

Greater Lincolnshire UK

Advanced Engineering & Manufacturing Investment Opportunity





Contents

Contents **03**

The AEM Investment Opportunity **04**

UK AEM Market Opportunity **06**

AEM Industry Clusters **08**

World-Class AEM Businesses **10**

AEM Research & Technologies **12**

AEM Workforce, Education & Skills **14**

Industrial Sites & Property Solutions **20**

Fast UK & Global Market Access **22**

Greater Lincolnshire's Location & Connectivity **24**

UK Market Access **25**

Support for Your AEM Sector Business Investment **26**

The Advanced Engineering & Manufacturing Investment Opportunity

Greater Lincolnshire is one of the UK's outstanding manufacturing locations, offering high-value, integrated capabilities in advanced engineering and digital technologies.

The area is home to leading companies with specialisations including defence, agricultural, automotive and power systems technologies, as well as cutting-edge innovators in industrial robotics, automation and process industry systems. UK-leading Industry 4.0 expertise, in areas including AI, machine learning, Data Analytics and the Internet of Things, extends across multiple research centres and businesses, working in partnership to improve productivity, efficiency and sustainability.

Greater Lincolnshire's technological strengths are complemented by a skilled advanced manufacturing workforce that is outstanding in the UK, supported by education providers working closely with businesses to deliver the skills they need. Additional benefits include available, cost-effective sites and properties, sites with large industrial power supplies, potential Freeport incentives, and the connectivity and logistics required for fast access to UK and global markets.

In the Industry 4.0 era, Greater Lincolnshire can deliver competitive edge for investing companies in high-growth sectors, including defence and related technologies, agricultural engineering, industrial automation and digitalisation, and low-carbon, connected and autonomous vehicles. By locating in the area, they will be joining a prestigious community of businesses that includes BAE Systems, Raytheon, Siemens and Teledyne e2V.



UK growth opportunities in Industry 4.0 tech, defence and low-carbon transport



A diverse industry cluster integrating engineering and digital tech capabilities



UK-leading Industry 4.0 expertise in research centres and businesses



A skilled manufacturing workforce that is outstanding in the UK



Available, cost-effective, prime properties with large power supplies



Excellent connectivity and logistics, for fast access to UK and global markets



Dedicated support for your business investment project

UK Advanced Engineering & Manufacturing Market Opportunity

The UK is a global leader in Advanced Engineering and Manufacturing, presenting specific growth opportunities in sectors including Industry 4.0 technologies, defence and low-carbon transport.



As a centre of excellence for both advanced engineering and digital technologies, the UK is at the forefront of the Industry 4.0 revolution, encompassing Artificial Intelligence (AI), machine learning, robotics and automation, Data Analytics and the Internet of Things. According to government data, 4,000 UK engineering companies (with 100+ employees) are likely to invest in robotics, and demand for Industry 4.0 technologies is estimated to be worth £8.9 billion per year.¹ For manufacturing companies innovating with digital technologies, funding is potentially available through national programmes including the Manufacturing Made Smarter challenge.

The UK's £22.7 billion³ defence sector is a world leader in technology, innovation and advanced manufacturing. In November 2020, the government announced a spending increase of £16.5 billion over 4 years, the largest defence investment for 3 decades, presenting growth opportunities for businesses in new technology areas including AI, digital tech, robotics and drones.⁴

Building on established, advanced automotive capabilities including electric vehicle manufacturing, the UK government has committed to 100% zero emissions on all new vehicles from 2035. The target is underpinned by multi-billion pound, government-supported research into key low carbon propulsion technologies including batteries, power electronics, motors and drives, in combination with related themes including Connected and Autonomous Vehicles (CAVs).

Source: (1) UK government DIT, 2018 (2) madesmarter.uk (3) 2018 turnover, UK government DIT (4) FT.com, 19.11.20

Estimated UK Demand for Industry 4.0 Tech.

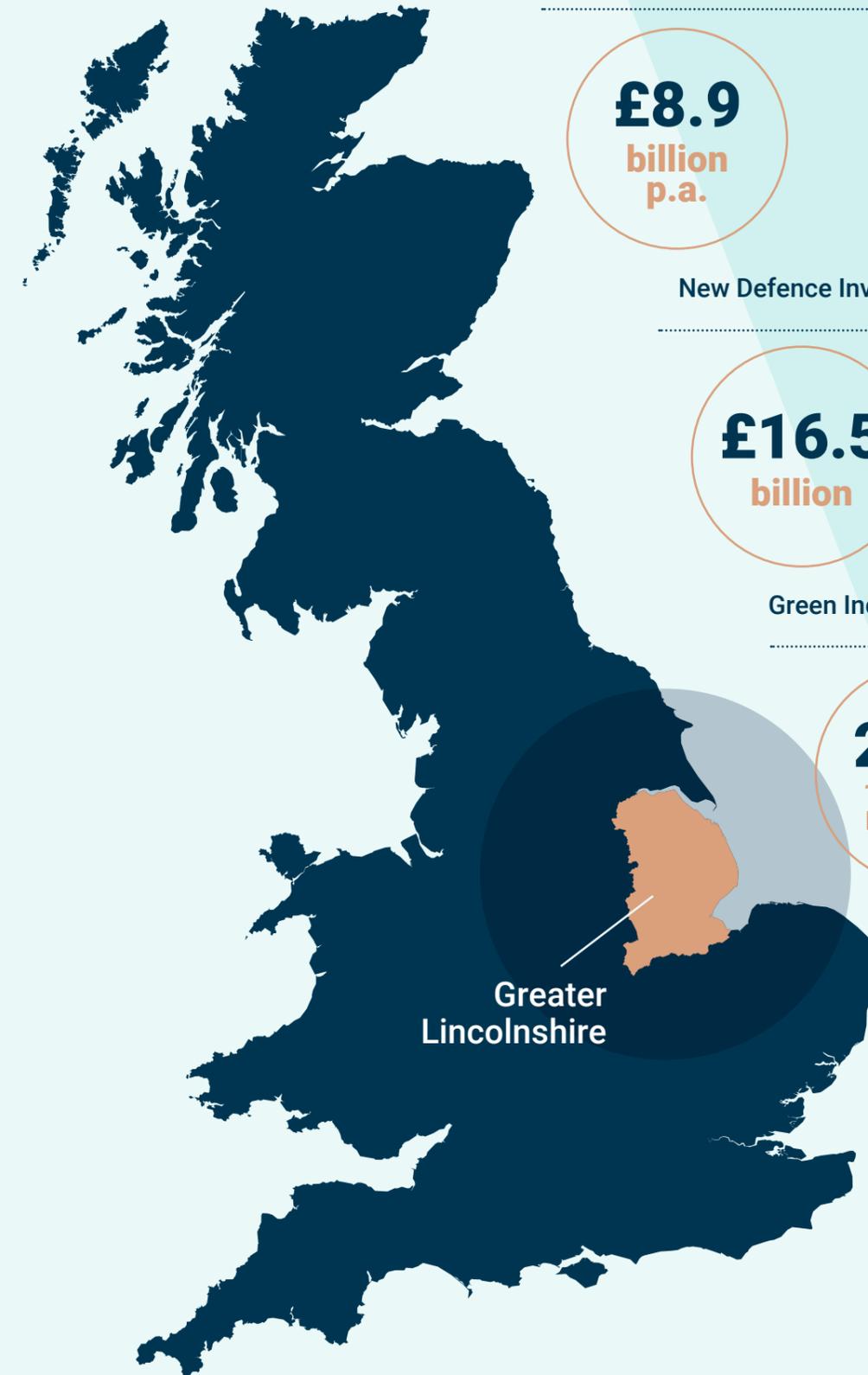
£8.9
billion
p.a.

