

Lower Thames Crossing

6.3 Environmental Statement

Appendices

Appendix 4.4 - Traffic and Transport

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Lower Thames Crossing

6.3 Environmental Statement Appendices

Appendix 4.4 – Traffic and Transport

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1 Introduction

1.1 Purpose and background

- 1.1.1 The Environmental Statement (ES) (Application Document 6.1 – 6.3) does not contain a dedicated traffic and transport chapter. This appendix is provided to explain and sign post to where the environmental assessment of traffic and transport impacts are covered within the Development Consent Order (DCO) application documents.
- 1.1.2 In line with the Environmental Impacts Assessment (EIA) regulations 2017 (the EIA Regulations), in 2017 National Highways (then known as Highways England) requested an opinion from the Planning Inspectorate on the scope of the information to be included in the ES for the Project. Appendix 4.1 (Application Document 6.3) contains a copy of the Planning Inspectorate’s Scoping Opinion and explanation of how comments have been addressed in the ES.
- 1.1.3 Section 3.3.5 of the Scoping Opinion stated “*While the structure of the ES remains for the Applicant to decide, the information that would be expected to appear in a Transport chapter must be provided in the ES. The ES must demonstrate where the information gathered as part of the traffic assessment has been applied to other assessments within the ES. The absence of a Transport chapter, supported by a Transport Assessment, has been noted by Essex County Council (ECC), the London Borough of Havering (LBH), and Thurrock Council (TC). The Inspectorate considers that these concerns should be addressed.*”
- 1.1.4 This appendix has been produced in response to the Planning Inspectorate’s comment, comments from local planning authorities and to explain where the environmental assessment of traffic and transport impacts is located within the DCO documents.

1.2 Requirements and guidance

- 1.2.1 The Annex to the Planning Inspectorate (2020) Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements states the following:
- a. “Schedule 4 (Paragraph 4) of the EIA Regulations provides a list of the environmental aspects which (where relevant) should be considered when determining significant environmental effects. These are:
 - i. Biodiversity (for example fauna and flora)
 - ii. Water (for example hydromorphological changes, quantity and quality)
 - iii. Air
 - iv. Landscape
 - v. Cultural heritage, including architectural and archaeological aspects
 - vi. Land (for example land take)

- vii. Soil (for example organic matter, erosion, compaction, sealing)
- viii. Material assets
- ix. Population
- x. Human health
- xi. Climate (for example greenhouse gas emissions, impacts relevant to adaptation)

1.2.2 Traffic and transport is not a specified aspect identified by the EIA Regulations. However, good practice indicates that this can be an important consideration when assessing environmental impacts particularly in terms of interrelated impacts on air quality, noise and vibration and where relevant this should be assessed.

1.2.3 The National Policy Statement for National Networks (NPSNN) (Department for Transport, 2014) states the following in relation to impacts on transport networks from road and rail developments:

- a. “5.206 For road and rail developments, if a development is subject to EIA and is likely to have significant environmental impacts arising from impacts on transport networks, the applicant’s environmental statement should describe those impacts and mitigating commitments.

1.2.4 The Design Manual for Roads and Bridges (DMRB) (Highways England, 2020) does not include a requirement or methodology for a traffic and transport assessment chapter within the ES.

1.2.5 In general, the guidance followed for environmental assessment of traffic and transport is the Environmental Assessment of Road Traffic published by the Institute of Environmental Management and Assessment (IEMA) in 1993 (referred to as the IEMA guidance). This includes the following topics:

- a. Noise
- b. Vibration
- c. Visual effects
- d. Severance*
- e. Driver delay*
- f. Pedestrian amenity*
- g. Fear and intimidation*
- h. Accidents and safety*
- i. Hazardous loads*
- j. Air pollution
- k. Dust and dirt
- l. Ecological effects
- m. Heritage and conservation areas

- 1.2.6 In a typical ES structure where a traffic and transport assessment is included, the scope items that could fall within that chapter are identified by the asterisk (*) in the list above. Details of how this scope is addressed within the application is provided in Section 1.3. Other topics set out in the IEMA guidance and not identified by the asterisk (*) are covered in the assessments presented in Chapter 5: Air Quality, Chapter 6: Cultural Heritage, Chapter 7: Landscape and Visual and Chapter 12: Noise and Vibration of the ES (Application Document 6.1).

