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North Hykeham Relief Road - Strategic & Wider Economic Benefits Report

A Draft Report by Hatch Regeneris
November 2018

Lincolnshire City Council

North Hykeham Relief Road - Strategic & Wider Economic Benefits Report

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Contents Page

1.	Introduction	1
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2.	Role of Transport Investment in Supporting Economic Growth	4
	What does the Literature & Evidence tell us?	4

3.	Strategic Importance of Transport Infrastructure	9
-----------	---	----------

4.	Socio-Economic Profile and Context	16
	Economic Performance	16
	Employment	20
	Population & Labour Market	28
	Housing Market Overview	33
	Containment and Travel to Work	34
	Summary: Socio-Economic Barriers and Challenges	35

5.	Lincolnshire's Future Growth	38
	Population Forecasts	38
	Future Labour Demand	38
	Future Employment Projections	40
	Future Growth Implications	41

6.	Future Employment and Housing Development Sites	44
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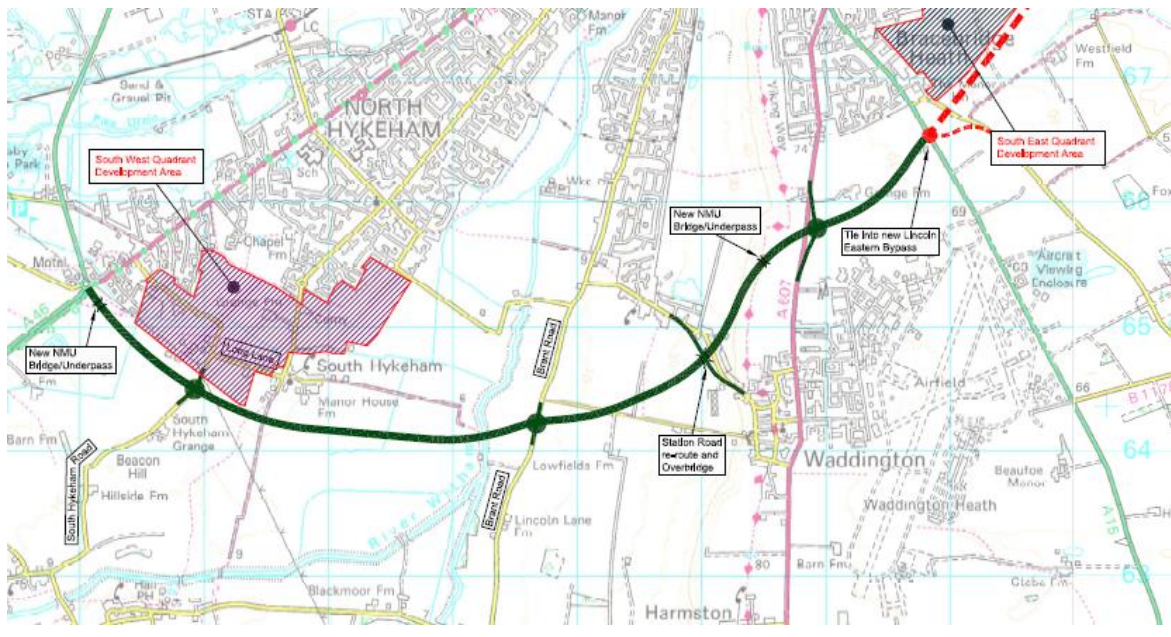
7.	How does the proposed NHRR scheme overcome barriers and support economic growth?	49
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1. Introduction

- 1.1 The North Hykeham Relief Road (NHRR), which was previously known as the Lincoln Southern Bypass (LSB), is a proposed new dual carriageway which will form part of the Lincolnshire Coastal Highway and link the completed Lincoln Eastern Bypass (at the A15 Sleaford Road) with the existing A46 Western Bypass (at its junction with Newark Road), completing a ring road around Lincoln City Centre (See Figure 1.1).
- 1.2 As Lincoln has grown, so has the number of road users, increasing the pressures on the existing transport network. The ring road has been identified by Lincolnshire County Council (LCC) as a proposed solution to relieve congestion, of which the North Hykeham Relief Road (NHRR) plays an important part.
- 1.3 The main aims and benefits of the proposed NHRR scheme which have been outlined by Lincolnshire County Council and Lincoln City¹ Council are set out below.
 - To assist the sustainable economic growth of Lincoln and Lincolnshire by:
 - Improvements to the strategic road network
 - Improving direct links to the Primary/Trans-European Road Network
 - To improve the quality of life in central Lincoln and in the settlements within the study area by:
 - Reducing through-traffic
 - Relieving traffic congestion
 - Reducing traffic generation noise and air pollution
 - To maximise accessibility to central Lincoln by:
 - Giving drivers more choice of routes to access or bypass Lincoln
 - Providing an additional river crossing
 - Reducing journey times for through-traffic travelling between areas to the east and west of the city
 - To improve road safety in central Lincoln and the settlements within the study area by:
 - Providing an alternative, more direct route between areas to the east and west of the city, avoiding the city centre
 - Improving links between primary route corridors and increasing the range of entry points to the city
 - Reducing conflicts between heavy good vehicles, other road users, pedestrians and property

¹ <https://www.lincolnshire.gov.uk/transport-and-roads/major-projects/north-hykeham-relief-road/>

Figure 1.1 The Proposed Scheme



Source: WSP

- 1.4 LCC secured funding in July 2017 to prepare an Outline Business Case (OBC) for the proposed NHRR scheme. The preparation of the OBC enables LCC to be well placed to respond promptly to potential Government funding for new road investment schemes following the 2018 Budget in late October.
- 1.5 WSP are leading the preparation of the OBC for LCC, while Hatch Regeneris was appointed by LCC in September, as sub-consultants to WSP, to support on economic development considerations and the assessment of the proposed scheme's potential wider economic benefits.
- 1.6 This standalone report has been prepared by Hatch Regeneris to provide WSP with an economic development narrative for the proposed NHRR scheme. This will ensure that the OBC's Strategic Case is grounded in both local and regional economic development and regeneration context, as well as national economic growth considerations. Our assessment of the proposed scheme's potential wider economic benefits, including the potential wider economic benefits supported by dependent housing and employment sites that could be unlocked via the construction of the NHRR, enables WSP to provide a more rounded assessment of the proposed scheme's benefits to DfT.
- 1.7 The following sections of the report present the following:
 - Section 2 – provides a summary of the evidence and research which demonstrates the role strategic transport investment can play in supporting economic growth.
 - Section 3 – sets out the strategic economic development context at the national, regional and local levels. It is important to outline the strategic and policy context in which the proposed NHRR scheme is coming forward and to highlight how the proposed scheme can support the achievement of these aims.
 - Section 4 – presents a baseline analysis of the existing socio-economic context of Lincoln and the wider Lincolnshire area, providing commentary on; economic performance, employment and key sectors, population and labour market profile and housing market performance.

- Section 5 – assesses Lincolnshire’s future growth based on population and employment forecasts alongside future employment and residential development that is currently in the pipeline.
- Section 6 – estimates the potential wider socio-economic benefits that could be generated by future developments that are dependent on the proposed North Hykeham Relief Road scheme.
- Section 7 – synthesises the primary and secondary information that has been considered within this report and looks at how the construction of the proposed North Hykeham Relief Road can help support local, regional and national economic growth ambitions.

2. Role of Transport Investment in Supporting Economic Growth

- 2.1 There is now a substantial body of evidence reviewing the relationship between investment in transport infrastructure and services and the economic growth and competitiveness at a sub-national level. We have reviewed this evidence in order to draw out its implications for the proposed North Hykeham Relief Road scheme, as well as the preparation of the scheme's outline business case.

What does the Literature & Evidence tell us?

- 2.2 Key studies which have been undertaken over the last two decades into the relationship between transport investment and national and sub-national economic performance include:
- Transport and the Economy (SACTRA, 1997), which explored the links between transport improvements and economic activity and made recommendations to inform policy.
 - The Eddington Report (Eddington, 2006), one of the most comprehensive reviews of the evidence on the long-term links between transport and the UK's economic productivity and growth.
 - Transport Investment and Economic Performance (Venables et al, 2014), which identified the different ways in which transport can affect local economies and outlined implications for project appraisals
 - Various Department for Transport (DfT) policy publications and academic research

Mechanisms for generating impacts on the economy

- 2.3 The above studies consistently identify that transport investment can support economic growth through four principal mechanisms. The first of these is through **improved productivity**, which can be brought about through a combination of the following:
- Increased business efficiency, through time savings, improved reliability for business travellers, freight and logistics operations.
 - Agglomeration effects, which can arise because of the role that transport can play in expanding labour market catchments, improving job matching and facilitating business to business interactions.
 - Increasing competition by allowing businesses to trade over a wider area, increasing competitive pressure and providing consumers with more choice.
- 2.4 Secondly, transport improvements can **increase trade**. For instance, improving connections to international gateways can increase exports by UK businesses. Gains from international trade can support economic growth nationally and firms which trade internationally may be more productive.
- 2.5 Transport investment can make an area more attractive to investors, which can **increase investment and employment** in an area. This can both include the attraction of new investors to the area and the retention or expansion of existing business.
- 2.6 Finally, reducing commuting costs can **reduce unemployment and inactivity** by making job opportunities easier and cheaper to access. This creates larger labour markets, resulting in better matching of firms and workers and reducing job search times.

Understanding Impacts of Transport Investments

- 2.7 While the literature provides a clear picture of how transport investment in general can affect economic output and growth, empirical evidence tells us little about the economic impact of specific interventions.
- 2.8 This partly reflects the fact that full and robust transport evaluation receives far less attention than appraisals, but also that the impact of transport investments is highly dependent on the local economic, spatial and transport context. This results in a wide range of benefit cost ratios and means it is difficult to generalise about the impacts of different types of schemes.
- 2.9 Where most studies are agreed is that road schemes have greatest impact when they address heavy congestion, known bottlenecks and unreliability on the network. This is particularly the case where this congestion is accompanied by evidence of growing economic pressures.
- 2.10 For instance, the Eddington Study noted: *“in most cases, the best signals to identify where transport is acting to hold back growth will be the presence of clear signs of economic success (economic growth and very high wages and land prices), and that transport demand is starting to outstrip supply (signs of congestion and unreliability)”*.
- 2.11 The study recommended that new investment be targeted at heavily used areas and corridors showing signs of congestion or unreliability, with the following three strategic economic priorities:
- Congested and growing city catchments
 - Key inter-urban corridors, and
 - International gateways (ports and airports).
- 2.12 The report warned against using transport to encourage growth if these transport and economic signals are not present. He described this as a “high risk” way of delivering economic benefits and stated that other policy measures will be more important than transport.
- 2.13 It should be noted that studies such as these provide general guides about prioritising transport investments, and do not rule out the possibility that specific projects may have important impacts in poorly performing areas and be justified on value for money grounds, particularly where they are addressing particular bottlenecks or pinch-points. However, they underline the importance of:
- focusing transport investments where there is clear evidence of congestion, poor reliability or other signs of stress
 - understanding the local economic and labour market context when assessing the potential impact of transport investments. Very often transport investment alone will not be sufficient to support growth and other interventions will also be required.
- 2.14 The need to identify these ‘complementary interventions’ now receives much greater attention in the latest WebTAG guidance on assessing wider economic benefits (see below).

Evidence on induced investment effects

- 2.15 It is widely accepted that good transport infrastructure generally makes a place more attractive for investment. Despite perceptions changing from the 2016 survey, the 2018 UK Attractiveness Survey identified ‘transport infrastructure’ as being one of the most important

investment criteria for foreign investors, with over 60% of investors agreeing.(Ernst and Young, 2018).

- 2.16 However, understanding the precise role of transport in the location decisions of investors is complex. This is examined by McQuaid et al (2004)² who found that transport infrastructure was a necessary but not a sufficient condition for influencing business location and that it is “*only an important factor once the decision to set up in an area has been taken*”. This suggests that transport can play an important role in determining which specific locations in a region benefit from investment, but is insufficient on its own to attract investment to the region itself.
- 2.17 The uncertainty and complexity of assessing investment effects is discussed at length in the Transport Investment and Economic Performance (TIEP) report (Venables et al, 2014). It states that while it is possible that investment effects could provide an additional source of benefit “*this possibility has to be critically evaluated, project by project. Where is the investment likely to take place? Is it additional? Is it in areas where job creation is particularly highly valued?*”. It argued that these types of effects should be more rigorously assessed as part of all transport appraisals.
- 2.18 TIEP describes one potential method for assessing investment effects, which it labels the ‘bottom-up approach’. These approaches draw data from published data sources and undertake primary research with local stakeholders. The aim is to build a detailed understanding of the dynamics of markets in which different businesses operate, how they would be affected by a transport investment and the potential for displacement. This needs to consider issues such as:
- the proportion of the cost base accounted for by transport
 - the locations of customers and competitors (to understand potential for displacement)
 - the availability of suitable sites and premises
 - other investments or interventions required
 - the ability to expand the workforce – are there workers with the correct skills in the locality.
- 2.19 After consideration of these issues, the analyst can then form assumptions about the potential level of output or employment growth that could be generated by a transport investment in different sectors or markets, and come to informed assumptions about displacement and additionality. These assumptions can then be fed in to an economic model to estimate the total impact of the intervention, including multiplier effects.
- 2.20 The WebTAG guidance on assessing wider economic impacts, including investment effects, was updated in May 2018. The updated guidance provides detail on how induced investment effects should be assessed as part of a full transport appraisal. This approach has allowed greater flexibility to use new modelling and valuation approaches to supplement standard appraisal methods, which may help better explain context specific evidence of transport investments.
- 2.21 One of the potential uses of supplementary economic models (SEMs) is to understand the spatial distribution of economic impacts, and specifically to estimate sub-national impacts, such as changes in local employment or GVA. These effects are often important to local stakeholders but are not always captured in transport appraisals because they are required to assess the impact of transport investments on the national economy, and the default

² <http://www.dft.gov.uk/rmd/project.asp?intProjectID=11319>

assumption is 100% displacement i.e. all investment effects from transport investments will simply be displacing activity from somewhere else in the country unless proved otherwise.

- 2.22 TAG Unit M5.3 describes the various types of SEMs which can be used (DfT, 2016a). One of these models is similar to the ‘bottom-up approach’ described in TIEP, but referred to as ‘additionality models’. Both approaches rely on local evidence to assess how the transport improvement will impact the economy, drawing upon descriptive statistics and interviews with stakeholders. The main difference is the WebTAG guidance focuses specifically on ‘dependent developments’; referring to a specific plot of land which requires a transport investment to proceed. The net GDP and jobs impacts are then valued by first estimating the gross GDP or jobs of businesses that could occupy these developments (based on floorspace and employment densities produced by the Homes and Communities Agency (HCA – now Homes England, HE) and then assessing the extent to which these impacts are additional. This is slightly different to the approach suggested in TIEP which takes a more sector or market based approach, where the availability of sites and premises is just one consideration, and the focus is on the role that transport plays in market or sector dynamics compared to other factors.
- 2.23 TAG Unit A2.2 states that, for a development to be considered ‘dependent’ on a transport scheme, it must be the case that the transport network would not provide a ‘reasonable’ level of service to new and/or existing users (DfT, 2016b). It states “*there is no precise definition of reasonable level of service, such that decisions about dependency are judgement based. However, if additional traffic can be accommodated by the network without significant increases in the costs of travel for existing users, then the network can be assumed to provide a reasonable level of service*”.
- 2.24 The updated guidance also introduced a requirement for scheme promoters to produce a context specific economic narrative that sets out the mechanisms through which induced investment will occur. We have factored this into our approach in this report.

Social Impact and Inclusion

- 2.25 Investment in transport infrastructure plays an important role in connecting people to employment opportunities, as well as skills, education and health services. Poor access to transport can be a significant barrier for communities who need to access vital jobs and services.
- 2.26 The ‘Making the Connections’ (Social Exclusion Unit, 2003) report highlights five key barriers impacting on social inclusion and accessibility:
- The availability and physical accessibility of transport: For some people in isolated urban and rural areas there are limited or no public transport services or the services are unreliable, or do not go to the right places or at the right times;
 - Cost of transport: Some people find the costs of personal or public transport very high or unaffordable;
 - Services and activities located in inaccessible places: Developments including housing, hospitals, business and retail are often located in areas not easily accessible to people without a car;
 - Safety and security: Some people will not use public transport or walk to key services because of the fear of crime or anti-social behaviour; and
 - Travel horizons: Some people are unwilling to travel long journey times or distances or may not know about or trust transport services.
- 2.27 In recognition of the barriers that can be overcome by transport infrastructure, DfT WebTAG includes analysis of the wider economic and social impacts (through TAG units on Social

Impact and Distributional Impact), of transport schemes (e.g. accidents reduction, severance, journey quality). The monetary value of some of the benefits are captured elsewhere within a WebTAG assessment, with these benefits are often qualitatively assessed to demonstrate the value and wider benefit a transport intervention can generate

Implications for our assessment approach

- 2.28 The design of the study methodology has been informed by the review of literature and guidance set out above. We have reviewed the policy and strategic context for Lincoln and Lincolnshire, as well as prepared a detailed bottom up analysis of the economy. We have also undertaken a bottom-up analysis of housing and employment sites which are dependent development sites. We have assessed a range of wider socio-economic benefits which would arise as a result of the decision to invest in the NHRR.