New Defence Investment

£16.5
billion

Green Industrial Revolution

2035
100% Zero
Emissions



Greater
Lincolnshire

Data is for the United Kingdom. Northern Ireland is not shown on the map.

Outstanding Advanced Engineering & Manufacturing Industry Clusters

Greater Lincolnshire is home to outstanding advanced manufacturing industry clusters in classifications including computing and electronics, and machinery and equipment.

These specialisations reflect the presence of leading companies in the defence, agricultural, automotive and power generation technology sectors, and the extensive application of industrial digitalisation technologies. The area is a UK manufacturing heartland, with industry concentrations above the national average across all areas. These established capabilities provide investing businesses with immediate access to technical expertise, and a wide range of engineering, manufacturing and digital potential supply chain partners.

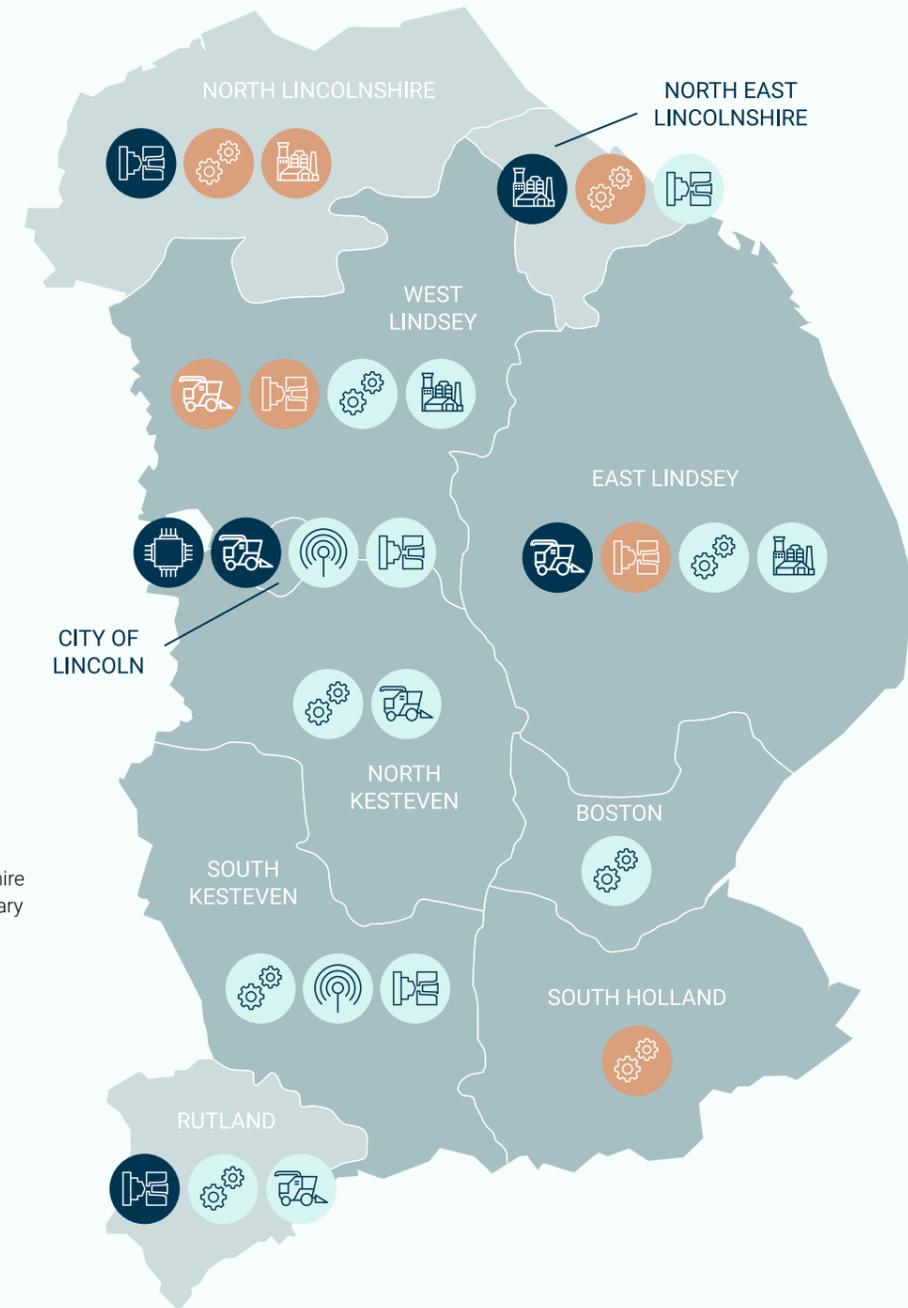
Significant Manufacturing Industry Clusters in Greater Lincolnshire (GB Average = 1.0)

Area	Manufacturing (All) ¹	Computer, Electronics & Optics ²	Electronics ³	Machinery & Equipment ⁴	Plastics ⁶	Chemicals ⁷
Greater Lincolnshire	1.8			1.4	1.8	1.5
Boston	1.6					
East Lindsey	1.3			3.0 ⁵	2.1	1.1
Lincoln		1.5	7.7	4.9	1.8	
North East Lincs.	2.1				1.7	6.2
North Kesteven	1.6			1.9		
North Lincolnshire	2.9				3.2	2.0
Rutland	1.3			1.1	7.7	
South Holland	2.5					
South Kesteven	1.3	1.2			1.2	
West Lindsey	1.6			2.2	2.5	1.5

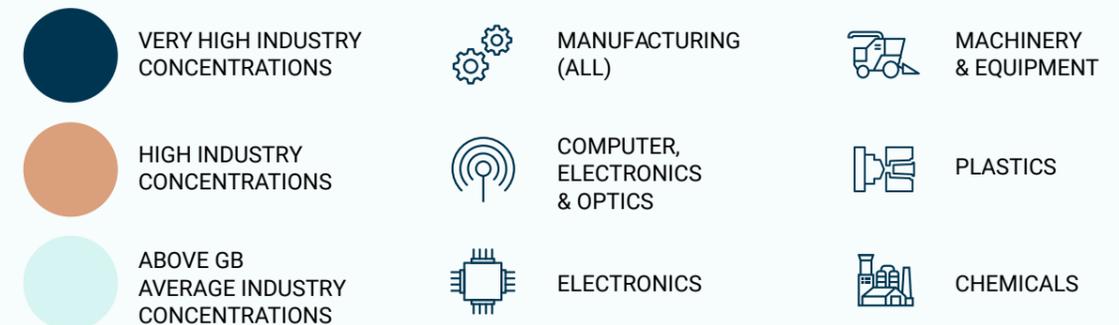
Location Quotients (LQs) are an established industry clustering metric, measuring the ratio of local industry sector workforce numbers to the GB average (represented by 1.0).

