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Nottinghamshire Core & Outer HMA Logistics Study

Final Report

Iceni Projects Limited with MDST
Transmodal Limited on behalf of
Nottinghamshire County Council
August 2022

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WITH MDST TRANSMODAL
LIMITED ON BEHALF OF
NOTTINGHAMSHIRE
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1. INTRODUCTION

1.1 This study has been commissioned by Nottinghamshire County Council on behalf of the authorities comprising the Nottinghamshire Core and Outer Housing Market Area (HMA) being Broxtowe, Rushcliffe, Nottingham City, Gedling, Erewash, (Core) plus Newark & Sherwood, Ashfield and Mansfield (Outer) HMA (the Study Area).

1.2 The purpose of this study is to understand the future demand for strategic warehousing and logistics facilities within the Study Area. The objectives of the brief are:

- To confirm the baseline strategic distribution stock position and current role of logistics floor-space
- To identify how the role of the logistics sector may change
- To assess the impact / influence of the East Midlands Freeport on future demand in the area
- Forecast future need, demand and growth in the strategic distribution/ logistics sector in the Study Area to 2040
- Recommend a sound approach to sustainably plan for and manage logistics growth over the period to 2040
- Identify barriers to and opportunities for growth, which enable planning for freight optimisation and;
- Develop approaches to ensure maximum benefits from sector growth are derived locally.

1.3 The study is made up of the following sections:

- 2: Review of relevant evidence and literature, including notably logistic studies for Leicestershire and Bassetlaw, as well as general property market reports

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- 3. Property market review covering key indicators for logistics relevant to the national, East Midlands, Nottinghamshire and Study Area position
 - 4: Drivers for change discussion reflecting on the key issues facing the logistics sector
 - 5: Future land supply assessment within the study area and adjoining locations
 - 6: Estimates for future strategic warehousing need – model: unit replacement demand and traffic growth
 - 7: Estimates for future strategic warehousing need – models using labour demand and historic completions trends
 - 8: Estimates for future strategic warehousing need – modelling techniques drawing on market signals
 - 9: Future warehouse floorspace growth scenarios: summary of modelled scenarios and implications for need derived from the supply / demand balance
 - 10: Areas of opportunity (spatial) for future development of logistics units
 - 11: Discussion on labour markets and travel to work for major logistics parks
 - 12: Review of skills in terms of current logistics workforce composition and future requirements
 - 13: Proposals for managing and monitoring logistics development
 - 13: Conclusions

1.4 It is important to note at the outset that this study has been undertaken from a 'policy off' perspective. This means that constraints most notably in terms of the Green Belt have not been considered in the ability of the area to accommodate future logistic requirements. It will be for individual planning authorities to consider the role of the Green Belt and the accommodation of future needs.

1.5 Furthermore the study has not involved modelling capacity of the road network or individual junctions and there may be capacity constraints that need to be considered in terms of any potential areas of future development identified.

2. RELEVANT EVIDENCE AND LITERATURE

- 2.1 A limited and focused review of policy, evidence and literature is considered below. This is focused on the most recent studies and market literature in relation to the logistics sector.

National Planning Policy Framework (NPPF) 2021

- 2.2 The National Planning Policy Framework sets out the Government's planning policies for England and how these should be applied. It provides a framework within which locally-prepared plans for housing and other development can be produced.
- 2.3 Chapter 6 it states that "planning policies and decisions should recognise and address the specific locational requirements of different sectors. This includes making provision for clusters or networks of knowledge and data-driven, creative or high technology industries; and for storage and distribution operations at a variety of scales and in suitably accessible locations."

Planning Practice Guidance – Housing and Economic Needs Assessment

- 2.4 This document provides guidance on how the economic needs of local authorities should be assessed and is structured as questions and answers.
- 2.5 *How can market signals be used to forecast future need?* It is stated that researchers will need to "use a range of data which is current and robust such as"; sectoral and employment forecasts; local labour supply forecasts; past-take up of employment land and property and/or future property market requirements; consultation with stakeholders; and studies of business trends and changing business models. *How can authorities assess need and allocate space for logistics?* The guidance notes that the scale of land required for logistics need to be considered separately from the general industrial needs which can be informed by: engagement with logistics developers and occupiers to understand the changing nature of requirements; analysis of market signals including trends in take up and availability of logistics land and floorspace; analysis of economic

forecasts; and engagement with Local Enterprise Partnerships and review of their plans and strategies.

Future of Freight: a long-term plan 2022 (DfT)

2.6 This Future of Freight Plan is government and the sector's joint response to the challenges facing the freight and logistics sector. The priority areas and actions include:

- **A National Freight Network** Challenge: Lack of visibility and understanding of the freight network as a cross-modal system... **Goal:** Government and industry collaboration securing a system-level approach to the freight network supporting end-to-end freight journeys that are more efficient, reliable and resilient. Full consideration of the role of freight in strategic infrastructure investment and planning.
- **Transition to Net Zero** Challenge: A cleaner, greener freight system will deliver opportunities, including cutting emissions and supporting high quality green jobs. The freight and logistics sector has opportunities to lead the world in developing and rolling out zero emission solutions for freight, gaining global first mover advantages in some of the most challenging areas
- **Planning** Challenge: A disconnect exists between industry, that is not equipped to properly engage with planning processes, and local planning authorities, that are unable to understand the needs of a changing and innovative freight and logistics sector. This leads to increased complexity, cost and time for promoters bringing forward schemes that are in the national interest. **Goal:** A planning system which fully recognises the needs of the freight and logistics sector now and in the future and empowers the relevant planning authority to plan for those needs. **Actions:** Government and industry will deliver this by: Collaborating to support a programme of engagement with local planning authorities; Reviewing and amending Planning Practice Guidance; Publishing a freight specific call for evidence to understand what is working well and what requires improvement in planning; Engaging with a consultation on updated guidance for Local Transport Plans; Engaging with the review of National Networks National Policy Statement; and Engaging with the

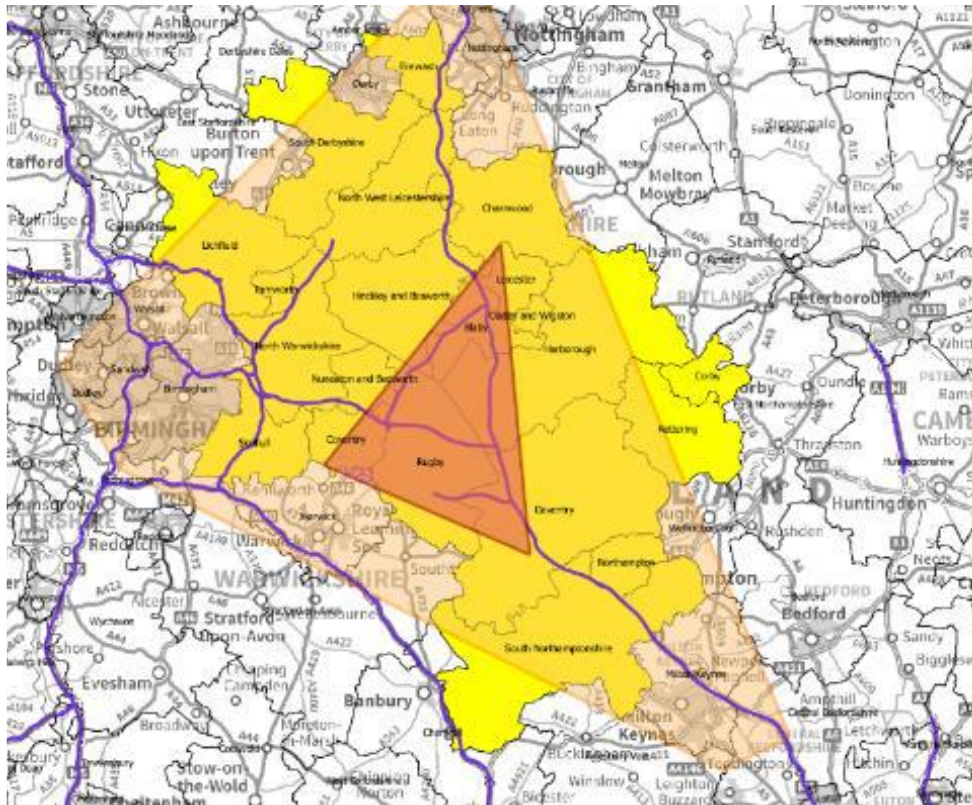
Department for Levelling Up, Housing and Communities programme of changes to the planning system.

- **People & Skills** Challenge: Immediate and future skills shortages across the sector could undermine resilience of UK supply chains. There is a need to: Produce a pipeline of talent across the freight sector by improving the training and employment options; addressing awareness and negative perceptions of the industry; and promote the availability of attractive, fulfilling jobs at all levels of the industry. **Goal:** The freight and logistics sector is seen as an industry of choice for talented, diverse, and skilled people at all stages of their career, so that the sector can meet the demand for the distribution of goods to, from and in the UK. **Actions:** Collaborating to deliver a programme of employer engagement and reforming the Freight and Logistics training offers to encourage transferable qualifications.
- **Data & Technology** Challenge: There is limited awareness in the sector of innovative solutions coming to market, and of the sector's needs amongst innovators. **Goal:** Greater awareness of the sector amongst innovators and greater sector awareness of **innovations**. Accelerating the adoption of currently available solutions within the sector and developing the future pipeline in line with real-world needs.

Warehousing and Logistics in Leicester and Leicestershire: Managing growth and change 2021

- 2.7 This study looks at the 2020-41 need for large scale logistics across Leicester and Leicestershire. The study builds on previous iterations of the work dating back to 2014. The assertion is that Leicestershire is the core logistics market or 'Golden Triangle', the area for which is replicated and depicted below. Large logistics parks such as Magna Park, Lutterworth and DIRFT, Rugby lie in the inner triangle (orange). The wider triangle covers part of the Study Area for the Nottinghamshire Core and Outer HMA as it follows the M1 corridor up through Erewash, Rushcliffe, Nottingham and beyond.

Table 2.1 Wider 'Golden Triangle'



Source: Warehousing and Logistics in Leicester and Leicestershire: Managing growth and change 2021 (derived from Leicester and Leicestershire Logistics and Distribution Study 2017)

- 2.8 The principal modelling techniques in the 2021 report used to forecast space for large scale logistics to 2041 are past completions trends (2011-2020) and a traffic growth with replacement demand model, alongside a margin of 5yrs completions. North West Leicestershire notably drives the completions trend reflecting units at East Midlands Gateway and Distribution Centre. These models demonstrate a good level of alignment in terms of providing recommendations for long term needs which amount to 2.6m sqm, derived of 1.1m sqm of rail served sites and 1.5m sqm of road served sites. A map of Key Areas of Opportunity is provided indicating general areas of development potential.
- 2.9 The report identifies the most central drivers for change in the sector as decarbonisation and e-commerce. In terms of labour and skills, the study indicates there is likely to be a shift away from the focus on warehouse floor staff (50% of sector employment) to around 30% in the future. This is expected to be paralleled

by a rise in office and technical skills, with the ability to manage and service robotics and support back office e-commerce functions.

A1 Corridor Logistics Assessment: Bassetlaw Council

- 2.10 This study for Bassetlaw Council provides a high level assessment of the large scale logistics market on the A1 corridor in Bassetlaw and the wider property market area. This is defined as running from the M18 at Thorne in Doncaster down to J25 of the M1 at Erewash and taking in Chesterfield to the west and Newark in the east. The study is principally used to support the emerging Bassetlaw Local Plan.
- 2.11 The study uses a gross absorption (leases taken up) and deliveries model to assess future requirements. Secondary literature is used to identify levels of supply for large units (over 2.4 ha). For the Study Area supply is estimated as 5.2m sqft or 121 ha as of June 2021.
- 2.12 The study argues that there are 8-11 years of supply which is insufficient to meet Local Plan requirements looking forwards 15 years.
- 2.13 The study asserts that the A1 is a secondary market to the M1, however a range of factors including lack of land supply, rising prices and congestion have forced operators and developers to consider a wider area of search beyond the M1 in delivering large logistics units.

Nottingham Core HMA and Nottingham Outer HMA Employment Land Needs Study 2021

- 2.14 This Employment Land Needs Study (ELNS) considers future employment land needs within the Nottingham Core and Outer HMA. It uses employment forecasts and past completions trends to consider future needs and analyses existing supply. Regarding large scale logistics requirements the following extracts are useful and are therefore provided in full.

P225 ...stakeholders commented that economic growth across Greater Nottingham has been limited by lack of available large-scale strategic distribution

sites over the past decade and that studies forecasting need based purely on past trends will significantly underestimate the scale of demand.

Agents were confident that there is capacity in the market for a further one, or even two, very large regional distribution centres near to these key M1 junctions and that at current levels of demand, two such schemes, if made available, would be at capacity within a decade.

P226-7 ...agents were keen to stress the sheer scale of demand that exists within the market from a range of potential occupiers, from national scale to final mile distribution facilities. The M1 corridor along the western arc of Nottingham was identified as the primary area of demand, with distribution floorspace located around any junction from J28 in Ashfield running south to J24, highlighted as a key market ask from potential occupiers. To illustrate the scale of latent demand, one agent predicted that a further two developments on the scale of the East Midlands Gateway located at any major M1 junction within Greater Nottinghamshire may not be enough to satiate demand over the next decade. To underline the urgency, it was emphasised that the requirement is now and if not fulfilled, may go elsewhere.

Locations such as business parks closer to urban areas with good access to the M1 were identified as secondary potential locations for development, as skills availability becomes an increasingly important factor for occupiers due to the rapidly changing labour requirements within the industry. Demand for distribution floorspace along the A1 corridor is more subdued, although demand still exists here for smaller final-mile distribution units of which there remains a lack of supply.

Property agents highlighted that whilst the nature of this demand has certainly been accelerated by recent market conditions, opportunities have been missed within Greater Nottingham due to a lack of available employment sites over at least the past decade. In this regard it was considered that projecting forward past

trends would not adequately capture the need for sites that presently exists within the market.

Large scale distribution demand was said to be split between national distribution centres ranging from 500,000 sq ft up to a million sq ft and smaller regional and last-mile distribution units in the range of 200,000 sq ft or less. The preferred approach from both developers and occupiers is to expand such industrial parks at key transport intersections wherever possible to avoid overloading the road network in urban locations and to allow for business expansion without locating away from existing workforces. To cater for the larger-scale side of the market, developers would like to see larger units of 1 million sq ft+ that have flexibility to be divided into smaller units, although there is awareness of the challenges this presents to councils in allocating such large sites in constrained areas.

BPF Delivering the Goods 2020

- 2.15 The British Property Federation (BPF) published 'Delivering the goods in 2020' sets out the economic impact of UK Logistics Sector. In terms of the recent economic growth within the logistics sector, it contributes and supports businesses, employment and causes an increase in economic productivity.
- 2.16 In 2019, the logistics sector directly supported a minimum of 93,000 business in the UK. In comparison to 2014, the number of businesses within the logistics sector grew by 66%. The logistics sector supported a minimum of 960,000 employees in 2019 in the UK, which has increased from 748,000 in 2013, a growth of 23%. Logistics employment growth was due to the large growth in warehouses, which provided an additional of 87,000 employees (40%) in warehouse operations, and road freight contributed to 74,000 employees (42%) with the rest of employment contributing to 18% in the logistics sector.
- 2.17 From 2019-2039, the employment in the logistics sector is forecast to experience growth of 19%, which shows that it is "more than double the national growth rate for all sectors (7%)" (BPF, 2020, p.5). Therefore, the logistics sector is "expected to be a driver of national employment growth" (BPF, 2020, p.5).
- 2.18 Moreover, in terms of 'Technology': "Logistics companies are increasingly hiring technical staff or up-skilling existing staff in IT skills to adapt to this change in

operational approach.” (BPF, 2020, p.6). “New service-orientated logistics companies are entering the market... to respond to changing requirements through application of digital technology.” (BPF, 2020, p.6).

The Increased Importance of Logistics During Covid-19 and Beyond (2020)

- 2.19 Tritax Symmetry and Turley prepared this report which highlights how Covid has changed the role of logistics. The report notes that the year 2020 has seen logistics operations move into the spotlight, driven by Covid-19 and the national lockdown which necessitated a shift in the way goods are stored and moved around the country, particularly in reaching their final destination – the consumer.
- 2.20 Ten years of forecast e-commerce growth occurred in the first month of the national lockdown in 2020, reflecting the pace of change in consumer spending patterns, which in turn influence warehouse floorspace demand.
- 2.21 Between February 2020 (pre-pandemic) and October 2020, on-line sales values grew from 19.6% of retail sales value to 28.5%. The logistics sector was quick to respond, with national take up of warehouse space over Q1 – Q3 of 2020 at a record high of 38.6 million sqft. This exceeds average annual take-up of new space of 31.9 million sqft over the last five years.
- 2.22 Retail in this period was driving take up, accounting for a third of transactions due to strong e-commerce growth, with other occupier sectors that have experienced

increased demand during the pandemic (such as 3PLs, parcel carriers and food producers) also contributing significantly to leasing activity.

2.23 The report argues “that the planning system needs to support the continued delivery of space to enable logistics to effectively function as demand for space continues to grow.”

Levelling Up - The Logic of Logistics 2022 (BPF / Savills)

2.24 The aim of the report is to evidence the importance of the industrial and logistics (I&L) sector to the UK in terms of it being an ‘Economic Powerhouse’ but also in terms of its ‘Growing Social Value Credentials’ and contribution to ‘A Green Recovery...’.

2.25 Key messages include:

- I&L facilities are Critical National Infrastructure. The sector is subject to continuing misconceptions about average pay and skill levels
- The sector is a significant employer of at least 3.8 million people. The true number of jobs is likely much higher as this only relates to ‘manufacturing, transportation and storage’ activities. An example of the wider economic impacts of I&L supply chains is Amazon. In addition to the 55,000 staff it employs directly in the UK, the company is reported to have created 175,000 jobs via the 65,000 plus small and medium-sized enterprises (SMEs) who are selling professionally through Amazon
- The sector is highly productive with Gross Value Added (GVA) per job currently at £58,000, some 12% higher than the average of all sectors. Its productivity is also predicted to grow at a faster pace, increasing by 29% between 2025 to 2039 compared to 18% across the UK economy as a whole. Average pay is higher than the UK average. Data from the Office for National Statistics (ONS) show annual wages above average at +£4,900 for Logistics.
- While other sectors have contracted during the Covid pandemic the I&L sector has continued to expand.
- The report asserts that the UK planning system is restricting growth in the I&L sector by not allocating enough land in the right locations ...the historic lack of

supply has restricted ('suppressed') demand by 29% nationally which should be provided for in the future. Future demand estimates should also consider housing, e-commerce and freight growth

- The report also considers the contribution of I&L to carbon emissions in operational and construction / embodied terms.

3. PROPERTY MARKET REVIEW

- 3.1 This chapter provides an assessment of the logistics & warehousing market in the East Midlands, Nottinghamshire and the Study Area. It has been undertaken using a variety of sources including take up and availability data from the CoStar commercial property database, alongside assessment of Valuation Office Agency (VOA) data and a review of the latest local commercial property market literature and stakeholder/property agent consultation.

East Midlands

- 3.2 Based on analysis from the Knight Frank's 2021 mid-year review¹, *occupier appetite for space in the Midlands market remains extremely robust (with take up almost 75% higher than the same period in 2020). The effects of the pandemic on consumer habits have propelled the Midlands logistics & industrial market toward new heights with a record-breaking year.*
- 3.3 *Availability is reaching critical levels of shortage, and the current pipeline of speculative development only goes some way in plugging the gap. Occupier demand is intense with fierce competition to secure buildings leading to informal tender bidding on leasehold opportunities. It's no exaggeration to say that almost every 'big box' in the market whether existing or under construction has several parties seriously interested.*
- 3.4 *Rents are continuing on an upward trajectory, and yields are hardening further. As a direct result land pricing is hitting record levels, significantly in excess of previous highs at the top of the last cycle, with gross pricing in the best locations of circa £1.5m per acre plus.*

¹ Midlands Logistics & Industrial Insight Report. Available at:

<https://content.knightfrank.com/research/489/documents/en/logic-midlands-2021-mid-year-review-8296.pdf>

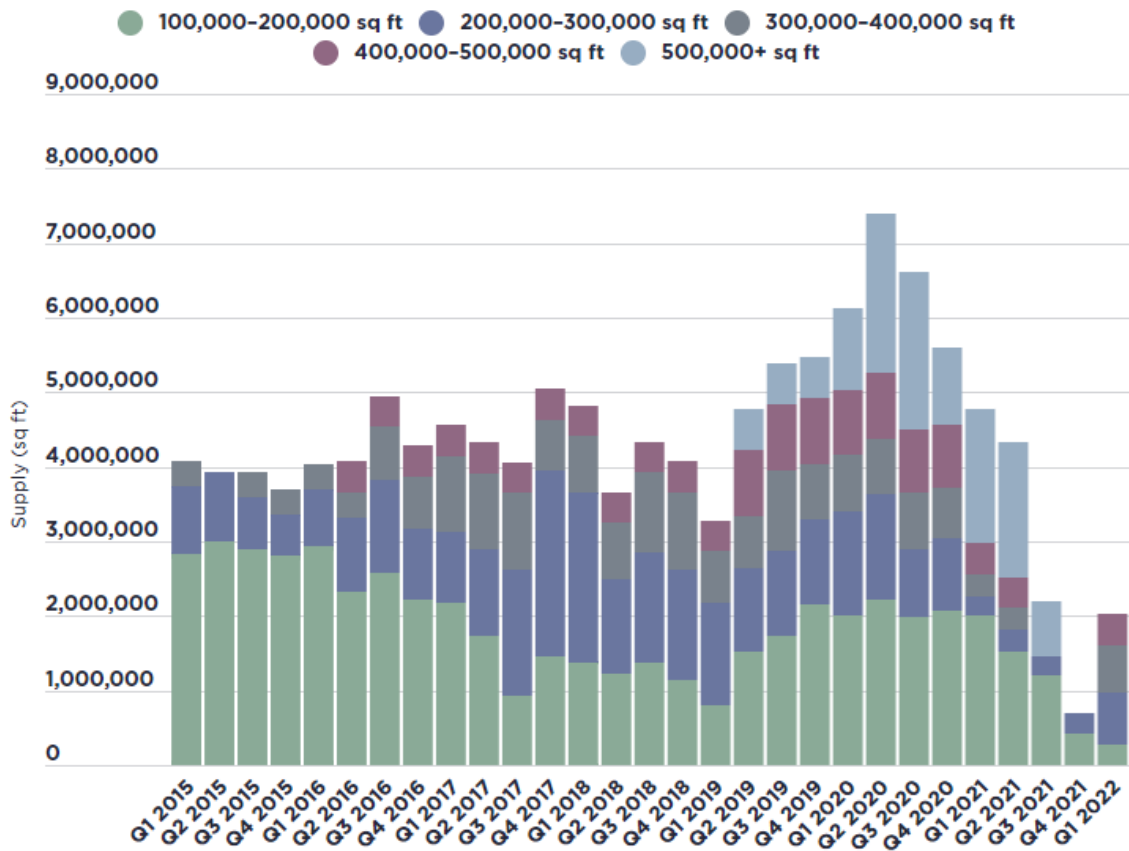
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- 3.5 In addition, Savills report² that at January 2022 *there are just eight (available) units over 100,000 sq ft in the East Midlands totalling 2.m sq ft which equates to a vacancy rate of just 1.69% or 0.19years' worth of supply. Savills is aware at least two of the eight units are currently under offer which is set to reduce the available supply even further.*
- 3.6 *By unit count, 25% of the available supply is within the 100,000–200,000 sq ft size band, 38% is within the 200,000-300,000 sq ft size band, 25% within the 300,000–400,000 sq ft size band and 12% within the 400,000–500,000 sq ft size band.*
- 3.7 *Due to the strong occupier demand for units in the area, along with rising rents for Grade A³ stock; the majority of lower quality second-hand space has now been let. Pairing this with multiple speculative developments reaching practical completion, 100% of the available space is now Grade A. This is set to push rents higher and higher as each lease is setting market records.*

² The logistics market in the East Midlands. Available at:

https://www.savills.co.uk/research_articles/229130/323892-0

³ See glossary for Grade A B C definitions

Table 3.1 East Midlands supply for units 100,000+ sqft, 2015-2022

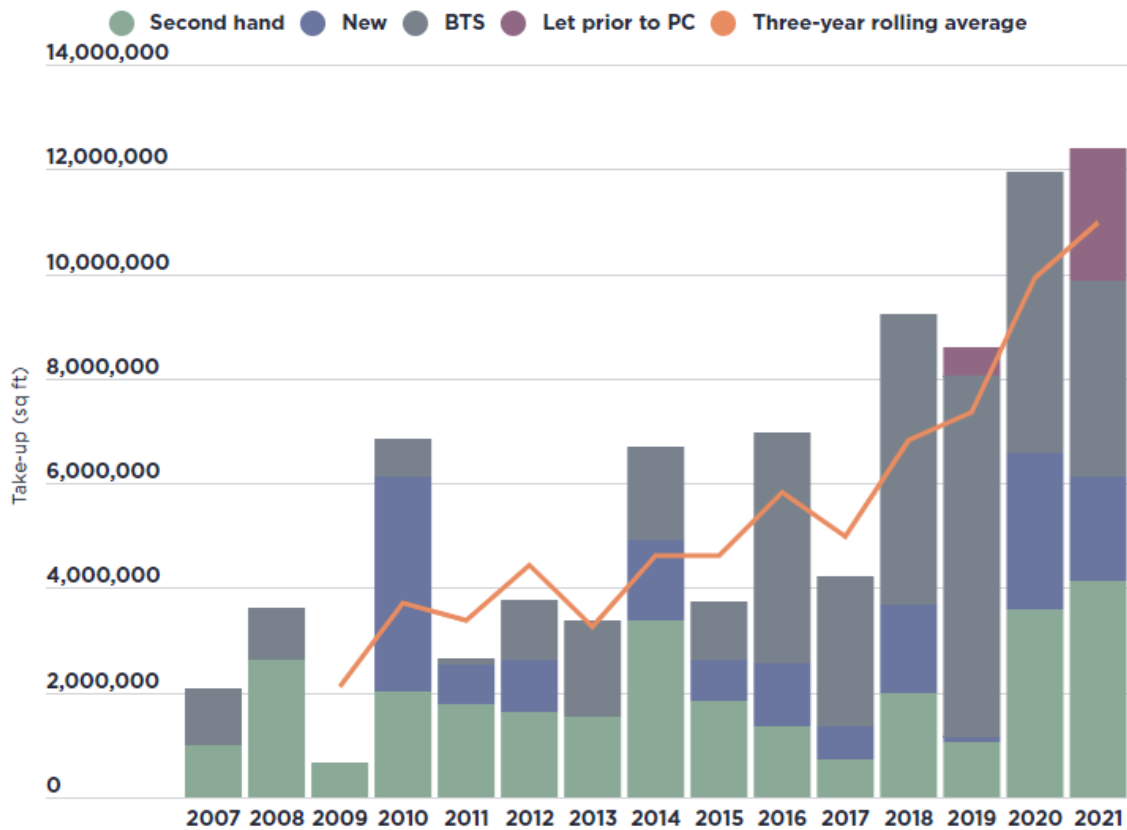


Source: Savills Research

- 3.8 *Occupier preference continues to revolve around better quality units. In 2021, 87% of space transacted has been Grade A, 11% has been Grade B, and 2% has been Grade C. In terms of specification, 33% of space has been second-hand space, 30% has been built-to-suit space, and 37% has been speculatively developed space.*
- 3.9 *In terms of deal count, 41% have been within the 100,000–200,000 sq ft size band, 30% within the 200,000–300,000 sq ft size band, 9% in the 300,000–400,000 sq ft size band and the 400,000–500,000 sq ft size band and 11% over 500,000 sq ft.*
- 3.10 *Savills continued to see an uptick in requirements for larger units in 2021 which should mean the average size deal continues to increase from its current level of c.270,000 sq ft.*

3.11 Transactional activity has stemmed from a diverse range of occupiers in 2021; 3PLs (third party logistics providers) have accounted for 39% of take-up, online retailers accounted for 30%, with the remaining spread across a diverse range of occupiers.

Table 3.2 East Midlands take-up, 2007-2021



Source: Savills Research

Nottinghamshire

3.12 Nottinghamshire⁴ (as per CoStar's boundaries, see figure below) is one of the smaller industrial markets in the East Midlands by size of industrial inventory, with around 68 million sqft of stock overall (all unit sizes), but it has been growing

⁴ Erewash sits outside Nottinghamshire but forms part of the HMA Study Area – whilst Bassetlaw does not form part of the study area. Erewash is covered as part of the Study Area market review that follows.

rapidly in the last couple of years, with increased occupier demand and an increase in construction activity, particularly in distribution and logistics.

- 3.13 The market is home to numerous major occupiers from a range of sectors, with online giants Amazon occupying over 1.5 million sqft, locally based retailer Wilko in 1.3 million sqft and the likes of B&Q, Rolls Royce, Eddie Stobart and DHL also occupying large industrial spaces in Nottinghamshire (including Bassetlaw).