3. Strategic Importance of Transport Infrastructure

- 3.1 This section of the report considers the strategic economic development priorities and policies in which transport infrastructure investment and, more specifically, the proposed North Hykeham Relief Road (NHRR) scheme, can contribute towards addressing at both the national, regional and local level.

Transport is national priority and a driver for the Industrial Strategy

- 3.2 The UK Government has demonstrated the importance it places in transport as a tool to support economic growth by publishing the **Transport Investment Strategy in 2017**. The strategy set out the DfT's objectives and approach to transport infrastructure and investment decisions in order to:

- create a more reliable, less congested, and better-connected transport network that works for the users who rely on it;
- build a stronger, more balanced economy by enhancing productivity and responding to local growth priorities;
- enhance our global competitiveness by making Britain a more attractive place to trade and invest;
- support the creation of new housing.

- 3.3 The objectives set out above look to support the broader goal of fulfilling the aims of the **Government's Industrial Strategy**. The Industrial Strategy is the Government's long-term plan to boost the productivity and earning power of people throughout the UK. It was published in November 2017. It sets out five 'foundations of productivity' as the building blocks of a vision for a transformed economy. The five building blocks are:

- Ideas – the world's most innovative economy
- People – good jobs and greater earning power for all
- Infrastructure – a major upgrade to the UK's infrastructure
- Business environment – the best place to start and grow a business
- Places – prosperous communities across the UK.

- 3.4 The government has made productivity a key priority, because increasing productivity is the only sustainable way to boost economic growth and prosperity, and to deliver better jobs and higher income for people across the country. To support the Industrial Strategy and wider aims to improve productivity, the cornerstone of the government's plan is the **National Productivity Investment Fund (NPIF)**, to provide additional capital investment in areas critical to productivity – housing, transport, digital infrastructure, and R&D. The October 2018 Budget outlined the government's aims to increase NPIF funding from £31 to 37 billion, including delivering a £28.8 billion strategic roads investment package from 2020-2025.

- 3.5 Transport infrastructure plays a fundamental role in bringing businesses, industries and population together, further driving productivity growth in an area. Developing new transport networks is also essential to softening congestion, accommodating increasing demand and improving reliability.

Helping achieve regional growth aspirations

- 3.6 The **Midlands Engine** is a pan-regional initiative to make the West and East Midlands regions, including Lincoln and Lincolnshire, an engine for growth for the UK economy. It is backed by businesses, local authorities and the ten Local Enterprise Partnerships. The 2017 **Vision for Growth** sets out a vision for the Midlands for 2030 and is focussed upon accelerating productivity growth and adding significant value to the Midland's and UK economy post-Brexit. The vision focuses upon five priority areas where investment and collaboration can accelerate growth. These include:
- Connect the Midlands through maximising transport infrastructure through the use of new technologies
 - Investing in strategic infrastructure which is sustainable and uses advanced technologies
 - Growing trade and investment in new markets
 - Increasing innovation and enterprise to create successful growth businesses
 - Shaping great places through promoting the Midlands as a great place to live, visit, learn and work.
- 3.7 Investment in strategic transport infrastructure, such as the proposed NHRR in Lincolnshire, can play an important role in contributing towards the Midlands Engine vision for growth across a number of the five action areas.
- 3.8 The **Greater Lincolnshire Local Enterprise Partnership (GLLEP) Strategic Economic Plan**, known as the **Growth Plan**, aims to support the creation of 13,000 new jobs, support the building of 100,000 new homes and help 22,000 businesses grow. The priority sectors for growth identified within the Strategic Economic Plan include:
- agri-food
 - advanced manufacturing and engineering
 - the low carbon economy, with a particular focus on renewable energy; and
 - the visitor economy
- 3.9 GLLEP have earmarked these sectors as the region's strongest, which offer the most competitive advantage and which have the ability to drive economic growth. There are also a number of priority sectors that GLLEP have identified for as future drivers of economic growth. These sectors include;
- health and care sector
 - ports and logistics.
- 3.10 However, one of the key barriers which have been identified to regional economic growth are transport bottlenecks and underdeveloped economic infrastructure. LCC and Greater Lincoln Local Enterprise Partnership (GLLEP) are clearly supportive towards investing in transport infrastructure to support business growth through enhanced accessibility and reliability, unlock employment and housing developments, and to increase the vitality of the area.
- 3.11 In addition to a sectoral focus, there is a clear focus within the SEP on delivering infrastructure schemes through public and private sector investment (e.g. through developer contributions). Investment in infrastructure is needed to satisfy growing demand for the movement of people and goods in Lincolnshire and increased stress on existing transport networks. In particular, growth in Lincolnshire's priority sectors, particularly those

Sectors which place a gr further demonstrating the economic need for improvements to the existing road network.

- 3.12 The North Hykeham Relief Road (formerly Southern Bypass) has been identified as one of the six main growth corridors, that if connected would complete the ring road, around the City of Lincoln.

Helping address Lincolnshire's ongoing productivity challenge

- 3.13 The GLLEP paper '**Update on Productivity in Greater Lincolnshire**' has highlighted that the region is still under performing in relation to productivity. Greater Lincolnshire remains in the bottom 10 LEP areas based on its performance against both measures of productivity, which include Gross Value Added (GVA) per hour worked and GVA per job filled.
- 3.14 The paper demonstrates how experimental figures for productivity at sector level suggest that there is "headroom" (i.e. productivity levels are below those seen in comparator areas and nationally) across most sectors (including priority sectors) in Greater Lincolnshire.
- 3.15 Removing this productivity headroom based on Greater Lincolnshire closest performing comparator area (the D2N2 LEP) in the priority sectors would raise GVA per job to just under £49,000, placing it in 15th position (as opposed to 32nd) out of the 38 LEPs. If employment were to stay the same, then this would result in a GVA increase of £2.6bn based on what it is currently.

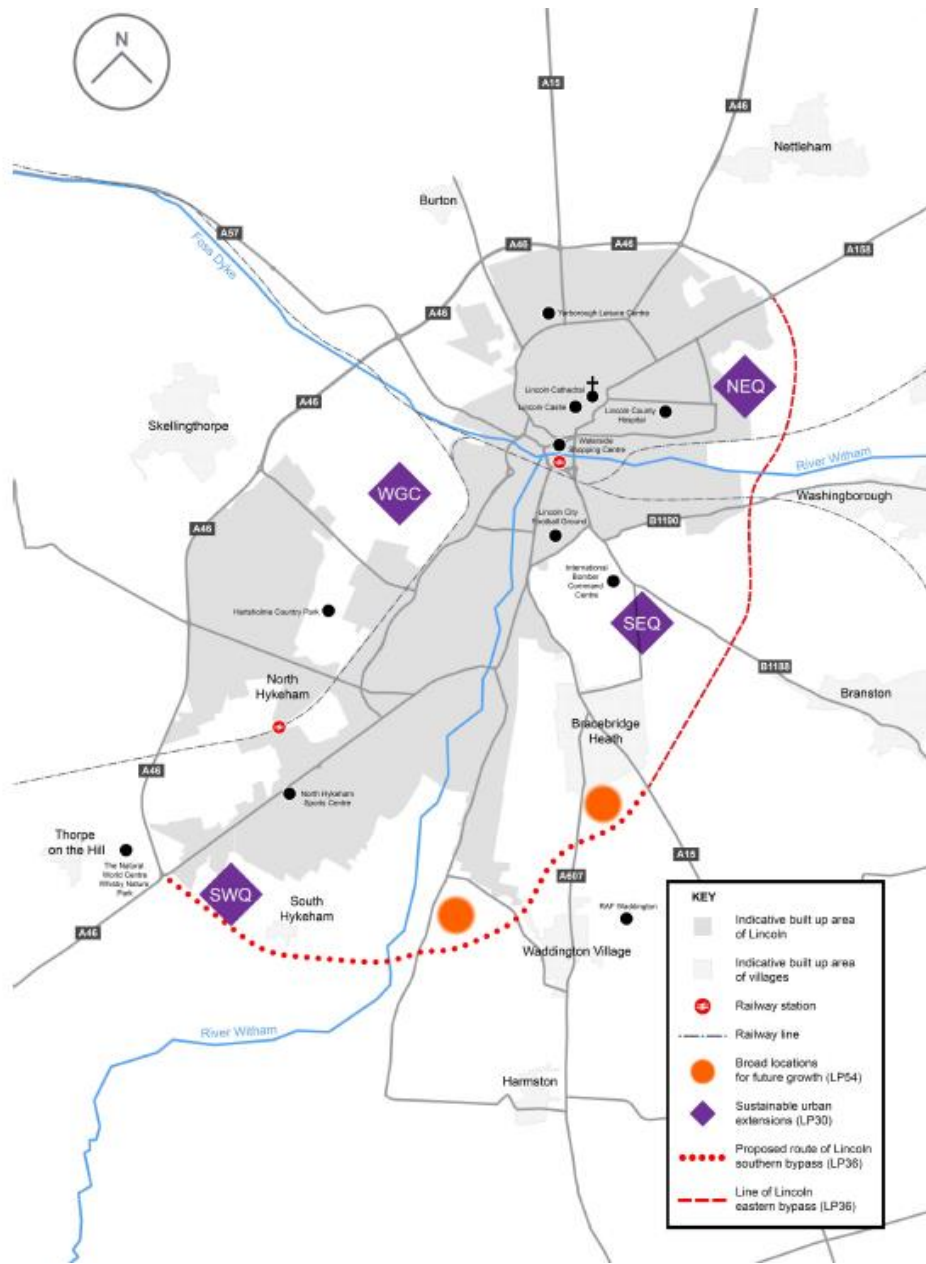
Supporting local economic growth, connectivity and social inclusion

- 3.16 The **Central Lincolnshire Local Plan** (CLLP was adopted in April 2017 by the Central Lincolnshire Joint Strategic Planning Committee (CLJSPC)) and it now replaces the Local Plans of the City of Lincoln, West Lindsey and North Kesteven District Councils. It sets out the vision, growth and regeneration policy for the area until 2036. The Local Plan identifies a number of key policies and highlights the importance of investing in new road infrastructure, including the NHRR Road, as important to addressing the area's transport infrastructure challenges and in supporting economic growth and housing ambitions. Key policies to note include:
- **Policy LP3: Growth and Distribution of Housing;** identifies how the Local Plan will facilitate the strategic aim of delivering nearly 37,000 new dwellings over the Plan period, alongside new employment, commercial and leisure developments, and supporting infrastructure (e.g. schools, sports pitches and public open space). The Lincoln Strategy Area³ is required to accommodate just under two-thirds of this housing growth.
 - **Policy LP5: Delivering Prosperity & Jobs;** sets out the Central Lincolnshire approach to providing the required employment land to meet the area's economic growth aspirations, as well as contributing to the wider GLLEP's objectives (e.g. 13,000 new jobs and 22,000 new businesses). The Central Lincolnshire planning area represents approximately 30% of the GLLEP area's population, employment and business base. As the GLLEP is committed to delivering sustainable economic growth, the Central Lincolnshire authorities will play a key role in the delivery of its growth plans for a range of sectors.

³ The Local Plan term for the City of Lincoln area and its reach into parts of West Lindsey and North Kesteven districts

- **Policy LP28 and LP30: Sustainable Urban Extensions;** the SUE policy has been developed as the Lincoln Strategy Area is identified to accommodate around 64% of Central Lincolnshire's growth in new homes and employment land. Focusing on large scale SUEs ensures that a sizable percentage of the development needs for the area are met whilst allowing for masterplanning to ensure that appropriate infrastructure and range of facilities are also provided. The key parameters of development for each SUE include (also see Figure 3.1):
 - **The Western Growth Corridor:** 3,200 dwellings, 20 hectares of mixed employment land
 - **The North-East Quadrant:** 1,400 dwellings, 5 hectares of employment land, school and local centre
 - **The South-East Quadrant:** 6,000 dwellings (3,500 by 2036), 7 hectares of flexible employment land, local centre and facilities
 - **The South-West Quadrant:** 2,000 dwellings (1,600 by 2036), 5 hectares of employment land, local centre. It is this SUE which is dependent upon the proposed NHRR scheme coming forward.
- **Policy LP12: Infrastructure to Support Growth;** focusses on Infrastructure Planning Permission. It states that infrastructure development proposals must consider all of the infrastructure implications of a scheme, and not just those on the site or its immediate vicinity, to be granted planning permission. All infrastructure development are to be seen as part of a package or combination of infrastructure delivery measures.
- **Policy LP13: Accessibility and Transport Development;** aspires to an efficient and safe transport network, where proposals offer a range of transport choices. It looks specifically at Strategic Transport Infrastructure, such as roads and states that all development proposals falling in this category should aim to improve and manage the wider road infrastructure to benefit local communities
- **Policy LP31: Lincoln's Economy;** managing access and movement within the City Centre will be a crucial issue to address if the City Centre is to remain vibrant and meet current and future needs to sustain future growth.

Figure 3.1 Overview of SUEs



Source: Central Lincolnshire Adopted Plan, 2017

- Policy LP36: Access and Movement within the Lincoln Area;** In line with the latest Lincoln Integrated Transport Strategy, development proposals which contribute toward the delivery of a sustainable transport approach for the Lincoln area will be supported. All developments should demonstrate, where appropriate, that they have contributed toward a range of transport measures, including supporting the Lincoln Eastern Bypass, East West Link and North Hykeham Relief Road reducing congestion, improving air quality and encouraging regeneration of the City. The strategic importance of the routes to City of Lincoln and the wider Lincoln area are demonstrated by safeguarding the routes within the CLLP. This means that any development proposal on or near either route, which would prejudice the efficient and effective delivery of either of the bypasses or their future dualling will be refused.

- 3.17 In the City of Lincoln Vision 2020 Strategic Plan, the Council champions the idea that infrastructure improvements - notably rail and road developments - within, around and to the city have played a key role in improving Lincoln's accessibility and economic success over the past decade.
- 3.18 To this end, the City Council, as part of the Growth Strategy for Lincoln 2014 has committed to being proactive in delivering improved road infrastructure, which will be key in ensuring that the city and its communities are appropriately connected, over the next 30 years.
- 3.19 The City of Lincoln recognises that investing in transport infrastructure will continue to be vital in improving traffic flow in the city and securing economic growth for years to come. The City of Lincoln continues to voice its support for the completion of the A46 ring-road, including the **North Hykeham Relief Road, which it sees as playing a key role in knitting the city together and improving connectivity.**
- 3.20 The importance of **connectivity for social benefit**, not just economic benefit, is also a priority for the City of Lincoln. In the City Council's recent paper on Inclusive Growth (2017), the paper emphasises how inclusive growth is a priority for Lincoln and identifies the removal of barriers to help more people get into work as a key factor in achieving inclusive growth. The proposed development would help overcome such barriers by improving **accessibility to economic opportunities** and making work more attractive through the reduction of congestion.

Summary: Strategic Importance of Transport Investment

- 3.21 Transport is a central policy and investment priority for the UK Government and a recognised driver for the Industrial Strategy. The Government demonstrated the importance it places in transport as a tool to support economic growth by publishing the **Transport Investment Strategy in 2017.**
- 3.22 The objectives set out within the Transport Investment Strategy aim to support the broader goal of fulfilling the aims of the **Government's Industrial Strategy**, the Government's long-term plan to boost the productivity and earning power of people throughout the UK.
- 3.23 To further support the Industrial Strategy and wider aims to improve productivity, the **National Productivity Investment Fund (NPIF)**, aims to provide additional capital investment in areas critical to productivity – with transport being one of these areas. These high profile, Government interventions demonstrate the weight UK Government places on transport infrastructure.
- 3.24 Accelerating productivity is at the heart of regional growth aspirations, with transport being identified as a pivotal contributor to this. Investment in strategic transport infrastructure, such as the proposed NHRR in Lincolnshire, can play a vital role in supporting the Midlands Engine vision for growth across a number of the five action areas.
- 3.25 At the sub-regional level, one of the **key barriers to regional economic growth is transport** bottlenecks, congestion and underdeveloped economic infrastructure. LCC and GLLEP are supportive towards investing in new and enhanced transport infrastructure to encourage business growth through enhanced accessibility and reliability, and through unlocking employment and housing developments.
- 3.26 The GLLEP paper '**Update on Productivity in Greater Lincolnshire**' has also highlighted that the region is still under performing in relation to productivity, especially compared to levels seen nationally. This message around productivity is echoed at both the national and regional level and demonstrates how important new transport infrastructure such as the NHRR could be the catalyst in driving productivity.
- 3.27 Transport infrastructure, and the proposed NHRR scheme in particular, is central to supporting local growth ambitions, playing a major role in supporting the development of

strategic employment and housing sites and key policy within the Central Lincolnshire Local Plan.

- 3.28 The NHRR will ensure the Central Lincolnshire transport network is both more efficient and resilient and that movement in and around the City, is not restrictive and meets the transport needs of all users to support future growth ambitions.
- 3.29 Also, by facilitating housing development, such as the South West Quadrant SUE and delivering jobs by unlocking new employment land, NHHR is providing the infrastructure to support growth within key sectors such as; agri-food, advanced manufacturing and engineering, the low carbon economy, with a particular focus on renewable energy; and the visitor economy.

