wsp

England's Economic Heartland

INTEGRATED SUSTAINABILITY APPRAISAL

Post-Consultation Assessment Report

WSP

England's Economic Heartland

INTEGRATED SUSTAINABILITY APPRAISAL

Post-Consultation Assessment Report

TYPE OF DOCUMENT (VERSION) PUBLIC

PROJECT NO. 70068182

DATE: DATEFEBRUARY 2021

WSP

8 First Street
Manchester
M15 4RP

Phone: +44 161 200 5000

WSP.com

QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	For client review	Final Review	Final - For consultation	Post-consultation revisions
Date	May 2020	May 2020	June 2020	February 2021
Prepared by	Katie Dean	Katie Dean	Katie Dean	Katie Dean
Signature				
Checked by	Sally Newbold	Sally Newbold	Sally Newbold	Sally Newbold
Signature				
Authorised by	Ursula Stevenson	Ursula Stevenson	Ursula Stevenson	Ursula Stevenson
Signature				
Project number	70068182	70068182	70068182	70068182
Report number	01	02	03	04
File reference				

CONTENTS

TABLES

FIGURES

APPENDICES

APPENDIX A

PLANS, POLICIES AND PROGRAMMES

APPENDIX B

ASSESSMENT OF POLICIES

APPENDIX C

ASSESSMENT OF CORRIDORS

APPENDIX D

HEALTH IMPACT ASSESSMENT

APPENDIX E

EQUALITIES IMPACT ASSESSMENT

APPENDIX F

COMMUNITY SAFETY ASSESSMENT

APPENDIX G

HABITAT REGULATIONS ASSESSMENT

APPENDIX H

SCOPING RESPONSES AND ACTIONS TAKEN

APPENDIX I

POLICY REVIEW AND SUSTAINABILITY BASELINE

1 INTRODUCTION

1.1.1. England's Economic Heartland (EEH) is the Sub-National Transport Body (STB) representing 11 Local Authorities (LAs) and six Local Enterprise Partnerships (LEPs) (referred to hereafter as EEH Partners) across the Oxford-Cambridge Arc and surrounding areas, as shown in Table 1.1 and Figure 1-1.

Table 1.1: EEH Partners

LA Partners	LEP Partners
Bedford Borough Council	Buckinghamshire
Buckinghamshire Council	Swindon and Wiltshire
Cambridgeshire County Council	Oxfordshire
Central Bedfordshire Council	South East Midlands
Hertfordshire County Council	
Luton Borough Council	
Milton Keynes Council	**Mayoral Combined Authorities**
Northamptonshire County Council	
Oxfordshire County Council	Greater Cambridge and Peterborough Combined Authority (Observer)
Peterborough City Council	
Swindon Borough Council	

1.1.2. Stretching from Swindon across to Cambridgeshire and from Northamptonshire down to Hertfordshire, the EEH region has a population of more than 5.1 million people, with its 280,000 businesses employing 2.7 million people.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 1 of 68

Figure 1-1 - EEH Region

1.1.3. EEH is responsible for developing a transport strategy for the EEH region to 2050. The Transport Strategy will provide the key mechanism for expressing how EEH will realise its ambition and strategic priorities. The Transport Strategy has been developed to set the direction on how strategic connectivity must be planned and delivered in order to realise the economic potential of the region whilst ensuring the principles of sustainable development are followed to maximise social and environmental benefits. More detail is provided on the Transport Strategy in **Section 2**.

1.1.4. An Integrated Sustainability Appraisal (ISA) has been undertaken alongside the Transport Strategy to ensure that sustainability aspects are incorporated into the Strategy.

1.1.5. The ISA, as set out in Figure 1-2, combines the following assessment processes:

- Strategic Environmental Assessment (SEA);
- Health Impact Assessment (HIA);
- Habitats Regulations Assessment (HRA);
- Equalities Impact Assessment (EqIA); and
- Community Safety Assessment (CSA).

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 2 of 68

Figure 1-2 - ISA and Component Processes
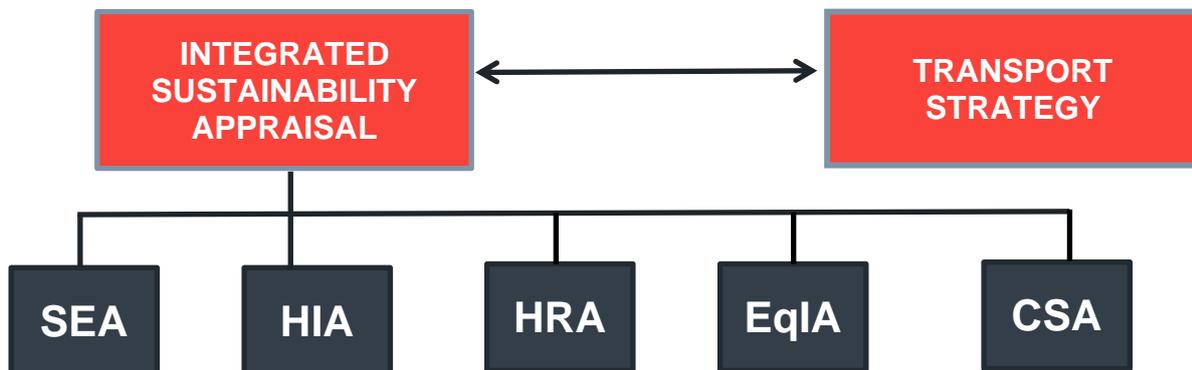
1.1.6. With the exception of the Health Impact Assessment (HIA) and Community Safety Assessment (CSA), the component assessment processes are all required by separate legislation. While it is important that these assessments are undertaken according to legal requirements, they also feed into the ISA as the main tool to assess the Transport Strategy using the ISA Sustainability Appraisal Framework objectives.

1.1.7. WebTAG (Web-based Transport Analysis Guidance) is the Department for Transport's (DfT) guidance for appraising individual transport schemes i.e. highways and other public transport interventions including rail and aviation. This includes guidance on conducting 'social impact appraisal', 'wider economic impacts appraisal', and 'environmental impact appraisal', the latter of which is intended to build on the baseline data and impact assessment work carried out as part of an EIA. As the Transport Strategy does not detail specific new transport interventions, this level of appraisal has not been required as part of the ISA.

1.1.8. More detail on the ISA methodology is provided in **Section 3**.

1.1.9. This ISA Report sets out the second stage of the ISA process, following a Scoping Report which determined the issues to be included in the SA. This report sets out:

- Information on the Transport Strategy (**Section 2**);
- The methodology used for the ISA and its constituent processes (**Section 3**);
- A summary of the sustainability issues and opportunities identified during scoping (**Section 4**);
- The results of the ISA assessments, along with proposed mitigation and monitoring (**Section 5**); and
- The next steps in the ISA process (**Section 6**).

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 3 of 68

2 TRANSPORT STRATEGY

2.1 PURPOSE OF THE TRANSPORT STRATEGY

2.1.1. The ambition EEH has for the region is:

2.1.2. ***To support sustainable growth and improve quality of life and wellbeing through a world-class, decarbonised transport system which harnesses the region's global expertise in technology and innovation to unlock new opportunities for the Heartland's residents and businesses, and to do so in a way that benefits the UK as a whole.***

2.1.3. The Transport Strategy provides the key mechanism for expressing how EEH will realise its ambition, and the four key principles that underpin it. These principles are as follows:

- Achieving net-zero carbon emissions from transport no later than 2050, with an ambition to reach
- this by 2040.
- Improving quality of life and wellbeing through a safe and inclusive transport system accessible to all which emphasises sustainable and active travel.
- Supporting the regional economy by connecting people and businesses to markets and opportunities.
- Ensuring the Heartland works for the UK by enabling the efficient movement of people and goods through the region and to/from international gateways in a way which lessens its environmental impact.

2.1.4. The development of the Transport Strategy has provided the opportunity to take a different perspective on the connectivity requirements in the region, capturing the UK Government's focus on the region as a national priority through the Oxford Cambridge Arc. This involved taking a strategic policy view, focusing on transport's role in supporting and driving the economy, whilst ensuring the principles of sustainable development are followed to maximise social and environmental benefits (or mitigate dis-benefits). The strategy has been developed with EEH partners, working in an iterative manner.

2.1.5. The process has also taken advantage of the opportunities provided by the regional perspective, by considering transformative change in transport and development rather than just focussing on the operational challenges of the current system and existing travel behaviours. Consequently, a key function of the Transport Strategy is to articulate the benefits of proposed policy interventions or investment in the region in terms of the role it can play in helping to unlock and enable its wider economic potential.

2.1.6. In outline, the Transport Strategy sets out:

- Information on the characteristics of the EEH region and its transport context.
- The ambition for connectivity in the region.
- A step change approach (five-point action plan): decarbonisation; digital; EWR and strategic public transport; increased investment in active travel; and freight and logistics.
- EEH's economic, social and environmental ambitions for the region.
- A transport system for the future - the pathway to decarbonisation and future mobility
- Delivering:
  - intra- and inter-regional connectivity;

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 4 of 68

- economic and social benefits through local connectivity; and
- national and international connectivity.

2.1.7. The Transport Strategy is accompanied by the following suite of evidence:

- Regional Evidence Base (including policy modelling tool);
- this ISA Report;
- Investment Pipeline;
- Pathways to Decarbonisation summary of evidence;
- Rail Passenger Study – Phase 1;
- First Mile Last Mile Best Practice Report; and
- Freight Study Report.

2.1.8. Individual scheme proposals will not be produced as part of the Transport Strategy. Rather, it is the intention that the policies, tools, investment priorities and evidence base underpinning the Strategy, in addition to the ambition and priorities, will be used to determine the options, case for transport interventions and their assessment.

2.2 ELEMENTS OF THE TRANSPORT STRATEGY

2.2.1. The EEH region is one of the world's leading economic regions. Improving connectivity to opportunities to help fulfil the potential of the region is at the heart of the Transport Strategy. This is balanced against the recognition that current patterns of travel and resource consumption are not compatible with legal requirements and long-term sustainability. The quality of the region's environment is often cited as a contributory factor to the success of the region. The Transport Strategy is EEH's response to the region's ambition to deliver a transport system that can realise its economic potential in a way that delivers net environmental benefit, including decarbonising the transport system in line with the UK's legal requirements.

2.2.2. The Transport Strategy proposes a series of policies to guide future decision making as set out in Table 2.1.

Table 2.1: Transport Strategy Policies

Decarbonising our Transport System
Policy 1 In identifying future investment requirements we will prioritise those which contribute to a reduction in car journeys in line with the recommendations delivered by the UK Climate Assembly: to facilitate a reduction in the number of private car journeys by a minimum of 5% per decade (of total traffic flow compared with 2019).
Policy 2 We will support and plan for the decarbonisation of the road fleet, working with the private sector, the energy sector, local authorities and Highways England to ensure the infrastructure required to support a zero-emission fleet (including buses, public transport and freight) is available.
Policy 3 We will support and plan for the decarbonisation of the rail network with priority given to securing: ■ Completion of the Midland Mainline electrification ■ Delivery of East West Rail as an electrified route ■ Infill electrification schemes that enable electric haulage of rail freight services, in particular those to/from the international gateway port of Felixstowe and to/from national and regional distribution centres ■ Electrification of the Chiltern Main Line between Birmingham and London Marylebone.
Mobility for the Future

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 5 of 68

Policy 4 We will work with infrastructure owners and operators to ensure that proposals brought forward for the development of the transport system reduce reliance on the private car by considering the needs of users on the basis of the following Travel Hierarchy:

  i) Active travel modes (pedestrians and cyclists)
  ii) Enabling access to services and opportunities without the need for motorised travel
  iii) Public transport and shared modes (bus, scheduled coach and rail)
  iv) Low emission/ zero carbon private vehicles, and two-wheeler vehicles including motorcycles
  v) Other Motorised modes

All proposals to be prepared on the basis that they provide inclusive and accessible travel options for all users.

Policy 5 In identifying future investment requirements we will prioritise proposals on the basis of value for money, their contribution towards achieving net-zero carbon targets, and their contribution to wider sustainability, environmental net gains and health outcomes.

Policy 6 New transport development in the region should conserve and where possible enhance the natural, built and historic environment.

Policy 7 We will aim for zero deaths on the Major Road Network by 2040.

Policy 8 We will continue to work with partners, universities, operators, and the private sector to leverage our regional 'living laboratories' to trial innovative solutions and apply new business models at scale.

East West Rail Main Line

Policy 9 We support the delivery of the East West Rail project (including its Eastern Section), with the expectation that Phase 2 of the Western Section is open from Oxford – Bedford by 2024, Aylesbury – Milton Keynes by 2025; the Central Section by 2030.

Policy 10 We will work with the EWRCo, Network Rail, neighbouring STBs and local partners to identify opportunities to realise the longer-term potential of the East West Main Line in support of economic activity and planned housing growth.

Policy 11 We will work with partners, the EWRCo and Network Rail to ensure that where the East West Main Line intersects existing main lines the opportunity is taken to establish regionally significant transport hubs: priority will be given to developing proposals in the following locations:

- Oxford Stations
- Bicester Stations
- Aylesbury Station
- Bletchley/Milton Keynes Stations
- Bedford Midland Station
- East West Rail/East Coast Main Line
- Cambridge/ Cambridge South Stations

Improving East West Connectivity

Policy 12 We will prioritise improvements to east-west connectivity to support economic activity and in support of planned housing growth, including:

- A northern rail corridor that links north Oxfordshire, Northamptonshire, and Peterborough, providing more direct connectivity across the northern Heartland
- A southern rail corridor that links Buckinghamshire with Hertfordshire, providing an orbital route between the Chiltern Mainline and West Anglia Main Line

Policy 13 We will work with Western Gateway and Network Rail, Highways England and public transport operators to develop proposals that strengthen connectivity between Swindon/Oxford and the South West and South Wales in support of economic activity and planned growth.

INTEGRATED SUSTAINABILITY APPRAISAL   PUBLIC | WSP
Project No.: 70068182   February 2021
England's Economic Heartland   Page 6 of 68

Policy 14 Taken forward by our programme of connectivity studies, identify proposals that strengthen east/west connectivity within the following areas:

- Oxford-Milton Keynes
- Peterborough-Northampton-Oxford
- Oxford- Didcot – Swindon
- Watford-Aylesbury-Bicester-M40
- North Northamptonshire
- Oxford – M40 Junctions

Improving North South Connectivity

Policy 15 We will work with Government, Network Rail, Highways England, public transport operators and Oxfordshire County Council to develop a long-term solution to challenges on the Didcot – Oxford – Bicester/Banbury corridor.

Policy 16 We will work with Network Rail, Government and adjoining Sub-national Transport Bodies to maximise the allocation of released capacity on the classic network as a result of HS2 to benefit connectivity within the region.

Policy 17 We will work with Government, Network Rail, adjoining STBs and partners to develop a solution that improves connectivity on the London - Luton – Bedford – Wellingborough-Kettering – East Midlands corridor.

Policy 18 We will work with the Cambridgeshire and Peterborough Combined Authority, Cambridgeshire County Council and Peterborough City Council alongside Network Rail and Government to support the priorities identified in the Cambridgeshire Rail Corridor Study and we support the delivery of Cambridge South Station by 2025 and aspirations for services to/from a new station at Wisbech.

Policy 19 We will work with partners, including Government and Highways England to develop a long-term solution to the challenges of the A1 (East of England) corridor.

Policy 20 We will work with Government and Network Rail to develop a long-term solution to the challenges on the London – Bishop's Stortford – Cambridge Corridor.

Policy 21 Taken forward by our programme of connectivity studies, identify proposals that strengthen north/south connectivity within the following areas:

- London – Buckinghamshire – MK – Northampton
- Luton – Milton Keynes – Daventry
- Luton – Bedford – Northamptonshire
- Northampton – Milton Keynes

Transforming Intra and Inter Regional Journeys

Policy 22 We will prioritise investment in the development of public transport-based solutions when improving intra-regional connectivity between Regionally Significant Hubs, Areas of Economic Opportunity and Areas of Significant Change.

Policy 23 To realise our decarbonisation commitments, while supporting economic growth, we will expect infrastructure owners to ensure that all new strategic infrastructure investment is designed as digitally enabled corridors.

Policy 24 We will support investment in the Strategic Road Network and Major Road Network where this meets one or more of the following criteria and is consistent with wider environmental objectives:

a) Protects and enhances the existing infrastructure asset

b) Delivers a solution to an identified problem on the existing infrastructure asset

c) Enables access to new economic opportunities and/or housing growth.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 7 of 68

d) Enables delivery of sustainable transport linkages such as public transport and active travel improvements

Policy 25 We will, working with Network Rail, Highways England and public transport operators, identify the level of service required between Regionally Significant Hubs, Areas of Economic Opportunity and Areas of Significant Change to achieve improved intra-regional connectivity: the levels of service will be reviewed on a biennial basis.

Sustainable Healthy Places

Policy 26 We will work with local planning authorities and local enterprise partnerships to align decision making on strategic infrastructure with that associated with land use planning and economic development in order to enable growth that is sustainable for the long term.

Policy 27 Working with partners and operators, we promote the development and delivery of high-quality public transport and segregated mass transit systems. Initial priority will be given to supporting the delivery of Mass Rapid Transit in the following locations:

- Cambridgeshire Autonomous Metro
- Milton Keynes Rapid Transit
- The A414 corridor in Hertfordshire.
- Oxford sub-urban network - Bus rapid transit and Cowley branch line

Where further transit systems are identified, we will work with partners to maximise their potential and deliverability.