LQs (Industry Clustering)

- Very High
- High
- Above GB Avg.



North Lincolnshire, North East Lincolnshire and Rutland are unitary authorities. All other areas are districts of the county of Lincolnshire.



Source: ONS BRES 2019. (1) SIC C (2) SIC26 (Computer, Electronic & Optical Products) (3) SIC261 (4) SIC28 (5) SIC30: Transport Equipment (6) SIC22 (7) SIC 20

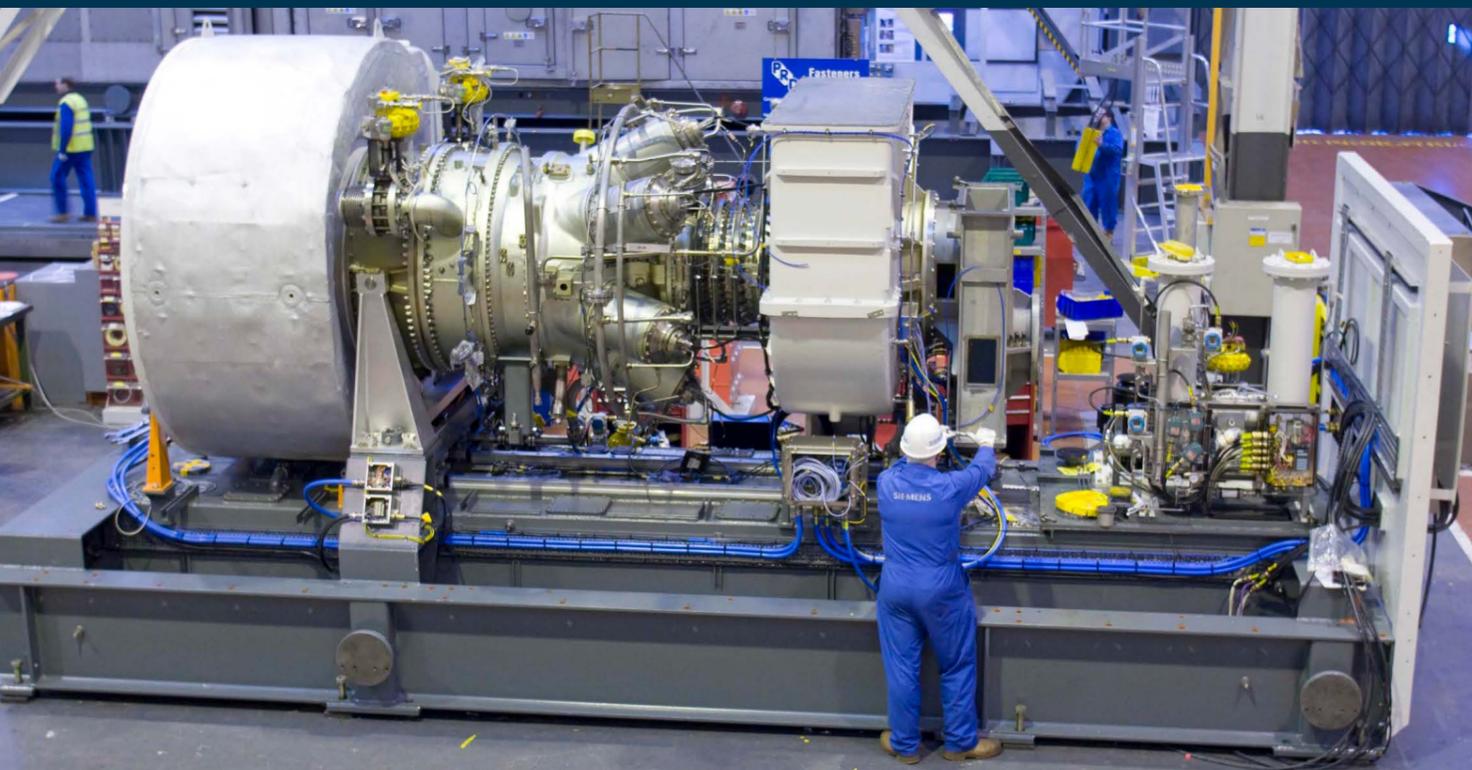
World-Class Advanced Engineering & Manufacturing Businesses

Greater Lincolnshire's advanced engineering and manufacturing sector includes defence majors and supply chain businesses, machinery, automotive and power systems manufacturers, and pioneers in Industry 4.0 technologies.

The area's highly developed defence and aerospace cluster includes businesses engaged in R&D and manufacturing as well as engineering support to the Royal Air Force. Core competencies include advanced electronics, with research strengths in Industry 4.0 themes including autonomous systems.

The area's diverse agricultural engineering technologies cluster includes advanced machinery manufacturers and innovators in automation and robotics. UK-leading Industry 4.0 expertise, including AI, Big Data analytics and the Internet of Things, has been honed in food production and manufacturing, while being applied across sectors including warehousing and process industries. Automotive strengths includes drivetrain and lightweighting technologies.

In combination, these capabilities can provide value-adding expertise and supply chain partnerships for investing businesses in sectors including defence and related technologies, agricultural engineering, industrial automation and digitalisation, and low-carbon, connected and autonomous vehicles.



BAE SYSTEMS

BAE Systems

Defence & aerospace systems

TELEDYNE e2V
Everywhere you look

Teledyne e2V

Advanced electronics: defence, medical, science, aerospace

RFMW UK
It's who we are
It's what we do

RFMW UK

Defence electronics – radio frequency & microwave technology

Raytheon Intelligence & Space

Raytheon

Airborne Intelligence, Surveillance & Reconnaissance

Collins Aerospace

Collins Aerospace

Defence & aerospace systems

DYNEX
Power through Innovation

Dynex

Design & manufacture of high-power semiconductors

SIEMENS

Siemens Industrial Turbomachinery Ltd

Industrial power generation systems

AUTOCRAFT
Solutions Group

Autocraft

Automotive: EV Battery & Industry 4.0 technologies

OWR

OWR

Robotics & automation for the warehousing & manufacturing sectors

THORVALD

Saga Robotics

Robotics & automation for the agri-tech sector

GEA

GEA

Process industry robotics & automation technologies

myenergi

myenergi

Energy control systems design & manufacturing

Fliegl

Fliegl

Agricultural technology & machinery

GRIMME

Grimme

Agricultural technology & machinery

Bright Lite Structures

Bright Lite Structures

Lightweight composites: aerospace & automotive sectors

SHD composites
advanced composite materials

SHD Composites

Advanced, high-performance composite materials

Advanced Engineering & Manufacturing Research & Technologies

Combining advanced engineering and digital expertise, the University of Lincoln delivers multi-disciplinary research and innovation in specialisations closely aligned with regional industry strengths and high-growth market opportunities.