Table 3.3 Area used for the market overview (*Boundaries as per CoStar submarkets*)



Source: CoStar

- 3.14 CoStar reinforce that demand is at an all-time high in the industrial sector, with many occupiers upscaling to cope with increased demand from the accelerated switch to online shopping. The industrial sector continues to prove resilient as the impact of the pandemic and restrictions produced headwinds for other property types.

-
- 3.15 Unit vacancies have remained tight in Nottinghamshire as a result of the boom in leasing, despite new space being delivered into the market.
- 3.16 Positive occupier fundamentals have been aided by what has historically been a slow development pipeline. The influx of new supply supports future demand prospects but is likely not enough to cause a notable increase in vacancy at a market level due to the high percentage of larger new schemes being pre-let.
- 3.17 Strong leasing demand and increasing rents continue to spark investor interest in industrial assets in Nottinghamshire, with sales volume in 2021 surging to decade highs.

Leasing

- 3.18 CoStar reports that industrial occupier demand has surged to all-time highs in Nottinghamshire recently. Net absorption shot to record levels in 2020, with more than 2.2 million sqft taking place - the most in over a decade. This surge in demand has addressed a glut of recent supply coming to the market, and as a result kept vacancies in check. Vacancies are currently tight at 2.3%.
- 3.19 Distribution and third-party logistics firms have been particularly active in the market of late. In the largest deal for several years, Eddie Stobart committed to 1.1 million sqft of space at Mulberry Logistics in Bassetlaw in November 2021. The project is stated to complete in the second half of 2022.
- 3.20 Along with logistics firms, recent demand has also come from a variety of other occupiers in the food, online retail and medical supply sectors, such as the expansion of Amazon, who committed to 500,000 sqft at the Panattoni 550 scheme Broxtowe.
- 3.21 Another notable deal more recently was furniture retailer DFS's 217,000 sqft lease at Sherwood Business Park in March 2021 for a five-year lease.
- 3.22 In August 2020, Tritax Symmetry agreed a major deal to let its speculatively built 151,000-sqft industrial unit at Symmetry Park to Butternut Box. The pet food

specialist agreed to a 15-year lease on the unit in Bassetlaw, following hugely accelerated growth since the beginning of the pandemic.

3.23 Based on CoStar data, logistics space represents 70% of the overall industrial stock in Nottinghamshire. The data reveals the low levels of vacancy which, at below 5%, remain sub optimal as is the case across the East Midlands (2.7%) and country as a whole (3.1%). This continues to drive rental growth and demand for future supply.

Table 3.4 Nottinghamshire Industrial market indicators, 2022 Q1

	GIA (sqft)	GIA (sqm)	Vacancy rate	Market rent
Logistics	47,313,101	4,258,200	2.6%	£5.98
Specialised	15,168,932	1,365,200	1.3%	£6.36
Light Industrial	5,957,745	536,200	2.0%	£6.95
Submarket	68,439,778	6,159,600	2.3%	£6.14

Source: CoStar (CoStar definitions, broadly B8, B2, former B1c top to bottom)

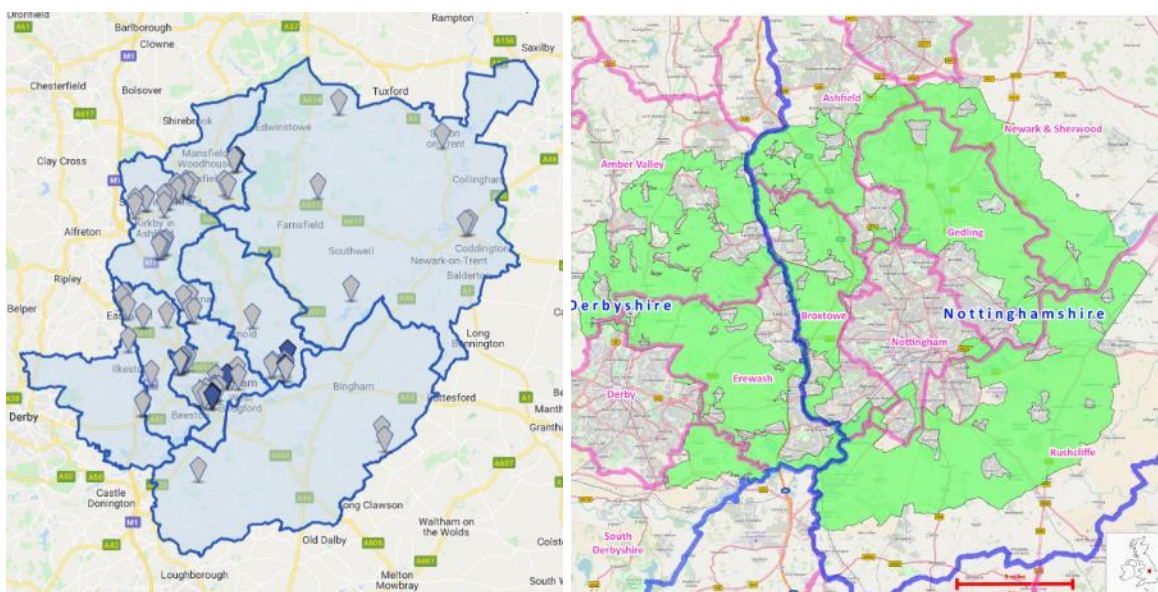
Logistic & warehousing market analysis: Study Area

3.24 This section focuses on the study area specifically and primarily utilises CoStar data. It covers the period from 2012 to 2021 (2012 to 2021 for transactions). It focuses on transactions over 100,000 sqft in size (i.e. excludes smaller transactions) and filters to warehousing and distribution. The section first looks at key performance indicators (total floorspace, vacancy, rental prices, absorption and delivery) before turning to an analysis of transactions in the last 10 years.

3.25 It is important to reflect on the relationship of the study area with the wider Nottinghamshire County, adjacent Leicestershire County and overall East Midlands. The study area contains the national artery M1 corridor and forms part of the 'Golden Triangle' being the national centre of the UK logistics market whereby main other parts of the UK can be reached in a 4hr drive time (see

Warehousing and Logistics in Leicester and Leicestershire 2021, p21)⁵. The southern edge of study area runs towards Castle Donnington, East Midlands Airport and Gateway, where J24 of the M1 and the A50 interchange are a key logistics hub and national distribution logistics location. Moving north, much of the M1 study area is covered by Green Belt policy which restricts development. This places a restriction on delivery of new logistics units in many instances particularly around Nottingham, suppressing market supply.

Table 3.5 Market study area* / Green Belt



Source: CoStar /

* showing CoStar listings of B8 units over 100,000 sqft, which differs from VOA definition (see glossary)

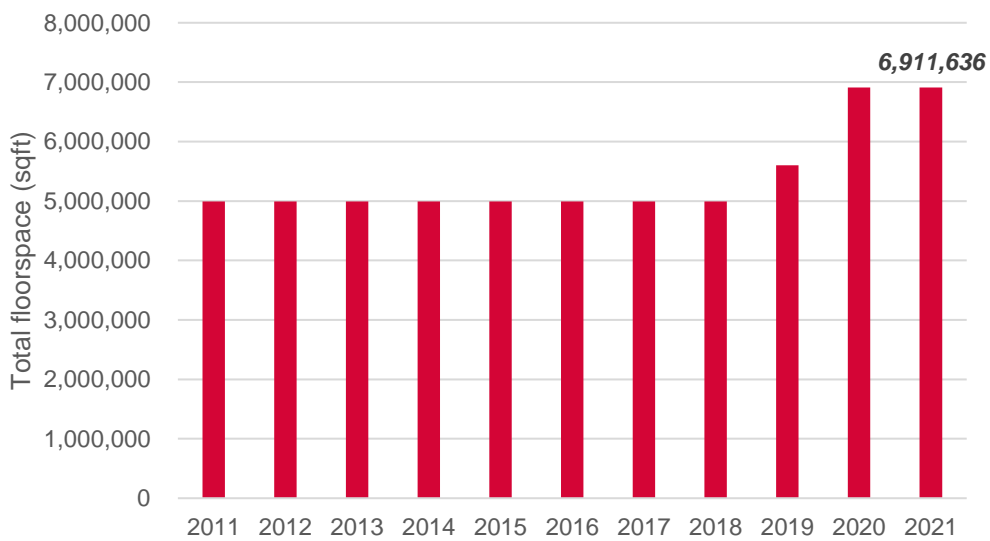
Floorspace change

- 3.26 The figure below looks at total floorspace growth over the last decade in the study area for large warehousing units according to CoStar. Total stock remained stable for the best part of the decade until the beginning of a rise in 2019 which was accentuated in 2020 (notably due to the delivery of large units for Amazon). In the

⁵ <https://www.llstrategicgrowthplan.org.uk/wp-content/uploads/2021/09/Leicester-and-Leicestershire-Strategic-Distribution-Study-2021.pdf>

last 3 years, the study area has approximately acquired 2 million sqft of strategic warehousing floorspace reaching 6.9m sqft. The inventory for all industrial units including manufacturing is now at 26m sqft, indicating a large stock of manufacturing type buildings (by CoStar definition). It is of note the VOA and CoStar provide different definitions and floor areas due to different methodologies and use purposes (see glossary).

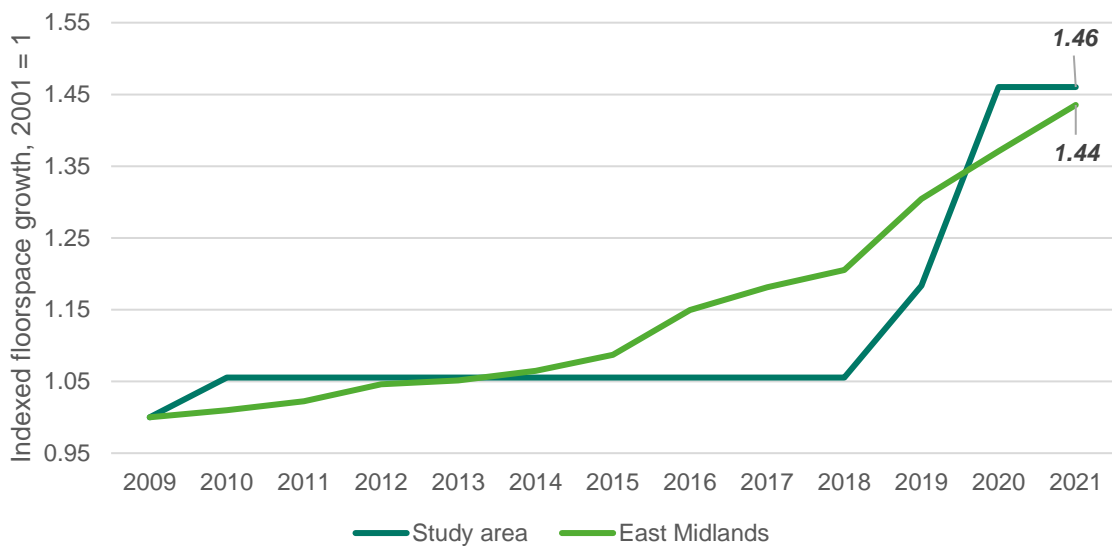
Table 3.6 Total floorspace (sqft), for B8 units above 100,000 sqft



Source: CoStar

3.27 Indexed against the East Midlands' performance over the last decade, the study area has grown its strategic warehousing stock at a similar proportion albeit from a smaller base. While the East Midlands' total floorspace of 100,000+ sqft units has grown by 44% since 2011, the study area's total floorspace has grown by 46% although much of this has been in very recent years due to specific developments.

Table 3.7 Indexed strategic warehousing growth, study area vs. East Midlands (1 = 2009)

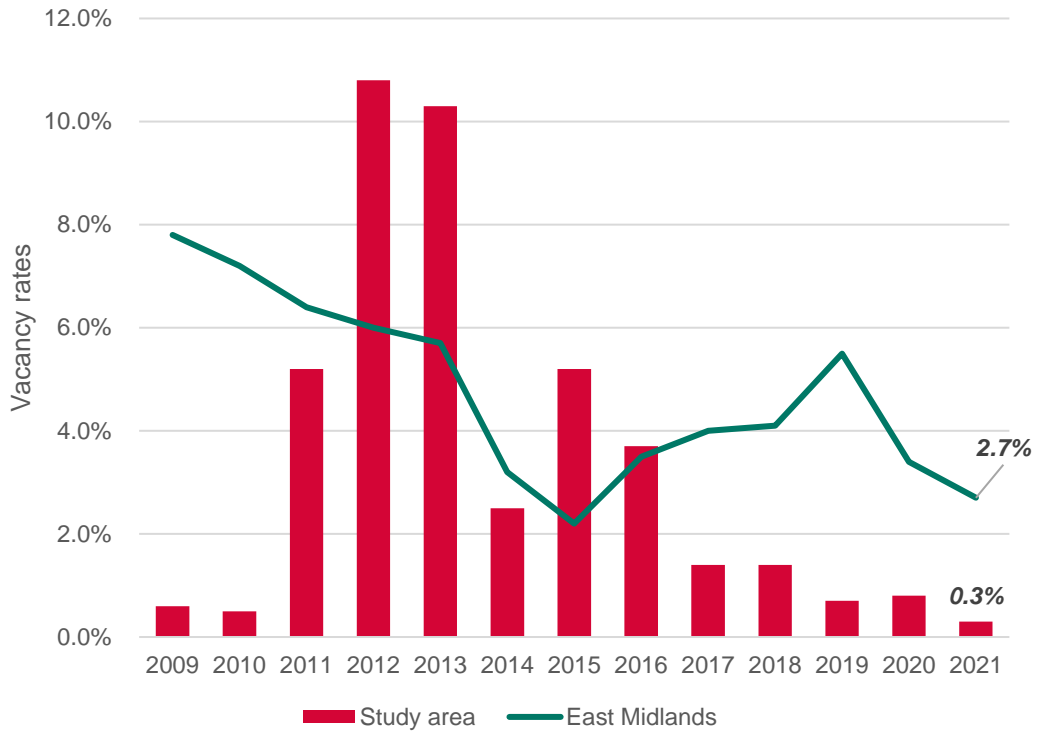


Source: CoStar

Vacancy

- 3.28 The figure below shows how vacancy rates in the study area have changed over time compared to the East Midlands. Following a peak between 2012 and 2013, the vacancy rate has continually decreased until reaching an all-time low of 0.3% in 2021 (large unit market).
- 3.29 This figure is extremely low and indicates a complete undersupply / failure of the market, with 5% considered the minimum for a functional market that allows for churn, choice and move ins. Since 2014 vacancy has been below this rate and since 2017 there has been essentially no space for large unit move-ins after pre lets. When including all large industrial units including manufacturing the study area vacancy rate at end of 2021 was 1.5%. Vacancy rates in the study area are even lower than across the East Midlands' average (standing at 2.7% end 2021) which in itself continues to be sub optimal.

Table 3.8 Vacancy rates (logistics units over 100,000 sqft)

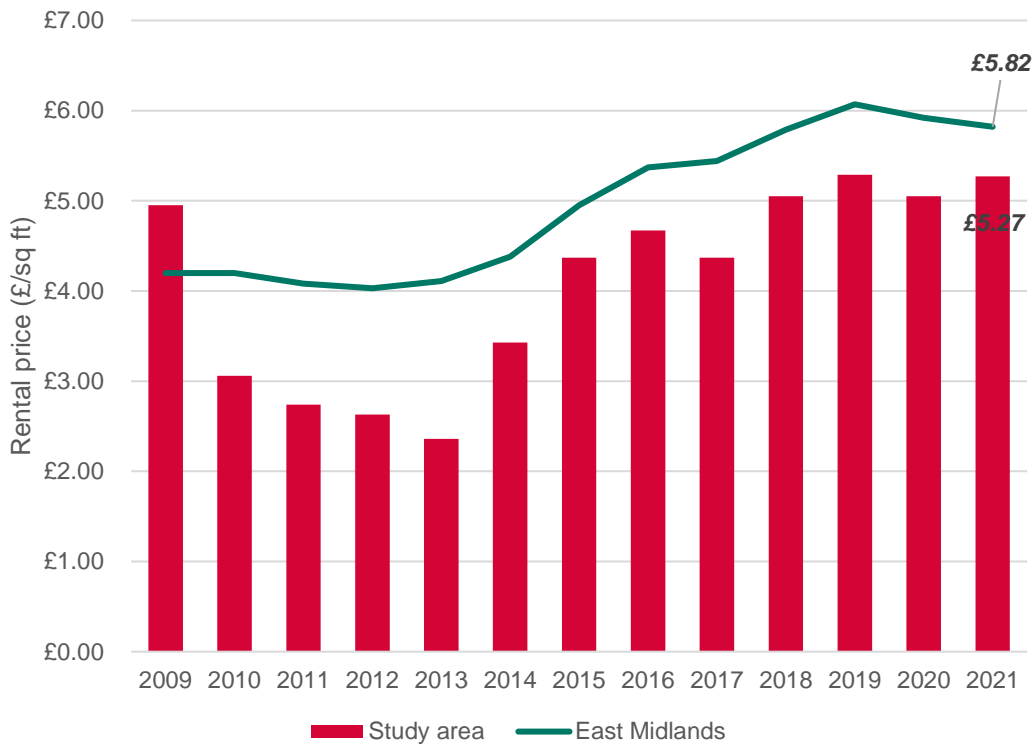


Source: CoStar

Rents

3.30 The figure below shows how the average rental price has evolved over the last 10 years. In 2020, it cost £5.27 per sqft and per year to lease a large-scale logistics or warehousing space in the study area, against £5.82 on average in the East Midlands. This rate has increased significantly over the past decade, reflecting low vacancy rates.

Table 3.9 Rental price (£/sq ft) (logistics units over 100,000 sqft)



Source: CoStar (nominal prices, unadjusted)

Leasing and deliveries

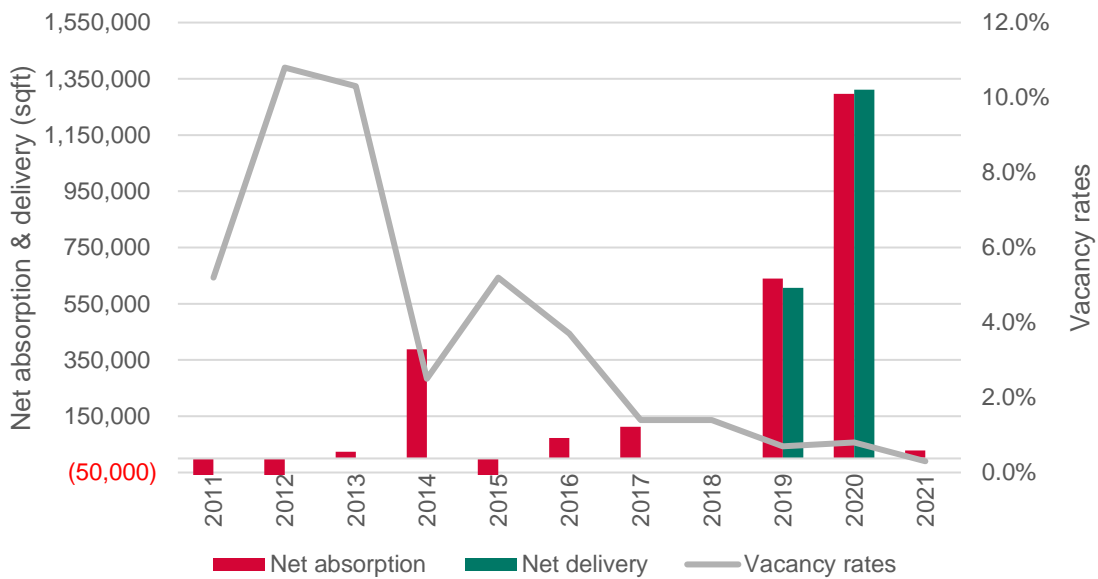
- 3.31 The chart below shows net absorption and net delivery. Net delivery is self-explanatory and corresponds to the total of all new floorspace delivered after any demolition. Net absorption corresponds to the total floorspace that became occupied, minus the floorspace that became physically vacant during the period (lease breaks).

- 3.32 The chart reports that aside from a peak in 2014 when close to 400,000 sqft were taken up, the best part of the 2010s showed little new logistics space being delivered or taken up. Then from 2019 onwards, a surge of activity started with the delivery of 600,000 sqft in 2019 and 1,300,000 sqft in 2020. These figures

correspond to the two Amazon warehouses being let⁶. The low vacancy rates indicate that the market is seeking more stock than is being delivered.

3.33 The ten year average net absorption in the study area for large scale B8 units is 215,500 sqft or 19,400 sqm. For all large industrial units this rises to 290,000 sqft or 26,100 sqm.

Table 3.10 Study area net absorption & delivery (sqft) (100,000 sqft units)



Source: CoStar

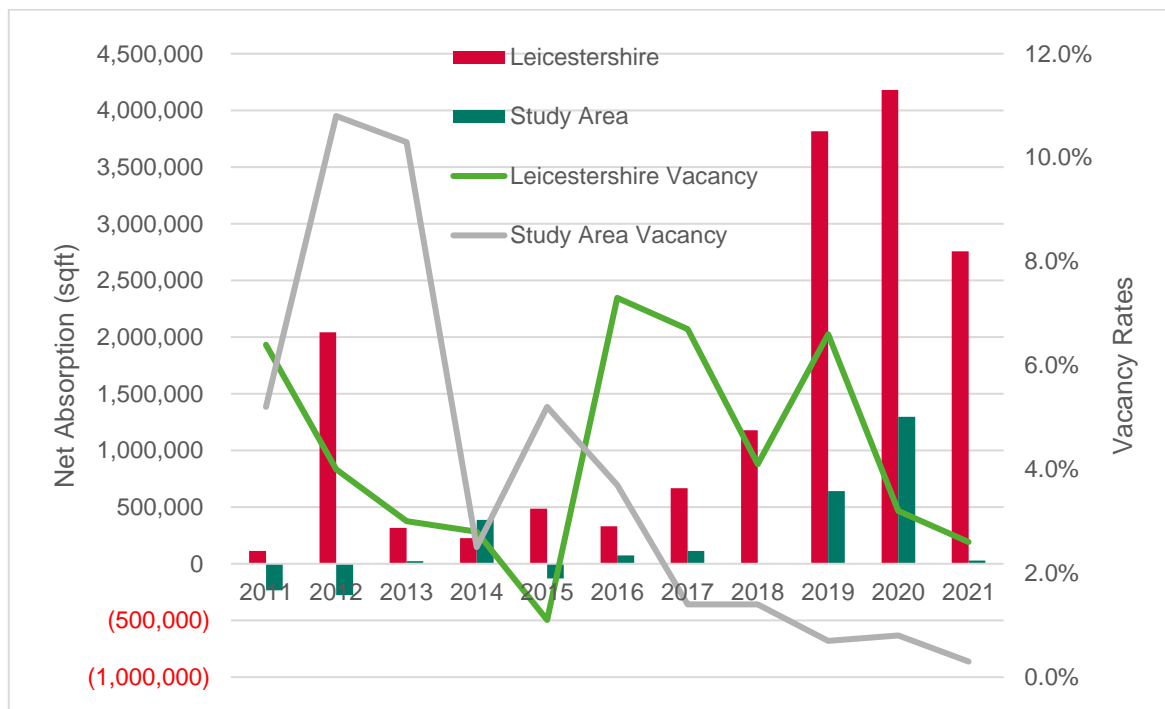
3.34 The chart below compares net absorption for large units in Leicestershire and Leicester to the south with the study area. From 2015 absorption in Leicestershire has been growing considerably achieving over 4m sqft in 2020. Vacancy rates are higher than those in the study area by several percentage points. Average net absorption in the last ten years for large B8 units has been 1.6m sqft or 145,000

⁶ Amazon occupying 1.1m sqft at Sherwood Way South Sutton in Ashfield, being 2 storeys of 550,000 sqft but noting the planning application was for 3 storeys 162,781 sqm (1,752,160 sqft). Amazon also let 551,000 sqft at Panattoni Park Nottingham in Broxtowe

sqm, around 7 times that of the study area. A considerable portion of this is attributable to activity at East Midlands Gateway which has seen 3.8m sqft of lets between 2017 and 2021 alone.

3.35 Leicestershire is at the heart of the logistics ‘Golden Triangle’ and contains a series of large industrial parks including Magna Park Lutterworth, Bardon Hill Coalville and East Midlands Gateway and Distribution Centre around Castle Donington. It is therefore anticipated that both absorption and deliveries will exceed that in Nottinghamshire / the Study Area. Notwithstanding, East Midlands Gateway and Distribution Centre in North West Leicestershire at J24/24a sit at the edge of the study area benefitting from access to the labour markets of Derby and Nottingham. Stakeholders report (see below) that in property market terms the M1 accessibility has little difference between junctions 24/24a and those further up in the Study Area. As a result levels of market demand seen in Leicestershire spill into Nottinghamshire and result in the very low vacancies seen – with supply side policies such as Green Belt heavily contributing.

Table 3.11 Study area / Leicestershire: Net absorption & Vacancy Rates (sqft) (100,000+ sqft units)



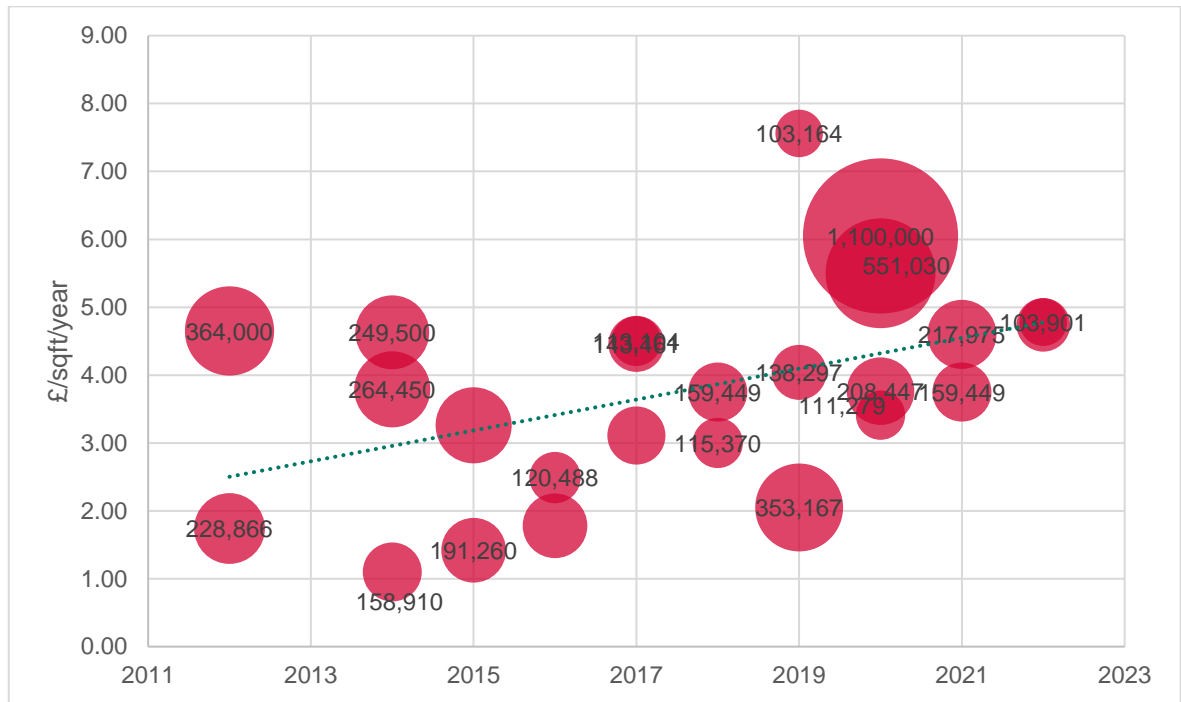
Source: CoStar

Transactions

- 3.36 Between 2012 and 2020⁷, there were 25 transactions, amounting to 6 million sqft leased in the study area (excluding transactions under 100,000 in size). In the last five years, the frequency of transactions has increased, and the study area saw two extra-large deals (Amazon) above 500,000 sqft.
- 3.37 In terms of distribution, 60% of transactions were between 100,000 and 200,000 sqft (15 transactions), and 84% were between 100,000 and 300,000 sqft (21 transactions). In other words, extra-large spaces remain the exception rather than the norm, as there were only 2 transactions between 300,000 and 400,000 sqft, and two above 500,000 (both Amazon hubs). A list of deals with area, price and location is available in Appendix Table A1.1.
- 3.38 In terms of lease prices, the graph below shows a clear upwards trend. The overall average lease price for the last decade was £3.76/sqft/year, but it used to be around £3.08 between 2012 and 2017 and has now increased to £4.38 between 2018 and 2022.

⁷ The chart shows dates from 2011 to 2023 for readability, so that each bubble is complete, but the data is from 2012 to 2020.