Local Connectivity

Policy 28 We will support the establishment of 'mobility hubs' in areas of significance as locations where interchange between travel modes will be prioritised. We will work with public transport operators and the Government to enable frictionless, affordable travel using a combination of travel modes.

Rural Connectivity

Policy 29 We will work with partners to develop tailored solutions for our smaller market towns and rural areas that improve access to services and opportunities, including options for centres of mobility.

Connecting to Global Markets

Policy 30 We will work with infrastructure owners/operators, Network Rail, Highways England and the Government to improve surface access by public transport to international airports in order to reduce the environmental footprint of their operations, with priority given to:

- Luton Airport – with a focus on improving travel opportunities via services on the Midland Main, and ensuring the right level of service and capacity on the Direct Air Rapid Transit service (DART)
- Heathrow Airport – with a focus on improved interchange and connectivity via the Old Oak Common transport hub, and through delivery of Western Rail Access to Heathrow.
- Stansted Airport – with a focus on improved travel opportunities via services on the West Anglia Main Line between Cambridge, Stansted, Bishops Stortford and London.

Policy 31 We will work with relevant Sub-national Transport Bodies, as well as Network Rail and Highways England, to prioritise the development of proposals that enable improved connectivity along the key inter-regional corridors: priority will be given to identifying solutions to future needs on the following corridors:

- Swindon/Southampton – Reading – Didcot/Oxford – West Midlands
- London – Watford - Luton – Bedford – Northampton East Midlands.

Realising the Potential for Rail Freight

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 8 of 68

Policy 32 We will work with Network Rail and all relevant Sub-national Transport Bodies to develop proposals that increase freight on the rail network with priority given to the following corridors:

- Felixstowe to Nuneaton
- East West Main Line
- Southampton to West Midlands
- West Coast Main Line (including Northampton Loop)

Policy 33 We will work with Network Rail and all relevant Sub-national Transport Bodies to maximise the conveyance of construction materials by rail with priority given to the following corridors:

- Midland Main Line – providing access into the region from aggregate sources in the Midlands
- Great Western Main Line – providing access into the region from aggregate sources in western England and Wales.

Strategic Rail Freight Interchanges

Policy 34 We will support the development of Strategic Rail Freight Interchanges where they support the ambitions of this strategy and their impact on the transport network can be suitably managed.

Supporting Road Freight

Policy 35 We will work with Highways England, local highway authorities, local planning authorities and the freight sector to ensure that strategic corridors for road freight and logistics are fit for purpose: priority will be given to the following corridors:

- The M25/M1
- The A34 and M40 north of Oxford
- The A1 corridor (north of Huntingdon)
- The A14
- The A508 into Northampton.

Policy 36 We will work with Highways England, local highway authorities, local planning authorities and the freight sector to use improved planning and the application of innovative solutions to reduce the impact of freight on the environment, in terms of carbon emissions and its impact on communities living in and around freight corridors.

Policy 37 We will work with Highways England, local highway authorities, local planning authorities and the freight sector to address the need for secure overnight lorry parking and their associated facilities.

Policy 38 We will work with local transport authorities, local planning authorities and the freight and logistic sector to ensure the local servicing and support needs of the business community are met.

2.2.3. Part of the Transport Strategy and its implementation focuses on a series of connectivity studies. Following previous engagement exercises (including consultation on the Outline Transport Strategy published by EEH in 2019), a number of areas were identified as long list options for potential future connectivity studies.

2.2.4. From an original list of over 50 areas, 19 shortlisted areas/corridors were identified for further assessment against the principles of the Draft Transport Strategy. These corridors represented a series of options for future studies at the time of writing the ISA. This shortlist best met the principles of the Transport Strategy based on current issues or future opportunities. This shortlist of 19 areas was considered in the ISA report in relation to issues and opportunities for sustainability.

2.2.5. The ISA corridor assessment was utilised as part of further high-level technical sifting in order to form a programme of studies. The programme of studies outlined in the Transport Strategy represents the final connectivity studies programme.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 9 of 68

2.2.6.   Each study area has diverse features, sensitivities and opportunities. The Transport Strategy does not seek to prescribe a solution to the need for connectivity within each area, nor does it set out new proposals for schemes in specific locations. Instead, a series of policies are set out to guide decision making on the transport interventions that might be appropriate for addressing the challenges and exploiting opportunities for connectivity in the region.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 10 of 68

3 ISA METHODOLOGY

3.1 COMPONENT PROCESSES

3.1.1. The ISA combines the following assessment processes:

- Strategic Environmental Assessment (SEA);
- Health Impact Assessment (HIA);
- Habitats Regulations Assessment (HRA);
- Equalities Impact Assessment (EqIA); and
- Community Safety Assessment (CSA).

3.1.2. Detail on each of these assessments, and how they fit into the ISA of the Transport Strategy, is set out below.

STRATEGIC ENVIRONMENTAL ASSESSMENT

3.1.3. SEA is used to describe the application of environmental assessment to plans and programmes in accordance with European Council Directive 2001/42/EC[1]. The SEA Directive is enacted in England through the "Environmental Assessment of Plans and Programmes Regulations" (SI 2004/1633, known as the SEA Regulations)[2].

3.1.4. 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 EIA Directive.

3.1.5. SEA 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.

3.1.6. The approach adopted for the SEA of the Transport Strategy follows that set out in the Practical Guide to SEA[3] and the Planning Practice Guidance to SEA[4]. It involves the development of an assessment framework comprising a series of SA 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

---

[1] Directive 2001/42/EC. Available from: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32001L0042

[2] 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

[3] 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

[4] 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/

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 11 of 68

and environmental protection objectives relevant to the plan area (i.e. EEH) and subject matter (transport).

3.1.7. 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.

HEALTH IMPACT ASSESSMENT

3.1.8. HIA is a process to identify the likely health effects of plans, policies or development and to implement measures to avoid negative impacts and / or promote opportunities to maximise the benefits.

3.1.9. There is no adopted formal methodology for HIA although there is a body of practice and guidance at policy level. Assessment of health can be undertaken as a discrete process within an HIA and can also be embedded within environmental assessments.

3.1.10. The approach adopted for the HIA of the Transport Strategy is therefore to combine it with the SEA process, with 'health' included as a topic for assessment alongside the environmental topics. There is also a separate HIA provided in Appendix D to provide further context for the assessment.

HABITATS REGULATIONS ASSESSMENT

3.1.11. Under Article 6 (3) of the EU Habitats Directive as transposed into the UK law by the Habitats Regulations[5], an assessment (referred to as a Habitats Regulations Assessment or HRA) needs to be undertaken in respect of any plan or project which:

- Either alone or in combination with other plans or projects would be likely to have a significant effect on a site designated within the Natura 2000 network – these are Special Areas of Conservation (SACs), candidate SACs (cSACs), and Special Protection Areas (SPAs). In addition, Ramsar sites (wetlands of international importance), potential SPAs (pSPA) and in England possible SACs (pSACs), are considered in this process as a matter of law or Government policy. [These sites are collectively termed 'European sites' in HRA]; and
- Is not directly connected with, or necessary to, the management of the site.

3.1.12. Guidance on the Habitats Directive sets out four distinct stages for assessment under the Directive:

- Stage 1: Screening: the process which initially identifies the likely impacts upon a Natura 2000 site of a plan or project, either alone or in combination with other plans or projects, and considers whether these impacts are likely to be significant;

---

[5] The Conservation of Habitats and Species Regulations 2017. Available at:
http://www.legislation.gov.uk/uksi/2017/1012/contents/made

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 12 of 68

- Stage 2: Appropriate Assessment: the detailed consideration of the impact on the integrity of the Natura 2000 sites of the plan or project, either alone or in combination with other plans or projects, with respect to the site's conservation objectives and its structure and function. This is to determine whether there will be adverse effects on the integrity of the site;
- Stage 3: Assessment of alternative solutions: the process which examines alternative ways of achieving the objectives of the plans or projects that avoid adverse impacts on the integrity of the Natura 2000 site; and
- Stage 4: Assessment where no alternative solutions exist and where adverse impacts remain: an assessment of whether the development is necessary for imperative reasons of overriding public interest (IROPI) and, if so, of the compensatory measures needed to maintain the overall coherence of the Natura 2000 network.

3.1.13. The first stage of the HRA – Screening – has been undertaken alongside the development of the Transport Strategy in order to identify likely significant effects on European sites, as required by the legislation. Whilst feeding in to the SEA process (specifically the 'biodiversity' topic), the HRA Screening has been undertaken as a standalone assessment and is attached at Appendix G.

3.1.14. Stages 2 to 4 of the HRA have not yet been progressed due to the strategic nature of the Transport Strategy, and it's focus on policies and tools rather than specific interventions. Further screening and assessment will be required for any scheme identified or prioritised, as sufficient detail becomes available regarding the geography and nature of potential effects. EEH will ensure this is taken forward as part of the infrastructure scheme's delivery programme and undertaken by the scheme's promoter.

EQUALITIES ASSESSMENT

3.1.15. The Equality Act 2010 includes a public-sector equality duty which requires public organisations and those delivering public functions to show due regard to the need to eliminate unlawful discrimination, harassment, victimisation; to advance equality of opportunity; and to foster good relations between communities.

3.1.16. The Equality Impact Assessment (EqIA) process focuses on assessing and recording the likely equalities effects as a result of a policy, project or plan. It seeks to ensure that the policy, project or plan does not discriminate or disadvantage people, and enables consideration of how equality can be improved or promoted. The equality duty came into force in April 2011 and covers the following Personal Protected Characteristics:

- Age;
- Disability;
- Sex and gender;
- Gender reassignment;
- Marriage and civil partnership;
- Pregnancy and maternity;
- Race;
- Religion or belief; and
- Sexual orientation.

3.1.17. The approach adopted for the EqIA of the Transport Strategy has been to combine it with the SEA process, with 'equalities' included as a topic for assessment alongside the environmental topics. There is also a separate EqIA provided at Appendix E to provide further context for the assessment.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 13 of 68

COMMUNITY SAFETY ASSESSMENT

3.1.18. CSAs are used to identify where potential community safety issues could arise, e.g. through level of use, accessibility, vehicle speed, or proximity to sensitive receptors. Recommendations can also be made regarding future option development such as lighting or visibility in design that may help reduce road traffic collisions, accidents and/or crime.

3.1.19. There is no statutory requirement nor any adopted formal methodology for CSA of plans or programmes.

3.1.20. The approach adopted for the CSA of the Transport Strategy has been to combine it with the SEA process, with 'community safety' included as a topic for assessment alongside the environmental topics. There is also a separate CSA provided at Appendix F to provide further context for the assessment.

3.2 NATURAL CAPITAL APPROACH

3.2.1. Natural capital is used to describe the natural environment in terms of the benefits it provides to people (also known as ecosystem services), including food, recreation, and clean air and water. These ecosystem services fall across many sustainability topics. A natural capital approach is therefore useful for understanding the inter-dependencies between nature, people, the economy and society, and ensuring that natural capital is considered as an integrated system.

3.2.2. The UK National Ecosystem Assessment (UK NEA)[6] 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. The national 'State of Nature 2016' report[7] shows that this declining trend is continuing. Though not the key cause, transport networks have nevertheless contributed to this decline; however, they also have the potential to improve ecosystem service delivery.

3.2.3. The UK's natural capital accounts[8] 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. Natural capital within or adjacent to transport corridors (the 'soft estate') can be used to enhance delivery of other ecosystem services, such as water purification, flood reduction, and provision of habitat for wildlife. In addition, the greening of transport routes (especially walking and cycling routes) can enhance people's physical and mental health and wellbeing, for example by reducing stress levels.

---

[6] UK National Ecosystem Assessment (2011) The UK National Ecosystem Assessment Technical Report. UNEP-WCMC, Cambridge

[7] State of Nature. 2016. Available at: https://www.rspb.org.uk/our-work/conservation/projects/state-of-nature-reporting

[8] Office for National Statistics (ONS)

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 14 of 68

3.2.4. The UK Government has developed WebTAG guidance for environmental impact appraisal of transport schemes[9]. This sets out a natural capital style approach for appraising the WebTAG environmental topics of Landscape, Townscape, Historic Environment, Biodiversity, and Water Environment[10], using a methodology developed by Natural England, Historic England, and the Environment Agency, in collaboration with the DfT. The methodology is based around qualitative assessment of natural capital resources that cut across these environmental topics.

3.2.5. The WebTAG guidance for environmental impact appraisal does not incorporate assessments explicitly for soils and/or resources; however, the guidance on Biodiversity includes consideration of earth heritage (geological) interests. Furthermore, soils and natural resources are key natural capital assets in themselves. The sustainability topic Soils and Resources is therefore included in the natural capital approach for this ISA. Other sustainability topics within this ISA are linked to ecosystem services where appropriate.

3.3 ISA OF THE TRANSPORT STRATEGY

3.3.1. The ISA of the Transport Strategy has followed the stages required for Strategic Environmental Assessment (SEA). The Scoping Report therefore represented Stage A, whilst this report is the product of Stages B, C and D. These stages are described in more detail below.

STAGE A: SCOPING

3.3.2. A Scoping Report was issued to stakeholders on 04 March 2020 and represents Stage A of the process. This report set the context and scope of the ISA through:

- Identifying likely options for delivery of the Transport Strategy (Chapter 2 of the Scoping Report);
- Presenting the methodology and framework for undertaking the ISA (Chapter 3 of the Scoping Report);
- Review of relevant policies, baseline information and future trends (Chapter 4 of the Scoping Report);
- Identifying key issues and opportunities for the Transport Strategy, reflecting for example the increased pressure of development on the natural environment or the beneficial health effects of active travel (Chapter 5 of the Scoping Report);
- Identifying Sustainability Objectives to feed into an overall framework for appraisal of options (Chapter 6 of the Scoping Report); and
- Setting out next steps (Chapter 7 of the Scoping Report).

3.3.3. The appraisal framework against which the Transport Strategy has been assessed is provided in **Section 4.3**.

---

[9] Department for Transport. 2015. TAG Unit A3. Environmental Impact Appraisal. Available at: https://www.gov.uk/government/publications/webtag-tag-unit-a3-environmental-impact-appraisal-december-2015

[10] The WebTAG guidance for environmental impact appraisal does not incorporate assessments explicitly for soils and/or resources; however, the guidance on Biodiversity includes consideration of earth heritage (geological) interests. As such – and because of the important of soils and natural resources for the provision of ecosystem services – the sustainability topic Soils and Resources is included in the natural capital approach for this ISA.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 15 of 68

Consultation on the ISA Scope

3.3.4. A five-week consultation on the scope of the ISA was undertaken with the three statutory consultees (the Environment Agency, Historic England and Natural England) in addition to other stakeholders representing environmental and social interests. These organisations were consulted between 04 March 2020 and 08 April 2020. The main themes for comments raised included:

- Greater links between the sustainability topics and increasing focus on social aspects;
- The importance of transport in placemaking and the benefits this can have for sustainable development;
- The importance of undesignated receptors;
- The importance of natural capital and use of ecosystems services assessment at subsequent stages of assessment;
- The importance of walking and cycling as modes of transport;
- Support for promoting biodiversity and environmental net gain; and
- The importance of avoiding greenhouse gas emissions.

STAGE B: ASSESSMENT

3.3.5. The ISA assessment covers two key elements of the Transport Strategy:

- The general transport policies (i.e. the 'policy alternatives') – these have been assessed against each of the ISA Sustainability Objectives to identify where there is potential for significant effects.
- The 19 corridors that have been identified for further assessment within the development of a programme of connectivity studies (i.e. the 'spatial alternatives') – these have been individually assessed by identifying features, sensitivities and opportunities, generally within 2km of the central point of each corridor, to identify where there is potential for sensitivity to significant effects for each of the ISA Sustainability Objectives. It is important to note that the corridors identified did not have defined boundaries at the time of writing the ISA and were subject to further assessment and sifting as part of the implementation of the Transport Strategy. The programme presented in the Transport Strategy represents the programme of future study work.

3.3.6. The assessments (presented in Sections 5.3 and 5.4 of this report) for the transport policies and corridors are presented in a table format using the colour coding shown in Table 3.1 and Table 3.2, along with an accompanying narrative description of the assessment findings.

Table 3.1: Key to potential sensitivity of corridors to significant effects

Key to Potential Sensitivities	
Likely to be sensitive to positive effect	+
Negligible or no effect	0
Likely to be sensitive to negative effect	-
Likely to be sensitive to both positive and negative effects	+/-

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 16 of 68

Table 3.2: Key to effects of Policies

Key to Effects of Generic Interventions	
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	+/-
Uncertain effects	?
Negligible or no effect	0

3.3.7. Following on from the findings of the assessments, **Section 1.1** of this report includes a list of proposed mitigation and enhancement measures for any negative or positive significant effects that have been predicted.

STAGES C AND D: REPORTING AND CONSULTATION

3.3.8. A report setting out the results of the ISA – incorporating the SEA, HIA, EqIA, CSA, and a summary of the HRA Screening – and constituting the 'Environmental Report' under the SEA Regulations, was issued to consultees in July 2020 for a 12-week consultation period, alongside the Transport Strategy.

3.3.9. This later report, an update to the ISA report, has been prepared following that consultation period. This will be made available alongside the final Transport Strategy as well as the Post Adoption Statement, which will summarise how responses to consultation and the ISA have influenced the development of the Transport Strategy.

Consultation on the Transport Strategy and the ISA

3.3.10. A 12-week public consultation on the Transport Strategy and ISA Report was undertaken, supported by a series of engagement events.

