national highways

Lower Thames Crossing

5.1 Consultation Report Appendix M Statutory Consultation material

APFP Regulation 5(2)(q)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

Volume 5

DATE: October 2022

Planning Inspectorate Scheme Ref: TR010032
Application Document Ref: TR010032/APP/5.1

VERSION: 1.0

Lower Thames Crossing

5.1 Consultation Report
Appendix M Statutory Consultation material

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Appendix M Copies of Statutory Consultation material

M.1 Copies of Statutory Consultation material

M.1.1 Table M.1 presents all materials published by National Highways ('the Applicant', formerly Highways England) for the 2018 Lower Thames Crossing Statutory Consultation. It provides a brief description and a link to where each document can be viewed on the National Highways consultation hub: https://highwaysengland.citizenspace.com/ltc/consultation/.

M.1.2 Plates M.1 to M.3 provide a copy of three core consultation documents: the consultation response form, Your guide to consultation, and the leaflet that was posted to all properties within 5km of the proposed route.

Table M.1Statutory Consultation material

Document Title	Description	Link
Lower Thames Crossing - The case for the project	This document describes the need for the Project and how the Applicant has developed the proposal to address the current problems on the strategic road network.	[redacted]
Lower Thames Crossing Approach to Design, Construction and Operation	This document outlines the Project's design approach, as well as the proposed plans for construction, operation and maintenance of the Project.	[redacted]
Lower Thames Crossing Preliminary environmental information summary	This document provides a summary of the preliminary information about the Project's likely significant environmental effects and the measures that are being considered to avoid and minimise them.	[redacted]

Document Title	Description	Link
Lower Thames Crossing Preliminary Environmental Information Report	This document provides a preliminary review of the likely significant environmental effects of the Lower Thames Crossing Project and how they could be mitigated.	[redacted]
Lower Thames Crossing Preliminary Environmental Information Report Appendices	Chapter 6: Air Quality • A.1 Air quality monitoring data • B.1 Model verification • B.2 Residual uncertainty and model performance • B.3 Air quality monitoring data • B.4 Verification methodology • C.1 Human and ecological receptors • D.1 Air quality modelling results Chapter 7: Cultural Heritage • E.1 Listed buildings • E.2 Scheduled monuments • E.3 Registered parks and gardens • E.4 Conservation areas • E.5 Non-designated heritage assets Chapter 9: Terrestrial • F.1 Biodiversity survey methodologies Chapter 11: Geology and Soils • G.1 Landfill data Chapter 12: Materials • I.1 Active landfill and waste transfer and treatment facilities • J.1 Active mineral facilities Chapter 15: Road Drainage and Water Environment • K.1 Groundwater levels south of the Thames	[redacted]

Document Title	Description	Link
	• K.2 Groundwater levels north of the Thames • K.3 Groundwater levels summary • L.1 Licence abstraction and discharge of permit tables • L.2 Licensed abstraction – Surface water • L.3 Discharges to the ground • L.4 Discharges to surface water • M.1 Water feature survey factual report	
Preliminary Environmental Information Report Figures - Chapter 2 Project Description	• 2.1 Proposed Development Boundary • 2.2a Indicative South Portal Compound Layout • 2.2b Indicative North Portal Compound Layout • 2.2c Example of an Indicative Highways Compound Layout • 2.3 Major Utility Diversions • 2.4 Outline Environmental Masterplan	[redacted]
Preliminary Environmental Information Report Figures - Chapter 6 Air Quality	• 6.1 Air Quality Management Areas, Air Quality Monitoring Points and The Modelled Road Network • 6.2 Air Quality Receptors	[redacted]
Preliminary Environmental Information Report Figures - Chapter 7 Cultural Heritage	• 7.1 Designated Heritage Assets • 7.2 Non-Designated Heritage Assets • 7.3 National Mapping Programme	[redacted]
Preliminary Environmental Information Report Figures - Chapter 8 Landscape	• 8.1 Zone of Visual Influence: 2km Study Area • 8.2 Zone of Visual Influence: 5km Study Area • 8.3 Landscape Character Areas • 8.4 Night Time Ambience	[redacted]

Document Title	Description	Link
	• 8.5 Visual Effects Receptors • 8.6 Key Receptor Viewpoint Photographs • 8.7 Representative Viewpoints • 8.8 Night Time Photographs	
Preliminary Environmental Information Report Figures - Chapter 9 Terrestrial Biodiversity	• 9.1 Designated Sites	[redacted]
Preliminary Environmental Information Report Figures - Chapter 10 Marine Biodiversity	• 10.1 Designated Sites	[redacted]
Preliminary Environmental Information Report Figures - Chapter 11 Geology and Soils	• 11.1 Superficial Deposits • 11.2 Bedrock Composition • 11.3 Local Geological Sites • 11.4 Site Walkover • 11.5 Location of Landfill Sites and Suspected Rock/Coal Mining Cavities • 11.6 Pollution Incidents • 11.7 Historical Land Use • 11.8 Historical Mineral Planning Permissions • 11.9 Compressible Deposits • 11.10 Slope Stability	[redacted]

