Lincolnshire County Council

LINCOLNSHIRE LOCAL TRANSPORT PLAN 5

SA Assessment Report

FINAL
FEBRUARY 2022

PUBLIC

Lincolnshire County Council

LINCOLNSHIRE LOCAL TRANSPORT PLAN 5

SA Assessment Report

TYPE OF DOCUMENT (VERSION) PUBLIC

PROJECT NO. 70080356

OUR REF. NO. FINAL

DATE: FEBRUARY 2022

WSP

The Forum
Barnfield Road
Exeter, Devon
EX1 1QR

Phone: +44 1392 229 700

Fax: +44 1392 229 701

WSP.com

QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	Draft for LCC Comment	Final for Consultation	Final for Adoption	
Date	September 2021	October 2021	February 2022	
Prepared by	Jasmine Humphrey Charlotte Town	Jasmine Humphrey	Jasmine Humphrey	
Signature				
Checked by	Katie Dean Lucy Low	Katie Dean	Katie Dean	
Signature				
Authorised by	Mike Roberts	Mike Roberts	Nic Macmillan	
Signature				
Project number				
Report number	001	002	003	

CONTENTS

NON-TECHNICAL SUMMARY 7

INTRODUCTION 7
THE LTP 7
WHAT IS SA? 7
METHOD AND APPROACH TO THE ASSESSMENT 7
SA OBJECTIVES 8
KEY FINDINGS FROM THE ASSESSMENT 9
ASSESSMENT OF POLICIES 9
ASSESSMENT OF ALTERNATIVES 10
CUMULATIVE EFFECTS 10
MITIGATION AND ENHANCEMENTS 10
MONITORING 11

1 INTRODUCTION 1

1.1 OVERVIEW 1
1.2 LOCAL TRANSPORT PLANS 1
1.3 SUSTAINABILITY APPRAISAL 3

2 LINCOLNSHIRE LOCAL TRANSPORT PLAN 4

2.1 BACKGROUND 4
2.2 THE DRAFT PLAN 4

3 METHODOLOGY 8

3.2 STAGE A - SCOPING 10
3.3 STAGE B – SA ASSESSMENT 10

3.4 STAGE C AND D: REPORTING AND CONSULTATION 11
3.5 STAGE E: MONITORING 11
3.6 LIMITATIONS AND ASSUMPTIONS 12
4 IDENTIFYING THE SUSTAINABILITY ISSUES AND OPPORTUNITIES 13
4.1 INTRODUCTION 13
4.2 SUSTAINABILITY APPRAISAL FRAMEWORK 13
5 SA ASSESSMENT 19
5.3 ASSESSMENT OF ALTERNATIVES 26
5.4 CUMULATIVE EFFECTS 33
5.5 MITIGATION AND ENHANCEMENTS 36
5.6 MONITORING 40
6 NEXT STEPS 42

TABLES

Table 2-1 – LTP5 Themes and Policies 5
Table 3.1 – Key to Assessment 10
Table 4.1 - Sustainability Appraisal Framework 14
Table 5.1 – Significance of Effect 19
Table 5.2 – LTP5 Policy Assessment and LTP4 Alternative Overview 20
Table 5.3 - Draft LTP5 Plan Assessment Summary 21
Table 5.4 – Assessment of Alternatives – Continuation of LTP4 (‘Do Nothing’) 27
Table 5.5 – Cumulative Effects 33
Table 5.6 – Proposed Mitigation 37
Table 5.7 – Monitoring Proposals 40

FIGURES

Figure 1-1 - Lincolnshire LTP Area 2
Figure 3-1 - SA and LTP Stages 9

APPENDICES

APPENDIX A
ASSESSMENT OF LTP5 POLICIES
APPENDIX B
SCOPING REPORT BASELINE SUMMARY
APPENDIX C
SCOPING CONSULTATION COMMENTS
APPENDIX D
FIGURES

NON-TECHNICAL SUMMARY

INTRODUCTION

Lincolnshire County Council (LCC) has commissioned WSP to undertake a Sustainability Appraisal (SA) that incorporates the requirement of a Strategic Environmental Assessment (SEA) of the Lincolnshire Local Transport Plan 5 Plan (LTP5).

The SA includes the assessment of LCC's LTP5 which covers Lincolnshire's administrative boundary, incorporating the local authority districts of North Kesteven, South Kesteven, West Lindsey, East Lindsey, South Holland, the Borough of Boston and Lincoln City.

The SA is a systematic process that is undertaken during the preparation of a plan. Its role is to promote sustainable development by assessing environmental, social and economic impacts, as well as mitigating any potential adverse effects that the plan might otherwise have.

THE LTP

Since the existing Local Transport Plan (LTP4) was produced, there have been changes to the transport network in Lincolnshire through the development of multiple transport schemes. LTP5 is therefore being developed to alter the way transport planning is carried out in the county. The focus of LTP5 is to create safer communities and streets, integrate modes and focus on connectivity, mobility and movement in the county.

There are six strategic themes that underpin the vision:

- Supporting economic growth
- Future ready, green transport
- Promote thriving environments
- Supporting safety, security and healthy lifestyles
- Promoting high aspirations
- Improve quality of life.

There are 26 strategic policies under these themes, which form the basis of the SA assessment.

WHAT IS SA?

SA is an iterative process of gathering data and evidence, assessment of environmental effects, developing mitigation measures and making recommendations to refine plans or programmes in view of the predicted environmental effects. The effects predicted at this stage will remain at a strategic level.

METHOD AND APPROACH TO THE ASSESSMENT

The key stages of the SA process are the following:

- Stage A: Setting the context and objectives, establishing the baseline and deciding on scope;
- Stage B: Developing and refining strategic alternatives and assessing their effects;
- Stage C: Preparing the SA Environmental Report;
- Stage D: Consultation on the draft revised LTP and the draft SA; and
- Stage E: Monitoring the significant effects of implementing the revised LTP.

The process of SA involves the development of an assessment framework, compiled of sustainability objectives, assessment criteria and indicators. This framework is developed through a review of existing baseline information, plans and area objectives to develop an understanding of environmental issues and opportunities in the county.

SA OBJECTIVES

Following the findings identified through scoping, a SA Framework has been produced, which was used to guide the assessment process of the plans and strategies. The framework summarises the main sustainability issues in Lincolnshire across each environmental topic, and the subsequent sustainability objectives. There are 15 sustainability objectives relating to the SA for each environmental topic – these objectives are outlined below.

Table NTS 1: SA Objectives and topics

Topic	Sustainability Objective
Population and Equalities	**SA1:** To increase the capacity, connectivity and efficiency of the transportation network to support demographic changes, including improving access for all groups inclusively.
Economy and Employment	**SA2:** To provide greater connectivity across Lincolnshire to support key sectors, attract inward investment and support economic success.
Health	**SA3:** To protect and enhance both physical and mental health and wellbeing through better access to public transport, supporting active travel and encouraging healthy lifestyles.
Biodiversity, Natural Capital and Ecosystem Services	**SA5:** To maintain, protect and enhance Lincolnshire's habitats, species, valuable ecological networks and ecosystem functionality, ensuring that future development does not compromise connectivity and contribute to biodiversity net gain. **SA6:** To maintain, protect and enhance the provision of ecosystem services from the county's natural capital and contribute to environmental net gain.
Landscape and Townscape	**SA7:** To protect and enhance townscapes and landscapes of visual importance, including the rural environment and town centres.
Historic Environment	**SA8:** To protect and enhance the historic environment, including heritage assets (designated and non-designated) and their unique settings.
Water Environment	**SA9:** To protect water quality and manage and reduce the risk of pollution from the transport network. **SA10:** To reduce the risk and vulnerability to flooding.
Air Quality	**SA11:** To protect and enhance air quality by reducing transport related emissions.

Topic	Sustainability Objective
Climate Change and Greenhouse Gases	**SA12:** To reduce greenhouse gas emissions, support national and local decarbonisation initiatives and incorporate climate change adaptation to help maximise resilience.
Soil, Land Use, Resource and Waste	**SA13:** To ensure the efficient use of land, promote sustainable use of resources and seek opportunities to promote a circular economy. **SA14:** To protect Lincolnshire's geological and agriculturally important land.
Noise and Vibration	**SA15:** To reduce exposure to transport related noise and vibration, including noise pollution and annoyance.

KEY FINDINGS FROM THE ASSESSMENT

ASSESSMENT OF POLICIES

In general, LTP5 policies performed well against most SA objectives, with no significant negative effects being identified. All policies have resulted in positive effects on social and economic objectives (population and equalities, economy, health and wellbeing and community safety). Some uncertain effects were identified for air quality, noise, biodiversity and geodiversity, water, soils and mineral resources, landscape and townscape and cultural heritage and the historic environment.

LTP5 policies have generally resulted in more positive effects and less uncertainties. A summary for each SA Topic has been provided below:

- Population and Equalities: Policies have resulted in both significant positive effects and minor positive effects on population (SA1).
- Economy and Employment: Policies have resulted in significant positive effects on the Economy and Employment (SA2).
- Health: Policies in LTP5 have mainly resulted in significant positive or minor positive effects on Health (SA3).
- Community Safety: Policies have resulted in both minor positive and significant positive effects on Community safety (SA4).
- Biodiversity, Natural Capital and Ecosystem Services: Policies generally have both positive and negative effects on biodiversity (SA5 and SA6).
- Landscape and Townscape: Policies have resulted in effects that are either both positive and negative, or uncertain or negligible impacts (SA7).
- Historic Environments: Policies in regards to the Historic Environment (SA8) have predominantly resulted in effects that are either both positive and negative, or negligible.
- Water Environment: LTP5 policies result in mixed impacts on water quality (SA9), with positive effects on flooding vulnerability (SA10).
- Air Quality: There are predominantly positive effects upon air quality (SA11), however there may be some additional uncertain effects from policy.
- Climate Change and Greenhouse Gases: There are positive effects from LTP5's policies upon climate change (SA12).
- Soil, Land Use, Resource and Waste: The result of policies from LTP5 upon soil and land use (SA13 and SA14) in Lincolnshire is mixed, with potential positive and negative effects.

- Noise and Vibration: The effects from policy upon noise and vibration (SA15) is largely positive.

ASSESSMENT OF ALTERNATIVES

The assessment of alternatives has resulted in a higher number of uncertainties and negative effects than the LTP5 policies. The assessment highlighted that the majority of the LTP4 policies are outdated or no longer reflect global issues (such as climate change and Covid-19) and are therefore not fit for purpose. Significant negative effects were identified in relation to flooding, with uncertainties recorded with regards to biodiversity and geodiversity, water, soils and mineral resources, landscape and townscape, and cultural heritage.

However, positive effects from LTP4 have been identified in relation to the economy, health and wellbeing and community safety.

CUMULATIVE EFFECTS

An assessment of the potential cumulative effects of LTP5 with the local transport plans of neighbouring authorities was completed, looking at the potential impacts at a strategic level.

The following plans were considered:

- Lincolnshire County Council LTP5
- East West Rail
- Central Lincolnshire Local Plan 2017
- South East Lincolnshire Local Plan 2011-2036
- South Kesteven District Local Plan 2011-2036
- East Lindsey Local Plan Core Strategy 2018
- Norfolk LTP
- Cambridgeshire LTP
- Nottinghamshire LTP
- Northamptonshire LTP
- Rutland LTP
- South Yorkshire LTP
- East Riding of Yorkshire LTP
- Humberside Airport Surface Expansion Plan
- HS2 Phase 2
- National Policy Statement for National Networks 2014

Potential positive cumulative effects were identified for population and equalities, economy and employment, human health, community safety, landscape and townscape, historic environment, water environment, air quality, noise and vibration and climate change and greenhouse gases. There are potential uncertain/negative effects upon human health, biodiversity and natural capital (although this is dependent on the overall net gain following completion), landscape and townscape, historic environment, water environment, soils, resources and waste, and noise and vibration (during construction phases).

MITIGATION AND ENHANCEMENTS

Mitigation measures are considered to prevent, reduce or offset any significant adverse effects on the environment of implementing the plan. Mitigation measures have been proposed for negative and uncertain impacts identified in relation to the following SA Topics:

- Biodiversity and geodiversity;
- Natural capital;
- Landscape and townscape;
- Historic environment;
- Climate change;
- Soils, land use, resource and waste; and
- Water resources and flooding.

A list of further mitigation has been recommended to ensure sustainability objectives are met. Additionally, enhancement measures have been outlined to optimise the positive impacts and enhance sustainability of LTP5. These have been identified in relation to the following SA topics:

- Natural capital and ecosystem services;
- Human health;
- Population and equalities;
- Community and access; and
- Economy and employment.

MONITORING

Following mitigation, some residual uncertain effects remained, therefore, monitoring measures were proposed. These measures are outlined in Table NTS 2.

Table NTS 2: proposed monitoring measures

Potential Uncertain effect	What needs to be monitored?
Potential negative effects on biodiversity and geodiversity	The number of biodiversity enhancement schemes implemented through the LTP. Number of new green infrastructure projects associated with new developments. Seek the achievement of the biodiversity net gain through application of Natural England's Biodiversity Metric 3.0.
The potential loss of land and visual amenity	The total loss of greenfield land to development. Landscapes benefiting from conservation and enhancement measure as a result of the LTP.
Potential increase in carbon emissions from strategic road schemes	Baselining and measuring the Lincolnshire plan area's aggregated carbon estimate. Percentage increase / decrease in overall carbon emissions
The loss of BMV land and efficient use of resources	The total loss of BMV land to development. The number of schemes promoting the reuse of existing infrastructure and/ or use of sustainable materials.
Potential increases in noise	To monitor levels of noise with existing NIAs and ensure they do not exceed existing baseline levels.

1 INTRODUCTION

1.1 OVERVIEW

1.1.1. Lincolnshire County Council (herein referred to as LCC) is currently preparing its Fifth Local Transport Plan (LTP5) that will primarily focus on the five year period to up to 2026 but will also consider longer term issues up to 2033/34. This will replace the existing Lincolnshire's LTP4[1], which, was agreed in 2013.

1.1.2. The LTP5 is currently being developed to identify the transport policies and interventions that will be required to help realise economic potential, whilst ensuring the principles of sustainable development are followed to maximise social and environmental benefits.

1.1.3. Lincolnshire is a large, predominantly rural county covering 5,921km^2 representing approximately 4.5% of England. The county is located in the East Midlands and is boarded by North Lincolnshire and North East Lincolnshire in the north, Nottinghamshire in the west, Leicestershire in the south west, Rutland and Peterborough in the south and Cambridgeshire and Norfolk in the south east. The county is shown in **Figure 1-1** below.

1.1.4. The LTP5 will cover LCC's administrative boundary, incorporating the local authority districts of North Kesteven, South Kesteven, West Lindsey, East Lindsey, South Holland, the Borough of Boston and Lincoln City.

1.2 LOCAL TRANSPORT PLANS

1.2.1. The Government's 1998 White Paper on transport, 'A New Deal for Transport: Better for Everyone'[2], introduced the concept of Local Transport Plans (LTPs) to steer the development of national transport policies at the local level. The Transport Act 2000[3] (now amended by the Local Transport Act 2008[4]) then made it a statutory requirement for local transport authorities outside of London to produce LTPs having regard to Government guidance and policies on the environment.

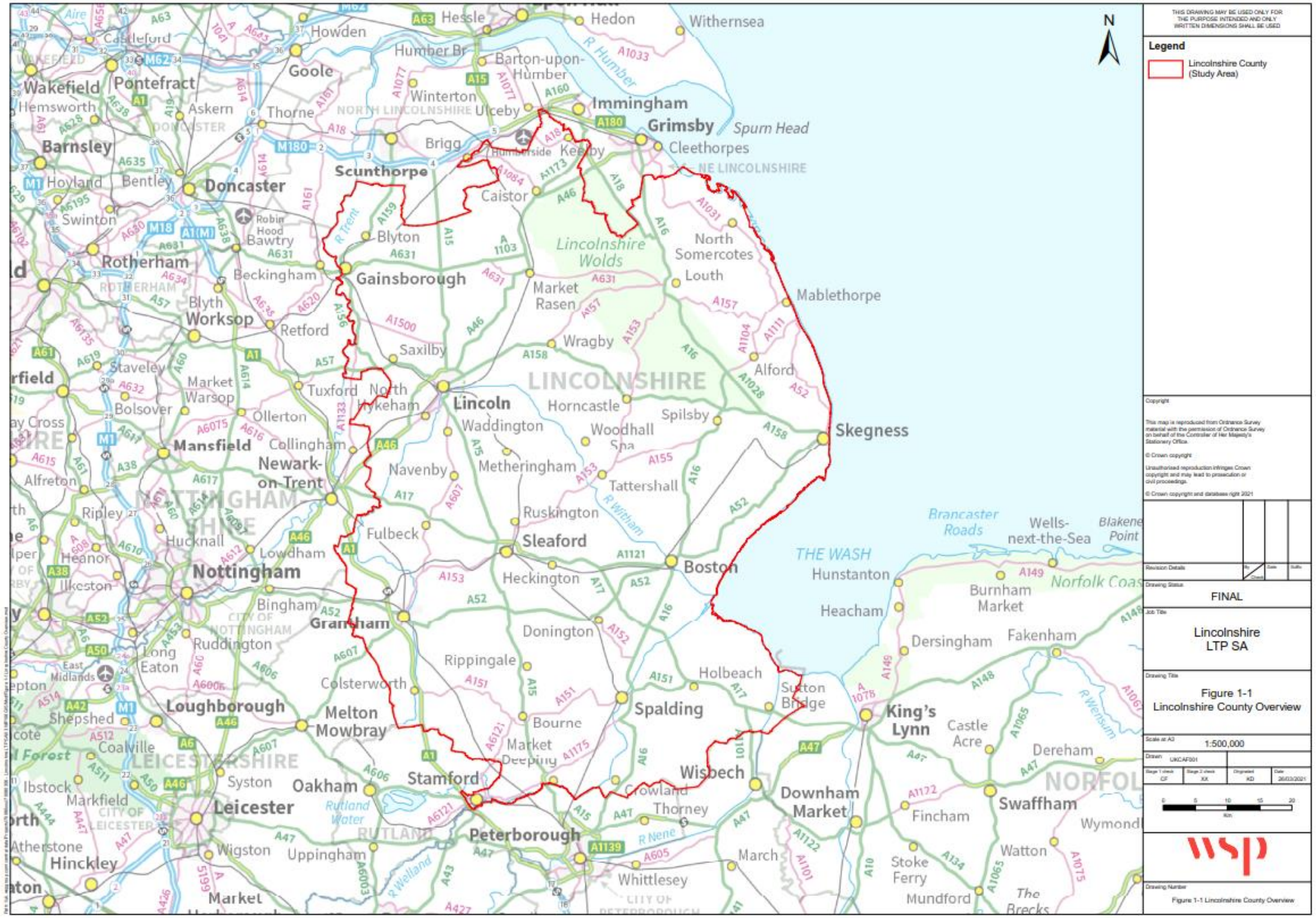
1.2.2. The more recent Transport Act 2008 gave local authorities the freedom to decide for themselves how many years future LTPs should cover, including the option to set different time spans for the strategy and implementation plan elements.

1.2.3. The Act makes particular reference to climate change mitigation and adaptation, but authorities should consider how their strategies and implementation plans relate to all relevant environmental issues, including air quality, noise, landscape and biodiversity.

---

[1] Lincolnshire County Council, 4th Lincolnshire Local Transport Plan, 2013/14 -2022/23, 2013 [online] available at: https://www.lincolnshire.gov.uk/downloads/file/1924/local-transport-plan-2013-14-2022-23 (Accessed 01/07/2021)
[2] Department for Transport, A new deal for transport: better for everyone - White Paper, 1998 [online] available at:https://webarchive.nationalarchives.gov.uk/+/http://www.dft.gov.uk/about/strategy/whitepapers/previous/anewdealfortransportbetterfo5695 (Accessed 01/07/2021)
[3] Transport Act 2000 [online] available at: https://www.legislation.gov.uk/ukpga/2000/38/introduction (Accessed 01/07/2021)
[4] Local Transport Act 2008 [online] available at: https://www.legislation.gov.uk/ukpga/2008/26/contents (Accessed 01/07/2021)

Figure 1-1 - Lincolnshire LTP Area



1.3 SUSTAINABILITY APPRAISAL

1.3.1. LCC has commissioned WSP to undertake a Sustainability Appraisal (SA) that incorporates the requirement of a Strategic Environmental Assessment (SEA) of the LTP5.

1.3.2. The SEA/SA process is carried out during the preparation of local plans and spatial development strategies. Its role is to promote sustainable development by assessing the extent to which emerging plans will help to achieve relevant environmental, economic and social objectives.

1.3.3. SEA is used to describe the application of environmental assessment to plans and programmes in accordance with European Council Directive 2001/42/EC. The SEA Directive is enacted in England through the "Environmental Assessment of Plans and Programmes Regulations" (SI 2004/1633, known as the SEA Regulations)[5].

1.3.4. A SEA is mandatory for plans and programmes which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste or water management, telecommunications, tourism, town and country planning or land use, and which set the framework for future development consent of projects listed in the Environmental Impact Assessment Directive (85/337/EEC)[6] and the Town and Country Planning (Environmental Impact Assessment) Regulations[7].

1.3.5. SEA only considers the environmental effects of a plan, whilst SAs consider a plan's wider economic and social effects in addition to its potential environmental impacts, however, it is obligatory that SAs meet all of the requirements of the SEA Regulations.

1.3.6. This Report sets out the second stage of the SA process following on from the Scoping Report which determined the issues to be included in the SA. This reports sets out:

- Information on the Transport Plan (**Section 2**);
- The methodology used for the SA (**Section 3**);
- A summary of the issues and opportunities identified during scoping (**Section 4**);
- The results of the SA assessment (**Section 5**);
- Assessment of cumulative effects (**Section 5**);
- Mitigation, enhancements and monitoring measures (**Section 5**); and
- Next Steps (**Section 6**).

[5] SI 2004 No. 1633, The Environmental Assessment of Plans and Programmes Regulations 2004. Available at: http://www.legislation.gov.uk/uksi/2004/1633/pdfs/uksi_20041633_en.pdf

[6] Environmental Impact Assessment Directive (85/337/EEC) 2014 Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0052&from=EN

[7] The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 Available at: http://www.legislation.gov.uk/uksi/2017/571/introduction/made

2 LINCOLNSHIRE LOCAL TRANSPORT PLAN

2.1 BACKGROUND

2.1.1. Lincolnshire is the second largest county in the United Kingdom, situated in the East Midlands. The county is bordered by North Lincolnshire and North East Lincolnshire in the north, Nottinghamshire in the west, Leicestershire in the south west, Rutland and Peterborough in the south and Cambridgeshire and Norfolk in the south east.

2.1.2. Outside of the largest urban areas of Lincoln, Boston and Grantham, the county is predominately rural and sparsely populated. This requires a significant number of people having to travel long distances for work and to key services such as shops and GP surgeries.

2.1.3. Due to the extent of the county, the highway network is extensive at around 8,905km, the 5th largest of any local highway authority. Much of Lincolnshire's road network is made up of almost 80% C class roads or unclassified roads, resulting in low speeds and safety issues. Furthermore, the public transport servicing the county can be of varying quality.

2.1.4. The existing Lincolnshire's 4th Local Transport Plan (LTP), which sets out the strategy and policy framework for transport up to 2022/23, was agreed in 2013.

2.1.5. Since the adoption of the current LTP, a number of key projects have been completed, which comprise of the Lincoln Eastern Bypass, Go Skegness, Gainsborough Corringham Road/Thorndike Way Junction Improvements. Future projects to be completed include, Grantham Southern Relief Road, Lincolnshire Coastal Highway, Spalding Western Relief Road, as well as, received funding for the North Hykeham Relief Road.

2.2 THE DRAFT PLAN

2.2.1. This LTP sets out to alter the way transport planning is carried out in Lincolnshire by focusing on creating safer communities and streets rather than on the movement of vehicles and traffic. It also seeks to better integrate transport modes and focuses on connectivity, mobility and movement as a whole.

2.2.2. Achieving wider policy objectives such as improving health, reducing carbon emissions and supporting economic growth all form part of the broader agenda and the LTP will set out to achieve the creation of a new approach to benefit everyone.

2.2.3. The LTP sets out a number of policies across six strategic themes. These are as follows:

- Supporting economic growth.
- Future ready, green transport.
- Promote thriving environments.
- Supporting safety, security and healthy lifestyles.
- Promoting high aspirations.
- Improve quality of life.