3.3.11. The ISA consultation was also undertaken with the three statutory consultees (the Environment Agency, Historic England and Natural England), stakeholders representing environmental and social interests and the public. The consultation ran from 14 July 2020 to 06 October 2020, in line with the consultation on the Transport Strategy.

3.3.12. Analysis of the Transport Strategy consultation resulted in 12 emerging themes:

- The imperative to respond to the climate emergency;
- Harness technology and innovation;
- Work closely with planning authorities;
- Put the environment at the forefront of the strategy;
- The need to be bold – not business as usual;

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 17 of 68

- Reduce the need to travel;
- Increase emphasis on sustainable modes;
- Support health outcomes;
- Place greater emphasis on wider strategic linkages;
- Use nudges and demand management;
- Remember smaller schemes and maintenance; and
- Show how EEH will deliver.

3.3.13. A number of themes relating to the ISA also emerged from the consultation. The predominant themes were:

- Level of information about historic/ heritage assets (and access to these assets);
- Access to green space and infrastructure;
- Health and wellbeing benefits of active travel;
- Upcoming environmental legislation;
- Water management;
- Ageing population (how is the ageing population accounted for);
- Preservation of the visual landscape;
- Extreme weather events;
- De-carbonisation of the transport system;
- Accessibility (including affordability) and inclusion;
- Road safety and community safety; and
- Net gain principles.

3.3.14. The consultation feedback from the Transport Strategy and ISA was used by EEH to revise and update the Transport Strategy narrative and policies. Where this led to the creation of new or materially altered policies, these were assessed, and the results are presented in this report.

STAGE E: MONITORING

3.3.15. This report sets out recommendations for monitoring the social, environmental and economic effects of implementing the Transport Strategy in **Section 1.1** of this report.

3.4 LIMITATIONS AND ASSUMPTIONS

3.4.1. The SEA Regulations require that limitations and assumptions should be described.

3.4.2. The ISA covers the whole of the EEH region (the study area), though the assessment of spatial alternatives generally focuses on the area within 2km of the central point of each corridor being considered for inclusion in a programme of connectivity studies. It is considered that this is sufficient to capture significant effects over large geographic areas at a strategic level, although it is acknowledged that for assessment of specific schemes at subsequent stages of development, study areas will need to be re-defined.

3.4.3. The preparation of the Transport Strategy alongside the ISA has allowed an iterative process of assessment and refinement in the narrative and policies within the Strategy. Therefore, some of the recommendations set out in this report may already have been addressed in the Transport Strategy. The Post Adoption Statement outlines the iterative process of development of the Transport Strategy in tandem with the ISA. Similarly, the spatial corridors have also undergone progressive and iterative assessment as part of the preparation of the Transport Strategy. As previously

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 18 of 68

mentioned, these corridors were subject to further iterative sifting and therefore those considered in the ISA represent a series of options considered at the time of the assessment.

3.4.4. Packages of interventions to improve connectivity within the programme study areas will be developed through the connectivity studies. The programme of studies is outlined in the Transport Strategy. Assessment of potential solutions will be assessed against the ambitions and principles of the Transport Strategy, via a Multi Criteria Assessment Framework (MCAF) tool. It is the ambition that the MCAF will consider how interventions can meet principles of the Transport Strategy and the framework set out in this ISA (at a proportionate level to the development of the connectivity studies).

3.4.5. For the HRA, potential effects beyond 2km are considered where appropriate, in particular for European sites designated for their bat or bird species, or for those with hydrological connectivity to the transport corridors.

3.4.6. The specific transport interventions set out in the Transport Strategy are being delivered by other organisations, including EEH Partners, Highways England, the East West Rail Consortium and Network Rail. Although they form part of the Transport Strategy, EEH is not the authority responsible for their development and delivery. The policy framework for the delivery of these major schemes is the National Networks National Policy Statement (NNNPS)[11] or in some cases existing or proposed local transport plans.

3.4.7. The Transport Strategy does not propose other specific development sites with defined boundaries above those mentioned in the previous paragraph. As such, the main focus of the assessment is of the strategic policies (policy alternatives) have been undertaken for the ISA.

3.4.8. During the preparation of the ISA, the EEH region 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. 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 Strategy. The narrative within the Transport Strategy will enable opportunities provided by these changes to be realised, building upon the emerging national picture as to what these changes will be.

---

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

4 IDENTIFYING SUSTAINABILITY ISSUES AND OPPORTUNITIES

4.1 INTRODUCTION

4.1.1. This section sets out the sustainability issues and opportunities for the Transport Strategy. It also sets out the appraisal framework, against which the Transport Strategy is assessed. The sustainability policy context, current baseline and future trends, updated from the ISA Scoping Report can be found in Appendix I.

4.2 SUSTAINABILITY ISSUES AND OPPORTUNITIES

4.2.1. The following section summarises the issues and opportunities identified from a review of baseline information and national, regional and local policies. It should be noted that many of the topics below are interrelated and that identified issues and opportunities may therefore have a bearing on more than one topic.

4.2.2. The opportunities listed below may not always be relevant at the regional level, in relation to the sustainability issues identified, rather they may be more applicable at the local level. The ability to achieve benefits from these opportunities may therefore sit with the EEH Partners, rather than EEH and the Transport Strategy.

POPULATION AND EQUALITIES

4.2.3. WSP has identified the following issues:

- Transport issues affect different groups to varying extents, and there is evidence to show that the barriers to accessing and using transport can be exacerbated by age, ethnicity and, in particular, sex and gender[12].
- The rural nature of some parts of the region could pose significant challenges in providing good services for all residents. There will, therefore, be a need for increased access to transport services within the rural areas of the region.
- The population of the EEH region is increasing both in number and average age.
- Changing work habits such as remote, internet-based jobs and working from home are likely to reduce transport demand, but may also increase social isolation, which could increase reliance on alternative social interaction.
- With an increasing ageing population in the region, there is likely to be additional strain on the region's services and infrastructure; this is likely to be exacerbated with a higher than average number of people living in rural areas.

4.2.4. WSP has identified the following opportunities:

---

[12] Sheffield Hallam University. 2017. Centre for Regional Economic & Social Research, Addressing Transport Barriers to Work in Low Income Neighbourhoods

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 20 of 68

- There are opportunities to improve access to rural areas through transport services, digital services and bringing services to people, as well as enhancing opportunities for recreation in rural areas.
- There will be a need for adequate support and greater access to services and facilities for the elderly population, families with young children and single parent families.
- There were 3.5 million disabled people in work in 2017, with the Government aiming to increase this to 4.5 million by 2027. By helping more disable people into work, this will enable people to reach their potential and to achieve economic independence. Employers will also enjoy the advantages of a diverse workplace including the talents of disabled people and the potential for greater productivity[13].
- There will be a need for a resilient and reliable transport system to account for the increasing number and average age of the population in the EEH region.
- The anticipated increase in the number of people living on their own and social isolation becoming a more prevalent issue, drives the need for placemaking through the creation of public spaces that promote people's health, happiness, and well-being.

ECONOMY

4.2.5.   WSP has identified the following issues:

- Housing affordability pressures are contributing to net out-migration from (less affordable) urban areas to (more affordable) rural areas. If employment remains more concentrated in urban centres, this could put increased pressure on transport systems as commuting distances increase[14].
- Many LAs are underperforming the national average with regards to Attainment 8. This measures a student's average grade across eight subjects at GCSE.
- Some locations the population are reaching near full employment, which could make it difficult for some local businesses to attract a skilled labour force.

4.2.6.   WSP has identified the following opportunities:

- There are opportunities to introduce a low carbon economy to the EEH region and a need for sustainable economic growth which should be supported by transport improvements which improve connectivity, reliability and journey experience.
- The development of East West Rail will be transformative across the Heartland, providing opportunities for increased economic growth, prosperity and employment.
- The impact of factors such as Brexit, new vehicle and energy technologies, disruptive digital technologies, changing working patterns and preferences and extreme climactic events will play a part in determining the types of transport investment which will most benefit the economy.

---

[13] Department of Work & Pensions and the Department of Health, 2017. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/663399/improving-lives-the-future-of-work-health-and-disability.PDF

[14] House of Common Library, Briefing Paper, Tackling the under-supply of housing in England, 2020. Available at: https://researchbriefings.files.parliament.uk/documents/CBP-7671/CBP-7671.pdf

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 21 of 68

- Improved connectivity between (to and from) employment/business clusters and housing markets (both planned and existing) in the region will improve access to the skills pool as well supporting improvements in productivity, quality of life, employability, education and participation.

- Technological advancements and digital infrastructure improvements will enable greater remote working and reduce the need to travel.

HEALTH

4.2.7. WSP has identified the following issues:

- The population of the Heartland region is ageing; older people may not have access to appropriate forms of private transport to access healthcare, community, and social care facilities, which may put additional strain on public transport services or even prevent elderly populations from accessing services altogether.
- There are some large disparities between levels of physical activity across the Heartland region.
- Physical inactivity and obesity are worsening issues nationally as well as in the region.
- There are disparities between the prevalence of COPD and emergency admissions across the Heartland region.

4.2.8. WSP has identified the following opportunities:

- The Transport Strategy presents opportunities to set the strategic ambition for enhanced walking and cycling routes and encouraging the use of non-motorised forms of transport, particularly between urban and countryside destinations such as heritage assets.
- There is the opportunity to address an ongoing need to provide inclusive services in order to meet the needs of all, but in particular in this region, older residents.
- There are opportunities to strengthen the connectivity of the public rights of way network and in turn improve pedestrian access routes in the EEH region which can yield health benefits through promotion of active travel.
- There are opportunities to introduce low emission zones within the urban areas in the EEH region. As mentioned in the baseline (Appendix I), this can lead to an improvement in air quality thus having a positive effect on respiratory health.
- There are opportunities to enhance social wellbeing as well as physical and mental health in the EEH region. As mentioned in the baseline (Appendix I), social isolation is becoming a more prevalent issue which can be reduced through increased connectivity and the creation of public spaces that promote people's health, happiness, and well-being.

COMMUNITY SAFETY

4.2.9. WSP has identified the following issues:

- Crime, and the perception of crime, on public transport in the UK is on the rise, particularly with regards to sexual assault, violent crimes and disruption.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 22 of 68

- Children in the 10% most deprived wards in England are four times more likely to be hit by a car than children in the 10% least deprived wards[15].
- Vulnerable road uses such as cyclist and pedestrians are more likely to be casualties.
- The fear of crime is increased after dark, particularly where lighting is poor along footpaths, cycleways, bus stations, car parks and train stations.

4.2.10. WSP has identified the following opportunities:

- 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 increase training and awareness and incorporation of safety by design measures.
- The number of people seriously hurt or killed on the roads is significantly higher than the national average in parts of the region. There is a need for the improvement of existing and/or creation of new infrastructure which is safe to use.
- There is an opportunity for EEH Partners to work together to address issues of community safety.

BIODIVERSITY

4.2.11. WSP has identified the following issues:

- There are a wide range of statutory local, national and international sites designated for nature conservation in the EEH region, which may be affected by increased transport infrastructure development. Habitats and wildlife corridors outside of these protected areas are especially at risk of being lost, damaged or fragmented by transport development.
- Poor air quality can affect biodiversity and habitats, for example NOx affecting vegetation and leading to nitrogen deposition, affecting land and water.

4.2.12. WSP has identified the following opportunities:

- The Transport Strategy could present opportunities to support the strategic enhancement of biodiversity at the landscape scale by regional stakeholders.
- Transport links to, from and between natural sites provide access to green space and an opportunity for people to connect with nature, bringing physical and mental health benefits. Improving these links, preferably via public transport and active travel modes, could improve wellbeing and further the conservation and enhancement of biodiversity. The permeability of the transport network for both people and wildlife will further enhance these benefits.
- Several local authority areas within the EEH region are designated enhancement areas, which aim to restore biodiversity at a landscape scale through maintenance, restoration and creation of priority habitats. These can be combined with priorities for wider ecosystems services benefits to deliver landscape wide environment gain for biodiversity and people.

---

[15] Department for Transport. 2009. A safer way - Consultation on Making Britain's Roads the Safest in the World. Available at:https://webarchive.nationalarchives.gov.uk/+/http://www.dft.gov.uk/consultations/closed/roadsafetyconsultation/roadsafetyconsultation.pdf

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 23 of 68

- Biodiversity Net Gain (BNG) is the end result of a process applied to development so that, overall, there is a positive outcome for biodiversity. On 14th March 2019, Her Majesty's Treasury confirmed that following consultation the government will use the forthcoming Environment Bill to mandate BNG for development in England, ensuring that the delivery of much-needed infrastructure and housing is not at the expense of vital biodiversity, with a target increase of 10% likely to be applied at project level.
- Organisms living within soils are critical to ecosystems as they are essential for the cycling of ecosystem nutrients. As mentioned in the baseline (Appendix I), utilising a sustainable approach to land use and soils in the upgrading and introduction of new transport infrastructure can yield benefits through protecting soil biodiversity.

NATURAL CAPITAL AND ECOSYSTEM SERVICES

4.2.13. WSP has identified the following issues:

- Though not the key cause, transport networks have contributed to the decline in natural capital; however, they also have the potential to improve ecosystem service delivery.
- New transport routes will need to be carefully planned so that they do not cause adverse effects on ecosystems with high (potential) ecosystem services provision.
- Given that ecosystem services are the benefits that nature provides to people, areas of high (potential) provision are often the green and blue spaces (e.g. the River Lea) close to centres of population, as well as connecting habitats that link these with more remote designated habitats and landscapes.

4.2.14. WSP has identified the following opportunities:

- Taking a natural capital approach in the development and implementation of the Transport Strategy will allow natural capital considerations to influence later decision making about the conceptualisation and evaluation of future projects.
- Human health and quality of life can also be improved by taking a natural capital approach to the Transport Strategy. For example, improving the quality of habitats (including tree planting) alongside walking and cycling routes can help encourage more active lifestyles with benefits for people's physical and mental health and wellbeing. Protecting and enhancing access to greenspace sites where they are the most in demand can also improve health outcomes and overall quality of life.[16]
- Views of vegetation from other modes of transport (e.g. along roads and railways) can also enhance mental wellbeing, for example by reducing stress levels.
- Enhancing the quality of the transport 'soft estate' can also help improve the resilience of the transport network to future climate change, for example by reducing flood risk and providing shading and cooling benefits.
- Based on the spatial data available, much of the region's natural capital is widely spread out providing different benefits in different areas. There is an opportunity to better meet the local

---

[16] Defra (2017) Evidence Statement on the links between natural environments and human health. Department for Environment, Food and Rural Affairs, London.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 24 of 68

demands for ecosystem services by creating and enhancing especially cultural ecosystem services close to where people live.

- Investing in natural capital within the transport 'soft estate' presents an opportunity to deliver the noise and air quality regulation where it is most in demand.

- As transport corridors are typically linear, ensuring the connectivity of ecosystems is both an issue and an opportunity for the Transport Strategy. There is scope to encourage the redevelopment of existing assets as well as, where new infrastructure is required, focus development away from areas of high biodiversity and ecosystem service provision, and to enhance the quality of the transport 'soft estate' alongside transport corridors in order to improve habitat connectivity.

- Soils provide vital services to ecosystems which include habitats, carbon and nutrient cycling and decomposition among others. As mentioned in the baseline (Appendix I), utilising a sustainable approach to land use and soils in the upgrading and introduction of new transport infrastructure can therefore yield benefits to natural capital and ecosystem services.

- Opportunity maps were produced as part of OxCam Local Natural Capital Plan (LNCP) in line with the overarching objective is to enable the delivery of environmental protection and enhancement in the OxCam Arc[17]. There is an opportunity to direct natural capital investment towards areas where opportunities are identified.

LANDSCAPE AND TOWNSCAPE

4.2.15. WSP has identified the following issues:

- Transport infrastructure has the potential to cause direct and indirect impacts on designated landscapes, eroding the character and quality of the landscapes, increasing pollution and eroding the visual amenity for residents and visitors alike.

- Future growth in some locations could risk compromising landscape and townscape character and features; however, a landscape-led design with green infrastructure principles in place could play a key role in the enhancement of the natural environment, visual amenity and physical and mental health of its people.

4.2.16. WSP has identified the following opportunities:

- The conceptualisation and design of transport infrastructure requires a landscape-led approach to ensure the best placement and integration of proposed developments into the existing landscape, especially in sensitive locations. Landscape-led optioneering and designs can help contribute to climate change, health and wellbeing, and tackling pollution in all its forms (such as air, light and noise).

---

[17] OxCam LNCP (2020) Oxford to Cambridge Arc - Environmental Improvement Opportunities. Available at: https://static1.squarespace.com/static/5e85a98d5277001874963880/t/5ea2d70e1c239e20ad7b29a4/1587730232960/Opportunity+ReportFinal.pdf.