Document Title	Description	Link
	• 11.11 Shrink Swell - Running Sands • 11.12 Shrink Swell - Plasticity • 11.13 Soluble Rocks	
Preliminary Environmental Information Report Figures - Chapter 12 Materials	• 12.1 Mineral Facility Locations • 12.2 Active Waste Transfer Stations and Landfill Sites	[redacted]
Preliminary Environmental Information Report Figures - Chapter 13 Noise and Vibration	• 13. 1 Noise Study Area, Noise Important Areas and Other Sensitive Receptors • 13.2 Locations at which Noise Monitoring has been Carried Out to Date • 13.3 Potential Short Term Operational Road Traffic Noise Impacts • 13.4 Potential Long Term Operational Road Traffic Noise Impacts	[redacted]
Preliminary Environmental Information Report Figures - Chapter 14 People and Communities	• 14.1 Community Facilities and Amenities • 14.2 Commercial Assets • 14.3 Soilscape • 14.4 Provisional Agricultural Land Classification Mapping • 14.5 Detailed Agricultural Land Classification Mapping • 14.6 Environmental Stewardship and Forestry Schemes	[redacted]
Preliminary Environmental Information Report Figures - Chapter 15 Road Drainage and Water Environment	• 15.1 Superficial Aquifer Designations • 15.2 Bedrock Aquifer Designations • 15.3 Surface Water Features, Flood Risk Defences and Road Drainage • 15.4 Aquifer Vulnerability • 15.5 Groundwater Features • 15.6 Water Framework Directive - Surface Water	[redacted]

Document Title	Description	Link
	• 15.7 Water Framework Directive – Groundwater • 15.8 Water Feature Survey Phase 1 (September 2017)	
Map - Environmental Constraints	Large map of nearby environmental constraints to the Lower Thames Crossing project.	[redacted]
2017 Environmental Impact Assessment - Scoping Report	This document establishes the scope of the Lower Thames Crossing Environmental Statement and provides support to the request for a scoping opinion under Regulation 1 (1) of the Infrastructure Planning (EIA Regulations) 2017.	[redacted]
2017 Environmental Impact Assessment - Scoping Report Appendices	• Appendix A – Biodiversity Table of Consultation Contact • Appendix B – Biodiversity Desk Study Data Required • Appendix C – Biodiversity Survey Methodology • Appendix D – Materials Baseline • Appendix D – 'Other Development' Matrix for Cumulative Effects Assessment • Appendix F – Figures	h[redacted]
Environmental Impact Assessment - Scoping Report Appendices A - G	• Appendix A – Biodiversity Table of Consultation Contact • Appendix B – Biodiversity Desk Study Data Required • Appendix C – Biodiversity Survey Methodology • Appendix D – Materials Baseline • Appendix D – 'Other Development' Matrix for Cumulative Effects Assessment	[redacted]
Environmental Impact Assessment - Scoping	Appendix F – Figures	[redacted]