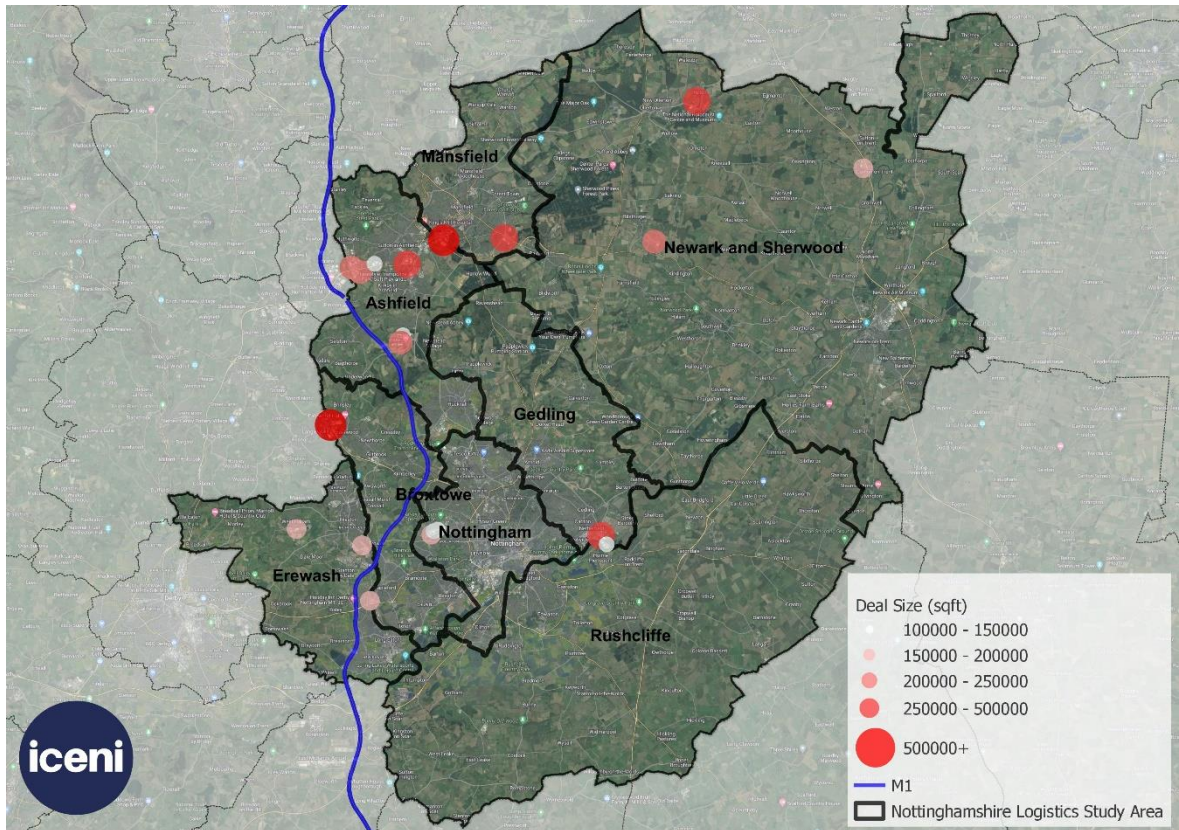
Table 3.12 Large logistics & warehousing deals: floorspace & rent, 2012 to 2022



Source: ONS

3.39 The map below shows the location of all strategic warehousing deals (from 2014 to 2021) according to CoStar. While not all the roads are mapped (due to OSM data gaps), it shows that most strategic warehousing projects are located along the M1 and in the outskirts of Nottingham.

Table 3.13 Strategic warehousing deals, 2014 to 2021



Source: CoStar, OSM and Icen Projects analysis

Availability

- 3.40 Finally, the map below shows available units in the study area according to CoStar. As of March 2022, there were 12 properties listed available above 100,000 sqft, with an average floorspace of 670,000 sqft. However, of these only one is an existing built unit (at Crown Farm Way, Mansfield built 2001) and all the rest are listed as ‘proposed’ by CoStar (which does not necessarily mean they have planning) or under construction, a table with more details can be found at Appendix Table A1.2.
- 3.41 The availability rate for study area at Q1 2022 is 0.3% which refers to properties commercially listed as available to let whether built, under construction or in planning. This rate indicates that there is essentially nothing available. The availability rate for large warehousing in the study area has remained below 2% since 2016, meaning all units coming to the market had been prelet before construction.

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- Boyer Planning
 - JLL
 - Stone Planning
 - Avison & Young
 - Tritax Symmetry

 - SEGRO

 - Endurance Estates

3.43 The views of stakeholders have been amalgamated with the key points and themes being as follows:

Demand

- The East Midlands at 2022 is outperforming every other region in the UK for large scale unit demand and take up. Historically it has been in the top 4/5 but it is now outperforming all areas (since 2020). Vacancy under 2% which is essentially complete market failure. There is no indication that occupation demand will slow up. The sector has been resilient throughout pandemic.
- Up and down the M1 the demand pressures are very high. The flow of capital investment into the market is astonishing. In national infrastructure terms it would be sensible to make a logistics allocation of some scale at every junction.
- Manufacturing now joining the third-party logistics (3PLs) in driving demand for large units upwards.
- The issue for both developers and occupiers is that the lack of supply is driving up rents.
- East Midlands Gateway was planned for many years with a long term delivery and take up programme – it is now being fully built out and let in 5 years. You could essentially deliver another East Midlands Gateway at each of the next

two junctions up and absorb demand. Any new delivery / availability tends to be pre-let.

- There are ongoing requirements for sites of 500,000 sqft - 1,000,000 sqft along the Nottinghamshire M1 for logistics and manufacturing however the lack of investment units means they are pushed out of area – losing major economic growth opportunities.

Supply position

- The Green Belt has historically very much constrained the development of large scale logistics sites on this part of the M1 corridor which is prime location for national operators. Green Belt releases tend to be driven by housing rather than employment needs.
- Land supply restriction (Green Belt) in the M1 J25-27 area has completely thwarted delivery, putting pressure on other locations and forcing occupiers to accept less accessible locations. Authorities proposing land releases tend to do so in locations which are not preferred by operators and lack the connectivity to the M1. Both these activities result in market inefficiencies and increased costs for workers and operators in travel time, leading to goods price inflation.
- The existing logistics and industrial parks J24 to J28 are now largely built out with only limited supply. This includes East Midlands Gateway with a pre-let understood to be in place on the last unit.

Market Area

- Views vary on the extent of the market and occupier area of search. Some are footloose and look at M1 J20-36, being the whole of East Midlands and beyond. There is certainly not a real difference in search areas between North Leicestershire and Nottinghamshire
- Junctions north of M1 J24 running to J28 are prime locations within the East Midlands in terms of location, accessibility and access to labour markets. J24 East Midlands Gateway is an excellent example and there is a significant lack of development J25/26 in particular where the market is seeking space. J29 is

probably the top end of the East Midlands area before moving into the Sheffield market - Chesterfield starts to see a different type of need. The J24-28 area is particularly well placed for the drive time catchment of Nottingham and Derby which is considered to have less competition than around Leicester.

- There is a difference between sites on the M1 and wider Nottinghamshire area, with M1 prime territory for largest units (which are not usually residential compatible). M1 spine and surrounds are primary target areas, 5km of a junction can be an occupier requirement (or trunk road). The A46 corridor doesn't have the same status particularly as it is not duelled yet⁸ although some occupiers would consider this for deliverability potential. Manufacturers tend to be less focused on M1 connectivity and prefer labour proximity.
- Leicestershire a considered reasonable proxy for Nottinghamshire potential if unrestricted, historic development in Leicestershire is due to less restrictive development policies but also a more central accessibility / proximity to south and west.
- Regarding A1 locations - historically there has been an M1 preference but now operators are looking further afield.

Labour

- J24-28 (between Derby, Notts and Mansfield) benefits from a readily accessible local labour pool - good accessibility to what is described as the right socioeconomic demographic. Access to labour for many (not all) occupiers is important and in other parts of the East Midlands has become highly constrained.
- Access to the workforce in Nottingham and Derby with their strong labour force offer has been critical in the success of East Midlands Gateway. Here and

⁸ NB the last section of A46 (the Newark bypass) is the only section of the road not to be duelled, and proposals for improving it have been consulted upon.

elsewhere the types of jobs are becoming increasingly more sophisticated. Some operators have launched in house training to cope with competition which has increased through / post Covid and Brexit, as demand has surged and some Eastern European workers have left. A skills gap exists at a number of levels including drivers, operatives and technicians.

Deliverability

- Deliverability of the site for occupiers is critical, pre lets without a deliverable site are unlikely.
- There are industrial and logistics development proposals at J26 - J27 Blenheim Business Park that suffer HS2 blight and therefore delivery uncertainty. Existing occupiers are trying to grow and want significant expansion but HS2 safeguarding is curtailing development and raises the potential of business out migration.

Unit Types

- There is demand for bigger buildings and sites over 20 hectares taking into account scalable demand and infrastructure costs for delivery. Increased heights are in high rising from 21m up to 30m due to mezzanine space and levels of racking supported by automation.

Local market commentary

- At J28 a recent second hand product at 200,000 sqft was let overnight. Future development at J28 - Clowes Development and Panattoni putting up several units over 200,000 sqft.
- Large scale industrial logistics units being speculatively built in the Nottingham City Centre at Thane Rd, away from M1 but direct access to Nottingham labour and final mile distribution market.
- Boots Campus looking to do some logistics development - but can be selective and focus on health, beauty and medical, but still potential for large units.

-
- There are historic units in Nottingham City with long lease assets that will see redevelopment in due course although will not necessarily serve the M1 market.
 - Derby Infinity Park has larger units but lettings have been slower as access to the M1 is more constrained, there are is greater focus on manufacturing requirements
 - Concerns raised over the access at J25 to New Stanton which may restrict is letability to large scale occupiers.

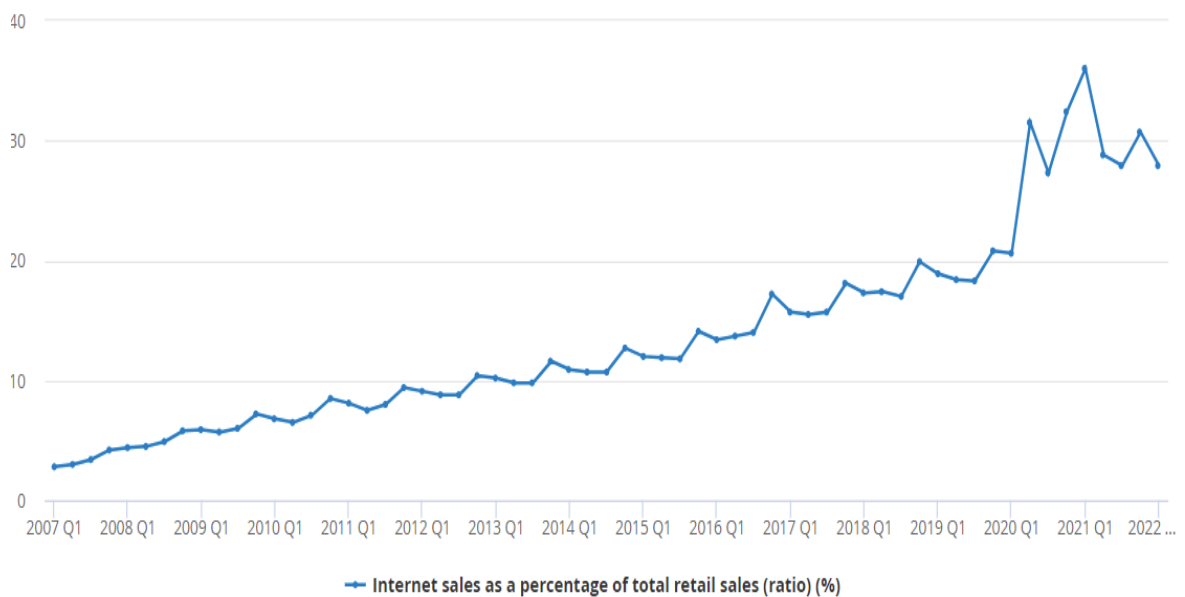
4. DRIVERS FOR CHANGE

- 4.1 This section identifies and assesses the key drivers of change in the domestic logistics market, drawing out the important implications with respect to land-use planning in the Study Area and the wider Midlands region.

Growth of E-Commerce

- 4.2 The rapid growth in e-commerce retail sales, at the expense of goods sold via traditional 'bricks and mortar' outlets, is now widely appreciated and is one of the key economic demand drivers that is generating change in the logistics sector. The graph below shows the value of e-commerce sales as a percentage of total retail sales since 2007.

Table 4.1 E-Commerce Sales as Percentage of Total Retail Sales



Source: ONS

- 4.3 Just under 30% of retail sales (by value) are now undertaken via e-commerce platforms; they were below 4% in 2007. The graph shows that the Covid-19 pandemic caused a significant step-change in e-commerce sales (market share increasing by 10 percentage points in one year), though it would appear that the previous (pre-Covid) growth trend has since resumed. E-commerce sales actually

reached nearly 35% when non-essential outlets were closed during the height of the pandemic. Rates have fallen back slightly since and are expected to resume the previous pre pandemic trend.

4.4 The growth trend in the graphs can be explained by a combination of factors, including:

- Technological developments – the development of smart phones and tablets alongside fast broadband and data provision services means many consumer products can be purchased within a few ‘clicks’ and ‘on the move’;
- The liberalisation of parcel and courier services in the EU – new entrants and the competition subsequently generated have enabled e-commerce retailers to access quick, efficient and cheap delivery services;
- The ability of the e-commerce retailers to competitively price goods, undercutting traditional ‘bricks and mortar’ retailers. This has arisen through a combination of bulk buying (from China/Far East), efficient storage and relatively cheap delivery services (see above) and no requirement to operate a labour intensive outlet network in city/town centres which attract high rents and business rates;
- Convenience – avoiding the need to travel into congested urban centres or retail parks (not everybody subscribes to the ‘retail therapy’ concept)

4.5 These trends are likely to continue. The National Infrastructure Commission (NIC) noted in its 2019 report, *Better Delivery: The Challenge for Freight*, that e-commerce could reach 65% of all retail sales by 2050. E-commerce *order fulfilment*⁹ can be undertaken in three ways:

⁹ In e-commerce, the process of picking, packing and delivering the product ordered is often called ‘order fulfilment’ and distribution centres are sometimes called order fulfilment centres.

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- Digital – tickets, films and music can be downloaded digitally rather than a physical object being posted to the consumer;
 - ‘Click and collect’ – goods are reserved/purchased online but are collected by the consumer from a retailer’s physical outlet; and
 - Direct deliveries to residential and commercial properties or to a designated drop-off point, either via the retailer’s own transport operation or through one of the parcel/courier networks

4.6 ‘Click and collect’ e-commerce is normally fulfilled via the distribution networks which already serve the retailers’ ‘bricks and mortar’ outlets. Stores are normally serviced from National Distribution Centres (NDCs) and/or Regional Distribution Centres (RDCs). Goods are either reserved/picked from stock already held in-store, or delivered to the outlet alongside the goods that will be sold from store.

4.7 The rapid growth in direct delivery e-commerce is having a significant impact with respect to the need for, size and location of distribution centres. Firstly, many older warehouse units 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. Emerging e-commerce only retailers, such as Amazon or ASOS, had to commission new purpose-built facilities from scratch, and many of these operators are now seeking new facilities to accommodate the growing volumes (as evidenced by the graph). The combined result of this structural change is a growing need for new warehouse units purposely designed for e-commerce (as opposed to traditional retailing), albeit a significant proportion of the floor space generated is replacing existing life-expired capacity.

4.8 While some of the larger e-commerce retailers (particularly Amazon) have developed a network of RDCs (in much the same manner as the large grocery retailers), many e-commerce retailers have developed a single or series of

customer fulfilment centres (CFCs) which receive and then store cargo from suppliers. The CFC will either serve the whole country (effectively a NDC) or multiple regions (i.e. larger hinterland than a traditional RDC).

- 4.9 Order fulfilment initially begins at the CFC, where on-line orders are picked, appropriately packed and labelled before being loaded onto freight vehicles for trunking to a series of regional cross-dock facilities located close to major conurbations. A cross-docking facility is superficially similar to a warehouse, albeit is smaller in scale and designed primarily for transferring cargo directly between freight vehicles (no storage function). From the cross-docking facility, consignments are re-loaded onto final delivery vehicles, normally vans (LGVs), for transport to residential/commercial properties. The cross-dock facilities are often operated by the main parcel couriers, meaning they receive cargo from multiple CFCs. The spatial and land use planning implications of this are two-fold:
- CFCs are very large in scale (large plots required) and given their function they should ideally be located centrally to the major urban conurbations across the country i.e. East Midlands; and
 - Cross-docking facilities are smaller in scale but require locations on the edge of the major urban conurbations.

De-carbonisation

- 4.10 De-carbonisation in the supply chain normally refers to the need to switch to net-zero emission freight transport (given that warehouses can and are powered by net-zero emission electricity). Currently, domestic transport accounts for around 27% of the UK's total greenhouse gas (GHG) emissions (and having only decreased by 2% since 1990), with road and rail freight combined being responsible for 6% of total GHG emissions.
- 4.11 Modal shift to rail, particularly for medium to long distance flows, is likely to form an important component in de-carbonising the supply chain (see below). However, not all road freight journeys can be replaced by rail, and there will be a need to

develop road-based solutions that are also net-zero. Both modal shift and net-zero road solutions will have spatial implications with respect to warehousing.

- 4.12 For smaller road freight vehicles (i.e. LGVs), battery-electric vehicles (BEVs) are now emerging as the viable zero emission alternative to petrol- or diesel-powered vans. While uptake is currently slow, a greater choice of BEVs is now available (between 2.5 and 4.25 gross vehicle weight). While purchase costs are currently higher than petrol/diesel vans, these should be outweighed by lower operating costs (fuel and maintenance), and purchase costs are likely to fall in relative terms going forward as the manufacture of BEVs is scaled-up. BEV range is also improving as battery technology develops. This is particularly important for e-commerce trade, as LGVs are the principal means of delivering directly to residential and commercial properties.
- 4.13 The resultant impact of this trend will be a future requirement to recharge large fleets of LGVs simultaneously (probably overnight) at a single depot location and from the same local grid connection. It will therefore be essential that local grid capacity has the requisite capacity. The implication in land-use planning terms, therefore, is that existing industrial areas and, importantly, new developments likely to support e-commerce delivery facilities (cross-docking) will need to be located where existing grid capacity is sufficient or could be upgraded (network reinforcement) relatively easily and at a reasonable cost. It will also be important that such facilities are designed so that loading docks can be equipped with fast charging points (either from new or retro-fitted at a later date), thereby enabling vans to recharge while cargo is loaded.
- 4.14 Decarbonising HGVs is going to be significantly more challenging. Three key options are emerging as the most promising alternatives; all involve propulsion by means of electric motors, albeit being supplied by electric current from different sources. The three options are:
- E-highways – similar to electrified railways, overhead live contact wires supported by catenary and masts provide power to the HGV (via a pantograph on the roof). They are being developed in a number of countries, including

Sweden and Germany, while a trial on a 20km section of the M180 in Lincolnshire has received UK Government funding. For cost reasons, it is likely that only the strategic highway network could ever be wired in this manner, meaning some form of secondary power source will be required for 'final mile' trips away from the wires (possibly using small batteries which are subsequently recharged from the overhead wires).

- Battery electric – as the energy density of batteries increases and their costs fall due to mass production, it may be that battery electric HGVs are the most promising option. Range will not be as long when compared with diesel powered HGVs, however opportunities are likely to exist for rapid recharging as cargo is loaded/discharged or drivers undertake statutory breaks. Tesco have recently begun a trial of battery-electric HGVs for moving containers the short distance between Wentloog (Cardiff) rail terminal and their RDC at Magor.
- Hydrogen fuel cells – combining hydrogen and oxygen (from air) to generate an electric current, with water produced as the by-product. Like diesel HGVs, they would have an extended range (when compared with battery electric HGVs) and rapid refuelling. However, they will only be truly net-zero if the hydrogen is produced from electricity generated from renewable sources ('green hydrogen'). Further, fuel cell vehicles are currently estimated to have an efficiency of around 22% (it is around 33% for diesel vehicles and 70% for battery electric vehicles). The UK Government is currently funding trials.

4.15 Assuming battery-electric emerges as the preferred solution, the main resultant impact will come from the need to rapidly recharge large fleets of HGVs simultaneously at a single NDC/RDC (during loading/discharge) and from the same local grid connection. As per BEVs, the implication in land-use planning terms is that existing industrial areas and new developments will need to be located where existing grid capacity is sufficient or network reinforcement can be delivered relatively easily and at a reasonable cost. It will also be important that new distribution centres are designed so that loading docks can be equipped with fact charging points (either from new or retro-fitted at a later date), thereby enabling HGVs to recharge while cargo is loaded and discharged. Parking areas

(within distribution centres and at lorry parks) will also need to be equipped with fast charging points (or capable of being retro fitted).

- 4.16 The main method that has been adopted to date in order to reduce GHG emissions (per tonne-km) has been modal shift to rail. With decarbonising HGVs appearing to be problematic (and future non-diesel HGVs likely to have significantly less range), modal shift is likely to form an important component in decarbonising the supply chain, as logistics operators seek to move more of their medium to long-distance flows to rail freight. The railway already has a 'tried and tested' method of moving goods in a sustainable manner, namely electrical traction (from overhead wires or third rail). In land use planning terms, the key implication is that future large scale logistics facilities should be located on a rail-served site (such as East Midlands Gateway) or be located in close proximity to such sites (allowing transfer using battery-electric HGVs such as those operated by Tesco).
- 4.17 However, despite the fact that the rail freight industry already generates significantly fewer GHG emissions (on a per tonne-km basis) when compared with road transport, the vast majority of current rail freight services are still hauled by diesel traction. Around 87% of the national locomotive fleet is diesel powered, with the Government having already set 2040 as the date to remove all diesel-only trains from the network.
- 4.18 Network Rail produced its *Traction Decarbonisation Network Strategy (TDNS)* in September 2020, which aimed to provide the DfT and other public sector bodies with recommendations to inform the decisions required to remove diesel trains from the railway network. It notes that currently around 15,400 single-track km (stkm) are not electrified, representing around 62% of the national network (when defined as stkm). The TDNS process has investigated the most realistic and feasible alternatives to diesel traction (for both passenger and freight trains) and concluded that there are essentially three long-term options, namely electrification (by overhead wires), battery-electric trains and hydrogen fuel cell trains. The report concludes that electrification is the best whole life cost solution for more intensively used areas of the network. For freight, the report concludes that

electrification is the only feasible option available, albeit battery-electric operations will be required in some terminals, sidings and short branch lines. Overall, the report recommends:

- An additional 13,000stkm of infrastructure will need to be electrified for passenger and freight services;
- Hydrogen fuel-cell deployment over 1,300stkm of infrastructure;
- Battery train deployment over 800stkm of infrastructure; and
- 260stkm where a technology choice is yet to be made.

4.19 These recommendations would result in around 90% of freight train kilometres being operated electrically with the remaining 10% requiring either diesel or alternative traction locomotives. From a land-use planning and infrastructure perspective, this suggests that new rail-served logistics sites (such as East Midlands Gateway) would need to be located on or in close proximity to main lines which are likely to be electrified over the next 10-20 years.

Warehouse Automation

4.20 Warehouse operations have historically been labour intensive. Pallets requiring transfer between transport vehicles and storage racking have been undertaken using operatives driving fork-lift truck equipment. Grocery retail has traditionally relied upon warehouse labour to pick products at below pallet level quantities for individual stores. More recently, e-commerce initially used manual labour to pick and pack parcel consignments. Employment densities typically range from 80 square metres per full-time equivalent (FTE) at RDCs through to 140 square metres per FTE at NDCs. Other than some specialist commodities, occupiers have not sought to invest in the significant automation of many warehouse operations (the exception being ICT systems to manage inventory levels etc.). The availability to date of relatively cheap labour has potentially held back investment in large scale automation.

4.21 There are signs this situation is now changing, principally driven by a combination of two factors:

- The growth in e-commerce (as described), with the consequent need to pick, pack and label ever increasing volumes of goods at individual consignment level (for overnight despatch). A degree of automation is required to run the operation speedily and efficiently, and the nature of the operation also better lends itself to automation (at least partially) when compared to traditional NDC and RDC functions; and
- Increasing difficulty in recruiting labour at relatively cheap rates of pay. EU nationals have been returning back to their homelands (or other EU countries), whilst the new work-visa immigration system does not classify warehouse jobs as 'skilled'. Occupiers have therefore been unable to backfill vacancies with replacement inward migration, and neither have they been able to recruit from local labour markets.

Many new warehouse developments are therefore being designed and built with increasing levels of automation from the start (in many cases these new developments are replacing existing physically sound capacity that cannot accommodate automation). It is often the case that the automation equipment incurs significantly higher capital costs than the warehouse building itself. In land-use planning terms, this has two key implications:

- With lower employment densities, the design and layout of new warehouse units requires less space for staff facilities such as rest/break facilities, changing rooms, canteens and car parking;
- The automation equipment (as per BEV charging) requires significant levels of electrical power. It will therefore be essential that existing industrial areas and, importantly, new developments, are located where existing grid capacity is sufficient or network reinforcement can be delivered relatively easily and at a reasonable cost.

4.22 This second point clearly ties in with the conclusions outlined above concerning decarbonisation. Electric grid capacity is going to become a key issue that will determine the suitability or otherwise of sites for large scale warehouses, both for BEV charging and stock handling equipment.

4.23 Drawing together the above analysis, the spatial implications in land-use planning terms would appear to be as follows:

- A need for sites with large plots (for e-commerce CFCs), which ideally should be located centrally to the major urban conurbations across the country i.e. East Midlands;
- A need for sites to accommodate smaller scale facilities (cross-docks) on the edge of the major urban conurbations;
- Future large scale logistics facilities should be located on a rail-served site (such as East Midlands Gateway) or be located in close proximity to such sites (allowing efficient transfer using battery-electric road haulage equipment); and
- New developments will need to be located where existing electric grid capacity is sufficient or network reinforcement can be delivered relatively easily and at a reasonable cost.

Urban Logistics

4.24 Urban logistics (generally recognised to be the delivery of goods/consignments to both businesses and residential properties in town/city centres and sub-urban districts) is rising up the public policy agenda. Increasing levels of LGVs engaged in e-commerce deliveries and their associated environmental impact is one of the reasons behind this increasing awareness. There is also a (false) perception that LGVs engaged in urban deliveries are often running less than fully laden. However, it should also be noted that the majority of LGVs moving in urban areas not actively moving freight but are involved in the service sector. The need to enhance the surrounding environment as part of plans to 're-invent' town centres as leisure destinations and residential areas (to replace lost retail activity) is also a key factor.

4.25 In order to overcome the increasing impact of urban logistics and enhance the wider environment in town/city centres, a number of potential solution for freight deliveries in urban areas have been mooted. These include:

- The development urban consolidation centres;
- Retiming urban freight deliveries; and
- New delivery methods for the 'last mile'.

4.26 Urban consolidation centres are where multiple freight operators (3PLs, parcel couriers and own account operators) initially deliver goods into a warehouse type facility located on the urban fringe rather than direct to the end-user. The goods are consolidated and then reloaded onto freight vehicles for the final delivery into the urban area. In theory, multiple partially-laden freight vehicle trips into the urban centre can be replaced with fewer but fuller vehicles (and given the short distances involved this part of the delivery process could also be undertaken by battery electric vehicles).

4.27 However, take-up to date has been limited and mainly where special/specific circumstances have necessitated consolidation (e.g. Heathrow Airport). The additional handling and transport leg add further costs into the end-end supply chain (compared with direct deliveries); the NIC report referenced earlier casts doubt on whether they can operate competitively without public sector financial support. With respect to land-use planning, it also notes that suitable land at the urban fringe is often in short supply. Further, the NIC report notes that 3PLs/parcel couriers are already consolidating cargoes from multiple shippers, meaning vehicles are already loaded efficiently and trips minimised.

4.28 Retiming urban freight deliveries to retail outlets so that they take place at night-time can reduce daytime freight vehicle trips into city/urban centres. Dedicated unloading areas located away from residential dwellings and low-noise equipment is often required. This should not have any land-use implications with respect to new large scale warehouse developments as suitable sites would permit 24/7 operations.

4.29 Some operators are now trialling or introducing new methods for ‘last mile’ deliveries for smaller sized/e-commerce type cargoes. This includes the concept of ‘portering’, whereby a freight vehicle (such as a LGV or small HGV) would hand over multiple consignments (pre-sorted) to delivery staff at designated drop-off points in urban areas. Deliveries are then completed either on foot (perhaps supported by some form of wheeled carry equipment) or using e-cargo bikes. The concept is meant to eliminate multiple start-stop vehicle movements associated with parcel type operations. There should not be any land-use implications from this concept with respect to new warehouse developments.

Freeports

4.30 Freeports are a recent policy initiative developed by the Treasury. The policy initiative encompasses a number of fiscal incentives and planning reforms designed to stimulate economic growth and regeneration, including promoting the expansion of manufacturing activity (including encouraging re-shoring¹⁰). In summary, three objectives were defined for freeports:

- To be hubs for global trade and investment;
- They would become ‘hotbeds’ for innovation; and
- Promote regeneration through the creation of high skilled jobs.