4. Socio-Economic Profile and Context

4.1 This section explores a range of socio-economic indicators to help tell the socio-economic story of Lincoln and the wider Lincolnshire area, over the last few years. To do this, the following section assesses the following:

- Economic Performance
- Employment
- Population & Labour Market
- Housing Market Overview
- Containment and Travel to Work

4.2 To help contextualise the performance of both Lincoln and Lincolnshire, comparisons have been drawn with regional and national benchmarks.

Economic Performance

4.3 Greater Lincolnshire is a large sub-regional economy with a Gross Value Added⁴ (GVA) of approximately £20.2 billion per annum, 65% of this is attributable to Lincolnshire, which generates £13.2 billion GVA per annum.

4.4 The City of Lincoln is a sub-regional economic centre, with a total GVA of approximately £2.2 billion per annum in 2016. This is around 10% of Greater Lincolnshire's economy and 16% of Lincolnshire. Lincoln's GVA has grown consistently over time and since 1998, it has grown strongly overall; its total growth of 88% is higher than that of the East Midlands (84%). Lincolnshire has also grown since 1998, though at a lower rate over the period (79%)⁵.

4.5 From the Great Recession (2008 onwards), Lincoln and Lincolnshire have seen weak growth, shown in Figure 4.1. From 2008 to 2016, Lincoln's average annual growth rate was 1%, behind that of Lincolnshire (2%), which itself was behind that of the East Midlands and England (both 3%). This is a strong reversal of the 1998-2008 trend where Lincoln grew at a faster rate (7% average annual growth) than Lincolnshire (5%), the East Midlands (5%) or England (6%).

4.6 Looking at Lincoln's recent growth shows that it took longer for Lincoln to recover from the Financial Crisis, only surpassing its 2008 level of GVA in 2012—a period of four years—compared to the East Midlands and England taking two years to recover. Lincolnshire overall took an additional year than the country to recover, returning to and surpassing its 2008 level of GVA in 2011.

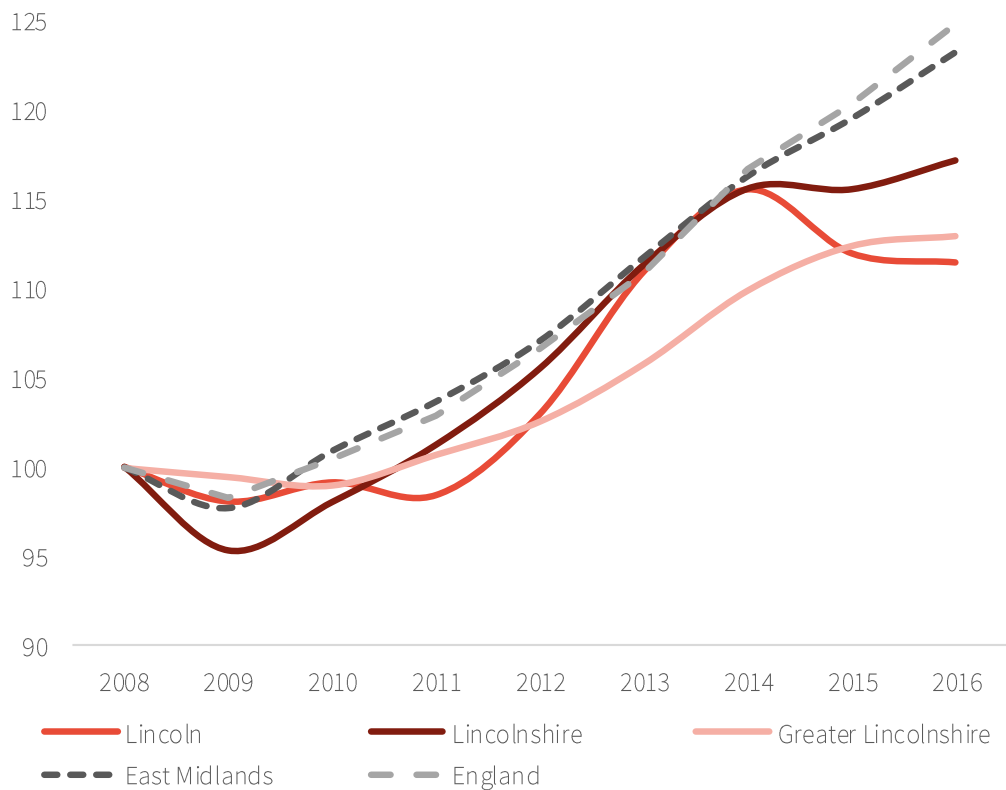
4.7 Despite taking longer to recover, Lincoln's economy contracted approximately 2% in 2008, which is the same contraction in terms of GVA seen in the East Midlands and England. Moreover, the subsequently faster-recovering economy of Lincolnshire overall contracted 5%.

4.8 It is clear then that the slow rate of recovery and lower economic growth in Lincoln and Lincolnshire since the Great Recession are indicative of barriers to economic growth. These are investigated in more detail in the remainder of this section, along with some of the strengths of these economies.

⁴ Gross Value Added is a measure of the value of economic activity in an area

⁵ ONS (2017) Regional gross value added (balanced) by local authority in the UK and ONS (2017) Regional gross value added (balanced)

Figure 4.1 GVA growth indexed to 2008 (2008 = 100)



Source: ONS (2017) Regional gross value added (balanced) by local authority in the UK, ONS (2017) Regional gross value added (balanced)

Productivity

4.9 In terms of productivity, Greater Lincolnshire remains in the bottom 10 LEP areas against the GVA per filled job and GVA per hour measures⁶. The table below shows Lincolnshire's productivity is worse than the LEP area and significantly behind the UK productivity level.

Table 4.1 Labour Productivity in 2016

	GVA per hour worked	GVA per filled job
Lincolnshire	£25.70	£41,588
Greater Lincolnshire	£27.00	£43,570
UK	£32.60	£52,626

ONS (2018) Subregional Productivity: Labour Productivity

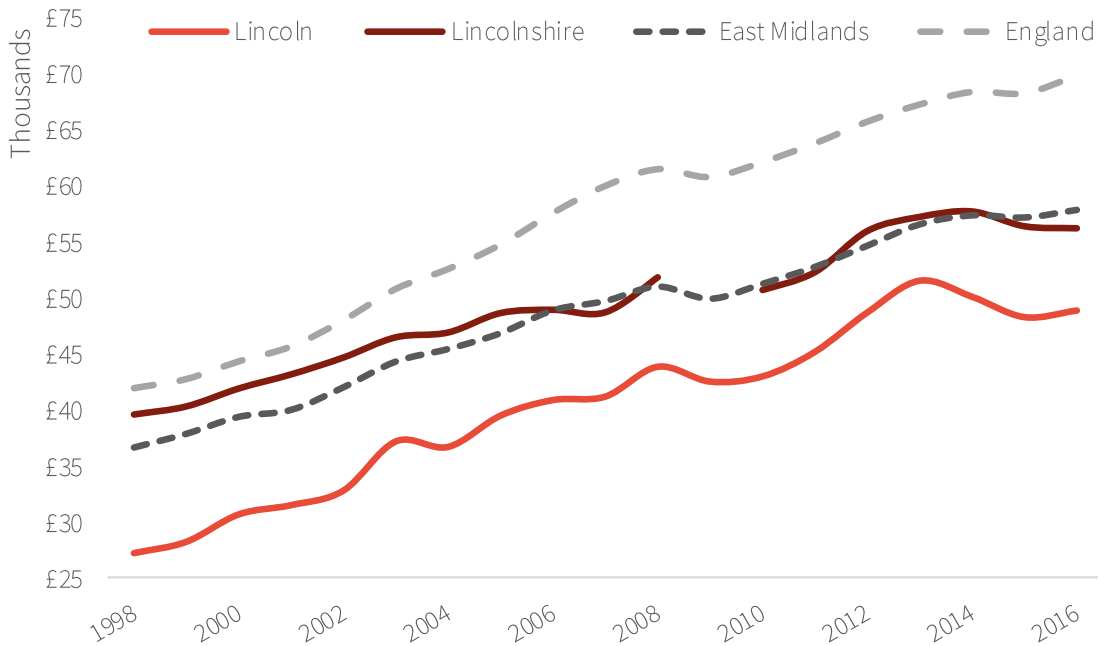
4.10 Looking at GVA per full-time equivalent employee (FTE) as a measure of productivity allows analysis at local authority level, as well as taking into account labour activity both in terms of jobs/employment and hours (by accounting for part-time employment).

4.11 Lincoln's GVA per FTE employee in 2016 stood at c. £48,900, which is 30% lower than the level seen across England (c. £69,800). Lincolnshire is also significantly less productive than England, though to a lesser extent, with a GVA per FTE in 2016 of c. £56,300 and a gap of 19% with England. This is broadly comparable to the East Midlands region, which had a GVA per FTE in 2016 of £57,900.

⁶ ONS (2018) Subregional Productivity: Labour Productivity indices by Local Enterprise Partnership

- 4.12 Historically, Lincolnshire’s productivity has been broadly in line with the East Midlands region, which is shown in Figure 4.2. Lincoln had been closing its productivity gap with England between 1998 and 2004 and its gap with Lincolnshire and the East Midlands between 1998 and 2008. However, since the Great Recession its productivity suffered from a double-dip decline, resulting in a widening of the productivity gap between Lincoln and the economies of Lincolnshire and the East Midlands and a significant widening between productivity in those economies and that of England overall.
- 4.13 The productivity gap between Lincoln and England is now equivalent to 1.5 days each week of lost productivity for full-time equivalent employees.

Figure 4.2 GVA per FTE 1998-2016



Source: ONS (2008-2017), Business Register & Employment Survey, ONS (1998 to 2008) Annual Business Inquiry, ONS (1998-2017) Regional gross value added (balanced) by local authority in the UK, and ONS (1998-2017) Regional gross value added (balanced). Note: Data is missing for Lincolnshire in 2009.

- 4.14 Lincoln’s productivity puzzle involves more than its sectoral structure—it has lower productivity in every broad industry than England. This is shown in Table 4.2. Lincolnshire also has lower productivity in all broad industries, though performs slightly better than Lincoln.

Broad industry	Lincoln	Lincolnshire	England
Manufacturing	51,391	51,153	73,541
Construction	55,940	81,633	82,949
Retail; food and beverage, accommodation; and transport and storage	41,482	41,535	49,594
Information and communications	56,800	49,662	91,618
Finance and Insurance	51,190	74,286	121,696
Professional, scientific, and technical; and business admin and support	30,124	32,526	48,609
Health, education, social care and public admin	39,514	45,504	48,425
Arts, entertainment and other services	51,765	64,512	72,098

Source: ONS (2017), Business Register & Employment Survey, ONS (2017) Regional gross value added (balanced) by local authority in the UK, and ONS (2017) Regional gross value added (balanced). Note, agriculture, mining and quarrying, and electric/water utilities are not included in this analysis due to poor data quality issues concerning employment in Agriculture at subregional geographies.

Business Creation and Survival

- 4.15 According to the most recent official data in 2017, there were 2,530 business in Lincoln of which 2,510 are SMEs. In 2016, 355 business were born in Lincoln, which is also the average births per year recorded between 2010 and 2016.
- 4.16 Business growth in Lincoln (2% average annual growth between 2010 and 2017) has been historically lower than the East Midlands (average annual growth of 3%) and England (4% annual growth)⁷. On average between 2012 and 2017, Lincoln saw an additional 75 businesses per annum created, though a peak of 185 businesses was created in 2014 and this fell to just 20 in 2017. In Lincolnshire, the average over those five years was c. 670 businesses per annum, with a peak in 2015 seeing the creation of 1,395 businesses and declining as with Lincoln, to 250 in 2017.
- 4.17 Analysing business births in relation to the population in a locality gives an indication as to the comparative performance of business creation. Lincoln has a significantly lower number of business births per 1,000 residents⁸—at 3.65—compared to 4.22 in Lincolnshire, 5.21 in the East Midlands and 6.77 in England.
- 4.18 As economic activity clusters in a different way to populations, it is also useful to look at business births in relation to active businesses. Lincoln performs better in terms of business births per 100 active businesses, at 14.14 compared to Lincolnshire at 11.27. This level is broadly in line with the 14.26 business births per 100 active businesses in the East Midlands in 2016.
- 4.19 Survival of business is also important for a thriving economy, and is indicative of an the ease of operating a business in an area. Lincoln's performance with respect to business survival in the first five years of the business' life is significantly poorer than the national average. Only 38% of Lincoln's businesses survive their fifth year—compared to 44% in England. This translates into a higher level of business deaths in Lincoln, with 14.34

⁷ ONS (2018) UK Business Counts

⁸ ONS (2018) Mid-year Population Estimates

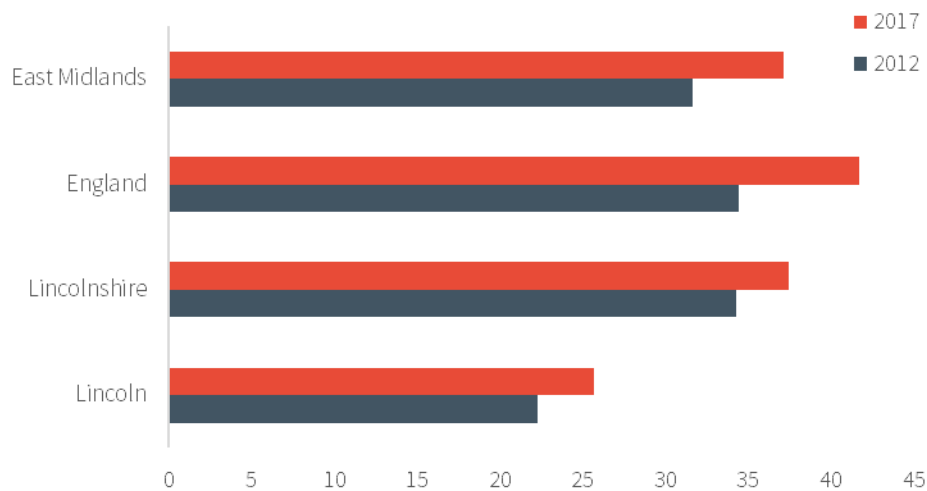
business deaths per 100 active businesses (a total of 290) in 2016, which has risen from 12.22 in 2015.

Percentage of business surviving their...	Lincoln	Lincolnshire	Greater Lincolnshire	East Midlands	England
First year	92.0	92.3	85.4	93.3	93.1
Second year	74.0	71.0	66.8	74.9	75.5
Third year	54.0	55.2	52.0	60.2	60.4
Fourth year	44.0	45.6	43.0	50.8	50.8
Fifth year	38.0	39.7	37.5	43.9	44.0

ONS (2016) Business demography

4.20 Overall, it should be noted that Lincoln has a lower business density—in terms of businesses per 1,000 residents than expected by the East Midlands or English average. Lincolnshire performs better, in line with the East Midlands level, which itself is below the business density seen across England. Nonetheless, business density in Lincoln and Lincolnshire has increased—though again at a slightly slower rate than the East Midlands or England overall as shown below.

Figure 4.3 Business density by active businesses per 1,000 residents in 2012 and 2017



Source: ONS (2012, 2017) UK Business Counts and ONS (2012, 2017) Mid year population estimates

Employment

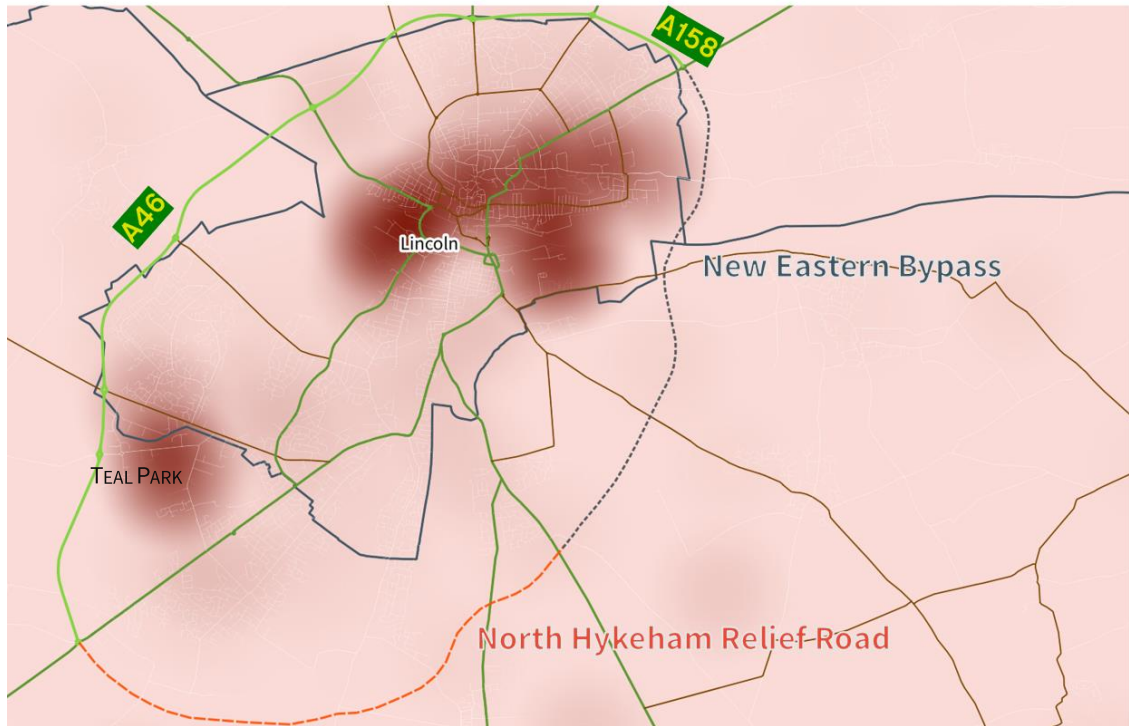
4.21 According to the latest available data, there are 55,500 employees in Lincoln and 292,500 employees in Lincolnshire. This is the highest record in both areas since at least 1998. This drops to 34,500 FTEs in Lincoln when accounting for part-time employment and 195,500 in Lincolnshire.