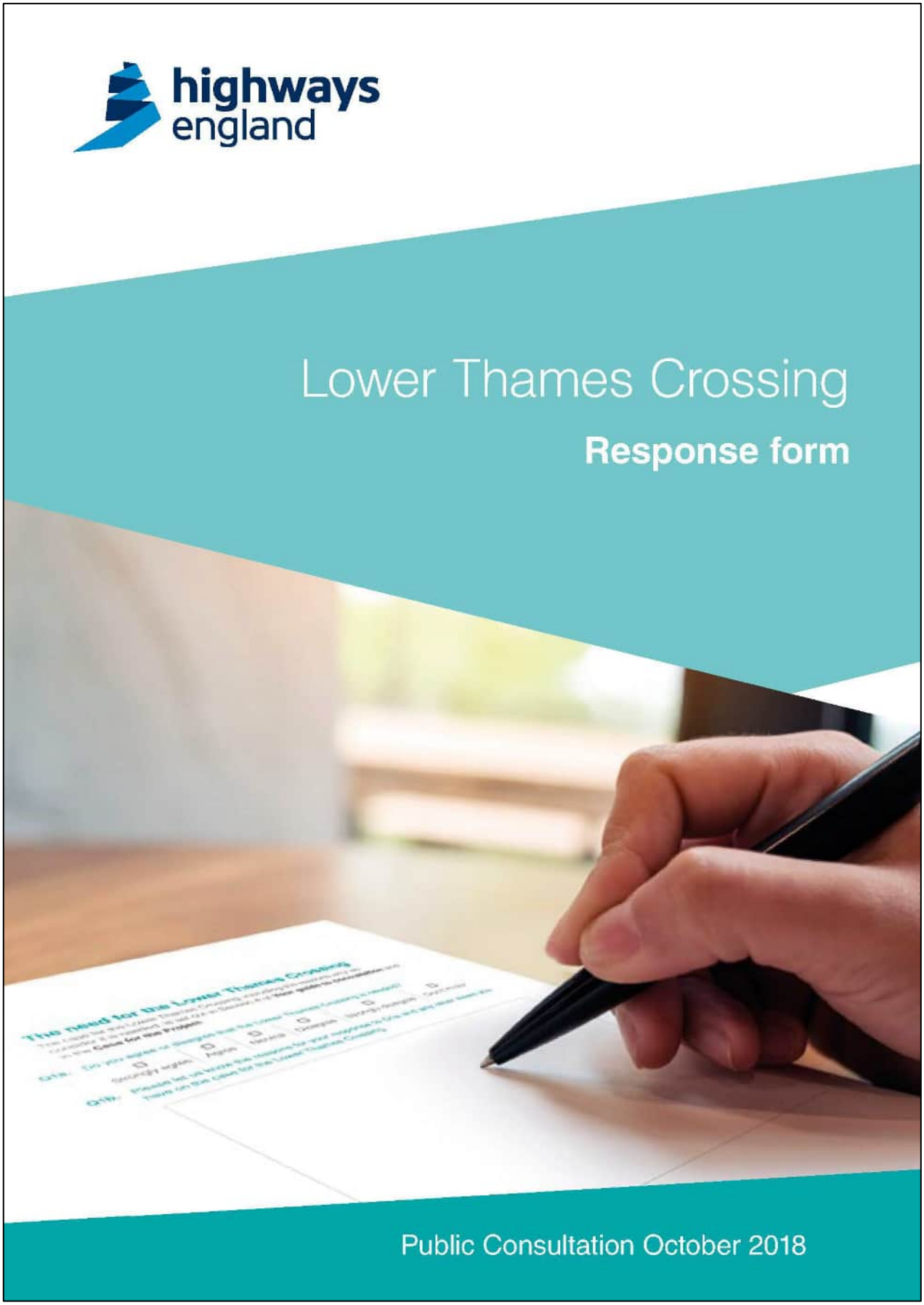
Document Title	Description	Link
Report Appendix F (PART 1)		[redacted]
Environmental Impact Assessment - Scoping Report Appendix F (PART 2)	Appendix F – Figures	[redacted]
2017 Environmental Impact Assessment - Scoping Opinion	This document outlines the Scoping Opinion of the Planning Inspectorate on behalf of the Secretary of State in respect to the proposed Lower Thames Crossing.	[redacted]
Traffic Forecasts Non-Technical Summary	This document provides an overview of the work carried out by National Highways to assess the need for, and impact of, the Lower Thames Crossing project on the road network.	[redacted]
Traffic Forecasting Report	This report describes the methodologies and tools adopted to generate the traffic forecasts used to support the scheme development.	[redacted]
Traffic Forecasting Report Appendix	• Appendix A – Uncertainty Log • Appendix B – LTC Scheme Impacts – Cross River Flow Comparisons • Appendix C – LTC Scheme Impacts – Detailed Link Based Journey Time Comparisons • Appendix D – Sensitivity Tests – Outputs to Economic Assessment • Appendix E – Sensitivity Tests – Flow Comparisons to Core Scenario	[redacted]

Document Title	Description	Link
	• Appendix F – Sensitivity Tests – Outputs to Operational Assessment	
Map Book 1 - General Arrangements	A map book containing plans of general arrangements including • Engineering & construction • Environment • Utilities • Development boundary	[redacted]
Map Book 2 – Land Use Plans	A map book containing land use plans including: • Permanent works • Temporary works • Compensation land	[redacted]
Map Book 3 - Engineering Plans	A map book containing engineering drawings in the following order: • The plan and profile drawings which detail the vertical and horizontal road alignment • The junction arrangements showing the proposed layout • The cross sections throughout the route showing the lanes and earthworks	[redacted]
Map - General Arrangement of Whole Scheme	Map depicting general arrangements of the Lower Thames Crossing whole scheme	[redacted]
Map - Large Scale General Arrangements	Map depicting large scale general arrangements of the Lower Thames Crossing	[redacted]
Map - Land Use Plan	Map of land use for the Lower Thames Crossing	[redacted]

Document Title	Description	Link
		[redacted]
Your Property and Blight	This document provides information about blight caused by major new road proposals or improvements.	[redacted]
Your Property and Compulsory Purchase	This document provides information about the process National Highways follows to purchase land and property needed for schemes using compulsory powers and the compensation that may be available to people with an interest in that land or property.	[redacted]
Your Property and Discretionary Purchase	This document provides information about the circumstances in which National Highways may offer to purchase property either in advance of requirements for a road scheme or where the construction works or the road in use will seriously affect a person's enjoyment of the property.	[redacted]
Statement of Community Consultation (SoCC)	This document outlines how the Lower Thames Crossing project will consult the community, where information was available to view and how people could comment on the project.	[redacted]
Section 47 Notice	Notice of the publication of a statement of community consultation for the Lower Thames Crossing in accordance with section 47 of the Planning Act 2008.	[redacted]
Section 48 Notice	Notice of the proposed application for the Lower Thames Crossing under section 37 of the Planning Act 2008 to the Secretary of State for Transport for a Development Consent Order.	[redacted]