- There is opportunity to limit light pollution from the construction and operation of potential transport infrastructure through the implementation of technological solutions and energy saving initiatives.
- There is potential for the development of healthy landscapes which are designed to promote good health and wellbeing. The Transport for London's Healthy Streets Approach can be used as guidance, which puts people, and their health, at the heart of decision making which results in a healthier, more inclusive city where people choose to walk, cycle and use public transport[18].
- There is potential for transport to improve access to the countryside, preferably via public and active travel modes, to promote sustainable tourism and to provide greater awareness for the region's AONBs and other designated areas.
- As mentioned in the baseline (Appendix I), PRoWs serve as connections to areas of accessible greenspace and are also important recreational assets. The NPPF states that decisions should protect and enhance PRoWs and provide better facilities for users. There is potential to strengthen existing links on PRoWs such as National Trails to support long-distance trips. There is also opportunity to strengthen the connectivity of the PRoW network whilst incorporating the unique patterns and diverse character of the surrounding landscape.
- Increasing access to the countryside, particularly via active or public transport modes, whilst increasing pressure on those resources, can greatly improve health and wellbeing, help combat air pollution, provide storm water management and reduce flooding (contributing to climate change adaptation) and provide connectivity through urban built form to the countryside for wildlife. It can also bring new audiences to tourist attractions and enable better appreciation of heritage assets through creating new views and vistas, providing information and enhancing access, as well as helping people connect with regional culture, heritage and a sense of place.
- There is potential to incorporate place making which is landscape-led, which includes the creation of public spaces that promote people's health, happiness, and well-being.
- The incorporation of future proof landscape principles into landscape-led designs would help ensure transport infrastructure is designed for longevity in the 21st century, for both its people and its natural environment.

HISTORIC ENVIRONMENT

4.2.17. WSP has identified the following issues:

- Any proposed development (including transport infrastructure) that has the potential to adversely impact on the significance of assets of the highest importance is likely to be refused and strongly resisted in planning. This is relevant to designated and undesignated heritage assets and their settings, as well as cultural heritage assets that are part of the Heritage at Risk programme.
- The NPPF does address non-designated assets and direct physical impacts occur on them. For archaeological resource, the impacts are permanent as they are destroyed.

---

[18] Transport for London, Healthy Streets. Available at: https://tfl.gov.uk/corporate/about-tfl/how-we-work/planning-for-the-future/healthy-streets?intcmp=46996

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 26 of 68

- New and/or upgraded transport infrastructure across the EEH region has the potential to affect the survival, fabric, condition and setting of cultural heritage assets (both above and below ground) in addition to increased pressure from population growth.
- There is potential for development to encroach on locally designated sites or areas of high archaeological value, that do not have the same statutory protection as nationally listed sites.
- Ancillary features of transport infrastructure can adversely impact upon the setting of heritage assets and/or historic landscapes. The Transport Strategy should therefore respect the historic context of the region to sustain the significance of its assets. Historic Landscape Characterisation (HLC) could assist with this.
- Highly significant archaeological remains, whether designated or not, normally require preservation in situ. This clearly has implications and can represent a significant constraint to future scheme design, which should respect, retain and protect the remains (e.g. through avoidance and redesign).
- Vehicle damage and pollution can adversely affect heritage assets, so reducing vehicle movements within historic urban areas is also an important area to address.

4.2.18.   WSP has identified the following opportunities:

- The principle opportunities for the Transport Strategy are for enhancing the understanding and appreciation of the significance of designated and non-designated heritage assets and their settings. This might be achieved for example by reducing traffic volume, visibility and noise in the vicinity of a designated heritage asset and reducing existing detrimental effects on setting, or by providing greater connectivity to, from and between assets.
- Asset enhancement has the potential to lead to an increase in tourism and associated revenue, and education opportunities associated with the region's cultural heritage. There is also the potential to enhance the sense of place and identity for people in the area.
- There are opportunities for health and wellbeing benefits from the enhancement of designated and non-designated heritage assets and the creation of a sense of place and identity.
- The Transport Strategy presents opportunities to enhance walking and cycling routes and encourage the use of non-motorised forms of transport, particularly between urban and countryside destinations such as heritage assets.
- Archaeological investigation undertaken for schemes associated with the Transport Strategy would contribute to an increased understanding of our historic environment and of heritage assets.

WATER ENVIRONMENT

4.2.19.   WSP has identified the following issues:

- The physical and chemical quality of water resources is an important aspect of the natural environment and can be adversely affected by water extraction or pollution associated with surface water runoff from new or existing transport infrastructure, as well as by changes to waterbodies which can affect their quality as a habitat.
- Of the 779 water bodies, just 2% are achieving 'good' status, falling far short of the Water Framework Directive (WFD) target.
- Increased development (including transport infrastructure) can increase flood risk on a local and catchment scale.
- Climate change is likely to increase the occurrence of flooding from all sources and hence raise the flood risk in the EEH region.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 27 of 68

4.2.20. WSP has identified the following opportunities:

- Upgrading existing infrastructure also provides the opportunity to improve pollution control on older drainage systems, as well as attenuation and flood alleviation.
- New transport infrastructure could integrate flood risk management into its conception, design and operation, resulting in improved drainage, which could reduce surface water flooding.
- Embedding good water quality practices and policies into the Transport Strategy could mitigate for any potential change in water quality governance following the end of the WFD.
- There is the potential for a natural capital approach to address issues, for example managing flood risk, enhancing water quality, limiting pollution.
- Soils and water have an interlinking relationship such as infiltration and percolation. As mentioned in the baseline (Appendix I), utilising a sustainable approach to land use and soils in the upgrading and introduction of new transport infrastructure can yield benefits to the water environment.

AIR QUALITY

4.2.21. WSP has identified the following issues:

- Unless managed, 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 as a result of climate change can contribute to the worsening of air quality.
- Whilst electric cars should have positive effects for air quality in terms of NO_2 reductions, there is concern that electric vehicles, which are currently heavier than 'conventional' vehicles, may generate more particulate (PM_{10}) pollution from brake and tyre wear.
- Air quality has an associated impact on other sustainability topics, including but not limited to, health, biodiversity, historic environment, soils, water resources and population and equalities, and vice versa. For example, NO_x emissions affect vegetation and can lead to nitrogen deposition, affecting land and water.

4.2.22. WSP has identified the following opportunities:

- There is the potential that improved transport links will facilitate traffic flows, reduce idling times and thus improving air quality locally. However, an improved highway network could also result in increased usage, thus increasing emissions.
- There is the potential for a natural capital approach to provide additional opportunities for air quality regulation.
- The UK Government's plan to end the sale of all new conventional petrol and diesel cars and vans by 2035 and support for work and home-based electric charging facilities will promote use of hybrid and electric vehicles, with positive effects for air quality.
- The UK Government's commitment to end diesel haulage on the rail network by 2040, whilst also moving freight from road to rail, will have positive impacts on air quality. Electrification of the rail network will also help to reduce air emissions.
- Uptake of technological advances such as autonomous vehicles have the potential to further reduce emissions through reduction in the stop start nature of traffic, opening up the possibility of vehicle platooning, as well as a possible reduction in private car ownership, with a reduction in the need for supporting infrastructure.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 28 of 68

![WSP logo]

- Air quality issues across the EEH region 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.) thereby leading to a higher standard of air quality. Additional solutions could include low emission zones and investment in infrastructure/initiatives encouraging to support electric vehicles or other low/zero emission technologies.
- Improved traffic management can decrease congestion having a beneficial effect on air quality. This is because "accelerating or decelerating too rapidly leads to inefficient driving and fuel consumption with harmful emissions being released into the environment unnecessarily"[19].
- As mentioned in the baseline (Appendix I), both technological advancements and digital infrastructure improvements will enable greater remote working and reduce the need to travel, which can yield air quality benefits.

CLIMATE CHANGE AND GREENHOUSE GASES

4.2.23. WSP has identified the following issues:

- Transport is the largest contributor to greenhouse gas emissions in the UK.
- In rural areas particularly, with limited local facilities and fewer public transport services, many people are reliant on private transport which contributes to greenhouse gas emissions.
- There is a need to reduce the environmental impact of the provision of infrastructure and housing to accommodate it, and the need to address the vulnerability of the region to ensure resilience.
- The extent of future of long-term climate change will be strongly affected by the amount of greenhouse gases that the population chooses to emit. Reducing the need to travel may have consequences for other topics, such as the economy (detrimental), air quality (beneficial) and community safety (beneficial).
- There is a balance to be struck between the increase in emissions from any construction and any decrease in emissions from changes to transport technologies and modal shift.

4.2.24. WSP has identified the following opportunities:

- 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.
- There is a need to support the continued increase in infrastructure to meet the demand for electric cars, rail freight and low/zero emission transport.
- There is a need for demand management with regards to travel, especially reducing the number of single occupancy road vehicle trips.
- There is significant scope to encourage a modal shift towards less carbon intensive modes of transport, in line with the user hierarchy which encourages non-motorised modes above motorised modes.

---

[19] NICE. 2016. Available at: https://www.nice.org.uk/news/article/drive-smoothly-to-reduce-harmful-effects-of-air-pollution-says-nice

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 29 of 68

- Similar to encouraging a modal shift, non-motorised and public transport modes could be combined through infrastructure (re)development to replace motorised modes, more specifically single occupancy vehicles.

- The upgrading or repurposing of existing infrastructure has potential to have significantly lesser embedded carbon in comparison to new infrastructure.

- Measures taken to reduce greenhouse gas emissions are likely to also have an effect on air quality (NO_x, PM_{10}, etc.) emissions, providing benefits across a range of other sustainability topics such as health, biodiversity, natural capital and historic environment, and vice versa.

SOIL, LAND USE, RESOURCE AND WASTE

4.2.25.   WSP has identified the following issues:

- It is important that any future development of the transport network across the EEH region does not have adverse impacts or lead to the degradation or sterilisation of the best and most versatile agricultural land, as this is important for the UK's self-sufficiency in food production.
- Minerals are a finite resource and materials will be required for any new transport infrastructure, with subsequent waste produced.
- There is currently a large reliance on road transport for importing and exporting minerals across the UK, which is unlikely to change.

4.2.26.   WSP has identified the following opportunities:

- Resource efficiency is important in the reduction of waste and conservation of resources.
- A sustainable approach to land use and soils can also yield benefits across the biodiversity, water resources and natural capital and ecosystem services topics and vice versa.

NOISE AND VIBRATION

4.2.27.   WSP has identified the following issues:

- Increased transport development and infrastructure may adversely impact sensitive receptors and increase current noise levels in areas adjacent to roads, rail lines and airports across the EEH region.
- Excessive noise exposure from transport can cause stress and sleep disturbance and is often perceived as a nuisance. This can result in adverse effects on human health.
- 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 including AONBs, and other designated sites with road, rail or air traffic noise reducing amenity and tranquillity within these areas.

4.2.28.   WSP has identified the following opportunities:

- There exists an opportunity to reforecast the understanding of transport noise profiles and exposure, accounting for the benefits from low-noise electrified road vehicles, quieter aircraft and reactions to climate change, to develop a plan that accounts for the future and realises benefits for the EEH region.
- There is potential to promote public transport and active travel modes which can lead to minimising the levels of traffic noise.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 30 of 68

- The EEH Freight Study[20] identifies the key role freight and logistics will play in servicing the needs of the Cambridge-Milton Keynes - Oxford arc (CaMkOx) and the wider Heartland area over the next 30 years.
- There is opportunity to move freight from road to rail, which can lead to a reduction in congestion and in turn reduce noise emissions
- The movement of road freight has the potential to have noise impacts on local communities, there are opportunities to manage these impacts through the use of quieter and more efficient freight vehicles and the improvement of strategic corridors.
- There is the potential for a natural capital approach to provide additional opportunities for the regulation of noise emissions.

4.3 SUSTAINABILITY APPRAISAL FRAMEWORK

4.3.1. 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.

4.3.2. The sustainability objectives, set out in Table 4.1 below, 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.

[20] England's Economic Heartland, Freight Study: Full Report

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 31 of 68

Table 4.1: Sustainability Appraisal Framework

Topic	Key Sustainability Issues Identified	Sustainability Objective
Population and Equalities	The rural nature of some parts of the region could pose significant challenges in providing good and services for all residents. The population of the EEH region is increasing in number, age profile, and ethnic diversity and there will be additional transport movement associated with this growth. The ageing population in the region is likely to place additional strain on the region's services and infrastructure. Transport issues affect groups with protected characteristics to varying extents, which can exacerbate the barriers to accessing and using transport.	To increase the capacity, connectivity, efficiency and reliability of the transportation network to support demographic changes, including improving access for all groups inclusively, as well as deprived communities and those in rural isolation.
Economy	There is a need to improve connectivity to and from and between areas of strategic importance within EEH. Housing affordability pressures are contributing to net out-migration from urban areas to affordable rural areas.	To provide greater connectivity across and within the region in order to raise national and international competitiveness, support economic success and promote a low carbon economy.
Health	The population of the Heartland region is ageing; older people may not have access to appropriate forms of private transport to access healthcare and social care facilities. There are some large disparities between levels of physical activity and obesity across the Heartland region. There are a high number of emergency admissions for COPD across the Heartland.	To protect and enhance both physical and mental health and promote social wellbeing through better access to accessible, inclusive and frequent public transport, and high-quality active travel provision.
Community Safety	There are increasing levels of crime on public transport. A number of roads exceed the national average for both serious and fatal casualties	Working with partners to deliver safe transport through reducing road traffic collisions, protecting vulnerable road

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 32 of 68

Topic	Key Sustainability Issues Identified	Sustainability Objective
		users and improving safety and security across the transport network.
Biodiversity	There are a wide range of statutory local, national and international sites designated for nature conservation in the EEH region. Several counties within the EEH region have designated enhancement areas, which aim to restore biodiversity at a landscape scale through maintenance, restoration and creation of priority habitats. There is potential for transport developments to impact protected species and habitats, designated sites and wider biodiversity and networks.	Working with partners to protect and enhance habitats, protected sites and species, creating coherent ecological networks and ecosystem functionality, contributing to biodiversity net gain across the region.
Natural Capital and Ecosystem Services	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.	To conserve and enhance the provision of ecosystem services from the region's natural capital and contribute to environmental net gain across the EEH region.
Landscape and Townscape	Transport infrastructure has the potential to cause direct and indirect impacts on designated landscapes, townscapes and protected sites, whilst eroding their character and quality and their characteristic landscapes. Significant future growth in some locations could risk compromising landscape and townscape quality, character, visual amenity and overall sense of place	To conserve and enhance the quality of the region's designated and undesignated landscapes, protected sites and townscape character, in order to contribute to the character and personality of places across the region and enhance a sense of pride for residents.
Historic Environment	New and/or upgraded transport infrastructure across the EEH region has the potential to affect the survival, fabric, condition and setting of cultural heritage assets both above and below the ground, designated and non-designated.	To conserve and enhance the significance of heritage assets (designated and undesignated), and their settings, and the character of the Heartland's built and historic environment.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 33 of 68

Topic	Key Sustainability Issues Identified	Sustainability Objective
	There is potential for development to encroach on non-designated sites or areas of high archaeological value.	
	Vehicle damage and pollution can adversely affect heritage assets.	
	The wider historic environment is valuable to creating a sense of place and cultural identity which contribute to the overall quality of the environment in which people live and work.	
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.	To protect and, where possible, improve water quality and the water environment; reduce water abstraction; and manage and reduce the risk of flooding from all sources.
	Just 2% of the region's waterbodies are achieving 'good' status.	
	Increased development (including transport infrastructure) can also increase flood risk on a local and catchment scale.	
	Climate change is likely to increase the occurrence of flooding from all sources and hence raise the flood risk in the EEH region.	
Air Quality	An improved highway network could result in higher usage increasing emissions.	To protect and enhance air quality by reducing transport related emissions (NO_x, PM_{10} etc.).
	There are several AQMAs across the regions that are failing to comply with the limit value for annual mean NO_2.	
Climate Change	Transport is the largest contributor to greenhouse gas emissions in the UK.	To maximise resilience to climate change through understanding future chronic and acute climate trends and incorporating appropriate adaptation measures.
	In rural areas many people are reliant on private transport.	
Greenhouse Gases	There is a need to support the continued increase in infrastructure to support the demand in electric cars, rail freight and low/zero carbon emission technologies.	To reduce greenhouse gas emissions and support decarbonisation initiatives in line with achieving net-zero carbon emissions from transport no later than 2050.
	Climate change (extreme heat, flooding and storms) can impact on the quality and safety of transport infrastructure.	

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 34 of 68

Topic	Key Sustainability Issues Identified	Sustainability Objective
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. The area supports best and most versatile agricultural land, as well as habitats and features dependent on underlying geology (e.g. chalk).	To ensure the efficient use of land by supporting the use of existing infrastructure, whilst protecting geologically/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 including AONBs, and other designated sites with road, rail or air traffic noise reducing amenity and tranquillity within these areas.	To reduce exposure to transport related noise and vibration, including noise pollution, annoyance and impacts on tranquillity.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 35 of 68

5 SUSTAINABILITY APPRAISAL

5.1 INTRODUCTION

5.1.1. Other than schemes already under planning and development including those led by EEH Partners, Highways England, the East West Rail Consortium and Network Rail, further transport interventions are not specified in the Transport Strategy. These will follow in later connectivity studies and in the Investment Pipeline. The location-specific schemes specified in the Transport Strategy have thus already been assessed and will not be appraised individually in the ISA.

5.2 CONSIDERATION OF ALTERNATIVES

5.2.1. Consideration of reasonable alternatives is a key feature of the SEA process.

5.2.2. The Transport Strategy sets out policies for addressing the challenges faced in the EEH region, aimed at facilitating economic growth, whilst also enhancing social and environmental benefits. The ISA has informed the development of these policies by identifying potential impacts on the environment, economy and society. The iterations of these policies therefore represent the 'policy alternatives' assessed through the ISA process.

5.2.3. The ISA has informed the development of the programme of connectivity studies (outlined in the Transport Strategy) by identifying potential sensitivities and opportunities for each of these corridors from an environmental and social perspective. As such, the corridors assessed in the development of the programme of connectivity studies represent the 'spatial alternatives' assessed through the ISA process.