4.22 The map below highlights the spatial concentrations of employment in Lincoln and Greater Lincolnshire. In Greater Lincolnshire, employment is most concentrated in the north of the LEP area along the Humber—with large employment locations including Immingham Dock for example—in and around Lincoln, and to the south of the LEP area in the towns around Peterborough. Within Lincoln, employment is particularly concentrated in the city centre, as well as out-of-town industrial and business park locations, such as Teal Park. There are also large employers in the south of the city, such as the Walkers’ factory and Lindis Retail

Park—though they alone do not show as employment hotspots on the map due to the prevailing residential character of their host neighbourhoods.

Figure 4.4 Employment hotspots in Lincoln and Greater Lincolnshire

Employment concentration in Lincoln

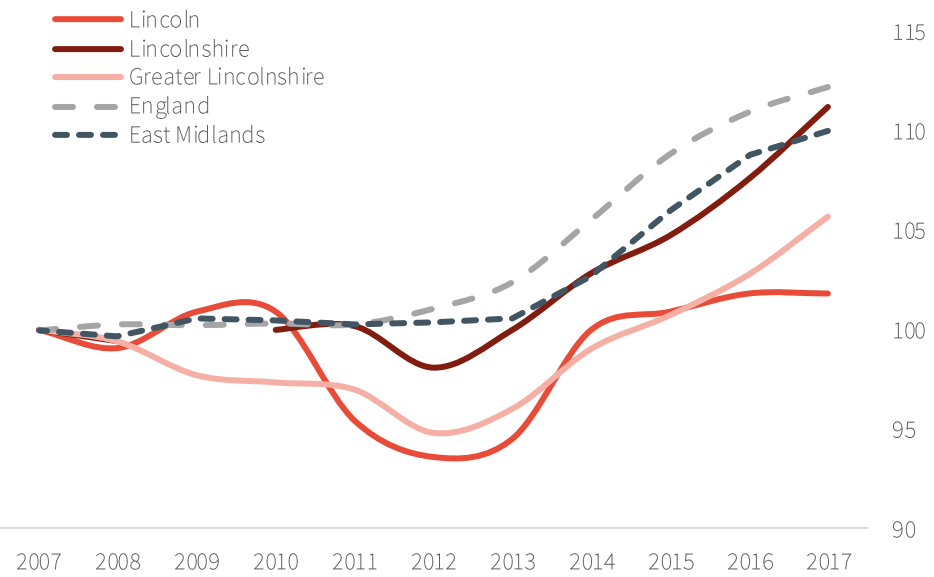


Source: Business Register & Employment Survey, 2017

Employment Trends

- 4.23 Similarly to GVA, employment growth has been relatively stagnant in Lincoln since the Great Recession—though there has been better growth in Lincolnshire overall.
- 4.24 Unlike GVA, employment in Lincoln as well as England and other areas peaked in 2007 prior to the Great Recession, rather than GVA which peaked in 2008. Hence, **Error! Reference source not found.** shows employment levels indexed to 2007 (100 is equal to the same level as 2007).
- 4.25 The second dip of the double dip recession seen earlier in Section 5 in GVA over time was significantly worse for employment in Lincoln, as shown in the next graph. Lincoln's employment figures did recover by 2014, but have remained relatively stagnant since. Lincoln achieved only a 2% increase in employment over the decade from 2007 to 2017, whilst Lincolnshire achieved a rate comparable to that of the East Midlands and England at 11% to 10% and 12% respectively.
- 4.26 This also equates to an annual average growth rate of less than 0.2% in Lincoln over that decade, which is significantly lower than the 1.2% in England.

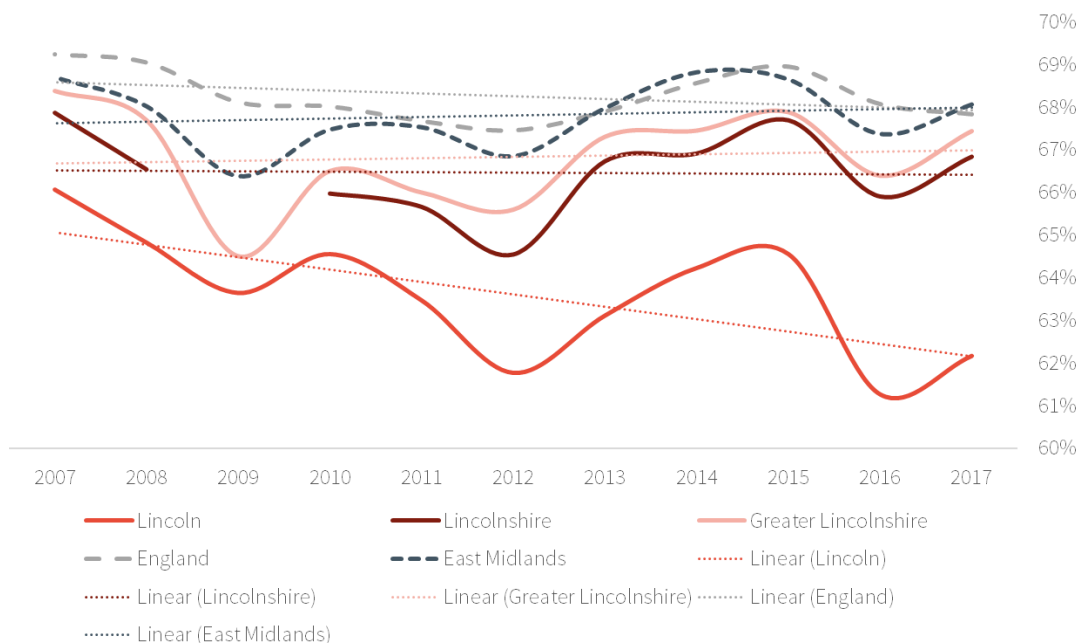
Figure 4.5 Change in employment over time (Indexed to 2007, 2007 = 100)



Source: ONS (2007-2017) Business Register & Employment Survey. Note: Due to methodological breaks in 2008 and 2015, years on one side of the break cannot be directly compared with years on another, though the general trend remains highly indicative.

4.27 Looking at FTE employment, Lincoln has not yet returned to its pre-Great Recession employment level. An increasing level of part-time employment over time partly explains this. There is an ongoing shift towards part-time employment in Lincoln, with a declining level of full-time employment—which has also not recovered to its 2007 peak in Lincoln. 62% of workers are full time in 2017, compared to 66% in 2007. In Lincolnshire, there has been less of a change at 67% in 2017 versus 68% in 2007. Meanwhile in England, the level was 68% in 2017 and 69% in England.

Figure 4.6 Proportion of full-time employment within total employment

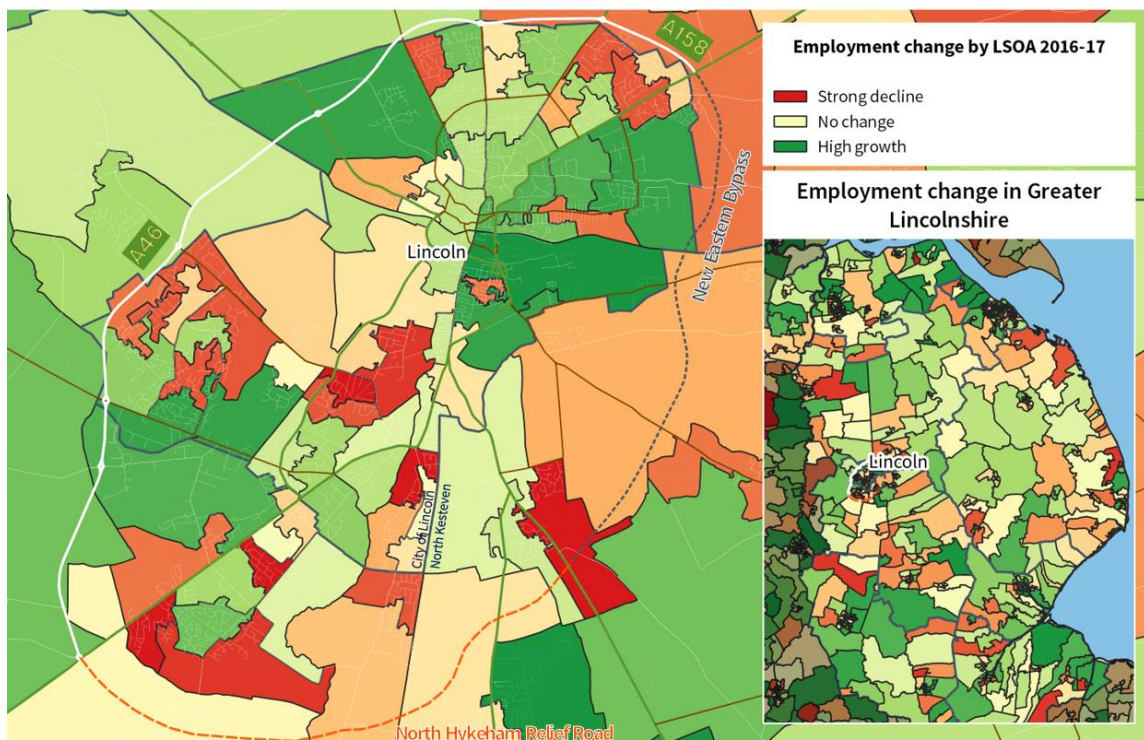


Source: ONS (2008-2017), Business Register & Employment Survey, ONS (1998 to 2008) Annual Business Inquiry,

- 4.28 Part of the explanation for the this change is related to the growing sectors of employment in Lincoln, which are discussed in more detail in the next subsection, such as accommodation and food services. Moreover, the most recent official data on underemployment⁹ found that there were 2.39 million people in the UK who wanted to work more hours and worked less than 48 hours per week (the official definition of underemployment)—this equates to around 7.4% of the workforce. Though data at lower geographies is not available, the structural shift towards higher levels of part-time employment in Lincoln post-recession is likely to be indicative of a growing level of underemployment in the Lincoln economy.
- 4.29 A one-year change in the employment level in Lower Super Output Areas (LSOAs) is indicative of recent employment changes in local areas in Lincoln and Lincolnshire. It is difficult to examine historic employment change at local levels due to the methodological changes in recent official data. In terms of growth locations, the following map indicates strong growth in the areas identified earlier as employment hotspots—around Teal Park in the south east of the City and parts of the City Centre. Areas to the south, particularly in an arc between the two ends of the proposed North Hykeham Relief Road show limited change or decline. These are highlighted in **Error! Reference source not found.**
- 4.30 Overall, in Greater Lincolnshire there are more areas where employment rose in 2016/17 than not. Decline is more obvious along the coast and strong growth is seen particularly on the south bank of the Humber.

Figure 4.7 Recent employment change by LSOA in Lincoln and Greater Lincolnshire.

Employment change in Lincoln



Source: Business Register & Employment Survey 2016-17

⁹ ONS (2018) Labour market economic commentary: August 2018

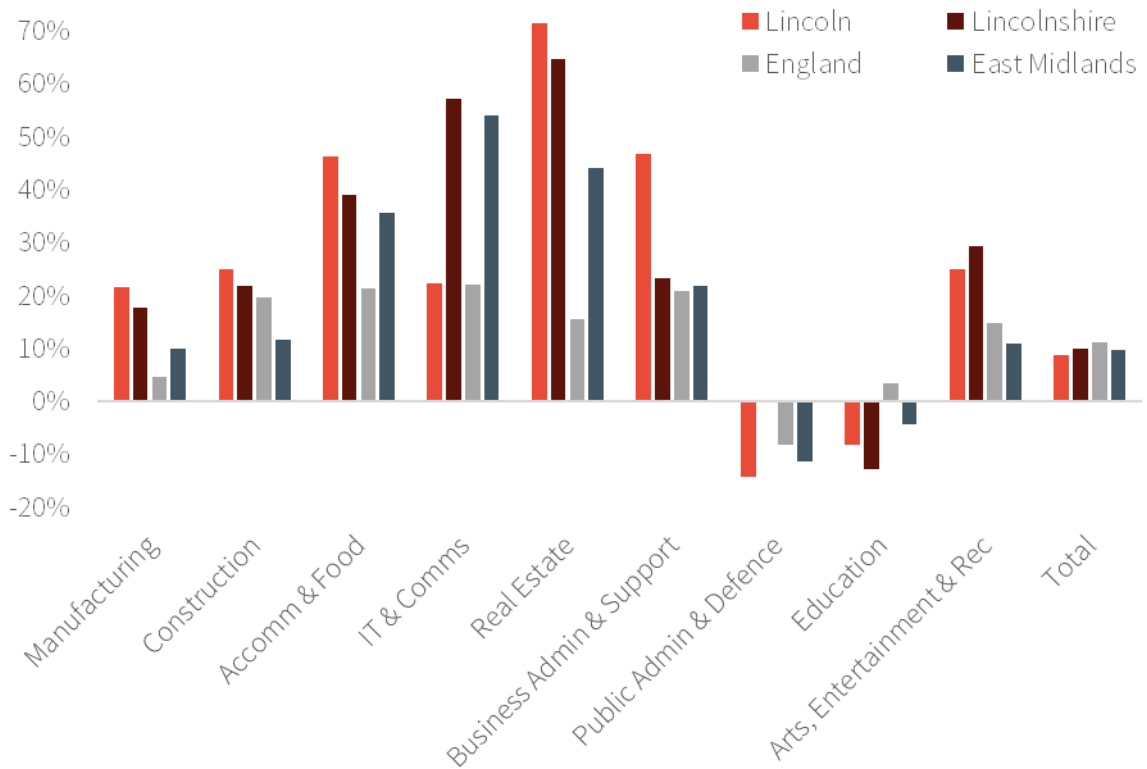
Key sectors of employment

	Lincoln			Lincolnshire			England
	Number	Proportion	LQ vs England	Number	Proportion	LQ vs England	Proportion
Total	55,500	100%	1.00	292,500	100%	1.00	100%
Health	11,000	20%	1.54	42,000	14%	1.12	13%
Wholesale & Retail	9,500	17%	1.12	50,500	17%	1.13	15%
Business Admin & Support	5,500	10%	1.07	26,500	9%	0.97	9%
Education	5,500	10%	1.11	23,500	8%	0.90	9%
Accomm & Food	4,750	9%	1.16	25,000	9%	1.16	7%
Manufacturing	4,250	8%	0.95	40,000	14%	1.69	8%
Professional, Scientific & Technical	3,000	5%	0.62	13,500	5%	0.53	9%
Public Admin & Defence	3,000	5%	1.38	9,000	3%	0.78	4%
Construction	1,875	3%	0.71	14,000	5%	1.01	5%
Transport & Storage	1,375	2%	0.51	11,500	4%	0.82	5%
IT & Comms	1,375	2%	0.55	5,500	2%	0.42	4%

ONS (2017) Business Register & Employment Survey. LQ vs England refers to the Location Quotient or Index of Specialisation. This is a measure of the relative concentration of a certain sector in one place in comparison to another place—in this case England. Where the LQ is equal to 1, it means that the same proportion of employment is present in both geographies, where it is above zero, it indicates a higher level of specialisation than the comparator (in this case in Lincoln compared to England) and vice versa where it is below 1.

- 4.31 Prominent sectors in Lincoln are demonstrative of its role as a service centre for a large hinterland: health, wholesale & retail, education (including those employed at the University of Lincoln), accommodation & food, and public administration (being host to the City Council and Lincolnshire County Council).
- 4.32 Large sectors include manufacturing (4,250 employees) and construction (1,875) sectors. Manufacturing is less specialised in Lincoln in terms of its location quotient versus England, but significantly more so in Lincolnshire—with a location quotient of 1.69 and 40,000 employees. In Lincolnshire overall, Manufacturing is the third largest sector after Wholesale & Retail and Health.
- 4.33 High growth in employment between 2012 and 2017 in relative terms is shown in Figure 4.8 below. Manufacturing has grown strongly in Lincoln (8%) and Lincolnshire (14%) over the period, with an additional 4,250 jobs in Lincoln and 40,000 jobs in Lincolnshire created in the sector. This is stronger growth than that seen in England (5%) or the East Midlands (10%) over the same period. Though Electricity and Gas was technically the fastest growing sector in Lincoln, growing by 157% over the 5 years, this only equates to 55 additional jobs.
- 4.34 Strong growth was also seen in other productive sectors including Construction, which added 375 jobs in Lincoln and 2,500 in Lincolnshire, and growing at a faster rate than England or the East Midlands. Business admin and support, accommodation & food, IT & communications, arts & entertainment, and real estate all saw faster relative growth in Lincoln and Lincolnshire than that seen across the East Midlands or England in those industries.