2.2.4. In total there are 26 policies across the six themes, which are set out in **Table 2-1** below.

Table 2-1 – LTP5 Themes and Policies

Theme	Policy
Supporting Economic Growth	*Policy EC1* - LCC will work with national, regional and local funders to identify and deliver a better transport network and services to improve connectivity internally and externally to Lincolnshire. LCC will improve the "gateways" to Lincolnshire particularly at strategic locations.
	Policy EC2 - Improve the resilience, efficiency and effectiveness of the operation of the transport network and maintain our transport assets in a good state of repair. "Future proof" the network as part of our investment strategy.
	Policy EC3 - Create town centres, villages and rural areas that are accessible but not vehicle dominated.
	Policy EC4 - We will identify and support a range of transport improvements to better connect our employment centres with their workforce and broaden the opportunities for those seeking employment to access an increasingly diverse range of opportunities.
	Policy EC5 - We will support a range of transport improvements that underpin and priority sectors to develop and grow.
Future Ready, Green Transport	*Policy GREEN1* - We will work with partners and take the necessary steps at a local level to reduce emissions from road-based transport and contribute towards the net carbon zero target by 2050 as required by the 2008 Climate Change Act.
	Policy GREEN2 - This Local Transport Plan supports the aims of the Green Master Plan and its commitments to achieve net zero alongside a thriving natural environment.
	Policy GREEN3 - Through our Local Transport Boards, other Council policies and the Development Plan process we will support the provision of local facilities and services to enable people to live locally and lower their carbon footprint by reducing travel distances.
	Policy GREEN4 - We will use the local and strategic development management processes to ensure that development is planned, delivered and managed to reduce the need to travel and support the delivery of sustainable transport modes. We will support the provision of improved walking, cycling and public transport services and facilities as part of new developments and actively encourage innovative solutions such as car clubs, mobility hubs, active travel plans and other sustainable solutions as opposed to single occupancy car use.
	Policy GREEN5 - We will seek to improve the reliability and resilience of the transport network and transport services across Lincolnshire and seek to protect it from the worst extremes of climate change.
Promoting Thriving Environments	*Policy ENV1* - We will put in place procedures during construction, surfacing and maintenance works that will minimise and mitigate their environmental impacts.
	Policy ENV2 - We will incorporate improvements into transport schemes and highway maintenance so that they aid in the creation, preservation and enhancement of high quality and vibrant environments with unique and

Theme	Policy
	distinctive character. This includes taking opportunities to protect and improve habitats for both flora and fauna, protect and enhance historic features, landscapes and townscapes.
	Policy ENV3 - In the planning, designing and delivery of our transport infrastructure and services we will seek to minimise the use of natural resources and minimise waste.
	Policy ENV4 - We will make use of our existing transport infrastructure and services and prioritise the maintenance and management of it over the building of new infrastructure.
	Policy ENV5 - We will support, promote and provide sustainable access to our sensitive built and natural environments.
Supporting Safety, Security and a Healthy Lifestyle	*Policy SH1* - We will seek to make Lincolnshire's roads safer for all and to make significant year on year reductions in those killed or injured on Lincolnshire's roads through a sustainable, co-located road safety partnership delivering targeted interventions focussed on education, engineering, and enforcement.
	Policy SH2 - In partnership with the police, transport operators and others we will seek to reduce the rate of crime, the fear of crime and issues relating to antisocial behaviour related to transport.
	Policy SH3 - Working with transport operators we will seek to restore confidence in the use of public transport following the COVID 19 pandemic and restore passenger numbers to pre COVID levels.
	Policy SH4 - Working in partnership we will seek to reduce air, light and noise pollution created by the transport system. The focus will be in areas with designated Air Quality Management areas and where impacts are felt by significant populations.
	Policy SH5 - We will champion greater use of active travel modes and provide the infrastructure and services that encourages a shift towards them.
	Policy SH6 - In partnership with others we will promote the benefits of active travel and support initiatives that encourage and promote a healthier lifestyle by people changing their travel behaviours.
Promoting High Aspirations	*Policy HA1* - Improve access to education healthcare, leisure and other essential services by supporting improvements to the transport network and services. Support innovation and alternative provision of services such as virtual options and mobile services that bring services to people rather than people to services.
	Policy HA2 - We will seek to increase accessibility for everyone by promoting measures to improve accessibility to the transport network.
	Policy HA3 - Using the existing Local Transport Boards (LTBs) we will continue to encourage and support the local communities to contribute to the on-going development of transport solutions across Lincolnshire.

Theme	Policy
Improve Quality of Life	*Policy QL1* - We will deliver improvements to the transport network and services that support sustainable growth and balance the needs of improved connectivity and mobility against the negative impacts transport can have.
	Policy QL2 - We will endeavour to deliver transport improvements that transform mobility and accessibility across Lincolnshire and make provide a significant uplift in the quality of life for all residents and visitors to Lincolnshire.

3 METHODOLOGY

3.1 INTRODUCTION

3.1.1. SA is an iterative process of gathering data and evidence, assessment of environmental effects, developing mitigation and monitoring measures and making recommendations to refine plans or programmes in view of the predicted environmental effects.

3.1.2. The approach adopted for the SA of the Draft LTP5 Plan follows that set out in the Practical Guide to SEA[8] and the Planning Practice Guidance to SEA and SA[9]. It involves the development of an assessment framework comprising a series of sustainability objectives, assessment criteria and indicators. This framework is developed from an understanding of environmental problems and opportunities identified through a review of existing baseline information and a review of other plans, programmes and environmental protection objectives relevant to the plan area (i.e. Lincolnshire) and subject matter (transport).

3.1.3. The key stages of the SEA process are the following:

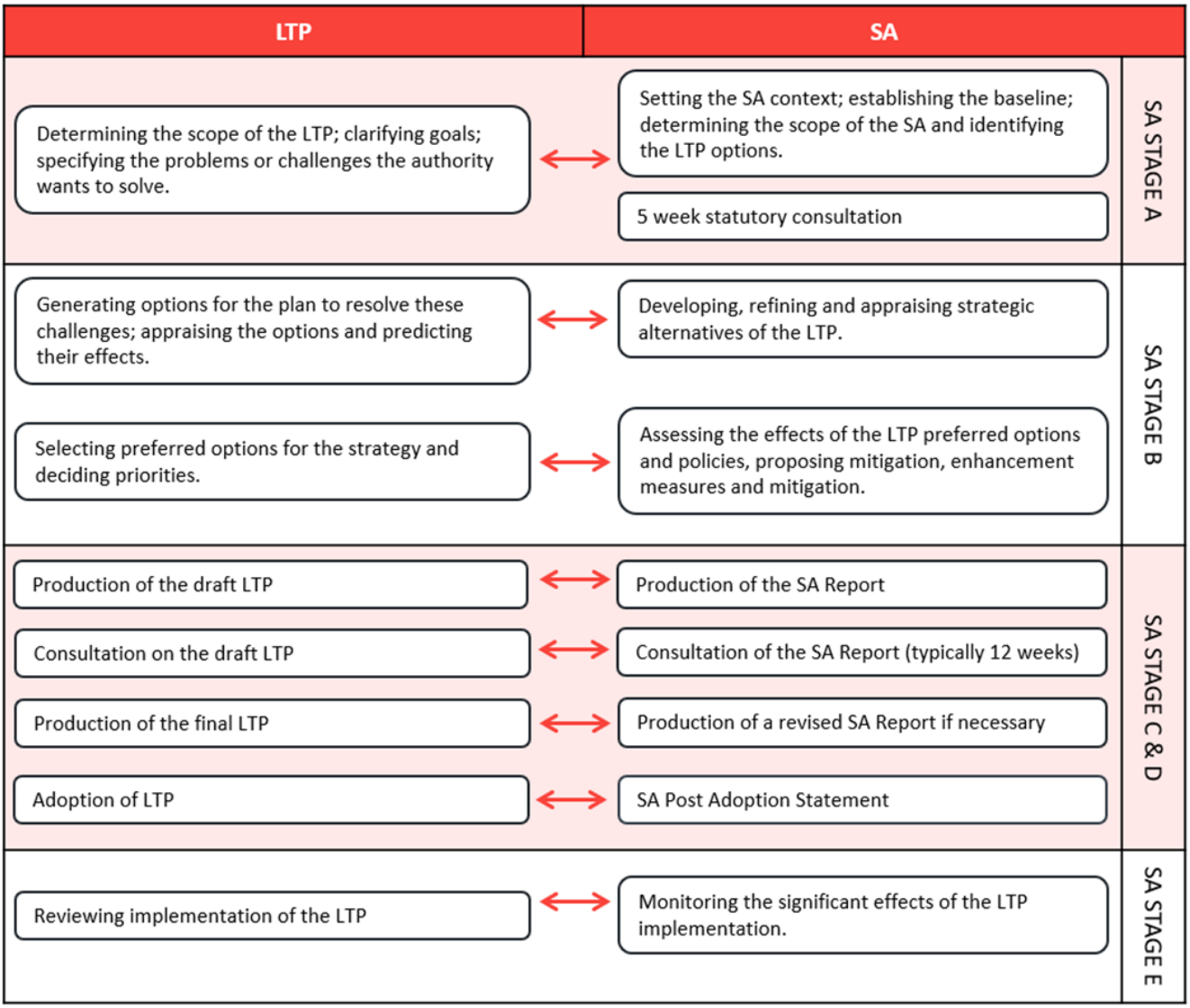
- **Stage A:** Setting the context and objectives, establishing the baseline and deciding on scope;
- **Stage B:** Developing and refining strategic alternatives and assessing their effects;
- **Stage C:** Preparing the Environmental Report;
- **Stage D:** Consulting on the draft plan or programme and the Environmental Report; and
- **Stage E:** Monitoring the significant effects of implementing the plan or programme on the environment.

3.1.4. The stages of the SEA process and their interactions with the LTP process are depicted in **Figure 3-1** below.

[8] Office of the Deputy Prime Minister (2005) A Practical Guide to the Strategic Environmental Assessment Directive. available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7657/practicalguidesea.pdf

[9] Department for Communities and Local Government (2015) Strategic environmental assessment and sustainability appraisal. Available at: http://planningguidance.communities.gov.uk/blog/guidance/strategic-environmental-assessment-and-sustainability-appraisal/

Figure 3-1 - SA and LTP Stages



3.2 STAGE A - SCOPING

3.2.1. As part of SA Stage A, a Scoping Report was completed in July 2021, which provided baseline information, highlighted key issues and opportunities for the LTP and set out the SA Framework. Consultation on the Scoping Report took place between May and July 2021, which allowed the statutory consultees to provide comments on the scope of the SA, baseline information, the proposed methodology and the SA framework.

3.2.2. **Appendix C** sets out the comments received from the statutory consultees on the Scoping Report along with a commentary on how they have been accounted for in the preparation of this report.

3.3 STAGE B – SA ASSESSMENT

3.3.1. Stage B comprises of the assessment of the draft LTP5, against the SA objectives identified within the Scoping Report. This will aid the development of LTP5 and its policies and options.

3.3.2. The assessment of the interventions and alternatives has considered the following:

- Overall effect significance (negative, positive, uncertain, potential for both negative and positive effect or negligible);
- Nature of effect (direct, indirect)
- Spatial Extent (local, regional, national)
- Reversibility of effect:
  - Reversible: The receptor can return to baseline condition without significant intervention;
  - Irreversible: The receptor would require significant intervention to return to baseline condition.
- Duration (short, medium or long term) – Short term: 0-5 years, Medium term: 5-10 years (up to the end of the plan period) Long term: 10+ years (beyond the plan period).

Table 3.1 – Key to Assessment

Effect Significance	Key
Potential for significant positive effects	++
Potential for minor positive effects	+
Potential for minor negative effects	-
Potential for significant negative effects	--
Uncertain effects – Uncertain or insufficient information on which to determine the appraisal at this stage	?
Potential for both positive and negative effects	+/-
Negligible / No effect	0
Nature of effect (direct / indirect).	D / I

Effect Significance	Key
Spatial Extent (local / regional / national)	L / R / N
Reversibility of effect (reversible / irreversible)	R / I
Duration (short / medium / long term).	ST / MT / LT

3.3.3. The SEA Regulations require that cumulative effects are considered when identifying likely significant effects. Therefore, a number of plans and policies (locally, regionally and nationally) have been reviewed for potential cumulative effects in addition to potential cumulative effects that could occur alongside the implementation of LTP5.

3.4 STAGE C AND D: REPORTING AND CONSULTATION

3.4.1. The results, recommendations and mitigation have been summarised in this Report (Stage C and D). In accordance with the SEA Regulations, the SA/SEA Environmental Report must be made available at the same time as the draft plan or programme, as an integral part of the consultation process, and the relationship between the documents clearly indicated.

3.4.2. During September 2021, LCC sought the views of statutory bodies and other stakeholders in on the results of the SA, in order to ensure that the SA provided a robust assessment of the LTP. Both the SA and LTP were updated in light of comments received during consultation. This version of the SA Report is the updated final version following consultation.

3.5 STAGE E: MONITORING

3.5.1. This report sets out recommendations for monitoring the social, environmental and economic effects of implementing the Draft LTP5.

3.6 LIMITATIONS AND ASSUMPTIONS

3.6.1. The preparation of the Transport Plan alongside the SA has allowed an iterative process of assessment and refinement in the narrative and policies within the Plan. Therefore, some of the recommendations set out in this report may already have been addressed in the Transport Plan.

3.6.2. The Transport Plan does not propose other specific development sites with defined boundaries above those mentioned. As such, the main focus of the assessment is of the strategic policies (policy alternatives) have been undertaken for the SA.

3.6.3. Some of the Transport Schemes are being delivered by other organisations, including Highways England and Network Rail. LCC will need to continue working in partnership with these other organisations for the development and delivery of these schemes. The policy framework for the delivery of these major schemes is the National Networks National Policy Statement[10].

3.6.4. The Transport Plan will apply to the plan period up to 2026 but will also consider longer term issues up to 2033/34. The assessment will focus on effects likely to occur during the plan period but will also seek to identify longer term effects that may occur beyond this period. It is acknowledged that longer term effects generally have a greater level of uncertainly than shorter-term, more immediate effects.

3.6.5. During the preparation of the SA, Lincolnshire has been affected by the worldwide Covid-19 pandemic. This has led to unprecedented changes in travel patterns and needs, and the way in which transport infrastructure has been used, over a very short period of time.

3.6.6. There is a great deal of uncertainty as to how these changes will continue to develop and what trends and travel needs may emerge in the short, medium and long term, particularly over the period covered by the Transport Plan. The narrative within the Transport Plan will enable opportunities provided by these changes to be realised, building upon the emerging evidence base as to what these changes will be.

[10] DfT, 2014, National Policy Statement for National Networks https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/387222/npsnn-print.pdf

4 IDENTIFYING THE SUSTAINABILITY ISSUES AND OPPORTUNITIES

4.1 INTRODUCTION

4.1.1. The SEA Regulations requires that the Environmental Report includes a description of the relevant aspects of the current state of the environment and its likely evolution without implementation of the Plan. It also requires consideration of the environmental characteristics of areas likely to be significantly affected.

4.1.2. The Scoping Report (produced in July 2020) identified the key issues for sustainability in relation to transport, using the sustainability policy context, baseline and future trends occurring without implementation of the LTP5. This will enable the effects of the plans/strategies to be compared to the evolution of the baseline in the absence of the plans/strategies.

4.1.3. The baseline for each of the SA topics and specific policy context is presented in **Appendix B**.

4.2 SUSTAINABILITY APPRAISAL FRAMEWORK

4.2.1. While not specifically required by the SEA Regulations, sustainability objectives are a recognised way of considering the environmental, social and economic effects of a plan or programme and comparing the effects of alternatives. The objectives are developed using the sustainability issues identified in the Scoping Report. The objectives will be used to assess the options in the LTP and identify likely sustainability effects.

4.2.2. Sustainability objectives were developed using:

- The review of key policy documents;
- The baseline data collation;
- An assessment of future trends; and
- The identification of sustainability issues and opportunities.

Table 4.1 - Sustainability Appraisal Framework

Topic	Key Sustainability Issues and Opportunities Identified	Sustainability Objective
Population and Equalities	▪ The rural nature of some parts of the county could pose significant challenges in providing good services for all residents. ▪ The population of Lincolnshire is increasing in number and age profile, and there will be additional transport movement associated with this growth. ▪ The ageing population in the county is likely to place additional strain on the County's services and infrastructure. ▪ Transport issues affect groups with protected characteristics to varying extents, which can exacerbate the barriers to accessing and using transport. ▪ There are opportunities to improve access to rural areas through transport services, digital services and bring services to people.	**SA1:** To increase the capacity, connectivity and efficiency of the transportation network to support demographic changes, including improving access for all groups inclusively
Economy and Employment	▪ To sustain economic growth and enable well paid employment, provision of reliable, integrated and accessible transport networks is needed. ▪ Transport is important for access to employment centres, particularly within town centres. ▪ Some jobs in the county are facing skill shortage vacancies. ▪ Transport networks need to be adaptive to reflect changing working patterns and increased reliance on transport networks. ▪ Improved connectivity between business clusters and housing markets (both planned and existing) in the county will improve access to the skills pool as well supporting improvements in productivity.	**SA2:** To provide greater connectivity across Lincolnshire to support key sectors, attract inward investment and support economic success
Health	▪ The population of Lincolnshire is ageing; older people may not have access to appropriate forms of private transport to access healthcare and social care facilities. ▪ The prevalence of chronic obstructive pulmonary disease (COPD) is significantly higher than the national and regional averages. ▪ Health deprivation is varied across the county's districts. ▪ The LTP and supplementary Walking and Cycling Strategies could present opportunities to enhance walking and cycling routes and encourage the use of non-motorised forms of transport.	**SA3:** To protect and enhance both physical and mental health and wellbeing through better access to public transport, supporting active travel and encouraging healthy lifestyles

Topic	Key Sustainability Issues and Opportunities Identified	Sustainability Objective
	▪ There will, therefore, be an ongoing need to provide inclusive services in order to meet the needs of older residents. ▪ There will be a need to improve public transport users' confidence in returning to public transport post-Covid.	
Community Safety	▪ There are increasing levels of crime on public transport. ▪ Lincolnshire has the highest number of casualties associated with incidents with freight vehicles in the Midlands. ▪ There are a number of roads which exceed the national average for both serious and fatal casualties, pedestrians and cyclists are particularly at risk. ▪ The potential increase of road safety issues due to an increase in older drivers in the county because of an ageing population. ▪ There is a need to engage with communities and encourage the reporting of crimes as well as ensuring safety for all transport users. ▪ There are opportunities to introduce softer measures such as increased training and awareness and incorporation of safety by design measures.	**SA4:** To promote safe transport through reducing accidents, improving safety and reducing crime across the transport network
Biodiversity, Natural Capital and Ecosystem Services	▪ There are a wide range of statutory local, national and international sites designated for nature conservation in Lincolnshire, which may be affected by any increase in transport infrastructure development, particularly through indirect effects. ▪ The construction and operation of potential new transport infrastructure may have an effect on biodiversity including priority habitats, species and protected species. This is particularly from disturbance, displacement and noise, air and light pollution. ▪ Deterioration in quality, and severance and/or loss of connectivity of ecosystems. ▪ Effects on ecosystems with high (potential) ecosystem services provision and/or those close to centres of population. ▪ There is scope to encourage the redevelopment of existing assets as well as build new, to focus development away from areas of high biodiversity and ecosystem service ▪ Enhancing the quality of transport 'soft estate' can also help improve the resilience of the transport network to future climate change.	**SA5:** To maintain, protect and enhance Lincolnshire's habitats, species, valuable ecological networks and ecosystem functionality, ensuring that future development does not compromised connectivity and contribute to biodiversity net gain **SA6:** To maintain, protect and enhance the provision of ecosystem services from the county's natural capital and contribute to environmental net gain

Topic	Key Sustainability Issues and Opportunities Identified	Sustainability Objective
	▪ Green Infrastructure can provide many social, economic and environmental benefits close to where people live and work.	
Landscape and Townscape	▪ Transport infrastructure has the potential to cause direct and indirect impacts on designated landscapes, whilst eroding the character and quality of the landscapes and their characteristic landscapes. ▪ Light pollution can have significant negative effects on designated and undesignated landscapes, particularly those that are 'intrinsically dark' such as the Lincolnshire Wolds Area of Outstanding Natural Beauty (AONB). ▪ Significant future growth in some locations could risk compromising landscape and townscape quality, character and visual amenity. ▪ Lincolnshire's coastline is constantly changing due to sea level rise and climate change. ▪ The incorporation of 'Future Ready' Landscape principles into landscape-led designs would help ensure transport infrastructure is designed for longevity.	**SA7:** To protect and enhance townscapes and landscapes of visual importance, including the rural environment and town centres
Historic Environment	▪ Lincolnshire has a high number of designated and non-designated heritage assets. ▪ Non-designated assets that are not formally recognised but play an important role in defining the character of the county. ▪ New and/or upgraded transport infrastructure across Lincolnshire has the potential to affect the survival, fabric, condition and setting of cultural heritage assets both above and below the ground. ▪ There is potential for development to encroach on non-designated sites or areas of high archaeological value, this is particularly so for Lincolnshire Wolds AONB. ▪ Vehicle damage and pollution can adversely affect heritage assets and their settings. ▪ Asset enhancement has the potential to lead to an increase in tourism and associated revenue, and education opportunities associated with the Lincolnshire's cultural heritage.	**SA8:** To protect and enhance the historic environment, including heritage assets (designated and non-designated) and their unique settings

Topic	Key Sustainability Issues and Opportunities Identified	Sustainability Objective
Water Environment	▪ The physical and chemical quality of water resources can be adversely affected by pollution associated with surface water runoff from new or existing transport infrastructure. ▪ Climate change is likely to increase the occurrence of flooding from all sources and hence raise the flood risk in Lincolnshire. ▪ Increased development (including transport infrastructure) can also increase flood risk on a local and catchment scale. ▪ Upgrading existing infrastructure also provides the opportunity to improve pollution control on older drainage systems. ▪ New transport infrastructure could result in improved drainage, reducing surface water flooding. ▪ Local wildlife sites and greenspaces present opportunities to positively contribute to reducing flood risk by working with natural processes.	**SA9:** To protect water quality and manage and reduce the risk of pollution from the transport network **SA10:** To reduce the risk and vulnerability to flooding
Air Quality	▪ The number of vehicles on county roads is expected to increase, which can affect air quality. ▪ An improved highway network could result in higher usage increasing emissions; however, improved traffic management can decrease congestion having a beneficial effect on air quality ▪ There are a number of Air Quality Management Areas (AQMAs) around Lincolnshire that are designated as a result of air pollution from transport. ▪ There is the potential that improved transport links will facilitate traffic flows, reduce idling times and thus improving air quality locally. ▪ Air quality issues across Lincolnshire can be addressed via a modal shift towards less polluting methods of transport (low carbon transport initiatives) and inclusive of active transport (e.g. cycling, walking etc.).	**SA11:** To protect and enhance air quality by reducing transport related emissions.
Climate Change and Greenhouse Gases	▪ Climate change could have potential impacts on transport infrastructure, particularly in Lincolnshire's coastal areas. ▪ Climate change (extreme heat, flooding and storms) can impact on the quality and safety of transport infrastructure. ▪ Transport is one of the largest contributors to greenhouse gas emissions in Lincolnshire. ▪ In rural areas many people are reliant on private transport.	**SA12:** To reduce greenhouse gas emissions, support national and local decarbonisation initiatives and incorporate climate change adaptation to help maximise resilience.

Topic	Key Sustainability Issues and Opportunities Identified	Sustainability Objective
	▪ There is a need to support the continued increase in infrastructure to support the demand in electric cars. ▪ There is a need to plan for and implement/ facilitate climate change adaptation, in respect of rising temperatures, water scarcity and extreme weather events, particularly heavy rainfall/ flooding. ▪ The LTP could present opportunities to introduce mobility hubs, which could increase accessibility and help to reduce transport emissions from the transport network.	
Soil, Land Use, Resource and Waste	▪ Minerals are a finite resource and materials will be required for any new transport infrastructure, with subsequent waste produced. ▪ Resource efficiency is important in the reduction of waste and conservation of resources. ▪ Future development may lead to the degradation of the county's best and most versatile (BMV) land. ▪ Improvements to transport infrastructure will likely require land take. ▪ Resource efficiency is important in the reduction of waste and conservation of resources. ▪ The LTP5 could promote opportunities to support a circular economy.	**SA13:** To ensure the efficient use of land, promote sustainable use of resources and seek opportunities to promote a circular economy. **SA14:** To protect Lincolnshire's geological and agriculturally important land.
Noise and Vibration	▪ Increased transport development and infrastructure may adversely impact sensitive receptors and increase current noise levels. ▪ Excessive noise exposure from transport can cause stress and sleep disturbance and is often perceived as a nuisance. ▪ Transport noise can adversely affect biodiversity including nesting and feeding habits of many species. ▪ Increased noise exposure can also have negative impacts on designated sites (in particular the Lincolnshire Wolds AONB), and other designated sites with road, rail or air traffic noise reducing amenity within these areas. ▪ Opportunities exist to reforecast the understanding of transport noise profiles and exposure.	**SA15:** To reduce exposure to transport related noise and vibration, including noise pollution and annoyance

5 SA ASSESSMENT

5.1 INTRODUCTION

5.1.1. This section presents the findings of the assessment of the SA assessment covering both:

- The proposed policies in the Draft LTP5; and
- The continuation of the existing LTP4 (policy alternatives).

5.1.2. Mitigation and enhancement measures for negative or positive significant effects are set out below in **Section 6.7**.

5.1.3. The SEA Regulations require an assessment of the plan and its "reasonable alternatives". Specific alternative policies were not identified during the LTP5 policy generation process, therefore, for the basis of this assessment, the continuation of the existing LTP4 policies have been assess as a 'do nothing' scenario.

5.1.4. The findings of the policy alternatives are reported in **Section 5.3** below.

5.2 ASSESSMENT OF DRAFT LTP4 POLICIES

5.2.1. The assessment of LTP5 objectives and composite policies is summarised below and presented in full in **Appendix A**.

5.2.2. A matrix approach has been used for the assessment which will use the significance identified in **Table 5.1** below. **Table 5.2** overleaf provides an overview on the performance of the LTP5 objectives against each SA objective.