The university has emerged as a leading UK hub for Industry 4.0 R&D. Dedicated research centres apply Artificial Intelligence (AI), machine learning, Big Data analytics, Robotics and Automation, and Internet of Things technologies to industry challenges including improving productivity, efficiency, agility and sustainability. Research into sustainable energy and power systems aligns with the core competencies of major local employers including Siemens, as well as the drive for low-carbon energy and propulsion technologies.

Through the Greater Lincolnshire Manufacturing Network, business can access the University of Lincoln's academic resources directly, and share best practice. As an example of close R&D partnerships with world-class companies, Lincoln is one of very few UK universities to hold Siemens Global Principal Partner status.

The university's R&D capabilities have the potential to deliver competitive edge for investing businesses in sectors including defence, agricultural engineering, process manufacturing, and low-carbon, connected vehicles.



Robotics and Automated Systems (Research Theme)

Advancing the technologies that connect Mechatronics, Automation and Control for meticulously designing smarter robots

Industrial Digitalisation & System Intelligence Research Group (IDSI)

Industry-focused research areas include robotics, dynamics, systems and control, and artificial intelligence

Communications, Networks and Embedded Systems (Research Theme)

Internet of Things and Wireless Sensor Networks research; Communication, Networks, and Embedded Systems technologies

Sustainable Energy & Power Research Group (PEG)

Low-carbon, smart and renewable power and energy research; sectors include automotive, aerospace, industrial & commercial



UNIVERSITY OF LINCOLN

lincoln.ac.uk



Multi-disciplinary R&D into food supply chain digitalisation, using Artificial Intelligence, Data Analytics & emerging technologies

Lincoln Centre for Autonomous Systems (L-CAS)

An internationally renowned centre for cross-disciplinary research in robotics and autonomous systems



World's first Agricultural Robotics Global Centre of Excellence. (Integrates L-CAS & LIAT research)

Lincoln Institute for Agri-Food Technology (LIAT)

AI, Robotics, Engineering, Crop Science, Environmental Sustainability; for food manufacturing, product development & supply chains

Advanced Engineering & Manufacturing Workforce, Education & Skills

Greater Lincolnshire provides access to a large, skilled and cost-competitive advanced manufacturing workforce that is outstanding in the UK.

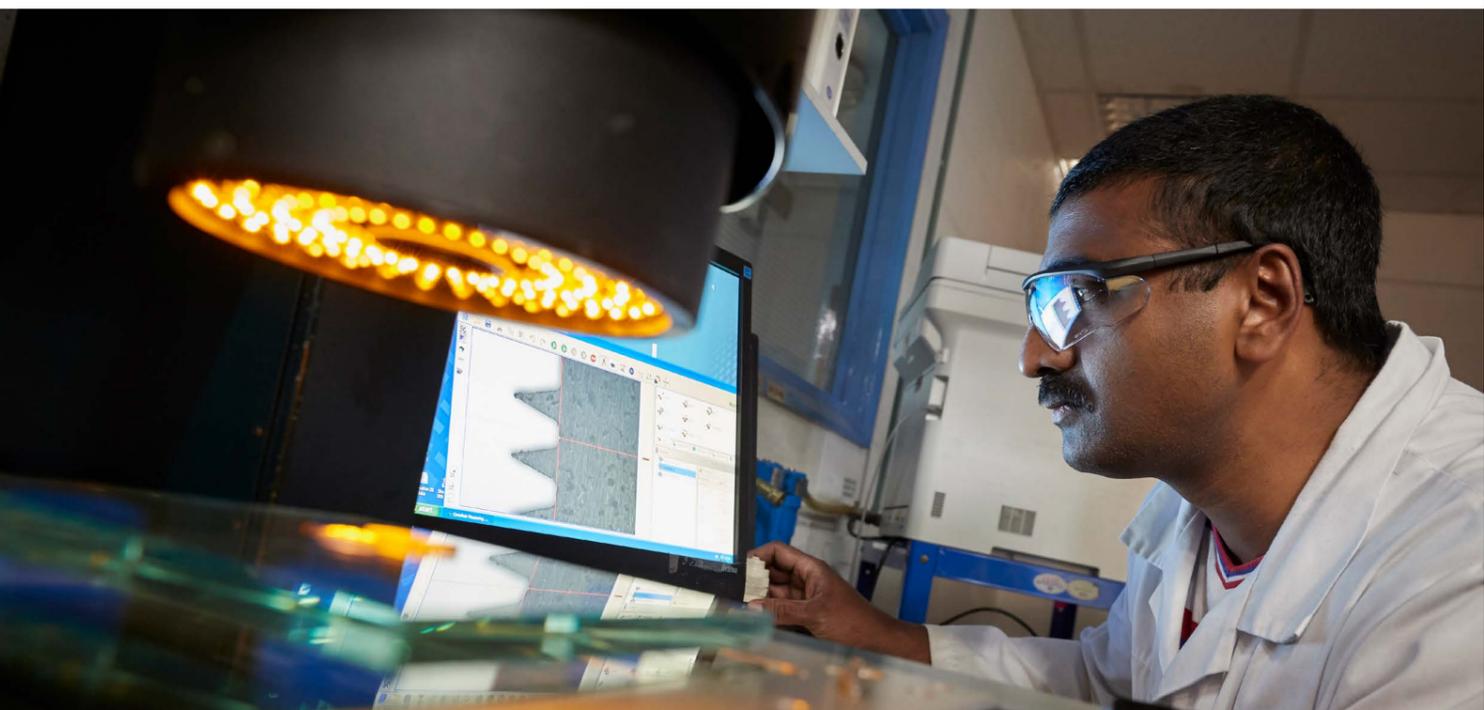
Manufacturing: With 63,000 people working in the sector, Greater Lincolnshire is one of the UK's manufacturing heartlands. As a percentage of all workers, the area's manufacturing labour force is 1.8 X the Great Britain average, and the largest in a comparison of the country's leading advanced manufacturing regions.¹

Local Area Specialisations: Greater Lincolnshire's local areas all offer highly developed manufacturing labour forces, with 9 out of 10 being significantly larger than the Great Britain average (as % of total). Outstanding, localised advanced manufacturing workforce strengths include advanced electronics, machinery and equipment, and transport equipment manufacturing, supported by high workforce numbers in sectors including chemicals and plastics.¹

Cost Advantages: Greater Lincolnshire combines workforce availability and skills with significant labour costs savings: 9% lower than the Great Britain average.²

For businesses investing in Greater Lincolnshire, the area's established, skilled manufacturing workforce enables recruitment, fast project delivery and productivity.