1.3 Scope of the environmental assessment of traffic and transport

- 1.3.1 The DCO application documents that cover the scope of the environmental assessment of traffic and transport topics (identified by * in the list in paragraph 1.2.5) are:
- a. Transport Assessment (Application Document 7.9)
 - b. ES Chapter 13: Population and Human Health (Application Document 6.1)
 - c. Health and Equalities Impact Assessment (HEqIA) (Application Document 7.10)
 - d. To support the assessments presented in the Transport Assessment (Application Document 7.9), full technical details of how the Project's transport model has been built are provided in the Combined Modelling and Appraisal Report (ComMA) (Application Document 7.7).
 - e. Information on the handling of excavated material is provided in the outline Materials Handling Plan (oMHP) (Application Document 6.3, Appendix 2.2, Annex B).
- 1.3.2 The IEMA guidance requires assessment of hazardous loads and paragraph 4.43 of the guidance states that “some developments may involve the transportation of dangerous or hazardous loads by road and this should be recognised within any Environmental Statement. Such movements should include specialist loads which might be involved in the construction or decommissioning phases of the development in addition to movement associated with the operation of the establishment”. It is considered that the loads moved during the construction and operation phases do not fall with what is set out in the IEMA guidance definition of hazardous loads, and so the assessment of hazardous loads has been scoped out of this traffic and transport appendix. Excavated hazardous material as well as surplus inert excavated material that cannot be reused onsite would be transported offsite to suitable receiver sites and waste facility sites. The transportation of this material would be via the road network using earthmoving construction vehicles. The oMHP (Application Document 6.3, Appendix 2.2, Annex B) provides details of the anticipated quantities of materials and numbers of vehicle movements.

- 1.3.3 The Scoping Report referenced DMRB advice which has now been withdrawn. There have been changes from the guidance presented in Volume 11, Section 3, Part 9 (Vehicle Travellers) compared to the methodology now presented in DMRB LA 112 Population and Human Health. Volume 11, Section 3, Part 9 included assessment of driver stress as a topic, however this is neither a requirement under LA 112 nor in the IEMA guidance. Notwithstanding, driver stress is addressed in the application documents, as signposted within this appendix in Section 2.7.
- 1.3.4 The Transport Assessment (Application Document 7.9) presents the assessment of the effects from the construction and operation of the Project on the transport networks. This includes the information that is derived from the transport modelling, for example changes in traffic flow, volume and capacity, effects on journey time, public transport, accidents and road safety. The Transport Assessment (Application Document 7.9) presents how the following transport networks are affected during both construction and operation:
- a. Highways
 - b. Public transport (including buses and coaches, rail, and river users)
 - c. Walkers, cyclists, and horse riders
- 1.3.5 Details of where the environmental assessment of traffic and transport can be found in the application documents, and scope of the assessments, are set out in Section 2.

2 Traffic and transport assessment location

2.1 Overview

2.1.1 This section signposts to the relevant sections of the application documents where the environmental assessment of traffic and transport can be found. The scope of the assessment covers the topics identified by an asterisk (*) under Section 1.2 and uses the headings applied by all environmental topic chapters in Application Document 6.1. Where information relating to the assessment is primarily located within other application documents (not the ES), as is the case for pedestrian amenity, fear and intimidation and driver stress, tables have not been included and the text explains the location of the assessments instead.

Determining significance of effects

2.1.2 The methodology which has been used to determine the significance of effects is the same for all the topics covered under the scope of the environmental assessment of traffic and transport impacts. The significance criteria are set out under Section 13.3 of Chapter 13: Population and Human Health (Application Document 6.1) and in Table 13.3 Criteria for determining environmental value (sensitivity) and Table 13.4 Criteria for determining the magnitude of impact.

2.2 Severance

2.2.1 The IEMA guidance (1993) defines severance as the perceived division that can occur within a community when it becomes separated by a major traffic artery. This can relate to difficulty crossing a heavily trafficked road, or traffic flows impeding pedestrian access to essential facilities. Table 2.1 identifies where the assessment of severance is discussed and described in the relevant application documents.

2.2.2 Further information associated with severance, not included within the ES, is located in the HEqIA (Application Document 7.10), Transport Assessment (Application Document 7.9), outline Traffic Management Plan for Construction (oTMPfC) (Application Document 7.14) and the Section 106 Agreements – Heads of Terms (Application Document 7.3).