Table 5.1 – Significance of Effect

Key	Significance
++	Likely significant positive effect
+	Likely minor positive effect
0	Negligible or no effect
-	Likely Minor negative effect
- -	Likely significant negative effect
?	The effect is uncertain
+/-	The effect is likely to be both positive and negative

Table 5.2 – LTP5 Policy Assessment and LTP4 Alternative Overview

Strategic Theme	SA Objectives														
	SA1	SA2	SA3	SA4	SA5	SA6	SA7	SA8	SA9	SA10	SA11	SA12	SA13	SA14	SA15
Theme 1: Supporting Economic Growth (Policies: EC1, EC2, EC3, EC4, and EC5)	++	++	++	+	+/-	+/-	+/-	+/-	?	+	+/-	+/-	+/-	?	?
Theme 2: Future Ready, Green Transport (Policies: GREEN1, GREEN2, GREEN3, GREEN4, and GREEN5)	++	++	++	+/-	+/-	+/-	+/-	+/-	0	++	++	++	+/-	0	++
Theme 3: Promoting Thriving Environments (Policies: ENV1, ENV2, ENV3, ENV4, and ENV5)	+	++	++	+	++	++	++	++	++	+	++	++	++	++	+
Theme 4: Supporting Safety, Security and a Healthy Lifestyle (Policies: SH1, SH2, SH3, SH4, SH5, and SH6)	++	+	++	++	+/-	+/-	+/-	+/-	0	0	++	+	?	?	++
Theme 5: Promoting High Aspirations (Policies: HA1, HA2, and HA3)	++	+	++	++	0	0	+/-	+/-	0	0	?	?	0	0	?
Theme 6: Improve Quality of Life (Policies: QL1 and QL2)	++	++	++	+	?	?	?	?	0	0	?	?	0	0	?
LTP4 Alternatives	?	+	+	++	?	?	?	?	?	--	+	+	-	?	?

5.2.3. In general, LTP5 policies have performed well against most SA objectives, with no significant negative effects being identified. All policies have resulted in positive effects on social and economic objectives (population and equalities, economy, health and wellbeing and community safety). This is mainly due to the emphasis the LTP5 places on increasing connectivity and accessibility, improving safety and supporting a transition to active travel.

5.2.4. Some uncertain effects were identified for air quality, noise, biodiversity and geodiversity, water, soils and mineral resources, landscape and townscape and cultural heritage and the historic environment. These have generally been recorded due to the uncertainties surrounding land requirements and the types of development and schemes that could come forward as a result of the LTP5.

5.2.5. **Appendix A** provides further details on the performance of each of the strategic themes and policies, whilst **Table 5.3** below summarises the effects on each of the SA objectives.

Table 5.3 - Draft LTP5 Plan Assessment Summary

SA Objective	Summary of Effects
SA1: To increase the capacity, connectivity and efficiency of the transportation network to support demographic changes, including improving access for all groups inclusively	Policies have either resulted in minor positive or significant positive effects on SA1. The majority of policies will help to provide a more reliable and accessible transport network which will enable greater connectivity to jobs, services, healthcare, education and recreation. Policies aims to create an inclusive network for all users. The LTP understands the future demographic changes in the county (particularly with regards to an ageing population) and notes the challenges faced by those with disabilities and their dependence upon the public transport network. The LTP recognises the impact that Covid-19 has had on both people and the transport network and Policy SH3 aims to help rebuild confidence in public transport network, which will help the county to achieve a fairer recovery from the pandemic.
SA2: To provide greater connectivity across Lincolnshire to support key sectors, attract inward investment and support economic success	Policies have mainly resulted in significant positive effects. LTP5 includes policies to improve the connectivity across Lincolnshire and beyond, through road, public transport and active transport developments. This will provide greater access for business, employment, and tourism. Improving connections to international gateways will allow further connections to markets and developments outside the county. Economic benefits will also arise from improving connections to the county's priority sectors of agrifood, energy, ports and logistics, visitor economy, defence, and health and care which will help to ensure a strong and sustainable economy. Significant economic benefits could also be sought through investment in innovative technology development, such as intelligent transport systems, and development of sustainable supply chains.
SA3: To protect and enhance both physical and mental health and wellbeing through better access to public transport, supporting active	Policies have mainly resulted in significant positive effects. LTP5 policies (particularly policies SH5 and SH6) include plans for sustainable and active travel, which is likely to improve access for all groups inclusively and help support more active lifestyle. Provision of sustainable travel options between rural areas of Lincolnshire to urban centres will reduce severance, improve accessibility to jobs, services, healthcare and amenities and will open up access to the countryside.

SA Objective	Summary of Effects
travel and encouraging healthy lifestyles	The LTP also helps to reduce the impact of the transport network on human health. It recognises the impact that noise, air and light pollution can have on human health, and Policy SH4 aims to directly address these impacts.
SA4: To promote safe transport through reducing accidents, improving safety and reducing crime across the transport network	Policies have predominantly resulted in minor positive effects, with some significant positive effects on SA4. Policy SH1 aims to improve the safety of the road network and reduce the number of people killed or seriously injured on the roads, whilst Policy SH2 aims to reduce transport related crimes. Both policies resulted in significant positive effects. Other indirect positive effects have been identified, as the LTP introduces policies that will ensure the maintenance of roads, encourages behavioural changes, increased rural connectivity and access to active travel will in turn will increase the safety of the transport network. Theme 2- Future Ready, Green Transport resulted in both positive and negative effects on SA4. Positive effects will result from reduced number of cars on the roads and the introduction of active travel modes could help to reduce the number of accidents and improve the safety of the transport network. However, possible negative effects may arise from the shift to electric vehicles which are quieter than combustion vehicles, which could increase the risk of accidents, especially with pedestrians who may suffer with partial or complete hearing loss or those who are visually impaired. There are also potential issues with obstructive charging facilities (e.g. trailing cables), which can put pedestrians, particularly people with disabilities or those who use pushchairs, at risk.
SA5: To maintain, protect and enhance Lincolnshire's habitats, species, valuable ecological networks and ecosystem functionality, ensuring that future development does not compromised connectivity and contribute to biodiversity net gain	Policies generally have potential to result in both positive and negative effects on biodiversity. Policies that encourage sustainable transport modes are likely to help decrease air quality emissions which may indirectly benefit the biodiversity in Lincolnshire. Greater uptake in sustainable transport modes may also reduce the number of single occupancy journeys which could lessen the impact of disturbance on habitats and species. However, some policies could result in the disturbance and loss of biodiversity as part of their construction and operation (e.g. highway maintenance, new cycle ways and footpaths) through land take. Negative impacts can be mitigated through project level design and delivery. The exception to this are those policies offered by Theme 3 – Promoting Thriving Environments (namely ENV1 and ENV2). These policies aim to protect and enhance the natural environment, and recognises the impact that air, noise and light pollution can have on biodiversity. These resulted in significant positive effects.
SA6: To maintain, protect and enhance the provision of ecosystem services from the county's natural capital and contribute to environmental net gain	Policies generally have potential to result in both positive and negative effects on biodiversity. Policies that encourage sustainable transport modes are likely to help decrease air quality emissions which may indirectly benefit the county's natural capital stock. The addition of active travel modes could also present opportunities to enhance natural capital and ecological networks, through the additional of green infrastructure. However, some policies could result in the disturbance and loss of natural capital and ecosystem services as part of their construction and operation (e.g. highway maintenance, new cycle ways and footpaths) through land take. It is likely that negative impacts can be mitigated through project level design and delivery. The exception to this are those policies offered by Theme 3 – Promoting Thriving Environments (namely ENV1 and ENV2). These policies aim to protect and

SA Objective	Summary of Effects
	enhance the natural environment, and recognises the impact that air, noise and light pollution can have on the environment. These resulted in significant positive effects.
SA7: To protect and enhance townscapes and landscapes of visual importance, including the rural environment and town centres	Policies have predominantly resulted in effects that are either both positive and negative uncertain or negligible. Some LTP5 policies could require transport infrastructure and associated components such as street fixtures, lighting, furniture, signage, and maintenance equipment, can have a major visual impact, which has the potential to erode the townscape character and landscape setting. However, increased connectivity across Lincolnshire will enable greater to access the county's unique landscapes, which could present opportunities to generate activity and vitality and help define the character of development distinctive to the surrounding areas. Effects on landscape and townscape will, therefore, be highly dependent upon the types of schemes that come forward as a result of LTP5. The exception to this are those policies offered by Theme 3 – Promoting Thriving Environments (namely ENV1 and ENV2). These policies aim to protect and enhance the natural and built environment, and recognises the impact that air, noise and light pollution can have on landscape and townscapes. These resulted in significant positive effects.
SA8: To protect and enhance the historic environment, including heritage assets (designated and non-designated) and their unique settings	Policies have predominantly resulted in effects that are either both positive and negative or negligible. Some LTP5 policies could require transport infrastructure and associated components such as street fixtures, lighting, furniture, signage, and maintenance equipment, can have a major visual impact, which has the potential to erode the townscape character and the setting of heritage assets. Increasing the efficiency of the transport network may result in a negative impact on heritage assets may also impact on buried archaeology, historic landscapes and a potential impact on the setting of other historic assets such as scheduled monuments, listed buildings, historic parks and gardens, conservation areas and undesignated assets. However, increased connectivity across Lincolnshire will enable greater access to the county's heritage, which could present opportunities to generate activity and vitality and help define the character of development distinctive to the county. Effects on the historic environment will therefore be highly dependent upon the types of schemes that come forward as a result of LTP5. The exception to this are those policies offered by Theme 3 – Promoting Thriving Environments (namely ENV1 and ENV2). Air pollution is a key factor in the degradation of surfaces of historical buildings and monuments. These policies aim to protect and enhance the natural and built environment, and recognises the impact that air, noise and light pollution can have on the built environment. These resulted in significant positive effects.
SA9: To protect water quality and manage and reduce the risk of pollution from the transport network	LTP5 policies result in mixed impacts on water quality in the county. Policies ENV1 and ENV2 will see positive impacts on water quality due to the preservation of natural environments, maintaining the current water networks and their quality. However, Theme 1 - Supporting Economic Growth may negatively impact water quality as this may modify the water courses and therefore affect discharge rates. Lower discharge rates in such water courses may risk higher levels of pollutants.

SA Objective	Summary of Effects
SA10: To reduce the risk and vulnerability to flooding	Policies within Theme 1 - Supporting Economic Growth, Theme 2 - Future Ready, Green Transport and Theme 3 – Promoting Thriving Environments have resulted in significant and minor positive effects on reducing the risk of flooding. With Theme 2 - Future Ready, Green Transport, significant positive effects have been identified as it will help to on reduce the risk and vulnerability to flooding in Lincolnshire. This is due to future proofing the network as part of LTP5's Investment Strategy ensuring the preservation of the network in future extreme climatic conditions, such as increased rainfall and thus, increased flooding.
SA11: To protect and enhance air quality by reducing transport related emissions.	There are multiple Policies within LTP5 that will result in positive effects upon air quality. Policy EC1 will reduce congestion through the improvement of major road networks and the development of strategic walking and cycling routes, therefore improving air quality. Policies within Theme 3 – Promoting Thriving Environments also contribute to the improvement of air quality in the county. These policies are likely to reduce the number of vehicles on roads and thus lower transport related emissions, protecting the air quality in Lincolnshire. Policy SH4, specifically, seeks to reduce transport impacts to air quality. Significant positive effects to air quality will result from, working in partnerships in areas with AQMAs, the shift to zero emission vehicles, traffic management techniques to reduce congestion, and utilising noise reducing surfaces. Theme 5 - Promoting High Aspirations has potential to result in uncertain effects upon air quality; however, the theme focuses on improving accessibility to mobility hubs to support a modal shift and bringing further services and facilities directly to rural communities. This will help to reduce the need to travel and to reduce levels of air pollution, greenhouse gas emissions and noise pollution from the transport network. However, local road improvements could help to support a continue reliance upon private vehicles. The effects on these objectives will be dependent upon the number and scale of developments. If more sustainable solutions are favoured over highway improvements, there is potential for positive effects on air quality.
SA12: To reduce greenhouse gas emissions, support national and local decarbonisation initiatives and incorporate climate change adaptation to help maximise resilience.	The climate generally negatively effects the operation of the transport system. With future trends on climate change predicting more extreme climatic conditions, it is likely that there will be more significant effects in the future unless designed for and managed properly. Therefore, future proofing the network as part of the Transport Plan and future Investment Strategy is likely to ensure the transport network will be resilient to future climate changes. Policies in Theme 2 - Future Ready, Green Transport (namely Policies GREEN1, GREEN2, GREEN3, GREEN4, and GREEN5) work towards a more resilient transport network in the future, through decarbonisation of road-based transport and increasing the resistance of the transport infrastructure to climate change impacts.
SA13: To ensure the efficient use of land, promote sustainable use of resources and seek opportunities to promote a circular economy.	There are multiple policies that may have negative impacts on the efficient use of land. New infrastructure development can be resource intensive which could have a negative impact on land and resources in Lincolnshire. Despite possible negative effects, policy GREEN5 could help to reduce negative impacts through the use of brownfield sites or previously developed land. This transition could be resource intensive, however, the use of sustainable materials

SA Objective	Summary of Effects
	during maintenance and construction and sourcing them using a circular economy, as part of policy GREEN5 will help to reduce this negative impact on resources.
SA14: To protect Lincolnshire's geological and agriculturally important land.	Policies within LTP5 have the potential for both positive and negative impacts on Lincolnshire's land. There may be a negative impact upon Lincolnshire's agriculturally important land, as new infrastructure development can be resource intensive which could require large land take and could result in the loss of the some of the best and most versatile land. Additionally, the shift to electric vehicles and some traffic management schemes may require land take, due to the requirement of new infrastructure, though the extent of this effect will depend on the nature of development that comes forward.
SA15: To reduce exposure to transport related noise and vibration, including noise pollution and annoyance	The effects upon noise from LTP5 are largely positive, however there are some aspects of uncertainty. The delivery of improved public transport and local walking and cycling networks, will have significant beneficial effects on Lincolnshire's population. The model shift to more active travel modes will likely reduce levels of congestion through less vehicles on the road. The reduction in noise pollution from lower levels of traffic in some areas and use of electric vehicles could result in increased tranquillity Additionally, Theme 3 – Promoting Thriving Environments will result in a reduction of noise impacts, while Theme 4 -Supporting Safety, Security and a Healthy Lifestyle will reduce congestion and reduce noise through its partnership with AQMAs and utilisation of noise reducing surfacing. There are uncertain effects relating to air quality from Theme 5 - Promoting High Aspirations policies. Improving accessibility to mobility hubs will help support a modal shift and bringing further services and facilities directly to rural communities will help to reduce the need to travel. This will help to reduce noise pollution from the transport network. However, local road improvements could help to support a continue reliance upon private vehicles. The effects on noise will be dependent upon the number and scale of developments.

5.3 ASSESSMENT OF ALTERNATIVES

5.3.1. The SEA Regulations require an assessment of the plan and its “reasonable alternatives”. Specific alternative policies were not identified during the LTP5 policy generation process, therefore, for the basis of this assessment, the continuation of the existing LTP4 policies has been assess as a ‘do nothing’ scenario.

5.3.2. The assessment of alternatives has resulted in a higher number of uncertainties and negative effects than the LTP5 policies. The assessment highlighted that the majority of the LTP4 policies are outdated, no longer reflect global issues (climate change and Covid-19) and are therefore not fit for purpose.

5.3.3. Significant negative effects were identified in relation to flooding as the LTP4 does not consider the significant threat that flooding poses and is unlikely to continue to provide adequate protection to the County’s residents and transport network. Lincolnshire has many areas are susceptible to flooding, especially the coastal regions and this risk is only going to increase with climate change.

5.3.4. Similarly, to the LTP5 policies, some uncertainties were recorded with regards to biodiversity and geodiversity, water, soils and mineral resources, landscape and townscape and cultural heritage, due to the unknown nature and scale of developments that could still arise from the LTP4 policies.

5.3.5. Positive effects have been identified in relation to the economy, health and wellbeing and community safety as the LTP4 still supports a push towards increase connectivity and accessibility, supports economic development and investment, active travel and improved safety.

5.3.6. The full detailed assessment can be found in **Table 5.4** below.

Table 5.4 – Assessment of Alternatives – Continuation of LTP4 ('Do Nothing')

SA Objective	Summary of Effects	Sig.
SA1: To increase the capacity, connectivity and efficiency of the transportation network to support demographic changes, including improving access for all groups inclusively	Lincolnshire's LTP4 policies will continue to address the current and future capacity, connectivity and efficiency issues of the transport network. The LTP4 recognises the expected growth in the population in Lincolnshire, the increased ageing population, and the issues surrounding rural populations. However, since the last LTP was issued, there are now plans for 100,000 new homes across Greater Lincolnshire and some 950 hectares of employment land allocations. Therefore, the LTP4 may not be robust enough to accommodate this rapid growth. Access to public transport (bus services and rail) will increase inclusivity and access to employment and other basic facilities, such as healthcare, especially for the population you cannot drive or own a private car. However, the LTP4 does not address the current feelings that some users may have post Covid-19, whereby they no longer feel comfortable or safe using public transport. The continued investment in broadband infrastructure (Policy 59), especially to rural areas (Policy 22) will improve digital inclusivity and help to reduce the need to travel for work. This would have a beneficial impact to the population post Covid-19 pandemic as more people are choosing to work from home and/or moving to more rural areas. The proportion of people aged 65 years and over in Lincolnshire is expected to rise to 28% by 2035[11] it's not clear whether these existing policies will be fit for purpose in order to meet the needs of an ageing population.	?
SA2: To provide greater connectivity across Lincolnshire to support key sectors, attract inward investment and support economic success	The LTP4 is still relevant to Lincolnshire's key sectors of agriculture, manufacturing, and tourism. The continued connectivity improvements through increased access to public transport and development of new roads will improve Lincolnshire's economy by providing access to education and employment opportunities, as well as, increased tourism. The increased access to education will also help to bridge the skills gap in the county, which will result in a higher proportion of skilled workers in high wage industries. However, the construction of new roads has potential to result in the loss of agricultural land, a major economic asset in Lincolnshire.	+

[11] Office for National Statistics, Subnational population projections for England: 2018-based

SA Objective	Summary of Effects	Sig.
	The investment to improve broadband infrastructure across the county (Policy 22 and 59) and the drive to achieve digital inclusion (Policies 59 and 60) will help with the current shift to working from home due to the Covid-19 pandemic, as well as, reducing the need to travel. This may help improve business and employment opportunities in the county, and in turn minimise congestion, improving journey times. By 2030, it is anticipated that Lincolnshire will have surpluses of low and intermediate level skills, but a deficit of high level skills. Investment in electric vehicles is very minimal under the current LTP and is not clear whether it will meet the growing trend, as it is more focussed on the role of biofuels. According to the baseline[12], over the next 15 years nearly 160,000 jobs in Greater Lincolnshire (31% of the total) will be made obsolete or will be changed substantially by the introduction of new technologies, therefore the current LTP may not currently be robust enough to support this transition.	
SA3: To protect and enhance both physical and mental health and wellbeing through better access to public transport, supporting active travel and encouraging healthy lifestyles	The LTP4 aims to improve and encourage sustainable transport, including active transport modes such as walking and cycling. This will have a positive impact on the population's physical and mental health by encouraging a more active lifestyle. The reduction in the number of vehicles on the road and the transition to more sustainable transport modes will also improve air quality and reduce noise pollution, both of which will have beneficial effects to the health and wellbeing of the population in Lincolnshire. In light of the Covid-19 pandemic, more people are seeking alternative ways to travel other than public transport, due to reduced confidence. The current LTP therefore may not do enough to encourage people back onto public transport, nor may it either have the active travel infrastructure to support an increase in walking and cycling.	+
SA4: To promote safe transport through reducing accidents, improving safety	Polices 61 - 95 in the LTP4 address the need to improve the safety of the transport network, through public engagement, education and training opportunities that cover all road users, from young people	+

[12] WSP (2021) Lincolnshire Local Transport Plan Sustainability Appraisal – Scoping Report

SA Objective	Summary of Effects	Sig.
and reducing crime across the transport network	to motorcyclists, pedal cyclists and drivers over the age of 60. This will help to reduce accidents that are caused on the transport network. The LTP4 also delivers improved road safety through the Lincolnshire Road Safety Partnership, which is an ongoing partnership which helps to reduce the number of people killed or injured on the roads in Lincolnshire.	
SA5: To maintain, protect and enhance Lincolnshire's habitats, species, valuable ecological networks and ecosystem functionality, ensuring that future development does not compromised connectivity and contribute to biodiversity net gain	The LTP4 seeks to increase the sustainable transport modes which will have indirect benefits to the biodiversity and habitats in the county. The reduction in private car usage will improve air quality through a reduction of emissions and reduce noise pollution, therefore, lessening the disturbance to Lincolnshire's habitats and biodiversity. New development which may come forward, has the potential to negatively impact habitats, species and ecological networks, through land take and disturbance during both construction and operational phases. These developments may be in high ecological value areas, where air quality is good and noise pollution low. A key objective of the LTP4 is 'to protect and enhance the built and natural environment of the county by reducing the adverse impacts of traffic, including HGVs'. Although this may help protect biodiversity, it only covers traffic impacts and has not been supported any further with policies.	?
SA6: To maintain, protect and enhance the provision of ecosystem services from the county's natural capital and contribute to environmental net gain	The LTP4 does also not address the need for protection of the natural environment, habitats or biodiversity net gain. Since the publication of the LTP4, the 25 Year Environment Plan (2018) has been published, which outlines the Government's ambition to leave our environment in a better state than we found it and the steps proposed to take to achieve that ambition. It is clear that the LTP4 is outdated and may not support the national agenda of environmental and biodiversity net gain. Biodiversity and natural capital is under threat from climate change, with changing temperatures and extreme weather events resulting in the loss, degradation and movement of species and habitats. Increased frequency and severity of flooding will be a particular threat to Lincolnshire. The LTP4 does not include a climate change policy, therefore climate change could continue to present a risk to biodiversity and natural capital.	?
SA7: To protect and enhance townscapes and landscapes of visual importance, including the rural environment and town centres	The LTP4 aimed to protect and enhance the built environment, by improving the quality of public spaces and the streetscapes (policies 117 and 118). This may encourage tourism into the county which will result in further investment into enhancing the townscapes and landscapes in Lincolnshire. However, new development and improving connectivity to rural areas may affect the tranquillity and setting due to the increased traffic, construction and operation phase disturbance (light, noise, and air	?

SA Objective	Summary of Effects	Sig.
	pollution), and visitor pressure. Development may also require land take which could result in negative effects on the county's landscape. A key objective of the LTP4 is 'to protect and enhance the built and natural environment of the county by reducing the adverse impacts of traffic, including HGVs'. Although this may help protect landscapes and townscapes, it only covers traffic impacts and has not been supported any further with policies. The LTP4 does not include a policy on the protection of the county's valuable townscapes and landscapes, therefore, it is unlikely that development will take potential negative effects into consideration. Without the support of the LTP, development could be insensitively designed, and a large amount of land could be taken leading to the degradation of landscape and townscape. The Scoping Report also identified that the climate change will continue to put pressure on the Lincolnshire Wolds AONB as new pests and diseases emerge and extreme weather increasing stresses on nature conservation. The LTP4 does not include a climate change policy, therefore climate change could continue to present a risk to the Lincolnshire Wolds AONB as well as other valuable landscapes in Lincolnshire.	
SA8: To protect and enhance the historic environment, including heritage assets (designated and non-designated) and their unique settings	The transition to sustainable transport modes as part of the LTP4 will help to reduce emissions and the number of vehicles on the road which will result in improving the air quality and noise pollution. As air pollution is a key factor in the degradation of surfaces of historical buildings and monuments, action to improve air quality has the potential to indirectly benefit the historic environment. The reduction in noise pollution will help to improve tranquillity and unique setting of the heritage assets. A key objective of the LTP4 is 'to protect and enhance the built and natural environment of the county by reducing the adverse impacts of traffic, including HGVs'. Although this may help protect the historic environment, it only covers traffic impacts and has not been supported any further with policies. LTP4 does not include a policy on the protection of the county's cultural heritage and designated assets, therefore, it is unlikely that development will take potential negative effects into consideration. Without the support of the LTP, development could be insensitively designed, and large land taken leading to the degradation of historic environment. Heritage England has declared a number of High Street Heritage Action Zones, which are areas that receive funding to boost economic growth using the historic environment as a catalyst. Grantham High Street and Lincoln High Street could therefore be enhanced regardless of the LTP4.	?
SA9: To protect water quality and manage and reduce the	The transition to sustainable transport modes as part of the LTP4 will help to reduce the number of vehicles using the transport network. This will help to reduce the concentration of pollutants from	?