Sources: (1) ONS BRES 2019, SIC-C (2) ONS ASHE 2020, Gross Avg. Weekly Pay



Greater Lincolnshire's educational institutions are focused on meeting the specialised skills requirements of the area's advanced engineering businesses.

Higher Education

The University of Lincoln is recognised for excellence in industry engagement with employers including Siemens, and has achieved the best possible 'Gold' award for high-quality teaching in the national Teaching Excellence Framework. In 2021, the university was named Modern University of the Year in The Times & Sunday Times Good University Guide.



lincoln.ac.uk

Further/Higher Education Colleges and University Technical Colleges

Greater Lincolnshire's colleges and University Technical Colleges (UTCs) work in partnership with businesses to deliver courses, qualifications and apprenticeships tailored to their skills needs, at all levels up to post-graduate. Subjects include Advanced Manufacturing Engineering, and Computer Automation, Internet of Things and Assistive Technology.



riseholme.ac.uk



grantham.ac.uk



lincolncollege.ac.uk



enlutc.co.uk



lincoln.ac.uk



boston.ac.uk

Advanced Engineering & Manufacturing Education and Skills

Greater Lincolnshire's educational institutions are investing to deliver the skills needed by high-value businesses implementing new technologies.

Multi-million pound centres have recently been developed that combine state-of-the-art facilities, technology-focused education, and industry-led research and innovation.

Boston College Engineering, Manufacturing & Technology Centre (EMAT)

EMAT is a £4.9 million, industry-driven training facility designed to stimulate growth and productivity across the engineering, manufacturing and agri-tech sectors. Engineering-related courses respond to employer needs and include Electronics, Renewables, Robotics, Machining, Computer Aided Design (CAD) and Computer Numerical Control (CNC).



boston.ac.uk



lincoln.ac.uk

University of Lincoln: Schools of Engineering and Computer Science

The University of Lincoln delivers courses and qualifications including electrical, mechanical and integrated engineering, engineering management, mechatronics and computer science. A unique combination of advanced engineering and Industry 4.0 specialisations is reflected in courses including the MSc in Robotics and Autonomous Systems.

Lincolnshire Institute of Technology (IoT)

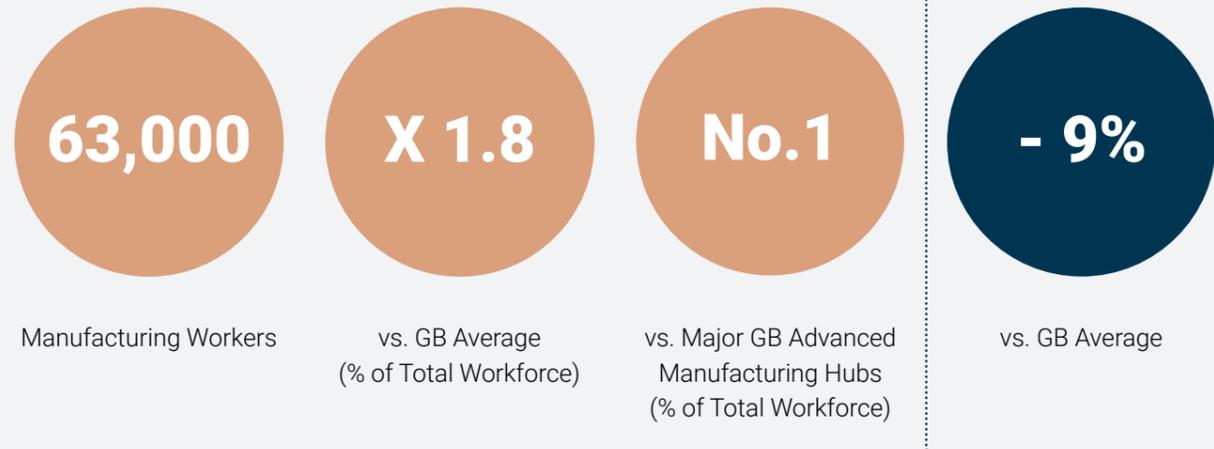
Led by the University of Lincoln with seven Higher and Further Education partners, the Institute of Technology supports technology sectors by delivering STEM (science, technology, engineering and mathematics) focused higher technical education. Through an investment of £15 million, the IoT will lead the transformation of Greater Lincolnshire's skills base.