Table 2.1 Severance location of assessment

Content	Relevant Application Document
Introduction	ES Chapter 13 (Application Document 6.1) considers severance in relation to human health, land use and accessibility. This includes severance of communities from community, education, recreational and healthcare facilities, as well as access to Public Rights of Ways (PRoWs)
Legislative and policy framework	ES Chapter 13 Section 13.2: Policy relating to land use, human health and accessibility is covered in ES Chapter 13 Section 13.2
Assessment methodology	ES Chapter 13 Section 13.3: The assessment methodology for severance is described within the Method of assessment - construction section relating to land use and accessibility under the following headings:

Content	Relevant Application Document
	<ul style="list-style-type: none"> • Community land and assets • Human health
Baseline conditions	No specific reference to severance in the baseline conditions section within the relevant documents. However the baseline conditions relating to community land and assets and human health is presented within Section 13.4 of Chapter 13.
Project design and mitigation	ES Chapter 13 Section 13.5: Section 13.5 includes the embedded mitigation for addressing severance. All severed PRowWs, bridleways and cycle routes would be re-linked across the Project unless better quality routes can be provided nearby, the route can be rationalised to better link communities with the places they want to go, or realigned routes provide better connectivity into the existing Walkers, cyclists and horse riders (WCH) network
Assessment of likely significant effects – construction	<p>ES Chapter 13 Section 13.6:</p> <p>Severance as an impact is described under the following headings regarding the assessment of likely significant effects during the construction phase:</p> <ul style="list-style-type: none"> • Private property and housing – North of the River Thames • Community land and assets – Private Recreational Facilities – Community assets • Community land and assets – North of the River Thames – Community assets • Development land and businesses – South of the River Thames • Walkers, cyclists and horse riders (WCH): <ul style="list-style-type: none"> – South of the River Thames – North of the River Thames • Human Health – Table 13.72 Human health assessment - construction
Assessment of likely significant effects – operation	<p>ES Chapter 13 Section 13.6:</p> <p>Severance as an impact is described under the following headings regarding the assessment of the likely significant effects during the operational phase:</p> <ul style="list-style-type: none"> • Community land and assets <ul style="list-style-type: none"> – South of the River Thames – Community assets. – North of the River Thames – Community land and Community assets. • Walkers, cyclists and horse riders (WCH) <ul style="list-style-type: none"> – South of the River Thames – North of the River Thames • Human Health – Table 13.77 Human health assessment - operation
Cumulative effects	ES Chapter 16: Cumulative Effects Assessment (Application Document 6.1) discusses temporary negative health outcomes for sensitive populations in relation to traffic-related severance within the intra-project effects table.
Monitoring	No specific monitoring requirements for severance referred to within the relevant application documents.

2.3 Driver delay

- 2.3.1 The IEMA (1993) guidance does not provide a clear definition of driver delay but identifies a range of components of traffic delays which can occur at several points on the surrounding network including:
- a. at the site entrance where there will be additional turning movements
 - b. on the highways passing the site where there is likely to be additional traffic and the flow might be affected by additional parked cars
 - c. at other key intersections along the highway which might be affected by increased traffic
 - d. at the side roads where the ability to find gaps in the traffic may be reduced, thereby lengthening delays
- 2.3.2 In Chapter 13 (Application Document 6.1), delay is discussed as a component of driver stress in relation to congestion (see Section 2.7). Driver delay is also considered as one of the component parts of the accessibility topics, for example the impact of road closures on driver journeys, which is assessed within the HEqIA (Application Document 7.10), and a summary of the conclusions is provided within Chapter 13. Table 2.2 identifies where the assessment of driver delay is described in Chapter 13, in relation to indirect impacts on development and the human health assessment. Congestion, in relation to stress and anxiety, is part of the mental health and wellbeing assessment in the HEqIA.