SA Objective	Summary of Effects	Sig.
risk of pollution from the transport network	vehicles that can have detrimental impact on water quality, such as heavy metals and oils from combustion engines, going into nearby waterbodies. However, new transport infrastructure may have a negative impact on water quality due to associated pollutants during both construction and operational phases. These can include sediments, road salts, fertilisers and pesticides. A key objective of the LTP4 is 'to protect and enhance the built and natural environment of the county by reducing the adverse impacts of traffic, including HGVs'. Although this may help protect the water environment, it only covers traffic impacts and has not been supported any further with policies.	
SA10: To reduce the risk and vulnerability to flooding	Due to the topography of Lincolnshire many areas are susceptible to flooding, especially the coastal regions. This risk is only going to increase with climate change, particularly with the increases and changes to rainfall patterns. The current LTP4 does not consider the significant threat that flooding poses and is unlikely to continue to be fit for purpose.	--
SA11: To protect and enhance air quality by reducing transport related emissions.	Most of the policies in the LTP4 which encourage or improve sustainable and active transport modes and support the transition to low carbon technologies will have a positive impact on the air quality in Lincolnshire. The increase use of public transport, walking and cycling will help to reduce the number of vehicles on the road, in particular the number of private cars, resulting in a reduction in emissions and therefore, an improvement on the air quality. The use of alternative fuel (biofuel) will also help to reduce emissions and consequently, improve the air quality, however, this policy is outdated following the governments push towards electric vehicle infrastructure and not biofuel.	+
SA12: To reduce greenhouse gas emissions, support national and local decarbonisation initiatives and incorporate climate change adaptation to help maximise resilience.	Most of the policies in the LTP4 that encourage or improve sustainable and active transport modes and support the transition to low carbon technologies will help to reduce greenhouse gas emissions. However, the LTP4 is working towards the GHG emissions targets which are now outdated. The LTP4 is using a reduction target of 34% on 1990 levels by 2020 and 80% by 2050, however, a more ambitious target has been set by the UK in 2020 to reduce GHG by at least 68% by 2030 and carbon net zero by 2050.	+
SA13: To ensure the efficient use of land, promote	Transport development which may come forward, has the potential to be resource intensive and result in large land take. Since the adoption of the LTP4, there has been more of a drive towards efficient use	-

SA Objective	Summary of Effects	Sig.
sustainable use of resources and seek opportunities to promote a circular economy.	of resources and supporting a circular economy. This has been encouraged through the publication of the Clean Growth Strategy and the 25 Year Environment Plan. Although there is potential for scheme level design to incorporate efficient use of land and resources, it is not supported in the LTP4. The plan is therefore outdated and does not consider current best practice.	
SA14: To protect Lincolnshire's geological and agricultural important land.	Transport developments which may come forward, have the potential to negatively impact agriculturally and geologically important land through land take, sterilisation, contamination and disturbance during both construction and operational phases. These developments could result in the loss of the county's best and most versatile land. A key objective of the LTP4 is 'to protect and enhance the built and natural environment of the county by reducing the adverse impacts of traffic, including HGVs'. Although this may help protect agriculturally and geologically important land, it only covers traffic impacts and has not been supported any further with policies. The LTP4 does not specifically address the need for protection of agriculturally and geologically important land. Since the publication of the LTP4, the 25 Year Environment Plan (2018) has been published, which outlines the Government's ambition to leave our environment in a better state than we found it and the steps proposed to take to achieve that ambition. This aims to improve the approach to soil management. The LTP4 is therefore outdated and may not support the national agenda of environmental net gain.	?
SA15: To reduce exposure to transport related noise and vibration, including noise pollution and annoyance	Most of the policies in the LTP4 which encourage or improve sustainable and active transport modes, will help to reduce noise pollution. This is due to the reduction in the number of vehicles on the road and levels of congestion which are key contributors to the noise pollution in Lincolnshire. However, the LTP4 supports a number of schemes which could increase the capacity of the road and rail network, which could increase levels of noise in some areas. There is also no specific noise/ environmental objective which might mitigate noise impacts.	?

5.4 CUMULATIVE EFFECTS

5.4.1. The SEA Regulations require that cumulative effects are considered when identifying likely significant effects.

5.4.2. Cumulative effects arise, for instance:

- Where several individual policies have a combined effect on an objective; or
- Where several plans each have insignificant effects but together have a significant effect.

5.4.3. A review of plans and policies identified a number of plans for cumulative effects assessment, in addition to cumulative effects within the Transport Plan. This is set out in **Table 5.5** below.

5.4.4. It should be noted that this list is not exhaustive and cumulative effects arising from individual projects and plans should be revisited as part of a project level assessment. For example, noise, dust and visual have a combined effect which can only be determined at the project level. In addition, current events are leading to rapid short-term changes in the transport sector, as well as creating greater uncertainty about future transport approaches in the medium to longer term (post 2020).

Table 5.5 – Cumulative Effects

Policies, Plans and Schemes	Potential Source of Cumulative Effects
LCC LTP5	There is potential for cumulative regional impacts on all topics from development of multiple corridors. The nature and extent of the effects will depend on final schemes selected but, in particular, there is potential for cumulative effects from multiple new road or rail schemes.
East West Rail	The East West Rail is a key focus on Greater Lincolnshire's Growth Plans and part of Midlands Connect. The delivery of East West Rail is likely to have cumulative impacts on all topics. This is likely to be dependent upon the type, number and scale of future proposals which may occur within close proximity to East West Rail and future associated developments. There is potential for the expansion to have both positive and negative cumulative impacts on the economy, noise, air quality, health, noise and vibration, climate change, greenhouse gases, the water environment, the historic environment and landscape and townscape.
Midlands Engine Rail	Midlands Engine Rail combines seven of Midlands Connect's rail projects under one banner, with the overall plan for a more sustainable, productive and mobile Midlands. Midlands Engine Rail includes: • 736 extra passenger services a day; • 60 stations in the Midlands to benefit from faster, more frequent and/or new direct services; • 72 more freight trains per day; and • Fully integrated with High Speed Two. The delivery of Midlands Engine Rail is likely to have cumulative impacts on all topics. There is the potential for the project to have both positive

Policies, Plans and Schemes	Potential Source of Cumulative Effects
	and negative cumulative impacts on noise, air quality, health, noise and vibration, climate change, greenhouse gases, the water environment, the historic environment and landscape and townscape. It is likely to have positive cumulative effects on the regional economy and equalities.
Local Plans - ■ Central Lincolnshire Local Plan 2017 ■ South East Lincolnshire Local Plan 2011-2036 ■ South Kesteven District Local Plan 2011-2036 ■ East Lindsey Local Plan Core Strategy, 2018	Lincolnshire has local plans for various areas within the county. Local plans are prepared by the Local Planning Authority and provide a vision for the future of each area and a framework for addressing housing needs and other economic, social and environmental priorities. Allocations for economic and residential development are likely to stimulate transport demand and furthermore improvements in economic transport corridors are likely to stimulate development. There is potential from local plans to influence all topics, particularly with positive impacts on economy and potential negative cumulative impacts on biodiversity. Sustainability assessment undertaken for Local Plans have similar topics to those listed for this ISA and identify potential for significant effects.
Neighbouring Local Transport Plans	Local Transport Plans in neighbouring counties (Norfolk, Cambridgeshire, Nottinghamshire, Northamptonshire, Rutland, South Yorkshire and the East Riding of Yorkshire) influence cross-boundary transport improvements and major road networks. These developments have potential cumulative effects on noise, biodiversity, cultural heritage, landscape and townscape and soils, water resources and flooding in Lincolnshire.
Humberside Airport Surface Access Expansion	The expansion and improvement of Humberside Airport's transport links, completed in 2019, extends into the North of Lincolnshire. The expansion and improvement of the airport's surface access has cumulative effects on noise, air quality, noise and vibration, climate change, greenhouse gases, and landscape and townscape. The expansion also has positive cumulative impacts to the economy.
HS2 Phase 2	The route of HS2 Phase 2 travels through Nottingham, approximately 25 miles from the Lincolnshire border. The delivery of this project, alongside LCC LTP5, may have positive cumulative effects on the economy in Lincolnshire. The development may also have negative cumulative impacts on air quality in the county.

5.4.5. The review of plans and policies has identified a number of areas for cumulative effects:

- **Population and Equalities:** There may be potential for cumulative benefits from the integration of multiple transport schemes and policies, which could enable more reliable, accessible public transport, which can be accessed by walking and or cycling.
- **Economy and Employment:** There are likely to be significant cumulative economic benefits across Lincolnshire following the developments of the Local Plans, Midlands Engine Rail, East West Rail and HS2 Phase 2 alongside the LTP5. These developments are likely to result in increased connectivity both to and throughout the county, more jobs (and greater access to them) and increased tourism into Lincolnshire through improved transportation links by both road and rail.
- **Human Health:** There may be cumulative effects, both positive and negative (depending on schemes implemented), from multiple transport schemes on health outcomes related to social isolation, physical inactivity and obesity. There may also be cumulative effects on health relating to air quality and noise.
- **Community Safety:** There may be cumulative benefits (depending on scheme design) on fear of crime and transport related collisions, due to opportunities to improve safety standards on all forms of transport.
- **Biodiversity and Natural Capital:** There is potential for cumulative loss, damage or fragmentation of statutory and non-statutory wildlife sites and habitats if multiple developments were to come forward. Although it is assumed that protected species would be mitigated at a project level, there are wider impacts on biodiversity. Net gain over multiple development plans may be difficult to achieve, however, the commitment of East West Rail to biodiversity net gain could set a precedent for future developments within the region and Lincolnshire. This could have some beneficial cumulative effects on biodiversity. There is also a potential for deterioration in quality, and severance/loss of connectivity of ecosystems and green infrastructure, with consequent reductions in ecosystem service provision. This may be particularly prevalent where there is development from a number of sources (e.g. from local plans) close to population centres, or that stimulated by transport corridors.
- **Landscape and Townscape:** There is potential for both positive and negative, direct and indirect cumulative impacts on landscapes and townscapes, including their settings, depending on the number of developments put forward. There is also potential for cumulative erosion of the character and quality of Lincolnshire's unique landscapes and townscapes. However, developments present opportunities for positive placemaking, by generating activity and vitality, helping to define the character of developments distinctive to the surrounding areas and the wider region. Increased connectivity provided by all future developments could result in more people being able to access and explore the county's unique landscape and townscape, with additional cumulative benefits on identity, health and wellbeing.
- **Historic Environment:** There is potential for both positive and negative, direct and indirect cumulative impacts on internationally, nationally and locally designated heritage assets, and their unique settings. This is in addition to cumulative effects on undesignated and unknown assets, which are also important. However, well-designed transport infrastructure could present opportunities to enhance the quality of visual amenity of heritage assets by managing public access to or from the historic features and through the region's towns. This could have additional cumulative benefits for identity, health and wellbeing and placemaking.

- **Water Environment:** There is potential for cumulative increase in surface water runoff and flood risk, and impacts on surface water and groundwater, particularly from physical alteration as a result of development. Flood risk, drainage and water quality measures are likely to be specific to each development, but there may be cumulative benefits if implemented county-wide.
- **Air Quality:** There may be cumulative benefits from transport initiatives in Lincolnshire in improving air quality, but increased uptake of vehicular traffic (especially in the short term) may worsen air quality in some areas. This could have additional cumulative effects on health and wellbeing, tranquillity and biodiversity. Improvements to road infrastructure across the county (as with Humberside Airport) may see reduced journey times and therefore limit impacts on air quality.
- **Climate Change and Greenhouse Gases:** There may be cumulative benefits from transport initiatives in Lincolnshire in reducing greenhouse gases, but increased development is also likely to increase transport related greenhouse gas emissions, particularly where this leads to increases in vehicular traffic and embodied carbon due to the development. Climate change adaptation measures are likely to be specific to each development, but there may be cumulative benefits if implemented county-wide.
- **Soils, Resources and Waste:** There is potential for cumulative deterioration in quality of, and loss of soils, including the best and most versatile agricultural land, particularly if multiple developments were to come forward. There would be a cumulative use of resources and production and disposal of waste in construction. Where developments adopt a natural capital approach, incorporating public access where safe and practicable to do so, there is potential for region-wide benefits for land use, health and wellbeing, biodiversity and natural capital and ecosystem services.
- **Noise and Vibration:** There are likely to be cumulative effects arising from noise of increased development, particularly transport related development such as road and rail, with cumulative effects on health and wellbeing, tranquillity and biodiversity.

5.5 MITIGATION AND ENHANCEMENTS

5.5.1. Mitigation of significant negative effects of the plan and enhancement of positive effects are a key purpose of SA. The SEA Regulations require that mitigation measures are considered to prevent, reduce or offset any significant adverse effects on the environment of implementing the plan. The measures are known as ‘mitigation’ measures. Mitigation measures include both proactive avoidance of adverse effects and actions taken after potential effects are identified.

5.5.2. The mitigation measures proposed in **Table 5.6** are designed to avoid or reduce the effects identified as potentially negative through the policy assessments on the SA Objectives. The table also includes enhancement measures, that aim to optimise positive impacts and enhance sustainability.

5.5.3. These mitigation measures should be used to inform the subsequent development of specific schemes in line with the strategic objectives and policies.

Table 5.6 – Proposed Mitigation

SA Topic	Mitigation/Enhancement	Mechanism
Biodiversity Natural capital and ecosystem services Landscape and townscape Historic environment Soil, land use, resource and waste	In order to maximise sustainability benefits, transport interventions must commit to biodiversity net gain and make use of the natural capital approach to ensure environmental net gain over and above that of decarbonisation.	Embedded into Lincolnshire policies and narrative Project level design and assessment
Natural capital and ecosystem services Soil, land use, resource and waste	Development should aim to minimise soil disturbance and to retain as many ecosystem services as possible through careful soil management during the construction process. Reference should be given to Refer to Defra's Code of Practice for the Sustainable Use of Soils on Construction Sites[13].	Project level design and assessment
Biodiversity Landscape	Development should consider impacts on international, national and local important sites (including sites such as SACs, AONBs, SSSIs and local nature reserves). This includes the potential impacts of noise, air and light pollution.	Project level design and assessment
Climate Change Soils and Resources and Water Resources and Flooding Noise	Any form of construction and operation should be undertaken as sustainably as possible, making use of tools and processes, such as circular economy, waste hierarchy, CEEQUAL and BREEAM. Sustainable design and construction techniques should be promoted such as low energy lighting and low noise road surfaces.	Project level design and assessment

[13] Defra, Code of Practice for the Sustainable Use of Soils on Construction Sites, 2009, [online] available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/716510/pb13298-code-of-practice-090910.pdf

SA Topic	Mitigation/Enhancement	Mechanism
	Where land take is required, preference should be given to brownfield land/ previously developed land and avoidance of the best and valuable land.	
Biodiversity and geodiversity	The incorporation of natural features such as tree planting, green roofs on bus stops, hedgerows and wildflower planting along walk/cycleways to enhance connections to nature and reduced stress levels, contributing to mental health and wellbeing benefits. Infrastructure schemes should incorporate design measures to lessen the impact on biodiversity and ensure biodiversity net gain. Where a transport project is likely to have a significant effect on the natural environment the avoidance-mitigation-compensation hierarchy applies, for example, less damaging alternatives should be sought with regards impacts to high value ecological and landscape receptors.	Project levels biodiversity net gain assessment
Landscape and Townscape Cultural Heritage and the Historic Environment	Transport solutions must seek to maximise sustainability benefits from existing landscape, townscape and heritage assets by valuing them inherently and for the wider services they provide. Promoters and designers should liaise closely with LCC and Historic England to avoid or minimise negative impacts, such as land take and light pollution, whilst seeking to maximise benefits, such as tranquillity. Where transport infrastructure is being built and/or improved within, or within the zone of influence of a designated landscape, a landscape and visual impacts assessment should be undertaken to determine magnitude of impact and possible mitigation.	Historic Landscape Characterisation Project level design and assessment Landscape and Visual Impact Assessment
Health, Population and equalities Community and Access Economy and employment	Ensure the needs and aspirations of groups with protected characteristics are considered in delivering transport solutions, in addition, including those from low income households. This could include measures such as: ▪ Fair pricing for public transport; ▪ Consideration of grants and exemptions for electric vehicles, clean air zones and other vehicle restriction and charging schemes;	Strategic and project specific EqIA and HIA for projects DDA compliance

SA Topic	Mitigation/Enhancement	Mechanism
	▪ Engagement with protected characteristic groups specifically to ensure the needs of these groups are identified; and ▪ Consideration needs to be given to those who may not have the same understanding of or access to technology (for example the elderly, those with learning difficulties or in low income groups). .	

5.5.4. Despite mitigation measures some residual uncertain effects have remained which will require monitoring. These are as follows:

- SA5/6: The potential loss and fragmentation of habitats, natural capital and ecosystem services;
- SA7: The potential loss of land and visual amenity;
- SA8: The potential loss and degradation of the historic environment;
- SA12: Potential increase in carbon emissions from road schemes;
- SA13/14: The loss of land and efficient use of resources; and
- SA15: The potential increase in noise.

5.6 MONITORING

5.6.1. The SEA Regulations require that monitoring is undertaken on a plan so that the significant effects of implementation can be identified, and remedial action imposed. The purpose of the monitoring is to provide an important measure of the sustainability outcome of the final plan, and to measure the performance of the plan against sustainability objectives and targets. Monitoring is also used to manage uncertainty, improve knowledge, enhance transparency and accountability, and to manage sustainability information.

5.6.2. The aim of monitoring is to check whether the plan is having the significant effects that were predicted in the SA, and to deal with any unforeseen problems. As the assessment of LTP5 policies did not conclude any residual significant effects, monitoring has not been proposed for significant effects, however, **Table 5.7** below outlines monitoring for some residual impacts that remain uncertain.

Table 5.7 – Monitoring Proposals

Potential Uncertain effect	What needs to be monitored?
Potential negative effects on biodiversity and geodiversity	The number of biodiversity enhancement schemes implemented through the LTP. Number of new green infrastructure projects associated with new developments. Seek the achievement of the biodiversity net gain through application of Natural England's Biodiversity Metric 3.0[14]
The potential loss of land and visual amenity	The total loss of greenfield land to development. Landscapes benefiting from conservation and enhancement measure as a result of the LTP.

[14] Natural England, Biodiversity Metric 3.0, 2021 [online] available at: http://publications.naturalengland.org.uk/publication/6049804846366720 [last accessed: 04/08/21]

Potential Uncertain effect	What needs to be monitored?
Potential negative effects on the historic environment	The number of historic assets (statutory and non-statutory) negatively affected by the LTP. The number of historic assets (statutory and non-statutory) benefiting from conservation and enhancement measure as a result of the LTP.
Potential increase in carbon emissions from strategic road schemes	Baselining and measuring the Lincolnshire plan area's aggregated carbon estimate. Percentage increase / decrease in overall carbon emissions
The loss of BMV land and efficient use of resources	The total loss of BMV land to development. The number of schemes promoting the reuse of existing infrastructure and/ or use of sustainable materials.
Potential increases in noise	To monitor levels of noise with existing NIAs and ensure they don't exceed existing baseline levels.

6 NEXT STEPS

6.1.1. In accordance with the SEA Regulations, the SA Report must be made available at the same time as the draft plan or programme, as an integral part of the consultation process, and the relationship between the documents clearly indicated.

6.1.2. This SA Report was be issued to consultees in September 2021 for a 6-week consultation period, alongside the draft LTP5.

6.1.3. LCC sought the views of statutory bodies and other stakeholders on the results of the SA, in order to ensure that the SA provided a robust assessment of the LTP. Both the SA and LTP were updated in light of comments received during consultation.

6.1.4. A SA Post Adoption Statement has been prepared to summarise how responses to consultation and the SA have influenced the development of the LTP.

Appendix A

ASSESSMENT OF LTP5 POLICIES

ASSESSMENT OF LTP5 POLICIES

The assessment of the polices will predict the following:

- Overall effect significance (negative, positive, uncertain, both positive and negative or negligible);
- Nature of effect (direct, indirect);
- Spatial extent (local, regional, national, international);
- Reversibility of effect:
  - Reversible: The receptor can return to baseline condition without significant intervention;
  - Irreversible: The receptor would require significant intervention to return to baseline condition.
- Duration (short, medium or long term) – Short term: 0-5 years, Medium term: 5-10 years (up to the end of the plan period) Long term: 10+ years (beyond the plan period).

Table A1 below shows the key to effects that have been used within the assessments below. It should be noted that where uncertain and neutral effects have been identified, it has not been possible to determine the nature of effect, the spatial extent, the reversibility or the duration of effect. In this instance, these cells have been left blank.

Table A1 – Key to Effects

Effect Significance	Key
Potential for significant positive effects	++
Potential for minor positive effects	+
Potential for minor negative effects	-
Potential for significant negative effects	--
Potential for both positive and negative effects	+/-

Effect Significance	Key
Uncertain effects	?
Negligible / No effect	0
Nature of effect (direct / indirect)	D / I
Spatial extent (local / regional / national / international)	L / R / N / I
Reversibility of effect (reversible / irreversible)	R / I
Duration (short / medium / long term)	ST / MT / LT
Unable to determine nature of effect, the spatial extent, the reversibility or the duration of effect	

Theme 1 - Supporting Economic Growth

- **Policy EC1:** LCC will work with national, regional and local funders to identify and deliver a better transport network and services to improve connectivity internally and externally to Lincolnshire. LCC will improve the "gateways" to Lincolnshire particularly at strategic locations.
- **Policy EC2:** Improve the resilience, efficiency and effectiveness of the operation of the transport network and maintain our transport assets in a good state of repair. "Future proof" the network as part of our investment strategy.
- **Policy EC3:** Create town centres, villages and rural areas that are accessible but not vehicle dominated.
- **Policy EC4:** We will identify and support a range of transport improvements to better connect our employment centres with their workforce and broaden the opportunities for those seeking employment to access an increasingly diverse range of opportunities.
- **Policy EC5*:*** We will support a range of transport improvements that underpin and priority sectors to develop and grow

Table A2 – Theme 1: Supporting Economic Growth

Theme 1– Supporting Economic Growth	SA1: Population and Equalities	SA2: Economy	SA3: Wellbeing, and healthy lifestyles	SA4: Community safety	SA5: Biodiversity	SA6: Ecosystem services	SA7: Townscapes and landscapes	SA8: Historic environment	SA9: Water quality	SA10: Flooding	SA11: Air Quality	SA12: GHGs and climate change	SA13: Land use, resources and circular economy	SA14: Geological and agriculturally important land	SA15: Noise and vibration
SA Score	++	++	++	+	+/-	+/-	+/-	+/-	?	+	+/-	+/-	+/-	?	?
Nature	D	D	D	D	I	I	D	I		I	I	I	I		
Spatial Extent	R	R	L	L	L	L	L	L		L	L	L	L		
Reversibility	I	I	I	I	I	I	I	I			I	I	I		
Duration	MT	LT	LT	MT	LT	LT	LT	LT			MT	MT	ST		
Assessment Summary	Improving connectivity across Lincolnshire and beyond, through road, public transport and active transport developments will provide greater access for business, employment, and tourism. This will result in significant beneficial effects to Lincolnshire's economy (SA2). Improving connections to international gateways will allow further connections to markets and developments outside the county. Economic benefits will also arise from improving connections to the county's priority sectors of agrifood, energy, ports and logistics, visitor economy, defence, and health and care (Policy EC5), which will help to ensure a strong and sustainable economy.														

Theme 1– Supporting Economic Growth	SA1: Population and Equalities	SA2: Economy	SA3: Wellbeing, and healthy lifestyles	SA4: Community safety	SA5: Biodiversity	SA6: Ecosystem services	SA7: Townscapes and landscapes	SA8: Historic environment	SA9: Water quality	SA10: Flooding	SA11: Air Quality	SA12: GHGs and climate change	SA13: Land use, resources and circular economy	SA14: Geological and agriculturally important land	SA15: Noise and vibration
SA Score	++	++	++	+	+/-	+/-	+/-	+/-	?	+	+/-	+/-	+/-	?	?

Increased connectivity to employment and education facilities through the development and promotion of public transport (rail and bus) and active transport modes (walking and cycling) will likely improve access for all groups inclusively (SA1) and help support a healthier lifestyle (SA3). People are also more likely to choose active travel for journeys if there are suitable networks to travel on. For these reasons, significant positive effects have been identified in relation to these topics. The focus on improving connections to town centres, and the increased shift to digital health care will provide greater access to local and regional health care facilities for all groups inclusively, in particular the aging population of Lincolnshire. Championing digital connectivity will help to improve access to training opportunities and employment, especially for residents in the rural hinterland, as well as, help to support the shift to home working post the Covid-19 pandemic. However, there is the potential for those with limited access or understanding of emerging technologies (such as older generations) to be adversely affected or not able to make full use of benefits of the digital connectivity measures.

Improvements to major roads, such as the Newark Bypass, public transport, and development of strategic long-distance walking and cycling routes as part of the Local Cycling and Walking Infrastructure Plan (Policy EC1) will provide beneficial effects to multiple SA objectives. The reduction in congestion as a result of these improvements and the shift to more sustainable transport modes, will help to improve the safety of the road network (SA4), improve air quality (SA11), reduce greenhouse gas emissions (SA12) and reduce noise pollution (SA15). However, development of new highways infrastructure will result in an increase in carbon emissions through the embodied carbon associated with the construction and maintenance, and emissions from the operational use of the transport

Theme 1– Supporting Economic Growth	SA1: Population and Equalities	SA2: Economy	SA3: Wellbeing, and healthy lifestyles	SA4: Community safety	SA5: Biodiversity	SA6: Ecosystem services	SA7: Townscapes and landscapes	SA8: Historic environment	SA9: Water quality	SA10: Flooding	SA11: Air Quality	SA12: GHGs and climate change	SA13: Land use, resources and circular economy	SA14: Geological and agriculturally important land	SA15: Noise and vibration
SA Score	++	++	++	+	+/-	+/-	+/-	+/-	?	+	+/-	+/-	+/-	?	?

systems. There is also potential that this could support the continued reliance on private vehicles, which could worsen air quality and could compromise meeting carbon and climate change targets.

The climate generally negatively effects the operation of the transport system. With future trends on climate change predicting more extreme climatic conditions, it is likely that there will be more significant effects in the future unless designed for and managed properly. Therefore, future proofing the network as part of the Investment strategy is likely to ensure the transport network will be resilient to future climate changes. This has resulted in positive effects on SA10.

The reduction in GHG emissions and improvement in air quality (such as the deposition of nitrogen from NO2/NOx) may indirectly benefit the county's biodiversity and ecosystem services (SA5 and6). The increased use of sustainable transport modes could lessen the impact of disturbance on the region's biodiversity, through a decrease traffic noise and GHG emissions. However, there is a potential for the new highways infrastructure developments to result in loss of habitats and/or disturbance to habitats and species during construction and operation due to their scale and linear nature.

