce sector.

2. The de-carbonising agenda is likely to drive further demand for warehouse facilities which are either directly served by the railway network (such as at 3MG or Trafford Park) or at sites close to intermodal terminals. Long distance trunk-hauls from ports and to/from more distant domestic origins/destinations can then be undertaken by (predominantly) electric powered trains (as battery electric HGVs are unlikely to have sufficient range).

3. Increasing automation within warehouses and the need for RDCs and 'cross-dock' type facilities to be equipped with fast-charging points (in order that multiple LGVs/MGVs can be re-charged while they are loaded) is driving demand for warehouse facilities which have substantially higher electric power requirements. Many older warehouses are located where the regional electricity distribution network does not have sufficient capacity, leading to demand for new buildings at locations where grid power capacity is available.

- 3.34 However set against this, the capital values of many units build from the late 1990 onwards is likely to be too high to see them demolished. We would therefore expect to see some refurbishment (rather than replacement) of stock build post 2000 or sub-division to provide smaller units. Refurbishment is most likely for units on plots of over 10 ha. These factors draw in different directions.

Traffic Forecasts – Sensitivity Analysis

- 3.35 We have also undertaken a 'sensitivity test' freight forecast. In this case, the forecast traffic volumes quoted above for 2039 and 2044 are estimated to grow by a further 15%. This is shown in the table below for the Liverpool City Region and the North West.
- 3.36 The sensitivity analysis is run to understand the effect of changes in the traffic growth volumes on the overall need for warehousing floorspace. It is indicative and aims to understand and quantify what impact a 15% uplift in traffic volumes would have on warehouse space.

Table 3.9 Sensitivity Test Traffic Forecast (Traffic Forecast + 15%) – Liverpool City Region

	000s tonnes-lifted		
Liverpool City Region	2021	2039	2044
Road			
Total	33,165	45,456	47,937
To warehouse	14,924	20,455	21,572
Rail			
Total	1,557	3,186	3,626
To warehouse	1,557	3,186	3,626
Total to warehouse	16,481	23,641	25,197
Growth v 2021		7,160	8,717

Table 3.10 Sensitivity Test Traffic Forecast (Traffic Forecast + 15%) – North West

	000s tonnes-lifted		
North West	2021	2039	2044
Road			
Total	152,672	218,899	234,073
To warehouse	68,702	98,505	105,333
Rail			
Total	3,278	7,172	8,355
To warehouse	3,278	7,172	8,355
Total to warehouse	71,981	105,677	113,688
Growth v 2021		33,696	41,707

Source: MDS Transmodal GB Freight Model plus 15% additional traffic

NB: The North West total includes the Liverpool City Region

- 3.37 On this basis, for the Liverpool City Region an additional 8.7 million tonnes can be expected to pass through large scale distribution centres in 2044 compared with 2021 (or a further 3.3 million tonnes annually over the standard traffic forecast). Likewise, the equivalent figure for the North West region is an additional 41.7 million tonnes over 2021 volumes.
- 3.38 As per above, the growth in annual traffic (compared with 2021 levels) for the sensitivity test traffic forecasts have subsequently been converted into the need for additional floor space using the same

generally accepted 'conversion factors'. The tables below show the sensitivity test forecast traffic growth alongside the additional floor space required to handle that growth.

Table 3.11 Sensitivity Test Forecast Traffic Growth and Additional Floor Space Required

	2039	2044
Liverpool City Region		
Traffic growth v 2021 (000s tonnes)	7,160	8,717
Additional floor space (000s sqm)	282	343
North West		
Traffic growth v 2021 (000s tonnes)	33,696	41,707
Additional floor space (000s sqm)	1,326	1,641

Source: MDS Transmodal GB Freight Model plus 15% and Consultant estimations as described

NB: The North West total includes the traffic and new-build rate for Liverpool City Region

- 3.39 Again, by combining the 'replacement build' and 'growth build' elements, the total warehouse new-build which can be expected for each forecast year can be calculated. This is shown in the tables below for the various scenarios.