Figure 4.8 Sectors with high growth between 2012 and 2017 (percentage terms)



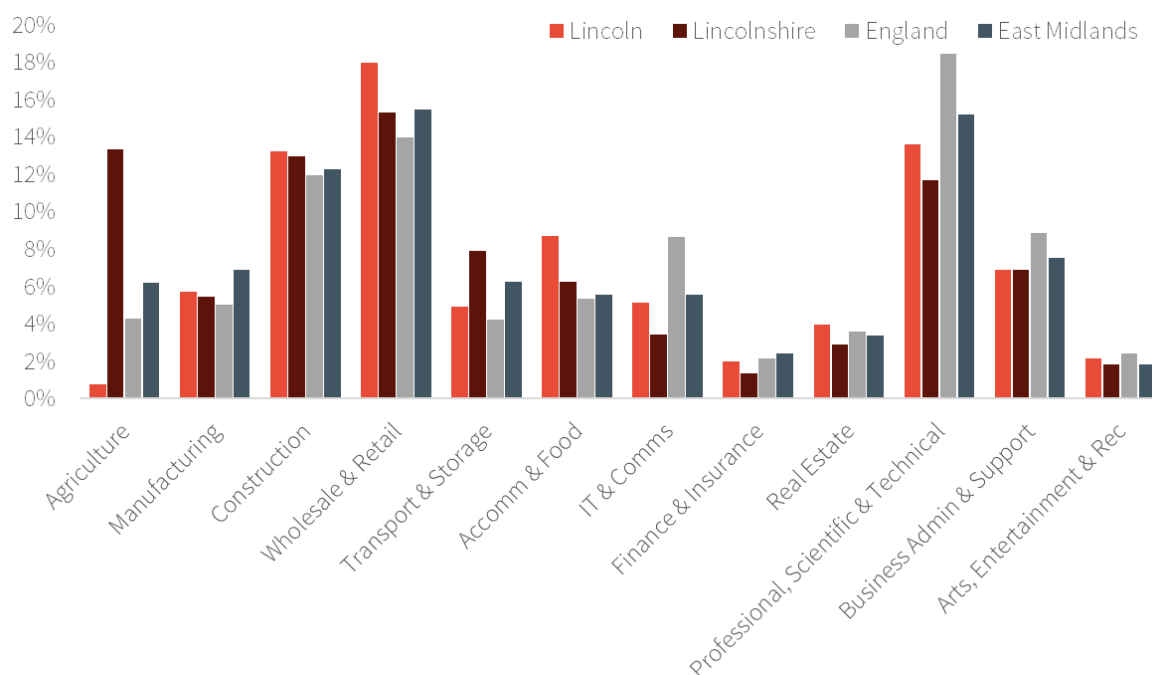
Source: ONS (2012, 2017) Business Register & Employment Survey

4.35 Overall however, growth was lower in Lincoln and Lincolnshire, with employment growth of 10% and 9% over the 5 years respectively, than at the English level overall of 11%. This is partly explained due to declines in public administration and education—which in turn are likely to have occurred due to local government austerity and cuts to services. There was also a decline in wholesale & retail—losing 500 jobs in Lincoln and 1,500 in Lincolnshire over the period.

Key sectors of the business base

4.36 As discussed previously, Lincoln and Lincolnshire have a relatively low business density, weak business births and low business survival rates—suggesting significant challenges in terms of the business environment, which itself is one of the 5 foundations of productivity outlined in the government’s Industrial Strategy.

Figure 4.9 Proportion of business base by sector



Source: ONS (2017) UK Business Counts

- 4.37 In terms of businesses, key sectors in Lincoln and Lincolnshire include agriculture, construction, wholesale & retail, accommodation & food (a key part of the visitor economy), professional, scientific & technical, and business admin & support.
- 4.38 Though manufacturing has a relatively low number of businesses, there is a higher relative concentration than England, with location quotient of 1.14 in Lincoln and 1.08 in Lincolnshire. Other industries with a higher relative concentration include wholesale & retail, transport and storage, accommodation and food, real estate, education, health, and for Lincolnshire alone public admin and defence (which has a relative concentration almost 3 times higher than England in terms of businesses).
- 4.39 Over the five years to 2017—the latest year for which business count data is available, high growth was seen in transport & storage particularly, which saw a 127% increase in Lincoln, an additional 70 businesses. However, as shown by the table overleaf, this has not yet fed into a large level of employment growth in that sector.

Table 4.5 Growth in business base by sector 2012-2017 compared to employment change

Industry	Lincoln			Lincolnshire		
	Growth in businesses	% growth	Change in employment	Growth in businesses	% growth	Change in employment
Agriculture	-5	-20%	-80	170	5%	500
Mining & Quarrying	0	0%	-5	5	33%	-350
Manufacturing	30	26%	750	95	7%	6,000
Electricity & Gas Utilities	5	0%	55	30	300%	150
Water & Sewerage Utilities	-5	-100%	125	-15	-13%	500
Construction	30	10%	375	335	10%	2,500

Wholesale & Retail	-15	-3%	-500	-190	-4%	-1,500
Transport & Storage	70	127%	125	900	68%	1,000
Accomm & Food	40	22%	1,500	105	6%	7,000
IT & Comms	25	24%	250	140	17%	2,000
Finance & Insurance	10	25%	0	45	14%	0
Real Estate	20	25%	250	130	19%	1,375
Professional, Scientific & Technical	90	35%	250	670	26%	1,500
Business Admin & Support	55	46%	1,750	450	30%	5,000
Education	20	50%	-500	130	35%	-3,500
Health	40	31%	1,500	220	26%	3,000
Arts, Entertainment & Rec	5	10%	200	25	5%	1,250

ONS (2012, 2017) UK Business Counts, ONS (2012, 2017) Business Register & Employment Survey

- 4.40 Good growth in terms of businesses was also seen in the professional, scientific & technical sector—a high value sector—with an additional 90 businesses over the time period in that industry in Lincoln and 670 across Lincolnshire. This is a sector that also saw relatively good employment growth, with an additional 250 jobs in Lincoln and 1,500 in Lincolnshire. The growth of this sector was around 35% in Lincoln, which is broadly in line with growth seen in England (37%).
- 4.41 Business admin and support also grew strongly, over the five-year period. Though stronger growth was seen in England (66% over the five years), Lincoln's business growth in the sector is broadly equivalent to the East Midlands' 47% growth. Indeed, business admin and support is the sector which saw the highest absolute employment growth across the five years in Lincoln (adding 1,750 jobs) and third highest in Lincolnshire (5,000 jobs).

Inward investment

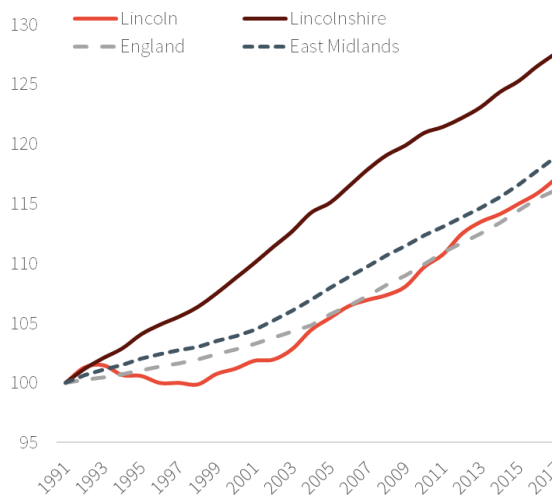
- 4.42 [TBC Inward investment – Monitor PLACEHOLDER AS MORE INFORMATION REQUIRED]
- In 2016/17, over £170 million was invested in Greater Lincolnshire, creating around 450 jobs and safeguarding 100. This is 20% growth on 2015/16. Key sectors included food & drink, renewable energy and advanced manufacturing. Recent examples include Hilton's £35 million investment in new hotel and residential property in Lincoln, Siemens' £35 million Lincoln turbine plant and £13 million operations centre. FDI originated from a number of countries including the USA, Singapore, China, Japan and EU27 countries. Hence, though there are concerns about leveraging as much foreign direct investment into the sub-regional economy after Brexit, it can be expected that some level of non-EU27 FDI will continue.

Population & Labour Market

Population

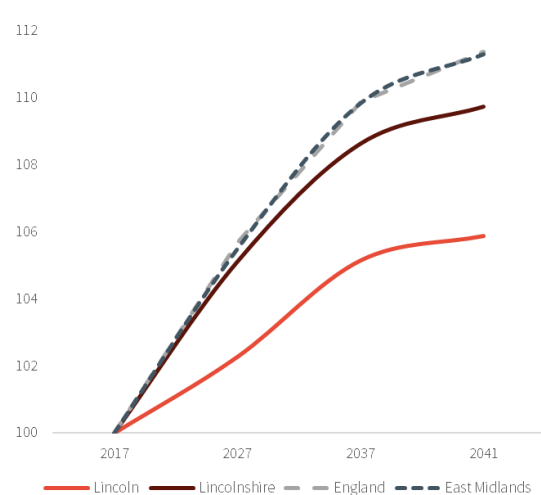
- 4.43 Lincolnshire has had consistent growth in its population since 1991¹⁰, rising to c. 751,200 in 2017¹¹; it achieved total growth of 28% between 1991 and 2017. Lincoln on the other hand has had much lower growth over the whole period, with a total rise of 17% over the 26-year period, with a population of c. 98,400 most recently.
- 4.44 Whilst Lincoln's growth has been slower overall, it is largely explained by population stagnation until the early 2000s, with growth kicking in from roughly 2004 onwards, whilst Lincolnshire grew steadily over the whole period. This growth is likely to be related to the accession of A8 states to the EU from which a large amount of labour was drawn, particularly in the agriculture and agri-food sectors that are and historically have been significant for Lincolnshire's economy. Ultimately, Lincoln grew slightly faster in relative terms than England over the whole period, which grew at 16%. This is shown in Figure 4.10.
- 4.45 Lincoln now accounts for 13% of the total population of Lincolnshire, which is slightly lower than 1991, when it had 14% of the population because of slower growth in Lincoln versus Lincolnshire. It is notable that North Kesteven grew 44% over the same period, from having a lower population than Lincoln in 1991, surpassing it in 1995, and now being home to 15% of Lincolnshire's total population.
- 4.46 This growth trend of Lincolnshire growing faster than Lincoln is set to continue, and subnational population projections¹² predicting 6% growth for Lincoln between 2017 and 2041 and 10% growth for Lincolnshire, taking them to c. 104,200 and c. 824,400 respectively. Lincoln is projected to grow significantly slower than Lincolnshire, which itself is projected to grow slower than the East Midlands or England—which is shown in Figure 4.11.

Figure 4.10 Population growth indexed to 1991 (1991 = 100)



Source: ONS (1991-2017) Mid year population estimates

Figure 4.11 Population projections indexed to 2017 (2017 = 100)



Source: ONS (2017) Subnational population projections

¹⁰ The earliest year for which robust official statistics are available at appropriate geographies

¹¹ ONS (2017) Mid year population estimates

¹² ONS (2017) Subnational population projections

- 4.47 The projections above do not forecast policy impacts, including Brexit, but are based on historic trends. Though they do not factor in Brexit, they do reflect the decline in net international migration that occurred following the Brexit vote in June 2016, and therefore there is a significant drop in some areas' (like Lincoln's) population projections due to the decline in that short-term period.

Ageing population

- 4.48 The national population is set to age, and it is one of the Industrial Strategy's Grand Challenges. Lincolnshire is not an exception to this, with its working aged population at 60% of its total population in 2017, compared to 63% in 2007. This broadly mirrors the East Midlands and England overall, which are at 62% and 63% respectively in 2017, both down from 65% in 2007.
- 4.49 Lincoln however is an exception to this, with its working aged population relative to its overall population holding steady over time—it's working aged population in 2017 was 68% of its total, compared to 69% in 2007, which are both higher than the 63% recorded in 1997.

Economic Activity

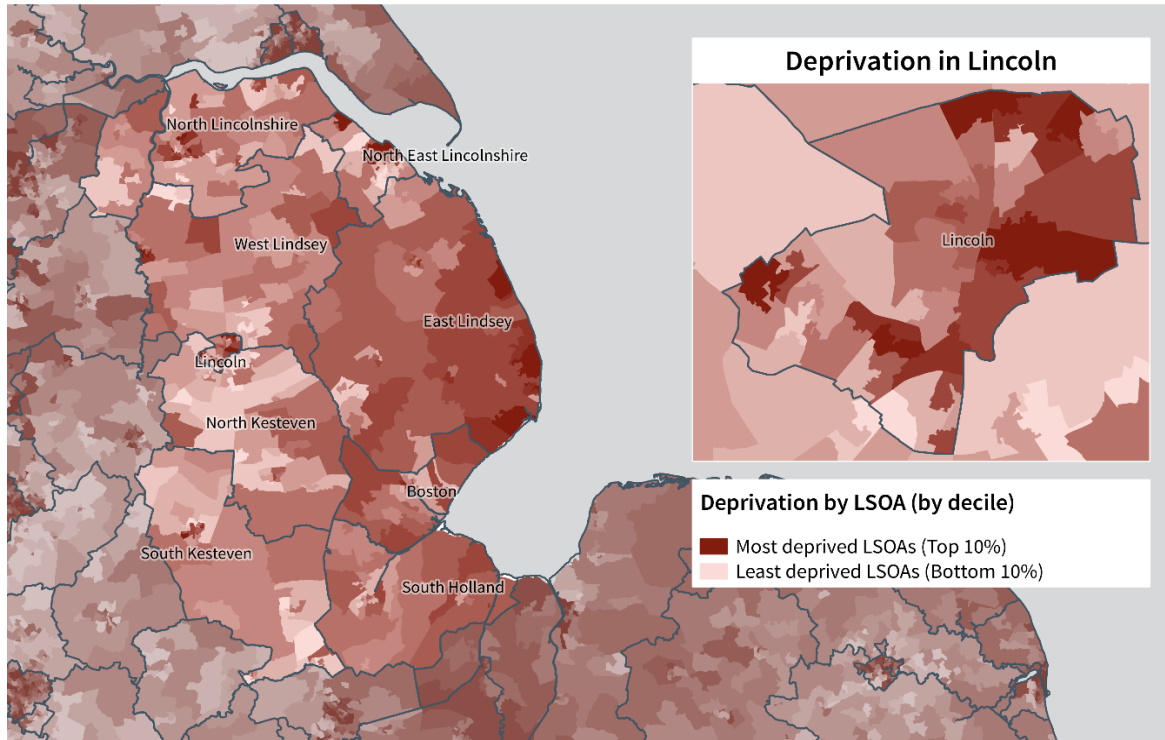
- 4.50 Lincoln's economic activity rate is c. 75%, slightly behind that of the East Midlands (78%) and England (79%), according to the Annual Population Survey¹³. The Survey also found that of the 16,000 economically inactive people in Lincoln, around 56% did not want a job and 42.3% were long term sick. Though Lincoln's unemployment rate is low compared to its own historic levels, it is still ahead of the East Midlands and England (both with c. 4% unemployment rates)
- 4.51 Lincolnshire's economic activity rate is more in line with the East Midlands' and England's levels, standing at c. 79%. Its unemployment rate is also relatively low at c. 3%, which is equivalent to c. 5,200 unemployed people in Lincolnshire according to the survey. The rates of long term sickness among the 94,400 economically inactive people are starkly lower than those of Lincoln—with a prevalence approximately half of Lincoln's at c. 22%.
- 4.52 The employment rate in Lincoln is slightly lower than that of England, with a rate of 69% to England's 71%.

¹³ ONS (2018) Annual Population Survey

Deprivation

Figure 4.12 Deprivation in Greater Lincolnshire mapped

Deprivation in Greater Lincolnshire



Source: Ministry of Housing, Communities and Local Government (2015), Indices of Multiple Deprivation

Source: MHCLG (2015) IMD

- 4.53 In terms of deprivation, the GLLEP area is 11th highest out of 39 (in 2015) LEP areas for the Indices of Multiple Deprivation (IMD) local concentration and proportion of LSOAs in the 10% most deprived nationally measures.
- 4.54 It fairs slightly better in terms of the average score of its LSOAs, placing 14th out of 39 LEPS. Deprivation in Greater Lincolnshire, as shown by the map above, is highly clustered around the coast and in Lincoln.
- 4.55 Though the domains of deprivation as defined by the IMD are tightly interlinked and impact on another as most social issues do, those most pertinent to the economic situation of an area are income; employment; and education, skills and training.

Table 4.6 Index of Multiple Deprivation Select Domains (Lower rank indicates higher deprivation)

	Income		Employment		Education	
	Rank of average rank	Rank of proportion of LSOAs in most deprived 10% nationally	Rank of average rank	Rank of proportion of LSOAs in most deprived 10% nationally	Rank of average rank	Rank of proportion of LSOAs in most deprived 10% nationally
Greater Lincolnshire out of	13	11	13	11	8	12
Lincolnshire out of	92	97	78	64	59	65
Lincoln out of	62	56	90	48	82	66
						326

MHCLG (2015) IMD

- 4.56 Lincoln scores poorly for deprivation across the income, employment, and education domains out of the 326 local authority districts in England, as shown by the table above. The higher rank with respect to the proportion of LSOAs in most deprived 10% nationally than the rank of average rank is indicative of the fact that deprivation in Lincoln is highly locational and as shown in Figure 4.12 clustered together. Lincolnshire performs comparatively, as does the GLLEP area.
- 4.57 Overall, Lincoln as a local authority area had the 45th highest deprivation in England out of 326 local authorities in England in terms of the Indices of Multiple Deprivation rank of average rank measure. For Lincolnshire as a county overall, its relative position with respect to deprivation worsened between 2010 and 2015.