Lincolnshire has a valued heritage landscape, with a significant number of historical assets. Air pollution is a key factor in the degradation of surfaces of historical buildings and monuments and the impact of pollutants emitted into the atmosphere on materials is significant and often irreversible. The transition to sustainable modes of transport could result in reducing air pollution and noise levels, which will help to prevent further degradation of some of the region's unique historic assets and improve tranquillity, contributing to overall sense of place and the unique setting of heritage assets (SA8). This will also benefit the region's landscape and townscape

Theme 1– Supporting Economic Growth	SA1: Population and Equalities	SA2: Economy	SA3: Wellbeing, and healthy lifestyles	SA4: Community safety	SA5: Biodiversity	SA6: Ecosystem services	SA7: Townscapes and landscapes	SA8: Historic environment	SA9: Water quality	SA10: Flooding	SA11: Air Quality	SA12: GHGs and climate change	SA13: Land use, resources and circular economy	SA14: Geological and agriculturally important land	SA15: Noise and vibration
SA Score	++	++	++	+	+/-	+/-	+/-	+/-	?	+	+/-	+/-	+/-	?	?
	(SA7). However, new transport infrastructure may increase noise and air pollution during construction and operational phases, require land take, and often require components such as street fixtures, lighting, furniture, signage, and maintenance equipment, that can have a visual impact, detracting from heritage assets, their unique setting, and the overall sense of place, if designed inappropriately. The extent of this will depend on the nature of the developments which come forward. The potential to increase connectivity across the county could result in more people having access to explore the region's unique historic assets, landscapes and townscapes. This could present opportunities to generate activity and vitality and help define the character of development distinctive to the surrounding areas and the wider region. The effect of these policies on noise (SA15) will depend on the nature of the developments that come forward. A reduction in traffic congestion will help to decrease noise pollution. However, the new infrastructure developments to assist in this reduction will have associated noise impacts during construction and operation phases and may increase the noise pollution in areas where noise levels have previously been low. These new connections may increase private car use due to the reduced congestion and increased ease of traveling by car, therefore, increasing noise pollution. New infrastructure development can be resource intensive which could have a negative impact on land and resources (SA13), require a large amount of land take which could result in the loss of the some of the best and most versatile land (SA14). New development could result in the modification and discharge of watercourses, which can negatively impact water quality (SA9). These policies could result in large scale development and land take particularly if schemes such as the Newark Bypass and new rail developments to link														

Theme 1– Supporting Economic Growth	SA1: Population and Equalities	SA2: Economy	SA3: Wellbeing, and healthy lifestyles	SA4: Community safety	SA5: Biodiversity	SA6: Ecosystem services	SA7: Townscapes and landscapes	SA8: Historic environment	SA9: Water quality	SA10: Flooding	SA11: Air Quality	SA12: GHGs and climate change	SA13: Land use, resources and circular economy	SA14: Geological and agriculturally important land	SA15: Noise and vibration
SA Score	++	++	++	+	+/-	+/-	+/-	+/-	?	+	+/-	+/-	+/-	?	?
	up with HS2 come forward. The significance of this impact will depend on the type and location of the new development that comes forward. To minimise these impacts, brownfield sites or previously developed land could be used, and suitable drainage solutions deployed.														

Theme 2: Future Ready, Green Transport

- **Policy GREEN1:** We will work with partners and take the necessary steps at a local level to reduce emissions from road-based transport and contribute towards the net carbon zero target by 2050 as required by the 2008 Climate Change Act.
- **Policy GREEN2:** This Local Transport Plan supports the aims of the Green Master Plan and its commitments to achieve net zero alongside a thriving natural environment.
- **Policy GREEN3:** Through our Local Transport Boards, other Council policies and the Development Plan process we will support the provision of local facilities and services to enable people to live locally and lower their carbon footprint by reducing travel distances.
- **Policy GREEN4:** We will use the local and strategic development management processes to ensure that development is planned, delivered and managed to reduce the need to travel and support the delivery of sustainable transport modes. We will support the provision of improved walking, cycling and public transport services and facilities as part of new developments and actively encourage innovative solutions such as car clubs, mobility hubs, active travel plans and other sustainable solutions as opposed to single occupancy car use.
- **Policy GREEN5:** We will seek to improve the reliability and resilience of the transport network and transport services across Lincolnshire and seek to protect it from the worst extremes of climate change.

Table A3 – Theme 2: Future Ready, Green Transport

Theme – Future Ready, Green Transport	SA1: Population and Equalities	SA2: Economy	SA3: Wellbeing, and healthy lifestyles	SA4: Community safety	SA5: Biodiversity	SA6: Ecosystem services	SA7: Townscapes and landscapes	SA8: Historic environment	SA9: Water quality	SA10: Flooding	SA11: Air Quality	SA12: GHGs and climate change	SA13: Land use, resources and circular economy	SA14: Geological and agriculturally important land	SA15: Noise and vibration
SA Score	++	++	++	+/-	+/-	+/-	+/-	+/-	0	++	++	++	+/-	0	++
Nature	I	I	I	I	I	I	I	I		D	D	D	I		I
Spatial Extent	L	R	R	L	L	L	L	L		L	R	R	L		L
Reversibility	R	R	R	R	I	I	I	I		R	R	R	R		R
Duration	MT	LT	MT	MT	LT	LT	LT	LT		MT	MT	MT	LT		MT
Assessment Summary	These policies work towards a more resilient transport network in the future, through decarbonisation of road-based transport and increasing the resistance of the transport infrastructure to climate change impacts. This is likely to have significant positive effects on Lincolnshire's air quality (SA11), greenhouse gas emissions and climate change (SA12), and flooding (SA10). The delivery of improved public transport and local walking and cycling networks, will have significant beneficial effects on Lincolnshire's population. These improvements will increase accessibility to employment and local facilities (SA1) allowing residents to														

Theme – Future Ready, Green Transport	SA1: Population and Equalities	SA2: Economy	SA3: Wellbeing, and healthy lifestyles	SA4: Community safety	SA5: Biodiversity	SA6: Ecosystem services	SA7: Townscapes and landscapes	SA8: Historic environment	SA9: Water quality	SA10: Flooding	SA11: Air Quality	SA12: GHGs and climate change	SA13: Land use, resources and circular economy	SA14: Geological and agriculturally important land	SA15: Noise and vibration
SA Score	++	++	++	+/-	+/-	+/-	+/-	+/-	0	++	++	++	+/-	0	++
	live their lives more locally. This will particularly benefit those people that cannot drive, and will help to improve physical and mental health, by supporting an active lifestyle (SA3). The model shift to more active travel modes will likely reduce levels of congestion through less vehicles on the road, therefore, reducing noise pollution (SA15) and improving air quality. This will have additional positive effects on physical and mental wellbeing and community safety (SA4). Developing a more sustainable transport network could help to increase the capacity and connectivity of the transport network to support the future population growth across the county. Economic benefits of decarbonising the transport network could be sought through investment in innovative technology development, and development of sustainable supply chains. Making sustainable choices as part of the Green Master Plan, such as the use of LED streetlights and solar panels, will also provide economic benefits due to a reduction in electricity costs and maintenance. These policies can also help to increase further employment within the region, the longevity of which could be made more secure by a transport network that is future ready. To help support the aims of the Green Master Plan to achieve net-zero carbon, policy GREEN1 and GREEN2 will implement a 'road map' to encourage the uptake of electric and alternative fuelled vehicles. Electric vehicles are quieter than combustion vehicles, which aids in reducing noise pollution, but can increase the risk of accidents, especially with pedestrians who may suffer with partial or complete hearing loss or those who are visually impaired. There are potential issues with obstructive charging facilities (e.g. trailing cables), which can put pedestrians, particularly people with disabilities or those who use pushchairs, at risk.													

Theme – Future Ready, Green Transport	SA1: Population and Equalities	SA2: Economy	SA3: Wellbeing, and healthy lifestyles	SA4: Community safety	SA5: Biodiversity	SA6: Ecosystem services	SA7: Townscapes and landscapes	SA8: Historic environment	SA9: Water quality	SA10: Flooding	SA11: Air Quality	SA12: GHGs and climate change	SA13: Land use, resources and circular economy	SA14: Geological and agriculturally important land	SA15: Noise and vibration
SA Score	++	++	++	+/-	+/-	+/-	+/-	+/-	0	++	++	++	+/-	0	++
	The reduced number of cars on the roads and the introduction of active travel modes could help to reduce the number of accidents and improve the safety of the transport network. Therefore, there is the potential for both positive and negative effects on community safety SA4. This scheme may also disproportionally affect those in deprived areas who may be less able to adapt and accommodate changes for electric vehicle use, though this may provide opportunities to ensure suitable active transport networks, like cycle paths, are prioritised in these areas. The size and scale of the infrastructure required to support the transition to electric vehicles, especially to include the decarbonisation of the freight and logistic sector as part of policy GREEN3, is unknown but has the potential to negatively affect biodiversity (SA5), townscapes and landscapes (SA7), and the historic environment (SA8). This is due to potential land take (SA13), disturbance during construction and operation, and loss in visual amenity. The significance of these impacts will depend on the type and location of the new development that comes forward. To minimise these impacts, brownfield sites or previously developed land could be used. This transition could be resource intensive, however, the use of sustainable materials during maintenance and construction and sourcing them using a circular economy, as part of policy GREEN5 will help to reduce this negative impact on resources (SA13). Well-designed active travel routes could present opportunities to enhance habitats and ecological networks through habitat creation and improve the quality of visual amenity of the landscape and heritage assets by managing public access to or from the historic features and through the County's towns and villages. This will further support the ambition to provide green tourism opportunities.													

Theme – Future Ready, Green Transport	SA1: Population and Equalities	SA2: Economy	SA3: Wellbeing, and healthy lifestyles	SA4: Community safety	SA5: Biodiversity	SA6: Ecosystem services	SA7: Townscapes and landscapes	SA8: Historic environment	SA9: Water quality	SA10: Flooding	SA11: Air Quality	SA12: GHGs and climate change	SA13: Land use, resources and circular economy	SA14: Geological and agriculturally important land	SA15: Noise and vibration
SA Score	++	++	++	+/-	+/-	+/-	+/-	+/-	0	++	++	++	+/-	0	++
	Air pollution is a key factor in the degradation of surfaces of historical buildings and monuments and the impact of pollutants emitted into the atmosphere on materials is significant and often irreversible. Reducing emissions by shifting to more sustainable modes and more efficient vehicles, which could result in a reduction in single occupancy journeys, reducing air pollution, and helping prevent further degradation of some of the region's unique historic assets. The reduction in noise pollution from lower levels of traffic in some areas and use of electric vehicles could result in increased tranquillity, contribute to overall sense of place and the unique setting of heritage assets. However, these effects will be determined on the nature of the developments that come forward following further research. The reduction in air quality emissions (particularly the deposition of nitrogen from NO2/NOx) will indirectly benefit the biodiversity, geodiversity assets in Lincolnshire. The potential reduction in single occupancy journeys could lessen the impact of disturbance on the region's biodiversity, through decrease traffic noise and improved air quality. However, some developments as a result of these policies could require land take, which could result in the loss of habitats and natural capital. The effects will depend upon the proposals that come forward, their location and the land take required.														

Theme 3: Promoting Thriving Environments

- **Policy ENV1:** We will put in place procedures during construction, surfacing and maintenance works that will minimise and mitigate their environmental impacts.
- **Policy ENV2:** We will incorporate improvements into transport schemes and highway maintenance so that they aid in the creation, preservation and enhancement of high quality and vibrant environments with unique and distinctive character. This includes taking opportunities to protect and improve habitats for both flora and fauna, protect and enhance historic features, landscapes and townscapes.
- **Policy ENV3:** In the planning, designing and delivery of our transport infrastructure and services we will seek to minimise the use of natural resources and minimise waste.
- **Policy ENV4:** We will make use of our existing transport infrastructure and services and prioritise the maintenance and management of it over the building of new infrastructure.
- **Policy ENV5:** We will support, promote and provide sustainable access to our sensitive built and natural environments.

Table A4 – Promoting Thriving Environments

Theme 3 – Promoting Thriving Environments	SA1: Population and Equalities	SA2: Economy	SA3: Wellbeing, and healthy lifestyles	SA4: Community safety	SA5: Biodiversity	SA6: Ecosystem services	SA7: Townscapes and landscapes	SA8: Historic environment	SA9: Water quality	SA10: Flooding	SA11: Air Quality	SA12: GHGs and climate change	SA13: Land use, resources and circular economy	SA14: Geological and agriculturally important land	SA15: Noise and vibration
SA Score	+	++	++	+	++	++	++	++	++	+	++	++	++	++	+
Nature	I	I	D	I	D	D	D	D	D	I	D	D	D	D	D
Spatial Extent	R	R	L	L	L	L	L	L	L	L	L	L	L	L	L
Reversibility	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Duration	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT	MT
Assessment Summary	Minimising and mitigating against environmental impacts of construction, surfacing and maintenance as part of policy ENV1, and aiding in the creation, preservation and enhancement of unique environments, as part of policy ENV2, will have a significant positive effect on multiple SA objectives. The protection and improvement of adjacent habitats, such as preserving roadside verges and interconnecting hedgerows as part of the Greater Lincolnshire Nature Recovery Strategy, will have a significant positive effect on the local biodiversity (SA5), water environment (SA9) and ecosystem services (SA6), due to enhancing the county's species and valuable ecological networks, which may help contribute to biodiversity net gain.														

Theme 3 – Promoting Thriving Environments	SA1: Population and Equalities	SA2: Economy	SA3: Wellbeing, and healthy lifestyles	SA4: Community safety	SA5: Biodiversity	SA6: Ecosystem services	SA7: Townscapes and landscapes	SA8: Historic environment	SA9: Water quality	SA10: Flooding	SA11: Air Quality	SA12: GHGs and climate change	SA13: Land use, resources and circular economy	SA14: Geological and agriculturally important land	SA15: Noise and vibration
SA Score	+	++	++	+	++	++	++	++	++	+	++	++	++	++	+
	Decluttering of signage and street furniture will help to blend the infrastructure into the local landscape, contributing to the overall sense of place and unique setting of Lincolnshire's landscape and historic environment. Therefore, this has resulted in significant on the townscape and landscape (SA7) and historic environment (SA8). Utilising locally sourced and recycled materials during construction and maintenance, and recycling waste generated, will have a significant positive effect on Lincolnshire's finite natural resources and contribute to a circular economy (SA13). Maximising the capacity of the existing transport infrastructure instead of prioritising new development, will help to reduce the strain on Lincolnshire's resources, and benefit the local biodiversity, landscape, historic environment, and geologically agriculturally important land, through a reduction in the need for land take and disturbance during construction and operation. Highway schemes can often result in modifications and discharges to watercourses. Therefore, mitigating negative effects of development and enhancing the environment could result in measures that will reduce the risk of pollution from the transport network. Significant positive effects on SA10 (flooding) could be awarded if the maintenance and adjustments to the existing transport infrastructure included flood defence and resilience, however a minor positive effect has been awarded as the significance is currently dependent upon the scheme level design which comes forward. Focusing on active travel modes and public transport is likely to have significant positive effects on community safety (SA4). If carefully designed, the provision of off-road routes for cyclists and pedestrians will reduce the number collisions involving them, and														

Theme 3 – Promoting Thriving Environments	SA1: Population and Equalities	SA2: Economy	SA3: Wellbeing, and healthy lifestyles	SA4: Community safety	SA5: Biodiversity	SA6: Ecosystem services	SA7: Townscapes and landscapes	SA8: Historic environment	SA9: Water quality	SA10: Flooding	SA11: Air Quality	SA12: GHGs and climate change	SA13: Land use, resources and circular economy	SA14: Geological and agriculturally important land	SA15: Noise and vibration
SA Score	+	++	++	+	++	++	++	++	++	+	++	++	++	++	+
	road traffic accidents due to the reduced number of vehicles on the road network. In addition, active and sustainable travel modes is likely to improve access for all groups inclusively (SA1), help to support more active lifestyle (SA3), and improve air pollution (SA11) through a reduction in GHG emissions (SA12), and reduce noise impacts (SA15). Significant economic benefits (SA2) would be sought through investment in innovative technology development, such as intelligent transport systems, and development of sustainable supply chains. Full extent of economic benefits will depend on the technologies/projects that come forward following these policies. Further benefits to the economy will come from sustainable tourism (Policy ENV5) where access to tourist attractions by active or public transport is encouraged, which will help to improve access for all groups inclusively.														

Theme 4: Supporting Safety, Security and a Healthy Lifestyle

- **Policy SH1:** We will seek to make Lincolnshire's roads safer for all and to make significant year on year reductions in those killed or injured on Lincolnshire's roads through a sustainable, co-located road safety partnership delivering targeted interventions focussed on education, engineering, and enforcement.
- **Policy SH2:** In partnership with the police, transport operators and others we will seek to reduce the rate of crime, the fear of crime and issues relating to antisocial behaviour related to transport.
- **Policy SH3:** Working with transport operators we will seek to restore confidence in the use of public transport following the COVID 19 pandemic and restore passenger numbers to pre COVID levels.
- **Policy SH4:** Working in partnership we will seek to reduce air, light and noise pollution created by the transport system. The focus will be in areas with designated Air Quality Management areas and where impacts are felt by significant populations.
- **Policy SH5:** We will champion greater use of active travel modes and provide the infrastructure and services that encourages a shift towards them.
- **Policy SH6:** In partnership with others we will promote the benefits of active travel and support initiatives that encourage and promote a healthier lifestyle by people changing their travel behaviours.

Table A5 - Supporting Safety, Security and a Healthy Lifestyle

Theme 4 - Supporting Safety, Security and a Healthy Lifestyle	SA1: Population and Equalities	SA2: Economy	SA3: Wellbeing, and healthy lifestyles	SA4: Community safety	SA5: Biodiversity	SA6: Ecosystem services	SA7: Townscapes and landscapes	SA8: Historic environment	SA9: Water quality	SA10: Flooding	SA11: Air Quality	SA12: GHGs and climate change	SA13: Land use, resources and circular economy	SA14: Geological and agriculturally important land	SA15: Noise and vibration
SA Score	++	+	++	++	+/-	+/-	+/-	+/-	0	0	++	+	?	?	++
Nature	D	I	D	D	I	I	I	I			D	I			D
Spatial Extent	R	L	L	L	L	L	L	L			L	L			L
Reversibility	R	R	R	R	I	I	I	I			R				R
Duration	MT	MT	MT	LT	MT	MT	MT	MT			MT				MT
Assessment Summary	Measurements to improve the safety of Lincolnshire's road network within Policy SH1 and SH2, such as creating environments that always provide a feeling of safety and security, natural surveillance, and crime prevention interventions, will have a significant positive effect on local community safety (SA4). Further benefits will come from the continued support of the Lincolnshire Road Safety Partnership (LRSP) where key actions including education, engineering, enforcement, and evaluation are taken alongside individuals and organisations, such as schools, NHS, and employers, to improve road safety.														

Theme 4 - Supporting Safety, Security and a Healthy Lifestyle	SA1: Population and Equalities	SA2: Economy	SA3: Wellbeing, and healthy lifestyles	SA4: Community safety	SA5: Biodiversity	SA6: Ecosystem services	SA7: Townscapes and landscapes	SA8: Historic environment	SA9: Water quality	SA10: Flooding	SA11: Air Quality	SA12: GHGs and climate change	SA13: Land use, resources and circular economy	SA14: Geological and agriculturally important land	SA15: Noise and vibration
SA Score	++	+	++	++	+/-	+/-	+/-	+/-	0	0	++	+	?	?	++

Improving the safety of the road network and sustainable transport modes, as part of Policy SH5 and SH6, may encourage more people to use active transport, resulting in beneficial effects on the physical and mental health of Lincolnshire's population. The delivery of integrated travel networks and the investment in cycling and walking infrastructure, as part of the Local Cycling and Walking Infrastructure Plan, will enable increased access to community facilities, businesses, tourism, and access from rural areas for all groups inclusively. Therefore, significant positive effects for population and equalities (SA1), and physical and mental wellbeing (SA3) have been identified. Minor positive effects were identified for SA2 (economy) due to localised improvements.

The increased feeling of safety alongside policy SH3 will help to restore the confidence in the use of public transport, following the COVID 19 pandemic, where passenger numbers dropped drastically. This will help to reduce the need for public car use, resulting in improvements to air quality, noise pollution and GHG emissions. Additionally, this will enable access to employment and education facilities, inclusively. Therefore, significant positive effects have been identified for SA1 (population and equalities).

Policy SH4 seeks to reduce transport impacts to air quality, and light and noise pollution. The reduction or removal of traffic from particularly sensitive areas will have positive effects to the local biodiversity (SA5) (habitats and species), historic environment (SA8), and landscape (SA7) through the reduction in disturbance and increased tranquillity. Significant positive effects to air quality (SA11) and noise pollution (SA15) will result from, working in partnerships in areas with AQMAs, the shift to zero emission vehicles, traffic management techniques to reduce congestion, and utilising noise reducing surfacing.

Theme 4 - Supporting Safety, Security and a Healthy Lifestyle	SA1: Population and Equalities	SA2: Economy	SA3: Wellbeing, and healthy lifestyles	SA4: Community safety	SA5: Biodiversity	SA6: Ecosystem services	SA7: Townscapes and landscapes	SA8: Historic environment	SA9: Water quality	SA10: Flooding	SA11: Air Quality	SA12: GHGs and climate change	SA13: Land use, resources and circular economy	SA14: Geological and agriculturally important land	SA15: Noise and vibration
SA Score	++	+	++	++	+/-	+/-	+/-	+/-	0	0	++	+	?	?	++
	However, the shift to electric vehicles and some traffic management schemes may require land take, due to the requirement of new infrastructure, though the extent of this effect will depend on the nature of development that comes forward. Therefore, positive and negative effects have been identified for SA5 (biodiversity), SA6 (ecosystem services), and SA8 (historic environment), and uncertain effects on SA13 (land use) and SA14 (geological and agricultural land).														

Theme 5 – Promoting High Aspirations

- **Policy HA1:** Improve access to education healthcare, leisure and other essential services by supporting improvements to the transport network and services. Support innovation and alternative provision of services such as virtual options and mobile services that bring services to people rather than people to services.
- **Policy HA2:** We will seek to increase accessibility for everyone by promoting measures to improve accessibility to the transport network.
- **Policy HA3:** Using the existing Local Transport Boards (LTBs) we will continue to encourage and support the local communities to contribute to the on-going development of transport solutions across Lincolnshire.

Table A6 – Promoting High Aspirations

Theme 5 - Promoting High Aspirations	SA1: Population and Equalities	SA2: Economy	SA3: Physical and mental wellbeing, and healthy lifestyles	SA4: Community safety	SA5: Biodiversity	SA6: Ecosystem services	SA7: Townscapes and landscapes	SA8: Historic environment	SA9: Water quality	SA10: Flooding	SA11: Air Quality	SA12: GHGs emissions and climate change	SA13: Land use, resources and circular economy	SA14: Geological and agriculturally important land	SA15: Noise and vibration
SA Score	++	+	++	++	0	0	+/-	+/-	0	0	?	?	0	0	?
Nature	D	I	D	D			I	I							
Spatial Extent	L	L	L	L			L	L							
Reversibility	R	R	R	R			I	I							
Duration	MT	MT	MT	MT			LT	LT							
Assessment Summary	Policies aim to improve access to education, healthcare, employment, leisure and other essential services by supporting improvements to the transport network and increasing accessibility for everyone inclusively. This is likely to help to increase the capacity, connectivity and efficiency of the transportation network to support future population growth across Lincolnshire. Improved connectivity in rural areas will help rural populations access the public transport network, enabling them to access jobs, facilities and														

Theme 5 - Promoting High Aspirations	SA1: Population and Equalities	SA2: Economy	SA3: Physical and mental wellbeing, and healthy lifestyles	SA4: Community safety	SA5: Biodiversity	SA6: Ecosystem services	SA7: Townscapes and landscapes	SA8: Historic environment	SA9: Water quality	SA10: Flooding	SA11: Air Quality	SA12: GHGs emissions and climate change	SA13: Land use, resources and circular economy	SA14: Geological and agriculturally important land	SA15: Noise and vibration
SA Score	++	+	++	++	0	0	+/-	+/-	0	0	?	?	0	0	?
	services in urban areas. This could help to improve the places in which people live and work, improving health and wellbeing and the outcomes of future generations. Supporting the alternative provision of services through virtual options and mobile services that bring services to people rather than people to services, will also help those rural communities gain access to services that they my of previously been cut off from, allowing people to reduce their need to travel and live their lives more locally. This has resulted in significant positive effects on SA1 (population and equalities and minor positive effects on SA2 (economy). Policies are likely to result in significant positive effects on community safety (SA4). Proposals identified within the policies aim to improve crossing facilities within the public realm, work with Ageing Better to ensure the design of clear signage and information (particularly for older users) as well as the use of Travel Plans to ensure that promotions and marketing are adequate to meet all needs of all members of society. These proposals will not only provide physical prevention but also ensure there is clear dissemination of transport and safety information for all network users. Policy HA2 aims to engage with local people to increase community ownership and provides an understanding local issues and needs. It places the significance of putting people at the centre of solutions and not vehicles, contributing positively to placemaking and sense of place. This is likely to have positive effects on both SA7 (townscape and landscape) and SA8 (historic environment), however, proposals that come forward (such as improved crossings, network improvements) may also include components that could														

Theme 5 - Promoting High Aspirations	SA1: Population and Equalities	SA2: Economy	SA3: Physical and mental wellbeing, and healthy lifestyles	SA4: Community safety	SA5: Biodiversity	SA6: Ecosystem services	SA7: Townscapes and landscapes	SA8: Historic environment	SA9: Water quality	SA10: Flooding	SA11: Air Quality	SA12: GHGs emissions and climate change	SA13: Land use, resources and circular economy	SA14: Geological and agriculturally important land	SA15: Noise and vibration
SA Score	++	+	++	++	0	0	+/-	+/-	0	0	?	?	0	0	?
	degrade unique townscapes and the historic environment. Uncertain effects have been identified in relation to air quality (SA11), greenhouse gas emissions (SA12) and noise pollution (SA15). Improving accessibility to mobility hubs will help to support a modal shift and bringing further services and facilities directly to rural communities will help to reduce the need to travel. This will help to reduce levels air pollution, greenhouse gas emissions and noise pollution from the transport network. However, local road improvements could help to support a continue reliance upon private vehicles. The effects on these objectives will be dependent upon the number and scale of developments. If more sustainable solutions are favoured over highway improvements, there is potential for positive effects on these objectives.														