Table 2.2 Driver delay location of assessment

Content	Relevant Application Document
Introduction	ES Chapter 13 Section 13.1: Chapter 13 (Application Document 6.1) considers indirect impacts on development land as a result of delays relating to changes in accessibility and/or severance as a result of construction activities. The impact of delays in undertaking journeys is considered as part of the construction human health assessment. Congestion, in relation to stress and anxiety, is part of the mental health and wellbeing assessment in the HEqIA (Application Document 7.10).
Legislative and policy framework	No specific reference to driver delay in the legislative and policy framework section within the relevant documents. However all legislation relating to the assessment of impacts on development land and health is presented within Section 13.2 of Chapter 13.
Assessment methodology	No specific reference to driver delay in the assessment methodology section within the relevant documents. However the assessment methodology relating to the assessment of impacts on development land and health is presented within Section 13.3 of Chapter 13.
Baseline conditions	No specific reference to driver delay in the baseline conditions section within the relevant documents. However the baseline conditions relating to development land and health are presented within Section 13.4 of Chapter 13.
Project design and mitigation	No specific reference to driver delay in the project design and mitigation section within the relevant documents

Content	Relevant Application Document
Assessment of likely significant effects – construction	<p>ES Chapter 13 Section 13.6: Delay as an impact is described within the construction phase assessment of Section 13.6 of Chapter 13. The assessment of likely significant effects are addressed under the following headings within Section 13.6:</p> <ul style="list-style-type: none"> • Development land and businesses; South of the River Thames; Development land. • Human health; Table 13-72 Human health assessment – construction <p>The assessment relating to development land considers indirect impacts as a result of delays relating to changes in accessibility and/or severance as a result of construction activities. This draws on data contained within the Transport Assessment (Application Document 7.9) about impacts on journey times. Further journey time analysis is contained in the Transport Forecasting Package - Appendix C of the ComMA (Application Document 7.7).</p>
Assessment of likely significant effects – operation	<p>The operational assessment of traffic flows and journey times in the Transport Assessment (Application Document 7.9), concludes that the Project would be well used and would provide considerable relief to the current levels of congestion at the Dartford Crossing, while allowing for a substantial increase in the number of vehicles able to cross the River Thames using either the Dartford Crossing or the Project. As a result impacts relating to driver delay have been scoped out of the assessment of likely significant effects for operation in the ES</p>
Cumulative effects	<p>No specific reference to driver delay in the cumulative effects section within the relevant documents</p>
Monitoring	<p>No specific monitoring requirements for driver delay referred to within the relevant documents.</p>

2.4 Pedestrian amenity

- 2.4.1 The IEMA (1993) guidance defines pedestrian amenity as the relative pleasantness of a journey, and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic. In addition, the definition includes pedestrian fear and intimidation, whilst also including broader categories including exposure to noise and air pollution, and the overall relationship between pedestrians and traffic.
- 2.4.2 ES Chapter 13 (Application Document 6.1) distinguishes between residential amenity and pedestrian amenity (the focus of this appendix). Residential amenity (also referred to as neighbourhood amenity) is defined in ES Chapter 13 Section 13.3 and relates to changes in amenity/quality of life for local residents as a result of a combination of effects arising from changes in air quality, changes in noise levels and visual impacts.
- 2.4.3 While pedestrian amenity, the focus of this appendix, is not directly assessed in ES Chapter 13, the chapter cross refers to the relevant application documents in relation to the assessment of pedestrian amenity along minor roads and PRowS. ES Chapter 7: Landscape and Visual (Application Document 6.1) sets out the assessment of the visual impact on the user experience along PRowS. Pedestrian amenity is also assessed in other DCO documents, including the active travel section of the HEqIA (Application Document 7.10) regarding the pleasantness of walking and cycling routes. Within the Transport Assessment (Application Document 7.9) WCH are identified as users of the transport network, who would be impacted by the construction of the Project; they are

considered in light of predicted traffic composition and flow from the Project, which are set out in the Transport Assessment (Application Document 7.9). In addition, the oTMPfC (Application Document 7.14) identifies WCH as a specific stakeholder who would be affected by the project. The oTMPfC also highlights heavy goods vehicle (HGV) bans on local road networks.

2.5 Fear and intimidation

- 2.5.1 ES Chapter 13 explains within Section 13.3 (under Scoping Opinion) that fear and intimidation is one of the three components which form the assessment of driver stress. These components are: frustration (such as caused by congestion or roadworks), fear of potential accidents and route uncertainty. In addition, as explained in paragraph 2.4.1, the definition of pedestrian amenity includes pedestrian fear and intimidation. The scope of this assessment is therefore addressed within the sections on Pedestrian amenity (Section 2.4) and Driver stress (Section 2.7).