Table 3.12 Traffic Forecast and Sensitivity Test Comparison – Liverpool City Region

	000s sqm	
LCR	2039	2044
High Replacement Scenario		
Replacement build	1,024	1,309
Growth build	282	343
Total (sq.m)	1,306	1,652
Land Required (ha)	327	413
Low Replacement Scenario		
Replacement build	768	982
Growth build	282	343
Total (sq.m)	1,050	1,325
Land Required (ha)	263	331

Source: MDS Transmodal GB Freight Model + 15% and Consultant estimations as described

Table 3.13 Traffic Forecast and Sensitivity Test Comparison – North West

	000s sqm	
<i>LCR</i>	2039	2044
<i>High Replacement Scenario</i>		
Replacement build	4,997	6,385
Growth build	1,326	1,641
Total (sq.m)	6,323	8,026
Land Required (ha)	1,581	2,007
<i>Low Replacement Scenario</i>		
Replacement build	3,748	4,789
Growth build	1,326	1,641
Total (sq.m)	5,074	6,430
Land Required (ha)	1,268	1,607

Source: MDS Transmodal GB Freight Model + 15% and Consultant estimations as described. NB: The North West total includes the new-build rate for Liverpool City Region

- 3.40 The sensitivity analysis demonstrates that the replacement build component has a greater influence on overall floorspace needs than the increase in freight flows/ growth build component.

Overall Results

- 3.41 The tables below therefore compare the standard traffic forecast outputs with those for the sensitivity test (for the High Replacement scenario). Overall, the sensitivity test only adds around 129,000 square metres to the Liverpool City Region new-build rate by 2044. This serves to highlight that **whilst e-commerce might result in some additional growth, the impact on overall development levels will be modest – as construction is driven in particular by replacement demand.**

Table 3.14 Traffic Forecast and Sensitivity Test Comparison

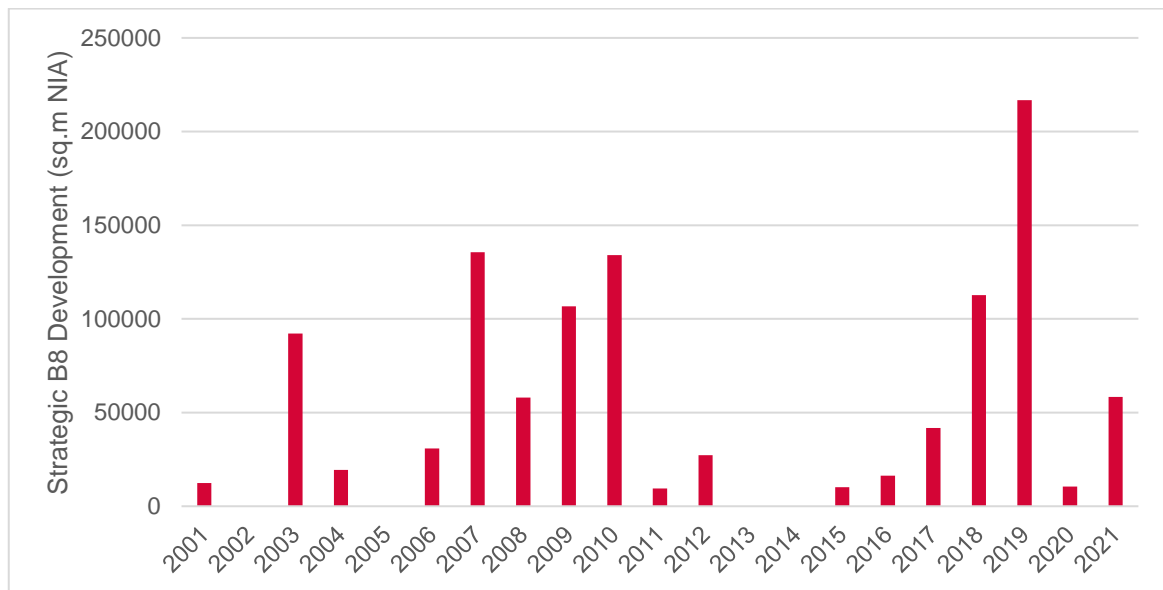
	000s sqm	
	2039	2044
<i>Liverpool City Region</i>		
High replacement	1,185	1,523
High replacement sensitivity test	1,306	1,652
<i>Difference</i>	121	129
<i>North West</i>		
High replacement	5,781	7,443
High replacement sensitivity test	6,323	8,026
<i>Difference</i>	542	584