lincoln.ac.uk

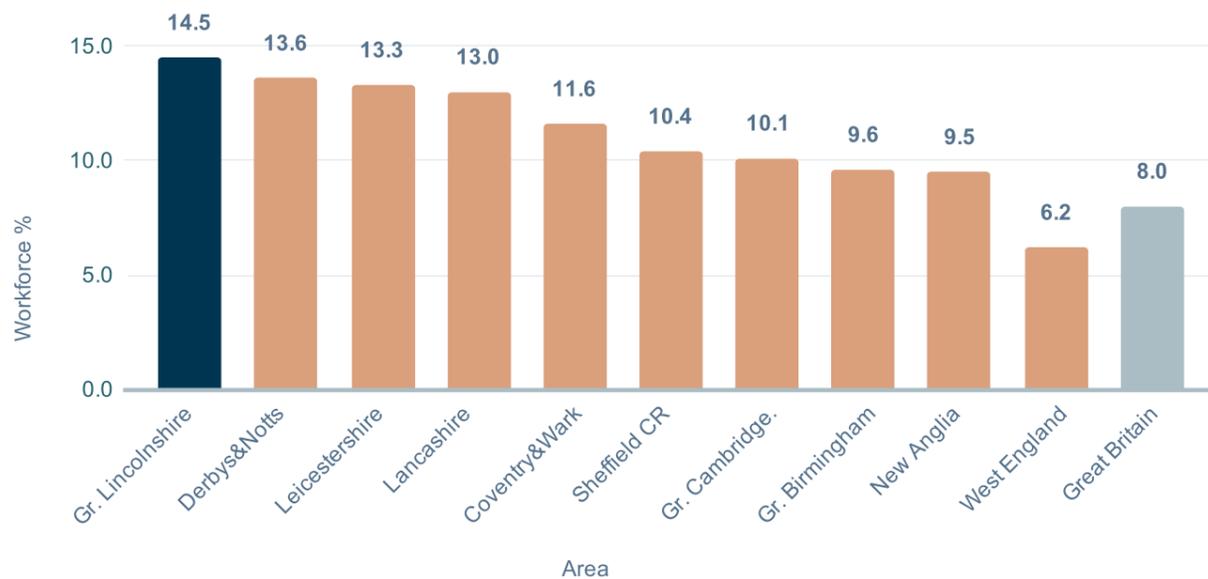
Greater Lincolnshire

Manufacturing Workforce¹



Manufacturing Workforce (% of Total): Regional Comparison³

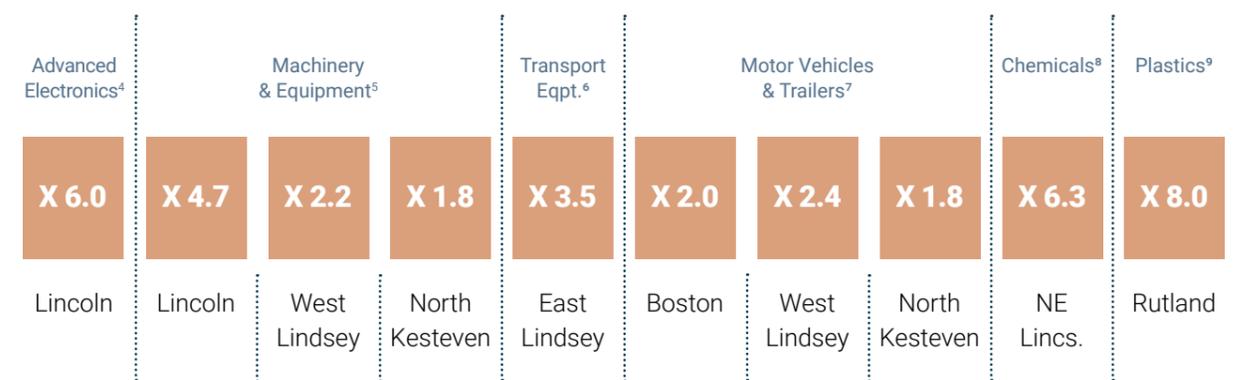
Greater Lincolnshire vs. Major UK Advanced Manufacturing Areas & Neighbouring Areas^{1,3}



Sources: (1) ONS BRES 2019, SIC-C (2) ONS ASHE 2020, Gross Avg. Weekly Pay (3) Comparison of leading LEP areas for advanced manufacturing/neighbouring areas (4) SIC26 (5) SIC28 (6) SIC30 (7) SIC29 (8) SIC20 (9) SIC22

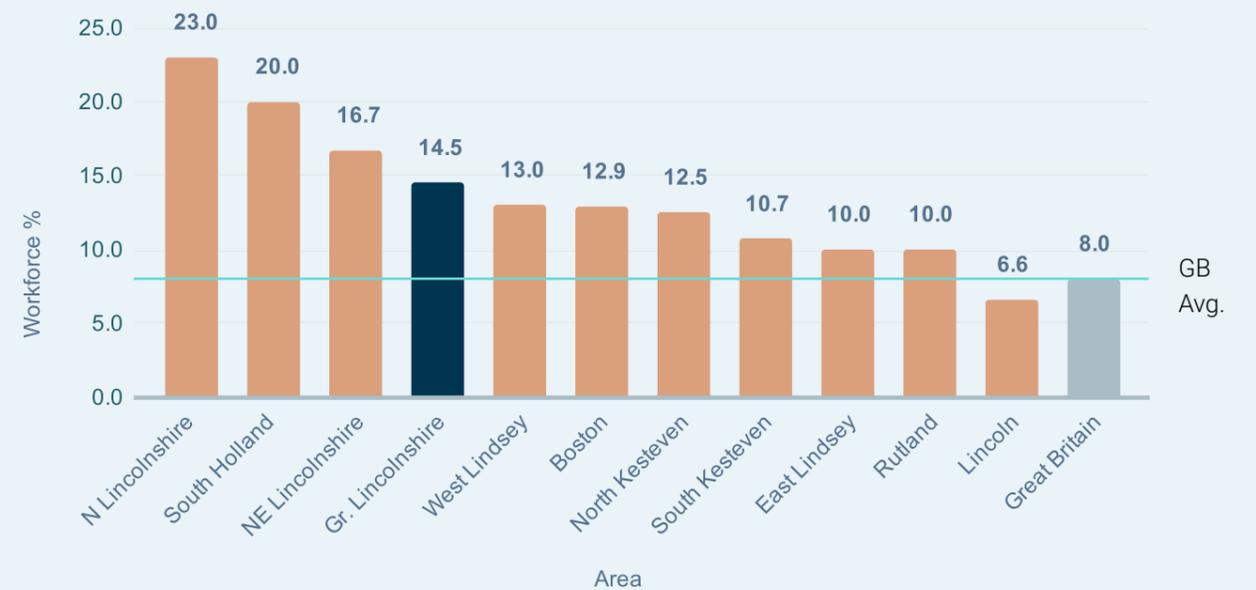
Greater Lincolnshire Areas

Workforce in Key Advanced Manufacturing Sectors vs. Great Britain Average (% of Total Workforce)



Manufacturing Workforce (% of Total): National Comparison¹

Greater Lincolnshire Districts vs. Great Britain Average^{1,3}



Industrial Sites & Property Solutions

Greater Lincolnshire offers a range of high-quality, industrial sites and property solutions for investing Advanced Engineering and Manufacturing businesses, including:

- Ready-to-go sites for built-to-suit prime properties
- Sites with Freeport tax incentives for investing businesses
- Sites with large industrial power supplies
- Potential access to renewable energy sources, for sustainable supply chains
- Fast access to key UK manufacturing and logistics hubs, ports and airport