Skills and qualifications

- 4.58 Across Lincolnshire there are approximately 124,200 people with NVQ4+ (degree-level or better) skills, of which 20,900 are found in Lincoln. In Greater Lincolnshire, this stands at 173,700. Overall, Lincolnshire and Greater Lincolnshire are not highly skilled economies—only 28% and 27% have NVQ4+ qualifications respectively, Lincoln performer slightly better at 33%, which itself is marginally above the level seen across the East Midlands at 32%. Nonetheless, the economies do not perform well when compared against England, where c. 38% of the working aged population have NVQ4+.
- 4.59 Table 4.7 below shows the overall skills profile of Lincoln, Lincolnshire, and Greater Lincolnshire compared to the East Midlands and England.
- 4.60 There is also a high prevalence in Lincoln of working aged people without qualifications. Around 13% of working aged people have no qualifications, which is markedly higher than the 8% figure seen in the other geographies included in the table below. Indeed in Lincoln, the number of people with no qualifications has risen by 2,200 working aged people between 2012 and 2017. This compares to a reduction in the number of people with no qualifications in Lincolnshire (falling 12% or a reduction of 4,700 people) and Greater Lincolnshire (falling c. 13% or 7,500 people).

Table 4.7 Qualifications (NVQ) as a proportion of the working aged population (16-64)

% 16-64	No qualifications	NVQ1+	NVQ2+	NVQ3+	NVQ4+	Trade Apprenticeships
Lincoln	13%	79%	69%	53%	33%	3%
Lincolnshire	8%	82%	67%	46%	28%	3%
Greater Lincolnshire	8%	82%	67%	45%	27%	3%
East Midlands	8%	84%	71%	52%	32%	3%
England	8%	85%	75%	57%	38%	3%

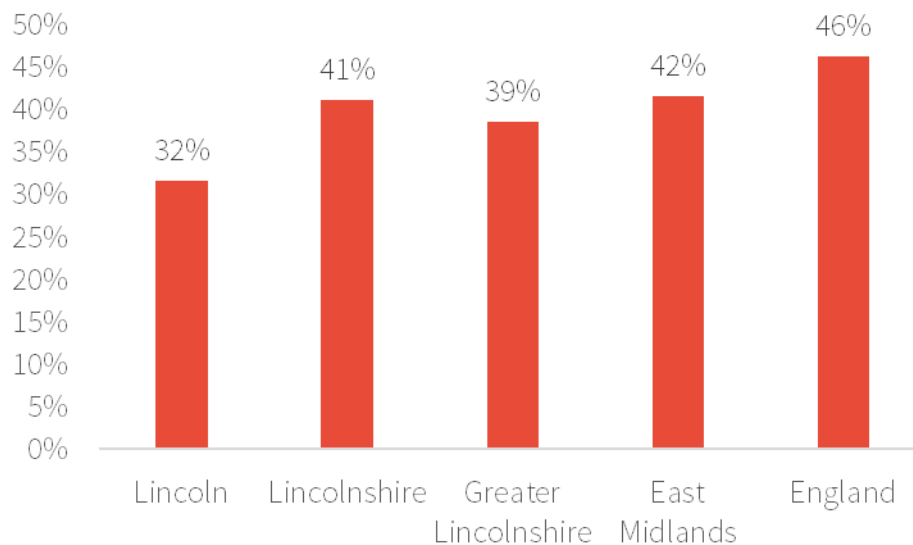
ONS (2017) Annual Population Survey

4.61 The picture for high has slightly improved since 2012, with the number of people holding NVQ4+ qualifications rising 8 percentage points in Lincoln from 25% in 2013, meanwhile in Lincolnshire and Greater Lincolnshire, there was only a 2 percentage point increase. Lincoln outperformed the East Midlands and the England in this respect, where the increases were recorded at 3 percentage points and 4 percentage points respectively.

Occupations

4.62 In terms of its occupational profile, Lincoln has a lower prevalence of higher-skilled occupations¹⁴ than the East Midlands and England, as shown in Figure 4.13.

Figure 4.13 Proportion of the workforce defined as working in highly-skilled occupations



Source: ONS (2018) Annual Population Survey

4.63 Over time, Greater Lincolnshire has seen strong growth in this respect, with 33% of its workforce in higher-skilled occupations in 2013, compared to the 39% in 2018. Lincolnshire has also seen good growth, rising 7 percentage points over the period to 41% in 2018. Lincoln has seen relatively minor change between 2013 and 2018, moving from 33% to 32%, an immaterial decline.

¹⁴ Defined as SOC Classes 1-3: (1) Managers, directors and senior officials, (2) Professional occupations, and (3) Associated professionals and technical

- 4.64 There has been a minor fall in lower-skilled occupation classes, for example the elementary occupational classification and process, plant and machine operatives saw a decline over the period.
- 4.65 There are higher levels of elementary occupations in Lincoln, at around 20%. This compares to 13% in Lincolnshire and Greater Lincolnshire, and just 11% in England.
- 4.66 There are also higher levels of skilled trades in Lincoln according to the data, with 14% of its workforce in this occupational class against 10% in England, and 12% in Lincolnshire.

Housing Market Overview

Housing Need

- 4.67 The local authorities of the City of Lincoln, North Kesteven and West Lindsey as Central Lincolnshire developed a shared local plan. The identified housing need for this plan area according to the 2015 Central Lincolnshire Strategic Housing Market Assessment is of between 1,432 and 1,780 new dwellings per annum—which is adopted in the shared Local Plan as a target of 1,540 new dwellings per annum. Over the plan period of 2012 to 2036, this totals to 36,960 new dwellings across Central Lincolnshire.
- 4.68 Lincoln itself, in its Lincoln Housing Strategy, adopted a target of 374 dwellings per annum for the local authority area.
- 4.69 Lincoln has been underdelivering new dwellings in recent years, with a growing shortfall emerging in the four years up to 2016. Taking into account its shortfall of 624 homes during this period, the net target for Lincoln, if it is to meet its overall target of 8,976 homes by 2036, has risen to an annual delivery of 873 new dwellings#

Affordability

- 4.70 Lincoln is one of the cheapest local authorities with respect to median house price in the East Midlands, with the 36th lowest median house price out of 40 local authority districts. Lincoln's median house price in 2018 sits at £145,000. This is lower than the East Midlands' median price of £180,000 and significantly lower than England's £235,000.
- 4.71 The median gross annual pay in Lincoln is c. £25,900 which is 85% of the median wage level across England, standing at c. £29,100. At the median level, Lincolnshire is marginally a lower-paid economy than Lincoln with a median gross annual pay of c. £24,100.
- 4.72 Given the relatively low median house price in Lincoln, its affordability pressures are easier than those seen nationally. The median workplace affordability ratio¹⁵ in Lincoln is 5.54 compared to 6.78 in the East Midlands and 7.91 in England. Though this suggests a better level of affordability, a ratio above 6 indicates significant housing market pressure and Lincoln—like much of the rest of the country—is approaching it.
- 4.73 The lower quartile workplace affordability¹⁶ is worse for Lincoln however. Lincoln's lower quartile ratio is at 6.38—above the level of significant pressure and worse than its median ratio, which is not the case for the East Midlands or England overall where a lower lower quartile ratio is seen at 6.86 and 7.26 respectively.

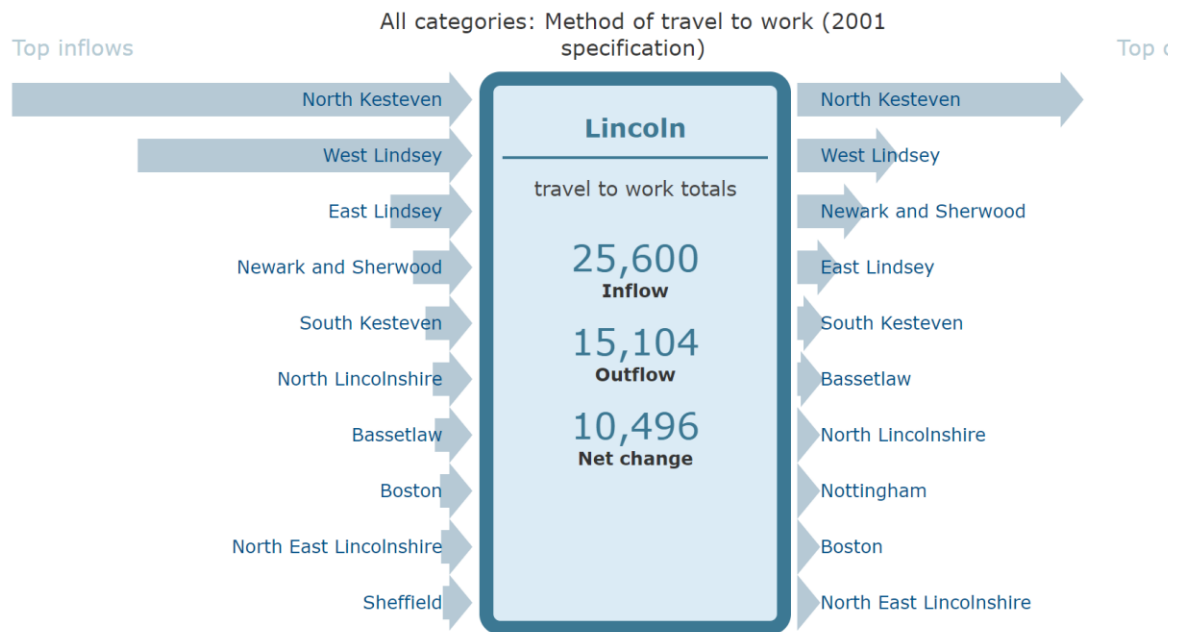
¹⁵ Which is defined by the ratio between the median house price in an area and the median wage of all those working in an area, regardless of where they live

¹⁶ Which is akin to the median affordability ratio but with lower quartile earnings and house prices

Containment and Travel to Work

- 4.74 Based on Census 2011, travel to work data and the latest Economic Needs Assessment, 2015 for Central Lincolnshire, it is evident that there is a relatively high containment of labour in Central Lincolnshire, with 77% of people who live in Central Lincolnshire also working in Central Lincolnshire, and over 80% of the workforce living in the local housing market area.
- 4.75 As shown in Figure 4.14, Lincoln is an important employment centre for North Kesteven and West Lindsey as well as other neighbouring districts in Lincolnshire. There are high levels of in-commuting to Lincoln, with local residents accounting for just 48% of the City's employees (despite 61% of residents working in Lincoln).

Figure 4.14 Travel to Work Patterns - Lincoln



Commuting totals (all categories: method of travel to work (2001 specification)) for Lincoln:

Source: NOMIS / Census 2011

- 4.76 The occupational breakdown of travel to work data suggests there appears to be a net inflow of workers to Lincoln for; managerial, director and senior positions; and professional occupations, and a net outflow of residents for elementary; and associate professional and technical occupations.

Summary: Socio-Economic Barriers and Challenges

- 4.77 Taking stock of the area's socio-economic profile over the last few years, has highlighted a number of barriers and challenges in Lincoln and Lincolnshire. The major overarching barrier, which has also been a problem nationally in recent years, is low levels of productivity.
- 4.78 However, even compared to national levels, Lincoln's economy is underperforming. There are a number of reasons for these low levels of productivity which have been summarised below;

Sluggish population growth

- 4.79 Whilst Lincolnshire has had consistent growth in its population since 1991 (+28%), Lincoln has had much lower growth with a total rise of (+17%) which has had periods of stagnation over the last 26 years.
- 4.80 Conversely, the trend towards an ageing population seems to be a more severe challenge at Lincolnshire level, than it does for Lincoln. The dependency ratio¹⁷ is set to increase in Lincoln and Lincolnshire, as it is nationally, though at a substantially slower rate in Lincoln but a much faster rate across the Lincolnshire area. By 2041, the dependency ratio in Lincolnshire will have risen to 0.85 dependents per every one working age person, compared to 0.72 nationally, this is also significantly higher than the ratio forecast for Lincoln (0.55).

Slow employment growth

- 4.81 Employment growth has been relatively modest in Lincoln since the recession, though there has been better growth in Lincolnshire overall. Lincoln achieved only a 2% increase in employment over the decade from 2007 to 2017, compared to 10% and 12% for East Midlands and England respectively.
- 4.82 This also equates to an annual average growth rate of less than 0.2% in Lincoln over that decade, which is significantly lower than the 1.2% in England.

Historically, stronger sectoral performance in less productive sectors

- 4.83 Prominent employment sectors in Lincoln are demonstrative of its role as a service centre for a large hinterland: health, wholesale & retail, education (including those employed at the University of Lincoln), accommodation & food, and public administration (being host to the City Council and Lincolnshire County Council).
- 4.84 Whilst these are important employment sectors to the Lincoln economy, they are not as productive as other sectors such as manufacturing, construction and professional, scientific and technical.
- 4.85 However, the sector profile of the business base shows that there is a greater concentration of businesses within more productive sectors. In terms of businesses, key sectors in Lincoln and Lincolnshire include agriculture, construction, professional, scientific & technical, and business admin & support.

¹⁷ Which is defined as those younger and older than the working age population and thus dependent on their productive activity

- 4.86 Despite there being evidence of business growth in more productive sectors, such as transport & storage, construction and manufacturing it is apparent that this has not led into large level of employment in these sectors.

Below average skills levels and lower skilled occupations

- 4.87 Overall, Lincolnshire is not a highly skilled economy with less than a third of the working age population having an NVQ4+ qualifications. Lincoln performed slightly better at 33%, which itself is marginally above the level seen across the East Midlands region. However, the economies are much further behind the rest of country, where the national average is 38%.
- 4.88 There is also a high prevalence in Lincoln of working aged people without qualifications (13%). In Lincoln, the number of people with no qualifications has continued to rise in the last 5 years, which does not draw any parallels with what has been happening at Lincolnshire and Greater Lincolnshire area, where there has been a reduction in the number of people with no qualifications.
- 4.89 The below average skills levels in Lincoln also translates to occupations, with the number of people in high-skilled employment seeing relatively minor change (-1%) between 2013 and 2018.
- 4.90 As a result, there are higher levels of elementary occupations in Lincoln, at around 20%. This compares to 13% in Lincolnshire and Greater Lincolnshire, and just 11% in England.

Low business births and poor business survival rates have led to slow overall business growth

- 4.91 Both Lincoln and Lincolnshire has a lower business density than that seen regionally and nationally. Nonetheless, business density in Lincoln and Lincolnshire has increased—over the last 5 years however, at a slower rate than regional and national averages.
- 4.92 In 2016, 355 business were born in Lincoln, which is slightly higher than the average births per year recorded between 2010 and 2016. However, analysing business births in relation to the population, Lincoln has a significantly lower number of business births per 1,000 residents¹⁸—at 3.65 this is compared to Lincolnshire (4.22), East Midlands (5.21) and England (6.77).
- 4.93 Survival of business is also important for a thriving economy and is indicative of an area having the necessary conditions such as the correct labour force, strong transport links, appropriate premises to operate in the long-term.
- 4.94 Lincoln's performance with respect to business survival in the first five years of the business' life is also significantly lower than the national average, with only 38% of Lincoln's businesses survive their fifth year—compared to 44% in England.
- 4.95 As a result, of low business births and poor survival rates overall business growth¹⁹ rate for Lincoln (+2%) has been slower than the regional (+3%) and national averages (+4%) between 2010 and 2017.

Shift in full-time to part-time employment

- 4.96 According to the latest available data, there are 55,500 employees in Lincoln and 292,500 employees in Lincolnshire. This is the highest record in both areas since at least 1998. This

¹⁸ ONS (2018) Mid-year Population Estimates

¹⁹ ONS (2018) UK Business Counts

drops to 34,500 FTEs in Lincoln when accounting for part-time employment and 195,500 in Lincolnshire.

- 4.97 There is an ongoing shift towards part-time employment in Lincoln, with a declining level of full-time employment—which has also not recovered to its 2007 peak in Lincoln (66%). Currently, 62% of workers were full time in 2017 whereas in England, the level was 68% in 2017.
- 4.98 Though data at lower geographies is not available, the structural shift towards higher levels of part-time employment in Lincoln is likely to be indicative of a growing level of underemployment in the Lincoln economy.

5. Lincolnshire's Future Growth

- 5.1 To understand the direction in which Lincoln and Lincolnshire's future economy is heading, future forecasts relating to population, labour demand and employment projections have been considered and summarised below. The implications of future growth have also been considered within this chapter.

Population Forecasts

- 5.2 Lincoln's higher proportion of working aged people is set to continue in projections, though it will age overall. Meanwhile, Lincolnshire will continue to see its working aged population decline, as shown below.