Source: MDS Transmodal GB Freight Model and Consultant estimations as described. NB: The North West total includes the new-build rate for Liverpool City Region. Land required: assumes floor space is 40% of total plot footprint

COMPLETIONS TRENDS

- 4.1 The bespoke modelling of strategic warehouse and distribution needs undertaken using the traffic growth and replacement demand model can be compared against evidence of past development trends.
- 4.2 CoStar records existing warehousing floorspace in the Liverpool City Region and identifies the age of existing stock. From this we have sought to appraise development trends. This data has then been checked by individual LPAs against their in-house monitoring data to develop a comprehensive dataset.
- 4.3 The chart below shows take-up of large warehouse/distribution units in the LCR over time. Take-up has been influenced by the economic cycle with stronger take-up in the 2007-10 period and 2017-19 period. The evidence points to particularly strong take-up over the last 5 years, which is likely to have been influenced by growth in e-retailing.

Table 4.1 Take-Up of Strategic Warehouse/ Distribution Units in Liverpool City Region



Source: CoStar/Iceni

- 4.4 The table below project these development trends into the future and compares this to the results from the traffic growth and replacement demand model. The high replacement scenario arising from this model sit midway between the 5 yr trend (which is around a third greater than the main high replacement modelling) and the longer-term 20 year trend. We have included a 5% adjustment in converting net floorspace to gross.

4.5 The need is shown in this table to 2040 for all scenarios to align with the current plan period for the SDS. The traffic forecasting and replacement demand figures for 2040 are based on pro rata adjustments to the 2039 and 2044 modelling outputs, essentially assuming a fifth of the additional need to 2044 is required between 2039-40.

Table 4.2 Projection of Past Take-Up – Liverpool City Region

sq.m	Annual Take-Up (sq.m GIA)	Need to 2039 (18 yrs)	Need to 2044 (23 yrs)	Need to 2040 (19 years)
5 Yr (2017-21)	92,700	1,668,500	2,131,900	1,761,200
10 Yr (2012-21)	52,000	936,100	1,196,100	988,100
20 Yr (2002-21)	56,900	1,023,700	1,308,100	1,080,600
Low Replacement		929,000	1,195,000	982,200
High Replacement		1,185,000	1,523,000	1,252,600
High Replacement +15% Sensitivity		1,306,000	1,652,000	1,375,200

Source: CoStar/Iceni

HOW MUCH LAND TO PLAN FOR?

What level of replacement provision might be expected?

5. 5.1 The market evidence points to a strong market for strategic distribution in the Liverpool City Region, and a diminishing level of supply currently available on the market.
- 5.2 As the commentary in Chapter 5 explains, the growth in e-commerce is making older warehousing buildings obsolete and supporting demand for increasingly large sheds. The decarbonisation agenda is promoting locations served by rail or close to intermodal terminals and where there is electricity grid capacity available. Power requirements are also increasing. These factors would support use of the 'high replacement scenario.'
- 5.3 However set against this, the capital values of many units build from the late 1990 onwards is likely to be too high to see them demolished; and we would expect to see some refurbishment (rather than replacement) of stock build post 2000. These point more towards the 'low replacement scenario' which sees replacement over a 40 year period and thus little of the post 2000 stock assumed to be redeveloped.
- 5.4 The market signals point to an active market with strong occupier demand influenced by the growth in e-retailing together with increasing stock holding requirements. These factors have an upward effect on the scale of space needed (as explored in the sensitivity analysis).
- 5.5 It is difficult to quantify the precise impact of the inter-play between these factors. Icenl has therefore sought to use CoStar data to estimate the profile of stock by age to consider further what level of replacement / redevelopment might be expected. This is shown below.

Table 5.1 Indicative Profile by Age of Strategic B8 Stock in Liverpool City Region

	Indicative Profile of Stock by Age
Pre-1980	29%
1980-2000	23%
2000+	47%
Total	100%

- 5.6 If pre-2000 stock is replaced over the period to 2039, this would see a replacement rate of 53%. This essentially aligns with the midpoint of the High and Low Replacement Scenarios as shown in Table 3.5 (53%). **In our view it is therefore reasonable to assume a replacement rate which sits at the midpoint of the high and low replacement scenarios.** This would equate to a need for 1,117,000 sq.m of strategic B8 floorspace to 2040 (as shown below).