Document Title	Description	Link
Lower Thames Crossing Consultation 2016 - Analysis of findings report	A report produced by Ipsos MORI, that provides an analysis of the Lower Thames Crossing 2016 options consultation.	[redacted]
Lower Thames Crossing - Response to Consultation 2017	A booklet that presents the preferred route for the Lower Thames Crossing, together with a summary of the 2016 public consultation, the responses received, and how the consultation influenced the decision.	[redacted]

Plate M.1 Response form



Introduction

You can use this form to let us know your views on our proposals for the Lower Thames Crossing. We recommend that you read it through in advance so that you can provide your comments in the appropriate sections. You can answer all of the questions or just some of them, depending on the issues that are most important to you.

If you need more space to respond to any of the questions, please set out the rest of your response on separate sheets of paper. Remember to write down which question your comments relate to.

Details of how you can respond to this consultation can be found at the back of this form. Please only use these channels because we cannot guarantee that responses sent to any other address will be included in our analysis and reporting.

Please send your response by 23:59 on 20 December 2018.

Thank you for taking the time to let us know your views.

Data privacy notice

We are committed to protecting your personal information. Whenever you provide such information we are legally obliged to use it in line with all applicable laws concerning the protection of personal data, including the General Data Protection Regulation (GDPR), which came into effect on 25 May 2018.

How will Highways England use the information we collect about you?

We will use your personal data for a number of purposes, including:

- to analyse your feedback to the consultation
- to produce a summary report, based on our analysis of responses (individuals will not be identified)
- to write to you with updates about the results of this consultation and other developments
- to keep up-to-date records of our communications with individuals and organisations

Your information will be handled and used by the following recipients to record, analyse and report on the feedback we receive:

- Highways England
- Traverse (who have been contracted by us to analyse feedback to the consultation)
- the Planning Inspectorate (who will consider our application for permission to build the Lower Thames Crossing)
- legal advisers
- consultants

It is also possible that trusted third party providers, for example construction companies, may later use the contact details provided in your response to communicate with you.

What rights do I have over my personal data?

Under the terms of the GDPR you have certain rights over how your personal data is retained and used by Highways England. For more information, see our full data privacy statement: **www.highwaysengland.co.uk/terms-and-conditions/**

Lower Thames Crossing consultation 2018 – Response form 3

1. The need for the Lower Thames Crossing

The case for the Lower Thames Crossing, including the reasons why we consider it is needed, is set out in Section 4 of **Your guide to consultation** and in the **Case for the Project**.

Q1a. Do you agree or disagree that the Lower Thames Crossing is needed?

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree	☐ Don't know

Q1b. Please let us know the reasons for your response to Q1a and any other views you have on the case for the Lower Thames Crossing.

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2. Our preferred route for the Lower Thames Crossing

For a description of how, in 2017, we selected a preferred route for the Lower Thames Crossing, and how that route has been refined since then, please refer to Section 3 of **Your guide to consultation**, and also to **Approach to Design, Construction and Operation**.

Q2a. Do you support or oppose our selection of the preferred route for the Lower Thames Crossing?

☐ Strongly support	☐ Support	☐ Neutral	☐ Oppose	☐ Strongly oppose	☐ Don't know

Q2b. Do you support or oppose the changes we have made to the route since our preferred route announcement in 2017?

☐ Strongly support	☐ Support	☐ Neutral	☐ Oppose	☐ Strongly oppose	☐ Don't know

Q2c. Please let us know the reasons for your response to Q2a-Q2b and any other views you have on our selection of a preferred route for the Lower Thames Crossing.

Lower Thames Crossing consultation 2018 – Response form 5

3. Sections of the route

For the purposes of this consultation question, we have divided our proposed route for the Lower Thames Crossing into three sections, starting with the section south of the river in Kent, then the crossing under the Thames, and finally the section to the north of the river in Thurrock, Essex and Havering.

A detailed description of our proposed route for the Lower Thames Crossing is in Section 5 of **Your guide to consultation,** also **Approach to Design, Construction and Operation,** the **Preliminary Environmental Information Report** (**PEIR**) and our **Map Books**.

South of the river in Kent

This refers to the section of the proposed route starting at the M2/A2 and ending to the south of the southern tunnel entrance. It also includes the proposed improvements to sections of the M2/A2 around the junction with the Lower Thames Crossing.

Included in the scope of question 3a and 3b are the route, structures such as bridges, embankments, viaducts and any other aspect that you wish to comment on. Please note, question 4 provides an opportunity to comment on connections between the Lower Thames Crossing and the surrounding road network.

Q3a. Do you support or oppose the proposed route south of the river?