5.3 ASSESSMENT OF STRATEGIC POLICIES

5.3.1. The strategic policies set out in the Transport Strategy are grouped under the following policy areas:

- Decarbonisation of the transport system
- Mobility for the future
- East West Mainline
- East west connectivity
- North south connectivity
- Regional and cross-regional connectivity
- Sustainable, healthy places
- Improving local connectivity
- Rural connectivity
- Connecting to global markets
- Freight connectivity

5.3.2. The likely environmental, economic and social impacts of the strategic policies are described in the following paragraphs and summarised graphically in Table 5.1.

5.3.3. The policies relating to decarbonisation of the transport system are likely to have positive effects on population, health and, in particular, economy, as well as climate change and greenhouse gases and air quality. This arises from the increased connectivity created by new low carbon transport networks, as well as the shift from petrol/diesel vehicles to electric and other low carbon vehicles, as well as the reduction in overall trips from discouraging single occupancy trips. There will be added

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 36 of 68

health benefits, assuming the user hierarchy favouring active travel is successfully applied to private trips. Wider effects on the environmental aspects of sustainability are uncertain, but could be positive or negative, depending on the extent to which new infrastructure is proposed to meet the policies, and whether development projects commit to initiatives such as biodiversity net gain, natural capital, circular economy and sustainability assessments, such as CEEQUAL.

5.3.4. A shift towards journeys via active travel modes is likely to have positive effects across the environmental, economic and social aspects of the region. Though there may need to be some infrastructure development to support safe and reliable active travel journeys, there is considerable scope to reallocate space within the existing transport network to realise these benefits. A reduction in the need to travel whilst maintaining access to services and opportunities may benefit certain parts of the economy more than others. For example, digital, decentralised and/or delivery businesses may benefit, whilst those businesses operating in fixed locations requiring travel to reach (by any mode) could experience a decrease in economic activity, unless they can make the transition to digital and/or remote provision of their services. There is also an opportunity to use digital services, such as ride-share and journey planning applications, in tandem with decarbonisation initiatives to further realise benefits from these policies. Reducing the need to travel would give people the opportunity to invest more time and effort in healthy choices of travel and/or destination. Doing this by increasing digital connectivity would also allow access to certain health services or opportunities from home. However, it would have to be implemented in such a way so as to prevent people being put off from accessing health services or choices, or problems such as loneliness and isolation setting in. Proposals should take account of the requirements of groups who require powered mobility vehicles, mobility aids or service animals (such as guide dogs) to make journeys safely and independently, providing enough space for all users. Enabling access to services and opportunities without the need to travel could benefit those groups requiring greater inclusivity, if done in a way that meets the needs of all (e.g. people living in rural areas, compatibility with visual and hearing aids, accessible to those on low income and/or without access to digital services). There is some uncertainty about how innovative solutions will affect sustainability, but it may be possible to draw conclusions depending on whether solutions are based around development, digital or behavioural solutions.

5.3.5. Delivering east-west connectivity, particularly by rail, will generally have positive effects on economic and social aspects of sustainability, arising from increased connectivity to, from and between economic centres for employment, education and tourism. Social benefits will also arise from increased connectivity to and from cultural, heritage and green/natural spaces used for education and recreation, which bestow a sense of wellbeing, identity, culture and a sense of place. The East West Rail project, in particular, aims to unlock further economic growth, bringing associated economic and social benefits. The focus on rail connectivity will have further benefits for environmental aspects such as climate change, greenhouse gases and air quality, despite the shorter-term effects arising from construction. The greatest potential for negative effects is for those environmental and social aspects sensitive to loss of land to infrastructure and emissions to water, land and air. However, a strategic commitment to environmental net gain and the use of assessments, such as Historic Landscape Characterisation, and design initiatives such as biodiversity net gain, natural capital, circular economy and sustainability assessments, such as CEEQUAL, provides the opportunity for regional environmental improvements. This would bring additional social benefits, such as for health, wellbeing and community safety, and further opportunities for benefits from placemaking and active travel policies.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 37 of 68

5.3.6.   The solutions for improving north-south connectivity in the region have the potential for both positive and negative effects, depending on the form they take, for example infrastructure based, or digital solutions, or maximising benefits arising from the construction and improvement of other regional and national transport networks. Increased connectivity would certainly bring economic and social benefits, and if aligned with policies on decarbonisation and integrated/active travel, some environmental benefits as well; the combination of these benefits would enhance overall sustainability outcomes. This will help to provide a balance against the likelihood of negative effects, particularly on environment aspects, arising from solutions to north-south connectivity that require building new infrastructure. Further study is required to understand the effects of particular solutions in some corridors in more detail.

5.3.7.   Providing public transport and digital based solutions to regional and cross-regional connectivity, particularly if this takes place within an existing transport network or corridor, will yield social and economic benefits whilst also minimising environmental aspects. In particular, the reduction in emissions from the shift in travel modes and improved performance of the transport network would have positive effects on health, air quality, economy, climate change and greenhouse gases, air quality, noise and vibration. There is scope, however, for this connectivity to be delivered less sustainably in the short term by, for example, developing new roads or expanding existing road networks, which would still deliver some economic benefits of connectivity and growth but without the advantages of social benefits and reducing environmental impact. To address this, solutions should embrace sustainable design principles and be informed by the expertise and methods already practised in the industry, for example by Network Rail and Highways England.

5.3.8.   There is the potential for significant positive social and economic benefit arising from transport led place-making, centred around integrated travel modes and local connectivity, alongside the delivery of mass transit systems in urban centres and along commuter corridors. The potential for reduction in emissions and shift to active travel would also bring a range of interconnected social and environmental benefits. However, there would also be potential for significant negative environmental effects arising from land take in addition to associated economic and housing growth. Negative effects on the environment can subsequently have negative social effects. Striking a balance between these pillars of sustainability makes it even more important for every project, no matter the scale to embrace biodiversity net gain and the opportunity to improve natural capital, ecosystem services and environmental connectivity in its conception, design and delivery. Embracing the environmental aspects of sustainability, alongside the integration of active travel and connectivity into these proposals, will be essential in achieving the social benefits of economic growth.

5.3.9.   The policies relating to local and rural connectivity will lead to better integration between modes of transport, encouraging active travel and lower carbon trips, with associated benefits for health and air quality. The reduction in emissions will also yield benefits for climate change and greenhouse gases and noise and vibration. Any new infrastructure proposed to deliver these policies will need to be located, designed and delivered using sustainable practices to maximise the benefits of greater connectivity to, from and between the region's environmental assets, without affecting their integrity and value. In this way, social and economic benefits associated with tourism, education, employment and recreation can also be achieved.

5.3.10. Achieving global connectivity in the region, specifically in relation to the region's airports, as well as to, from and between ports in other regions, will have mostly economic benefits. There may be a

reduction in certain emissions as a result of an increased focus on public transport and rail freight connectivity, which will bring some social and environmental benefits. However, climate change and greenhouse gas aspects will experience negative effects arising from aviation. In addition, it is likely that the nature of the proposals to deliver these policies will be based around new infrastructure. As such, there is potential for negative effects on environmental and social aspects, locally and regionally, where these are sensitive to land take from new infrastructure. In order to balance this range of effects, projects should be located, designed and assessed to sustainability benefits at the local and regional level, as described previously. In this way, economic benefits can be achieved, without compromising the other pillars of sustainability.

5.3.11. Increasing rail freight connectivity has the potential for economic benefits, as well as for climate change and greenhouse gases, and those environmental aspects such as air quality and noise and vibration, arising from a reduction in freight transported by road, although rail freight also produces greenhouse gas emissions. Delivering these solutions in accordance with other Transport Strategy policies, such as decarbonisation, active travel (for site staff and rail workers) and connectivity, will yield further positive social effects for people and communities involved in the rail freight industry. The development of rail freight interchanges, whilst supporting these economic and social benefits, has the potential for negative effects on social and environmental topics sensitive to development. A commitment to implement sustainability led design in the development of these interchange projects would go some way to reducing this potential for negative effects.

5.3.12. The drive to improve reliability and reduce impacts from road freight, particularly on local communities, is likely to have positive effects on some economic and social factors, as well as those environmental aspects sensitive to emissions and noise and vibration. However, these benefits are likely to be spatially limited, unless wider policies are also applied, such as for decarbonisation and mobility. For example, solutions for road freight will be more sustainable where they make use of electric or low carbon vehicle technologies, and provide active travel options for haulage staff, drivers, and service and support personnel. Solutions requiring land take or spatial solutions in close proximity to sensitive environmental features are likely to have negative effects. However, all projects have the opportunity to avoid, reduce or mitigate impacts, and efforts made to achieve this at a local authority and project level will drive sustainable outcomes across the region.

5.3.13. A summary of the (pre-mitigation) assessment for each of strategic policies by Sustainability Objective is shown below in Table 5.1. The key to the assessment of this table is set out in **Table 3.2**.

Table 5.1: Policy Assessment Summaries

	Draft TS Policies	Population and Equalities	Economy	Health	Community Safety	Biodiversity	Natural Capital and Ecosystem Services	Landscape and Townscape	Historic Environment	Water Environment	Air Quality	Climate Change and Greenhouse Gases	Soil, Land Use, Resource and Waste	Noise and Vibration
Decarbonising our transport	**Policy 1** In identifying future investment requirements we will prioritise those which contribute to a reduction in car journeys in line with the recommendations delivered by the UK Climate Assembly: to facilitate a reduction in the number of private car journeys by a minimum of 5% per decade (of total traffic flow compared with 2019).	?	?	+	+	+	+	+	+	0	++	++	0	+
	Policy 2 We will support and plan for the decarbonisation of the road fleet, working with the private sector, the energy sector, local authorities and Highways England to ensure the infrastructure required to support a zero-emission fleet (including buses, public transport and freight) is available.	?	++	?	?	?	?	?	?	?	?	++	?	?
	Policy 3 We will support and plan for the decarbonisation of the rail network with priority given to securing: Completion of the Midland Mainline electrification. Delivery of East West Rail as an electrified route. Infill electrification schemes that enable electric haulage of rail freight services, in particular those to/from the international gateway port of Felixstowe and to/from national and regional distribution centres. Electrification of the Chiltern Main Line between Birmingham and London Marylebone.	+	++	+	-	-	-	--	--	?	++	++	-	-/+
Mobility for the Future	**Policy 4** We will work with infrastructure owners and operators to ensure that proposals brought forward for the development of the transport system reduce reliance on the private car by considering the needs of users on the basis of the following hierarchy: i) Enabling access to services and opportunities without the need to travel. ii) Active Travel Modes (pedestrians and cyclists) iii) Public transport modes (bus, scheduled coach and rail) iv) Low emission/ zero carbon private vehicles, including two-wheeler vehicles v) Other Motorised modes. All proposals to be prepared on the basis that they provide inclusive and accessible travel options for all users	++	+	++	+	+	+	+	+	-/+	++	+	-/+	++
	Policy 5 In identifying future investment requirements we will prioritise proposals on the basis of value for money, their contribution towards achieving net-zero carbon targets, and their contribution to wider sustainability, environmental net gains and health outcomes.	++	+	++	+	+	+	+	+	-/+	++	+	-/+	++
	Policy 6 New transport development in the region should conserve and where possible enhance the natural, built and historic environment.	+	+	+	?	+	+	+	+	+	+	-/+	-/+	?
	Policy 7 We will aim for zero deaths on the Major Road Network by 2040.	+	?	+	++	0	0	0	0	0	0	0	0	0
	Policy 8 We will continue to work with partners, universities, operators, and the private sector to leverage our regional 'living laboratories' to trial innovative solutions and apply new business models at scale.	?	+	?	?	?	?	?	?	?	?	+	-/+	?

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 40 of 68

	Draft TS Policies	Population and Equalities	Economy	Health	Community Safety	Biodiversity	Natural Capital and Ecosystem Services	Landscape and Townscape	Historic Environment	Water Environment	Air Quality	Climate Change and Greenhouse Gases	Soil, Land Use, Resource and Waste	Noise and Vibration
		Sustainability Objectives												
East West Rail Main Line	**Policy 9** We support the delivery of the East West Rail project (including its Eastern Section), with the expectation that Phase 2 of the Western Section is open from Oxford – Bedford by 2024, Aylesbury – Milton Keynes by 2025; the Central Section by 2030.	+	++	+	+	-	-	- -	-	- -	++	+	- -	-/+
	Policy 10 We will work with the EWRCo, Network Rail, neighbouring STBs and local partners to identify opportunities to realise the longer-term potential of the East West Main Line in support of economic activity and planned housing growth.	+	++	+	0	0	0	0	0	0	?	-/+	?	?
	Policy 11 We will work with partners, the EWRCo and Network Rail to ensure that where the East West Main Line intersects existing main lines the opportunity is taken to establish regionally significant transport hubs: priority will be given to developing proposals in the following locations: Oxford Stations Bicester Stations Aylesbury Station Bletchley/Milton Keynes Stations Bedford Midland Station East West Rail/East Coast Main Line Cambridge/ Cambridge South Stations	+	++	+	?	-	-	-	-	-	++	+	+	-/+
Improving East West Connectivity	**Policy 12** We will prioritise improvements to east-west connectivity to support economic activity and in support of planned housing growth, including: A northern rail corridor that links north Oxfordshire, Northamptonshire, and Peterborough, providing more direct connectivity across the northern Heartland A southern rail corridor that links Buckinghamshire with Hertfordshire, providing an orbital route between the Chiltern Mainline and West Anglia Main Line	+	++	+	+	- -	- -	-/+	-	-/+	+	-/+	- -	?
	Policy 13 We will work with Western Gateway and Network Rail, Highways England and public transport operators to develop proposals that strengthen connectivity between Swindon/Oxford and the South West and South Wales in support of economic activity and planned growth.	+	++	+	+	?	?	-/+	?	-/+	+	-/+	?	?
	Policy 14 Taken forward by our programme of connectivity studies, identify proposals that strengthen east/west connectivity within the following areas: Oxford-Milton Keynes Peterborough-Northampton-Oxford Oxford-Didcot-Swindon Watford-Aylesbury-Bicester-M40 North Northamptonshire Oxford – M40 Junctions	+	++	+	+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 41 of 68

	Draft TS Policies	Population and Equalities	Economy	Health	Community Safety	Biodiversity	Natural Capital and Ecosystem Services	Landscape and Townscape	Historic Environment	Water Environment	Air Quality	Climate Change and Greenhouse Gases	Soil, Land Use, Resource and Waste	Noise and Vibration
	Sustainability Objectives													
Improving North South Connectivity	**Policy 15** We will work with Government, Network Rail, Highways England, public transport operators and Oxfordshire County Council to develop a long-term solution to challenges on the Didcot – Oxford – Bicester/Banbury corridor.	?	++	?	?	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+
	Policy 16 We will work with Network Rail, Government and adjoining Sub-national Transport Bodies to maximise the allocation of released capacity on the classic network as a result of HS2 to benefit connectivity within the region.	+	++	+	+	?	?	?	?	-/+	++	+	?	?
	Policy 17 We will work with Government, Network Rail, adjoining STBs and partners to develop a solution that improves connectivity on the London - Luton – Bedford – Wellingborough-Kettering – East Midlands corridor.	+	++	+	+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+
	Policy 18 We will work with the Cambridgeshire and Peterborough Combined Authority, Cambridgeshire County Council and Peterborough City Council alongside Network Rail and Government to support the priorities identified in the Cambridgeshire Rail Corridor Study and we support the delivery of Cambridge South Station by 2025 and aspirations for services to/from a new station at Wisbech.	+	++	+	+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+
	Policy 19 We will work with partners, including Government and Highways England to develop a long-term solution to the challenges of the A1 (East of England) corridor.	+	++	+	+	-	-	-/+	-	-/+	-/+	-	-/+	-
	Policy 20 We will work with Government and Network Rail to develop a long-term solution to the challenges on the London – Bishop's Stortford – Cambridge Corridor.	+	++	+	+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+
	Policy 21 Taken forward by our programme of connectivity studies, identify proposals that strengthen north/south connectivity within the following areas: London – Buckinghamshire – MK – Northampton Luton – Milton Keynes – Daventry Luton – Bedford – Northamptonshire Northampton – Milton Keynes	+	++	+	+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+
Transforming Intra and Inter Regional Journeys	**Policy 22** We will prioritise investment in the development of public transport-based solutions when improving intra-regional connectivity between Regionally Significant Hubs, Areas of Economic Opportunity and Areas of Significant Change.	+	++	+	+	-	-	-/+	-/+	-/+	++	+	-/+	?
	Policy 23 To realise our decarbonisation commitments, while supporting economic growth, we will expect infrastructure owners to ensure that all new strategic infrastructure investment is designed as digitally enabled corridors.	+	++	+	?	?	?	?	?	?	+	-	-/+	?
	Policy 24 We will support investment in the Strategic Road Network and Major Road Network where this meets one or more of the following criteria and is consistent with wider environmental objectives: a) Protects and enhances the existing infrastructure asset b) Delivers a solution to an identified problem on the existing infrastructure asset c) Enables access to new economic opportunities and/or housing growth d) Enables delivery of sustainable transport linkages such as public transport and active travel improvements	+	++	+	+	-/+	-/+	-/+	-/+	-/+	- -	- -	+	-