Table 5.2 Conclusions on Gross Need for Strategic B8 Development to 2040

	Liverpool City Region (sq.m)
Low Replacement	982,200
High Replacement	1,252,600
Average	1,117,400
Completions – 10 Yr Trend	988,100

- 5.7 The conclusions of the modelling in these terms would support completions c. 13% above 10 year completions trends. This is realistic given the growth in e-retailing and increasing stock holding requirements. Stronger relative take-up can be expected in the shorter-term, with the expectation that this is unlikely to be sustained over the full period to 2040.

Contribution of Existing Sites to meeting the Strategic B8 Need

- 5.8 The next relevant question is what contribution existing sites might make meeting the future need. IcenI considers that plots which are likely to be able to support redevelopment for strategic B8 onsite are those which:

a). Currently accommodate units of 9,000+ sq.m;

b) Have a plot area of 10ha or more. The size of larger warehousing units is increasing, and our expectation is that smaller plots may be redeveloped for other forms of employment development or other uses.

- 5.9 IcenI has undertaken a high-level review of the replacement potential for strategic warehousing across Liverpool City Region on this basis. Using CoStar we identify 25 existing large-scale warehousing units (> 9,000 sq.m) build which are on plots of over 10 ha. Of these just 4 units are of pre-2000 construction and in accessible locations, having regard to the strategic road network. **The sites of these units are expected to contribute 60 ha to the future supply. This we have termed the ‘recycling of existing sites’ in considering future supply needs.**

- 5.10 The potential for recycling of sites at a local level may be considered further, and these assumptions reviewed, as appropriate through local employment land studies over time.

Margin for Choice and Flexibility

- 5.11 As is standard practice, it is then appropriate to include a margin to support a choice of sites in a competitive market and ensure that there is some flexibility of supply to allow for some unforeseen delays in delivery without constraining the market.

- 5.12 The investment market has evidently cooled over the period since Autumn 2023, but there is evidence of continuing occupier demand. We would note that take-up in line with the 5 year trend would require delivery of almost 1.8 million sq.m which is essentially 58% greater than the core forecast (1.1 million sq.m) as set out in Table 5.2; albeit it seem unlikely that the level of take-up which this implies could be sustained year-on-year over the 19 year plan period.
- 5.13 Consideration then needs to be given to the appropriate margin. A margin is required to provide flexibility of supply to provide for a level of choice and competition in the market and to guard against site specific issues which could delay delivery on certain sites. It is necessary to ensure that the identified needs are met.
- 5.14 A 5 year margin is recommended, which is calculated by adding an additional 5 years' of provision to the identified needs. This is calculated using the identified needs to 2040 (taking the average of the low and high replacement scenarios), which is then annualised and multiplied by 5.
- 5.15 The table below calculates on this basis the amount of land which we would recommend is planned for. A sensitivity analysis is included using a 0.35 plot ratio on the basis of some evidence that plot ratios for strategic B8 development are reducing; but the specific plot ratios will vary based on site specific circumstances including necessary infrastructure provision.

Table 5.3 Recommended Land Needed for Strategic B8 to 2040 – Liverpool City Region

	Need to 2040 (19 yrs)
Need using Midpoint Replacement (sq.m)	1,117,400
5 Year Margin (sq.m)	294,000
Total Floorspace Need (sq.m)	1,411,400
Land Requirement at 0.4 plot ratio (ha)	353
Land Requirement at 0.35 plot ratio (ha)	403
Recycling of Existing Sites (ha)	60
Land Supply Needed (ha)	293-343

SUPPLY POSITION

Existing Supply

6. 6.1 The current existing supply, as set out below, is distributed across the 6 LCR authorities but focused particularly in four authorities – St Helens, Knowsley, Liverpool and Halton.