Theme 6 - Improve Quality of Life

- **Policy QL1:** We will deliver improvements to the transport network and services that support sustainable growth and balance the needs of improved connectivity and mobility against the negative impacts transport can have.
- **Policy QL2:** We will endeavour to deliver transport improvements that transform mobility and accessibility across Lincolnshire and provide a significant uplift in the quality of life for all residents and visitors to Lincolnshire.

Table A7 – Improve Quality of Life

Theme 6 – Improve Quality of Life	SA1: Population and Equalities	SA2: Economy	SA3: Wellbeing, and healthy lifestyles	SA4: Community safety	SA5: Biodiversity	SA6: Ecosystem services	SA7: Townscapes and landscapes	SA8: Historic environment	SA9: Water quality	SA10: Flooding	SA11: Air Quality	SA12: GHGs and climate change	SA13: Land use, resources and circular economy	SA14: Geological and agriculturally important land	SA15: Noise and vibration
SA Score	++	++	++	+	?	?	?	?	0	0	?	?	0	0	?
Nature	D	D	D	I											
Spatial Extent	L	L	L	L											
Reversibility	R	R	R	R											
Duration	MT	MT	MT	MT											

Theme 6 – Improve Quality of Life	SA1: Population and Equalities	SA2: Economy	SA3: Wellbeing, and healthy lifestyles	SA4: Community safety	SA5: Biodiversity	SA6: Ecosystem services	SA7: Townscapes and landscapes	SA8: Historic environment	SA9: Water quality	SA10: Flooding	SA11: Air Quality	SA12: GHGs and climate change	SA13: Land use, resources and circular economy	SA14: Geological and agriculturally important land	SA15: Noise and vibration
SA Score	++	++	++	+	?	?	?	?	0	0	?	?	0	0	?
Assessment Summary	Delivering policies that support the needs of all residents in Lincolnshire and enable connectivity and accessibility across the county are likely to have significant positive effects on SA1 (population and equalities) and SA3 (wellbeing and healthy lifestyles). Greater connectivity will help those living in rural communities gain greater access to jobs, services, recreation and open spaces, which all have beneficial effects on both physical and mental health. Providing greater access to employment can have beneficial effects on health and wellbeing across people's lives and protects against social exclusion. Both policies address the importance of increasing connectivity and mobility in supporting economic growth across the county. Improving the connectivity will help more people reach employment, training opportunities and help to create economically prosperous places for people to live and work. Given that there is a growing skills shortage across some of the county key sectors, providing greater connectivity could help to improve access to various skills pools as well as supporting improvements in productivity. For these reasons, significant positive effects have been identified in relations to SA2 (economy). Improved public transport connectivity may provide a viable journey alternative, particularly to those living in more rural locations, where there is a high reliance upon cars and other private modes. There's potential that the policies could result in a reduction in the number of cars on the road, which is likely to help reduce levels of congestion and accidents and near misses (involving cars, and non-motorised users). For these reasons, minor positive effects have been identified in relation to SA4 (community safety). Uncertainty has been identified in relation to the majority of other SA objectives. It is not clear what type of development may come forward as a result of these policies in order to support greater connectivity across the county. However, Policy QL1 aims to deliver														

Theme 6 – Improve Quality of Life	SA1: Population and Equalities	SA2: Economy	SA3: Wellbeing, and healthy lifestyles	SA4: Community safety	SA5: Biodiversity	SA6: Ecosystem services	SA7: Townscapes and landscapes	SA8: Historic environment	SA9: Water quality	SA10: Flooding	SA11: Air Quality	SA12: GHGs and climate change	SA13: Land use, resources and circular economy	SA14: Geological and agriculturally important land	SA15: Noise and vibration
SA Score	++	++	++	+	?	?	?	?	0	0	?	?	0	0	?
	connectivity and mobility improvements that are managed in a way that makes them sustainable and reduces the potential for negative impacts. This could see impacts on the natural and built environment reduced considerable, however, there could be potential for negative effects from land take.														

Appendix B

SCOPING REPORT BASELINE SUMMARY

POPULATION AND EQUALITIES

SUMMARY OF CURRENT BASLINE

The County of Lincolnshire has a total population of 761,224 people[15], which has increased 6% since 2012. The highest proportion of people in the county are aged between 55-59 years who make up over 7.2% of the total population. The percentage of those aged 65 and over (23.6%) exceed the national average of 18.4% The total population in the Local Authority Districts within Lincolnshire is shown in **Table B.3** South Kesteven has the highest total population, whereas Boston has the lowest total population.

Table B.2 – Population in the Local Authority Districts Within Lincolnshire[13]

Local Authority District	Population
Boston	69,366
East Lindsey	140,741
Lincoln	99,039
North Kesteven	115,985
South Holland	93,980
South Kesteven	141,853
West Lindsey	94,869

Within the county approximately 51% of the population are female and 49% are male, which is comparable with the national average of 50.6% and 49.4% respectively[15].

Overall the ethnic make-up of Lincolnshire is much less diverse compared to the national average[16]. Of the resident population in Lincolnshire, 97.6% identified themselves as white, 1% identified as Asian or Asian British, 0.9% as mixed race, 0.4% black or black British, and 0.2% as other[12].

In Lincolnshire, 48% of the population live in rural areas, which is much higher than the national average of 18.5%. More than half (52%) of older people (aged 65 and over) live in these rural areas[17]. The City of Lincoln is relatively more densely populated (26.08 people per hectare) compared to East and West Lindsey (0.78 and 0.77 people per hectare respectively)[16].

[15] Office for National Statistics, Mid-year estimates 2019
[16] Office for National Statistics, Census 2011
[17] Lincolnshire Research Observatory [online] Available at: https://www.research-lincs.org.uk/Rural.aspx (Accessed 09/03/2021)

Looking at the Indices of Multiple Deprivation (IMD), 2019[18] Lincolnshire contains neighbourhoods covering the entire deprivation spectrum, ranging from 10% most deprived to 10% least deprived[19]. In line with the national trend, the neighbourhoods with the higher levels of deprivation are found in urban and coastal areas. East Lindsey was ranked 30th out of 326 local authority districts (1 being the most deprived and 326 the least deprived); the towns of Skegness and Mablethorpe are amongst the most deprived 10% of neighbourhoods nationally. Lincoln and Boston were ranked 68th and 85th respectively. North Kesteven was ranked the least deprived at 268th.

The percentage of qualifications held by the population of Lincolnshire is consistent with the national average[20]. The county has a lower percentage of National Vocational Qualifications (NVQ) Level 4 (30.6%) and Level 3 (53.9%) compared to the national and regional figures of 40.3% and 58.5% respectively; however, it has a higher percentage of NVQ level 2, Level 1 and those with no qualifications.

Overall, South Kesteven has the highest percentage of the total population obtaining NVQs across all levels, apart from Level 3 where East Lindsey had the highest percentage of 58.6%. South Holland has the lowest percentage of the population with a Level 4 or 3 NVQ at 20.5% and 38% respectively[20].

FUTURE TRENDS

The population across the East Midlands is anticipated to be amongst the fastest growing nationally, with an increase of 7% by mid-2028[21]. In Lincolnshire, Boston will see the largest percentage increase of 10.1% with West Lindsey having the least at 4.6%

The proportion of people aged 65 years and over is expected to rise to 28% by 2035[21]. By 2032, it is anticipated that more people will be living on their own, making up 40% of all households nationally. The number of over 85s living alone is expected to more than double to 1.4 million nationally in which social isolation could become a more prevalent issue. This could become a significant issue in Lincolnshire, where 52% of the rural population are over 65.

In 2016, 14% of the working age population in the UK were from a BAME background.[22] This is increasing, with the proportion expected to rise to 21% by 2051[14]. The working population in Lincolnshire is likely to become increasingly diverse, as indicated by this national trend.

[18] Ministry of Housing, Communities and Local Government, Indices of Multiple Deprivation 2019, [online] available at: https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019 (Accessed 11/03/2021)
[19] Lincolnshire Country Council, Indices of Deprivation 2019 Report
[20] Nomis Local Labour Statistics, 2019
[21] Office for National Statistics, Subnational population projections for England: 2018-based
[22] The Kings Fund. 2012. Demography: Future Trends. [online] Available at: https://www.kingsfund.org.uk/projects/timethink-differently/trends-demography (Accessed 08/03/2021)

ECONOMY AND EMPLOYMENT

SUMMARY OF CURRENT BASLINE

In Lincolnshire, the main employment centres are located in Lincoln, Boston and Gainsborough, with the majority of smaller employment centres located in market towns such as Grantham, Spalding and Louth.

Urban areas of the county such as, Lincoln, Boston and Gainsborough, account for around two thirds of the county's economic output and employment opportunities[23]. However, almost half 48% of all business units in Lincolnshire are in rural areas. Lincolnshire's key economic sectors are listed in **Table B.4** below[24]. This shows that the public administration, education and health is the largest employment sector in Lincolnshire, in line with the national average.

The other key employment sectors include tourism and manufacturing; however, the jobs are often low skilled and low wage. Lincolnshire's most productive asset is its high-quality soil, making it one of the most important counties in the UK in terms of agricultural and horticultural production, highlighted by higher employment rate compared to the national average.

Table B.3 - Employment in key economic sectors (%)[21]

Industry	Lincolnshire %	England %
Agriculture and fishing	6	2
Manufacturing	12	9
Construction	5	4
Distribution, hotels and restaurants	25	23
Transport and communications	5	9
Banking, finance and insurance	14	21
Public administration, education and health	27	27
Energy and Water	1	1
Other services	4	4

According to the Lincolnshire's Local Economic Assessment[23], 15% of the residents living in Lincolnshire commute out of the county to work, mainly to North and North East Lincolnshire,

[23] ONS Inter-Departmental Business Register (IDBR) 2011/2012
[24] 4th Lincolnshire Local Transport Plan, 2013 [online] Available at: https://www.lincolnshire.gov.uk/downloads/file/1924/local-transport-plan-2013-14-2022-23 (Accessed 08/03/2021)

Peterborough, and London[25]. These tend to be higher skilled people working in the sectors of Business and Finance and Manufacturing.

Average Gross Value Added (GVA) per head in 2016 for Lincolnshire was £18,754[26], which has increased 12.4% since 2011, however, it is still lower than the national average of 13.5%. Values from 2015 show that the city of Lincoln has the highest GVA per head at £24,708, whereas, West Lindsey has the lowest GVA per head at £15,558[26].

The percentage of working age population (16-64) is below the national average at 59%[27]. Like the national trend, the working age population has continued to decrease year on year since 2012, but at a slightly greater rate; 3.9% decrease compared to 2.6% decrease nationally. In Lincolnshire, 72.9 are in employment, with 4.9% unemployed, which is better than the national average of 69.9% and 4.4% respectively[27]. Rates of employment continued to grow between 2016-2017 with an employment rate of 74.2%, which was in line with the national average.

Growth across all the priority sectors was seen between the same time, apart from the manufacturing sector where employment had declined by 0.6%[28]. Rates of unemployment (4.8%) were only slightly higher than the national average of 4.5%.

According to the *Greater Lincolnshire Local Economic Partnership* (LEP)[29] *Pre-covid Employment and Skills Analysis 2020*[30], skill-shortages vacancies make up a greater proportion of all hard-to-fill vacancies in Greater Lincolnshire, which is higher than national average - 72% compared to 68% respectively.

The report states that jobs that require 'Skilled trades occupations' are most likely to result in a skill-shortage vacancy both locally and nationally[28]. However, it is vacancies for 'Professionals', 'Associate professionals' and 'Sales and customer services staff' that are more likely to have skill-shortage vacancies in Greater Lincolnshire than they are nationally[28].

FUTURE TRENDS

The rising population in the county is accelerating the need for the delivery of additional housing, services and infrastructure. Growth in jobs is also anticipated in order to close the gap between increases in population and the need for employment. There is a need for improving accessibility to these jobs and training opportunities.

---

[25] Lincolnshire – A Local Economic Assessment 2011. Available at: https://www.research-lincs.org.uk/UI/Documents/Local%20Economic%20Assessment.pdf (Accessed: 08/03/2021)
[26] Office of National Statistics, Gross Value Added, Regional GVA(I) by local authority in the UK, 2015 [online] available at: https://www.ons.gov.uk/economy/grossvalueaddedgva/datasets/regionalgvaibylocalauthorityintheuk (Accessed 15/03/2021)
[27] Nomis, Local Labour Statistics 2019
[28] The Annual State of the Economy Report 2018. Available at: https://www.research-lincs.org.uk/UI/Documents/Local%20Economic%20Assessment.pdf (Accessed 07/03/2021)
[29] A Local Enterprise Partnership (LEP) is a locally-owned partnership between local authorities and businesses. A LEP plays a central role in deciding local economic priorities and undertaking activities to drive economic growth and create local jobs. The Greater Lincolnshire LEP is comprised of North Lincolnshire, Lincolnshire and North East Lincolnshire.
[30] Greater Lincolnshire Local Economic Partnership (LEP) Pre-covid Employment and Skills Analysis, 2020 [online] available at: https://www.greaterlincolnshirelep.co.uk/assets/documents/SAP_Analysis_FINAL_Pre-Covid_20_Aug_2020.pdf (Accessed 11/03/2021)

By 2030, it is anticipated that Lincolnshire will have surpluses of low and intermediate level skills, but a deficit of high level skills. A shortage of skills can contribute to constraining economic growth. As there is strong relationship between skills and productivity, any shortfall in the qualifications needed by employers could lead to reduced productivity and lower economic growth in Lincolnshire.

During the Covid-19 pandemic home-working has been encouraged for those who are able, leading to a short-term reduction in travel demand. This trend will likely continue as employers look to maintain flexible working conditions in future.

Over the next 15 years nearly 160,000 jobs in Greater Lincolnshire (31% of the total) will be made obsolete or will be changed substantially by the introduction of new technologies[28]. However, as the Lincolnshire economy recovers from the Covid-19 pandemic, it is not clear how this will influence uptake, but early evidence shows that many businesses which were slow to take up digital technology have received the impetus they require to make the change.

HEALTH

SUMMARY OF CURRENT BASLINE

The average life expectancy (at birth) across Lincolnshire is slightly lower than the national average (79.8 years for males and 83.4 years for females) for both males and females at 79.2 years and 82.9 years respectively[31]. **Table B.5** below shows the life expectancy across the local authorities in Lincolnshire. Life expectancy is 2.4 years lower for men and 1.3 years lower for women in the most deprived areas of Lincolnshire compared to the least deprived areas[31].

Table B.4 - Life Expectancy at Birth Across the Local Authorities in Lincolnshire[31]

Local Authority	Male	Female
Boston	78.1	82.3
East Lindsey	78.1	82.1
Lincoln	76.9	80.6
North Kesteven	80.5	83.4
South Holland	79.8	83.3
South Kesteven	80.9	84.1
West Lindsey	80.0	83.3

In Lincolnshire, 57.8% of adults (16+) are physically active. South Holland has the lowest percentage of physically active adults (49.2%) whereas, South Kesteven has the highest percentage across Lincolnshire's local authority districts (59.1%). However, this is still significantly lower than the national average of 66.3%.

Obesity in Lincolnshire is higher than the national average, especially in children. Between 2018-2019, 66.5% of adults (18+) were classified as overweight or obese, compared to the national average of 63%, whereas 22.2% of children in year six are obese in 2020, compared to the national average of 8.2%[32].

Public Health England describe health in Lincolnshire as varied. This is reflected in the IMD 2019[33] where Lincolnshire is ranked 85th out of 151 upper tier authorities nationally (where a rank of 1 is the

[31] Lincolnshire Local Authority Health Profile 2019. Available at: https://fingertips.phe.org.uk/static-reports/health-profiles/2019/E10000019.html?area-name=Lincolnshire (Accessed 05/03/2021)
[32] Annual Report of the Director of Public Health on the health of the people of Lincolnshire 2016. Available at: https://lincolnshire.moderngov.co.uk/documents/s18041/Appendix%20A%20-%20DPH%20Annual%20Report.pdf (Accessed 05/03/2021)
[33] Ministry of Housing, Communities and Local Government, Indices of Multiple Deprivation 2019, [online] available at: https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019 (Accessed 11/03/2021)

most deprived and 151 is the least deprived). This places the county amongst the top 50% of most deprived nationally.

Table B.6 below shows that at the lower tier authority level, health deprivation is also varied (a rank of 1 is the most deprived and 317th is the least deprived). Health deprivation in Lincoln is highest with a rank of 43rd followed by East Lindsey with a rank of 53rd – both of which are amongst the top 20% of most deprived nationally. Comparatively, South Kesteven and North Kesteven are amongst the top 30% of least deprived nationally.

Table B.5 - Local Authority IMD Health Rankings, 2019

Local Authority	IMD Health Rank
Boston	113
East Lindsey	53
Lincoln	43
North Kesteven	244
South Holland	171
South Kesteven	220
West Lindsey	143

Poor air quality is a significant public health issue and there is clear evidence that particulate matter has a significant contributory role in human all-cause mortality, and in particular in cardiopulmonary mortality. Sufferers of chronic respiratory diseases such as chronic obstructive pulmonary disease (COPD) and asthma are especially vulnerable to the effects of air pollutants.

Lincoln, Boston, and East Lindsey have a higher mortality rate from COPD compared to the national average of 50.4 people per 100,000 people. The city of Lincoln has the highest mortality rate of 61 per 100,000 people and West Lindsey has the lowest at 37.9 per 100,000 people.[34]

[34] Public Health England, Inhale - Interactive Health Atlas of Lung conditions in England 2019 [online] Available at: https://fingertips.phe.org.uk/profile/inhale/data#page/0/gid/8000003/pat/6/ati/301/are/E07000138/iid/1204/age/1/sex/4/cid/4/tbm/1 (Accessed16/03/2021)

FUTURE TRENDS

The ageing population in Lincolnshire is expected to continue to grow in the future, which may cause strain on the transport industry due to rising inequalities in in access to healthcare, community facilities and other services.

A population with a larger proportion of older people will likely result in an increase in the number of people in Lincolnshire with physical and sensory impairments which could result in a greater demand for access to health and social care services.

The anticipated population growth and the increasing affordability and convenience of car travel is likely to result in an increase in the number of private vehicles on the roads. This could have subsequent cumulative effects on air quality, noise pollution and public health if current trends continue.

Reduced levels of physical activity is a growing issue nationally, with fewer people reporting that they are achieving the level of activity recommended by the NHS. Effective transport planning can play a role in encouraging active transport choices (e.g. walking and cycling) as well as improve accessibility to sports and recreation facilities. Continued traffic growth without adequate provision for pedestrian and cyclists facilities is unsustainable.

COMMUNITY SAFETY

SUMMARY OF CURRENT BASLINE

On average 67.4 people (per 100,000 resident population) are killed or seriously injured on the roads in Lincolnshire[35]. This is significantly higher than the England average of 42.6 per 100,000.

There were 1,893 accidents in Lincolnshire in 2019, of which 405 were serious and 48 were fatal[36]. The highest number of fatal accidents in 2019 occurred on A roads, which had 33 fatalities. **Table B.7** below shows the breakdown of accidents by severity and road class in Lincolnshire in 2019.

Table B.6 - Fatal and Serious Casualties by Road Class

Accident severity	Road class	Number of accidents
Fatal	A	33
Fatal	B	8
Fatal	C	1
Fatal	Unclassified	6
	Total	**48**
Serious	A	195
Serious	B	80
Serious	C	57
Serious	Unclassified	73
	Total	**405**

According to the Lincolnshire Joint Strategic Health Needs Assessment (JSNA)[37], road traffic casualties are significantly more likely to be male. In 2018, 63 % of fatalities in Lincolnshire were male and 38% were female. In 2017, 80% were male and 20% were female.

[35] Public Health England, Public Health Profiles: Killed and Seriously Injured (KSI) Casualties on England's Roads 2016-2018, [online] Available at: https://fingertips.phe.org.uk/search/road#page/3/gid/1/pat/6/par/E12000001/ati/102/are/E06000047/iid/11001/age/1/sex/4/cid/4/tbm/1/page-options/car-do-0_car-ao-1 (Accessed 05/03/2021)
[36] Department for Transport, Road Accidents and Safety Statistics, 2021
[37] Lincolnshire Joint Strategic Health Needs Assessment (JSNA), Road Traffic Collisions, 2019, [online] available at: https://www.research-lincs.org.uk/UI/Documents/Topic_on_a_page_Road_Traffic_Collisions_Aug_2019.pdf (Accessed 05/03/2021)

In 2019, car occupants accounted for 42% of road deaths in the UK, pedestrians 27%, motorcyclists 19% and pedal cyclists 6%[38]. However, in terms of casualty rates, vulnerable road users (usually defined as pedestrians, pedal cyclists and motorcyclists), have much higher casualty rates per mile travelled in comparison with the other road user groups[38].

As identified within the Freight Strategy[39], Lincolnshire has the highest number of casualties associated with incidents with freight vehicles in the Midlands, despite a much lower level of freight activity than several other areas in the region.

In 2019/20, the number of reported sexual offences committed on public transport in the UK, decreased by 7.5% (60% of these assaults were against females). The number of violent offences increased by 1.1% to 13,722 in 2019/20[40].

Between March 2019 and March 2020, there were 59,938 recorded crimes in Lincolnshire[41], which was the lowest of all the East Midlands authorities. Of all the train stations in Lincolnshire, Lincoln had the highest number of recorded crimes with 91 recorded crimes in 2020, down from 144 in 2019. Of these 91 recorded crimes in 2020, 10 were violent crimes[42], this was down from 29 violent crimes in 2019. The drop in crime may however be attributed to the Covid-19 pandemic and changes in travel patterns.

FUTURE TRENDS

The number of people seriously hurt or killed on the roads is significantly higher than the England average in Lincolnshire. As the population increases, there are expected to be a greater number of vehicles on the roads, which could result in an increase in the number of accidents.

Highways England has set a clear long-term goal to bring the number of people killed or injured on the network as close as possible to zero by 2040. It committed that, by the end of 2020, 90% of travel on the roads for which it has responsibility will be on roads with a 3-star safety rating or better[43]. The Office for Rail and Road's annual assessment in 2020 reported that this target was met, with an estimated 90.5% of travel on roads rated at least 3-star in 2019[44].

[38] Department for Transport, Reported Road Casualties in Great Britain: 2019 Annual Report, Statistical Release, 2020, [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/922717/reported-road-casualties-annual-report-2019.pdf (Accessed 05/03/2021)
[39] Lincolnshire County Council, LTP5 Freight Strategy (prepared by AECOM), 2021
[40] British Transport Police, Statistical Bulletin 2019-2020, 2021, [online] Available at: https://www.btp.police.uk/SysSiteAssets/foi-media/british-transport-police/other-information/british-transport-police-statistical-bulletin-2019-2020.pdf (Accessed 05/02/2021)
[41] ONS Crime Statistics, Crime in England and Wales, year ending March 2020 - PFA tables
[42] British Transport Police, Crime Maps and Statistics, [online] available at: http://crimemaps.btp.police.uk/ (accessed 05/03/2021)
[43] Highways England, Highways England Delivery Plan 2015-2020, 2015, [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/424467/DSP2036-184_Highways_England_Delivery_Plan_FINAL_low_res_280415.pdf (Accessed 05/03/2021)
[44] Office of Rail and Road, Annual Assessment of Highways England End of Road Period 1 2015-2020, 2020, [online] Available at: https://www.orr.gov.uk/sites/default/files/om/ORR-Annual-Assessment-of-Highways-England-End-of-Road-Period-1-DIGITAL.pdf (Accessed 05/03/2021)

In addition to this, the Lincolnshire Road Safety Partnership's Road Safety Strategy[45] has an overarching vision 'To make significant year on year reductions in those killed or injured on Lincolnshire's roads through a sustainable, co-located road safety partnership delivering targeted interventions focussed on education, engineering, and enforcement'. Key priorities of this are young drivers (17-24); mature drivers (60+); two wheeled motor vehicle users; cyclists; pedestrians and business users. Working towards this vision and priorities vulnerable road users could help contribute to a reduction in road incidents in Lincolnshire.

[45] Lincolnshire Road Safety Partnership, Road Safety Strategy 2015-2025, [online] available at: https://www.lincolnshire.gov.uk/downloads/file/1294/road-safety-strategy-2015-2025 (Accessed 30/06/2021)

BIODIVERSITY AND NATURAL CAPITAL

SUMMARY OF CURRENT BASLINE

There are a large range of nationally and locally designated sites within the country of Lincolnshire including:

- 145 Sites of Special Scientific Interest (SSSI);
- 16 Local Nature Reserves (LNR);and
- Five National Nature Reserves (NNR) (Gibraltar Point, Donna Nook, The Wash, Saltfleetby – Theddlethorpe Dunes and Bardney Limewoods).

In addition to these there are numerous internationally designated sites within Lincolnshire, outlined below in **Table B.8**.