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 42 of 68

Draft TS Policies	Population and Equalities	Economy	Health	Community Safety	Biodiversity	Natural Capital and Ecosystem Services	Landscape and Townscape	Historic Environment	Water Environment	Air Quality	Climate Change and Greenhouse Gases	Soil, Land Use, Resource and Waste	Noise and Vibration
Policy 25 We will, working with Network Rail, Highways England and public transport operators, identify the level of service required between Regionally Significant Hubs, Areas of Economic Opportunity and Areas of Significant Change to achieve improved intra-regional connectivity: the levels of service will be reviewed on a biennial basis.	+	++	+	+	-	-	-/+	-/+	?	++	-/+	-/+	-/+
Sustainable Healthy Places — **Policy 26** We will work with local planning authorities and local enterprise partnerships to align decision making on strategic infrastructure with that associated with land use planning and economic development in order to enable growth that is sustainable for the long term.	+	++	++	+	-/+	-/+	-/+	-/+	-/+	-/+	-	-/+	-/+
Policy 27 Working with partners and operators, we promote the development and delivery of high-quality public transport and segregated mass transit systems. Initial priority will be given to supporting the delivery of Mass Rapid Transit in the following locations: Cambridgeshire Autonomous Metro; Milton Keynes Rapid Transit; The A414 corridor in Hertfordshire. Oxford sub-urban network - Bus rapid transit and Cowley branch line. Where further transit systems are identified, we will work with partners to maximise their potential and deliverability.	+	++	+	++	- -	- -	-	-	-/+	+	+	-	-/+
Local Connectivity — **Policy 28** We will support the establishment of 'mobility hubs' in areas of significance as locations where interchange between travel modes will be prioritised. We will work with public transport operators and the Government to enable frictionless, affordable travel using a combination of travel modes.	+	++	+	?	-/+	-/+	?	?	?	+	-/+	-/+	-/+
Rural Connectivity — **Policy 29** We will work with partners to develop tailored solutions for our smaller market towns and rural areas that improve access to services and opportunities, including options for centres of mobility.	++	++	++	+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+
Connecting to Global Market — **Policy 30** We will work with infrastructure owners/operators, Network Rail, Highways England and the Government to improve surface access by public transport to international airports in order to reduce the environmental footprint of their operations, with priority given to: Luton Airport – with a focus on improving travel opportunities via services on the Midland Main, and ensuring the right level of service and capacity on the Direct Air Rapid Transit service (DART). Heathrow Airport – with a focus on improved interchange and connectivity via the Old Oak Common transport hub, and through delivery of Western Rail Access to Heathrow. Stansted Airport – with a focus on improved travel opportunities via services on the West Anglia Main Line between Cambridge, Stansted, Bishops Stortford and London.	+	++	-/+	+	- -	- -	-	-	-/+	- -	- -	-/+	- -
Policy 31 We will work with relevant Sub-national Transport Bodies, as well as Network Rail and Highways England, to prioritise the development of proposals that enable improved connectivity along the key inter-regional corridors: priority will be given to identifying solutions to future needs on the following corridors: Swindon/Southampton – Reading – Didcot/Oxford – West Midlands	+	++	+	?	-/+	-/+	-/+	-/+	-/+	-/+	-	-/+	-

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 43 of 68

	Sustainability Objectives												
Draft TS Policies	Population and Equalities	Economy	Health	Community Safety	Biodiversity	Natural Capital and Ecosystem Services	Landscape and Townscape	Historic Environment	Water Environment	Air Quality	Climate Change and Greenhouse Gases	Soil, Land Use, Resource and Waste	Noise and Vibration
London – Watford - Luton – Bedford – Northampton East Midlands.													
Realising the Potential for Rail Freight — **Policy 32** We will work with Network Rail and all relevant Sub-national Transport Bodies to develop proposals that increase freight on the rail network with priority given to the following corridors: Felixstowe to Nuneaton; East West Main Line; Southampton to West Midlands; West Coast Main Line (including Northampton Loop)	?	++	-/+	++	-/+	-/+	-/+	-/+	-	++	+	-/+	-
Policy 33 We will work with Network Rail and all relevant Sub-national Transport Bodies to maximise the conveyance of construction materials by rail with priority given to the following corridors: Midland Main Line – providing access into the region from aggregate sources in the Midlands; Great Western Main Line – providing access into the region from aggregate sources in western England and Wales.	?	++	-/+	++	-/+	-/+	-/+	-/+	-	++	+	-/+	-
Strategic Rail Freight Interchanges — **Policy 34** We will support the development of Strategic Rail Freight Interchanges where they support the ambitions of this strategy and their impact on the transport network can be suitably managed.	?	++	-/+	+	- -	- -	-/+	-/+	-	++	+	-	-
Supporting Road Freight — **Policy 35** We will work with Highways England, local highway authorities, local planning authorities and the freight sector to ensure that strategic corridors for road freight and logistics are fit for purpose: priority will be given to the following corridors: The M25/M1; The A34 and M40 north of Oxford; The A1 corridor (north of Huntingdon); The A14; The A508 into Northampton.	+	+	?	+	- -	- -	-	?	?	-/+	- -	?	-
Policy 36 We will work with Highways England, local highway authorities, local planning authorities and the freight sector to use improved planning and the application of innovative solutions to reduce the impact of freight on the environment, in terms of carbon emissions and its impact on communities living in and around freight corridors.	+	+	+	+	-/+	-/+	+	+	?	-/+	-/+	-/+	+
Policy 37 We will work with Highways England, local highway authorities, local planning authorities and the freight sector to address the need for secure overnight lorry parking and their associated facilities.	0	+	0	++	?	?	-	-	-	-	-	-/+	-
Policy 38 We will work with local transport authorities, local planning authorities and the freight and logistic sector to ensure the local servicing and support needs of the business community are met.	+	++	+	+	0	0	0	0	0	0	0	0	0

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 44 of 68

5.4 ASSESSMENT OF CORRIDORS

The 19 corridors included in this assessment are labelled as follows. As the programme of connectivity studies has developed, the naming and scope of the has been amended, due to the iterative nature of the programme. The below list shows the list of corridors which were assessed in the ISA and also to help inform the development of the future programme of connectivity studies. The final programme of studies to be progressed is shown in the Transport Strategy.

- Oxfordshire-Milton Keynes Connectivity Study
- North South connections (A1 region)
- Luton – Bedford - Northamptonshire
- Oxford to Swindon/the South West
- (London) - Buckinghamshire-MK-Northampton
- Watford - Aylesbury - Bicester - M40
- East West connections between M40 and A1
- M11 - Luton
- London – Stevenage- Cambridge - Ely
- Peterborough - Northampton - Oxford
- Luton - east of Milton Keynes
- M4 – Didcot - Oxford
- Oxford – M40 junctions
- "North Northamptonshire" (Northampton - Wellingborough –- Huntingdon/Alconbury Weald)
- A508 Northampton – Milton Keynes
- Northampton - Corby - Wellingborough
- Hemel Hempstead - Hatfield - Harlow
- Luton to Dunstable and Houghton Regis
- Luton - Hemel Hempstead

5.4.1.   The geographies, naming and scoping of the corridors are likely to change over time. The assessments of corridors for the ISA were undertaken during the process of development of the programme of connectivity studies and therefore represent assessment at a specific point in time. This assessment for the ISA, alongside ongoing assessment of corridors, will help inform the programme of connectivity studies going forward.

5.4.2.   Given the iterative nature of the process of preparing the Transport Strategy, it should be noted that the corridor names listed above, do not reflect the list within the current Transport Strategy, although the general geographies are similar. The assessment methodology has applied a precautionary study area to the corridors assessed to allow for such iterative changes.

5.4.3.   At this stage the study areas within each corridor are indicative and do not have defined boundaries; instead they follow general transport patterns within the EEH Region.

5.4.4.   The assessment of each of the 19 corridors has been undertaken using spatial indicators for each of the Sustainability Objectives, as shown in Table 5.2 below. These indicators have been selected as appropriate at the strategic level. For future assessment at a local authority and/or project level, different or additional indicators may be appropriate.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 45 of 68

Table 5.2: Spatial Indicators

SA Topic	Spatial Indicator	Sensitivity Scoring Rationale
Population and Equalities	IMD Deprivation	This data was based at local authority level. 2019 overall rankings were used to work out the overall sensitives. Generally, where deprivation was low, corridors were deemed to be more resilient to change and scored more positively.
	Local Plan Strategic Housing Sites	Transport developments within this corridor are likely to compliment future housing, through the potential delivery of sustainable transport modes and the provision of greater access to jobs, facilities and services. It was therefore generally considered that this indicator would be sensitive to the positive effects of the Transport Strategy. Where there is no planned future housing, no effects have been identified.
	Usual Resident Population	This indicator was used to see population densities. Where there was a mix of rural and urban populations, it was generally identified that they could be sensitive to both positive and negative effects, depending on the proposals that were to come forward. As identified at the scoping stage, rural communities often face issues with connectivity and isolation, when compared to the region's towns and cities. There is potential for development to benefit both the rural and urban populations within the corridor, however, proposals coming forward would need to ensure that it supports both urban and rural communities, in order to avoid disproportiante effects.
Economy	Economic Activity	This looked at key areas with high economic activity. It was generally considered that the transport strategy could complement these key areas, and therefore sensitivities to positive effects were identified. Where these weren't located in the corridors, it was deemed likely to be sensitive to both positive and negative effects. The transport strategy could support greater connectivity to areas of high economic activity, but this would depend on the proposals coming forward.
	GVA	This data was based at local authority level. Where GVA values are consistently high across the corridor, corridors were scored positively as transport infrastructure and development is likely to continue strengthen the overall contribution to the economy. A mixture of high and low GVA values resulted in potential for sensitivities to both positive and negative effects. Although it is likely that the transport strategy could result in an increase in GVA values, however, it would be dependent upon the types of schemes that were to come forward. For example, a new footpath or cycleway is unlikely to significantly change the GVA values.
	Local Plan Employment Sites	It was generally considered that the transport strategy could complement new strategic employment sites, therefore corridors with developments were deemed to be sensitive to positive effects.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 46 of 68

SA Topic	Spatial Indicator	Sensitivity Scoring Rationale
Human Health	IMD Health	This data was based at lower super output area (neighbourhood) level. We used 2019 overall rankings to work out the overall sensitives. Generally, where health deprivation was low, corridors were deemed to be more resilient to change and scored more positively.
	Percent Physically Active Adults (19+)	Local authority level data from Public Health England has been used. This looks at whether statistics are significantly better, similar or significantly worse than the national average. Where the majority of the population are significantly better than the national average, the populations have been deemed to be more likely to be sensitive to the positive effects associated with future development, and their health more resilient to change. The opposite effect is seen where the majority of Local authorities are significantly worse. It is dependent upon proposals too e.g. a new cycle path network could be beneficial, but if it just road improvements are made, it might worsen the current baseline. The better the current baseline situation is the more resilient they will be to change.
	Excess Weight in Adults (18+)	
Community Safety	IMD Crime	This data was based at lower super output area (neighbourhood) level. We used 2019 overall rankings to work out the overall sensitives. Generally, where crime deprivation was low, corridors were deemed to be more resilient to change and scored more positively.
	KSI	Local authority level data from Public Health England has been used. This looks at whether statistics are significantly better, similar or significantly worse than the national average. Where the KSI figures are better than the national average positive effects have been identified, as communities are likely to be more resilient to change. Conversely where it is similar or significantly worse, it is likely to be sensitive to both positive and negative effects, depending on what proposals were to come forward.
	Accidents (Stat 19)	The assessment looks at the number of serious and fatal accidents on the roads. Sensitivity of this receptor would be highly dependent upon where development takes place and the type of developments that come forward. Where no serious or fatal accidents have occurred, a negligible effect has been recorded.
Biodiversity	SAC	The assessment looks at the number of sites which fall within the corridor boundary as well as the 2km buffer. Where sites are identified, negative sensitivities have been recorded. Where there are no sites, no effect has been recorded with regard to that indicator. There may be further local ecological indicators that haven't been considered at this stage, which may be sensitive to negative effects.
	SPA	
	Ramsar	
	SSSI	
	NNR	
Natural Capital and Ecosystem Services	Carbon storage	The assessment looks at the approximate amount of carbon stored within the vegetation and topsoil. Soil and vegetation carbon could be released due to potential land-use changes within the corridors. It looks at the approximate tonnes of carbon per hectare. Where the average carbon stock is medium to high (57+ tonnes) negative effects have been

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 47 of 68

SA Topic	Spatial Indicator	Sensitivity Scoring Rationale
		identified. Where numbers fall below this, neutral effect have been identified.
	Nectar Plant Diversity	Wild pollinators such as bees are important for food production and wildflowers which themselves significantly contribute to cultural ecosystem services. Land-use changes could impact on nectar plant diversity. The assessment looks at the mean estimates of number of nectar plant species for bees per 2×2m plot. Where corridors have medium to high values (4.7+ nectar plants) negative effects have been identified. Where numbers fall below this, neutral effect have been identified.
	Accessible Greenspace	The assessment looks at the quantity of accessible green space across the region. This has generally resulted in the potential for both positive and negative effects. Development has potential to fragment or remove greenspace, but also has the potential to provide more greenspace and greater access to them, across the region.
Landscape and Townscape	AONB	The assessment looks at the number of AONBs which fall within the corridor boundary as well as the 2km buffer. Where sites are identified, negative sensitivities have been recorded. Where there are no sites, no effect has been recorded.
	National Trails	Where the corridor intersects a national trail there is the potential for them to be sensitive to both the negative and positive effects of development, depending on proposals that come forward. e.g. Severance will result in negative impacts, whilst provision of greater access could result in positive impacts.
	Greenbelt	The assessment looks at the local authority greenbelt land which falls within the corridor boundary as well as the 2km buffer. Where areas are identified, negative sensitivities have been recorded. Where there are no areas, no effect has been recorded.
Historic Environment	World Heritage Sites	The assessment looks at the number of sites which fall within the corridor boundary as well as the 2km buffer. Where sites are identified, negative sensitivities have been recorded. Where there are no sites, no effect has been recorded with regards to that indicator. There may be further local historic indicators that have not been considered at this stage, which may be sensitive to negative effects.
	Scheduled Monuments	
	Historic Parks and Gardens	
	Historic Battlefields	
Water Environment	Water Source Protection Zones	The Environment Agency have defined source protection zones (SPZs) – these are zones which show the level of risk to the source from contamination, which could be caused by any activity that might cause pollution in the area. Where there are no SPZs, no effects have been identified.
	Water Sensitive Areas	Water sensitive areas currently have issues with eutrophication and/or nitrates, which may make them less resilient to change. Where these intersect the corridor, negative sensitivities have been identified. Where there are no water sensitive areas, no effects have been identified.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 48 of 68

SA Topic	Spatial Indicator	Sensitivity Scoring Rationale
	Drinking Water Safeguard Zones	Safeguard zones are used for areas around abstractions where water quality is poor. Future development could result in the need for increased abstractions, which could put additional stress on these zones and make them less resilient to change. These safeguarded zones are therefore likely to be more sensitive to the negative effects arising from future development within the corridor. Where there are no safeguard zones, no effects have been identified.
	Flood Zones (2 and 3)	The assessment looks at the number of flood zones that intersect the corridor, and the key risk areas. Future developments within these areas are likely to be less resilient to change and more sensitive to the negative effects arising from potential development. Where there are no flood zones, no effects have been identified.
Air Quality	AQMA	The assessment looks at the number of AQMAs that fall within the corridor and its 2km buffer. AQMAs have potential to be sensitive to both the negative and positive effects of future corridor development. Providing more sustainable transport modes could result in positive effects, however, road developments that could increase traffic volumes could result in a negative effect on AQMAs, by worsening the current situation. Where there are no AQMAs, no effects have been identified.
	CO_2 Emissions	The assessment uses local authority level data and compares the Kt of CO_2 emissions. Where all local authorities perform below the national average, there is potential for this receptor to be more resilient and sensitive to the positive effects arising from development. Those areas with high emissions have potential to be sensitive to both the positive and negative effects, depending on the proposals that come forward.
Climate Change Greenhouse Gases	Flood Risk Areas	The assessment looks at the number of flood risk areas that intersect the corridor, and the key risk areas. Future developments within these areas are likely to be less resilient to change and more sensitive to the negative effects arising from potential development. Where there are no flood zones, no effects have been identified.
	Per Capita Emissions	The assessment uses local authority level data and compares the per capita emissions. Where all local authorities perform better than the national average, there is potential for this receptor to be more resilient and sensitive to the positive effects arising from development. Those areas with high per capita emissions have potential to be sensitive to both the positive and negative effects, depending on the proposals that come forward.
Soil, Land Use, Resource and Waste	Agricultural Land Classification	The assessment looks at the quality of the agricultural land across the corridor. Where the land is of predominantly urban land classification there's potential for ground remediation and supports the use of previously developed land, thus protecting high quality soil resources. Where agricultural land quality is high, negative sensitivities have been identified.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 49 of 68

SA Topic	Spatial Indicator	Sensitivity Scoring Rationale
	Historic Landfill Sites	If there are any sites, these could be sensitive to both positive and negative effects, as it may provide opportunities for ground remediation, as per the SA objective.
Noise and Vibration	Noise Action Important Areas	Both indicators have potential to be to be sensitive to both negative and positive effects of future corridor development and would be highly dependent upon the nature of the proposals that come forward. If there are no noise sites there is no effect.
	Noise Directive Agglomerations	

5.4.5. The sensitivities/constraints and opportunities within a set distance buffer of the central point of each transport corridor have been identified, and the potential for sensitivity to significant effects highlighted. Where possible, the buffer around each corridor has been set at 2km. The specific buffers used for each corridor are listed in each of the corridor assessments in Appendix C.

5.4.6. A summary of the assessment for each of the 19 corridors is shown below in Table 5.3. Individual assessments are provided in Appendix C.