Table 6.1 Spatial Distribution of Existing Strategic B8 Supply

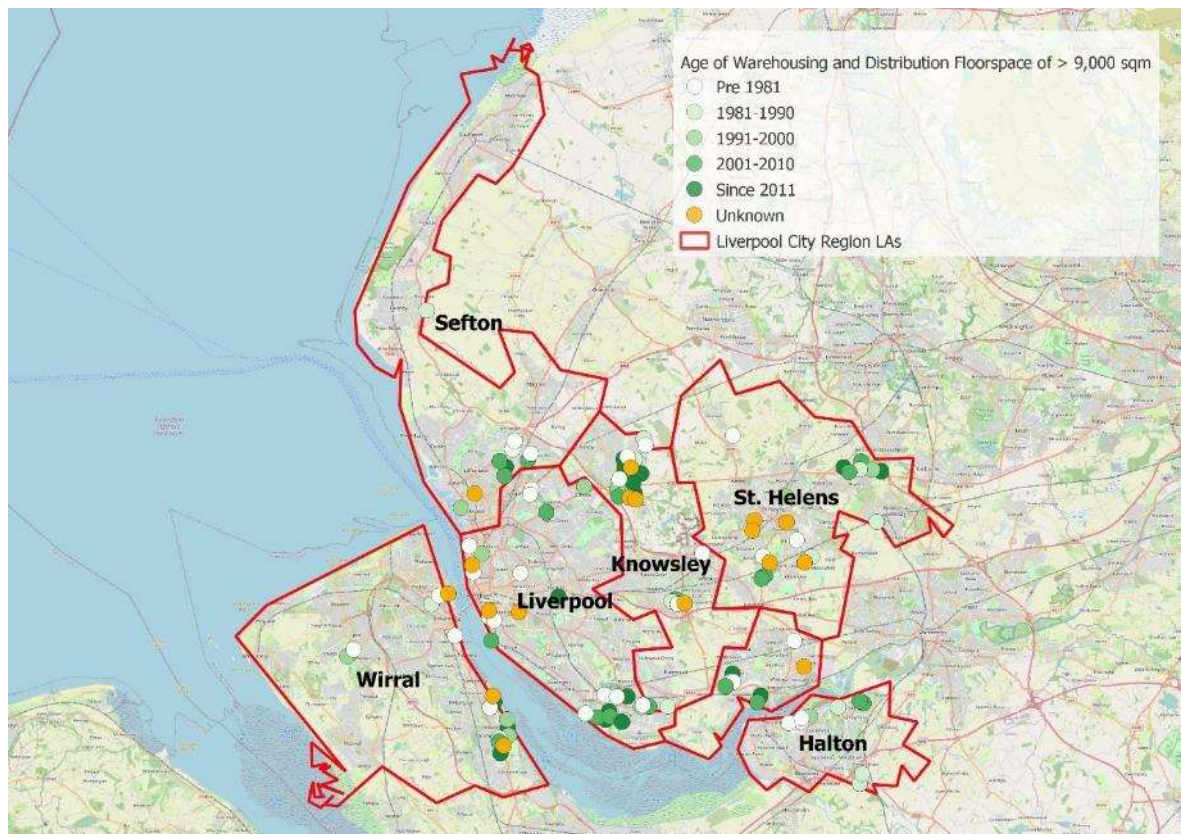
Local Authority	000s sq m	% LCR Supply
St Helens	401	23%
Knowsley	388	23%
Liverpool	387	23%
Halton	317	19%
Wirral	111	7%
Sefton	103	6%
LCR Total	1707	100%

Source: VOA/ MDST

- 6.2 IcenI has then mapped the location of existing strategic B8 units based on CoStar data. As shown in Figure 4.2 below, there are concentrations of existing units along the following corridors:

- A580 Corridor, including Stonebridge Cross, Knowsley Industrial Park, and Haydock Industrial Estate. The corridor links the Port of Liverpool to the M6 and Greater Manchester.
- A561/A562 Corridor, which links Speke/Garston (which includes its Port, the Airport and JLR car plant) to the M56 and M6. There are concentrations of supply at Speke and Widnes (including the Mersey Multimodal Gateway(3MG)).
- A557/A533/A558 Corridor in Runcorn, which includes sites along the Manchester Ship Canal and more recent development at Manor Park. There are also large units at Preston Brook on the M56.
- A565 Corridor, which runs through Liverpool and South Sefton and includes the Port of Liverpool;
- A41 Corridor through Wirral, which includes the Wirral International Business Park; and
- A570 Corridor in St Helens.