Table B.7 – Designated Sites

Area of Outstanding Natural Beauty (AONB)	Ramsar	Special Area for Conservation (SAC)	Special Protection Areas (SPA)
▪ Lincolnshire Wolds	▪ The Wash Ramsar Site ▪ Gibraltar Point ▪ Humber Estuary	▪ The Wash and Norfolk Coast ▪ Gibraltar Point ▪ Humber Estuary ▪ Grimsthorpe ▪ Baston Fen	▪ The Wash ▪ Gibraltar Point ▪ Humber Estuary

In addition to this, Lincolnshire is home to the Lincolnshire Coastal Country Park, which stretches along the coast form Sandilands to Chapel St Leonards, and inland to Hogsthorpe, Mumby, Anderby and Huttoft. The National Trust has recently acquired a former golf course at Sandilands which will become a new nature reserve forming part of the Country Park (consisting of 3,500 hectares).

There are 56 habitats recognised as being of 'principal importance' for the conservation of biological diversity in England under section 41 of the Natural Environment and Rural Community (NERC) Act 2006[46]. Priority habitats are a focus for conservation action in England. Across Lincolnshire, there are a large range of priority habitats including (but not limited to) coastal saltmarsh and mudflats, coastal and floodplain grazing marsh, good quality semi-improved grassland, lowland heath, lowland calcareous grassland, deciduous woodland, and purple moor grass and rush pasture.

[46] Natural Environment and Rural Community 2006. [online] Available at: https://www.legislation.gov.uk/ukpga/2006/16/contents (Accessed: 16/03/2021)

The UK National Ecosystem Assessment (UK NEA)[47] revealed that the loss, fragmentation and deterioration of natural habitats in the UK since the 1940s has caused a decline in the provision of many ecosystem services.

Natural capital is a key theme in the Government's 25-year Environment Plan: A Green Future[48]. The UK's natural capital accounts[49] show that approximately 20-25 million tonnes of carbon have been sequestered by vegetation in the UK each year between 2007 and 2015, whilst around 1.5 million tonnes of air pollutants have been removed each year. This equates to a monetary value of approximately £1.5 billion for carbon sequestration and £1 billion for pollution removal in 2015. Natural capital therefore has a mitigating effect on the emissions of carbon and air pollutants associated with transport.

Farmland accounts for highest percentage of habitat type found in Lincolnshire with a combined total of 88.7% of total land area, with arable and horticulture habitat making up 76.2%[50]. Due to the high cover of agricultural land, food provision is an important ecosystem service within Lincolnshire. In addition to primary agricultural products, farmland can help prevent soil erosion, support flood risk through surface water storage and runoff attenuation and sequester carbon.

The second most abundant habitat type found in Lincolnshire is freshwater habitat, making up 27.2% of total land area with active flood plains (20.2%) and woodland (4%) having the largest habitat extent. Freshwater habitats can help regulate flooding, erosion, water quality and provide biodiversity and cultural services.

The quality of these habitats is mixed:

- Most of the water bodies in the county of Lincolnshire has moderate to bad water quality and received low hydrological (naturalness or river flow) status.
- The nutrient status of the soil in Lincolnshire was considered low value for the majority of the country, besides a few hotspots of high value areas near Blyton, Beckingham and Coningsby, however, Natural England's Agricultural Land Classification rates the majority of the soil in Lincolnshire to be of moderate to good quality.[51]
- Most water courses in Lincolnshire have an ecological and water quality status of moderate to bad under the Water Framework Directive.
- Habitat is of low to medium value for carbon sequestration across the majority of Lincolnshire.

[47] UK National Ecosystem Assessment (2011) The UK National Ecosystem Assessment Technical Report. UNEP-WCMC, Cambridge.
[48] A Green Future: Our 25 Year Plan to Improve the Environment (2018) Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf (Accessed 11/03/2021)
[49] Office for national Statistics (2019) UK natural capital accounts: Estimates of the financial and societal value of natural resources to people in the UK.
[50] Lincolnshire Natural Capital Atlas: Mapping Indicators (2020) Available at: http://publications.naturalengland.org.uk/publication/6672365834731520 (Accessed 11/03/2021)
[51] Natural England Regional Agricultural Land Classification. 2010. Available at: http://publications.naturalengland.org.uk/category/5954148537204736 (Accessed 11/03/2021)

FUTURE TRENDS

Studies such as the 'State of Nature 2016' report[52] and Defra's 25 Year Environment Plan[53] have shown that national biodiversity has been declining despite the prevalence of conservation efforts, and approximately 13% of all species across the UK are under threat of extinction. The most important habitats (those for which the UK has a European level responsibility) also remain in relatively poor condition (71% unfavourable for the UK versus an EU average of 30%). A rising population and associated need for development may cause further loss, fragmentation and degradation of habitats, causing a further decline in biodiversity.

Development of greenbelt land in particular is likely to encourage less sustainable travel methods (i.e. use of the private car), given these areas are likely to have limited existing transport infrastructure available. This may have knock-on effects on habitats sensitive to air quality and disturbance.

The declining trend in the provision of many ecosystem services reported in the UK NEA is expected to continue – in part due to the continuing deterioration, loss and fragmentation of habitats, as reported in the national 'State of Nature 2019' report[45].

Biodiversity and natural capital is under threat from climate change, with changing temperatures and extreme weather events resulting in the loss, degradation and movement of species and habitats. Increased frequency and severity of flooding will be a particular threat to Lincolnshire.

An increase in the number of private vehicles on the roads and associated increases in noise pollution, air pollution, and contaminated surface water run-off, could restrict the ability of existing roadside habitats (including trees) to reduce these impacts. Even with the transition towards electric vehicles, particulate emissions are predicted be problematic into the future due to the impacts of non-exhaust emissions.

However, there is also an increasing trend amongst governments and businesses to be "Future Ready", which includes addressing issues surrounding biodiversity, resource use, and climate change. Investing in natural capital and delivering resilient nature-based solutions is an effective way of addressing these issues simultaneously. As such, the multiple benefits that arise from taking a natural capital approach significantly contribute to sustainable development, often at lower cost than more conventional infrastructure[54].

[52] State of Nature. 2016.[online] Available from: https://www.rspb.org.uk/our-work/conservation/projects/state-of-nature-reporting (Accessed 09/02/2021)
[53] HM Government. 2018. A Green Future: Our 25 Year Plan to Improve the Environment Annex 1: Supplementary evidence report [online] available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/673492/25-year-environment-plan-annex1.pdf (Accessed 09/02/2021)
[54] IPBES. 2019. Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Available at: https://ipbes.net/global-assessment (Accessed 11/03/2021)

LANDSCAPE AND TOWNSCAPE

SUMMARY OF CURRENT BASLINE

An Area of Outstanding Natural Beauty (AONB) is a designated landscape whose distinctive character and natural beauty are deemed precious enough to be safeguarded in the national interest. There is one AONB in Lincolnshire; Lincolnshire Wolds AONB.

Lincolnshire falls within a number of Natural England's National Character Areas (NCA), as listed in **Table B.9** below.

Table B.8 - National Character Areas within Lincolnshire

NCA	Description
39: Humberhead Levels	Flat, low-lying and large scale agricultural landscape bounded to the west by the low ridge of the Southern Magnesian Limestone and to the east by the Yorkshire Wolds (north of the Humber) and the Northern Lincolnshire Edge with Coversands (south of the Humber).
42: Lincolnshire Coast and Marshes	Wide coastal plain which extends from Barton-upon-Humber in the north, across to Grimsby at the mouth of the Humber and south to Skegness. The area is bounded by the North Sea along its eastern edge and by the Lincolnshire Wolds to the west.
43: Lincolnshire Wolds	Long, narrow band of rolling agricultural land dominated by a west-facing chalk escarpment approximately 50m high. The area is characterised by a range of varied yet unified features including open, arable plateau hill tops, chalk escarpments, deep dry valleys with sinuous beech woods and isolated ash trees punctuating the skyline.
44: Central Lincolnshire Vale	Tranquil, rural and sparsely settled landscape is largely used for agricultural production, mainly for the growing of arable crops, principally cereals.
45: Northern Lincolnshire Edge with Coversands	Ridge of Jurassic limestone running north from Lincoln to the Humber Estuary. The scarp slope rises prominently from adjacent low-lying land, forming the Edge or Cliff, and giving panoramic views out, in particular to the west. In the north is a second, lower scarp of ironstone.
46: The Fens	Distinctive, historic and human-influenced wetland landscape lying to the west of the Wash estuary, which formerly constituted the largest wetland area in England. The area is notable for its large-scale, flat, open landscape with extensive vistas to level horizons.
47: Southern Lincolnshire Edge	Area of clear character defined by the dramatic limestone cliff to the west and the dip slope that drops gently away to the edge of the fens in the east.
48: Trent and Belvoir Vales	Undulating, strongly rural and predominantly arable farmland, centred on the River Trent. A low-lying rural landscape with relatively little woodland cover, the NCA offers long, open views.
74: Leicestershire and Nottinghamshire Wolds	Part of a belt of Wold landscapes formed by gently dipping Jurassic rocks which stretch from the Cotswolds to Lincolnshire.

NCA	Description
75: Kesteven Uplands	Gently rolling, mixed farming landscape dissected by the rivers Witham and the East and West Glen.
92: Rockingham Forest	Broad, low, undulating ridge underlain by Jurassic limestone which falls away from a prominent, steep northern scarp overlooking the Welland Valley. Large areas of woodland remain a significant feature of the landscape and, while not forming continuous belts, the blocks of woodland often coalesce visually with hedgerow trees and smaller copses to increase the perception of extensive woodland cover across the landscape.

Key settlements in Lincolnshire include Lincoln, Grantham and Boston. Between the City of Lincoln and the main towns, dispersed villages and farmsteads are spread across the countryside.

The Lincolnshire coastline has been shaped throughout history by natural processes such as changes in sea level and coastal processes are constantly shaping the coast. Large proportions of the coast are vulnerable to marine flooding and erosion and is likely to be compounded by climate change and sea level rise in the future[55].

Due to the extent of the county, the highway network is extensive covering 8,905km – the 5th largest of any local highway authority. However, within this total, there are no motorways and just 66km of dual carriageway. Major transport routes include:

- Sections of the A1, A46 and A52 (trunk roads)
- Sections of the East Coast mainline railway line
- National Cycle Route's 1, 12, 15, 63, 64, 93 and 647
- Skegness to Mablethorpe Coastal Path Route

Major tourist attractions in Lincolnshire include:

- Lincolnshire Showground
- Lincoln Cathedral
- Roman Lincoln Trail
- Lincoln Castle
- National Trust sites (7 in total)
- National nature reserves (5 in total)
- The Lincolnshire Wolds AONB

[55] Environment Agency, Coastal Trends Report, Lincolnshire, 2008, [online] Available at: https://www.channelcoast.org/anglian/analysis_programme/Coastal%20Trends%20Report%20Lincolnshire%20(Subcells%202b-c%20-%20Grimbsy%20to%20Gibraltar%20Point)%20RP007L2008.pdf (Accessed 15/03/2021)

FUTURE TRENDS

Designated landscapes, such as AONBs, are given the highest status of protection against development within their boundaries to conserve their landscape and scenic beauty. However, they may still be impacted indirectly through changes to their setting and tranquillity due to increased traffic flows, change in land use, visitor pressure and light and noise pollution.

Climate change will also put pressure on the Lincolnshire Wolds AONB as new pests and diseases emerge and extreme weather increasing stresses on nature conservation. Ongoing pressures on public finances and the need to reduce both central and local authority budgets will continue to have a direct impact upon the management of Lincolnshire Wolds AONB[56].

Landscape and townscape character and quality is under particular threat from future development (including the construction and operation of transport infrastructure) through, for example, loss of tranquillity, increased lighting (particularly into dark night skies), visual intrusion, and the incremental loss of landscape features and characteristic elements.

Similarly, pressures from expanding populations put more strain on existing systems, and more pressure on recreational landscapes and tourist attractions.

[56] Lincolnshire Wolds, Lincolnshire Wolds Area of Outstanding Natural Beauty Management Plan 2018-2023, 2018, [online] Available at: https://www.lincswolds.org.uk/library/Management_Plan_Part_1_2018-23.pdf (Accessed 15/03/2021)

HISTORIC ENVIRONMENT

SUMMARY OF CURRENT BASLINE

There are a number of designated assets throughout Lincolnshire including:

- The Lincolnshire Wolds AONB;
- 480 Scheduled Monuments;
- 2,049 Listed Buildings;
- The Battle of Winceby 1643 registered battleground; and
- 34 Registered Parks and Gardens.

Local planning authorities are obliged to designate conservation for areas in their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. There are 161 conservation areas located in Lincolnshire.

Historic England's Heritage at Risk (HAR) programme helps to understand the overall state of England's historic sites. It identifies those sites that are most at risk of being lost as a result of neglect, decay or inappropriate development. In Lincolnshire there are 171 heritage assets on the HAR register.

In addition to designated heritage assets, Lincolnshire has a number of non-designated historic buildings, landscapes, archaeological remains and civic structures that are not formally recognised but play an important role in defining the character of the county. Local heritage assets are at risk of being overlooked and losing their significance through alteration, or in some cases complete demolition[57].

The Lincolnshire Wolds AONB is a rich archaeological resource, which was one of the key reasons for its designation. Traces of earlier human activity can be found all over the AONB. The area has over 350 Bronze Age round barrows dating from around 2,000BC and flint hand axes show that early humans were living in the Lincolnshire Wolds over 300,000 years ago[58]. The landscape also has examples of Roman, Anglo-Saxon, Medieval and post Medieval archaeological remains.

Lincolnshire also has significant archaeological resources that reside outside of the Lincolnshire Wolds AONB. Visible remains include Neolithic long-barrows, Roman town walls, deserted medieval villages, churches and castles. There are also a large number of buried assets such as prehistoric landscapes in the Fens, causeways, burial mounds in the Witham Valley and deep urban deposits in the city of Lincoln.

[57] Heritage Lincolnshire, Lincolnshire Local Listing Campaign [online] available at: https://www.heritagelincolnshire.org/projects/local-heritage-list-campaign (Accessed 29/06/2021)
[58] Lincolnshire AONB, Archaeology [online] available at: https://www.lincswolds.org.uk/discovering/archaeology (Accessed 11/03/2021)

Heritage England has declared a number of High Street Heritage Action Zones, which are areas that receive funding to boost economic growth using the historic environment as a catalyst. Grantham High Street and Lincoln High Street are two of the 60 High Street Action Zones nationally, where historical buildings will be repaired and renovated and traffic will be better managed to assist with the enhancement of these areas, making it more appealing to both local residents and visitors.

FUTURE TRENDS

Protection of the historic environment is firmly embedded in national and local planning policy, and this has been the case since 1990. This policy has developed independently of the European Union and is unlikely to change in the near future.

However, whilst direct (physical) impacts on designated historical sites are strongly restricted, adverse effects on the setting of designated heritage assets does still occur, for example relating to visual intrusion, or aspects such as traffic, lighting and noise. This can be a sensitive planning issue.

One trend over the last few years which may well continue is the reduction in funding for Historic England and county and local authorities, with increased pressure on the case workload of Archaeological Officers, Conservation Officers and Historic England advisors. This can have an impact on the response times for the provision of planning advice.

WATER ENVIRONMENT

SUMMARY OF CURRENT BASLINE

The Anglican river basin district falls within the county of Lincolnshire. This river basin covers Witham Management Catchment, which encompasses 82 waterbodies in five operational catchments that fall within the county:

- Fens East and West;
- South Forty Foot Drain;
- Steeping and Eaus;
- Witham Upper; and
- Witham Lower.

The Water Framework Directive (WFD) sets an objective of aiming to achieve at least 'good' status for all waterbodies by a set deadline specific for each waterbody. Most of the monitored waterbodies are 'main rivers' that are under the jurisdiction of the Environment Agency. **Table B.10** below shows the water quality of the 82 waterbodies in the Lincolnshire for 2019 cycle [59].

Table B.9 - Water Framework Classifications, 2019

Operational Catchments	Classification						
	Total Water Bodies	Ecological Status				Chemical Status	
		Bad	Poor	Moderate	Good	Fail	Good
Fens East and West	2	1	0	1	0	2	0
South Forty Foot Drain	9	0	2	6	1	9	0
Steeping and Eaus	15	1	1	11	2	15	0
Witham Lower	34	2	6	26	0	34	0
Witham Upper	22	0	4	16	2	22	0
Total	**82**	**4**	**13**	**60**	**5**	**82**	**0**

Of the 82 water bodies, only five are achieving 'good' ecological status, falling far short of the WFD target. 73% are achieving 'moderate' status, whilst 20.7% are achieving 'poor' or 'bad' status. All water bodies failed based on their chemical status. The main reason for the failure is predominantly

[59] Environment Agency, Witham Management Catchment (2019) Available at: https://environment.data.gov.uk/catchment-planning/ManagementCatchment/3116 (Accessed 11/03/2021)

due to agriculture and land management issues, where there is pollution from rural areas, mainly phosphate, and physical modifications which change the natural flow of the river. The catchments that incorporate more urban areas, such as Witham Lower and Upper, have issues with urban and transport pollution.

The Anglican River Basin Management Plan, published in 2009 and updated in 2015[60], states that 13% of the Anglican river basin rivers, canals and surface water transfers should be at good or better overall status and 42% having a good ecological status, by 2021.

National flood zone data correlates with the location of main rivers and ordinary watercourses as areas with the greatest risk of flooding. The government's flood map for planning[61] shows that large parts of Lincolnshire are within a flood zone 3 area, predominantly the east coastline (flooding from the sea) and the South of Lincolnshire, in towns like Skegness and Boston, as well as significant parts of Gainsborough, Lincoln and Spalding.

FUTURE TRENDS

In terms of water quality, the requirements of the WFD should lead to continued improvements to water quality in watercourses. However, water quality is also likely to continue to be affected by: pollution incidents in the area; runoff from urban, transport and agricultural areas; the presence of non-native species; and physical modifications to water bodies.

Maintaining water supplies in the 2050s will be challenging in Lincolnshire. Deficits may develop across England by the 2050s due to climate change alone; these would be exacerbated by population growth.

At a regional level, the future implications of climate change projections include: increased coastal and flood-plain flood events leading to damage to property and disruption to economic activity; water shortages; and higher incidence of damage to transportation, utilities and communications infrastructure caused by an increase in the number of extreme weather events (e.g. heat, high winds and flooding).

[60] Anglian River Basin Management Plan [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/718327/Anglian_RBD_Part_1_river_basin_management_plan.pdf (Accessed 16/03/2021)

[61] Environment Agency, Flood Map for Planning [online] Available at: https://flood-map-for-planning.service.gov.uk/ (Accessed 16/03/2021)

AIR QUALITY

SUMMARY OF CURRENT BASELINE

In 2019, road transport and other transport modes (including rail and shipping) contributed 33% and 14% respectively to total national nitrogen oxide (NOx) emissions[62], and 12% to particulate matter ($PM_{2.5}$) emissions[63]. The adverse impact of airports on air quality is principally from surface access via road transport and the biggest domestic impact of an aircraft is during take-off and landing (1% of total NO_x and sulphur dioxide (SO_2) national emissions)[64]. Currently, the most challenging pollutant in terms of limit value compliance is nitrogen dioxide (NO_2).

Where air quality objectives are not likely to be achieved, an Air Quality Management Area (AQMA) must be declared. These are predominantly associated with vehicle emissions, principally NO_x, although a few have been declared for PM_{10}. As such, AQMAs are mostly located within urban areas and sections of the road network which are heavily trafficked and frequently congested.

In Lincolnshire, there are currently 10 AQMAs; Boston Borough Council has two AQMAs declared for NO_2, South Kesteven District Council has six AQMAs, four declared for both NO_2 and PM_{10} and two declared NO_2 alone, and Lincoln City Council has two AQMAs, one declared for NO_2 and one declared for PM_{10}.

The Department for Environment, Food and Rural Affairs (Defra) air quality statistics from 1987 to 2019 show significant downward long-term trends in both NO_2[65] and NO_x concentrations[66]. There has been a 71% reduction in annual national NO_x emissions between 1970 and 2019, and a 48% reduction in annual mean roadside NO_2 emissions between 1997 and 2019[54].

Short term (hours) exposure to ground level ozone concentrations can cause respiratory illnesses, and the World Health Organisation's Air Quality Guidelines have established a guideline value for

[62] Department for Environment, Food and Rural Affairs, ENV01 – Emissions of Air Pollutants: UK Annual Emissions of Nitrogen Oxides by 2019 Major Emissions Sources: 1990, 2005, 2018 and 2019, 2021, [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/960193/Figure07_NOx_sector.csv/preview (Accessed 04/03/2021)

[63] Department for Environment, Food and Rural Affairs, ENV01 – Emissions of Air Pollutants: UK Annual Emissions of PM2.5 by 2019 Major Emissions Sources: 1990, 2005, 2018 and 2019, 2021, [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/960190/Figure05_PM2_5_sector.csv/preview (Accessed 04/03/2021)

[64] Department for Environment, Food and Rural Affairs, Clean Air Strategy, 2019, [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770715/clean-air-strategy-2019.pdf (Accessed 04/03/2021)

[65] Department for Environment, Food and Rural Affairs, National Statistics: Concentrations of Nitrogen Dioxide, 2021, [online] Available at: https://www.gov.uk/government/statistics/air-quality-statistics/ntrogen-dioxide#trends-in-concentrations-of-no2-in-the-uk (Accessed 04/03/2021)

[66] Department for Environment, Food and Rural Affairs, National Statistics: Emissions of Air Pollutants in the UK – Nitrogen Oxides (NO_x), 2021, [online] Available at: https://www.gov.uk/government/statistics/emissions-of-air-pollutants/emissions-of-air-pollutants-in-the-uk-nitrogen-oxides-nox#trends-in-total-annual-emissions-of-nitrogen-oxides-in-the-uk-1970-to-2019 (Accessed 04/03/2021)

ambient air of 120µg m^{-3} over a maximum 8-hour period per day[67]. In 2019, Lincolnshire experienced 5-15 days where ozone levels were greater than 120µg m^{-3} [68]. Defra has reported non-compliance with the long-term objective (relating to human health) for ground level ozone across the Lincolnshire area[69]. Whilst ozone is not directly emitted by transport sources, transport emissions of volatile organic compounds and NO_x will influence regional ozone levels.

Airports can have an adverse effect on air quality principally from surface access via road transport. Lincolnshire comprises of smaller commercial, public and private airfields and airstrips and the county boundary is close to Humberside Airport. Emissions associated with surface access via road and aircraft is during take-off and landing from this airport will affect receptors within Lincolnshire.

FUTURE TRENDS

The number of vehicles on the roads is likely to increase as the population rises, putting air quality at further risk of degradation. More severe and frequent heat episodes (associated with the changing climate) can also worsen air quality, and therefore asthma, respiratory diseases and allergic reactions, without further intervention.

There are currently plans for a third runway at Heathrow Airport which could increase the airport's capacity significantly. This development could have effects on air quality in Lincolnshire as in 2018 the Department for Transport announced a potential new route between Heathrow and Humberside Airport in North Lincolnshire for the new runway[70].

The creation of Clean Air Zones in major UK cities and possibly beyond is part of the government's broader Air Quality Plan, which aims to improve air quality and address sources of pollution. The UK Government's 25 Year Environment Plan reports that the transport sector is responsible for around 40% of the UK's final energy use and contributes to local air quality issues[71].

Improved engines and emission standards have helped bring about the reductions in NO_x emissions seen in recent decades. The use of catalytic convertors aided the decline in emissions of non-methane volatile organic compounds (NMVOCs) and the reduction of sulphur in fuels has

[67] European Environment Agency, Tropospheric Ozone in EU - The consolidated report, [online] Available at: https://www.eea.europa.eu/publications/TOP08-98 (Accessed 04/03/2021)
[68] Department for Environment, Food and Rural Affairs, UK Ambient AQ Map, [online] Available at: https://uk-air.defra.gov.uk/data/gis-mapping/ (Accessed 04/03/2021)
[69] Department for Environment, Food and Rural Affairs, Air Pollution in the UK 2019, 2020, [online] Available at: https://uk-air.defra.gov.uk/library/annualreport/ (Accessed 04/03/2021)
[70] Department for Transport, Policy paper: A New Runway at Heathrow and Yorkshire and the Humber, 2018, [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/713774/a-new-runway-at-heathrow-and-yorkshire-and-the-humber.pdf (Accessed 04/03/2021)
[71] HM Government, A Green Future: Our 25 Year Plan to Improve the Environment, 2018, [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf (Accessed 04/03/2021)

contributed to a decline in SO_2 emissions from the transport sector. However, despite tighter emissions standards a rise in diesel vehicle numbers has held back further improvements[72].

Overall, emissions have the potential to reduce in future, largely due to progressively tighter vehicle emission and fuel standards agreed at European level and set in UK regulations. This is also resulting in advances in vehicle technology (such as electric and plug-in hybrids). For example, bus fleets are commonly being upgraded to either electric or hybrid vehicles, and this trend is expected to continue.

The UK Government's 2020 Ten Point Plan for a Green Industrial Revolution aims to introduce at least 4,000 more zero emissions buses, representing 12% of the local operator bus fleet in England[73]. Predictions for future vehicle NO_2 reductions are more reliant on the Real Driving Emissions (RDE) testing than a switch to electric vehicles in the short to medium term and as such, are reliant on enforcement and compliance with approval standards.