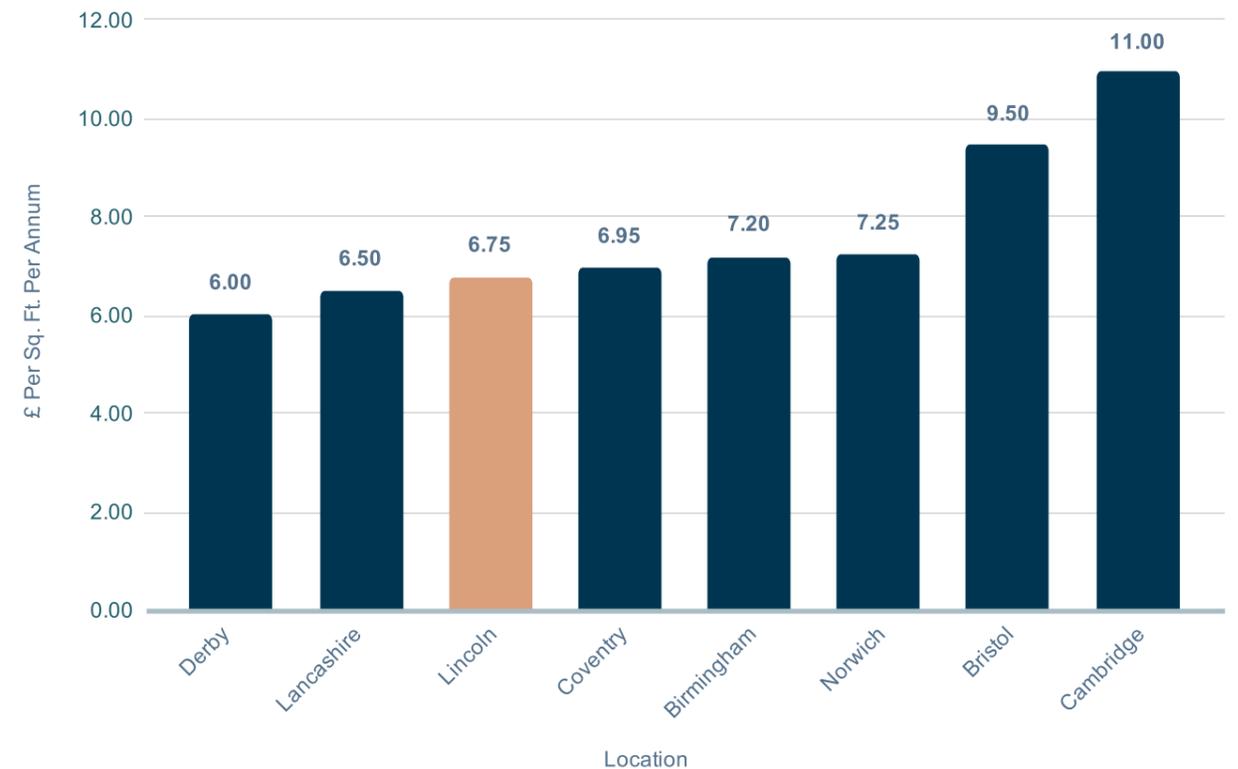


Property Cost Savings



Industrial Property Rents: £ Per Sq. Ft. Per Annum

Comparison of Key UK Advanced Manufacturing Locations¹



Sources: (1) Property Agents, H2 2020: Colliers, Banks Long & Co (Lincoln data)

Fast UK & Global Market Access

Greater Lincolnshire provides
Advanced Engineering and
Manufacturing businesses with
fast, multimodal access to UK
and international markets.

The ports of Immingham and
Grimsby are the UK's largest by
tonnage. Capabilities include:

- Deep water facilities
- Large-vessel handling
- Multiple cargo types
- Global sea freight services
- Rail freight connectivity



By Road

Greater Lincolnshire's central Great Britain location (north-south) means that key Midlands advanced manufacturing centres, including Derby, Coventry and Birmingham, are accessible within 2 hours' HGV drive time.¹

More than 75% of the UK's population and all of England's major advanced manufacturing centres can be reached within 4 hours' HGV drive time – less than one driver shift.¹



By Sea

The South Humber ports (Immingham and Grimsby) are the UK's largest by tonnage,² providing frequent services to European ports and deep-sea feeder operations for global market access. Multiple cargo types are handled including Lo-Lo, Ro-Ro, general, project and bulk. Facilities include extensive warehousing and vehicle storage.³

The Port of Boston serves UK and European destinations for cargo types including container, general, and bulk, and offers extensive port-side warehousing.⁸

The Port of Felixstowe, the UK's busiest container port, is accessible in less than 3½ hours' HGV drive time.¹



By Air

Airports accessible within 2 hours' drive time⁴ include East Midlands (EMA), the UK's no.2 air cargo hub⁵, Birmingham and Doncaster Sheffield (DSA).

Within Greater Lincolnshire, Humberside Airport (HUY) offers frequent 'hub-feeder' services to Amsterdam Schiphol (AMS) and onward connections to 800 global destinations with KLM and SkyTeam partners.⁶