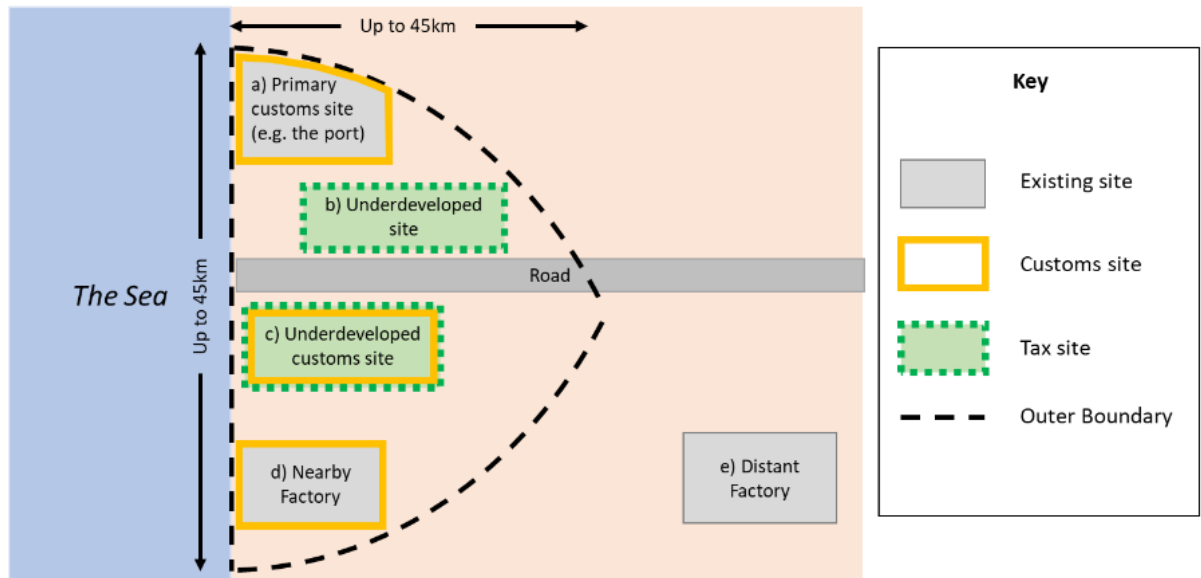
4.31 Up to eight freeports were designated for England, with at least one freeport site earmarked for both Wales and Scotland, to be delivered in partnership with the respective devolved administrations.

4.32 Freeports are composed of two types of sites:

¹⁰ Re-shoring – the process of attracting manufacturing activity back to the UK that had previously relocated elsewhere, primarily to Asia

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1. *Customs Sites.* These are areas within the freeport where any import duty and VAT remains suspended while the goods remain within the port. The duty and VAT is only payable once the goods are distributed into the domestic market. No duty or VAT is payable on goods which are subsequently exported without leaving the site. So called 'duty inversion' will also apply, whereby finished goods manufactured within the freeport will attract a lower rate of tariff than the component parts once they enter the domestic market.
 2. *Tax Sites.* Businesses locating within a tax site will benefit from certain tax reliefs for a limited period of time, including business rates, stamp duty land tax and employers National Insurance Contributions. Tax sites are expected to be 'underdeveloped', which can include both greenfield land and partially developed sites (the tax reliefs are intended to generate new employment). Local authorities in the freeport area will also be able to retain any growth in business rates (above a defined baseline) for 25 years following establishment of the freeport.

4.33 Freeports must designate a 'Primary Customs Site' which has to be an 'existing port of entry', such as a seaport, airport or rail terminal. The Primary Customs Site cannot be a Tax Site, while secondary Customs sites can also be designated. The outer boundary of the freeport, within which will be located any Secondary Customs Sites and the Tax Sites, must be no more than 45km from the Primary Customs Site (there is no practical difference between the primary and secondary Customs sites, its merely for defining the outer boundary). This is shown in the diagram below, taken from the Treasury's Freeport Prospectus.



- 4.34 Existing facilities can be designated as Customs sites, while underdeveloped land can be both Secondary Customs Sites and Tax Sites. For example, an existing factory can be designated a Customs Site while vacant land proposed for a Strategic Rail Freight Interchange (SRFI) could be a Customs Site and a Tax Site. Sites outside the 45km boundary could also be included if a special economic case could be made for their inclusion.
- 4.35 Freeports are also intended to bring about a simpler planning regime. Permitted Development Rights will be extended to sea ports, and Local Developments Orders (LDOs) will also be encouraged within the freeport boundary to support appropriate development. At present, the Government has stated that other regulations covering businesses will continue to apply within freeports. This includes Health and Safety rules, workers' rights, bio-security and data protection regulations. There is no guarantee that this will remain the case, with critics suggesting that in future some rules (e.g. employment rights) may be relaxed within Freeports.
- 4.36 Overall, it appears that freeports are essentially an amalgam of an import duty suspension regime (common the world over) and economic development zones where tax breaks and other benefits are used to attract inward private sector

investment (likewise a common feature of regeneration policies worldwide). It has been argued that freeports are a direct ‘benefit’ of the UK’s departure from the EU (implying that they could not have been established prior to Brexit). However, it should be noted that the EU also operates a similar duty suspension regime known as *freezones*. There are currently 72 freezones across 20 EU member states, with a number of UK ports (including Liverpool) previously attracting freezone status between 1984 and 2012 (when the Government decided not to renew the legislation governing them). Further, economic development zones have long been a feature of post-industrial regeneration in the UK while it was a member of the EU. The current economic development zone scheme, known as *Enterprise Zones*, dates back to 2012.

4.37 Therefore, while the current freeport initiative may succeed in meeting its stated objectives, the policy levers that have been adopted are well established. It should also be noted that the majority of UK foreign trade is now covered by so called ‘Free Trade Agreements’ or FTAs, where zero tariffs are applied to goods imported (China and the USA being the two notable exceptions). The *EU-UK Trade and Co-operation Agreement* provides for zero tariffs, while ‘roll-over’ FTA deals (FTAs that were previously agreed by the EU that were subsequently extended to UK trade following Brexit) have been signed with other countries such as Japan and South Korea. The import duty benefits are therefore likely to be marginal.

4.38 Bidders for freeports status were expected to be from consortia comprising an existing ‘port of entry’, respective local authorities, Local Enterprise Partnerships and other private sector organisations such as a manufacturing facility or property developers with underdeveloped land. Following a bidding competition which began in November 2020, eight areas were subsequently awarded freeport status in March 2021. These are:

- East Midlands;
- Harwich and Felixstowe (Harwich Haven ports of Harwich and Ipswich);
- Humber (Hull and Immingham);

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- Liverpool City Region (Port of Liverpool and Manchester Ship Canal);
 - Plymouth;
 - Solent (Portsmouth and Southampton);
 - Teesside (Teesport and Hartlepool); and
 - Thames (Tilbury and London Gateway).

4.39 Each freeport area is currently developing and implementing their business plans, including governance arrangements. In Scotland, the selected Freeport will be known as a *Green Freeport*, with a focus on decarbonisation (the bidding process is currently open, finishing in June 2022).

East Midlands Freeport

4.40 East Midlands was the only inland freeport designated. The freeport features three sites in total.

i) East Midlands Airport and Gateway Cluster. This is the Primary Customs Site, focused on East Midlands Airport which currently handles circa 350,000 tonnes of air cargo each year (predominantly via the air freight integrators such as DHL and FedEx, but also some dedicated freighter services). The site also includes the nearby *East Midlands Gateway SRFI*, with its intermodal terminal operated by Maritime Transport (capable of handling 16 x 775m trains per day).

ii) East Midlands Intermodal Park. This is a long-standing proposal for a SRFI adjacent to the A38/A50 interchange at Etwell (Derbyshire). The scheme is being promoted by Goodman and, given its size/scale, planning consent is being sought via a Development Consent Order (DCO) under the Planning Act 2008. The DCO application is still at the 'Pre-application' stage with the Planning Inspectorate (formal consultation has yet to take place). This scheme, covering around 255ha, is planned to provide around *485,000 sqm of B8 floor space* alongside a new intermodal rail terminal. East Midlands Intermodal Park would be classed as a Secondary Customs Site and a Tax Site. The Toyota car factory is located adjacent to the planned intermodal park; its Customs Site status would enable it to

hold imported components under duty suspension prior to input into the manufacturing process.

iii) Ratcliffe-on-Soar Power Station. This covers the regeneration of the power station site once electricity generation (coal fired) ceases at the end of September 2024. The vision for the site is a zero carbon technology and energy hub for the East Midlands, and including modern industrial and manufacturing uses. The site benefits from access to high capacity utilities infrastructure. It is the only freeport site in the Study Area. The recent EIA Screening Opinion submitted to Rushcliffe indicates that 180,000 sqm is being considered for B8 logistics. Given the site location near junction 24 M1 and proximity to the Nottingham market, it is estimated that this will be suitable for large scale logistics units.

4.41 While East Midlands Gateway SRFI was planned from the outset as rail-served B8 development, only one plot remains available offering around 65,000 sqm of potential floor space (total consented floor space of 555,000 sqm). Consequently, the only other site within the East Midlands Freeport that is intended for B8 logistics uses is East Midlands Intermodal Park.

5. FUTURE LAND SUPPLY

5.1 This section considers the supply for logistics across the study area and wider parts of the East Midlands where available and relevant.

Study area supply

- 5.2 The constituent client authorities have provided their current and future supply position for strategic warehousing & logistics of 9,000 sqm and above. Data reflects the latest available supply position to date up to end of 2021/22 monitoring year.
- 5.3 Assumptions have been taken in the case where land allocations were only expressed in hectares. The assumption chosen is that an average coverage ratio of 40% would be achieved, based on accepted plots ratios for single units¹¹.
- 5.4 The table on the next page provides a summary of the supply position across the study area as a whole and includes permitted schemes, allocated sites and pending permissions / allocations.

¹¹ Comparable research that in the 2021 Leicester and Leicestershire warehousing study found that for the largest logistics a plot ratio of 0.35 was appropriate once taking into account landscaping associated with new parks (but not necessarily individual units). In the study area herein individual plot applications coming forward within existing business parks typically average at a 40% ratio, generally accepted appropriate for B8. This variation makes a limited impact on the supply estimate below but its more notably in modelling demand where the expectation is that new parks are required. (Warehousing and Logistics in Leicester and Leicestershire: Managing growth and change 2021, p125 / Appendix F)

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- 5.5 In terms of future supply in the study area, there are around to 215,000 sqm of unimplemented permissions across the study area and another 101,000 sqm of allocations therefore totalling c.**315,000 sqm of committed supply**. In addition there is a future potential pipeline of a further 570,000 sqm including submitted applications and proposed allocations that could, without prejudice, increase the supply to a total 885,000 sqm. Ashfield's and Erewash's proposed allocations make the greatest contribution to this future supply alongside Rushcliffe's Ratcliffe on Soar Power Station in the Freeport.
- 5.6 It is of note that some of the supply identified below is already captured in the general employment supply as set out in the 2021 Nottingham Core HMA and Nottingham Outer HMA Employment Land Needs Study. Authorities will therefore need to consider the relationship between the recommendations and outcomes in that study and those arising from this work when considering Local Plan development.

Table 5.1 Supply position summary table, for units above 9,000 sqm (sqm)

	Unimplemented permissions	Notes	Allocations	Notes	Future pipeline	Notes	Total
Ashfield	31,702	Castlewood Business Park V/2018/0652 and V/2021/0362	48,707	West of Fulwood (Off Export Drive) / plus half of Harrier Park (access constrained / half B2)	185,600	draft allocations at J27 and Whyburn Farm (half Whyburn assumed large B8)	266,009
Broxtowe							0
Erewash					110,000*	Indicative, based on New Stanton Masterplan large units only	110,000
Gedling							0
Mansfield					13,200	Penniment Farm. Unit 1	13,200
Newark & Sherwood	110,000	10/01586/OUT M from NAP2A, South of Newark	21,000	NUA/E/2 land remaining	63,834	21/02408/FUL M Land off Brunel drive	194,834
Nottingham	22,954	18/01455/POUT Local Plan Part 2 Site SR46			17,000	Blenheim Lane (estimated)	39,954
Rushcliffe	49,870	South of Clifton 14/01417/OUT 24,443 remaining plus 21/02346/REM includes one	31,000	Half of the North of Bingham allocation	180,000	Ratcliffe on Soar Power Station 180,000, further strategic sites	260,870

		unit as 9,437sqm). Former RAF Newton 10/01962/OUT has a reserved matters application (22/01468/RE M) which specifies 16,000 sqm of B8 in one unit.				known to be promoted for storage and distribution	
Total	214,526	0	100,707		569,634		884,867

Source: Local Authority data & Icen analysis

* <https://newstantonpark.com/development/#masterplan> albeit subject to change noting total industrial / logistics 190,000 sqm

Supply outside of the study area

- 5.7 Whilst primary engagement has not been undertaken as part of this study, secondary literature has been used to set out a general indication of levels of supply across wider relevant parts of the East Midlands and South Yorkshire. The sources used are:
- Warehousing and Logistics in Leicester and Leicestershire: Managing growth and change 2021;
 - A1 Corridor Logistics Assessment for Bassetlaw Council (which in itself derives information from the Sheffield City Region Strategic Employment Land Appraisal (SELA) report May 2020 after reviewing the sites identified in the SELA);
 - East Midlands Freeport website
 - CoStar / Developer websites (Derby)
- 5.8 The total area supply for the M1 to the north, Leicestershire to the south, Derby to the west plus Bassetlaw is around 1,675 ha as set out in the table below. This is correct as of spring / summer 2021 when the Leicestershire and A1 studies were published and some of the supply may have diminished in early 2022 (or have been augmented).
- 5.9 The largest contributions to the supply are in Bassetlaw, notable at Apleyhead Junction and Magna Park in Leicestershire (Harborough, M1 J20). The supply most immediately adjacent to the study area is at the Freeport, at East Midlands Gateway / East Midlands Distribution Centre (78 ha) although this is understood to have diminished since the time of assessment, and various sites in Bolsover including near J28, J29 and J30.

Table 5.2 Wider area supply, Large B8 Units (Sqm) (correct at 2021)

	Sqm	Ha	Source
Sheffield	36,050*	10.3	SELA c/o A1
Rotherham	177,800*	50.8	SELA c/o A1
Doncaster	609,000*	174	SELA c/o A1
Bolsover	221,550*	63.3	SELA c/o A1
Bassetlaw (including Apleyhead Junction	770,350*	220.1	A1 Study
Chesterfield	86,450*	24.7	SELA c/o A1
NW Leicestershire (EMG 2, Freeport)	300,000	85.7*	Freeport
Derby***	128,400	36.7*	CoStar
South Derbyshire (EMIP, Freeport)	480,000	137.1*	Freeport
Leicester & Leicestershire (599 ha at	3,052,000*	872**	L&L Study
Total	5,733,200	1,674.7	

* Derived using 0.35 ratio

** Road and rail supply pgs 121 & 124, excludes units listed as 'built, available' p124

*** D131 at St Modwen park Derby, Mega Point Derby, Infinity Park Derby Masterplan

6. ESTIMATES FOR FUTURE STRATEGIC WAREHOUSING NEED – REPLACEMENT AND TRAFFIC GROWTH

Methodology – Background

6.1 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);
- There is no consistent or robust employment density ratio that can be applied to the B8 sector. 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) require 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.

6.2 In order to overcome these apparent weaknesses, this land-use forecast methodology is derived from the following key factors relating to new logistics warehouse facilities:

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- 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). Floor space requirements are more or less proportional to cargo throughput, meaning that as traffic grows additional floor space is required.

6.3 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, Midlands Connect 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.

6.4 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 2040 have been forecast, with the intervening year 2035 also estimated. The forecasts are for the East Midlands region and for the Study Area¹².

¹² Ashfield, Newark & Sherwood, Nottingham, Erewash, Rushcliffe, Broxtowe, Gedling and Mansfield.

Existing Warehouse Capacity

- 6.5 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 East Midlands region and for the Study Area. The data 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.
- 6.6 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').
- 6.7 While the VOA rating list provides a reasonably robust source of data quantifying warehouse floor space, a number of caveats need to be attached, namely:
- The VOA is recording floor space by function for business rates purposes. For the purposes of this analysis, other ancillary floor space designations (e.g. offices) within the same building or plot have been excluded, meaning the total 'headline' size of a commercial property will be greater once these other floor space functions are included. Other data sources which includes this floor space (e.g. Costar) will therefore record the same unit as being larger. Also, these other sources may also pick up units which, at face value, exceed the

9,000sqm baseline, but are in fact smaller when only the warehouse element is only counted;

- Units which are currently not subject to business rates will not be included in the data (e.g. units under refurbishment); and
- New or recently refurbished units will have yet to be recorded by the VOA on the rating list.

6.8 Different data sources (e.g. Costar or planning application records) will therefore not directly correspond in terms of total quantum and the number of units. However, as explained the forecasting methodology is based on the replacement of obsolete warehouse floor space over time, and including any ancillary floor space would over-inflate the quantum that needs replacing. Also note that 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.

England and Wales

6.9 With these caveats in mind, across, 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 mid-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 6.1 Current (2021) Large Scale Warehouse Capacity England and Wales, by Region

Region	000s sq m	Number Units	per unit
East Midlands	10,142	402	25,228
North West	8,328	419	19,876
West Midlands	7,559	385	19,634
Yorkshire/Humber	7,064	336	21,023
East England	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

	Market Share (%)	
	Floor Space	Number Units
East Midlands	20%	16%
North West	16%	17%
West Midlands	15%	16%
Yorkshire/Humber	14%	14%
East England	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)

- 6.10 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 West Midlands region has the third largest concentration of large-scale warehousing in England and Wales, with just under 7.6 million square metres (15% market share when measured by floor space). The average floor space per commercial property in the East Midlands is around 25,200 square metres, significantly above the national average of 20,900 square metres per unit.
- 6.11 The East Midlands region records around 8% of the population of England and Wales, yet the data above shows that it currently accommodates 20% of total English and Welsh warehouse capacity. The mean size per unit is also significantly above the national figure. The East Midlands region has therefore attracted a quantum of warehouse floor space significantly above that which its population and wider economy would suggest; it is significantly more than is required to handle the volume of cargo distributed into the East Midlands regional

economy. This suggests that the region's floor space is predominantly playing a national rather than regional role in this sector. Warehousing serving a national market also tends to be larger than those with a regional hinterland. Dwell times are longer (performing a stock holding role) and therefore more space is required compared with regional facilities where stock turns-over more quickly.

Study Area

6.12 Table A1.3 in the report Appendix presents a breakdown of large-scale warehouse floor space within the East Midlands region by Billing Authority (i.e. planning authority level). Daventry has the largest concentration of warehousing in the region with just over 1 million square metres of floor space across 33 properties. Much of this floor space is located at the rail-served DIRFT Strategic Rail Freight Interchange (SRFI). There are also further significant concentrations of floor space in North West Leicestershire, Northampton, Harborough (Magna Park), Corby and East Northamptonshire. The position with respect to the Study Area is shown in the table below and detailed in the Appendix Table A1.4 and mapped thereafter.

Table 6.2 Current (2021) Large-Scale Warehouse Floor Space Study Area by billing Authority

Local Authority	000s sq m	Number Units
Ashfield	336	14
Newark & Sherwood	207	3
Nottingham	203	11
Erewash	141	7
Rushcliffe	80	4
Broxtowe	48	1
Gedling	46	3
Mansfield	13	1
Total	1,074	44
East Midlands	10,142	402
Study Area market share	11%	11%
Study area - mean size per unit	24,401	
(sqm)		

Source: MDS Transmodal warehouse database (VOA Rating List)

6.13 Just under 1.1 million square metres of large-scale warehouse floor space is located in the Study Area. This represents around 11% of the East Midlands regional total. Also note that the mean size per unit is broadly the same as the regional average. This suggests that the Study Area also accommodates units serving predominantly a national hinterland (both traditional NDCs plus e-commerce focused customer fulfilment centres or CFCs).

6.14 The table below shows the quantum of large-scale logistics floor space that has been developed at rail-served sites in the East Midlands region.

Table 6.3 Current (2021) Rail-served Large-Scale Warehousing in East Midlands

Site	000s sq m
DIRFT	522
East Midlands Gateway	490
EMDC	143
Total	1,155
% regional capacity	11%

Source: MDS Transmodal warehouse database (VOA Rating List)

6.15 Rail-served warehousing capacity in the East Midlands is 1.2 million square metres, equating to around 11% of current floor space capacity. DIRFT, one of the original *Strategic Rail Freight Interchanges (SRFIs)* which commenced operations in the mid-1990s, is the largest rail-served site in the region at just over 0.5 million square metres. Phase III has the potential to add a further 0.7 million square metres of floor space. East Midlands Gateway near Kegworth was granted consent in 2016 but has since grown rapidly; just under 0.5 million square metres of floor space has since been built, with only one plot now vacant from the original Development Consent Order (DCO) permission for 555,000 square metres. A small intermodal terminal was developed alongside the Marks & Spencer distribution centre at East Midlands Distribution Centre. However, to date no train services have been established at the site.

6.16 Northampton Gateway SRFI received a DCO in 2019, with permission to develop up to 468,000 square metres of rail-served floor space. The base infrastructure (rail terminal, estate roads and utilities etc..) is currently being constructed. It is

anticipated that the first warehouse unit will be occupied in 2023/4. Proposals for SRFIs at Hinckley (650,000 sqm) and Etwall (East Midlands Intermodal park, 485,000 sqm) are currently being promoted by developers via the DCO process, albeit both schemes have yet to be formally examined. The Etwall site falls within the newly established East Midlands *freeport*.

Replacement Build

- 6.17 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 (e.g. *Marks & Spencer* at East Midlands Distribution Centre). 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.
- 6.18 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.

- 6.19 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 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.
- 6.20 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 still 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.
- 6.21 In order to estimate the ‘replacement build’ element to 2040 (i.e. floor space which will become functionally obsolete or in some cases physically obsolete), the existing stock of large-scale warehousing in the East Midlands region and the Study Area needs to be considered. This has been undertaken and is detailed above.
- 6.22 On the basis that the average useful economic life of a modern warehouse building is 30 years, up to 2040 we could expect around 63% of the existing warehouse stock in the areas being considered to require replacement (i.e. $19 \text{ years} / 30 \text{ years} = 63\%$). Likewise, up to 2035 we could therefore expect around 47% of the existing warehouse stock to require replacement. This can be

considered the ‘central replacement build’ scenario as we have also considered two further positions where the rate of replacement either begins to slow or accelerates when compared with historical trends.

6.23 In the latter case, we have considered a position where the useful life falls to around 20 years (the ‘high replacement’ scenario), meaning that by 2040 around 95% of the existing warehouse stock in the areas being considered are likely to require replacement (i.e. 19 years/20 years = 95%). Alternatively, the ‘low replacement’ scenario extends the replacement rate to 40 years, meaning that only 48% of the existing warehouse stock in the areas being considered will require replacement (i.e. 19 years/40 years = 48%).

6.24 In the case of the study area, it is estimated that around 75% of the stock is dated before 2000¹³ and therefore would need replacing by 2040. This would suggest that as a minimum, the mid point of the central and higher scenario is appropriate (see further discussion below on recommendations).

6.25 The table below shows the estimated ‘replacement build’ rates under all three scenarios for the East Midlands region and the Study Area up to 2040.

Table 6.4 Replacement Build Rates to 2035 and 2040

Existing floor space - Study Area	1,074	000s sqm
Existing floor space - East Midlands	10,142	000s sqm
	000s sqm	
	2035	2040
High Replacement Scenario		
Study Area	752	1,020
East Midlands	7,099	9,634
Low Replacement Scenario		
Study Area	376	510
East Midlands	3,550	4,817
Central Replacement Scenario		

¹³ See appendix – VOA does not provide age data and so units have been cross referenced against CoStar data and estimated in some instances.

Study Area	501	680
East Midlands	4,733	6,423
Replacement rate Assumptions		
High		
% replacement assuming	70%	to 2035
20 years economic life	95%	to 2040
Low		
% replacement assuming	35%	to 2035
40 years economic life	48%	to 2040
Central		
% replacement assuming	47%	to 2035
30 years economic life	63%	to 2040

Source: MDST Warehouse Database and estimated replacement rates

Growth Build

- 6.26 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 (as noted above, floor space requirements are more or less proportional to cargo throughput, meaning that as traffic grows additional floor space is required). Consequently, new warehouses are constructed partly to accommodate growing traffic volumes over the long term (the 'growth build' element).
- 6.27 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 East Midlands region and the Nottinghamshire study area (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 East Midlands region and the Study Area in 2035 and 2040.

-
- 6.28 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.
- 6.29 In 2020, MDS Transmodal produced an updated set of rail freight demand forecasts for Network Rail 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 forecasts¹⁴. Values for 2035 and 2040 were interpolated from the 2033 and 2043 outputs.
- 6.30 The table below shows the total volume of cargo currently destined for the Study Area (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 for road freight¹⁵. On the same basis, projected volumes for the forecast years up

¹⁴ While the Network Rail forecasts were for future rail freight demand, in parallel the GB Freight Model also undertakes road freight forecasts as part of the same process (albeit not published by Network Rail).

¹⁵ Goods are generally 'lifted' 2-3 times between production/import and delivery to the end user, however the base data used in the GB Freight Model does not record at which stage in the supply chain the goods are 'lifted'. Previous work indicates that around 45% of consumer commodities delivered into the East Midlands are direct to a large-scale warehouses, the balance being delivered to stores or increasingly residential properties.

to 2040 are presented. The table following shows the equivalent figures for the East Midlands region (in this case all inbound containerised rail traffic is assumed to be destined for a large-scale warehouse).

Table 6.5 Existing and Forecast Freight Traffic Destined for Study Area

		000s tonnes- lifted	
Study Area	2021	2035	2040
Road			
Total	18,020	20,301	21,651
To warehouse ^a	8,109	9,135	9,743
Rail			
Total	0	0	0
To warehouse ^a	0	0	0
Total to warehouse^(a+b)	8,109	9,135	9,743
<i>Growth v 2021</i>		1,026	1,634

Source: MDS Transmodal GB Freight Model

Table 6.6 Existing and Forecast Freight Traffic Destined for East Midlands

		000s tonnes-lifted	
East Midlands	2021	2035	2040
Road			
Total	115,349	136,519	146,592
To warehouse ^a	51,907	61,434	65,967
Rail			
Total	1,636	3,329	4,059
To warehouse ^b	1,636	3,329	4,059
Total to warehouse^(a+b)	53,543	64,763	70,025
<i>Growth v 2021</i>		11,220	16,483

Source: MDS Transmodal GB Freight Model

NB: The East Midlands total includes the traffic for study area

- 6.31 The forecasts, as described, indicate that for the Study Area an additional 1.6 million tonnes can be expected to pass-through large-scale distribution centres in 2040 compared with 2021. Likewise, the equivalent figure for the East Midlands is an additional 16.5 million tonnes over 2021 volumes.
- 6.32 The growth in annual traffic for each forecast year (when compared with 2021 levels) have subsequently been converted into the need for additional floor space i.e. the growth build element, using generally accepted 'conversion factors' which relates annual tonnage throughput and floor space at large scale 'high bay' type warehouses (see appendix table A1.6 for worked example). The tables below show the forecast traffic growth alongside the additional floor space required to handle that growth.

Table 6.7 Forecast Traffic Growth and Additional Floor Space Required

	2035	2040
study area		
Traffic growth v 2021 (000s tonnes)	1,026	1,634
Additional floor space (000s sqm)	40	64
East Midlands		
Traffic growth v 2021 (000s tonnes)	11,220	16,483
Additional floor space (000s sqm)	442	649

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

NB: The East Midlands total includes the traffic and new-build rate for Nottinghamshire study area

Total New-Build and Land Requirements

6.33 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 6.8 Forecast New-Build Rates to 2040 – Study Area

Study Area	000s sqm		Land required (Ha)	
	2035	2040	2035	2040
High Replacement Scenario				
Replacement build	752	1,020		
Growth build	40	64		
Total	792	1,084	226	310
Low Replacement Scenario				
Replacement build	376	510		
Growth build	40	64		
Total	416	574	119	164
Central Replacement Scenario				
Replacement build	501	680		
Growth build	40	64		
Total	541	744	155	213

Table 6.9 Forecast New-Build Rates to 2040 – East Midlands

East Midlands	000s sqm		Land required (Ha)	
	2035	2040	2035	2040
High Replacement Scenario				
Replacement build	7,099	9,634		
Growth build	442	649		
Total	7,541	10,283	2,154	2,938
Low Replacement Scenario				
Replacement build	3,550	4,817		
Growth build	442	649		
Total	3,991	5,466	1,140	1,562
Central Replacement Scenario				
Replacement build	4,733	6,423		
Growth build	442	649		
Total	5,174	7,072	1,478	2,020

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

NB: The East Midlands total includes the new-build rate for Nottinghamshire study area

Land required: assumes floor space is 35% of total plot footprint

6.34 For the High Replacement scenario within the Study Area, around 1.1 million square metres of new large-scale warehouse floor space is forecast to be built by 2040. The central and low scenarios forecast 0.6 and 0.7 million square metres of new floor space respectively. 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 35% floor space 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. For the East Midlands as a whole, we would expect around 10.3 million square metres of new-build floor space by 2040 for the high replacement scenario and 7.1 million square metres for the central scenario. Chapter 9 discusses the matter of brownfield recycling of existing sites.

6.35 As is normally the case in land-use planning, a margin for flexibility has been added to the above forecast new-build rates. This is for three principal reasons:

- To ensure a 'safety margin' to account for potential delays in sites or plots being coming forward for development;
- To provide an additional buffer to ensure that supply is not too tightly matched to forecast demand; and
- To provide an effective vacancy rate within the property market, which generally works on between 5% and 10% of property being vacant at any one time.