2.6 Accidents and safety

- 2.6.1 The IEMA (1993) guidance states that where a development is expected to produce a change in the character of the traffic, then data on existing accident levels may not be sufficient. Professional judgement will be needed to assess the implications of local circumstances, or factors which may elevate or lessen the risk of accidents. Fear of potential accidents is a component of driver stress and not covered in this section.
- 2.6.2 Road safety is assessed as a topic for construction and operation in the HEqIA (Application Document 7.10), and a summary of the conclusions is provided within Chapter 13 (Application Document 6.1) within the Human Health sections.
- 2.6.3 The Transport Assessment (Application Document 7.9) includes sections on road safety which set out accident data, both observed data and the forecasted change in accidents as a result of the Project.

2.7 Driver stress

- 2.7.1 The IEMA (1993) guidance does not identify driver stress and therefore does not provide a definition. However, as explained in paragraph 2.5.1, Section 13.3 of ES Chapter 13 states that driver stress comprises three main components. These are frustration (such as caused by congestion or roadworks), fear of potential accidents and route uncertainty.
- 2.7.2 Section 13.3 of ES Chapter 13 explains that driver stress does not explicitly form part of the assessment required within the population and human health chapter but identifies where the relevant information is located within the DCO application. This is primarily within the oTMPfC (Application Document 7.14) which sets out proposals for minimising disruption to users of the public highway network. In addition health outcomes associated with road safety (including a qualitative assessment of the three components of the driver stress assessment) are considered within the human health section of Chapter 13 (Application Document 6.1) and the HEqIA (Application Document 7.10). The Transport Assessment (Application Document 7.9) considers impacts of the Project in terms of road safety during the operation phase.

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Glossary

Term	Abbreviation	Explanation
A122 Lower Thames Crossing	Project	A proposed new crossing of the Thames Estuary linking the county of Kent with the county of Essex, at or east of the existing Dartford Crossing.
Application Document		In the context of the Project, a document submitted to the Planning Inspectorate as part of the application for development consent.
Construction		Activity on and/or offsite required to implement the Project. The construction phase is considered to commence with the first activity on site (e.g. creation of site access), and ends with demobilisation.
Design Manual for Roads and Bridges	DMRB	A comprehensive manual containing requirements, advice and other published documents relating to works on motorway and all-purpose trunk roads for which one of the Overseeing Organisations (National Highways, Transport Scotland, the Welsh Government or the Department for Regional Development (Northern Ireland)) is highway authority. For the A122 Lower Thames Crossing the Overseeing Organisation is National Highways.
Development Consent Order	DCO	Means of obtaining permission for developments categorised as Nationally Significant Infrastructure Projects (NSIP) under the Planning Act 2008.
Development Consent Order application	DCO application	The Project Application Documents, collectively known as the 'DCO application'.
Environmental Statement	ES	A document produced to support an application for development consent that is subject to Environmental Impact Assessment (EIA), which sets out the likely impacts on the environment arising from the proposed development.
Hazardous loads		A dangerous good (also known as hazardous material or hazmat) is any substance or material that is capable of posing an unreasonable risk to health, safety, and property when transported in commerce.
Highways England		Former name of National Highways.
National Highways		A UK government-owned company with responsibility for managing the motorways and major roads in England. Formerly known as Highways England.
National Policy Statement	NPS	Set out UK government policy on different types of national infrastructure development, including energy, transport, water and waste. There are 12 NPS, providing the framework within which Examining Authorities make their recommendations to the Secretary of State.

Term	Abbreviation	Explanation
National Policy Statement for National Networks	NPSNN	Sets out the need for, and Government's policies to deliver, development of Nationally Significant Infrastructure Projects (NSIPs) on the national road and rail networks in England. It provides planning guidance for promoters of NSIPs on the road and rail networks, and the basis for the examination by the Examining Authority and decisions by the Secretary of State.
Nationally Significant Infrastructure Project	NSIP	Major infrastructure developments in England and Wales, such as proposals for power plants, large renewable energy projects, new airports and airport extensions, major road projects etc that require a development consent under the Planning Act 2008.
Operation		Describes the operational phase of a completed development and is considered to commence at the end of the construction phase, after demobilisation.

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