Figure 6.1: Location of Strategic B8 Units by Age

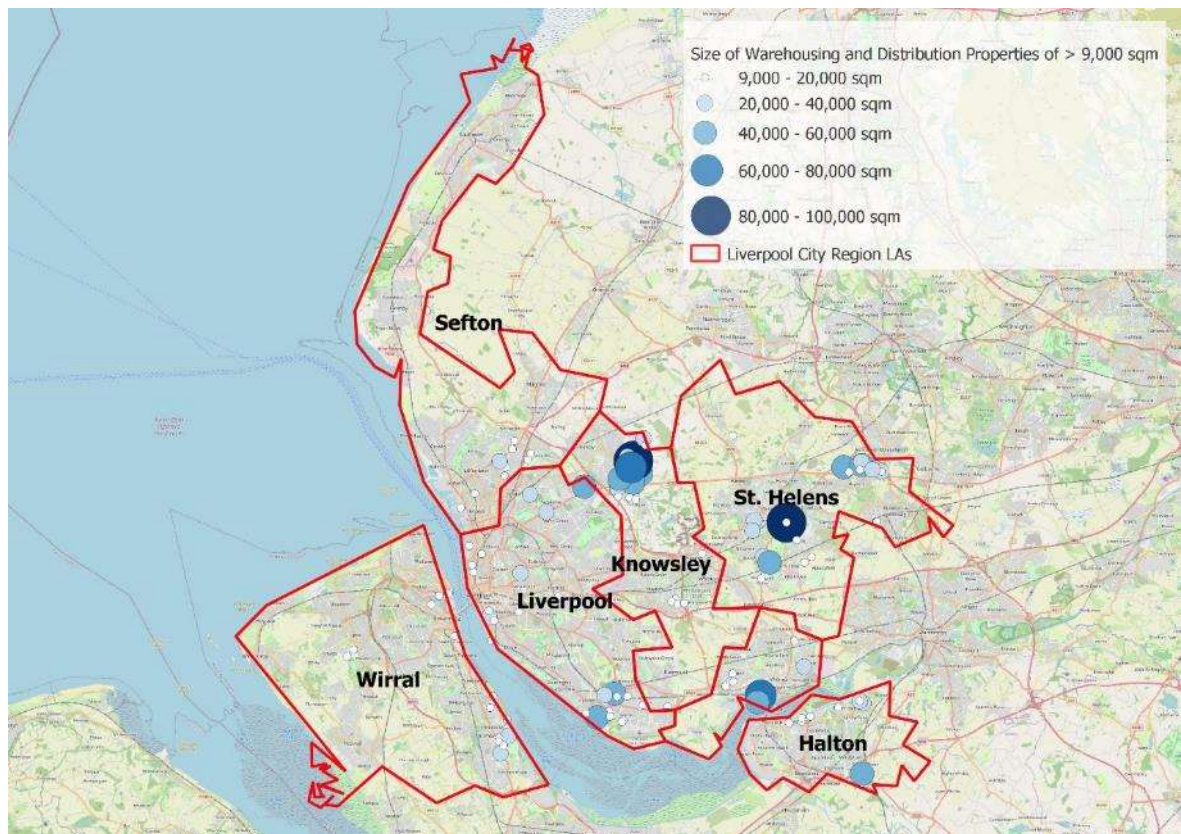


6.3 If the existing supply is segmented by size, as shown in Figure 6.2, those locations in which larger units are concentrated are:

- A580 East Lancs Road Corridor;
- M62 Corridor including a concentration of supply in St Helens (as well as the Omega site across the border into Warrington);
- Speke and Widnes/ Runcorn area which benefits from accessibility to the M62 and M56, and where accessibility has been improved by the Mersey Gateway Bridge.

6.4 These are the stronger broad locations/ corridors within the sub-region where it would be appropriate to consider bringing forward new supply, subject to consideration of other relevant issues including highways capacity, public transport accessibility, and development constraints including Green Belt.