6.36 In this case, a margin of 5 years building, based on recent completions trends, is considered appropriate. This currently equates to around 186,000 square metres

for the Study Area (see section 7). The table below therefore incorporates this margin into the forecast figures presented above.

Table 6.10 Forecast New-Build Rates to 2040 plus Margin – Study Area

Total New Build plus 5 years 'margin'	000s sqm		Land req'd (ha)	
	2035	2040	2035	2040
High	978	1,270	279	363
Low	602	760	172	217
Central	727	930	208	266

6.37 For the High Replacement scenario within the Study Area, around 1.3 million square metres of new large-scale warehouse floor space is forecast to be built by 2040 including margin.

6.38 While 'high', 'central' and 'low' replacement forecasts have been considered above, it is the 'high replacement' scenario that should be considered as the preferred option going forward for planning purposes. 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 RDC warehouse in the e-commerce sector.

-
2. The need to provide the market with a suitable geographic choice of sites across the study area alongside a range of sites with varying plot sizes, in order to satisfy the increasingly diverse range of warehouse operator requirements.
 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.

6.39 In the case of the study area, as noted above, records suggest at around 75% of stock is older than 2000 (see appendix Table A1.4 derived from CoStar / estimates), which falls at the mid point of the central and higher scenarios, with the higher recommended.

6.40 Consequently, we should plan on the basis of a faster rate of replacement-build.

7. ESTIMATES FOR FUTURE STRATEGIC WAREHOUSING NEED – LABOUR DEMAND, COMPLETIONS

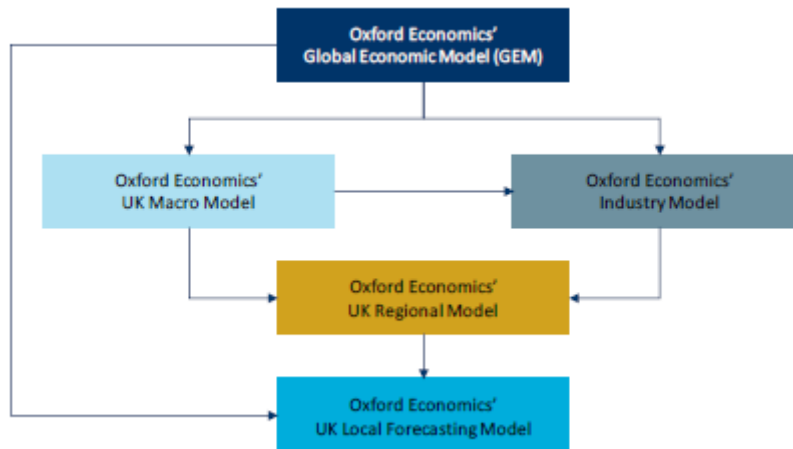
- 7.1 This section considers two models to forecasting future floorspace needs for warehousing: econometric forecasts for labour demand and past completions trends.
- 7.2 Both of these are considered to have significant disadvantages for providing a realistic outlook for logistic needs in the study area, as discussed below.

Labour demand

- 7.3 This analysis in this section is based on the Oxford Economics Local Authority District Forecasting Model. The model¹⁶ *'sits within the Oxford suite of forecasting models. This structure ensures that global and national factors (such as developments in the Eurozone and UK Government fiscal policy) have an appropriate impact on the forecasts at a local authority level. This empirical framework is critical in ensuring that the forecasts are much more than just an extrapolation of historical trends. Rather, the trends in our global, national and sectoral forecasts have an impact on the local area forecasts. In the current economic climate this means most, if not all, local areas will face challenges in the short-term, irrespective of how they have performed over the past 15 years.'*

¹⁶ Oxford Economics model guidance, 2022

Table 7.1 Hierarchical structure of Oxford Economics' suite of models



Source: Oxford Economics, 2022

Labour demand and floorspace forecasts

- 7.4 The labour demand forecast is based on Oxford Economics' baseline employment forecast. In this scenario, the study area's¹⁷ economy is expected to grow from £25.3 billion in 2021 to £34.6 billion by 2040, which is equivalent to 37% GVA increase.
- 7.5 In the same period, the forecast predicts a growth of close to 31,000 jobs across all sectors of the economy. In order to understand the floorspace needs related to the growth of individual sectors, this must be first translated into full-time equivalent (FTE) jobs. This has been undertaken through interrogation of the detailed split between full and part-time jobs using ONS BRES data for 2020. This results in a total of 25,641 additional FTE jobs between 2021 and 2040.
- 7.6 Icenis has then considered the proportion of employment in each sector which is likely to take place in warehousing and industrial facilities (i.e. B8). We have calibrated our standard model which relates sectors and use classes for study area through the composition of employment in key sectors. The major

¹⁷ Study area: Ashfield, Broxtowe, Erewash, Gedling, Mansfield, Newark and Sherwood, Nottingham UA, Rushcliffe

contributions to B8 needs are Transport and storage jobs followed by Wholesale and retail.

7.7 The resultant FTE jobs growth by use class is shown below. For B8 use class employment growth, this corresponds to a decrease of 640 FTE jobs between 2021 and 2040. This is in particular driven by a contraction in the Transport and storage sector from 26,600 jobs in 2021 to 24,100 jobs in 2040, which is contrast to the strong growth of 7,600 jobs in the last 5 years.

Table 7.2 FTE jobs by use class

	2021-26	2026-31	2031-2036	2036-2040	Total
Office	4,315	1,284	511	345	6,456
R&D	68	11	5	4	88
Industrial	-1,887	-4,650	-4,397	-3,131	-14,065
Warehouse/ Distribution	1,093	-425	-720	-587	-640
Total	3,590	-3,781	-4,601	-3,369	-8,161

Source: Icen Projects analysis

7.8 We have converted figures to provide employment densities for gross external floor areas. A density figure of 80 sqm per FTE employee is used for B8 floorspace. Whilst this figure is likely to be much lower than the density in strategic warehouses, it also reflects the smaller warehouse floorspace requirements in the authorities.

Table 7.3 B8 employment floorspace need (sqm)

	2021-26	2026-31	2031-2036	2036-2040	Total
Study area	87,433	-34,035	-57,628	-46,934	-51,164

Source: Icen Projects analysis

7.9 The forecast shows an initial need, but by 2026-31 and in the following 5-year periods, floorspace need is decreased, based on Oxford Economics' employment forecast. These are net changes, and do not take into account of frictional vacancy

or replacement demand, such as from existing companies requiring upgraded floorspace.

7.10 To calculate the land requirement to support these net changes, we have applied a plot ratio of 40% for B8 floorspace. This is higher than the 35% used for strategic warehousing sites elsewhere in this report as includes a wider range of B8 premises. The output generates the following requirement for net additional land to support jobs growth:

Table 7.4 Forecast B8 employment land need (ha)

	2021-26	2026-31	2031-2036	2036-2040	Total
Study area	21.9	-8.5	-14.4	-11.7	-12.8

Source: Icen Projects analysis

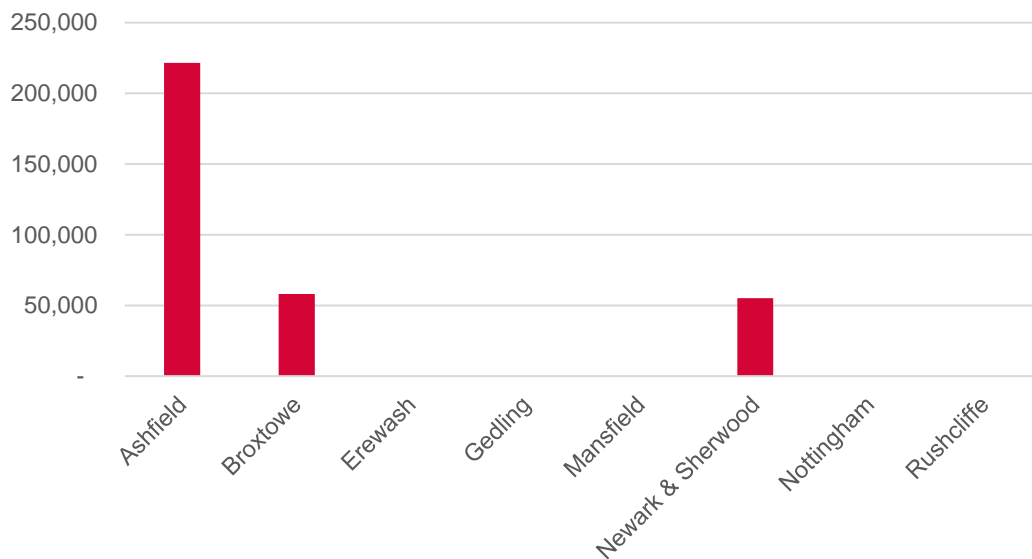
7.11 There is then an overall B8 need for an additional 21.9 ha to 2026, and then a surplus of 12.8 ha by 2040.

7.12 The above model illustrates the weakness in using labour demand models for strategic warehousing requirements due to an over reliance on past trends and national macroeconomics, failing to recognise new industry development and historic land supply constraints. The negative needs for warehouse clearly contrast with the market indicators reviewed earlier in this report.

Completions trend

7.13 The constituent Study Area authorities have provided completions data from 2011 to 2021, which has been filtered to schemes above 100,000 sqft (or 9,000 sqm). Only Ashfield, Broxtowe and Newark & Sherwood have reported completions since 2011 as below.

Table 7.5 Strategic warehousing completions, 2011 to 2021 (floorspace, sqm)



Source: Local Authority data

- 7.14 The total completions are 334,800 sqm or an average of 37,200 sqm per annum for the 2011/12 to 2020/21 monitoring period. Analysis suggests that in percentage terms the study area market has grown at a similar rate to the East Midlands as a whole, albeit from a much smaller base.
- 7.15 The implications of extrapolating these deliveries into the future are set out below. The model also allows for a completions-based margin to be included, in line with good practice in similar studies this is applied as 5 years of average completions.
- 7.16 The model suggests that around 900,000 sqm of space is required in the future to meet needs. However, this method builds in historic land supply constraints in the study area and will therefore underestimate market needs. the next section explores alternative forecasting methods.

Table 7.6 Completions trends, future logistics needs 2020-41 (sqm)

	Study area	East
2021 stock	1,074,000*	10,124,000*
Deliveries 2011/12-20/21	334,800**	2,852,000
Percentage increase	31%	28%
Average delivery	37,200	317,000
5yr completions margin	186,000	
Annualised deliveries projection	706,800	+6,022,000
Annualised deliveries + margin	892,800	

Source: CoStar/VOA*/LPA**

8. ESTIMATES FOR FUTURE STRATEGIC WAREHOUSING NEED – MARKET SIGNALS

- 8.1 Traditionally the key methods for considering future needs in large scale warehousing are either projecting forward past trends (as above) or using the traffic growth and replacement demand model. Both of these rely to a significant degree on past deliveries to measure future need. However (as noted in the ELNS for the study area) historic completions are unlikely to reflect the future needs due to land supply restriction policies – notably Green Belt. This view is wholly reinforced by stakeholders.
- 8.2 Given the above, and in order to reflect the requirements of the Planning Practice Guidance this section considers wider market signals, take up trends and the engagement feedback in seeking to establish an unconstrained view of the market needs.

Study area take up trends

- 8.3 Take up trends are considered to be a useful indicator of market requirements in forecasting future business needs. The British Property Federation's (BPF) January 2022 report on 'Levelling Up – The Logic of Logistics' p20 suggests that net absorption (along with adjustments for historic supply constrained suppressed absorption) are one of the most effective ways of reporting future logistics requirements.
- 8.4 The table below considers the gross and net absorption volumes and rates for the study area, filtered to warehousing, distribution and storage (using CoStar) as well as a separate calculation which additionally includes all industrial premises (CoStar definition). A longer and shorter run period of absorption is considered reflecting the post recession 2011 onwards as well as last 5 years when demand has been accelerating.
- 8.5 A compensation is included in the model to reflect an uplift for lack of supply, being when availability rates have historically fallen below 7.5%, adding the amount of

absorption that would have been needed to achieve this rate of availability. This broadly follows the method as per the BPF report ¹⁸. A margin is also added reflecting 5 years of completions as per the previous chapter.

- 8.6 This suggests a range of 731,400 sqm to 843,100 sqm for B8 premises is required for the long run period (net and gross absorption respectively) but rising to 1.1m sqm using more recent take up trends, which are influenced by the large Amazon units. The difference between net and gross absorption is negligible in the near term model as little space has been released back into the market so most take up has been positive. Notwithstanding, it is of note that net absorption is broadly considered a more appropriate indicator than gross absorption, as net factors in lease breaks releasing units back into the market.
- 8.7 When looking at all industrial units, including manufacturing, the needs model rises to 1.6m sqm up to 1.9m sqm. This reflects inward investment in sites and industries unrelated to the logistics sector, although stakeholders have highlighted the continued interest of manufacturers seeking large scale units in the study area.

Table 8.1 Take up projections, study area B8 / all industrial (sqm)

	Study Area (B8) 2012-21	Study Area (B8) 2017-21	Study Area (all industrial) 2012-21	Study Area (all industrial)
Gross absorption av.	25,300	39,000	40,900	65,300
Net absorption av.	19,400	37,400	27,600	51,200
Gross 2021-40 projection	480,100	741,000	777,100	1,241,100
Net 2021-40 projection	368,500	710,800	524,400	972,500
Compensation for sub 5%	216,500	177,000	947,700	486,700
5yr completions margin	186,000	186,000	186,000	186,000
Gross projection + compensation +	843,100	1,143,600	1,910,700	1,913,900
Net projection + compensation +	731,400	1,113,300	1,657,400	1,645,300

Source: CoStar, Icen analysis

¹⁸ .Levelling Up – The Logic of Logistics’ British Property Federation, January 2022

-
- 8.8 In this particular model, the most recent period (i.e. 2016-21) may best represent the medium term future needs and outlook for the logistics sector, due to very little activity being recorded in the 2011-16 period simply due to no units being available. This would be around 1.1m sqm for B8 alone, or 922,400 sqm as a mid point between the longer and shorter run periods for net absorption (see discussion later regarding appropriate historic periods for models).
- 8.9 Notwithstanding the outputs above, it is likely that the figures under estimate the levels of recent and therefore future demand for industrial and logistics even taking into account the compensation for low availability. This is as the compensation for the B8 only unit suppression is likely to under estimate unmet demand because, quite simply, with availability below 2%, even a compensation to improve this is limited due to being derived from a relationship with existing stock. Alternative models are therefore considered below.

Wider market signals

- 8.10 Based on the data analysis and stakeholder engagement the following key messages are reflected upon in considering unconstrained needs:
- There is a 'two tier' logistics market in the study area with large scale logistics over 200,000 sqft and above seeking motorway junctions; and a secondary market more focused on units around 100,000 sft (mid box) along well connected A Road corridors.
 - The market for large scale occupiers can extend along the strategic road network across the whole East Midlands region however within the Derby / Nottingham M1 area it is focused on Junctions 24 (outside study area) to 28. This reflects the significant labour catchment for the two cities.
 - There is considered to be occupier demand for significant scale logistics development at all motorway junctions in the study area.
 - The pace of development and scale of developer interest at East Midlands Gateway and generally at Castle Donington, as well as Leicestershire as a

whole, provides a good indication of the potential levels of market demand in the study area in the absence of land-supply constraints.

8.11 Taking into account the above, the following two approaches are considered pertinent in examining the future market demand for the study area in terms of occupier take up:

- How the M1 J24-28 has performed historically
- How study area has performed in comparison to Leicestershire and Nottinghamshire overall

J24-28 Net Absorption

8.12 This section considers the influence of M1 J24 and J28 on the fringes of the study area, to the north and south respectively, as part of the J24-28 corridor.

Table 8.2 J24-28 M1 (5 mile corridor) (showing existing 100,000sqft+ B8 units)



Source: CoStar / Icen

8.13 The diagram above shows M1 J24-28 area as depicted by CoStar including existing large B8 units within 5 miles of the route. Clusters are evident at the north and south ends which site beyond the Green Belt. The key industrial and logistics parks are identifiable as:

- East Midlands Gateway / Distribution Centre J24/24a
- Glaisdale Parkway / Drive, Nottingham J26
- Blenheim Industrial Estate / Harrier Park, Hucknall, Nottingham, J26
- Sherwood Business Park J27
- Clover Nook, Castlewood Business Park, Berristow Lane, Export Drive, Orchard Way, J28

8.14 The table below reports on the recent and longer term historic take up of units and a projection of this to 2040. The results of the table when show a projected need of 1.5 m – 2.0 m sqm for the J24-28 based on historic trends.

8.15 Much of the take up has been in the last 5 years since 2017 with the occupation of East Midlands Gateway units, which SEGRO report have been let at a much faster rate than anticipated at the scheme outset.

Table 8.3 Net Absorption Trends, J24-28 M1 (5 mile corridor) Large B8 Units (Sqm)

	2012-21	2017-21
Net absorption total J24-28	798,100	609,100
Net absorption annual average	79,800	121,800
2021-40 projection	1,516,400	2,314,700

Source: CoStar, Icen analysis

8.16 In providing a balanced perspective on how this requirement might be reflected in the study area, it is useful to consider future supply proposals already put forward

as part of the Freeport nr J24 and in Bolsover J28 (outside study area). These include the below, however Ratcliffe-on-Soar Power Station is not included as this forms part of the 'in study area' supply, considered later:

- East Midlands Intermodal Park (EMIP): the website indicates 5.2m sqft B2/B8 (480,000 sqm). The Park sits outside the current study area M1 J24/28 corridor and is a freeport dedicated rail freight terminal both dealing with goods storage, distribution and manufacturing. Its role differs to mainstream logistics and is sited some 11 miles west of the M1. Therefore there is uncertainty regarding its relevance to the M1 corridor demand, so it is factored in as a range below in the table.
- East Midlands Airport and Gateway: East Midlands Gateway 2 (EMG2), south of East Midlands Airport is under promotion through the NWL Local Plan within an estimated site capacity of 300,000 sqm (B2/B8).
- Bolsover J28 20/00295/OUT 55,000 sqm B8 large units

8.17 The table below discounts these elements of supply in the corridor sitting outside of the study area to identify a corridor residual need.

Table 8.4 Net Absorption Trends, J24-28 M1 (5 mile corridor) Large B8 Units (Sqm)

	2012-21	2017-21
2021-40 projection	1,516,400	2,314,700
Potential supply J24-28 outside study	355,000 – 835,000	
Residual need 2021-40	681,400 - 1,161,400	1,479,700 – 1,959,700

Source: CoStar, Icen analysis

* assumes as a minimum the Bolsover and EMG2 site, potentially with EMIP at upper end.

8.18 There is a wide range of residual need depending on the assumptions around the historic period examined and the role of EMIP. It seems reasonable that some of

the demand would be absorbed by EMIP proposal notwithstanding its specific characteristics and location.

- 8.19 One of the issues is whether the most recent short run period of high demand reflects the long term future need. In our estimation, high levels of demand are likely to continue in the 2020s as the market corrects for the structural adjustment towards increased online deliveries and increased automation, but could cool off in the 2030s. If this were to be the case then a mid point between longer run and shorter run performance would be reasonable, as is taken above. This in part assumes that the supply can respond to demand requirements, albeit that there is a possibility this ends up being in non preferred market locations which causes additional costs to operators and consumers. It is also possible that high levels of demand will continue for a longer period, driven by increases in e-commerce.
- 8.20 A central point of the residual need above (all periods / ranges) would be around 1.3m which is considered a balanced position to take, excluding margin. Whilst it could be argued this does not account for historic market suppression, it does involve projecting the performance of out of study (non Green Belt restricted) area take up into the study area.
- 8.21 It is acknowledged that there is a risk of double counting the role of EMG and other developments at J24 in North West Leicestershire in so far as they feed into the Leicester and Leicestershire future warehousing needs, to be considered by those authorities separately. However the stakeholder consultees for the Nottinghamshire / Derby market area (chapter 3) are clear that EMG is a good proxy for the levels of demand that could be met to the north (in the study area) should provision be made, albeit that EMG does have specific characteristics in terms of its scale, infrastructure and location that make it unique.
- 8.22 Taking the above points into account in the round, the mid point of the residual needs is 1.3m sqm which is considered a starting point for considering the future requirements (excluding any margin). There is potential for the need to rise to 1.7m being the mid point of the 2017-21 residual need projection, and this should

be revisited in a future Study update. For context 1.3m sqm is around double the size of EMG.

- 8.23 This exercise is focused on the M1 corridor ‘big box’ market performance. However it is acknowledged that there is a market for units of over 9,000 sqm on A-roads in the study area which is demonstrated most notably by developments on the A1 at Newark’s Currys National Distribution Centre, to a lesser extent the Brunel Drive area in Newark, as well as more notably at Summit Park in Ashfield now home to Amazon (1.1m sqft¹⁹). Central areas of Nottingham are also seeing large scale units with the 2022 built units on Thane Road. The historic take up (net absorption) of the study area sitting outside of the M1 corridor defined above has been 34,900 sqm in the last 5 years and 16,400 in the last 10, with Amazon making a significant contribution in 2020 (leasing 1.1m sqft and 0.5m sqft separately). Forecast forward to 2040, this range is 331,00 to 664,000 sqm. It is reasonable to make some additional allowance for development in this area, although some of the deals such as Ashfield’s Summit Park are at the M1 corridor (as defined above) periphery and would potentially prefer to be nearer the main junctions and are arguably captured in the theoretical model outlined above. Therefore on balance a lower level of 0.3m sqm additionally can be considered as part of this model, **bringing the total forecast to 1.6m sqm.**

The performance and role of the study area vs Leicestershire and Nottinghamshire

- 8.24 There is clear evidence that the study area (south Nottinghamshire) forms a part of the wider Golden Triangle. It sits within the East Midlands, the highest performing region for logistics, hosts the M1 corridor and has a strong labour catchment from Derby and Nottingham. Historic supply constraints have limited large scale logistics development notably at J25-J27. As a result the historic demand for such

¹⁹ Amazon occupying 1.1m sqft at Sherwood Way South, Sutton in Ashfield, being 2 storeys of 550,000 sqft but noting the planning application was for 3 storeys 162,781 sqm (1,752,160 sqft).

units has been delivered in less constrained locations, notably Leicestershire, which has a history of providing logistics parks and also benefits from improved connectivity to the south and to the west. There is also evidence that the surge in demand in the last 5 years, driven by e-commerce and enhanced by the COVID-19 pandemic, has both put greater pressure on existing core logistics locations such as Leicestershire / Northamptonshire as well as leading to new areas for development being sought. This is as reported by stakeholders and articulated in the A1 Corridor Logistics Assessment for Bassetlaw Council which reports the significant supply coming forward on the A1 in part due to constraints on the M1.

8.25 In order to provide an alternative consideration what the market need is in the study area, notably the M1 corridor, in the context of the above, it is appropriate to review its performance against Leicestershire and Nottinghamshire as a whole (which includes Bassetlaw).

8.26 The table below sets out the historic and projected absorption in the study area, Leicester and Leicestershire and Nottinghamshire.

Table 8.5 Net Absorption Trends, L&L, Notts, Study area, Large B8 Units (Sqm)

	Study area	L&L	Nottinghamshire
Net absorption total 2012-21	193,900	1,440,000	374,100
Net absorption 2012-21 annual average	19,400	144,000	37,400
2021-40 projection ('12-'21 base)	368,500	2,736,000	710,800
Net absorption total 2017-21	187,000	1,133,900	331,800
Net absorption 2017-21 annual average	37,400	226,800	66,400
2021-40 projection ('17-'21 base)	710,800	4,308,800	1,260,900

Source: CoStar, Icen analysis

NB: the totals for 2012-21 and 2017-21 in the study area and Nottinghamshire are similar due to negative net absorption in 2012 and to a lesser degree 2015, bringing down the long run average.

8.27 The key points and reflections on the table are as follows:

-
- Leicestershire's short run rate is driven by East Midlands Gateway's contributions in recent years. It is also of note that the modelled 2021-40 requirement for Leicestershire aligns closely to the recommendations in the 'Warehousing and Logistics in Leicester and Leicestershire: Managing growth and change' 2021 report for the future need.
 - Compared to Leicestershire, the study area longer run rate is 13% of the total net absorption, but this rises to 16% in the last few years with larger deals occurring.
 - In broad terms, it is estimated that the study area if unconstrained could readily be performing at a minimum of 30% of Leicestershire's total absorption although it would not be unrealistic to achieve 50%, given for example the M1 junctions and local labour market availability. Using the long run Leicestershire average 30% would be 0.8m sqm, rising to 1.4m at 50%, and for the more recent period 1.3m and 2.2m sqm respectively. A central range over this approach is therefore 1.1m-1.7m sqm with a 1.35m sqm centre point.
 - Considering the Nottinghamshire position, for the long and short run period, the study area provides around half the Nottinghamshire total, with Bassetlaw essentially delivering the rest. Given the M1 thoroughfare, it is reasonable to think that the study area would, if unconstrained, perform at twice the rate of Bassetlaw or double the current indicators, given its M1 junctions and labour market. This would be a range of 0.7m – 1.4m sqm depending on the longer or shorter period considered with a mid point of 1.1m sqm.

8.28 Reflecting on the above points in the round, and acknowledging the levels of professional judgement involved, it is estimated that 1.2-1.3m sqm would be an appropriate minimum starting point for future requirements.

8.29 Using the mid points of estimates from the recent short run period 2017-would potentially push demand levels higher, rising towards 1.7m sqm. This depends on the persistence of the current high levels of demand, which as above should be revisited in due course.

Relationship with other studies and adjoining areas

- 8.30 Undertaken large scale logistics studies at the HMA level can present significant methodological difficulties and challenges as the real world property market areas for occupiers overlap. As noted by stakeholders, there is a Nottingham / Derby M1 sub market but this forms part of a wider M1 corridor area of search. It is particularly challenging to undertake this exercise in an area of Green Belt constraint where historic delivery has been suppressed. Notwithstanding, it is appropriate to comment on the relationship of this study with others in the East Midlands.
- 8.31 The modelling undertaken above and outcomes of need are not intended to suggest that increased provision in the study area here is capturing a future Leicestershire market, but rather to reflect the potential of the current study area market both capturing a greater share of the regional total but also importantly to improve the sub regional and regional vacancy rates which have been below 5% for a number of years, thus suppressing market activity and investment and causing excessive rental rises and development activity in sub optimum locations. Within Leicestershire, delivery around J24 is likely to best represent the manifestation of suppressed demand to the north, albeit the East Midlands Gateway notably has its own characteristics in terms of SRFI, Airport access and connectivity that make its offer particularly unique. However, historically and most notably under the most recent conditions (i.e. 2019 onwards) the low vacancy, rising demand and lack of supply in the Nottingham HMA study area will be contributing to greater demand in this part of Leicestershire.
- 8.32 In terms of wider Nottinghamshire, i.e. Bassetlaw, there is some potential for a market share capture of an expanded supply in the study area here, given the narrative articulated previously and in the A1 report regarding demand pressure on the A1 being partly a response to the M1's supply constraints.
- 8.33 The A1 Study indicated the property market area included the whole of Nottinghamshire, as well as south Doncaster and parts of Derbyshire and Sheffield. On a 5yr take up model basis, it indicated 8.0 years of supply; and 11.7 years supply based on average deliveries, indicating insufficient supply across

Nottinghamshire to meet a 15 year (Bassetlaw) Local Plan requirement. This A1 study is not directly comparable with the Nottinghamshire HMA Study herein due to assumptions about supply position and techniques used, however it is clear that the 4.4m sqft Apleyhead Junction site (410,000 sqm) will make a significant contribution to sub regional needs. This Apleyhead Junction site (and Bassetlaw as a whole) relates predominantly to an A1 / Doncaster market, but it is viable for large operators looking across the county and East Midlands as a whole. This would therefore be an argument for not assuming the highest level of need in all scenarios modelled herein.

8.34 In terms of Derbyshire, the study area for the Nottingham HMAs herein only includes Erewash. However there is clearly a market interaction with other authorities including Amber Valley, Bolsover, Chesterfield and North East Derbyshire who form part of the M1 corridor in this part of the East Midlands. This is particularly prominent at M1 J28 around South Normanton and Alfreton with units proposed Panattoni Park J28 (Bolsover). This area and others are likely to continue to experience significant market pressure for new units.

9. FUTURE WAREHOUSE FLOORSPACE GROWTH SCENARIOS: SUMMARY AND SUPPLY BALANCE

9.1 This section considers the range of modelled future needs in the preceding chapters, confirms a recommended preferred need and sets out how this relates to the supply position.

Recommended future large scale logistics needs

9.2 The table below summarises the outcomes of the models for future large scale logistics requirements. This takes into account a margin of 5 years historic completions.

Table 9.1 Range of modelled large scale logistics unit needs (sqm)

	Study Area 2021-40	Need with Margin
Labour demand	-51,000	135,000
Completions Annualised	707,000	893,000
2012-21 Net absorption (+	554,500	731,400
2017-21 Net absorption (+	927,300	1,113,300
TGRD Low	574,000	760,000
TGRD Central	744,000	930,000
TGRD High	1,084,000	1,270,000
Share of M1 J24-28	1,600,000	1,786,000
Increased delivery relative to Notts / L&L	1,300,000	1,486,000

Source: Various, see previous sections

9.3 In order to recommend a preferred future need, the above outcomes are discussed briefly as follows:

- Labour demand: this modelling technique is not considered suitable for assessing logistics needs given the difference between outcomes and market signals. This reflects both historic supply constraints influencing the forecasts and a weakening relationship between jobs and floorspace.