5.4.7. As stated previously, it should be noted that these corridors do not have fixed boundaries and represented the corridors being assessed at the time of writing the ISA. Further iterations of the corridors have led to the development of a programme of connectivity studies, which are listed in the Transport Strategy.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 50 of 68

Table 5.3: Summary of the Sensitivity Assessment of Corridors

Corridor Name	Population and Equalities			Economy			Human Health			Community Safety			Biodiversity					Natural Capital and Ecosystem Services			Landscape and Townscape			Historic Environment				Water Environment				Air Quality	Climate Change Greenhouse Gases			Soil, Land Use, Resource and Waste		Noise and Vibration	
	IMD Deprivation	Local Plan Strategic Housing Sites	Usual Resident Population	Economic Activity	GVA	Local Plan Employment Sites	IMD Health	Percent Physically Active Adults (19+)	Excess Weight in Adults (18+)	IMD Crime	KSI	Collisions	SAC	SPA	Ramsar	SSSI	NNR	Carbon storage	Nectar Plant Diversity	Accessible Greenspace	AONB	National Trails	Greenbelt	World Heritage Sites	Scheduled Monuments	Historic Parks and Gardens	Historic Battlefields	Water Source Protection Zones	Water Sensitive Areas	Drinking Water Safeguard Zones	Flood Zones (2 and 3)	AQMA	CO2 Emissions	Flood Risk Areas	Per Capita Emissions	Agricultural Land Classification	Historic Landfill Sites	Noise Action Important Areas	Noise Directive Agglomerations
Oxfordshire-Milton Keynes Connectivity Study	+	+	+/-	+	+/-	+	+/-	+	+/-	+/-	+/-	+/-	-	0	0	-	-	-	0	+/-	-	+/-	-	-	-	-	-	-	-	-	-	+/-	+/-	-	+/-	+/-	+/-	+/-	+/-
North-South connections (A1 region)	+/-	+	+/-	+	+/-	+	+/-	+/-	+/-	+/-	+/-	+/-	-	-	-	-	-	0	0	+/-	0	0	-	0	-	-	-	-	-	-	-	+/-	+/-	-	+/-	-	+/-	+/-	+/-
Luton – Bedford - Northamptonshire	+/-	+	+/-	+	+/-	+	+/-	+/-	+/-	+/-	+/-	+/-	0	-	-	-	-	0	-	+/-	-	0	-	0	-	-	0	-	-	-	-	+/-	+/-	-	+/-	-	+/-	+/-	+/-
Oxford – Swindon/South West	+	+	+/-	+	+/-	+	+	+	+/-	+/-	+/-	+/-	-	0	0	-	-	-	-	+/-	-	+/-	-	0	-	-	0	0	-	-	-	+/-	+/-	-	+/-	-	+/-	+/-	+/-
(London) - Buckinghamshire-MK-Northampton	+/-	+	+/-	+	+/-	+	+/-	+/-	-	+/-	+/-	+/-	-	-	-	-	-	-	-	+/-	-	-	-	-	-	-	-	-	-	-	-	+/-	+/-	-	+/-	+/-	-	+/-	+/-
Watford – Aylesbury – Bicester – M40	+	+	+/-	+	+/-	+	+	+/-	+	+/-	+/-	+/-	-	0	0	-	0	-	-	+/-	-	+/-	-	-	-	0	-	-	0	-	0	+/-	+/-	-	+/-	+/-	-	+/-	+/-
East-West connections between M40 and A1	+/-	+	+/-	+	+/-	+	+/-	+/-	+/-	+/-	+/-	+/-	-	-	-	-	-	-	-	+/-	0	-	+/-	-	0	-	-	-	-	0	-	+/-	+/-	-	+/-	-	+/-	+/-	+/-
M11 - Luton	+/-	+	+/-	+	+/-	+	+/-	-	+	+/-	+/-	+/-	0	0	0	-	-	0	-	+/-	-	0	-	0	-	-	0	-	-	0	-	+/-	+/-	-	+/-	-	+/-	+/-	+/-
London – Stevenage – Cambridge - Ely	+	+	+/-	+	+/-	+	+/-	+/-	+	+/-	+/-	+/-	-	-	-	-	-	-	0	+/-	0	0	-	0	-	-	0	-	-	-	-	+/-	+/-	-	+/-	-	+/-	+/-	+/-
Peterborough - Northampton - Oxford	+/-	+	+/-	+	+/-	+	+/-	-	-	+/-	+/-	+/-	-	-	-	-	-	-	-	+/-	0	-	+/-	-	-	-	-	-	-	-	-	+/-	+/-	-	+/-	-	+/-	+/-	+/-
Luton - East of Milton Keynes	+	+	+/-	+	+	+	+	+/-	0	+/-	+/-	+/-	0	0	0	-	-	-	-	+/-	-	0	-	0	-	-	0	-	-	0	-	+/-	+/-	-	+/-	+/-	-	+/-	+/-
M4 – Didcot - Oxford	+	+	+/-	+	+/-	+	+/-	+	+	+/-	+/-	+/-	-	0	0	-	-	-	-	+/-	-	+/-	-	-	-	-	-	0	0	-	-	-	+/-	-	+/-	-	+/-	+/-	+/-
Oxford - M40 junctions	+	+	+/-	+	+/-	+	+/-	+	+	+/-	+/-	+/-	-	0	0	-	-	-	-	+/-	-	-	-	-	0	-	-	-	-	-	-	+/-	+/-	+/-	+/-	-	+/-	+/-	+/-
North Northamptonshire (Northampton - Wellingborough –- Huntingdon/Alconbury Weald)	+	+	+/-	+	+/-	+	+/-	+/-	-	+/-	+	+/-	0	-	-	-	0	-	0	+/-	0	0	0	0	-	-	-	-	0	-	-	-	0	+/-	-	+/-	-	+/-	+/-	0

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 51 of 68

SA Topic / Corridor Name	Population and Equalities			Economy			Human Health			Community Safety			Biodiversity					Natural Capital and Ecosystem Services			Landscape and Townscape			Historic Environment				Water Environment				Air Quality	Climate Change Greenhouse Gases			Soil, Land Use, Resource and Waste		Noise and Vibration	
	IMD Deprivation	Local Plan Strategic Housing Sites	Usual Resident Population	Economic Activity	GVA	Local Plan Employment Sites	IMD Health	Percent Physically Active Adults (19+)	Excess Weight in Adults (18+)	IMD Crime	KSI	Collisions	SAC	SPA	Ramsar	SSSI	NNR	Carbon storage	Nectar Plant Diversity	Accessible Greenspace	AONB	National Trails	Greenbelt	World Heritage Sites	Scheduled Monuments	Historic Parks and Gardens	Historic Battlefields	Water Source Protection Zones	Water Sensitive Areas	Drinking Water Safeguard Zones	Flood Zones (2 and 3)	AQMA	CO2 Emissions	Flood Risk Areas	Per Capita Emissions	Agricultural Land Classification	Historic Landfill Sites	Noise Action Important Areas	Noise Directive Agglomerations
A508 Northampton – Milton Keynes	+/-	+	+/-	+	+/-	+/-	+/-	+/-	-	+/-	+	+/-	0	-	-	-	0	-	-	+/-	0	0	0	0	-	-	-	-	-	-	-	+/-	+/-	-	+/-	-	+/-	+/-	+/-
Northampton - Corby - Wellingborough	+/-	+	+/-	+	+/-	+	+/-	+/-	-	+/-	+	+/-	0	-	-	-	0	-	0	+/-	0	0	0	0	-	-	-	-	-	-	-	+/-	+/-	-	+/-	-	+/-	+/-	+/-
Hemel Hempstead - Hatfield - Harlow	+	+	+/-	+	+/-	+	+/-	+	+	+/-	+	+/-	-	-	-	-	-	-	-	+/-	-	0	-	0	-	-	0	-	-	-	-	+/-	+/-	-	+/-	+/-	+/-	+/-	+/-
Luton to Dunstable and Houghton Regis	+/-	+	+/-	+	+	+	+/-	+/-	0	+/-	+/-	+/-	0	0	0	-	0	-	-	+/-	-	0	-	0	-	-	0	-	0	-	-	+/-	+/-	-	+/-	+/-	+/-	+/-	+/-
Luton - Hemel Hempstead	+/-	+	+/-	+	+	+	+/-	+/-	+/-	+/-	+/-	+/-	0	0	0	-	0	-	-	+/-	-	0	-	0	-	-	0	-	-	-	-	-	+/-	-	+/-	+/-	+/-	+/-	+/-

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 52 of 68

5.4.8.   In summary Table 5.3 shows that:

- Generally, economic and social indicators have the greatest potential for positive effects, although this varies depending on the corridor study area, with social and health deprivation, gross value added, health and safety indicators having more of a bearing on whether outcomes are positive or negative. Corridors affected by deprivation (overall, health and crime), low productivity, poor health and poor safety are more likely to experience negative effects but therefore would benefit from solutions that address these issues.
- Nearly all corridors scored positively for housing, economic activity and employment indicators, demonstrating the benefits of greater connectivity for the economy. The picture was much more mixed for social indicators such as physical activity, excess weight, crime and road collisions, depending on the corridor study area, with most corridors showing the potential for positive and negative effects. This suggests that that the wider wellbeing of individuals and communities over and above economic connectivity must be considered in future solutions for these corridors.
- Much of the region boasts a diverse and valuable environmental resource, across biodiversity, landscape and townscape, and the historic and water environment indicators. Furthermore, there will be a host of additional environmental sites and resources present within the study areas, not represented by these indicators, further adding to the rich environmental capital of the region.
- For these indicators, there is greater potential for negative effects, assuming the solutions to connectivity within the corridors are development based. However, not all corridors coincide with important protected sites, such as AONBs, SPAs, SACs, Ramsar, World Heritage Sites and National Trails for example, and as a result the potential for negative effects on these indicators is reduced. As previously mentioned, there will be additional natural resources not yet considered, which should be assessed if transport interventions for particular corridors are explored further.
- For corridors interacting with key rights of way, such as the National Trails, solutions should seek to maximise benefits by reducing severance (for both social and environmental functions), providing a greater level of access for people as well as environmental connectivity (e.g. habitats).
- For indicators across air quality, climate change and greenhouse gases, soil and land use, and noise and vibration, there is again a mixed picture with most corridors showing the potential for both positive and negative effects. This shows that most corridors have issues and opportunities to be addressed or explored in relation to emissions to air, land and water, as well as land use and climate change resilience. It should be noted that effects on these environmental indicators will also have a bearing on effects experienced across social indicators such as health, safety and deprivation.
- There is greater potential for negative effects across the corridors in relation to flood risk and agricultural land classification, demonstrating the vulnerability of the region to climate change as well as the valuable contribution the region makes to agricultural production, depending on the corridor study area. Potential solutions for these corridors should therefore particularly focus on climate change resilience and the safeguarding of the best and most versatile agricultural land and viability of farm businesses.
- Taking a natural capital approach to future corridor studies would maximise the potential for environmental benefits, alongside social and economic benefits, by leveraging improvements in ecosystem services such as food production, flood alleviation, recreation (benefiting physical, mental and emotional health), climate change resilience and tourism.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 53 of 68

5.5 INTERACTION WITH OTHER ASSESSMENTS

5.5.1. As described in **Section 3.1**, in addition to SEA, there are a number of other assessments that have been incorporated into the assessments above. These are presented in full in Appendices D – G and summarised below.

HEALTH IMPACT ASSESSMENT

5.5.2. An assessment of health, population, environment and deprivation was undertaken for the strategic policies listed in **Section 2.2**. The interventions were assessed against the following determinants of health: air quality, noise, physical activity, road safety, economy and employment, and access and accessibility.

5.5.3. The assessment identified that the proposed transport principles and policies related to highways, including new roads and online improvements, are likely to result in negative health outcomes, particularly for air quality, despite the benefits of increased connectivity. However, decarbonisation of the transport system and improvements to public transport are likely to result in positive health outcomes, particularly for air and noise pollution. In addition, prioritising and improving pedestrian, cyclist and equestrian facilities will also lead to positive health outcomes, particularly in relation to physical activity, and especially when accessibility for all is taken into consideration. Overall, the Transport Strategy is expected to contribute to improved connectivity and accessibility to jobs.

HABITAT REGULATIONS ASSESSMENT

5.5.4. A Habitats Regulation Screening Assessment (HRSA) was undertaken to consider whether the Transport Strategy may have significant impacts upon European sites (Natura 2000 or Ramsar sites). The assessment was based solely upon the preliminary information available in relation to the locations of the corridors, rather than specific plans (policies) and/or projects, which are not proposed in the Transport Strategy. Through screening for potential impacts, it was not possible to categorically demonstrate that the Transport Strategy will not have any impacts upon European sites.

5.5.5. Given the possibility of significant effects associated with the implementation of EEH Transport Strategy, further, detailed assessment is necessary to satisfy the requirements of the Habitats Regulations as and when specific schemes are proposed and developed. This detailed assessment is described as an 'Appropriate Assessment'.

5.5.6. In order to consider potential impacts in more detail, further information on the proposals arising from the EEH Transport Strategy would be required as and when specific schemes are proposed and developed, followed by consultation with Natural England.

5.5.7. The EEH Transport Strategy is to be published at a strategic level and will not give detail on potential projects or proposals for its implementation. As a result, interventions arising from the Strategy, either as individual projects or multiple projects as part of subsequent plans, will be subject to and Appropriate Assessment and there will be the required level of scrutiny at this stage to protect the European sites. It will only be possible to undertake this level of assessment once specific projects are proposed and/or once sufficient detail is available at the plan level to enable a thorough and robust analysis to be carried out.

5.5.8. An assessment of any likely significant in-combination effects will be made and full recommendations for mitigation will be provided within each project/plan-level Appropriate

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 54 of 68

Assessment. These will suggest measures to reduce the potential for any development to result in impacts upon the European sites.

EQUALITIES IMPACT ASSESSMENT

5.5.9.   An Equalities Impact Assessment (EqIA) was undertaken to assess the strategic policies (listed in **Section 2.2**) from an equality perspective. The EqIA has considered the impact that these policies might have on persons, or groups of persons, who share characteristics which are protected under the Equality Act 2010, and also includes others considered to be vulnerable in society such as low-income groups.

5.5.10.   The assessment found that the policies are likely to result in a positive impact on the general public that are living, working or visiting the EEH region by providing safer, resilient, sustainable and convenient transport opportunities for the region. Some of the most vulnerable groups will particularly benefit, specifically:

- people with limited or no access to cars;
- people with respiratory illnesses, and those more susceptible to poor air quality (particularly younger and older people); and
- people that require access to employment, education, health and/ or other services.

5.5.11.   Although positive, there are still possible adverse impacts that would be felt by those with limited mobility who may feel discouraged from having greater participation in active travel (such as older people or people with a mobility limiting disability). Therefore, the Transport Strategy should incorporate measures for all levels of mobility so as not to discourage people who are require support to have a greater participation in active travel.

5.5.12.   There is also the potential for those with limited access or understanding of emerging technologies (such as older people, those on lower incomes and those with learning difficulties) to be adversely affected or not able to make full use of benefits of digital connectivity measures.

COMMUNITY SAFETY AUDIT

5.5.13.   There are a number of considerations for community safety for the Transport Strategy and subsequent development of transport in the Region. These include:

- The delivery of electrification will need to be communicated with people living and working along the railway to advise them of the potential risks.
- Pedestrian and cycle routes should be well lit to help reduce fear and deter criminal activity. Where cyclists and pedestrians have to share the road with traffic, traffic should be slowed down, and calming measures introduced.
- Transport hubs should be designed to incorporate measures to help to reduce crime and the fear of crime. This could include measures such as CCTV, effective lighting and secure bike racks.
- There may be some additional concerns over passenger safety, with regards to rising crime rates on public transport; however, mitigation could be put in place to ensure that incidents are minimised.
- Improving signage and sight lines and physical separation of vulnerable users are recommended to reduce collisions.
- Making streets easier to cross, through parking restrictions or improved sight lines, is important to encourage more walking and to connect communities.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 55 of 68

- Transport infrastructure may also need to be adapted to accommodate social distancing and allow easier access to green spaces. This could include widening of public footpaths and cycleways. Educational approaches including raising awareness of cyclists and powered 1-2-wheel modes (such as the 'Dutch Reach'), as well as legislative changes would also play a part in active travel uptake.

5.6 CUMULATIVE EFFECTS

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

5.6.2. A review of plans and policies identified a number of plans for cumulative effects assessment, in addition to cumulative effects within the Transport Strategy. This is set out in Table 5.4 below.