☐ Strongly support	☐ Support	☐ Neutral	☐ Oppose	☐ Strongly oppose	☐ Don't know

Q3b. Please give us your comments or any other views you have on the proposed route south of the river, including structures such as bridges, embankments and viaducts.

Lower Thames Crossing consultation 2018 – Response form 7

The crossing

This refers to two bored tunnels beneath the Thames, the southern tunnel entrance and the northern tunnel entrance.

Included in the scope of question 3c is the route, structures such as bridges, embankments, viaducts and any other aspect that you wish to comment on.

Please note, question 4 provides an opportunity to comment on connections between the Lower Thames Crossing and the surrounding road network.

Q3c. Please give us your comments on the tunnel, the north and the south tunnel entrances and any other feedback you have on this part of the proposed route.

North of the river in Thurrock, Essex and Havering

This refers to the section of the proposed route starting immediately north of the northern tunnel entrance and ending at the connection with the M25 at junction 29, and the related improvement works at the M25.

Included in the scope of question 3d and 3e are the route, structures such as bridges, embankments, viaducts and any other aspect that you wish to comment on.

Please note, question 4 provides an opportunity to comment on connections between the Lower Thames Crossing and the surrounding road network.

Q3d. Do you support or oppose the proposed route north of the crossing?

☐ Strongly support	☐ Support	☐ Neutral	☐ Oppose	☐ Strongly oppose	☐ Don't know

Q3e. Please give us your comments or any other views you have on the proposed route north of the river, including structures such as bridges, embankments and viaducts.

Lower Thames Crossing consultation 2018 – Response form 9

4. Connections

For the purposes of this consultation question, we have divided our proposed route for the Lower Thames Crossing into two sections, starting with the section to the south of the Thames, and then the section to the north of the Thames. We have described the proposed connections between the Lower Thames Crossing and the surrounding road network in Section 5 of **Your guide to consultation**, and in **Approach to Design, Construction and Operation** and our **Map Books**.

South of the crossing

This refers to the proposed junction between the Lower Thames Crossing and the M2/A2. It also refers to the relationship between the Lower Thames Crossing and the existing road network, including new bridges, underpasses and diversions.

Q4a. Do you support or oppose the proposed junction between the Lower Thames Crossing and the M2/A2?

☐	☐	☐	☐	☐	☐
Strongly support	Support	Neutral	Oppose	Strongly oppose	Don't know

Q4b. Please let us know the reasons for your response to Q4a and any other views you have on the relationship between the Lower Thames Crossing and the existing road network south of the crossing, including new bridges, underpasses and diversions.

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North of the crossing

This refers to the proposed Tilbury junction, the A13/A1089 junction and the junction with the M25. It also refers to the relationship between the Lower Thames Crossing and the existing road network, including new bridges, underpasses and diversions.

Q4c. Do you support or oppose the proposed Tilbury junction?

☐ Strongly support	☐ Support	☐ Neutral	☐ Oppose	☐ Strongly oppose	☐ Don't know

Q4d. Do you support or oppose the proposed junction between the Lower Thames Crossing and the A13/A1089?

☐ Strongly support	☐ Support	☐ Neutral	☐ Oppose	☐ Strongly oppose	☐ Don't know

Q4e. Do you support or oppose the proposed junction between the Lower Thames Crossing and the M25?

☐ Strongly support	☐ Support	☐ Neutral	☐ Oppose	☐ Strongly oppose	☐ Don't know

Q4f. Please let us know the reasons for your response to Q4c-Q4e, indicating which junction or junctions you are referring to, and any other comments you have on the proposed connections of the route north of the crossing.

Lower Thames Crossing consultation 2018 – Response form 11

5. Walkers, cyclists and horse riders

Our proposal for the Lower Thames Crossing aims to replace, where practicable, public rights of way affected by the project, and we will explore how we can improve and enhance these routes. During construction, we will keep disruption to public rights of way to a minimum. Please refer to Section 6 of **Your guide to consultation,** and see **Map Book 1** and also **Approach to Design, Construction and Operation**.

Q5a. Do you support or oppose our proposals in relation to public rights of way?

☐ Strongly support	☐ Support	☐ Neutral	☐ Oppose	☐ Strongly oppose	☐ Don't know

Q5b. Please let us know the reasons for your response to Q5a and any other views you have on our plans in relation to public rights of way, including the new routes we have proposed.

6. Environmental impacts and how we plan to reduce them

We have described in our consultation materials the potential environmental impacts of the Lower Thames Crossing and the measures we propose to reduce them. For example, this includes how we would protect habitats and species, reduce noise impacts on local communities and manage effects on air quality. We have explained our approach to environmental assessment in **Preliminary Environmental Information Report (PEIR)**, **Preliminary Environmental Information Summary** and Section 6 of **Your guide to consultation.**

Q6a. Do you agree or disagree with the proposed measures to reduce the impacts of the project?

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree	☐ Don't know

Q6b. Please let us know the reasons for your response to Q6a and any other views you have on the environmental impacts of the Lower Thames Crossing as set out in the Preliminary Environmental Information Report, including our approach to assessing and reducing the impacts of the project.