-
- Completions trend: this position is considered to be excessively influenced by historic supply side constraints and therefore not representing future market needs.
 - Net absorption with compensation (2012/16-21): whilst historic take up of space has been constrained by supply policies, some adjustment has been allowed for to compensate for this. However, this is considered insufficient as it is derived from a ratio of existing stock, which is considered excessively constrained itself as represented by persistent low availability.
 - The traffic growth with replacement demand models range outputs at 0.9m – 1.3m sqm with a margin. As set out previously, based on stock age, the mid point of this range would be considered a minimum (1.1m) however the upper end is preferred (1.3m), based on the need to refresh much of the existing stock due to its lack of suitability for meeting modern logistic needs in terms of size and quality.
 - Market signals have been used to seek to model an unconstrained market requirement, using the localised M1 J24-28 take up (with allowance for the wider area), as well as considering an enhanced take up in the study area compared to wider geographies. This places the requirement at 1.5 m – 1.8m sqm.

9.4 Given the matters above, with the most appropriate models pointing to the higher figures, it is recommended that the higher range estimates are appropriate for seeking to determine the unconstrained logistics market requirements being 1,270,000 to 1,786,000 sqm.

9.5 Given that some of the modelling techniques are more exploratory, and that Bassetlaw plays a role in absorbing some subregional needs, on balance it is recommended that **the most appropriate range is 1,270,000 to 1,486,000 sqm.** Taking into account the current strength of market indicators the recommendation is with the upper figure to be used for planning policy purposes.

9.6 The recommended requirement for planning policy purposes is therefore **1,486,000 sqm or 425 ha** derived from a 0.35 plot ratio. This ratio is appropriate for the delivery of large new logistics parks, but through infill of existing development could fall to 372 ha using a 0.4 ratio. For scale, this is in the order of 3-5 large strategic logistics parks (for example with East Midlands Gateway granted consent in 2016 for 555,000 square metres although this is exceptionally large). Based on stakeholder feedback this requirement is broadly in line with market expectations.

Demand supply balance

9.7 The table below summarises the demand / supply balance position. This firstly takes into account unimplemented permissions and allocations in the study area. A further position is included allowing for the draft allocations (Ashfield and Erewash) as well as the Freeport proposals (Rushcliffe).

9.8 The residual need based on confirmed pipeline is **1,171,000 sqm or 335 ha**.

9.9 This falls to **601,000 sqm or 172 ha** when taking into account draft allocations and permissions, should they be confirmed.

Table 9.2 Study area demand and supply balance

	Sqm	Ha@0.35
Permissions + Allocations	315,233	
Demand	1,486,000	
Residual need	1,170,767	335
Future pipeline	569,634	
Residual need inc draft allocations / permissions and	601,133	172

9.10 This residual need now falls to the order of one or more realistically two large logistics parks depending on the final status of emerging allocations and the Freeport. This falls to the lower end of stakeholder perspectives on the market requirement but does assume the delivery of significant developments across the study area most notably at South of Newark, allocations at J27 and Whyburn Farm in Ashfield, the New Stanton site in Erewash and at Ratcliffe on Sour power station.

10. AREAS OF OPPORTUNITY

- 10.1 Given the land short-fall identified in the previous section, general broad areas across the study area where new strategic logistics sites should be located (Areas of Opportunity) have been identified. These would be sites, of the size, scale, location and transport connectivity required by the market, which could potentially be available to 'fill' the long-term short-fall identified. This has been undertaken using a criteria based approach.
- 10.2 Note that general broad areas are identified, and the analysis does not consider, assess or recommend specific sites.
- 10.3 We have not considered the development of rail-served sites (SRFIs) in the Study Area. This is for two main reasons:
- The area is in close proximity to a number of existing and planned SRFIs, including East Midlands Gateway, East Midlands Distribution Centre (albeit the terminal is currently not active) and the planned East Midlands Intermodal Park (Goodman promoted development within the East Midlands Freeport – Section 4). New large-scale warehousing in the Study Area will be able to access the rail terminals at these sites (and the rail services operated to/from them) using efficient transfer operations, potentially using battery-electric HGVs in much the same manner as that adopted by Tesco in south Wales (see decarbonisation); and
 - The Study Area is relatively small, with the forecast quantum of needs and notably residual needs only being slightly above that which is developed at a modern SRFI. These need to be large, in terms of floor space built, in order to fund the additional infrastructure capital costs associated with the rail terminal. For example, East Midlands Intermodal Park is planned to be just under 0.5 million sqm while East Midlands Gateway was consented at just under 0.6 million sqm. By providing a choice of sites across the study area (in order to provide the market a choice in terms of location and plot sizes), the resultant

developments could be too small to generate viable SRFIs. This is not to say proposals for large logistics parks should not be considered.

10.4 The following criteria have been used to identify the broad areas of opportunity:

- Good connections with the strategic highway network;
- Appropriately located relative to the markets to be served;
- Is located in an area where there is a known under-provision of strategic sites;
and
- Is accessible to labour and located close to areas of employment need.

10.5 Good connections to the strategic highway network are defined as being an area served by motorways and long-distance dual carriageways, or within a reasonable distance of such routes by non-strategic highways suitable for conveying HGVs. Areas should also meet this criteria if they are likely to be served by such routes when taking into account known highway infrastructure upgrades.

10.6 In terms of being appropriately located relative to the markets to be served, this criteria is essentially self-explanatory. Being well located enables the efficient and sustainable operation of inbound and outbound transport services. As noted elsewhere, sites intending to accommodate smaller scale facilities (cross-docks) should ideally be located on the edge of the major urban conurbations.

10.7 In order to maintain and enhance the study area's current competitive position, it is vitally important that the market in future is offered a geographical spread of commercially attractive sites available to satisfy individual operator locational requirements. It will therefore be important that future provision is not concentrated or focused on one particular area. Those areas where recent planning consents have ensured significant provision should therefore not be included, with priority given to other areas where there is a known under-provision of strategic sites.

10.8 Broad areas which meet all of the criteria have been identified as 'Areas of Opportunity'; these are likely to be suitable for accommodating future strategic

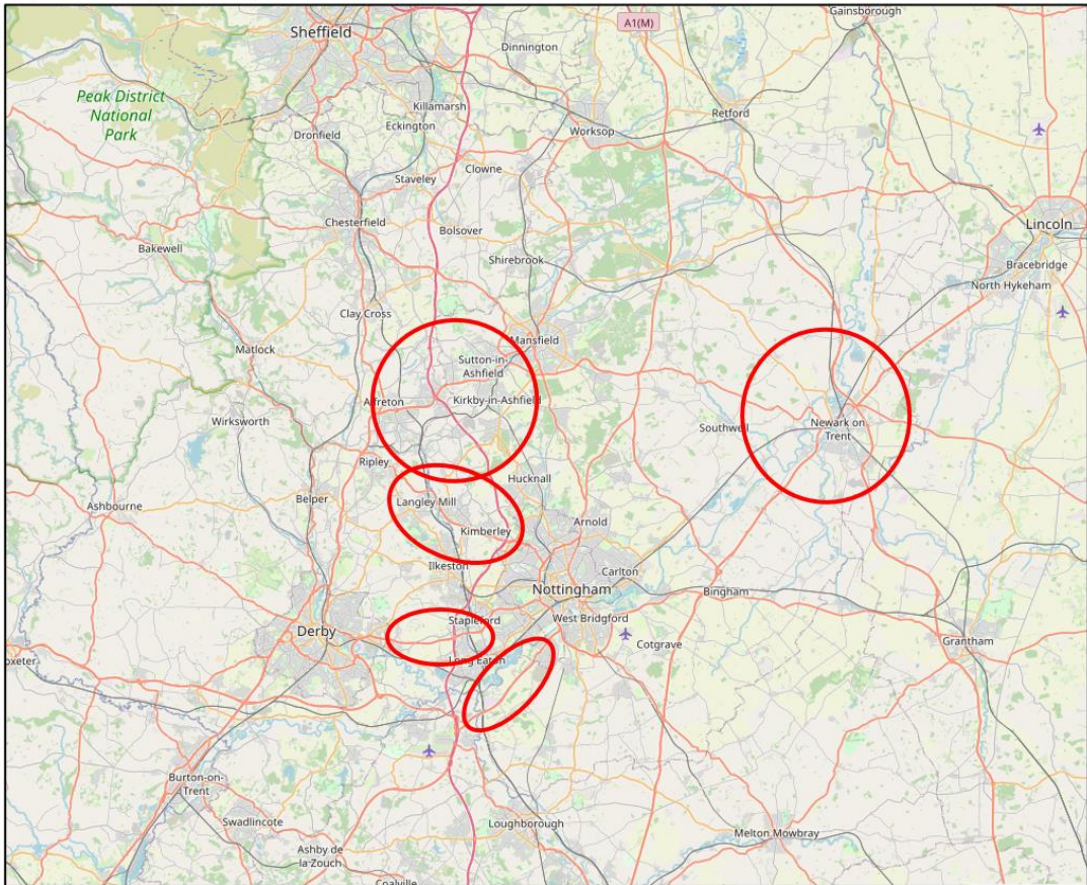
logistics sites. The 'Areas of Opportunity' are identified as follows and illustrated on the map following:

1. Area adjacent to M1 Junction 28 and 27 (Sutton in Ashfield, Alfreton, Kirkby in Ashfield and towards Hucknall albeit not all roads dualled notably A611 and A608)
2. Area adjacent to M1 Junction 26 (Langley Mill, Eastwood and Kimberley)
3. Area adjacent to M1 Junction 25
4. Area adjacent to A453
5. Area surrounding Newark (along A1 and A46)

10.9 Whilst Newark is some distance from the M1 it still serves as a successful logistics location as can be demonstrated through its historic delivery of large units. The A1 route is now a popular artery and Newark supplies a local labour market to support demand for units which may (but not necessarily) tend to the lower scales than those on the M1 but still substantially above the threshold considered herein.

10.10 It is of note that some of the supply identified in the study area falls outside of the areas of opportunity.

Table 10.1 Map: Areas of Opportunity



10.11 When new local plan allocations are being considered, a criteria-based approach should be adopted when identifying and assessing potential new sites for large warehouses. Sites considered to be appropriate for hosting strategic distribution are those which meet the following criteria:

- Good connections with the strategic highway network – close to a junction with the motorway or long-distance dual carriageway. Motorway/dual carriageway junctions and the approach routes should have sufficient network capacity;
- Is sufficiently large and flexible in its configuration so that it can accommodate the range of sizes of distribution centre warehouse units now required by the market, with a minimum size of 25 ha being recommended but ideally seeking sites of 50 ha and above which is more representative of delivering a comprehensive logistics park including infrastructure, screening and biodiversity net gain;

-
- Is served from an electricity supply grid with sufficient capacity to permit the charging of large fleets of battery-electric freight vehicles simultaneously, or part of the electricity supply grid which can be upgraded (network reinforcement) relatively easily and at a reasonable cost, or include proposals such as solar panels, solar farm, wind farm or other sustainable energy that reduce reliance on the grid;
 - Is accessible to labour, including the ability to be served by sustainable transport, and located close to areas of employment need; and
 - Is located away from incompatible land-uses.

10.12 In order to ensure that there is a sufficient pipeline of sites (across the Areas of Opportunity identified), new land meeting the criteria outlined above should be identified and allocated in the following sequential order, namely:

- The extension of existing industrial / distribution sites. Site extensions should only be permitted where there is adequate road capacity serving the site and at adjacent motorway/dual carriageway junctions or capacity can be enhanced as part of any extension;
- Identifying suitable new strategic distribution sites on previously developed land which meet the site selection criteria; and
- Identifying suitable new strategic distribution sites on greenfield land which meet the site selection criteria.

10.13 One of the functions of strategic logistics sites will be the ability to offer larger plot sizes to be able to accommodate the large footprint buildings increasingly required by the market. It would therefore conflict with their wider objectives if smaller units were developed which compromised the size of available plots.

10.14 In order to complement the above, from a market perspective it would be beneficial for local plan policies to identify the characteristics and expectations for strategic logistics sites to inform developers/occupiers. These should include:

- 24/7 unrestricted operating hours;

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- Good road access ;
 - The ability to deliver high-bay warehousing at least 20m height;
 - Preferred plot ratios being a minimum of 0.35 for road and building sizes of over 9,000 sqm;
 - Capacity of the electricity grid connections, stance on renewable energy generation;
 - Servicing requirements and HGV parking standards;
 - Phasing of infrastructure and periphery landscaping requirements;
 - Green transport initiatives and public transport expectations; and
 - Noise/lighting expectations.

Recycling of existing sites

10.15 Section 6 articulates why many existing older large scale units are unlikely to be fit for purpose in meeting modern occupier requirements, which is a notable driver of future needs. However there will be some potential for some existing brownfield sites and existing units to be recycled for new units. The Warehousing and Logistics in Leicester and Leicestershire 2021 report provides some discussion on this matter (see inter alia paras 13.13 – 13.17) noting that the location, adjacency and plot size of existing older units may not be suitable for redevelopment or that they may become converted to other non strategic logistics activities including being sub divided and sub to a range of occupiers. To examine the potential for redevelopment of existing older units requires individual unit analysis which is beyond the current study brief. However Table A1.4 and A1.5 (appended) report the current age and distribution of large warehouse units from which an overview analysis includes:

- Many older units are marginally above the 9,000 sqm threshold and cannot readily meet much larger occupier needs;

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- A number of older units around J28 in Mansfield that are in an optimal location for the strategic network, although many are only just at the large unit threshold;
 - Some older units exist at Sherwood Business Park and Blenheim Industrial Estate;
 - Other older units scattered across the study area.

10.16 There is no certainty on redevelopment potential of the above. The reuse of brownfield sites or industrial estates comprising a number of smaller facilities that can be combined may be a more likely source of non greenfield land taking into account examples of Ratcliffe on Sour Power Station, New Stanton and historically Sherwood Business Park (Kodak). As a rule of thumb it is estimated that 10-20% of future needs could be generated through redevelopment of existing logistics units and that large manufacturing units could also contribute to this. This would for example see the **residual need fall to 137 ha – 155 ha.**

Final Mile distribution

- 10.17 For the purposes of this report, the floorspace needs and areas of opportunity are all targeted at strategic warehouses of 9,000 sqm and above. However, it is recognised that there is an increasing need to provide last mile distribution facilities for sub-regional and local distribution.
- 10.18 These facilities typically range from 25,000 to 50,000 sqft (2,300 to 4,600 sqm) or where larger would not normally exceed 9,000 sqm. They can also be much smaller when fitting into the tighter grain of urban areas. The requirement for such facilities is likely to increase going forwards with a greater emphasis on online retailing. The role of these facilities is typically to receive HGV shipments for cross docking into delivery LGVs which serve a distribution area.
- 10.19 Last mile facilities typically seek to locate on the edge of urban areas where access to both the SRN and local road network is good and journey distances are suitable for electric vehicles. The increased demand for more specific time slots

and electric vehicles in dense urban areas promotes smaller facilities with all electric or bicycle delivery.

10.20 Research by Knight Frank²⁰ indicates that typically final mile units make up c24% of the portfolio of e-commerce operators. Applying this approximation to the total recommended need of 1,486,000 sqm would result in 356,640 sqm or 78 units at 4,600 sqm. This is likely to overestimate the requirements particularly as the East Midlands and M1 has a role in the national logistics infrastructure. In this scenario a broad estimate is that around 20 final mile units could be required meet the needs of changing consumer patterns and increased population.

²⁰ <https://www.knightfrank.com/research/article/2021-10-21-how-much-space-is-needed-to-service-the-lastmile-and-where-is-consumer-demand-greatest>

11. LABOUR MARKET

- 11.1 This section considers the Travel to Work Areas (TTWAs) associated with existing large logistics parks in the study area and parts of the wider Midlands market area, identifying their extent, characteristics, patterns or areas of overlap and future implications.
- 11.2 Labour flows have been analysed through commuting patterns based on 2011 Census data and BRES employment figures from 2019²¹.
- 11.3 This method follows that in the Warehousing and Logistics in Leicester and Leicestershire: 2021 report. That study found that of the largest logistics parks across the Midlands as a whole, only East Midlands Distribution Centre East Midlands Gateway drew labour exceeding 200 persons from the study area for the current report (see p163-167). As a result, industrial parks more specific to the current study area have been considered as below.

Commuting patterns: 'Travel To Work Areas'

Methodology

- 11.4 To examine the labour force within the logistics sector influencing the study area we have identified the following major industrial / distribution parks based on their overall size and significance:

- Derby Commercial Park
- East Midlands Distribution Centre & East Midlands Gateway
- Castlewood Business Park / surrounds

²¹ Most recent BRES data is 2020, however we have chosen to base this analysis on 2019 to avoid capturing the Covid-19 pandemic impact on employment figures

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- Sherwood Business Park
 - Newark Logistics Park

11.5 To examine the existing commuting patterns we have used LSOA boundaries as a proxy for the industrial park boundaries. In most cases there is some employment in these LSOAs outside of the industrial parks themselves, but we have assumed, based on Google satellite observations, that these will be a minor contributor to the total jobs figure.

11.6 We have then used Census 2011 data, being latest available dataset, to identify where the workforce in these LSOAs originate from. To examine employment numbers, we have used 2019 BRES data at the LSOA level as well.

11.7 Finally, we have pro-rated the 2011 commuter figures to the 2019 employment figure to give a more accurate representation of how many people travel from each area to the given employment site.

11.8 We have assumed that the same commuting patterns are broadly maintained for the 2019 data at the LSOA level as was the case in 2011.

11.9 Each case study below gives a summary of the commuting and employment context, with a map and two tables relating to commuting and employment respectively. For brevity, only the top 5 employment sectors and only the local authorities with over 250 commuters are shown in the tables below.

Derby Commercial Park



11.10 Derby Commercial Park is located just east of Derby, at the junction of the M52 and the A6, only about 5 miles from the M1. Further development to the west is anticipated in the near future at St Modwen Park, Derby.

11.11 Based on 2019 BRES data by LSOA, a total of 4,500 people work in the area. They predominantly come from Derby and are employed in warehousing and support activities for transportation.

11.12 The detailed breakdown of place of origin and industry sector is available below.

Table 11.1 Derby Commercial Park Commuting patterns

Local authority	Commuters
Derby	2,530
Erewash	479
Amber Valley	258
South Derbyshire	234

Source: ONS, Census 2011, BRES 2019 & Icen Analysis

Table 11.2 Derby Commercial Park Employment by industry

Industry sector	Workers
52 : Warehousing and support activities for transportation	700
47 : Retail trade, except of motor vehicles and motorcycles	600
86 : Human health activities	400
36 : Water collection, treatment and supply	400
46 : Wholesale trade, except of motor vehicles and motorcycles	350

Source: ONS, Census 2011, BRES 2019 & Icen Analysis

East Midlands Distribution Centre & East Midlands Gateway



11.13 East Midlands Distribution Centre and East Midlands Gateway are located just north of East Midlands Airport and just off junction 24 on the M1.

11.14 Based on 2019 BRES data by LSOA, a total of 18,000 people work in the area, including the airport. Due to LSOA boundaries, it couldn't be separated from the logistics park. East Midlands Airport reports supporting 6,000 jobs, so we can

estimate that at least a third of this 18,000 could be linked to the airport, and probably more.

11.15 People employed in the area predominantly come from North West Leicestershire although Derby, Erewash and Nottingham make a significant contribution. They are employed in a range of logistics, manufacturing and airport-related sectors. When removing airport-related jobs, it is estimated that at least 7,000 people are employed in logistics-related sectors, an extract of which can be seen in the table below (which broadly excludes airport-related jobs).

11.16 The detailed breakdown of place of origin and industry sector is available below.

Table 11.3 EMDC & EMG Commuting patterns

Local authority	Commuters
North West Leicestershire	3,154
Derby	2,703
Erewash	2,189
South Derbyshire	1,354
Charnwood	1,232
Nottingham	1,097
Broxtowe	705
Rushcliffe	653
Amber Valley	437
East Staffordshire	315
Ashfield	267
Gedling	260

Source: ONS, Census 2011, BRES 2019 & Icen Analysis

Table 11.4 EMDC & EMG: Employment by industry

Industry sector	Worker
53 : Postal and courier activities	3,850
70 : Activities of head offices; management consultancy activities	1,725
52 : Warehousing and support activities for transportation	1,340
80 : Security and investigation activities	1,250
51 : Air transport	1,000

Source: ONS, Census 2011, BRES 2019 & Icen Analysis

Castlewood Business Park / Berristow Lane



11.17 Castlewood Business Park and other parks are located north of Nottingham and east of Mansfield, just off junction 28 on the M1.

11.18 Based on 2019 BRES data by LSOA, a total of 7,080 people work in the area. They predominantly come from Ashfield and Bolsover and are employed in warehousing and support activities for transportation.

Table 11.5 Castlewood Business Park / Berristow Lane Commuting patterns

Local authority	Commuters
Ashfield	1,710
Bolsover	1,681
Amber Valley	753
Mansfield	690

Source: ONS, Census 2011, BRES 2019 & Icen Analysis

Table 11.6 Castlewood Business P'k / Berristow Lane Employment by industry

Industry sector	Workers
52 : Warehousing and support activities for transportation	2,100
99 : Activities of extraterritorial organisations and bodies	800
46 : Wholesale trade, except of motor vehicles and motorcycles	500
47 : Retail trade, except of motor vehicles and motorcycles	450
56 : Food and beverage service activities	400

Source: ONS, Census 2011, BRES 2019 & Icen Analysis

Sherwood Business Park



11.19 Sherwood Business Park is located north of Nottingham and south of Mansfield, just off junction 27 on the M1.

11.20 Based on 2019 BRES data by LSOA, a total of 7,000 people work in the area. They predominantly come from Ashfield and are employed in wholesale and retail trade and repair of motor vehicles and motorcycles.

Table 11.7 Sherwood Business Park: Commuting patterns

Local authority	Commuters
Ashfield	1,997
Nottingham	657
Mansfield	618
Gedling	401
Broxtowe	383
Amber Valley	335
Newark and Sherwood	241
Bolsover	240
Erewash	219

Source: ONS, Census 2011, BRES 2019 & Icen Analysis

Table 11.8 Sherwood Business Park: Employment by industry

Industry sector	Worker
45 : Wholesale and retail trade and repair of motor vehicles and motorcycles	1,000
35 : Electricity, gas, steam and air conditioning supply	800
25 : Manufacture of fabricated metal products, except machinery and equipment	600
46 : Wholesale trade, except of motor vehicles and motorcycles	600
30 : Manufacture of other transport equipment	400

Source: ONS, Census 2011, BRES 2019 & Icen Analysis

Newark Logistics Park



11.21 Newark Logistics Park is located on the north-east outskirts of Newark-on-Trent on the A46/A1 interchange.

11.22 Based on 2019 BRES data by LSOA, a total of 5,000 people work in the area (exclusively in the area east of the A1 and excluding Newlink Business Park which is not particularly focused on large-scale logistics). They predominantly come from Newark and Sherwood and are employed in warehousing and support activities for transportation.

Table 11.9 Commuting patterns

Local authority	Commuters
Newark and Sherwood	2,470
Lincoln	539
North Kesteven	395
Derby	239
Nottingham	236

Source: ONS, Census 2011, BRES 2019 & Icen Analysis

Table 11.10 Employment by industry

Industry sector	Workers
52 : Warehousing and support activities for transportation	3,000
78 : Employment activities	600
56 : Food and beverage service activities	225
45 : Wholesale and retail trade and repair of motor vehicles and motorcycles	100
85 : Education	100

Source: ONS, Census 2011, BRES 2019 & Icen Analysis

11.23 The table below brings together commuting data from all assessed parks. Derby, in close proximity to a number of major parks, provides the largest employment segment with close to an estimated 6,000 commuters. Ashfield, North West Leicestershire, and Erewash are next.

11.24 The data does not seek to accurately report all warehouse employees, as it is for a select number of parks, it also originates from an extrapolation of 2011 Census commuting data, as explained earlier in the methodology, therefore, it should be used as a guide rather than definitive.

11.25 It is of note that Nottingham is less well represented given its population. No specific logistics parks have been considered although it is recognised that the Boots Campus generally along Clifton Boulevard there are in a number of large industrial / logistics units however of the 17,000 workers in this LSOA the vast majority are in retail / wholesale and manufacturing. There are developments underway at Thane Road with large warehouse units completed in 2022 and more anticipated, that will not yet be recorded on the employment count.

Table 11.11 Summary table: commuter origin for all assessed parks

Local authority	Commuters
Derby	5,910
Ashfield	4,155
North West Leicestershire	3,286
Erewash	3,056
Newark and Sherwood	2,952
Nottingham	2,272
Bolsover	2,038
Amber Valley	1,799
South Derbyshire	1,679
Mansfield	1,564
Charnwood	1,428
Broxtowe	1,414
Rushcliffe	1,017
Gedling	867
Lincoln	587
North Kesteven	456
East Staffordshire	422

Source: ONS, Census 2011, BRES 2019 & Icen Analysis

11.26 The table below summarises the main occupations on the industrial and logistics parks assessed. Warehousing employment is the most common being 18% of total, followed by Postal (10%) and Wholesale (6%). These are broadly accepted as the categories that represent logistics / B8 employment and make up one third of the total. East Midlands Airport employment is likely to represent the employment in Food and beverage, Security and Air transport. Otherwise, general wholesaling, retailing and head offices / management consultancy activities feature strongly.

Table 11.12 Summary table: employment sector (2 digit SCI) for all assessed parks

Local authority	Employment
52 : Warehousing and support activities for transportation	7,390
53 : Postal and courier activities	3,945
46 : Wholesale trade, except of motor vehicles and motorcycles	2,440
70 : Activities of head offices; management consultancy activities	2,060
45 : Wholesale and retail trade / repair of motor vehicles / motorcycles	1,935
47 : Retail trade, except of motor vehicles and motorcycles	1,580
78 : Employment activities	1,485
56 : Food and beverage service activities	1,425
35 : Electricity, gas, steam and air conditioning supply	1,300
80 : Security and investigation activities	1,260
30 : Manufacture of other transport equipment	1,200
51 : Air transport	1,000
Total (including other)	41,160

Source: ONS, Census 2011, BRES 2019 & Icen Analysis

Future employment implications

- 11.27 Development and expansion is expected at a number of the logistics parks above including Derby Commercial Park, East Midlands Distribution Centre & East Midlands Gateway and Castlewood Business Park / surrounds. Potential further development will be allocated through Local Plan processes and determine the impact on the labour force.
- 11.28 Assuming expansion of the parks identified, rather than new ones, and similar commuter patterns, this would be expected to draw further labour from the top commuter origins being the cities of Derby and Nottingham as well as Ashfield, North West Leicestershire, Erewash, Newark and Sherwood and Bolsover in the first instance, thus the majority of the study area.
- 11.29 Considering the scale and impact of potential development on labour markets, it is useful to consider existing employment, unemployment and recommended levels of growth.

11.30 In terms of unemployment, as of May 2022, there are significant numbers of unemployed persons in the TTWA catchment including 8,550 in Derby and 13,575 in Nottingham alone²². Across the study area there are 30,400. This compares with a total employment count of 9,000 persons in the warehousing sector²³ in 2019 across the study area (or 36,000 including wholesale and postal although a limited portion of these will be in logistics). Even pre pandemic in early 2020 there were around 10,000 claimants in Nottingham, 6,000 in Derby and 22,600 across the study area.

11.31 This information indicates that warehousing employment is currently dwarfed by unemployment in the study area and suggests future development is unlikely to be have significant adverse impact on constraining labour supply, rather the converse in that development of further warehousing provides a significant opportunity to improve economic outcomes for residents.

11.32 The Warehousing and Logistics in Leicester and Leicestershire 2021 report considered in some detail the relationship between forecast growth and job creation, suggesting that a significant amount of jobs are replacement for aged existing units rather than newly created. This case may be to a lesser degree in the Study Area given the comparatively more limited historic delivery of units. However to illustrate potential job growth the following steps are considered broadly following the replacement demand model as articulated previously:

- Replacement demand units represent some transfer of employment from existing units, which themselves may be converted to smaller employment units or redeveloped for other uses. Net job generation is therefore weak and for ease assumed at half the rate of typical large scale warehousing i.e. 190 sqm not 95 sqm of floorspace.

²² Claimant count

²³ 52 : Warehousing and support activities for transportation

-
- Under the replacement demand model (high) 1,020,000 sqm are required, at 190 sqm then providing 5,400 jobs.
 - The traffic growth model drives net direct growth, although employment densities are likely to change in the future due to automation (see chapter 12 and L&L report pg 147). This is could readily reach half the existing rate to be rate or 190 sqm per employee although this is likely to be later in the period towards 2040, an average of 143 sqm being a mid point is assumed.
 - Traffic growth is estimated as 64,000 sqm being 450 jobs derived from 143 sqm per job.
 - The margin element is 186,000 sqm (5 years completions) with a 216,000 sqm added to achieve the upper end recommendation in chapter 11, amounting to 402,000 sqm. Assuming 143 sqm per employee this generates 2,800 jobs.
 - The total jobs growth from above would therefore be **8,650 jobs** around 96% increase on 2019 warehouse employment sector records

11.33 It is acknowledged that the above is based on a range of assumptions and intended as illustrative rather than to develop policy recommendations. However the indicative scale of growth in the context of over 30,000 unemployed claimants in the study area (or 22,000 pre pandemic) reinforces the potential economic benefits of the sector.