[72] Department for Environment, Food and Rural Affairs, the State of the Environment: Air Quality, 2018, [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/729820/State_of_the_environment_air_quality_report.pdf (Accessed 04/03/2021)
[73] HM Government, The Ten Point Plan for a Green Industrial Revolution, 2020, [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/936567/10_POINT_PLAN_BOOKLET.pdf (Accessed 04/03/2021)

CLIMATE CHANGE AND GREENHOUSE GASES

SUMMARY OF CURRENT BASELINE

In 2019, an estimated 27% of national greenhouse gas emissions (GHGs) were from the transport sector, 21% from energy supply, 17% from business and 15% from the residential sector, with carbon dioxide (CO_2) being the most prominent gas from these sectors[74]. In 2018, transport accounted for 122.2 $MtCO_2e$ of GHG emissions, which represents a reduction of 2% compared with 2018 figures[75].

In 2018, a total of 3,845.4kt CO_2 emissions were generated in Lincolnshire. Like the national trend, the greatest number of CO_2 emissions in Lincolnshire came from the transport sector, making up 38% of the total emissions. The total CO_2 emissions in Lincolnshire make up 1% of the total emissions in England[76].

During the same period, the average per capita emissions across Lincolnshire is 5.1 tonnes of CO_2 emissions per person, which is slightly lower than the national average of 5.2 tonnes per person[76]. Looking at the districts individually, South Kesteven has the highest level of emissions per capita at 5.9 tonnes, whilst Lincoln has the lowest at 3.4 tonnes[76].

During the most recent decade (2009-2018) the UK has been on average 0.3°C warmer than the 1981-2010 average and 0.9°C warmer than 1961-1990. All of the top ten warmest years have occurred since 2002. In the past few decades there has been an increase in annual average rainfall over the UK, for which the most recent decade (2009–2018) has been on average 5% wetter than 1961–1990 and 1% wetter than 1981-2010[77].

FUTURE TRENDS

The UK is committed to legally binding GHG emissions reduction targets of 80% by 2050, compared to 1990 levels, as set out in the Climate Change Act 2008[78]. The UK ratified the 2015 Paris

[74] Department for Business, Energy and Industrial Strategy, 2019 UK Greenhouse Gas Emissions, Final Figures, Statistical Release: National Statistics, 2021, [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/957887/2019_Final_greenhouse_gas_emissions_statistical_release.pdf (Accessed 04/03/2021)
[75] Department for Business, Energy and Industrial Strategy, 2019 UK Greenhouse Gas Emissions: Final Figures, Data Tables, 2021, [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/957605/final-greenhouse-gas-emissions-tables-2019.xlsx (Accessed 04/03/2021)
[76] Department for Business, Energy and Industrial Strategy, 2005 to 2018 UK Local and Regional CO2 Emissions, Data Tables, 2020, [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/894787/2005-18-uk-local-regional-co2-emissions.xlsx (Accessed 04/03/2021)
[77] Met Office, UK Climate Projections: Headline Findings, 2019, [online] Available at: https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp-headline-findings-v2.pdf (Accessed 04/03/2021)
[78] Climate Change Act 2008, [online], Available at: https://www.legislation.gov.uk/ukpga/2008/27/contents (Accessed 04/03/2021)

Agreement, which set out a GHG emission reduction target of at least 40% by 2030, compared to 1990 with a long-term strategy for net zero emissions by 2050[79]. However, a more ambitious target was set by the UK in 2020 to reduce greenhouse gas emissions by at least 68% by 2030, compared to 1990 levels[80]. This means changes to technology as well as ways in which people travel.

For example, ahead of 26th Conference of the Parties (COP26) Summit, the UK has brought forward its ban on the selling of new petrol, diesel or hybrid cars from 2040 to 2030. The last decade has seen a remarkable surge in demand for electric vehicles in the UK. The number of licensed ultra-low emission vehicles (ULEVs) in the UK has increased by 3,427% between the end of March 2010 to the end of June 2020, a jump from just under 9,000 ULEVs to 317,000 ULEVs[81].

The infrastructure to support the demand in electric cars has also continued to increase, and as a result of sustained government and private investment, the UK network of charging points has increased from a few hundred in 2011 to more than 12,400 charging locations, 19,700 charging devices and 34,400 connectors by October 2020[82]. Other examples include changing travel modes and increasing planning for efficient and reliable public transport infrastructure.

Four of the local authorities within Lincolnshire have declared climate emergencies and set commitments to reduce their carbon footprint. They include Lincoln City Council, North Kesteven District Council, South Kesteven District Council and Boston Borough Council. Lincolnshire County Council has not declared a climate emergency, however in 2019 it has approved its third Carbon Management Plan which aims to achieve a 20% reduction in emissions from 2018 levels by 2023[83].

By the end of the 21st century, all areas of the UK are projected to be warmer, more so in summer than in winter. This projected temperature rise in the UK is consistent with future warming globally. Rainfall patterns across the UK are not uniform and vary on seasonal and regional scales and will continue to vary in the future, with significant increases in hourly precipitation extremes[77]. Both temperature and rainfall the changes will be much larger if greenhouse gas emissions continue to increase.

Despite this, the current estimates for temperature increases and changes to rainfall patterns are unlikely to alter significantly in the near future, given the timescales associated with climate change. This being the case, there will be an increasing need to implement climate change mitigation and adaptation measures in light of changing environmental conditions.

[79] Paris Agreement, [online], Available at: https://ec.europa.eu/clima/policies/international/negotiations/paris_en (Accessed 04/03/2021)
[80] Department for Business, Energy and Industrial Strategy, Press Release: UK Sets Ambitious New Climate Target Ahead of UN Summit, 2020, [online] Available at: https://www.gov.uk/government/news/uk-sets-ambitious-new-climate-target-ahead-of-un-summit (Accessed 04/03/2021)
[81] House of Commons, Briefing Paper: Electric Vehicles and Infrastructure, 2020, [online] Available at: file:///C:/Users/UKELL002/Downloads/CBP-7480.pdf (Accessed 04/03/201)
[82] Electric car market statistics, 2020. [online] Available at: https://www.nextgreencar.com/electric-cars/statistics/ (Accessed 04/03/2021)
[83] Lincolnshire County Council, Carbon Management Plan Final 2019, 2019, [online] Available at: https://www.lincolnshire.gov.uk/downloads/file/3165/carbon-management-plan-2018-23 (Accessed 15/03/2021)

SOIL RESOURCES AND WASTE

SUMMARY OF CURRENT BASELINE

According to Natural England's Agricultural Land Classification[51], much of the agricultural land in Lincolnshire is rated good to moderate quality (Grade 3). Land to the South/South East of the county between Spalding and Boston and the edges of Skegness are rated very good to excellent (grades 1-2). Land also increases in quality between Boston and Lincoln following the same path as the River Witham.

Wetland and peatland soils are of high environmental value due to their carbon storage abilities and therefore, climate regulation. They are England's largest carbon store on land[84], estimated to contain around 584 million tonnes of carbon[85]. According to Natural England[79], there are hotspots of deep peatland soil in Lincolnshire located outside Lincoln in Woodhall Spa, around Scunthorpe, outside Boston towards Spilsby, and around Spalding.

Sandstone, Limestone, Siltstone Argillaceous Rocks, Mudstone and Chalk are the common bedrock geology in the county[86] . Sand and gravel resources are Lincolnshire's most important aggregate minerals. There are 14 sand and gravel extraction sites within Lincolnshire, providing an average of 2.37 million tonnes (Mt) per annum between the years 2004-2013, representing 31.1% of sand and gravel sales within the East Midlands.[87]

The UK generated 222.9 million tonnes of total waste in 2016, with England responsible for 85% of the UK total[88]. Construction, demolition and excavation (CDE) waste makes up around 60% of the entire amount of waste produced by the UK each year, making this the country's largest waste stream. However, once hazardous waste and navigational dredging spoil is excluded, 76% of CDE waste is currently being recovered and recycled for alternative uses[89]. This exceeds the EU target[90] of 50%, which the UK must meet by 2020.

[84] Lincolnshire Wildlife Trust 2021. Celebrating wetlands – where land meets water [online] Available at: https://www.lincstrust.org.uk/blog/guest/celebrating-wetlands-where-land-meets-water (Accessed 11/06/2021)
[85] Natural England 2010. England's peatlands - Carbon storage and greenhouse gases [online] Available at: http://publications.naturalengland.org.uk/publication/30021 (Accessed 11/06/2021)
[86] British Geological Society Maps. [online] Available at: http://mapapps2.bgs.ac.uk/geoindex/home.html?topic=Minerals (Accessed10/03/2021)

[87] Lincolnshire County Council Minerals and Waste Local Plan 2016 [online] Available at: https://www.lincolnshire.gov.uk/directory-record/61697/minerals-and-waste-local-plan-core-strategy-and-development-management-policies (Accessed 16/03/2021)

[88] Defra. 2018. UK Statistics on Waste. [online] Available at: https://www.gov.uk/government/statistical-data-sets/env23-uk-waste-data-and-management (Accessed 10/03/21)
[89] MRW. 2019. CDE recycling levels. [online] Available from: https://www.mrw.co.uk/knowledge-centre/do-the-numbers-reflect-true-cde-recycling-levels/10040434.article (Accessed 10/03/2021)
[90] Waste Framework Directive 2018 target of 50% preparation for re-use / recycling for municipal waste.

Defra's landfill capacity figures[91] show that landfill capacity for Lincolnshire has been declining and will do so in the absence of future provision. However, the total residual waste collected by Lincolnshire country council was around 185,000 tonnes between 2018-2019, with only 3.2% of household waste going to landfill[92]. This low figure is predominately due the Lincoln Energy from Waste facility, which turns waste collected from the local Lincoln area and five waste transfer stations based at Boston, Gainsborough, Grantham, Louth and Sleaford, into energy used to heat local homes and business[93].

FUTURE TRENDS

Due to projected population trends, there will be a need for development (including transport infrastructure) to support this growth. This development is likely to increase pressure upon agricultural land, which could potentially result in the loss of some of the county's best and most versatile land.

Agricultural areas are also at risk from climate change. Projections of increased flooding (including that caused by sea-level rise) and drought may lead to the loss of important agricultural areas, through compaction, waterlogging and erosion of soil.

The growing population and associated need for development are also likely to increase use of mineral resources and waste generation. As such, it will be necessary to apply resource efficiency and waste management measures, including the re-use and recycling of materials.

[91] Defra. 2018. [online] Available at: https://data.gov.uk/dataset/237825cb-dc10-4c53-8446-1bcd35614c12/remaining-landfill-capacity (Accessed 10/03/2021)
[92] Waste Data Flow. Available at https://www.wastedataflow.org/ (Accessed 10/03/21)
[93] Lincolnshire FCC. Available at: https://lincolnshire.fccenvironment.co.uk/ (Accessed 10/03/21)

NOISE AND VIBRATION

SUMMARY OF CURRENT BASLINE

Noise Important Areas (NIAs) are where the 1% of the population that are affected by the highest noise levels from major roads are located[94]. There are 100 NIAs throughout Lincolnshire, concentrated in and around the town and city centres and along major roads and railways. Of the 100 NIAs, 92 are identified for road noise and 8 are identified for rail noise.

Data from the England Noise Viewer[95] shows that A roads, namely the A1, A15, A16, A17 and A26, and railways around Lincoln and Grantham create significant noise with noise levels exceeding 55dB in areas within 1km of the source (Lden, 24-hour annual average noise levels with weightings applied for the evening and night periods). Areas affected are exacerbated along where major roads merge and in locations where roads and railways cross.

FUTURE TRENDS

Given the projections for an increasing population, and the current preference for cars as the main mode of transport, there is potential that noise levels will increase along major roads. However, more congestion may lead to slower moving traffic which may reduce noise levels. Furthermore, recent vehicle innovations such as hybrid and electric cars have led to quieter vehicles and this trend is expected to continue with greater uptake.

Future trends in noise targets are expected to focus on more stringent criteria, where the link between health effects and noise begins to be better understood. Additionally, future climate change effects will likely result in an increase in ambient temperatures and for longer periods, creating a need to seek thermal relief, which generally with existing housing stock tends to be satisfied by opening of windows, thus increasing exposure to noise.

[94] Department for Environment, Food and Rural Affairs, Noise Action Plan: Roads, 2019, [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/813666/noise-action-plan-2019-roads.pdf (Accessed 15/03/2021)
[95] Extrium, England Noise and Air Quality Viewer, 2017, [online] Available at: http://extrium.co.uk/noiseviewer.html (Accessed 05/03/2021)

Appendix C

CONSULTATION COMMENTS

Table C-1 –Consultation Comments

No.	Consultee	Comment	Summary of Action taken/ Why no Action is Required
Scoping Consultation Comments			
1	Environment Agency	Thank you for your email. We have reviewed the report and consider that all likely significant effects (including cumulative effects) have been adequately considered.	No Action - General comment
2	Natural England	We acknowledge that the environmental baseline information included within the report generally provides sufficient information on the natural environment. The attached information set out in appendix 1 may provide further useful information.	Appendix 1 has been reviewed and Appendix A of the Scoping Report has been updated with the some of the suggested documents.
3	Natural England	Natural England has not reviewed the plans listed. However, we advise that the following types of plans relating to the natural environment should be considered where applicable to your plan area: • Green infrastructure strategies • Biodiversity plans • Rights of Way Improvement Plans • River Water Framework Directive • Relevant landscape plans and strategies. • Mineral Strategies	WSP have revisited the policy review and have ensured that the plans listed have been included. These have been added to Appendix A of the Scoping Report. LCC have taken these plans into consideration when drafting elements of the LTP to ensure that the policy and content is aligned.

No.	Consultee	Comment	Summary of Action taken/ Why no Action is Required
4	Natural England	Soils – We welcome the intention to consider soils as part of your scoping stage. We recommend that as part of your consideration that you assess soil as a finite resource, which fulfils many roles that are beneficial to society. As a component of the natural environment, it is important soils are protected and used sustainably. Key considerations within the overall plan should recognise that development (soil sealing) has a major and usually irreversible adverse impact on soils. Mitigation should aim to minimise soil disturbance and to retain as many ecosystem services as possible through careful soil management during the construction process.	WSP have included this within the include the proposed mitigation measures as set out in Table 5.6.
5	Natural England	Soils of high environmental value (e.g. wetland and carbon stores such as peatland) should also be considered as part of ecological connectivity.	WSP have included some additional baseline information on high quality soil environments.
6	Natural England	We also advise that any policies refer to the Defra Code of practice for the sustainable use of soils on construction sites.	Reference to this guidance has been provided within the mitigation measures – Table 5.6.
7	Natural England	As well as soils in general, we recommend that you have a separate section specifically on Best and Most Versatile Agricultural Land. BMV land is Grades 1, 2 and 3a in the Agricultural Land Classification.	No Action - Given the strategic nature of the scoping report, we believe that BMV has been sufficiently covered within the baseline.
8	Natural England	Under NPPF 112. Local Planning Authorities should take into account the economic and other benefits of the best and most versatile agricultural land. Where significant development of agricultural land is demonstrated to be necessary, Local Planning Authorities should seek to use areas of poorer quality land in preference to that of a higher quality. You may wish to refer to Natural England's advice on BMV Land.	The avoidance of BMV has been included within the assessment of polices, as well as mitigation and monitoring measures.

No.	Consultee	Comment	Summary of Action taken/ Why no Action is Required
9	Natural England	Water - Planning Practice Guidance on Water supply, wastewater and water quality can provide additional information to how your plan can protect habitats from water related impacts and seek enhancement, especially N2K and SSSIs, but also local sites and also positively contribute to reducing flood risk by working with natural processes- link with Green Infrastructure policies, SUDs etc.	WSP have included the Planning Practice Guidance on Water supply within the policy review. The opportunities of greenspaces and wildlife sites could provide to reducing flood risk, have been included within the sustainability opportunities. The SA assessment will also consider the potential impacts on protected habitats and water related impacts and will provide suitable mitigation and enhancement measures. LCC is one of the leading floods and water management LAs in the UK. LCC is committed to sustainable water management.
10	Natural England	Biodiversity – Natural England recommends that distinctions should be made between the hierarchy of international, national and locally designated sites, so that protection is commensurate with their status and gives appropriate weight to their importance and the contribution that they make to wider ecological networks.	No Action - This has been sufficiently covered within the baseline
11	Natural England	You may wish to consider listing each site individually along with their conservation features and notified features in order to help you determine potential specific impacts and to help with monitoring of the plan.	No Action - Given the strategic nature of the scoping report, we believe that this has been sufficiently covered within the baseline. The SA assessment will consider the potential specific impacts to these sites.

No.	Consultee	Comment	Summary of Action taken/ Why no Action is Required
12	Natural England	We would suggest that Impact Risk Zones (IRZs) should be considered within the assessment criteria. IRZs define zones around each Site of Special Scientific Interest (SSSI) which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts. The IRZs also cover the interest features and sensitivities of European sites which are underpinned by the SSSI designation.	At this stage in the assessment there are no specific interventions therefore we have been unable to assess the impact on specific SSSIs and IRZs. This should be considered for scheme level assessments and has therefore been proposed within the mitigation measures (Table 5.6).
13	Natural England	Natural England has published a set of mapped IRZs for SSSIs. This helpful GIS tool can be used by LPAs to help consider whether a proposed development is likely to affect a SSSI and determine whether they need to consult Natural England to seek advice on the nature of any potential SSSI impacts, their avoidance or mitigation.	At this stage in the assessment there are no specific interventions therefore we have been unable to assess the impact on specific SSSIs and IRZs. This should be considered for scheme level assessments and has therefore been proposed within the mitigation measures (Table 5.6).
14	Natural England	Overall impacts should be considered for habitats and species, we welcome that your authority recognises this, your authority should make reference to Habitats and species of principal importance in England which lists priority species and habitats (i.e. those material to planning).	No Action - Principally important habitats have been included within the baseline. Given the strategic nature of the Scoping Report, it is not appropriate to include reference to all 56 habitats.
15	Natural England	As well as enhancement and protection, we recommend that the restoration of biodiversity is included in line with the National Planning Policy.	The LTP will be consistent with LCCs commitment to enhance and protect the natural environment.

No.	Consultee	Comment	Summary of Action taken/ Why no Action is Required
16	Natural England	Ecological connectivity - There is a risk that in some situations, development on land of limited biodiversity value in its own right can lead to the creation of islands of biodiversity, permanently severed from other areas. We thus suggest adding “Ensure current ecological networks are not compromised, and future improvements in habitat connectivity are not prejudiced”.	WSP has updated the SA objective 5, which now reads: '*To maintain protect and enhance Lincolnshire’s protected habitats, species, valuable ecological networks and ecosystem functionality, ensuring that future development does not compromised connectivity in the county, and contributing to biodiversity net gain'*
17	Natural England	Landscape, land and green infrastructure - We recommend that you reference National Character Areas as part of your overall landscape considerations. NCAs divide England into 159 distinct natural areas. Each is defined by a unique combination of landscape, biodiversity, geodiversity and cultural and economic activity. Their boundaries follow natural lines in the landscape rather than administrative boundaries, making them a good decision-making framework for the natural environment.	No Action - NCAs have been included within the baseline and have been depicted in Figure B-6 in Appendix B.
18	Natural England	Natural England also considers that GI should be an integral part of the creation of sustainable communities, therefore we recommend the Sustainability Appraisal reflects this by ensuring that GI is a cross-cutting theme throughout the assessment. Green Infrastructure can provide many social, economic and environmental benefits close to where people live and work including: • Space and habitat for wildlife with access to nature for people • Places for outdoor relaxation and play • Climate change adaptation - for example flood alleviation and cooling urban heat islands • Environmental education • Local food production - in allotments, gardens and through agriculture • Improved health and well-being – lowering stress levels and providing opportunities for exercise.	WSP have included potential benefits of GI within the issues and opportunities sections of the baseline, which has been reflected in the SA framework.

No.	Consultee	Comment	Summary of Action taken/ Why no Action is Required
19	Natural England	We recommend that this policy should also consider Air Quality impacts on nationally designated sites. Again further information on how your authority should consider the monitoring of Air Quality through the plan can be found on the Planning Practise Guidance at this link. The monitoring of air quality impacts on nationally designated sites from different pollutant sources should be considered.	At this stage in the assessment there are no specific interventions therefore we have been unable to assess the impact on specific designated sites. However, this has been identified within the mitigation measures (Table 5.6). At this stage
20	Natural England	As well as the above policies which your authority has considered in this SA Scoping, Natural England also recommends that you take the following into consideration: Noise and Light – As well as having negative impacts on local amenities, your authority should also consider how these may impact on intrinsically dark landscapes and nature conservation (especially bats and invertebrates). Policies (usually design policies) should address impacts on the natural environment	Reducing the impacts of noise and light pollution is a key objective within the LTP and Policy SH4. The SA has included additional sustainability issues relating to light pollution and 'intrinsically dark landscapes' and the impacts that noise and light pollution can have on habitats and species.
21	Natural England	Geology – Your authority should consider geodiversity in the wider environment but recommend that you also make mention to geology in relation to designated sites.	LCC to consider if this is appropriate to consider within the LTP.
22	Natural England	Woodland – Where possible distinction should be made between semi-natural and ancient woodland.	LCC to consider if this is appropriate to consider within the LTP.
23	Natural England	Sustainability Appraisal Framework Natural England generally supports the sustainability objectives but suggests that you may want to consider using the following indicators which relate to the effects of the plan itself, not wider changes.	No Action required

No.	Consultee	Comment	Summary of Action taken/ Why no Action is Required
24	Natural England	As set out in Planning Practice Guidance, you should be monitoring the significant environmental effects of implementing the current local plan. This should include indicators for monitoring the effects of the plan on biodiversity (NPPF para 117).	Monitoring measures have been considered within the SA assessment, within Section 5.6 (Table 5.7).
25	Natural England	The natural environment metrics in the baseline information are largely driven by factors other than the plan's performance. They are thus likely to be of little value in monitoring the performance of the Plan. It is important that any monitoring indicators relate to the effects of the plan itself, not wider changes. Bespoke indicators should be chosen relating to the outcomes of development management decisions.	Monitoring measures have been considered within the SA assessment, within Section 5.6 (Table 5.7).
26	Natural England	We suggest that the indicators should be able to demonstrate the potential changes that may occur as a result of the implementation of the plan rather than simply recording the numbers of designated sites or open space etc. For example you may want to consider using the following indicators: • Number of planning applications with conditions to ensure works to manage/enhance the condition of SSSI features of interest. • Area of SSSIs in adverse condition as a result of development (information available from Natural England website). • BAP habitat - created/ managed as result of granting planning permission (monitored via planning obligations) and which meet Biodiversity Action Plan targets • Number of new green infrastructure projects associated with new developments.	These monitoring measures have been considered within the monitoring measure section 5.6 (Table 5.7). More specific monitoring measures to SSSIs have been excluded at this stage, as these will be more dependent upon scheme level designs and the location of proposed developments.

No.	Consultee	Comment	Summary of Action taken/ Why no Action is Required
27	Historic England	Reference to the Historic Environment is welcomed. Please also include reference to settings, such as 'heritage assets (rather than historical assets) and their settings' to align with the wording of national planning policy within the National Planning Policy Framework (NPPF).	WSP have amended references throughout the SA Report and Scoping Report
28	Historic England	Similarly, undesignated assets should be referenced as 'non-designated heritage assets'.	WSP have amended references throughout
29	Historic England	Registered battlefields should also be included, such as the Battle of Winceby 1643 (List Entry 1000041).	No Action - This has been included within the baseline
28	Historic England	Reference to the National Character Areas of Lincolnshire within table 5.12 is welcomed.	Noted
29	Historic England	Section 5.8 is strongly welcomed. Non-designated heritage assets should be included within the 'Summary of the Current Baseline'. Reference to Battlefields is welcomed.	WSP have included a new paragraph within the Scoping Report on the significance of local assets and the Local List Campaign
30	Historic England	Archaeology outside of the AONB should also be referenced.	WSP have included a new paragraph within the Scoping Report that includes archaeology outside of the AONB.
31	Historic England	Reference to non-designated assets and the NPPF is welcomed. Again, settings should also be referenced, such as within the third bullet point, after the brackets. Reference to setting within Sustainability Opportunities is welcomed, it would also be helpful to reference archaeology within Opportunities.	WSP have amended the table within the Scoping Report to include heritage assets and their settings
32	Historic England	Sustainability Objective SA8 is welcomed	Noted

No.	Consultee	Comment	Summary of Action taken/ Why no Action is Required
33	Historic England	Registered battlefields should be included on Figure B-7 Historic Environment.	Due to the scale of Lincolnshire, we omitted the inclusion of the one registered battlefield as it wasn't clear.
SA Report Consultation Comments			
34	Historic England	Table NTS 1: SA Objectives and topics Objective SA8 Historic Environment is welcomed.	Noted
35	Historic England	Section 4 Table 4.1 Page 28 – The Historic Environment section is welcomed. In bullet point five, it would be helpful to reference all 'heritage assets and their settings' instead of just listed buildings and scheduled monuments.	Table 4.1 has been updated
36	Historic England	Appendix A Page 7 – Recognition of Lincolnshire's heritage assets is welcomed, together with the impact of pollutants.	Noted
37	Historic England	Appendix B Page 48 / 49 – The Historic Environment section is welcomed.	Noted
38	Historic England	Appendix C Page 68 / 69 – Action taken welcomed.	Noted
39	Historic England	Appendix D Pages 99 – 105 maps welcomed.	Noted
41	Natural England	Having checked the document as provided it is clear that there are no topics which have been left out of the scope of the SA report that Natural England would wish to highlight. The approach and methodology taken in preparing this is acceptable and the report which will be produced	Noted

No.	Consultee	Comment	Summary of Action taken/ Why no Action is Required
		should cover the required range of topics that will enable the report to get a good idea of any inconsistencies if they were to exist. The baseline information that has been included covers a wide range of topics which should provide an adequate starting point to work from.	

Appendix D

FIGURES

The Forum
Barnfield Road
Exeter, Devon
EX1 1QR

wsp.com