Lower Thames Crossing consultation 2018 – Response form 13

7. Development boundary

We have defined the area of land where the proposed Lower Thames Crossing would be situated, as well as land that may be required to enable construction and to provide mitigation for some of the impacts associated with construction. This is called the development boundary, and it can be seen in Section 6 of **Your guide to consultation** and our **Map Books**. It identifies land and property that may need to be acquired permanently or used temporarily for the Lower Thames Crossing to be built and maintained. We will continue to work closely with the owners and occupiers of this land and property as the project develops.

Q7a. Do you support or oppose the proposed area of land we require to build the Lower Thames Crossing?

☐	☐	☐	☐	☐	☐
Strongly support	Support	Neutral	Oppose	Strongly oppose	Don't know

Q7b. Please let us know the reasons for your response to Q7a and any other views you have on the land we require to build the Lower Thames Crossing.

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8. Proposed rest and service area, and maintenance depot

Our proposal includes provision for a rest and service area, and maintenance depot north east of the Tilbury junction. Information on our plans can be found in Section 5 of **Your guide to consultation** and **Approach to Design, Construction and Operation**.

Q8a. Do you support or oppose our proposals for a rest and service area in this location?

☐ Strongly support	☐ Support	☐ Neutral	☐ Oppose	☐ Strongly oppose	☐ Don't know

Q8b. Do you support or oppose our proposals for the maintenance depot in this location?

☐ Strongly support	☐ Support	☐ Neutral	☐ Oppose	☐ Strongly oppose	☐ Don't know

Q8c. Please let us know the reasons for your responses to Q8a and Q8b, and any other views you have on our proposals for a rest and service area, and for the maintenance depot.

Lower Thames Crossing consultation 2018 – Response form 15

9. Traffic

We have modelled forecast changes in traffic flows and the impacts on congestion as a result of the Lower Thames Crossing. Further details of our analysis are set out in Section 8 of **Your guide to consultation**, and also **Traffic Forecasting Report** and **Traffic Forecasts Non-Technical Summary.**

Q9a. Do you agree or disagree with the view that the Lower Thames Crossing would improve traffic conditions on the surrounding road network?

☐ Strongly agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly disagree	☐ Don't know

Q9b. Please let us know the reasons for your response to Q9a and any other views you have on the Lower Thames Crossing's impact on traffic.

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10. Charges for using the crossing

Our proposal is to charge drivers to use the tunnel with a free-flow e-charging system, in line with the Dart Charge at the Dartford Crossing. We are also considering other aspects of our charging proposal, such as charging amounts, the application of peak charges and emission-based charging to manage traffic. We are proposing to seek flexibility over the charging scheme for the Lower Thames Crossing. For a description of our approach to charging users of the crossing, please refer to Section 8 of **Your guide to consultation,** and also **Case for the Project** and **Approach to Design, Construction and Operation**.

Please give us your views on our proposed approach to charging users of the crossing.

11. Building the Lower Thames Crossing

We have described our initial plans on how to build the Lower Thames Crossing in Section 7 of **Your guide to consultation** and also **Approach to Design, Construction and Operation**. This includes our proposed working hours and tunnelling methods, our plans for temporary road closures and traffic management, and the proposed location of construction compounds.

Q11a. Do you support or oppose our initial plans for how to build the Lower Thames Crossing?

☐	☐	☐	☐	☐	☐
Strongly support	Support	Neutral	Oppose	Strongly oppose	Don't know

Q11b. Please let us know the reasons for your response to Q11a and any other views you have on our initial plans on how to build the Lower Thames Crossing.

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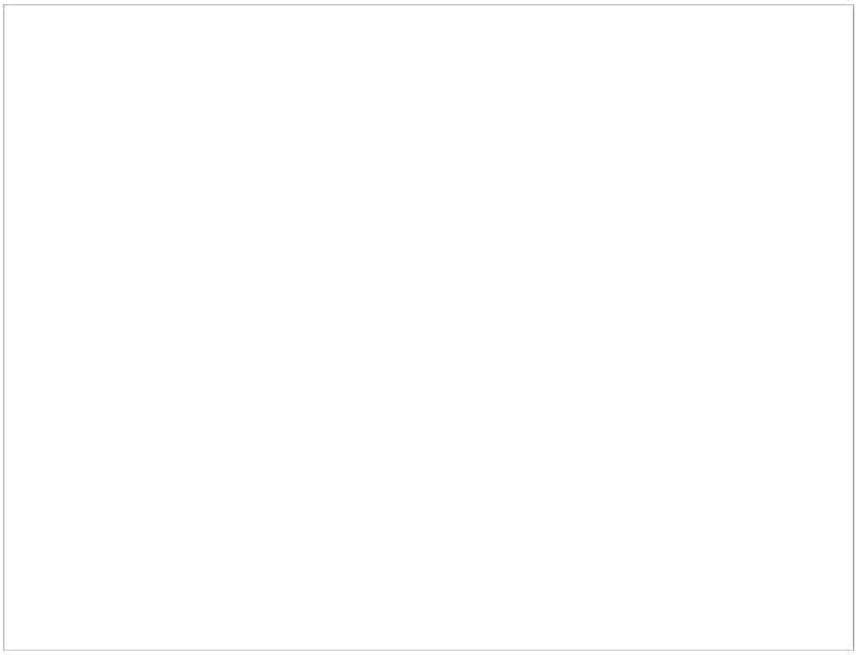
12. Utilities and pylons