Table 5.1 Working age population as a percentage of the total population to 2041

	2017	2027	2037	2041
Lincoln	68%	66%	65%	64%
Lincolnshire	60%	57%	54%	54%
England	63%	61%	59%	58%
East Midlands	62%	60%	57%	57%

ONS (2017) Subnational Population Projections

- 5.3 The dependency ratio²⁰ is set to increase in Lincoln and Lincolnshire as well as England and the East Midlands, though at a substantially slower rate in Lincoln and to a much lower figure overall. In 2017, there are 0.47 dependents per working aged person in Lincoln, compared to 0.67 in Lincolnshire, this is set to increase to 0.55 in 2041 in Lincoln and 0.85 in Lincolnshire.

Table 5.2 Dependency ratio from 2017 to 2041

	2017	2027	2037	2041
Lincoln	0.47	0.52	0.55	0.55
Lincolnshire	0.67	0.76	0.85	0.85
England	0.59	0.65	0.71	0.72
East Midlands	0.60	0.67	0.74	0.75

ONS (2017) Subnational Population Projections

- 5.4 Overall by 2041, it is projected there will be c. 444,700 working aged people in Lincolnshire of which around 67,000 would be in Lincoln, which serves as an approximate indicator for potential maximum labour supply. Meanwhile, the total population is projected to be c. 824,400 for Lincolnshire and around 104,200 for Lincoln.

Future Labour Demand

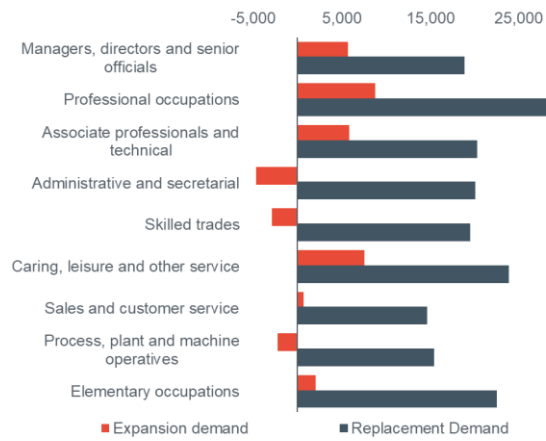
- 5.5 The 2014 Working Futures projections are the latest available projections with respect to occupations and replacement demand. Replacement demand refers to the jobs that are vacated due to retirement or migration. 2014 is the base-year for working futures data and the position has evolved subsequently, with the impact of Brexit not included in the projections. It should be noted then that the overall numbers outlined in this data are not consistent or directly comparable with projections discussed elsewhere in this report,

²⁰ Which is defined as those younger and older than the working age population and thus dependent on their productive activity

though can be considered together with respect to general trends. Working futures data is also only available at LEP level, which in this case is Greater Lincolnshire (GLLEP).

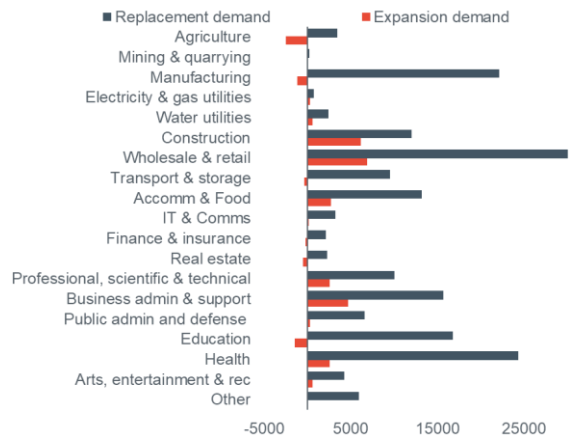
- 5.6 In all sectors in GLLEP, replacement demand is expected to outweigh expansion demand²¹. Overall, this provides for a total positive requirement for labour across every occupation class, according to the Working Futures projections.

Figure 5.1 Comparing expansion and replacement demand 2014-2024 by occupation



Source: UKCES (2016) Working Futures

Figure 5.2 Comparing expansion and replacement demand 2014-2024 by industry



Source: UKCES (2016) Working Futures

- 5.7 All occupations will see a demand greater than 30% of the 2014 labour force—with very high demand predicted in caring, leisure and other services (58.5% demand) and also for managers, directors and senior officials (53.8%). The highest demand is projected for the higher-skilled occupational classes²² but total demand is still positive: 43.8%. A full occupation and sectoral breakdown is included in Figure 5.1 and Figure 5.2.
- 5.8 In terms of the expansion demand, the Working Futures projections predict contractions in the demand for administrative & secretarial, skilled trades and process, plant, and machine operatives. However, for all of these occupational classes, there is a higher level of replacement demand projected, which provides for positive total demand overall. The figure above shows that this too holds true for all sectors.
- 5.9 As shown above, replacement demand is particularly high in manufacturing, wholesale & retail, and health. This is indicative of trends, particularly in manufacturing, of an ageing workforce, with a high proportion of people approaching retirement age.
- 5.10 Working Futures data also analyses demand with respect to skills level, which shows that NVQ4+ qualifications (degree-level or better) are set to be demanded in a much greater quantity: 59% of labour demand forecast between 2014 and 2024 is predicted to require NVQ4+ qualifications, with significantly lower demand in labour demand with low-skill entry and negative demand (i.e. more people will leave the labour market than entering it) with no formal qualifications, at around 6,200 fewer jobs with no-skill entry.
- 5.11 Overall the Working Futures projections equate to a demand of 207,000 jobs in Greater Lincolnshire, of which 21,000 can be considered new jobs (expansion demand) and 186,000 jobs are replacement demand. In terms of the size of the current workforce,

²¹ Expansion demand is the demand expected from economic growth and changes in particular sectors related to their economic performance

²² Defined as SOC 1-3: (1) Managers, directors and senior officials, (2) Professional occupations, and (3) Associated professionals and technical

replacement demand suggests a turnover between 2014 and 2024 of c. 39% of the 2014 labour force, with total demand including expansion demand at around 44% of the 2014 labour force.

Future Employment Projections

- 5.12 The Local Economic Forecasting Model for Greater Lincolnshire (LEFM), produced in 2018 for the GLLEP, is the latest available employment projections for Greater Lincolnshire, with projections until 2036. The figures used in this analysis are the policy-neutral baseline, although Brexit has been taken in to consideration. Given the difficulties of forecasting based on available information, this information should be interpreted as an indicative representation, alongside consideration of wider trends within the Greater Lincolnshire area and nationally.
- 5.13 Overall, LEFM projects growth in jobs to 2036, when total employment is projected to be 362,300. This is an increase of 28,000 on the 2016-jobs level.
- 5.14 The model projects high growth in the following industries:
- Manufacturing of other transport equipment (38% growth) & motor vehicles (22%), though this is only equivalent to 700 jobs in total
 - Water, sewerage & waste (35%), which is equal to 1,100 jobs in total
 - Construction (20%), which though relatively lower than the preceding sectors is growing from a higher base and so is actually around 5,300 jobs in total
 - Accommodation (29%), which represents 2,700 jobs
 - Media (39%), which is only equal to 700 jobs
 - Arts (64%), which is a high growing subsector in the forecast and would result in 1,600 additional jobs
 - Retail trade is set to increase by 3,500 jobs, though this is only equivalent to 10% growth over the period
 - Residential & social care is also set for a large increase at around 3,200 jobs—which again is only 17% growth
 - Business support is predicted to account for the most jobs at 3,700 jobs, but this is only 14% growth over the 20 years.
- 5.15 There are notable declines in the LEFM in real estate (-1,400 employees), agriculture (-1,300 employees), and manufacturing (-2,100 employees). Despite overall being a large employment sector and a key strategic sector for the LEP area, all subsectors excluding motor other transport and other manufacturing exhibit decline or stagnation according to the LEFM's projections.

Future Growth Implications

- 5.16 Based on the future growth of Lincoln explored previously, this section looks at the implications of growth and what it could mean for Lincoln and Lincolnshire.

Need for new housing

- 5.17 As the population grows over the next 20 years, so will the demand for additional housing, and whilst new housing is needed to accommodate people moving to the area, it is also important in retaining working age residents.
- 5.18 As stated earlier within this report, Lincoln has been underdelivering new dwellings in recent years, with growing shortfall identified between 2012 to 2016. Taking into account Lincoln's shortfall of 624 homes during this period, the net target for Lincoln, if it is to meet its overall target of 8,976 homes by 2036, has risen to an annual delivery of 873 new dwellings.
- 5.19 The need for additional new dwellings can only be met by building more houses. However, this often requires unlocking new land for housing, which can only be viable with new road infrastructure, which can service the site and the future resident population.
- 5.20 The proposed North Hykeham Relief Road scheme has the potential to unlock a number of housing sites, in particular the South West Quadrant Sustainable Urban Extension (SUE) site. Through unlocking sites and new housing which are dependent upon increasing the housing stock as well as generating a range of additional benefits (detailed later in this report).

Need for additional employment land

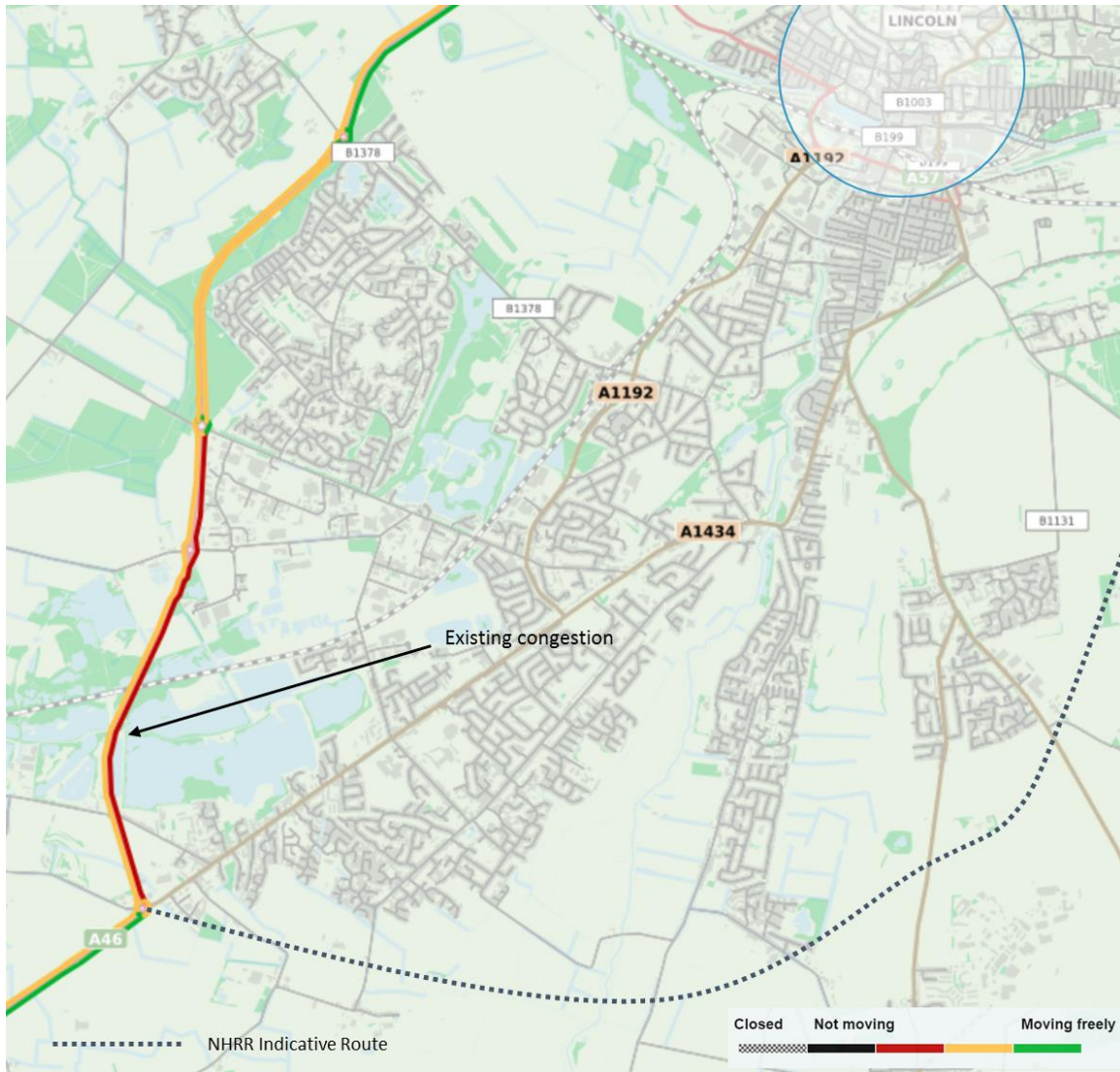
- 5.21 The future growth of Lincoln will also demand new employment space. Not only will this boost the local economy, in terms economic output, but also in retaining and attracting people and business to Lincoln. The most recent employment forecasts (LEFM 2018) are currently only available at the Greater Lincolnshire level so cannot be compared like for like with the figures used within the previous LEFM and Central Lincolnshire Economic Needs Assessment (ENA), 2015.
- 5.22 However, the employment land need identified within the ENA in 2015, equated to a baseline requirement of 8ha between 2012 and 2036, this was based on an additional +8,000 FTEs, within Central Lincolnshire. A low (+19,000 FTEs) and high growth (+22,500 FTEs) scenario were also applied to the baseline forecasts, which suggested between 16ha and 19ha could be required, over the same period.
- 5.23 The conclusions within the ENA suggested; *"this level of growth will result in requirements for economic land and business premises."*
- 5.24 The LEFM 2018 baseline forecast, estimates an additional +28,000 FTEs in Greater Lincolnshire by 2036. Based on current levels of employment in Greater Lincolnshire attributed to Central Lincolnshire, the baseline growth²³ could equate to c. 7,500 FTEs, which is similar to the 2015 baseline forecast (+8,000 FTEs).
- 5.25 Accounting for this similar level of forecast growth, there will be need for additional employment land. The completion of the proposed North Hykeham Relief Road will help unlock a number potential employment sites, increasing the supply of land, supporting direct jobs as well as range of other indirect benefits (detailed later in this report).

²³ LEFM. 2018 do account for the potential impact of Brexit. Brexit was not accounted for within the previous LEFM.

Need for improved infrastructure

- 5.26 As both population and employment grow, so will the demand for transport. Lincolnshire County Council have already stated how the existing transport network is already coming under increasing pressure, with future growth only exacerbating this.
- 5.27 The map below shows where the existing congestion hotspots are across the wider Lincoln area during the evening rush hour. The junction around Newark Road and the A46 is particularly congested, which is where the North Hykeham Relief Road is proposed to link in to the existing network.

Figure 5.3 Congestion Map – Lincoln (5pm weekday)



Source: Highways England / Traffic England – Drive Time: 5pm / Weekday

- 5.28 By improving transport infrastructure in the wider Lincoln area, the capacity to accommodate a greater number of users is increased whilst congestion issues are also addressed – both of which contribute to greater productivity, by allowing travel times to be reduced, improving the resilience of Lincoln’s strategic road network, and in lowering travel costs for businesses and individuals.
- 5.29 In addition, as discussed earlier in this chapter, new housing and employment land is required to enable Lincoln and Lincolnshire’s future growth. The proposed North Hykeham

Relief Road can help unlock a number of employment and housing sites, which would not be viable without the new road, including the South West Quadrant SUE.

- 5.30 Conversely, the benefit of the improved road infrastructure will not only act as a way of unlocking land, it will also the ability to improve the attractiveness of the area for new business and investment. A 2014 survey of businesses in the GLLEP²⁴ area indicated that transport infrastructure was cited by 30% of private businesses as an obstacle to business growth.
- 5.31 Therefore, improving infrastructure will certainly contribute towards addressing this barrier for Lincolnshire business, particularly those businesses operating in sectors which are more dependent upon a well-functioning road network (e.g. agri-food, visitor economy, manufacturing), whilst new infrastructure would also improve perceptions for new investors. A recent EY UK Attractiveness Survey²⁵ has shown that investor confidence in UK transport infrastructure is now at an all-time low.
- 5.32 Investment in Lincoln and Lincolnshire's transport infrastructure would ensure that the area is well placed to demonstrate to potential investors that it is creating the right conditions to support business growth, provide improved access to employment sites, skilled labour, suppliers, markets, including onward travel via the motorway network, ports and airports. In a post-Brexit UK, the delivery of improved transport infrastructure will enable Lincoln to compete more effectively to secure both UK and international business investment, as well ensure aspirations on housing and sectoral growth can be achieved.