5.6.3. It should be noted that at the strategic level, 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 5.4: Identification of Cumulative Effects

Policy, Plans and Schemes	Potential Source of Cumulative Effects
EEH Transport Strategy	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 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.
HS2 Phase 1	The route of HS2 Phase 1 will go through the counties of Oxfordshire, Buckinghamshire and Northamptonshire. The delivery of this project is likely to have cumulative impacts on all topics, both positive and negative, directly and indirectly. This is likely to be dependent upon the type, number and scale of future proposals which may occur within close proximity to HS2 Phase 1 and future associated developments.
Oxford-Milton Keynes Expressway	The Government has investigated the potential for a new high-quality link road between the M1 and M40 which could support growth within the Oxford-Cambridge Arc. In 2017, the DfT commissioned Highways England to explore options for the Oxford to Milton Keynes section of the Oxford-Cambridge

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 56 of 68

Policy, Plans and Schemes	Potential Source of Cumulative Effects
	Expressway. Following completion of the study by Highways England, DfT ministers confirmed in the House of Commons that a review of the Oxford-Milton Keynes section of the Expressway would take place.
	In March 2020, Highways England announced that they are now pausing further development of the Expressway while they undertake further work on other potential road projects that could support the Government's ambition for the Oxford-Cambridge Arc[21].
Luton Airport Expansion	In February 2019 Luton Airport announced proposals for a new second terminal and associated infrastructure, to the north of the existing runway. There is potential for the expansion to have cumulative impacts on noise, air quality, health, noise and vibration, climate change, greenhouse gases, the water environment, the historic environment and landscape and townscape. Although currently uncertain, if the expansion of Heathrow was to also come forward, there is potential for further adverse effects.
Airports National Policy Statement, DfT, 2018	The plans for a third runway at Heathrow Airport now face an uncertain future after the Court of Appeal declared as unlawful the Government's decision to allow it. However, there is still potential for future developments at Heathrow to go ahead.
	The potential expansion at London Heathrow in addition to making best use of existing aviation capacity (e.g. London Gatwick) is likely to increase transport requirements for all modes. The Appraisal of Sustainability for the Airports NPS[22] identifies a number of significant adverse effects on communities, quality of life, biodiversity, noise, soil, water, air quality, carbon, waste and resources, historic environment and landscape.
Local Plans	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. The Local Plan documents for the EEH region are identified in Appendix A.
	Allocations for economic and residential development are likely to stimulate transport demand and furthermore improvements in economic transport corridors are likely to stimulate development.
	Sustainability assessment undertaken for Local Plans have similar topics to those listed for this ISA and identify potential for significant effects.
Local Transport Plans	Local Transport Plans enable Local Authorities to plan for transport in their areas. They can identify both strategic policy and implementation

[21] Highways England, Oxford to Cambridge Expressway. Available at: https://highwaysengland.co.uk/oxford-to-cambridge-expressway-home/

[22] WSP for Department of Transport, 2018, Appraisal of Sustainability: Airports National Policy Statement

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 57 of 68

Policy, Plans and Schemes	Potential Source of Cumulative Effects
	plans for delivering this policy. Therefore, like the Transport Strategy they identify policy options for implementing transport improvements, including different modes of transport. They also prioritise a number of areas and schemes for development over the plan period.
	Sustainability assessments undertaken for Local Transport Plans have similar topics to those listed for this ISA and identify potential for significant effects.

5.6.4. 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**: There are likely to be significant cumulative economic benefits across the region if East West Rail, HS2 Phase 1, Luton Airport expansion and schemes from the EEH Transport strategy and local transport plans were all to come forward. These are likely to result in greater connectivity, more jobs (and greater access to them) and increased tourism into the region. Given that the Heartland is one of the world's leading economic regions, with much of its success being founded on science and technology innovation, it is likely that developments will help to support continued economic success in the region.
- **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**: There is potential for cumulative loss, damage or fragmentation of statutory and non-statutory wildlife sites and habitats. 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. This could have some beneficial cumulative effects on biodiversity.
- **Natural Capital and Ecosystem Services**: There is potential 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. The commitment of East West Rail to biodiversity net gain could set a precedent for future developments within the region, which could have some beneficial cumulative effects on natural capital and ecosystem services.
- **Landscape and Townscape**: There is potential for both positive and negative, direct and indirect cumulative impacts on landscapes and townscapes, including their settings. There is also potential for cumulative erosion of the character and quality of the Heartland'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

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 58 of 68

developments could result in more people being able to access and explore the region'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 region-wide.

- **Air Quality**: There may be cumulative benefits from transport initiatives in the EEH region 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.

- **Climate Change and Greenhouse Gases**: There may be cumulative benefits from transport initiatives in the EEH region 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. Climate change adaptation measures are likely to be specific to each development, but there may be cumulative benefits if implemented region-wide.

- **Soil, Land Use, and Waste**: There is potential for cumulative deterioration in quality of, and loss of soils, including the best and most versatile agricultural land. There would be a cumulative use of resources and production and disposal of waste in construction. Where developments adopt a natural capital and/or biodiversity net gain 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.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 59 of 68

5.7 MITIGATION

5.7.1. 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.

5.7.2. The mitigation measures proposed in Table 5.5 below are designed to avoid or reduce the effects identified as potentially negative through the policy and corridor assessments on the ISA Objectives.

Table 5.5: Mitigation

ISA Topics	Mitigation/Enhancement	Mechanism
All	More explicit mention of social and environmental value to reinforce sustainability requirements for transport in the region to 2050.	Embedded into TS policies and narrative Local authority level (I)SA/SEAs at the policy level and delivery partner design and assessment at the project level
All	Consider prioritising types of intervention in relation to meeting the transport mode hierarchy; for example, favouring behavioural changes and the reallocation of existing space before identifying new land take for transport solutions. All proposals should incorporate principles for place-making, biodiversity net gain, natural capital and ecosystem services	Embedded into TS policies and narrative Local authority level plans and assessment Project level design and assessment
Climate change and greenhouse gases Health Air quality Community safety	Solutions should focus on place-making and a reduction in the need to travel, without compromising accessible connectivity for employment, business, healthcare, educational and recreational trips.	Embedded into TS policies and narrative Local authority level plans and assessment Project level design and assessment
Population and equalities Health Economy	Ensure the needs and aspirations of groups with protected characteristics are considered in delivering transport solutions, in addition, including those from low income households.	Strategic and project specific EqIA and HIA for digital solutions and projects seeking behavioural change DDA compliance
Water environment Climate change and greenhouse gases Economy Health	All development must be protected from effects of flooding, pollution and events exacerbated by climate change. Emissions of GHG must also be neutral	Embedded into TS policies and narrative Project level design and assessment

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 60 of 68

ISA Topics	Mitigation/Enhancement	Mechanism
	wherever possible to address climate change.	
Biodiversity Natural capital and ecosystem services Landscape and townscape Historic environment Soil, land use, resource and waste	In order to maximise sustainability benefits, transport solutions, particularly those seeking to contribute to decarbonisation, 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 TS policies and narrative Project level design and assessment
Landscape and townscape 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 EEH Partners to avoid or minimise negative impacts, such as land take and light pollution, whilst seeking to maximise benefits, such as tranquillity.	Embedded into TS policies and narrative Historic Landscape Characterisation Project level design and assessment
Climate change and greenhouse gases Soil, land use, resource and waste	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.	Embedded into TS policies and narrative Project level design and assessment
Population and equalities Health Community safety	The delivery of electrification for both the road and the rail networks will need to be communicated with people, for example living and working along the railway to advise them of the potential risks. Streetscape, spacing and infrastructure design for electric infrastructure (charging, parking, signposting) will need to take account of accessibility for all including those with reduced mobility or disability.	Project level CSA, EqIA, HIA
Population and equalities Health Community safety	Community safety, health and equalities should be considered in design, for example, pedestrian networks, including linking new	Embedded into TS policies and narrative Project level CSA, EqIA, HIA, BNG

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 61 of 68

ISA Topics	Mitigation/Enhancement	Mechanism
Biodiversity	developments into existing infrastructure, integrating modes of transport (both public and active), lighting and other safety design considerations, materials used (contrasting colours, non-slip surfaces), accessibility for all including those with reduced mobility or disability, well-being, affordability of schemes, active travel. The incorporation of natural features such as tree planting, hedgerows and floral arrangements along walk/cycleways to enhance connections to nature and reduced stress levels, contributing to mental health and wellbeing benefits.	
Population and equalities Health	Consideration needs to be given to those who may not have the same understanding of or access to emerging technology.	Project level EqIA
All	The use of sustainability objectives and principles to be incorporated into further consideration of connectivity studies to guide decision making, further studies and recommendations.	EEH connectivity studies Delivery partner strategic assessment Project level design and assessment

5.7.3.   These mitigation measures should be used to inform the subsequent development of specific interventions in line with the strategic policies and to address connectivity within the corridors.

5.7.4.   Once developed, these specific interventions, or schemes, will need to undergo further stages of assessment by those seeking to promote and deliver them. These assessments will require further, more detailed information to be obtained in relation to each of the ISA topics. Potential sources of such information are set out in Table 5.6 below. The information required depends on the stage of development of transport options, for example more detailed information will be more applicable to project development.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 62 of 68

Table 5.6: Further information requirements for future assessments

Topic	Potential sources of additional data for subsequent appraisal of specific transport interventions
Natural Capital and Ecosystem Services	Defra's Enabling the Natural Capital Approach (ENCA) guidance and evidence[23] Non-statutory ecological and geological sites Woodland Trust sites Environmental stewardship schemes Local green infrastructure sites Outdoor Recreation Valuation Tool (ORVal)[24] Natural Environment Valuation Online tool (NEVO)[25] Eco-metric tool[26] Natural Capital Planning Tool (NCPT)[27] Woodland Carbon Code[28] Peatland Code[29] Cultural ecosystem services assessment, e.g. using a participatory GIS tool[30] OxCam Local Natural Capital Plan incl. Opportunity Areas[31] Priority and BAP habitats National Forest Inventory (NFI)[32] Environment Agency water quality data

[23] Defra (2020) Enabling a Natural Capital Approach: Guidance. Department for Environment, Food and Rural Affairs, London. Available at: https://www.gov.uk/guidance/enabling-a-natural-capital-approach-enca.

[24] Day, B. H., and G. Smith. 2018. Outdoor Recreation Valuation (ORVal) User Guide: Version 2.0, Land, Environment, Economics and Policy (LEEP) Institute, Business School, University of Exeter. Available at: https://www.leep.exeter.ac.uk/orval/

[25] SWEEP. 2018. Natural Environment Valuation Online tool (NEVO). Available at: https://sweep.ac.uk/portfolios/natural-environment-valuation-online-tool-nevo/

[26] Defra. 2019. Eco-metric. Available at: https://ecosystemsknowledge.net/ecometric

[27] CEEP. No date. Natural Capital Planning Tool. Available at: http://ncptool.com/

[28] Woodland Carbon Code (No date) UK Woodland Carbon Code. Available at: https://www.woodlandcarboncode.org.uk/

[29] IUCN (2017) Peatland Code Version 1.1. Available at: https://www.iucn-uk-peatlandprogramme.org/funding-finance/peatland-code

[30] Natural England (2015) Participatory GIS. Available from: https://ecosystemsknowledge.net/participatory-gis-tool-pgis

[31] OxCam Local Natural Capital Plan (2019) Oxford to Cambridge Arc Natural Capital Indicator Maps. Available at: https://www.oxcamlncp.org/building-our-evidence-base.

[32] Forestry Commission (2020) National Forest Inventory Woodland England 2018. Available at: https://data.gov.uk/dataset/cd748245-e68c-41e4-bb1a-4728bc64163c/national-forest-inventory-woodland-england-2018

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 63 of 68

Topic	Potential sources of additional data for subsequent appraisal of specific transport interventions
Biodiversity	Priority and BAP habitats
	Non-statutory ecological designated sites
	Woodland Trust sites
	Protected and priority species records
	Local green infrastructure sites
	Environmental stewardship schemes
	Local Biodiversity Partnerships data
	Biodiversity Opportunity Areas
	Land Cover Map data
	Local wildlife sites
Historic Environment	Conservation areas
	Listed Buildings
	Historic England Heritage at Risk register
	Historic Landscape Characterisation (HLC)
	Historic Ordnance Survey maps
	British Geological Survey data
	Burial grounds
	Archaeological Priority Areas
	Archaeologically Sensitive Areas
	Non-designated sites of sites of local and national importance
Landscape and Townscape	Local landscape designations, including Country Parks, Special Landscape Areas and Areas of Great Landscape Value
	Locally protected views
	Local conservation areas
	Locally listed sites and buildings
	Public Rights of Way
	National Landscape Character Area objectives
Water Environment	River Basin Management Plans
	Strategic Flood Risk Assessments (SFRAs)
	Surface Water Management Plans (SWMPs)
	Aquifer designations
	Groundwater Vulnerability areas
	Water Framework Directive waterbody status
Air Quality	UK Government's National Atmospheric Emissions Inventory (NAEI)

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 64 of 68

Topic	Potential sources of additional data for subsequent appraisal of specific transport interventions
	Clean Air Zone data
Climate Change and Greenhouse Gases	Local authority flood risk data
	Local authority emissions data
	Green Alliance data
	UK Regional Climate Change Projections 2018
Noise and Vibration	Defra's Noise Exposure data
Soils, Land Use, Resources and Waste	Public Rights of Way
	Non-statutory geological sites, e.g. RIGS
	Waste and mineral site allocations
	Local contaminated land registers
	South East of England Aggregates Working Party data
Population and Equalities	Local authority monitoring reports
	Local transport plans
	Public Rights of Way
	Ward demographics data from the Office for National Statistics (ONS)
Health	Data from local clinical commissioning groups (CCGs)
	Local authority public health profiles/ health reports
	Air Quality Management Areas (AQMAs)
	Noise Action Planning Important Areas
	Local green infrastructure sites
	Public Rights of Way
	Sport England data
	Outdoor Recreation Valuation Tool (ORVal)
Community Safety	Crime data from local authorities and police
	Local authority monitoring reports
Economy	Local Enterprise Partnerships data
	Local authority labour market profiles
	Key local employment/economic sites

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 65 of 68

5.8 MONITORING

5.8.1. 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.

5.8.2. Specific transport interventions (other than those interventions previously mentioned which are already in development) are not specified in the Transport Strategy but will follow in the connectivity corridors and the Investment Pipeline.

5.8.3. The Transport Strategy states that a mechanism for monitoring and evaluating the progress of the Strategy will be established. EEH will use a set of indicators to monitor the outcomes of the Transport Strategy in advancing the policies outlined in Section 2 of this ISA Report, as set out in Table 5.7.

Table 5.7: Monitoring via indicators

Principle	Indicator	Measure
Achieving net-zero carbon emissions from transport no later than 2050, with an ambition to reach it by 2040.	Delivering a net-reduction in CO2 emissions at 5-year intervals.	Baselining and measuring the region's aggregated CO2 estimates
Achieving net-zero carbon emissions from transport no later than 2050, with an ambition to reach it by 2040.	Conserving and enhancing the natural and historic environment: Conserving and enhancing the provision of ecosystem services from the region's natural capital and contributing to environmental net gain. Conserving and enhancing the historic environment	Baselining and measuring environmental assets and ecosystem services within the Arc
Achieving net-zero carbon emissions from transport no later than 2050, with an ambition to reach it by 2040.	An improvement in air quality arising from transport related vehicle emissions at identified sites.	Baselining and measuring air quality at identified sites
Improving quality of life and wellbeing through a safe and inclusive transport system accessible to all which emphasises sustainable and active travel.	An increase in the number and percentage of journeys made by walking and cycling between 2-5k and public transport between 5k-60k.	Baseline and measure data at a regional level to measure method of travel to work by distance travelled.
Improving quality of life and wellbeing through a safe and inclusive transport system accessible to all which	Greater levels of accessibility and inclusivity available to all transport users.	Undertake bespoke research with partners to develop appropriate measure.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 66 of 68

Principle	Indicator	Measure
emphasises sustainable and active travel.		
Supporting the regional economy by connecting people and businesses to markets and opportunities.	Reduced journey time variability of the strategically important road network.	Baseline and monitor journey time variability of the strategically important road network
Supporting the regional economy by connecting people and businesses to markets and opportunities.	An increase in the number of people able to access fixed and mobile broadband.	Baseline and monitor digital coverage data
Supporting the regional economy by connecting people and businesses to markets and opportunities.	A decrease in generalised journey time between the Heartland's key rail nodes.	Baseline and monitor journey time speed).
Ensuring the Heartland works for the UK by enabling the efficient movement of people and goods through the region and to/from international gateways in a way which lessens environmental impact.	Increase the number of rail freight movements and its market share.	Baseline and monitor rail freight volumes and percentage of freight moved by rail than by road (.
Ensuring the Heartland works for the UK by enabling the efficient movement of people and goods through the region and to/from international gateways in a way which lessens environmental impact.	Reduction in time taken by public transport to international airports.	Baseline and monitor travel times to international airports

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 67 of 68

6 NEXT STEPS

6.1.1. The ISA Report was issued to consultees in July 2020 for a 12-week consultation period, alongside the Transport Strategy. This later report, an update to the ISA report, has been prepared following that consultation period. This will be made available alongside the final Transport Strategy as well as the Post Adoption Statement, which will summarise how responses to consultation and the ISA have influenced the development of the Transport Strategy.

6.1.2. An Investment Pipeline is included in the Transport Strategy, showing regional priorities to be progressed.

6.1.3. EEH's programme of connectivity studies will incorporate the principles of the Transport Strategy including consideration of sustainability objectives, in order to establish a balanced programme of future interventions to improve connectivity. The future study programme can be found in the Transport Strategy.

INTEGRATED SUSTAINABILITY APPRAISAL
Project No.: 70068182
England's Economic Heartland

PUBLIC | WSP
February 2021
Page 68 of 68

Appendix A

PLANS, POLICIES AND PROGRAMMES

Appendix B

ASSESSMENT OF POLICIES

Appendix C

ASSESSMENT OF CORRIDORS

Appendix D

HEALTH IMPACT ASSESSMENT

Appendix E

EQUALITIES IMPACT ASSESSMENT

Appendix F

COMMUNITY SAFETY ASSESSMENT

Appendix G

HABITAT REGULATIONS ASSESSMENT

Appendix H

SCOPING RESPONSES AND ACTIONS TAKEN

Appendix I

POLICY REVIEW AND SUSTAINABILITY BASELINE

WSP