Building the Lower Thames Crossing would require changes to existing utilities infrastructure, including electricity pylons and gas pipelines. More on this can be found in the Section 7 of **Your guide to consultation**, and also **Approach to Design, Construction and Operation**, **Preliminary Environmental Information Report (PEIR)** and **Preliminary Environmental Information Summary**.

Please let us know any views you have on the proposed changes to utilities infrastructure.



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13. Other comments

We would like to know what is important to you. Please let us know if you have any other comments about the Lower Thames Crossing.

14. The consultation

Please let us know what you think about the quality of our consultation materials, our events, the way in which we have notified people about our plans, and anything else related to this consultation.

	Very Good	Good	Average	Poor	Very poor	Not applicable
Q14a. Information – was the information clear and easy to understand?	☐	☐	☐	☐	☐	☐
Q14b. Events – were the events of good quality?	☐	☐	☐	☐	☐	☐
Q14c. Events – were the events suitably located?	☐	☐	☐	☐	☐	☐
Q14d. Promotion – was the consultation promoted well and to the right people?	☐	☐	☐	☐	☐	☐

Q14e. Please let us know the reasons for your response to Q14a-Q14d and any other views you have on the delivery of this consultation.

Lower Thames Crossing consultation 2018 – Response form 21

Identification questions

We would be grateful if you could answer the following identification questions, which will help us to categorise responses and organise our consultation report. If you would prefer your comments to be anonymous, please just provide your postcode so we can understand where you live in relation to the scheme. You can read our privacy statement on pages 2 and 3 of this response form.

1. Name:

2. Address:

Postcode:

Providing an address and postcode will help us to identify statutory consultees and to understand where interest in the project is highest. You do not have to answer these questions if you would prefer not to.

3. Email address:

(If you provide an email address we may use it to let you know about important developments in our proposals.)

4. If you are responding on behalf of an organisation, business or campaign group, please answer question 4. (This helps us to understand whether respondents can be categorised as 'prescribed consultees', as defined by the Planning Act 2008.)

Name of organisation:

Type of organisation, business or campaign group:

- ☐ Academic
- ☐ Campaign group
- ☐ Business
- ☐ Elected representative
- ☐ Environment, heritage, amenity or community group
- ☐ Local government
- ☐ Transport, infrastructure or utility organisation
- ☐ Statutory agency
- ☐ Other (please state)

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5. Do you own land or hold any interests or rights, such as private rights of way or sporting rights, covered by our proposal?

☐ Yes ☐ No

If you have ticked yes, have you received a 'Section 42' letter to notify you of the consultation?

☐ Yes ☐ No

6. If you use the transport network in the area that may be affected by the Lower Thames Crossing, please tell us how you do so by ticking one or more of the following boxes:

☐ Car
☐ Goods vehicle
☐ Bus
☐ As a pedestrian
☐ Cycle
☐ Train
☐ Other (please state)

7. Please let us know how you heard about this consultation:

☐ Received a letter from Highways England
☐ Received a leaflet from Highways England
☐ Received an email as a Dart Charge account holder
☐ Saw a 'Section 47 or 48' Public Notice in local or national newspapers
☐ Saw advertisements in local media
☐ Saw social media coverage
☐ Received information from local authority
☐ Word of mouth
☐ Other (please state)

Lower Thames Crossing consultation 2018 – Response form 23

Equality and diversity

We would be grateful if you could answer the following equality and diversity questions. We will use the information we receive to help understand whether our consultation has been useful to people of different backgrounds and requirements. We may publish a summary of the results, but no information about an individual would be revealed.

The answers you provide to this question are defined as 'special category data'. If you agree to provide this information you can withdraw your permission for us to use it at any time. To do that, please email DataProtectionAdvice@highwaysengland.co.uk

☐ I consent to Highways England processing my special category data for the purposes of understanding the accessibility of the Lower Thames Crossing consultation. I have read Highways England's privacy notice and understood how it will be processing this data.

1. What is your gender?

☐ Male ☐ Female ☐ Transgender ☐ Prefer not to say

2. Do you consider yourself as a person with a disability?

☐ Yes ☐ No ☐ Prefer not to say

3. Please describe your ethnic background:

☐ Asian/Asian British
☐ White
☐ Black/Black British
☐ Chinese
☐ Mixed Ethnic background
☐ Gypsy or Irish Traveller
☐ Other ethnic group
☐ Prefer not to say

4. Age:

☐ Under 16
☐ 16-24
☐ 25-34
☐ 35-44
☐ 45-54
☐ 55-64
☐ 65+

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How to submit your response form

Please only use the following official response channels. We cannot guarantee that responses sent to any other address will be included in our analysis.