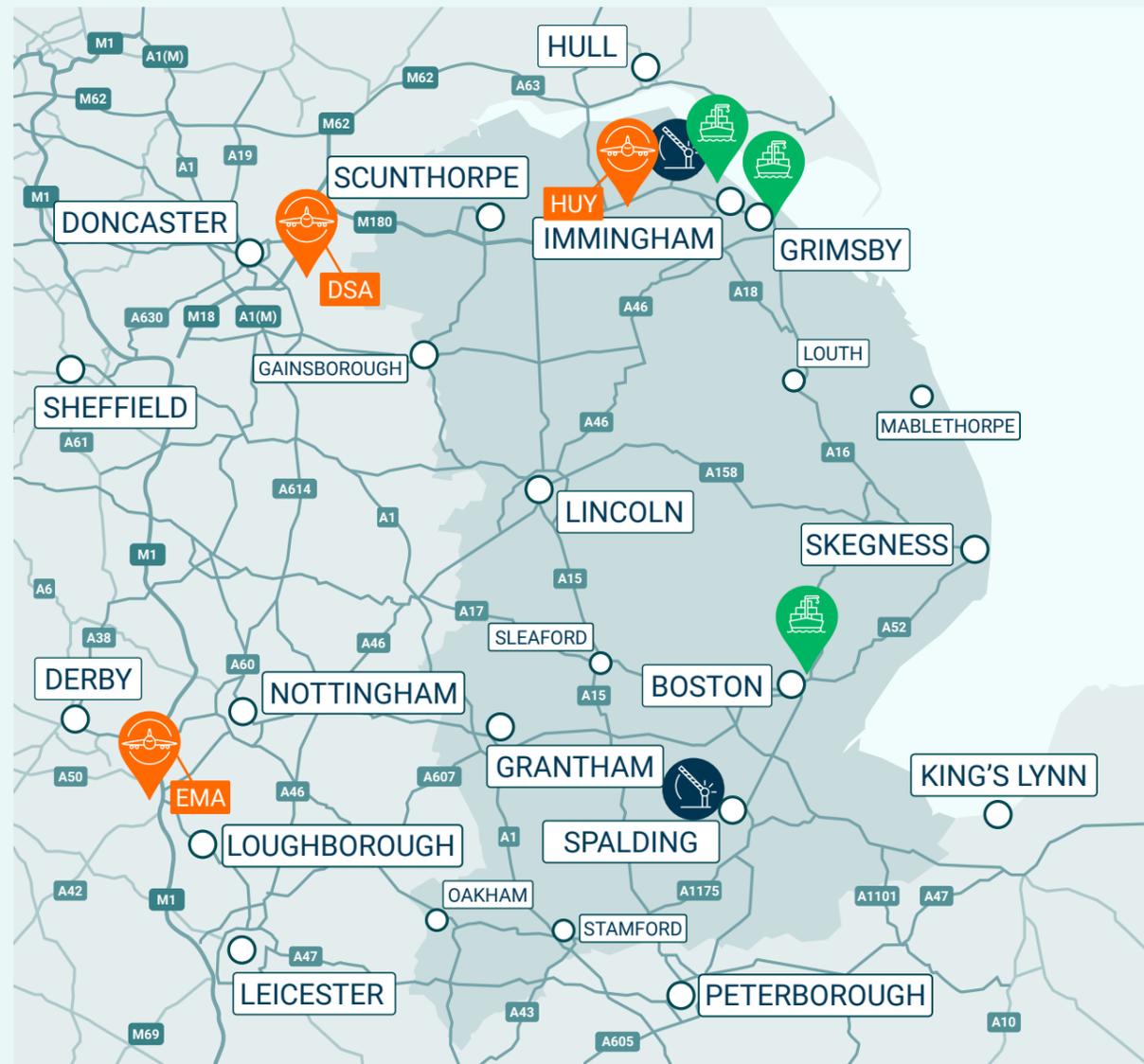


By Rail

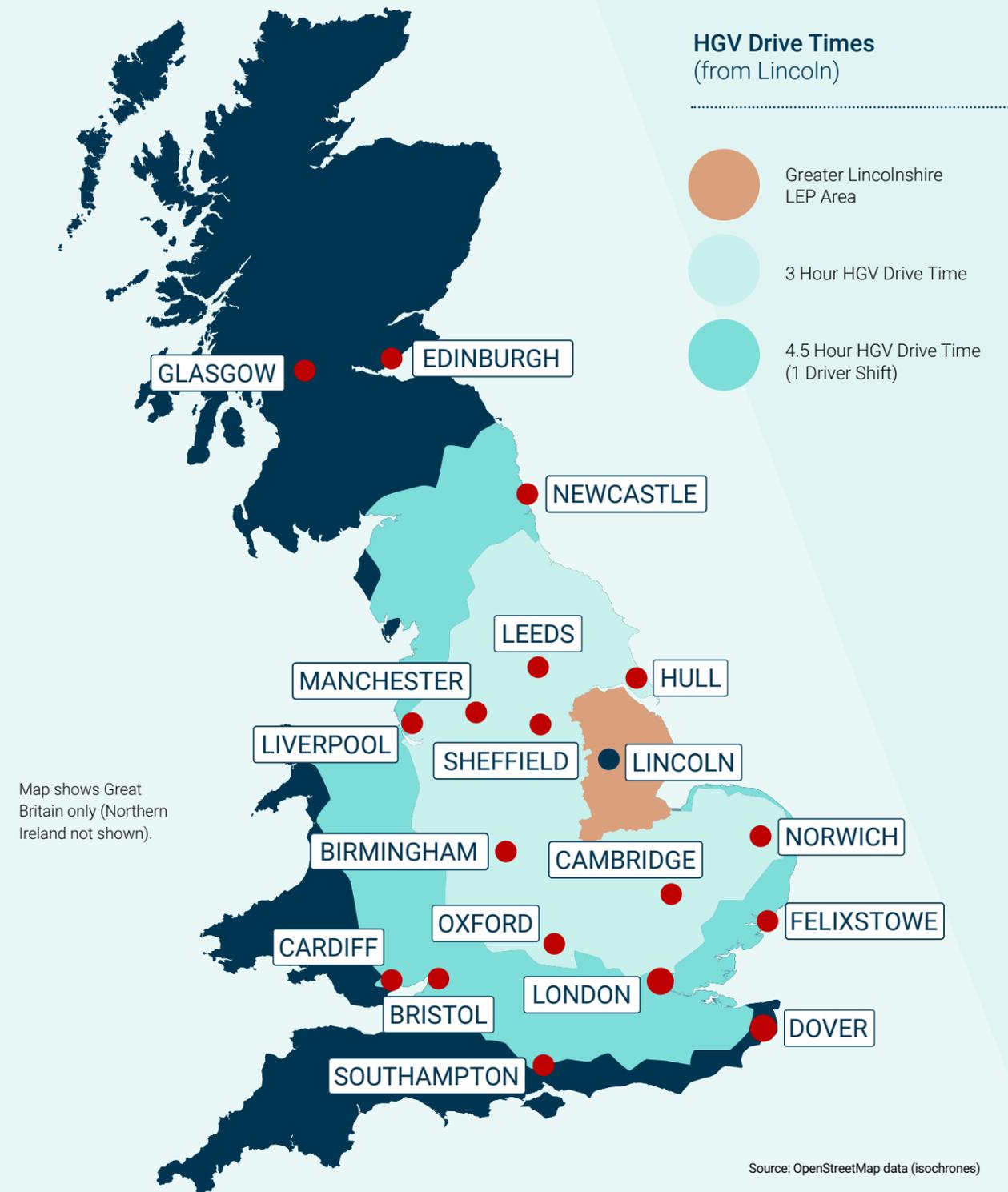
The Greater Lincolnshire ports of Immingham, Grimsby and Boston are all freight rail connected, with W12-gauge access ('high cube' containers) at Immingham and Grimsby. For business travellers, the area also offers fast connectivity to UK destinations including London, which is accessible from Lincoln in less than 2 hours.⁷

Rail system upgrades are currently in progress to further improve passenger and freight capacity and service speeds.

Greater Lincolnshire's Location & Connectivity



UK Market Access



Support for Your Advanced Engineering & Manufacturing Business Investment

Contact us to find out
how we can support your
business relocation or
expansion project.

Support for Investors from the Greater Lincolnshire Partnership

Working together, the LEP and our partner organisations, including local authorities, education providers and businesses, provide dedicated support to ensure a 'soft landing' for companies investing in Greater Lincolnshire.

Our services to business include:

- Support in finding the right site or property
- Planning application support and guidance
- Location, economic and market intelligence
- Access to workforce recruitment, education and training solutions
- Access to sector specialists
- Access to sector-specific support programmes
- Access to local supply chains and business networks
- Access to funding for business investment

Contact Us

Tony Reynolds,
Inward Investment Manager
for Place & Investment

e: investment@lincolnshire.gov.uk

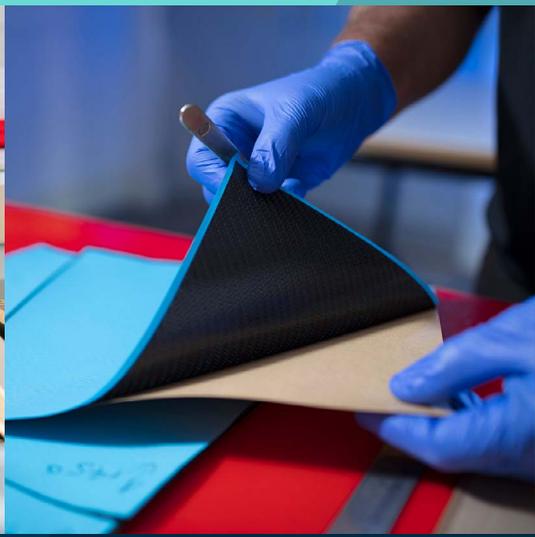
Address:

Greater Lincolnshire
Local Enterprise Partnership
Lancaster House
36 Orchard Street
Lincoln, LN1 1XX





served by One Team



Credit: Viking Signs