Figure 6.2: Location of Strategic Warehousing Units by Size



Pipeline Supply

- 6.5 Set against the need for c. 1.4 million sq.ft to 2040, Icen estimate supply position from extant commitments and allocations (as at Spring 2023) of up to 1.4 million sq.m. This balances with the need identified. Given that c. 60 ha of the land could be made available over the period to 2040 through the recycling of existing sites, there is some flexibility of supply.
- 6.6 It seems likely that the delivery of Parkside East will need to be brought forward through securing Development Consent for the site as a Nationally-Significant Infrastructure Project (NSIP). The current expectation is that the DCO could be determined in 2024, which is granted would enable development to come on stream from 2026 but the build out could extend to 2045. There are however evident uncertainties. If Parkside East is excluded, the supply position falls to c. 1m sq.m. We have assumed c. 74% of this site is delivered to 2040. Making this adjustment, the supply position to 2040 is 1.31 million sq.m.
- 6.7 Our assumptions on pipeline supply above do not take account of Omega South. This site has the potential to accommodate up to 70 ha of development. St Helens Local Plan outlines that 31.2 ha of land at the site is allocated to meet Warrington's needs; however planning permission has been granted for a significantly greater development of 75 ha that lies within St Helens and it is therefore assumed that this site contributes c. 118,000 sqm to the LCR supply (44ha). Taking account of both

this and the Parkside adjustment would point towards an identified supply capable of accommodating 1.42 million sq.m of space to 2040.

6.8 In terms of land, the potential supply if all sites are included is around 450 ha from the identified sites with a potential contribution of 60 ha from recycling of existing land. The total potential supply is thus of c. 510 ha. This quantitatively exceeds the potential need to 2040 shown in Table 5.3, but if more detailed consideration is given:

- This is reliant on c. 60 ha of need being met through the recycling of existing land through redevelopment to provide strategic B8 floorspace;
- It assumes that all sites which have the potential to provide strategic B8 floorspace are delivered on this basis. In reality some of the sites have open consent for a range of B-class uses and could well be built out for smaller units.

6.9 Icenis's view is that a 20% discount on the supply position should be applied on the basis that of the potential sites that could accommodate strategic B8 development, a fifth might be developed for a manufacturing use and/or smaller B8 or other types of employment uses. This assumption is consistent with that made in the 2019 GL Hearn Areas of Search Assessment.

6.10 It particular takes into account that many sites are allocated and/or have consent for a range of different employment uses, and not just strategic B8, and therefore parts of the land supply identified in reality may come forward for industrial development and/or smaller-sized units. This would result in a supply position of around 359 ha based on the current analysis, with the potential for 60 ha of the need to be met through recycling of existing sites providing an indicative supply total of 419 ha. This supply position is in excess of that required to meet the need identified to 2040 (353-403ha)-.

6.11 There does not therefore appear to be a need to identify further land at the current time for strategic B8 development; although this is dependent on the granting of development consent at Parkside East and will need to be kept under review over time in line with a 'plan, monitor and manage' approach.

APPROPRIATE LOCATIONS FOR NEW WAREHOUSING

7.1 The report *Better Delivery: the Challenge for Freight*⁴ identifies three main drivers of change in the domestic logistics market:

7.

- The growth of e-commerce – which post pandemic now accounts for 26%+ of overall retail sales, and the report identifies could reach 65% by 2050.
- Zero emissions road and rail freight vehicles – a need to decarbonise to meet climate change goals, with road and rail freight making up 27% of UK greenhouse gas emissions and impacting on air quality. Modal shift to rail or water can help to address this, but not all origins/ destinations of goods are accessible by these mains. Decarbonising HGVs is more challenging than for LGVs with technology developing but options potentially including e-highways, battery electric vehicles (BEVs) or use of hydrogen fuel cells (which are likely to have a greater range than BEVs). The greater use of electricity means locations will need to have sufficient grid capacity to support these transitions with loading docks and HGV parking having capacity for fast charging or access to the gas pipeline network.
- Disruptive new technologies – which include new models for ‘last mile’ delivery in urban areas including urban consolidation centres, and re-timing deliveries to retail outlets at night.

7.2 The National Planning Statement for National Networks sets out Government’s policies regarding Strategic Rail Freight Interchanges. It supports modal shift to Strategic Rail Freight Interchanges (SRFIs) on the grounds of sustainability and economics, and promotes a national network of SRFIs, but recognises that most freight will likely continue to be moved by road. SRFIs are intended to be capable of handling a minimum of four 775m trains per day and be located on a suitable loading gauge profile.