²⁴ GLLEP Employer Survey Full Report, 2014

²⁵ EY; In Transition, UK Attractiveness Survey, 2018. [https://www.ey.com/Publication/vwLUAssets/2018-UK-Attractiveness-Survey/\\$FILE/EY-UK-Attractiveness-Survey-2018.pdf](https://www.ey.com/Publication/vwLUAssets/2018-UK-Attractiveness-Survey/$FILE/EY-UK-Attractiveness-Survey-2018.pdf)

6. Future Employment and Housing Development Sites

- 6.1 Future employment and housing development will play a pivotal role in the growth of Lincoln and Lincolnshire's economy. Employment land supports new and expanding businesses, whilst new housing is important in attracting and retaining the resident population needed to maintain a healthy and well-functioning labour market.
- 6.2 Transport infrastructure is often critical to unlocking new strategic sites for employment and residential development. From discussions with WSP and with local stakeholders the key site which is identified as being a dependent site linked to the construction of the proposed NHRR scheme is the South West Quadrant Sustainable Urban Extension (SUE).
- 6.3 The South West Quadrant SUE is one of four SUE's proposed in the Central Lincolnshire Local Plan. The development of this SUE would deliver approximately 2,000 new dwellings around the South Hykeham area, with around 1,600 homes by 2036. A new local centre would also be developed, alongside the development of approximately 5 hectares of employment land.
- 6.4 In addition, from discussions with WSP, we understand that there are two additional sites that have been identified as dependent development. These have been identified through as proposed schemes which have agreed Section 106 agreements which will support the development costs of the proposed NHRR and generate their own economic benefit in terms of direct employment and increasing the area's housing stock. The two identified sites are:
- Hambleton Avenue (16/1430/EIASCRC): a residential development comprising 167 dwellings with an element of affordable housing (c. 30%)
 - Leafbridge (18/0581/FUL): A commercial development comprising 28,000m² of B1 / B2 / B8 floorspace.
- 6.5 Without the proposed NHRR scheme it is our understanding that the SUE and these two proposed developments would not be able to progress. Therefore, to demonstrate the importance of the proposed NHRR scheme to Lincoln and Lincolnshire's economy, Hatch Regeneris has undertaken a summary analysis of the potential wider socio-economic benefits which these development sites could deliver if unlocked because of the proposed scheme. This includes impacts such as: population, working age population, household spend, council tax, business rates, jobs and gross value added (GVA).
- 6.6 It should be noted that our assessment is indicative, given the range of assumptions used which are based upon available information on the scale of proposed development and uses drawn from existing documentation, or which has been provided by stakeholders. As such, some aspects of the wider benefit assessment is presented as a range.
- 6.7 We also understand that there could be additional sites which would need to be considered a part of our analysis of dependent development in due course, although these have not yet progressed through planning. As such, the overall impacts presented here may well be on the conservative side [TBC – check with WSP].

Dependent Development

The South West Quadrant SUE

6.8 The development of the South West Quadrant SUE would deliver approximately 2,000 new dwellings around the South Hykeham area. In order to develop at this scale, we understand that the SUE will be wholly contingent on a successful funding and business case being developed by Lincolnshire County Council for the implementation of the North Hykeham Relief Road.

Figure 6.1 South West Quadrant



6.9 While public sector and private sector (i.e. developer contributions) funding will be required to fund the delivery of the NHRR, its implementation will unlock housing and other development in this area. The proposed NHRR would provide an 8km connection from the A46 to the A15 and the Lincoln Eastern Bypass (LEB). This would form a new strategic road around the south of the city and would complete the ring road around the city.

Source: Sustainable Urban Extension Topic Paper: Lincoln South West Quadrant

6.10 The delivery of a the proposed NHRR would therefore directly (i.e. the SW Quadrant SUE) and indirectly (i.e. other housing sites and developments in the immediate area) support the delivery of new housing in Lincoln and North Kesteven district.

6.11 The South West Quadrant will support a significant number of jobs along with a large residential population. Our estimate of the potential wider socio-economic benefits are summarised below.

Figure 6.2 Economic Benefits - Housing

- **Population Yield: 4,800 residents**
- **Working Age Population: 2,850**
- **Economically Active: 2,400**
- **In Employment: 2,000**
- **In Higher Skilled Occupations: 1,000**
- **Household Expenditure: £55m p/a**
- **Council Tax Generation: £3.4m p/a**

Figure 6.3 Economic Benefits - Employment

- **Direct Employment: 600 to 850 FTEs**
- **Wages Generated: £15m to £20m p/a**
- **GVA Generated: £30m to £42m p/a**
- **Indirect and Induced Employment: 60 to 85 FTEs**
- **Business Rates: £300k to £400k p/a**

Hambleton Avenue Site

- 6.12 The proposed 167 dwellings will generate a population of c. **400²⁶ new residents**, of which around **240²⁷** will be of **working age** and **200** will be **economically active**. It is assumed that **170** residents will be in **employment** and **80** will be in **higher skilled occupations**.
- 6.13 The new resident population will also generate household expenditure, of which, a significant proportion will be spent within the local area. Based on average household expenditure in the East Midlands, it is estimated **c. £4.5 million of spend could be generated per annum**.
- 6.14 There will also be a fiscal benefit, in the form of council tax, generated for North Kesteven District Council. Based on Band D Council Tax²⁸ charges for North Hykeham, it is estimated that **c. £280,000 per annum, in council tax revenue** could be generated, a proportion of which will be directed to Lincolnshire County Council as part of their two-tier authority arrangement.

Figure 6.4 Site Location



Source

Leafbridge Site

Figure 6.5 Site Location



Source: Globe Consulting

Figure 6.6 Leafbridge (Architects impression)



Source: Stirlin Developments

- 6.15 Leafbridge is a 44-acre commercial development located to the South West of Lincoln, close to the A46 Lincoln Bypass and Hykeham train station. The latest planning application

²⁶ Based on average household size for East Midlands (ONS Household Expenditure Data 2017)

²⁷ Based on ONS Annual Population Survey – Economic Activity Estimates

²⁸ North Kesteven and Lincolnshire County Council – Council Tax Valuation Bands 2018/19 - Band D Council Tax charges for North Hykeham are £1,712 per annum.

for Leafbridge proposed **28,000m² of employment floorspace**, split over B1 & B2 (14,000m²) and B8 (14,000m²) uses. The final mix of floorspace has yet to be agreed however, the estimates are based on a minimum and maximum employment scenario²⁹.

- 6.16 Based on the minimum and maximum scenarios set, it is estimated that in the region of **600 to 1,300 FTEs** could be supported once the development is fully occupied and operational.
- 6.17 The jobs would generate in the region of **£20m to £30m in wages** and **£35m to £65m in Gross Value Added (GVA)** for the Lincolnshire economy. The new businesses that locate to the site, along with their employees, will also spend on local goods and services, supporting a number of indirect and induced jobs. Based on Homes & Communities Agency Additionality Guidance, it is estimated that an additional it estimated the amount of **induced and indirect employment** could range between **50 and 130 FTEs**.
- 6.18 The fiscal benefits in the form of business rates will also be generated by the Leafbridge development. Dependent on the final configuration of floorspace the Proposed Development could generate in the region of **£300,000 to £650,000³⁰** in business rate revenue for both North Kesteven District and Lincolnshire County councils.

Dependent Developments: Summary of Wider Socio-Economic Benefits

- 6.19 The proposed North Hykeham Relief Road scheme has the potential to unlock a significant amount of employment and housing land in the Hykeham area. Based on Hatch Regeneris's estimates above, the overall wider socio-economic benefit resulting from all development is summarised below.

Helping meet Lincolnshire's Housing Need

- 6.20 The proposed residential development, within the pipeline, could add in the region of 2,200 new dwellings to the local housing stock. This equates to over 5% of Lincolnshire's housing need target to 2036 and exceeds the annual target of between 1,432 and 1,780 dwellings per annum.

Enhancing the local labour market

- 6.21 Combining all the socio-economic benefits together based on the sites detailed above, it is estimated that approximately 2,200 homes could be built, supporting a resident population of 5,200 people. This population could increase the working age population by 3,000 people, of which almost 2,700 could be economically active. Over 1,000 of these residents could be in higher skilled and higher value occupations, which could help address the productivity puzzle in Lincoln.

Supporting new employment opportunities

- 6.22 The employment floorspace that is proposed as part of the SUE and at the Leafbridge site has the potential to support in the region 1,500 to 1,700 FTEs across a range of B class uses (B1/B2/B8) in the local area. This will provide a range of occupations, including higher skilled jobs alongside less skilled employment, ensuring there are opportunities for all residents.

²⁹ Minimum employment scenario = 14,000m⁻² of B2 / Maximum Employment Scenario = 14,000m² of B1.

³⁰ Based on Valuation Office Agency average rateable values by Local Authority

Supporting the Lincolnshire economy

- 6.23 Once developed and occupied, the proposed residential development could help generate up to £60m in household expenditure per annum, of which, a significant proportion will be spent on local goods and services, supporting local businesses and employment.
- 6.24 In addition, the potential employment resulting from the proposed development could generate up to £100m in GVA and £50m in wages per annum. A proportion of this will be spent on local good and services, supporting jobs and businesses in Lincolnshire.
- 6.25 The estimated number of indirect and induced jobs across the wider Lincolnshire area, supported through supply chains and other expenditure as a result of the proposed employment development, could be in the region of 200 FTEs.

Generating local fiscal impacts

- 6.26 The new developments also have the potential to deliver fiscal benefits (revenues) for local authorities in the form of council tax and business rates. Based on average business rates for the local area, it is estimated that the proposed development could generate up to £1m in business rates per annum.
- 6.27 Additionally, the 2,000 new dwellings that could be built have the potential to generate an estimated £3.7m in council tax revenues per annum.
- 6.28 Therefore, the proposed developments could generate in the region of £4.7m annually in fiscal benefits (revenue), of which North Kesteven and Lincolnshire County Council will benefit.

Wider Benefits

- 6.29 Increasing the housing stock in the local area and creating new employment opportunities is vital to retaining young people, both existing residents and students who move to Lincoln for their degree courses, as well as working age families in the Lincoln and Lincolnshire economy. The completion of these new developments will also play an important role in raising awareness and changing perceptions of Lincoln, while also playing a role in catalysing other developments in the immediate and wider area. Taken together, these effects will contribute towards making Lincolnshire an increasingly attractive location for inward investors and for local businesses who are wanting to grow.

7. How does the proposed NHRR scheme overcome barriers and support economic growth?

7.1 The case presented within this report shows that the proposed North Hykeham Relief Road (NHRR) scheme can help deliver strategic priorities, generate direct economic benefits and support the wider regeneration ambitions of Lincoln and wider Lincolnshire. The benefits of the construction and delivery of the NHRR will help address Lincoln's productivity challenge by:

Supporting priority sectors

7.2 Future growth aspirations for Lincoln and the wider Lincolnshire economy revolve around a number of priority sectors. The GLLEP has earmarked these sectors as the region's strongest, which offer the most competitive advantage, and which have the ability to drive economic growth. Improvements to the existing road network, will help support these growth sectors in a number of ways, in the following ways;

- **agri-food** – Lincolnshire produces over 12% of the UK's food supply, this sector is heavily dependent on efficient and reliable transport network to distribute produce across the country. Improvements to the current road network will improve productivity by getting goods to market quicker, helping further strengthen Lincolnshire's position as a leading agri-food location. The proposed NHRR scheme will improve the region's strategic road network, by completing the Lincoln ring road, improving access to the wider UK road network, UK ports and to new opportunities within the market.
- **advanced manufacturing and engineering** – the advanced manufacturing and engineering sector is highly dependent on access to a young and skilled workforce, which is currently a constraint in Lincolnshire. The proposed NHRR scheme will improve overall access to employment and education opportunities for local residents, whilst also improving transport links and travel time to Lincoln. The new housing sites, unlocked as a result of the NHRR will also help encourage young people to remain in the area, as well as attracting new residents – with the necessary skills to support this sector.
- **the low carbon economy, with a particular focus on renewable energy** – over £2bn of offshore wind projects have been completed within the proximity of the Humber, with plans to develop more windfarms along this coastline. The area can support all aspects of the offshore wind development lifecycle, with specific capability in manufacture; assembly; construction/ installation and operations and maintenance. To support the industry successfully and efficiently; the transporting of goods, skills and services across the region to wind farm locations is crucial. The NHRR will play an important role in strengthening the strategic road network in the region, improving travel times and reducing congestion. Infrastructure improvements will also improve access to a younger and skilled workforce, which is a current challenge within the sector,
- **the visitor economy** – the visitor economy is worth almost £2bn to the Lincolnshire economy and is expected to grow further, with investment identified across a number of locations across the region. However, limited transport infrastructure has been identified as a significant barrier to growth for the visitor economy. Building NHRR and thus improving Lincolnshire's strategic road network will not only improve

access the region for visitors but also the workforce required to support the future growth of this sector. The Lincolnshire Coastal Highway (LCH) is another strategic transport priority for LCC, with the proposed NHRR scheme being a key component in the LCH being realised, opening new opportunities and to support the growth and development of the Greater Lincolnshire visitor market.

Improving conditions for business growth

7.3 To help encourage further business growth, Lincoln needs to become a more competitive place to do business. Business demography data shows that Lincoln underperforms in terms of business births and business survival. Investment in transport infrastructure will improve the conditions for business growth in a number of ways, including;

- **reducing congestion and improving travel time** – the existing transport network across Lincoln, is currently under pressure, which is only expected to increase as the city and wider region grow. Reducing congestion means goods, services and labour can move more freely – overall, reducing costs for businesses.
- **providing greater certainty to businesses through improving access to skills, labour and markets** – accessing labour and skills is recognised a barrier to strategic growth by GLLEP. The proposed NHRR scheme and upgrading the strategic road network in Lincoln, will help improve access to skills and labour across Lincolnshire (i.e. increase businesses’ effective catchment areas) – making Lincolnshire a more attractive place to do business. The extension of the existing road network will also allow for improved access to new and existing markets for businesses.
- **unlocking employment land** – as explored in the previous section, there are several future employment sites that could be unlocked, as a result of the NHRR. Increasing the stock of employment land has the potential to attract new business to the area, as well as encouraging existing businesses to expand.
- **attracting foreign investment** – as highlighted earlier, transport infrastructure is of major importance to foreign investors, with 60% stating it was one of the most important investment criteria. By delivering the NHRR and improving Lincoln’s wider transport infrastructure, this will contribute towards increasing the area’s competitive advantage as an investor location. The delivery of essential economic infrastructure in the UK’s regional cities will be particularly important consideration for a post-Brexit UK, enabling cities, like Lincoln, to be able to compete nationally and internationally for investment opportunities as they emerge.

Unlocking housing land

7.4 There are four Sustainable Urban Extensions identified by LCC, which are pivotal in underpinning Lincoln’s future growth ambitions. The South West Quadrant SUE, located close to North Hykeham, is one of the four SUEs. The delivery of the NHRR scheme will be critical to unlocking the development potential for over 2,000 new dwellings, of which a large number will be affordable. The South West Quadrant will significantly boost the local housing stock, this will have a number of benefits including;

- **expanding the labour market** – the new dwellings will yield over 5,000 new residents, of which, a large proportion will be of working age and 3,000 economically active – helping address the ageing population.
- **growing the skilled workforce** – the new development could also attract in the region of 1,000 skilled workers to the area, helping improve skills levels and address barriers to skilled labour.

- **retaining young people** – new residential development will help increase the local housing stock, providing a range of tenure types including; affordable and intermediate housing, which are often sought by first-time buyers and younger people. Improving the dwelling stock in the area will help retain younger people within Lincoln and address the ageing population.
- **increase local expenditure** – it is estimated that over £60m of household expenditure will be generated every year, by the new residential development. Whilst all household expenditure will not be spent locally, a large amount will be, supporting a range of new indirect jobs across a range sectors and services.
- **attract investment** – a young and skilled labour market, is an attractive proposition for investors, providing the workforce they need to operate and grow. As highlighted above, new housing helps attract and retain young skilled residents in an area. Conversely, a healthy stock of good quality housing is also attractive to employers, ensuring their employees can be accommodated near to their place of work and reducing commute times.

Relieving congestion and reducing travel times

- 7.5 With Lincolnshire County Council's (LCC) evidence highlighting that the existing road network is under pressure, Lincoln's road network is already prone to congestion, while LCC already recognises that future housing and economic growth will only increase congestion further. The proposed NHRR scheme will complete the Lincoln ring-road, and in doing so will significantly increase the capacity and resilience of the strategic road network.
- 7.6 As discussed, reducing travel-time benefits business by improving productivity and reducing operating costs – which inevitably increases profitability. However, there are also travel time benefits for residents, who will spend less time commuting or travelling to their destination, which can have quality of life, as well as health and well-being benefits.
- 7.7 Reducing travel time is a key component in addressing Lincoln's productivity problem, as the evidence suggests in Section 4.

Completion of the ring road and improving Lincoln's overall connectivity and supporting its inclusive growth agenda

- 7.8 As highlighted in Lincoln City Council's recent paper on inclusive growth, connectivity for social benefit is key in ensuring future growth is equal and sustainable. Transport plays an important part in addressing barriers to fundamental employment and services. The proposed NHRR scheme and its contribution to improving the wider strategic transport network around Lincoln, will support this.
- 7.9 The English Indices of Deprivation highlight that Lincoln suffers from deprivation across the income, employment, and education. By improving transport access, residents have a wider catchment for education services, increasing the number of skills options and opportunities on offer. In areas of severe education deprivation, the proposed NHRR scheme in conjunction with other transport services, may make accessing education and training opportunities viable, where it once was not. This can contribute towards upskilling the local labour force and addressing both Lincoln and the wider regions skills deficit.
- 7.10 Access to employment opportunities, is also key to ensuring inclusivity is at the forefront of future economic growth across Lincoln and Lincolnshire. Like access to education, ensuring people can get to a range of employment, which is affordable and within reasonable commuting time is paramount to increasing economic activity and lowering unemployment.

- 7.11 Inclusive growth, supported by improved connectivity as a result of NHRR and the wider Lincoln ring road, will contribute to addressing the productivity challenge; striving to ensure that education, employment and other vital services are accessible to the communities which are hardest to reach.



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