11.34 The nature of employment is explored in the following section.

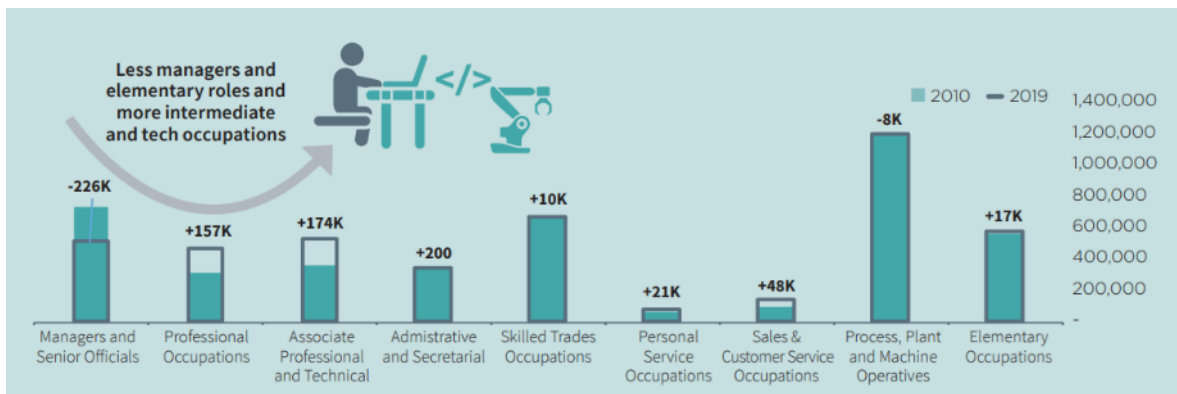
12. LOGISTICS SKILLS & EMPLOYMENT PROFILE

12.1 This section considers the composition of the current labour force within the warehousing and logistics sector – covering key characteristics, gaps, trends and the future outlook.

Sector composition and change

- 12.2 The BPF's *Levelling up - The Logic of Logistics* published in 2022 argues that the sector 'is subject to continuing misconceptions about average pay and skill levels'. The report evidences that occupations are becoming more diverse and average pay in the industrial and logistics sectors is higher than across the overall average across all sectors.
- 12.3 In terms of diversity, as set out below, there is a refocus over the last decade from a '*polarised distribution, with a higher share of managers at one end of the spectrum and more plant and machinery operatives and elementary occupations at the other end*'... towards the current trend of a '*higher share of Professional and Associate Professional and Technical roles, typically associated with higher-skilled engineering and technological professions*'. The report asserts that '*This is in response to increased automation and robotics in the sector and more advanced supply chain processes.*'
- 12.4 The chart is reprovided below suggests relatively stable employment in most sectors but growth in technical and professional at the expense of managers / officials.

Table 12.1 Occupational split in the industrial & logistics sectors, 2010 vs. 2019, UK total



Source: BPF 2022 c/o ONS / APS

- 12.5 The Freight Transport Association’s *Logistics Skills Report*²⁴ 2019 analyses the sector’s skills profile.
- 12.6 The report establishes a list of main occupations held by workers in the logistics sector.
- 12.7 The table below shows that a large variety of occupations exist in the sector, ranging from high-pay, high-skill managers and directors to drivers and elementary storage occupations. Key findings are:

- Top categories represent 9.9% of employment
- Off site drivers represent 22.7% of employment
- Elementary occupations account for 17.5%
- There are a wider range of other occupations

²⁴ FTA Logistics Skills Report, 2019. Available at:

<https://logistics.org.uk/CMSPages/GetFile.aspx?guid=8afc692b-a971-4357-be45-40281ab02c30&lang=en-GB>

Table 12.2 Detailed list of occupations in the logistics sector

Logistics occupations	Employment (thousands)			
	Logistics sector	All other sectors	Total	%
Purchasing managers and directors	14,235	46,888	61,123	2.4%
Managers and directors in transport and distribution	33,400	52,982	86,382	3.3%
Managers and directors in storage and warehousing	27,968	81,914	109,882	4.2%
Importers and exporters	2,370	3,821	6,191	0.2%
Transport and distribution clerks and assistants	19,993	44,323	64,316	2.5%
Heavy goods vehicle drivers	171,364	130,281	301,645	11.6%
Van drivers	106,215	183,347	289,562	11.1%
Forklift truck drivers	36,995	54,442	91,437	3.5%
Postal workers, mail sorters, messengers and couriers	124,640	29,152	153,792	5.9%
Elementary storage occupations	191,729	264,054	455,783	17.5%
Other occupations within the logistics sector	978,584	N/A	978,584	37.8%
Total	1,707,493	891,204	2,598,697	100.00%

Source: FTA's Logistics Report, 2019

12.8 We have also considered East Midlands specific data pertaining to the logistics sector. Here, the East Midlands is used as a regional proxy for our Study Area, due to the greater availability of data on employment and occupational split. Although not perfect, this approach when considered for the logistics sector at large is considered useful.

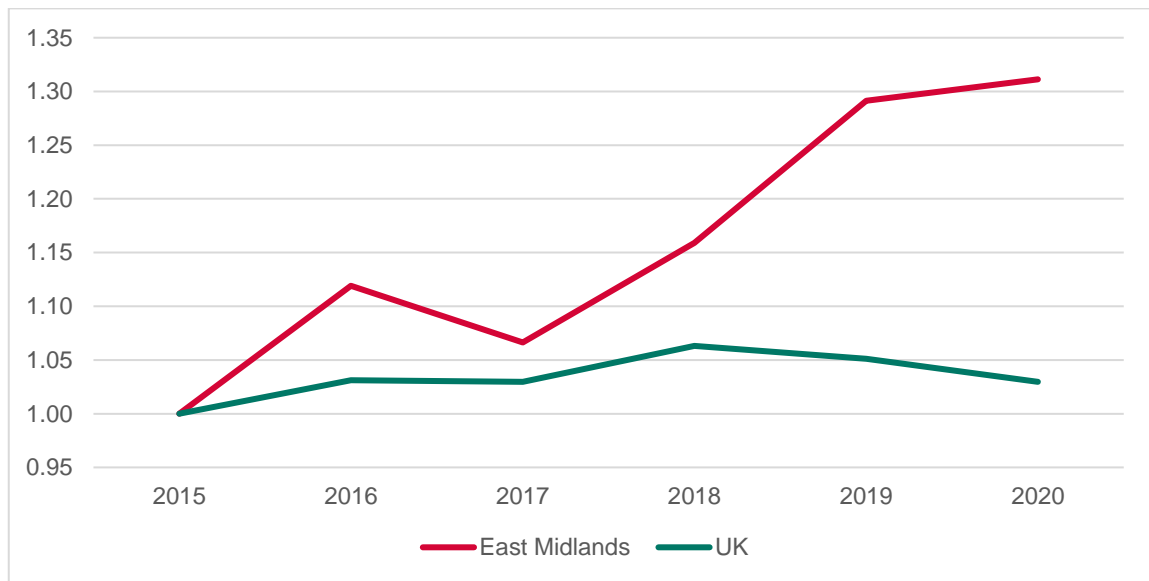
12.9 The first point is very dynamic growth in the total number of jobs in the logistics sector, both absolute growth and relative to the UK. For the purpose of this section, we use three ONS industry sectors to represent employment in the logistics sector:

- 46 : Wholesale trade, except of motor vehicles and motorcycles
- 52 : Warehousing and support activities for transportation

- 53 : Postal and courier activities

12.10 The chart below shows that the East Midlands' total job count in the three industry sectors detailed below has fast outpaced the UK's, growing by a staggering 31% in only 5 years.

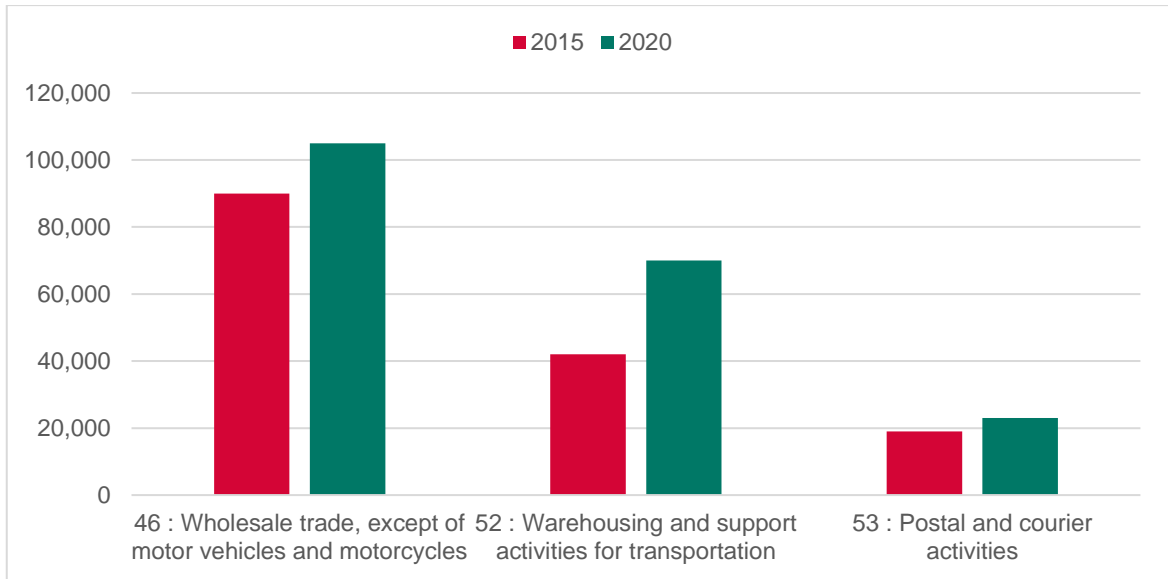
Table 12.3 Growth in total logistics employment, East Midlands vs. UK (indexed on 2015)



Source: ONS, BRES, 2022

12.11 Additionally, within the study area specifically, warehousing specific employment has grown from 5,000 to 11,000 jobs 2015 to 2020, 120% increase. At the regional level 28,000 jobs have been gained in this period as set out below.

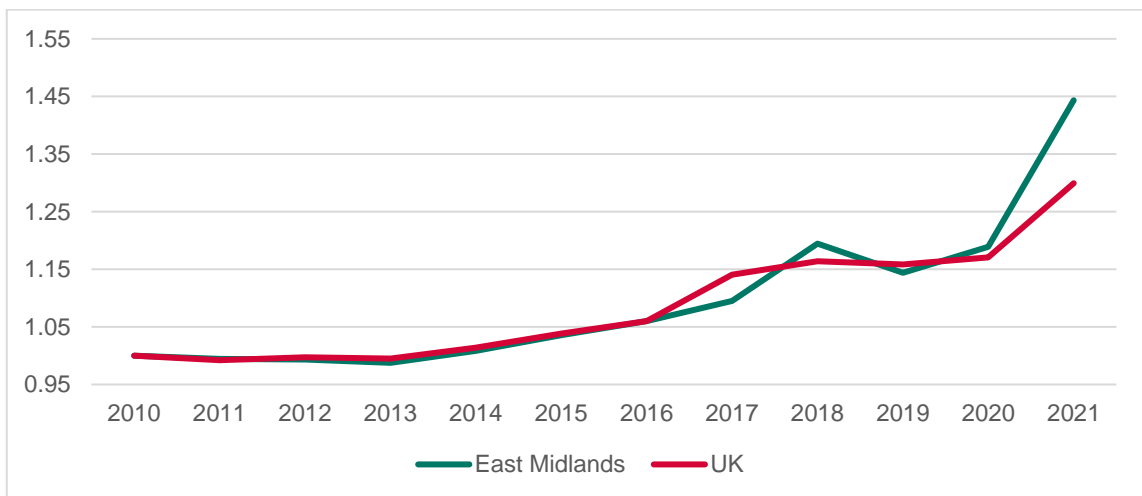
Table 12.4 Logistics growth per sector in the East Midlands, 2015 vs 2020



Source: ONS, BRES, 2022

12.12 Another indicator to understand the logistics sector growth is business counts. While relative growth has been similar across the UK and the East Midlands between 2010 and 2020, in the last year the East Midlands outpaced the UK's average annual growth, with an astonishing 44% of growth between 2020 and 2021, as seen in the figure below. This is likely to reflect in part demands in the e-commerce sector (although the level of growth may see some rebalance in 2022).

Table 12.5 Business count growth in logistics (indexed 2010 = 1)



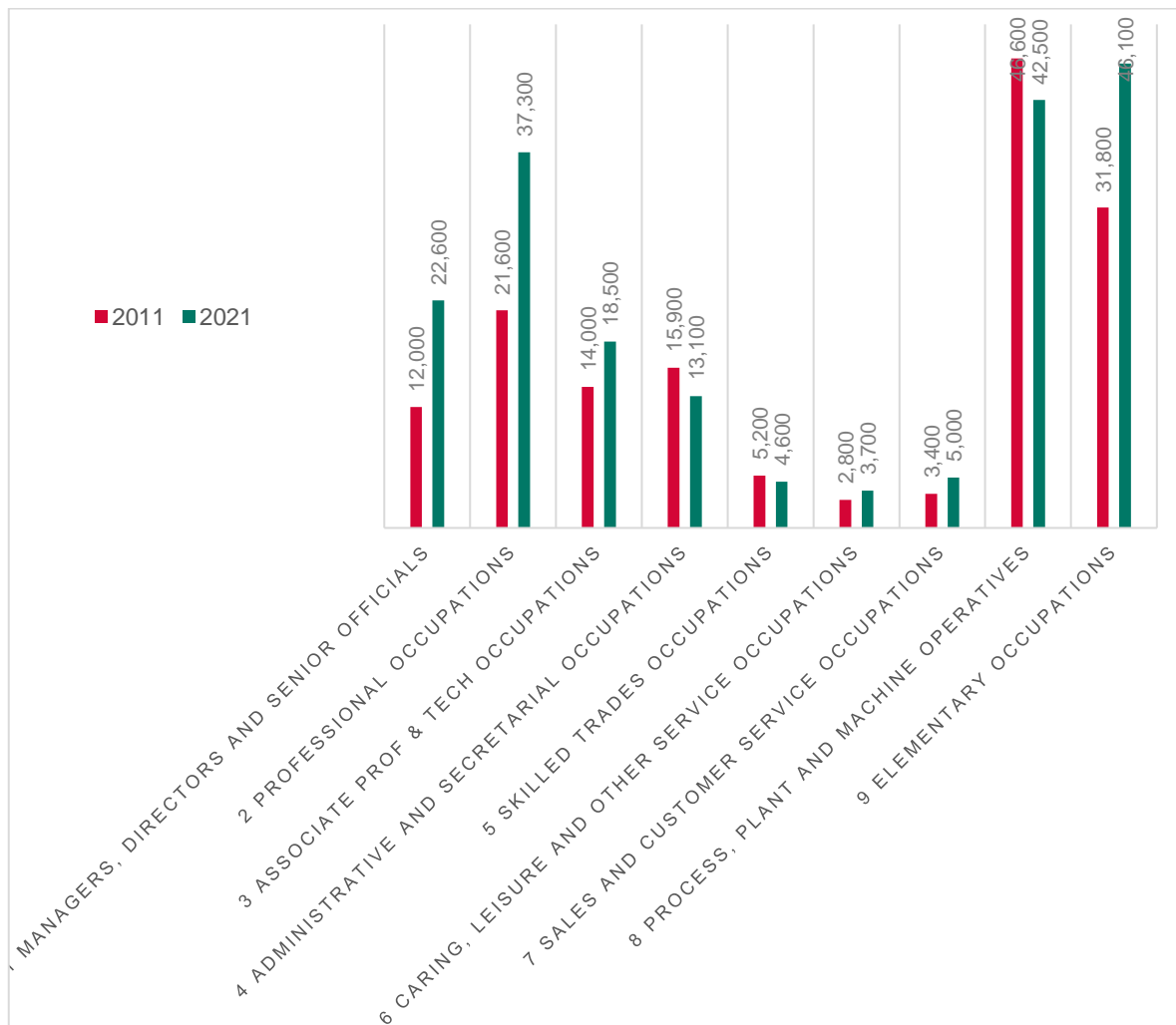
Source: ONS, BRES, 2022

12.13 While employment and business count give an indication of the prevalence of the sector, the following analysis consider the quality and diversity of employment in the logistics sector in the East Midlands.

12.14 The chart below reports on occupation change for the employment sectors of H (Transportation & storage) and J (Information & communication) between 2011 and 2021. Data is not available for Transportation & storage alone and therefore there is some distortion in the figures as Information & communication is a sector clearly produces a high proportion of high-skilled, high-pay jobs.

12.15 The chart reports that elementary occupations have grown significantly, but in parallel, the top three occupational groups (broadly speaking director, professional and associate professionals) have also grown significantly.

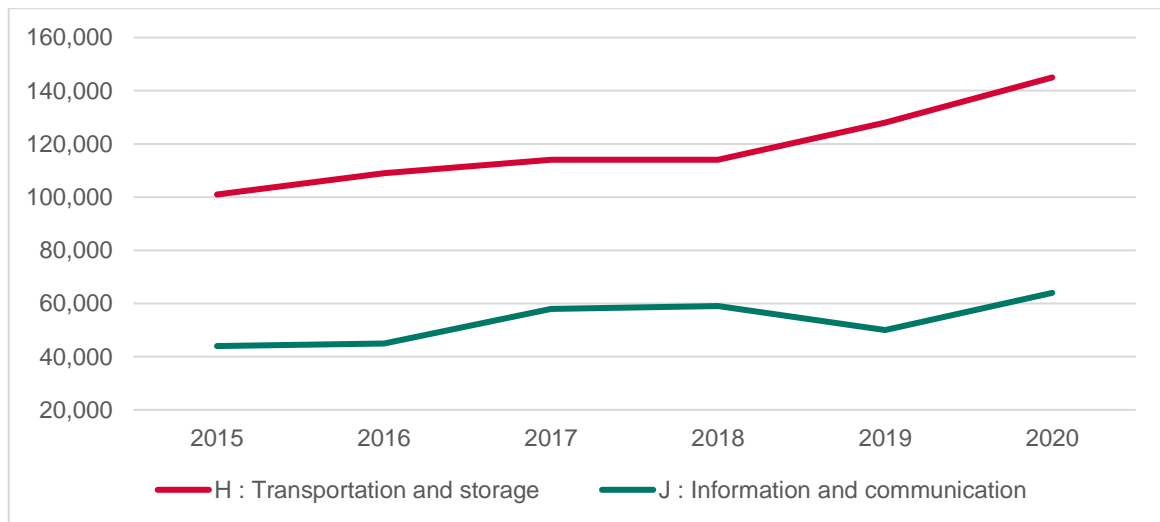
Table 12.6 Growth in employment by occupation (Sector H / J) 2011 vs. 2021



Source: ONS, APS, 2022

12.16 The creation of jobs in the top three occupational groups must, to some extent, be attributed to the Transportation and storage sector. This is in light of the overall proportion of jobs in the Transportation and storage sector compared to the Information and communication sector, as seen in the chart below.

Table 12.7 Employment Change - Sectors H / J between 2015 and 2020,



Source: ONS, BRES, 2022

Logistics sector skill gaps

12.17 The FTA report highlights skills shortages and gaps in logistics as:

- Around two thirds of transport and storage firms (64%) report a skills shortage, slightly higher than the average at of all firms (63%).
- In 2019, there were 43,000 vacancies in the transport and storage industry (which is an increase of 43% compared to 2017). Stakeholders indicate this is likely to have worsened considerably in 2020/21.
- There is increasing demand for logistics vocations relative to other professions. The most significant increase in demand is for managers and directors in transport and distribution, transport and distribution clerks, and managers and directors in storage and warehousing.

-
- In 2019 more than three-quarters (79%) of businesses in the sector expect to increase the number of higher-skilled roles over the coming years. Yet two-thirds (66%) fear there will be a lack of sufficiently skilled people to fill vacancies.

12.18 More recently, SEMLEP²⁵ reported that from their logistics members survey 2022, over 60% respondents had labour shortages and skills challenges, 35% stated there is a lack of suitable sites for expansion across the county, and 25% had global supply chain issues. Other points raised include:

- Electrical/mechanical and software engineering skills are required for transport and warehousing as the world of logistics is changing rapidly, especially the 24/7 capacity/ requirement.
- A market survey suggests there is a shortage of engineers with the required skills across the whole sector.
- Shortages of equipment meant existing equipment had to be maintained for longer and required more intervention – mechanical engineers. Assumed this would be ongoing due to the desire for sustainability, maintaining current efficient operations over constant replacement.
- Skill set and knowledge set is changing from mechanical to software-controlled automation. This includes vehicles which are dependent on computer technology.
- As power trains evolve to hydrogen or battery then the skill set will change requiring even higher number of trade engineers. This may need recruiting a new cohort and training upskilling current mechanical maintenance engineers.
- Data Analysts, supply chain analysts, software engineers: there is huge amount of data available and many companies not able to maximise the use of equipment / data due to a lack of skills. For example: Optimisation of transport

²⁵ Logistics & Supply Chain Sector Meeting 4th May 2022 attended by Iceni Projects

fleets, route planning, planned maintenance, driver performance. Data can be used in a better way to improve productivity issues within logistics. As the driver role becomes automated (management systems, communication to depot, autonomous vehicles etc), the driver and support teams need upskilling

Stakeholders also highlighted the following general issues:

- Warehouse operatives and HGV drivers are in short supply in Leicestershire. Many employers are competing for warehousing roles – including salary competition.
- Post Brexit / Covid, Eastern Europeans are going back home and finding employment on the continent.
- Increasing moves towards automation/more high-tech activities, increasing the need for more technical staff.
- New premises in particular are more focused on automation – some have very low staff requirements exceeding 200 sqm per person.

Tackling skill gaps

12.19 More generally, stakeholders report that in some areas (notably Leicestershire and Northamptonshire) labour demand is fierce and a shortage is a key driver of automation to reduce reliance on workers. A number of initiatives around the study area and beyond are focusing on addressing this.

12.20 West Nottinghamshire College is beginning work on a brand-new Automation and Robotics Training Centre to serve students and employers in Mansfield and Ashfield. With a total project cost of £900,000, the new training centre will focus on automation and robotics.

12.21 Work will re-purpose part of the college's Engineering Innovation Centre, on Oddicroft Lane, Sutton-in-Ashfield, to provide enhanced facilities for learners studying engineering, manufacturing and distribution. The college plans to run short courses and exploratory sessions for local businesses early next year before

launching its first full-time level 3 courses in automation and robotics from September 2022.

12.22 In Leicestershire the Centre for Logistics, Education and Research (CLEAR) is being established as part of the North Warwickshire and South Leicestershire College. It is a training facility based in Magna Park, Lutterworth – one of the UK’s largest logistics parks. North Warwickshire and South Leicestershire College, Aston University, Wincanton PLC and GLP are collaborating to deliver this ‘one-stop-shop’ for sector skills. The partnership intends to blend education providers with businesses and infrastructure organisations to deliver knowledge, skills, behaviours and talent for supply chain success. Courses on offer include:

12.23 NWSLC’s offer provides flexible, accessible and innovative training across a range of areas:

- Planning and supply chain operations including transport planning and warehouse operations
- Engineering maintenance, repair, design and automation
- Business support roles including customer service, HR, marketing, and accountancy
- Leadership and lean management
- Digital skills including software development and cybersecurity

Future skills

12.24 The FTA report reflects on the future of work in the logistics sector, pointing out that New digital technologies, such as information and communication technologies (ICTs), artificial intelligence and robotics, are reshaping the way people work and learn. Key points include:

- Automation is emerging to varying degrees across the global logistics chain, with warehousing having the highest extent of automation. McKinsey Global

Institute estimates that the transportation and warehousing industry has the third-highest automation potential of any sector²⁶.

- Currently, 80% of warehouses are manually operated without automation support. However, many logistics companies are looking to turn to robotics for efficiency, accuracy and long-term cost savings.
- FTA members were asked a series of questions on skills and automation. Around 38% of respondents expected some logistics roles to be fully or semi-automated in the coming years and 36% stated that automation would have a positive impact on the role and responsibilities of transport managers).
- Van drivers, forklift drivers and HGV drivers are considered most likely to be affected by automation.

12.25 Three main trends driving automation are cited as:

- A growing shortage of labour.
- An explosion in demand from online retailers (e-commerce).
- Technical advances.

12.26 The FTA report concludes p37 that (similarly to the BPF report) *The sector has a negative image; government needs to do more to help improve the public perception. Technology has changed the sector significantly and career opportunities are diverse. We will need to attract the younger generation to fulfil future growth, and FTA believes government must do more to help promote this within schools and colleges and put greater emphasis on the value of vocational training.*

²⁶ Automation in logistics: Big opportunity, bigger uncertainty, McKinsey, April 2019

13. MANAGING LOGISTICS NEEDS

- 13.1 In order to effectively and consistently monitor warehousing and logistics sector development, it is recommended that data monitoring and collection are actively pursued beyond the individual authority level. The approach undertaken below has been recommended and taken forward by the Leicestershire authorities and enables them to monitor and manage strategic logistics requirements.
- 13.2 The most useful collective area to be considered would be the Nottingham Core and Outer HMA authorities given the existing working relationships between authorities. Consideration could be given to engaging with adjacent areas most notably in Leicestershire and Bassetlaw given the proposals in those locations.
- 13.3 In the first instance the roles and responsibilities for this need to be defined with a particular organisation and/or individual collecting and managing data. The individual planning authorities will need to feed in data to the appointed managing organisation.
- 13.4 By working collectively, the authorities can ensure a joint approach to dealing with future demand and supply. As well as sharing information, it may be appropriate to develop a joint strategy in terms of meeting needs. This ensures that no individual authority bears single responsibility for meeting needs in an unplanned way. A joint call for sites would be a first step in considering additional supply. These can be assessed for suitability using the criteria in section 10 as well as other policy considerations such as landscape, environmental and network accessibility / capacity.
- 13.5 The following data sets are recommended for collation, the majority of which should be obtainable through the development control officers or planning policy teams:
- Collate existing supply data in terms of allocations and permissions (information in Table 5.1 of this report provides a starting point)
 - Identify new applications for sites with units over 9,000 sqm + of B2/B8 noting:

-
- Validation date;
 - Permitted date;
 - Completed date;
 - Whether allocated / unallocated site;
 - Whether rail / non rail;
 - Whether Greenfield / brownfield type and if brownfield the nature of previous use;
 - Any known employment data provided with applications;
 - Building heights;
 - Ancillary floorspace; and
 - Any information available regarding size and type (speculative, pre-let) of units
- Any applications involving losses of existing floorspace of at least 9,000 sqm+ B2/B8 use
 - Record completed SQM floorspace (including mezzanine) and Ha of plots

13.6 The completed sqm of floorspace is considered the single most important aspect of the monitoring to enable a record of total new floorspace added. The overall need figure of 1,486,000 sqm to 2040 should be used for planning policy monitoring comprised of the separate rail and road components.

13.7 If an online system is developed for collecting information it may be possible for officers to enter the data at the point of receipt, for example, at the same time they upload to the local planning portal. Otherwise, it is recommended that the data is collected quarterly to provide a useful tool for considering large scale applications across the county and informing policy review on an ongoing basis.

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- 13.8 Given the importance of replacement demand unit requirements in assessing future needs the monitoring of any losses should be reported. However, there may be instances where losses are not readily monitored through the planning system depending on the original permission and what works might be needed to change the unit's operation. The authorities may benefit from site surveys of major parks on annual or alternate years to maintain a register of site activity. It may also be possible to pursue this monitoring through VOA data records.
- 13.9 It would also be useful for officers to understand the marketplace in terms of take-up of units and vacancy / availability. This data is normally accessed via paid for systems such as CoStar or EGi Radius. A number of large agents also produce regular reports on the state of the regional industrial / warehouse markets which are published free of charge. Otherwise consultants could provide this for a limited fee on a quarterly or less regular basis.
- 13.10 In addition, it may be useful to have a continued engagement with the private sector. Industry events such as a short breakfast briefing could be held bi-annually with development industry (agents, developers, consultants) to discuss the state of the warehousing market. Attendees could be invited to make short presentations on a topic or their views of the market and officers providing a similar perspective.

14. SUMMARY AND CONCLUSIONS

14.1 The following are the key findings and messages set out in this report.

Existing Evidence

- 14.2 The Warehousing and Logistics in Leicester and Leicestershire: Managing growth and change 2021 study looks at the 2020-41 need for large scale logistics across Leicester and Leicestershire. The models for future large warehousing need (completions and replacement demand with traffic growth) demonstrate a good level of alignment recommending 2.6m sqm, derived of 1.1m sqm of rail served sites and 1.5m sqm of road served sites.
- 14.3 The 2021 A1 Corridor Logistics Assessment for Bassetlaw Council provides a high level assessment of the large scale logistics market on the A1 corridor in Bassetlaw and the wider property market area from the M18 at Thorne in Doncaster down to J25 of the M1 at Erewash. The study uses a gross absorption (leases taken up) and deliveries model to assess future requirements. The study argues that there are 8-11 years of supply which is insufficient to meet Local Plan requirements looking forwards 15 years.
- 14.4 The Nottingham Core HMA and Nottingham Outer HMA Employment Land Needs Study 2021 considers future needs employment land needs within the Nottingham Core and Outer HMA but recognises that large scale logistics requirements fall beyond the scope. It notes that studies forecasting large scale logistics need based purely on past trends will significantly underestimate the scale of demand. Stakeholders were confident that there is capacity in the market for a further one, or even two, very large regional distribution centres near to these key M1 junctions.