7.3 Within the Liverpool City Region, there is an existing SFRI at 3MG and potential for the delivery of a further facility at Parkside in Newton-le-Willows. There is also a rail terminal at the Port of Liverpool. In addition there is potential for a port-based scheme at Port Warrington (which falls just outside of the City Region) which includes a rail terminal and would be capable of taking barged traffic from the Port at Seaforth. Assuming these schemes are brought forward, there is likely to be no further specific need for additional rail-focused logistics supply to 2040, but this should continue to be monitored.

7.4 However, locating new warehousing and logistics space in locations close to and accessible from the existing and emerging SRFI sites (as satellite sites) will help to support the potential for growth

⁴ <https://nic.org.uk/app/uploads/Better-Delivery-April-2019.pdf>

in freight movement by rail. With the end of red diesel exemptions in April 2022 the benefits of co-location of warehousing and rail terminals (on the same sites) is reducing.

7.5 Having regard to the above, key locations considerations for strategic B8 development, if additional development needs are in due course identified, are:

- **High Accessibility:** There is a general preference for logistics activity to be located equidistant between any given goods production and their final destination/consumers and market. Sites near to the strategic road network, in particular motorways and key junctions, as well as proximity to rail freight facilities, are considered the ideal location for distribution activity.

In addition, good strategic links decrease the transport costs and allow large freight amounts to reach their market in optimal times while heavy loaded HGVs require good road conditions to operate to optimum functionality. Thus transport access and local congestion factors are important.

To facilitate rail freight, there are benefits from sites being well located with respect to rail terminals (optimally within 2-3km distance).

- **Site Context:** A modern logistics site should have an optimal layout ideally square or rectangular that allows cubic capacity and consequently the free flow of operations. The site should have a relatively flat topography as changes in the level might lead to inefficiency which increases production costs. Good drainage and subsoil conditions are also preferable, with good load-bearing qualities and surface water run-off.

The best sites will be capable of offering plots of 10 ha or more with well-designed modern layouts which facilitate HGV movements. They should be separated from residential areas to enable 24 hour operation.

- **Distribution Clusters:** Logistics companies benefit more by locating near each other rather than operating in isolated locations (agglomeration economies). In particular clusters of logistics or distribution centres: encourage co-operation that can consequently reduce supply chain costs; allow the exchange of knowledge, technology, and services; encourage innovation derived from the synergies among the cluster's occupiers; maintain and retain good conditions in the local infrastructure; provide access to the specialised workforce.
- **Labour Supply:** An adequate supply of a suitable workforce is also an important factor in the choice of location. The requirements are changing while technology is evolving, and higher-skilled labour is more than ever occupied in the logistics sector.

Locations which are close to larger urban areas with a large pool of labour are therefore attractive, but equally there are benefits from locating facilities in areas where there is a pool of latent available labour which can be drawn on.

- 7.6 The analysis points to the particular locations within the City Region as suitable for these uses: the A580 East Lancs Road Corridor; the M62 Corridor; together with Speke and Halton which benefit from accessibility to the M62 and M56. If additional needs are identified in due course through the SDS or individual local plan processes, consideration in our view should be given to the extension of existing sites, and to maintaining a supply position across these areas, including in locations which are proximate to the existing/proposed SRFIs.

A1. CURRENT WAREHOUSE FLOORSPACE

Table A1.1 Current (2021) Large-Scale Warehouse Floor Space North West Region by billing Authority

Local Authority	000s sq m	Number Units
Oldham	665	32
Rochdale	650	31
Warrington	572	25
Cheshire East	525	26
Trafford	452	24
Cheshire West/Chester	423	16
Bolton	405	19
St Helens	401	16
Knowsley	388	17
Liverpool	387	18
Wigan	367	16
Halton	317	15
West Lancashire	278	13
Burnley	261	10
Salford	183	12
South Ribble	181	11
Blackburn/Darwen	181	12
Manchester	159	8
Carlisle	143	10
Preston	127	8
Hyndburn	126	8
Chorley	126	7
Bury	117	7
Allerdale	115	5
Wirral	111	9
Sefton	103	7
Stockport	100	8
Tameside	88	5
Pendle	73	5
Barrow-In-Furness	67	2
South Lakeland	57	4
Rossendale	55	4
Blackpool	42	3
Wyre	27	1
Ribble Valley	23	2
Eden	13	1
Fylde	9	1
Lancaster	9	1
Total	8,328	419