Property Market Review

- 14.5 Across the Midlands in 2021 occupier appetite for space remained extremely robust (with take up almost 75% higher than the same period in 2020). The effects

of the pandemic on consumer habits have propelled the Midlands logistics & industrial market toward new heights. Availability is reaching critical levels of shortage. Savills report that at January 2022 there is large unit vacancy rate of just 1.69% or 0.19 years' worth of supply.

- 14.6 Nottinghamshire's market has been growing rapidly in the last couple of years, with increased occupier demand and an increase in construction activity, particularly in distribution and logistics. CoStar reports that industrial occupier demand has surged to all-time highs in Nottingham in 2022. Distribution and third-party logistics firms have been particularly active in the market.
- 14.7 The study area contains the national artery M1 corridor and forms part of the 'Golden Triangle' being the national centre of the UK logistics market whereby main other parts of the UK can be reached in a 4hr drive time. The southern edge of study area runs towards Castle Donnington, East Midlands Airport and Gateway, where J24 of the M1 and the A50 interchange are a key logistics hub and national distribution logistics location. Moving north, much of the M1 study area is covered by Green Belt policy which restricts development. This places a restriction on delivery of new logistics units in many instances particularly around Nottingham, suppressing market supply.
- 14.8 Indexed against the East Midlands' performance over the last decade, the study area has grown its strategic warehousing stock at a similar proportion albeit from a smaller base. Vacancies have continually decreased until reaching an all-time low of 0.3% in 2021. This figure indicates a complete undersupply / failure of the market, with 5% considered the minimum for a functional market that allows for churn, choice and move ins. As of March 2022 there is only one available unit.
- 14.9 Key messages from stakeholders include:
- There are ongoing requirements for sites of 500,000 sqft - 1,000,000 sqft along the Nottinghamshire M1 for logistics and manufacturing however the lack of units means they are pushed out of the area – losing major economic growth opportunities.

-
- Land supply restriction (Green Belt) in the M1 J25-27 area has completely thwarted delivery, putting pressure on other locations and forcing occupiers to accept less accessible locations.
 - Junctions north of M1 J24 running to J28 are prime locations within the East Midlands in terms of location, accessibility and access to labour markets.
 - There is a difference between sites on the M1 and wider Study Area, with M1 prime territory for largest units (which are not usually residential compatible). M1 spine and surrounds are primary target areas, 5km of a junction can be an occupier requirement (or trunk road).

Drivers For Change

- 14.10 **Growth of E-Commerce:** The rapid growth in e-commerce retail sales, at the expense of goods sold via traditional 'bricks and mortar' outlets, is now widely appreciated and is one of the key economic demand drivers that is generating change in the logistics sector. The Covid-19 pandemic caused a significant step-change in e-commerce sales (market share increasing by 10 percentage points in one year), though it would appear that the previous (pre-Covid) growth trend has since resumed.
- 14.11 The rapid growth in direct delivery e-commerce is having a significant impact with respect to the need for, size and location of distribution centres. Many older warehouse units 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.
- 14.12 **De-carbonisation:** Modal shift to rail, particularly for medium to long distance flows, is likely to form an important component in de-carbonising the supply chain. However, not all road freight journeys can be replaced by rail, and there will be a need to develop road-based solutions that are also net-zero. For smaller road freight vehicles (i.e. LGVs), battery-electric vehicles (BEVs) are now emerging as the viable zero emission alternative to petrol- or diesel-powered vans. The impact will be a future requirement to recharge large fleets of LGVs simultaneously at a

single depot location and from the same local grid connection. Decarbonising HGVs is going to be significantly more challenging. Three key options are emerging as the most promising alternatives; all involve propulsion by means of electric motors, albeit being supplied by electric current from different sources. The options are E-highways, electric, Hydrogen fuel cells for which the UK Government is currently funding trials.

- 14.13 **Warehouse Automation:** Warehouse operations have historically been labour intensive. There are signs this situation is now changing, principally driven by a combination of two factors: the sheer volume of the growth in e-commerce and increasing difficulty in recruiting labour at relatively cheap rates of pay. Many new warehouse developments are therefore being designed and built with increasing levels of automation from the start (in many cases these new developments are replacing existing physically sound capacity that cannot accommodate automation).

Future Land Supply

- 14.14 In terms of future supply in the study area, there are around 215,000 sqm of unimplemented permissions across the study area and another 101,000 of allocations therefore totalling 315,000 sqm of committed supply. In addition there is a future potential pipeline of a further 570,000 sqm including submitted applications and proposed allocations that could, without prejudice, increase the supply to a total 885,000 sqm. Ashfield's and Erewash's proposed allocations (c275,000 sqm combined) make the greatest contribution to this future supply alongside Rushcliffe's Ratcliffe on Soar Power Station in the Freeport (180,000 sqm emerging).
- 14.15 The total area supply for the M1 to the north, Leicestershire to the south, Derby to the west plus Bassetlaw is around 1,675 ha. The largest contributions to the supply are in Bassetlaw, notably at Apleyhead Junction and Magna Park in Leicestershire (Harborough, M1 J20). The supply most immediately adjacent to the study area is at the Freeport, at East Midlands Gateway / East Midlands Distribution Centre (78 ha) although this is understood to have diminished since

the time of assessment, and various sites in Bolsover including near J28, J29 and J30.

Existing Warehouse Capacity

14.16 The East Midlands region hosts just over 10.1 million square metres of large scale logistics floor space across 402 commercial properties. It is the largest region in terms of total floor space (20% market share). The mean size per unit is broadly the same as the regional average. This suggests that the study area also accommodates units serving predominantly a national hinterland (both traditional NDCs plus e-commerce focused customer fulfilment centres or CFCs).

Future Warehouse Floorspace Growth Scenarios

14.17 A range of techniques have been used to model future needs in the large scale logistics warehousing sector. These include a 5 year margin based on historic completions and are summarised as:

- **Labour demand 135,000 sqm:** this modelling technique is not considered suitable for assessing logistics needs given the difference between outcomes and market signals. This reflects both historic supply constraints influencing the forecasts and a weakening relationship between jobs and floorspace.
- **Completions trend 893,000 sqm:** this position is considered to be excessively influenced by historic supply side constraints and therefore not representing future market needs.
- **Net absorption with compensation trends 0.7m sqm – 1.1m sqm:** whilst historic take up of space has been constrained by supply policies, some adjustment has been allowed for to compensate for this. However this is considered insufficient as it is derived from a ratio of existing stock, which is considered excessively constrained itself.
- **The traffic growth with replacement demand models 0.9m – 1.3m sqm.** Based on stock age, the mid point of this range would be considered a minimum (1.1m) however the upper end is preferred (1.3m), based on the need

to refresh much of the existing stock due to its age and lack of suitability for meeting modern logistic needs in terms of size and quality.

- **Market signals 1.5m - 1.8m sqm:** Market signals have been used to seek to model an unconstrained market requirement, using the localised M1 J24-28 take up (and allowance for the wider area), as well as considering an enhanced take up in the study area compared to wider geographies (experimental technique).

14.18 The recommended requirement for planning policy purposes is 1,486,000 sqm or 425 ha using from a 0.35 plot ratio. This figure is derived from analysis of market performance in the wider M1 corridor in and around the study area, as well as comparison with other similar markets including Leicestershire. More detail on the reasoning behind the final recommended requirement can be found in Chapter 9. Despite market signals potentially requiring a higher rate, potential provision in other parts of Nottinghamshire (Bassetlaw) suggests this may not be necessary. The recommended need is the equivalent of around 3-5 large scale logistics parks with for example East Midlands Gateway DCO permitted for 550,000 sqm and Sherwood Business Park taking up approximately 84 ha.

Demand supply balance

14.19 Taking into account unimplemented permissions and allocations in the study area, which amount to around 315,000 sqm of committed supply, the residual need based on the requirement above is 1,171,000 sqm or 335 ha.

14.20 A further position allowing for the draft allocations (Ashfield and Erewash) as well as the Freeport proposals (Rushcliffe) and undetermined applications reduces the need to 601,000 sqm or 172 ha should they be confirmed.

14.21 This residual need now falls to the order of 2-3 large strategic logistics parks depending on the final status of emerging allocations and permissions. This falls to the lower end of stakeholder perspectives on the market requirement.

14.22 Some of the need is expected to be generated through the redevelopment of existing logistics or other large manufacturing units. It is estimated that 10-20% of future needs could be generated this way which for example sees the **residual need fall to 137 ha – 155 ha**.

Areas of Opportunity

14.23 Given the land shortfall identified in the previous section, general broad areas across the study area where new strategic logistics sites should be located (Areas of Opportunity) have been identified as follows:

- Area adjacent to M1 Junction 28 and 27 (Sutton in Ashfield, Alfreton, Kirkby in Ashfield and towards Hucknall albeit not all roads dualled notably A611 and A608)
- Area adjacent to M1 Junction 26 (Langley Mill, Eastwood and Kimberley)
- Area adjacent to M1 Junction 25
- Area adjacent to A453
- Area surrounding Newark (along A1 and A46)

14.24 In order to ensure that there is a sufficient pipeline of sites (across the Areas of Opportunity identified), new land meeting the criteria outlined above should be identified and allocated in the following sequential order, namely:

- The extension of existing industrial / distribution sites. Site extensions should only be permitted where there is adequate road capacity serving the site and at adjacent motorway/dual carriageway junctions or capacity can be enhanced as part of any extension;
- Identifying suitable new strategic distribution sites on previously developed land which meet the site selection criteria; and
- Identifying suitable new strategic distribution sites on greenfield land which meet the site selection criteria.

Labour Market

- 14.25 Labour flows have been analysed through commuting patterns based on 2011 Census data and BRES employment figures from 2019 considering Derby Commercial Park, East Midlands Distribution Centre & East Midlands Gateway, Castlewood Business Park / surrounds, Sherwood Business Park and Newark Logistics Park.
- 14.26 Derby, in close proximity to a number of major parks, provides the largest employment segment with close to an estimated 6,000 commuters. Ashfield, North West Leicestershire, and Erewash provide over 3,000 workers and Newark and Sherwood, Nottingham and Bolsover over 2,000.
- 14.27 The main occupations on the industrial and logistics parks assessed are 'Warehousing and support activities' at 18% of total, followed by Postal (10%) and Wholesale (6%). These are broadly accepted as the categories that represent logistics / B8 employment and make up one third of the total employment in the industrial and logistics parks.
- 14.28 **Future employment implications:** an exercise estimating future employment generation based on increased future densities suggests that in the order of 8,650 additional jobs could be generated if the large scale warehousing sector needs are to be met in full. To put this in context, across the study area there were 22,600 unemployment claimants pre pandemic of which around 10,000 in Nottingham. This information indicates that warehousing employment is currently dwarfed by unemployment in the study area and suggests future development is unlikely to be significantly constrained by labour supply, rather the converse in that development of further warehousing provides a significant opportunity to improve economic outcomes for residents.

Logistics Skills & Employment Profile

- 14.29 The industry is concerned that the logistics sector 'is subject to continuing misconceptions about average pay and skill levels' whilst evidence indicates

occupations are becoming more diverse and average pay in the industrial and logistics sectors is higher than the overall average across all sectors.

- 14.30 Data from 2019 highlights that top managerial categories represent 9.9% of employment in logistics, off site drivers represent 22.7% of employment and elementary occupations account for 17.5% with a wide range of other occupations.
- 14.31 The East Midlands' total job count in the main logistics sectors has fast outpaced the UK's, growing by a staggering 31% in only 5 years. Additionally, within the study area specifically, warehousing specific employment has grown from 5,000 to 11,000 jobs 2015 to 2020, 120% increase.
- 14.32 There are significant skills shortages and gaps in logistics with around two thirds of transport and storage firms (64%) reporting a skills shortage.
- 14.33 Demand is particularly strong for electrical/mechanical and software engineers, data analysts and supply chain analysts reflecting the fast automation of the sector. There are also shortages in warehouse operatives and HGV drivers.
- 14.34 Best practice examples are emerging in tackling skills shortages including in Leicestershire the Centre for Logistics, Education and Research (CLEAR) being established as part of the North Warwickshire and South Leicestershire College.
- 14.35 The future of work in the logistics sector is being reshaped by digital technologies, artificial intelligence and robotics. It is estimated that that the transportation and warehousing industry has the third-highest automation potential of any sector.
- 14.36 Three main trends driving automation are a growing shortage of labour, demand from online retailers (e-commerce) and technical advances.

Managing Logistics Needs

- 14.37 In order to effectively and consistently monitor warehousing and logistics sector development, it is recommended that data monitoring and collection are actively pursued beyond the individual authority level. The most useful collective area to be

considered would be the Nottingham Core and Outer HMA authorities given the existing working relationships between authorities. It is recommended that a number of data sets are collated and monitored, most notably the overall supply and new applications / permissions.

15. GLOSSARY AND ABBREVIATIONS

Stock and space definitions from VOA / CoStar: records differ between these two databases.

The VOA records business activity for the purposes of calculating a property's business rates. Vacant properties may therefore be omitted. The gross internal area (GIA) method of measurement is generally applied to industrial property such as warehouses or manufacturing units. Gross internal floor area includes mezzanines where they intended for permanent use. The VOA database is typically accurate for the purposes of its own uses, although category definitions of use (warehouse, factory space, workshop) are prone to error.

The CoStar property database has been developed over time through knowledge gain through interactions between CoStar researchers and local / national agents as well as online searches. The database is not audited and all content is therefore prone to error. Records of physical space should not be relied on in whole as will have been collected from marketing or deal records rather than planning, construction or valuation data. There may be inconsistency in terms of the GIA measurements in terms of inclusion of mezzanine space.

Glossary

- **Availability:** vacant stock and stock known to be coming to market in the near term through build or lease exit.
- **CoStar:** national commercial property database.
- **Grade A stock:** state-of-the-art properties built specifically for warehousing and logistics. They have not been converted or renovated for this purpose. Tenants competing for a Grade A building are typically well-established industry leaders and looking for the best that commercial real estate has to offer.
- **Grade B** may be a little older than Grade A but typically renovated to have the latest technology. It will typically have lower ceilings than a Grade A building. May be located in the periphery rather than primary market location.

-
- Grade C buildings are typically older buildings converted from their original purposes, such as former hangars and manufacturing facilities. They often lack modern amenities and require upgrade. May be in a low desirable area.
 - E-commerce: online retail
 - Golden Triangle: national centre of the UK logistics market whereby main other parts of the UK can be reached in a 4hr drive time.
 - Gross absorption: total lease deals.
 - Growth build: demand for warehouse floor space driven by growth in the wider economy along with forecast population increases leading to a growth in the volume of consumer goods handled leading to increasing demand for additional warehouse floor space.
 - Net absorption: move in leases minus lease breaks.
 - Net delivery: total of all new floorspace delivered after any demolitions.
 - Replacement build: requirement to replace outdated warehouse stock
 - Vacancy: physically vacant stock.

Abbreviations

- BEVs (Battery-electric vehicles)
- BPF (British Property Federation)
- CLEAR (Centre for Logistics, Education and Research)
- CFCs (Customer fulfilment centres)
- DCO (Development Consent Order)
- EMG (East Midlands Gateway)
- EMIP (East Midlands Intermodal Park)

-
- FTAs (Free Trade Agreements)
 - FTA (Freight Transport Association)
 - FTE (Full-time equivalent)
 - GHG (Greenhouse gas)
 - GVA (Gross Value Added)
 - HGVs (Heavy Goods Vehicles)
 - I&L (Industrial and logistics)
 - L&L (Leicester & Leicestershire ())
 - LGVs (Light Goods Vehicles / vans)
 - LDOs (Local Developments Orders)
 - NDCs (National Distribution Centres)
 - NIC (National Infrastructure Commission)
 - NWSLC (North Warwickshire and South Leicestershire College)
 - RDCs (Regional Distribution Centres)
 - SMEs (Small and medium-sized enterprises)
 - SRFI (Strategic Rail Freight Interchange)
 - 3PLs (Third-party logistics)
 - TGRD (Traffic growth and replacement demand)
 - TTWAs (Travel to Work Areas)
 - VOA (Valuation Office Agency)

16. APPENDICES

Table A1.1 List of deals B8 large unit in study area, 2012 to 2021

Year	Tenant	Total sqft	Rent/sqft/ye	Location
2012	Clipper Logistics	364,000	£4.65	Newark &
2012	Yearsley Group	228,866	£1.74	Newark &
2014	Alloga UK Ltd	249,500	£4.63	Sutton In
2014	Eurocell	264,450	£3.79	Sutton In
2014	William West	158,910	£1.10	Nottingham
2015	Linney Group	264,731	£3.26	Mansfield
2015	Caledonian Modular	191,260	£1.42	Newark
2016	Belfield Furnishings	191,078	£1.78	Ilkeston
2016	B Taylor & Sons	120,488	£2.49	Nottingham
2017	SS&C	143,461	£4.46	Sutton In
2017	Bonnington Plastics	154,311	£3.11	Nottingham
2017	Kuehne & Nagel	113,104	£4.50	Nottingham
2018	XPO Logistics	115,370	£3.00	Ilkeston
2018	XPO Logistics	159,449	£3.75	Ilkeston
2019	Cotton Traders	138,297	£4.04	Nottingham
2019	Findel Education	353,167	£2.05	Nottingham
2019	Bonnington Plastics	103,164	£7.56	Nottingham
2020	Amazon	551,030	£5.50	Nottingham
2020	Profine UK Ltd	208,447		Sutton In
2020	XPO Logistics	111,279	£3.41	Ilkeston
2020	Amazon	1,100,000	£6.05	Sutton In
2021	DFS	217,975	£4.60	Nottingham
2021	XPO Logistics	159,449	£3.75	Ilkeston
2022	Hillarys Blinds	131,221	£4.74	Nottingham
2022	Home Delivery	103,901	£4.78	Sutton-In-

Source: CoStar

Table A1.2 Available strategic warehousing in study area, March 2022

Address	Floorspac	Rent/sqft/ye	Postcod	Location	Status
Crown Farm Way	106,413	£4.70	NG19	Mansfield	Existing
Grange Ln		£4.75	NG24	Newark	Proposed
Brunel Dr	687,110	Not	NG24	Newark	Proposed
Dorey Way		Not	NG15	Nottingham	Proposed
Jessop Way	764,130	Not	NG24	Newark	Proposed
Mansfield Rd	176,817	£4.16 - 5.08	NG17	Sutton In	Under
Mansfield Rd	134,192	Not	NG17	Sutton In	Final Planning
Mansfield Rd	100,000	Not	NG17	Sutton In	Final Planning
Merlin Way		Not	DE7	Ilkeston	Proposed
Merlin Way		Not	DE7	Ilkeston	Proposed
New Stanton		Not	DE7	Ilkeston	Proposed
Thane Rd	470,000	Not	NG7	Nottingham	Proposed

Source: CoStar

Table A1.3 Current (2021) Large-Scale Warehouse Floor Space East Midlands Region by billing Authority

Local Authority	000s sq m	Number Units
Daventry	1,090	33
North West		
Leicestershire	972	31
Northampton	892	39
Harborough	861	33
Corby	728	26
East		
Northamptonshire	636	22
Bolsover	399	7
Kettering	354	12
Bassetlaw	348	12
Ashfield	336	14
Wellingborough	332	14
Hinckley & Bosworth	284	9
Blaby	212	13
Newark & Sherwood	207	3
Nottingham	203	11
Derby	202	8
South Derbyshire	197	12
City Of Leicester	192	10
Amber Valley	184	13
South		
Northamptonshire	171	7
South Kesteven	143	7
Erewash	141	7
Boston	130	9
Chesterfield	116	4
High Peak	102	4
South Holland	92	7
Charnwood	92	6
North East Derbyshire	86	5
Rushcliffe	80	4
Melton	73	3
Rutland	55	3
North Kesteven	55	4
Broxtowe	48	1
Gedling	46	3
East Lindsey	21	2
Oadby & Wigston	19	1
West Lindsey	19	1
Mansfield	13	1
Lincoln	10	1
Total	10,142	402

Source: CoStar

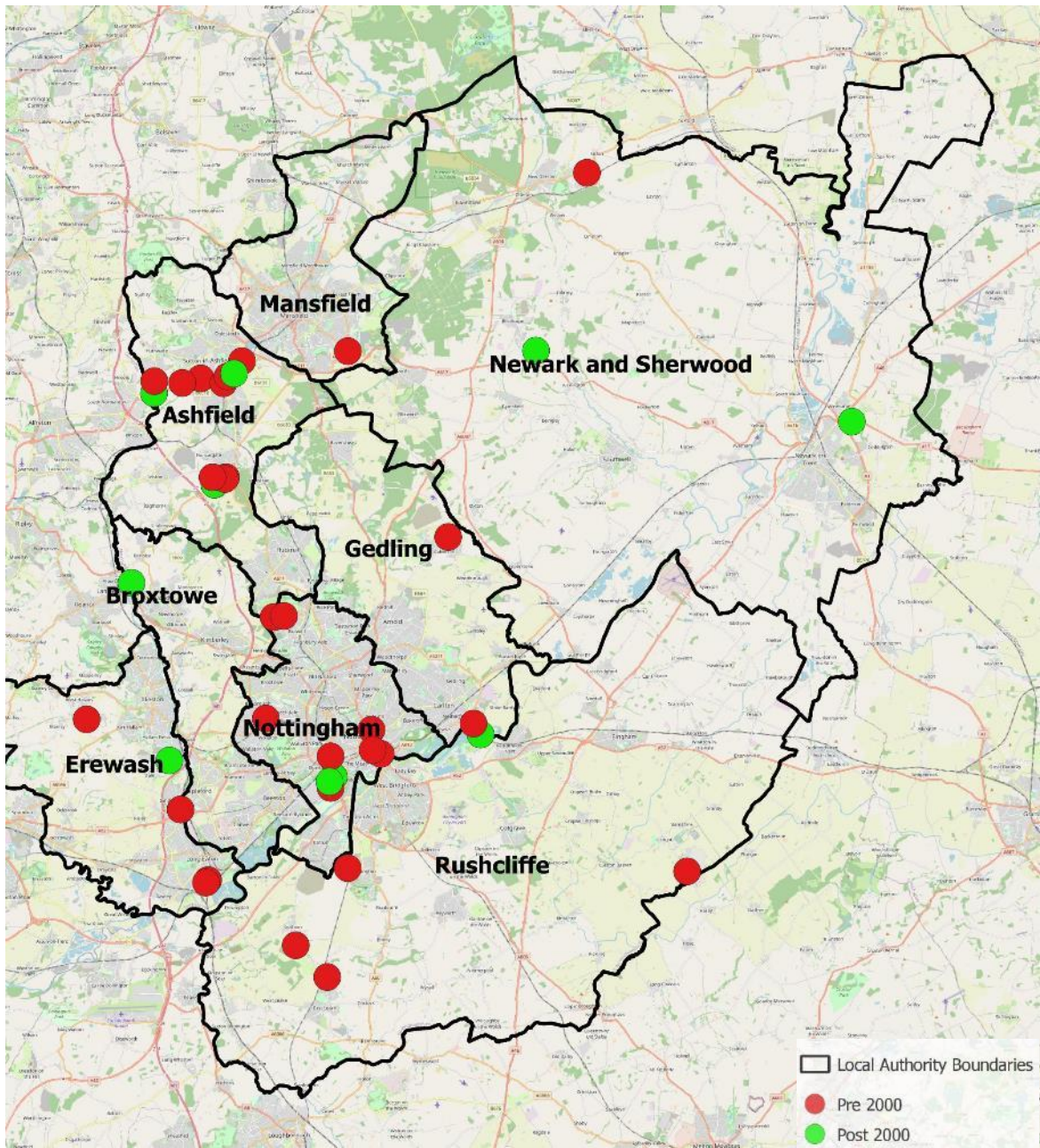
Table A1.4 Current (2021) Large-Scale Warehouse Units in Study Area (VOA)

Postcode	Postal District	Occupier / name	Area (sqm)	Age (est. via CoStar)
DE7 4QU	ILKESTON	WILLIAM WEST DISTRIBUTION	12,045	2010
DE7 6HE	ILKESTON	XPO SUPPLY CHAIN UK LTD	47,365	1985
LE12 6JQ	LOUGHBOROUGH	BRITISH GYPSUM LTD	46,283	1980
NG1 1DY	NOTTINGHAM	SAFE STORE	10,731	1960
NG10 1FZ	NOTTINGHAM		18,937	1980
NG10 1FZ	NOTTINGHAM	MENSWEAR UK	14,474	1980
NG10 3FZ	NOTTINGHAM	DHL EXEL DISTRIBUTION	27,271	2010
NG10 5AD	NOTTINGHAM	MY FURNITURE	12,159	1983
NG10 5AD	NOTTINGHAM	BONNINGTON PLASTICS	9,039	1972
NG11 0LB	NOTTINGHAM	SAINT GOBAIN	9,063	1980
NG11 6AG	NOTTINGHAM	ARTEX	10,972	1980
NG13 9HY	NOTTINGHAM	CDA	13,272	1970
NG14 6GD	NOTTINGHAM	VF NORTHERN EUROPE LTD	9,322	1965
NG15 0DF	NOTTINGHAM	L'OREAL UK LTD	10,505	2006
NG15 0DF	NOTTINGHAM	PARCEL FORCE	9,763	2003
NG15 0DR	NOTTINGHAM		9,388	1999
NG15 0DR	NOTTINGHAM		9,177	1999
NG15 0DS	NOTTINGHAM		9,203	1999
NG15 0RS	NOTTINGHAM		16,099	1999
NG16 3UA	NOTTINGHAM	AMAZON	48,467	2019
NG17 1BX	SUTTON-IN-ASHFIELD	ALLOGA	21,923	2012
NG17 1GP	SUTTON-IN-ASHFIELD	CRYSTAL MARTIN INT.L	10,533	1987
NG17 1JU	SUTTON-IN-ASHFIELD		10,685	1985
NG17 5FA	SUTTON-IN-ASHFIELD	EUROCELL	23,481	1995
NG17 5FB	SUTTON-IN-ASHFIELD	PARAGON	12,762	1992
NG17 5LA	SUTTON-IN-ASHFIELD		14,916	1980s
NG17 5NB	SUTTON-IN-ASHFIELD	AMAZON	157,878	2020
NG17 6AD	SUTTON-IN-ASHFIELD	PROFINE UK EXTRUSIONS LTD	19,444	1990
NG18 4LN	MANSFIELD		12,851	1965
NG2 3AA	NOTTINGHAM		78,691	1985
NG2 3AS	NOTTINGHAM		9,407	1950
NG22 8TX	NEWARK	YEARSLEY GROUP	35,590	2010
NG22 9LD	NEWARK	CLIPPER LOGISTICS	42,831	1965

NG24 2NH	NEWARK	DIXONS CARPHONE GROUP	128,191	2006
NG4 2JT	NOTTINGHAM		11,038	2005
NG4 2SG	NOTTINGHAM	FINDEL EDUCATION LTD	25,469	1980s
NG6 8UZ	NOTTINGHAM	GREAT BEAR	18,152	1995
NG6 8XF	NOTTINGHAM		10,475	1981
NG7 2NR	NOTTINGHAM		11,127	2002
NG7 2PW	NOTTINGHAM	THE POPLARS	11,265	1998
NG7 2UL	NOTTINGHAM	IMPERIAL TOBACCO	14,332	1968
NG7 2UT	NOTTINGHAM	HYPERAMA	12,856	2002
NG8 1FF	NOTTINGHAM	IMPERIAL TOBACCO	15,512	TBC
NG8 4GU	NOTTINGHAM		10,700	1980
Total			1,073,641	

Source: VOA, CoStar (Age)

Table A1.5 Current (2021) Large-Scale Warehouse Units in Study Area (VOA) map



Source: VOA, CoStar (Age)

Table A1.6 Traffic Volumes to Floor Space Conversion – Calculation Worked Example

Growth v 2021 (tonnes)	1,026,397	1,634,013	
Number of pallets handled per annum	1,282,996	2,042,516	Tonnes divided by 0.8
Factor = 0.8 tonnes/pallet			
Max number of pallets held in stock at anyone time	71,278	113,473	Pallets per annum divided by 18
Factor = 18 stock turns per annum			
Pallets in stock at 85% floor space utilisation	60,586	96,452	Max pallets in stock x 85%
Assumes on average that 85% of the floor space is occupied at anyone time (accounts for peaks and troughs across the year)			
Floor space required - sqm (1.5 pallets/sq m)	40,391	64,301	Number pallets divided by 1.5

Source: MDS Transmodal

Statement of conflicts

At the time of this report writing at spring 2022, Icení Projects Planning Team undertook an instruction for representations to the Erewash Local Plan Regulation 19 consultation in respect of a Green Belt logistics site at J25. That instruction has no bearing on the production of this report which has been produced objectively by Icení Projects Economics Team with full impartiality and independence.