Online response form
Fill in the online survey at:
www.lowerthamescrossing.co.uk/haveyoursay

Freepost
Post your response form or comments to:

FREEPOST LTC CONSULTATION

The Freepost address is the only text needed on the envelope, and no stamp is required.

Email
Email your comments to:
ltc.consultation@traverse.ltd

Public information events
Fill in and submit a paper response form at one of our public information events. Please note that this may not be possible at other types of event. You can find the dates and locations of our events on our website or contacting us by phone or email.

How your response will be used
We will carefully consider all of the responses we receive, before producing a report that explains how they have been applied to our project.

Please send your response before

23:59 on 20 December 2018

Have your say

It's your road, your tunnel, your journey

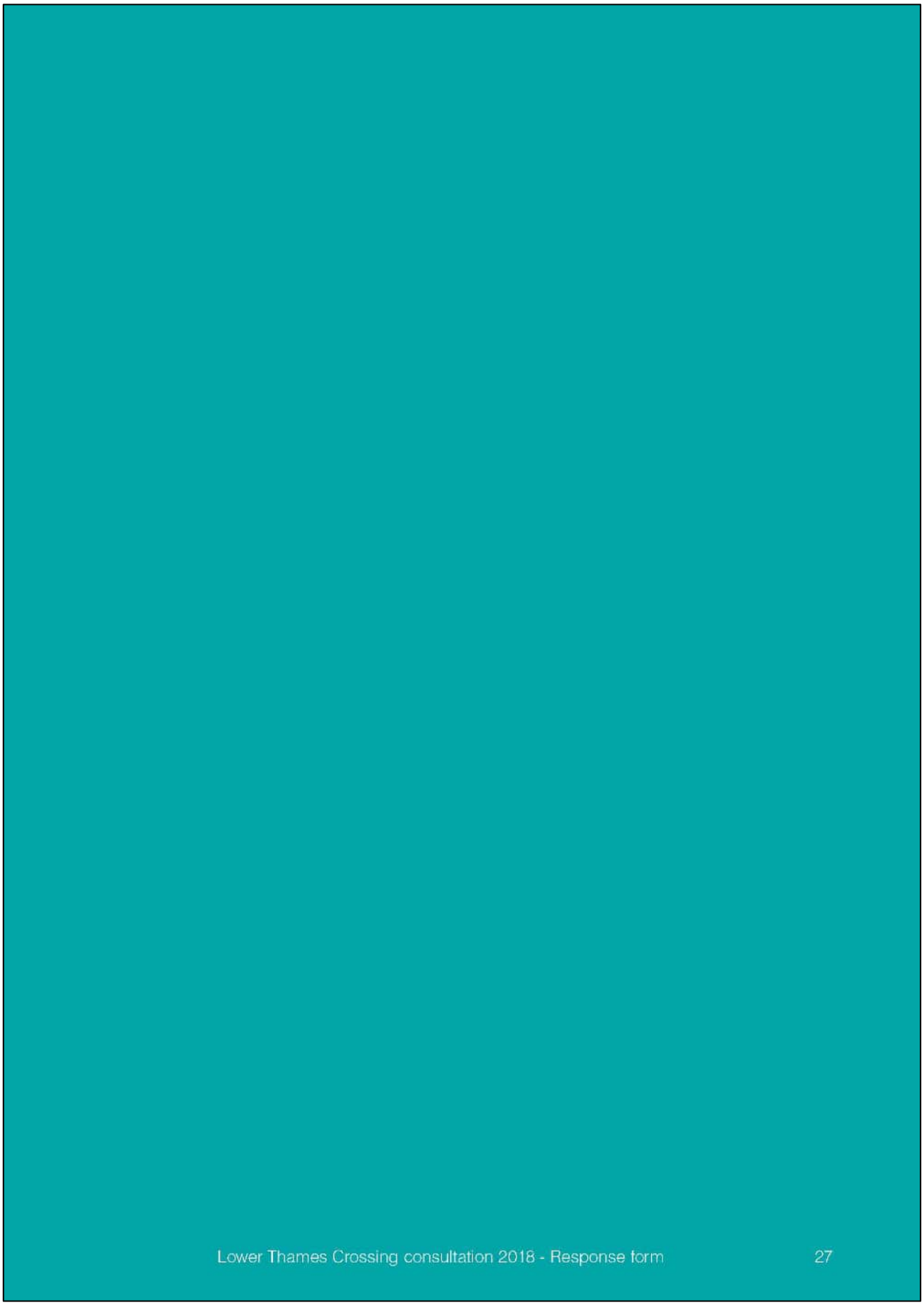

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Plate M.2 Information Leaflet – Lower Thames Crossing Consultation October 2018

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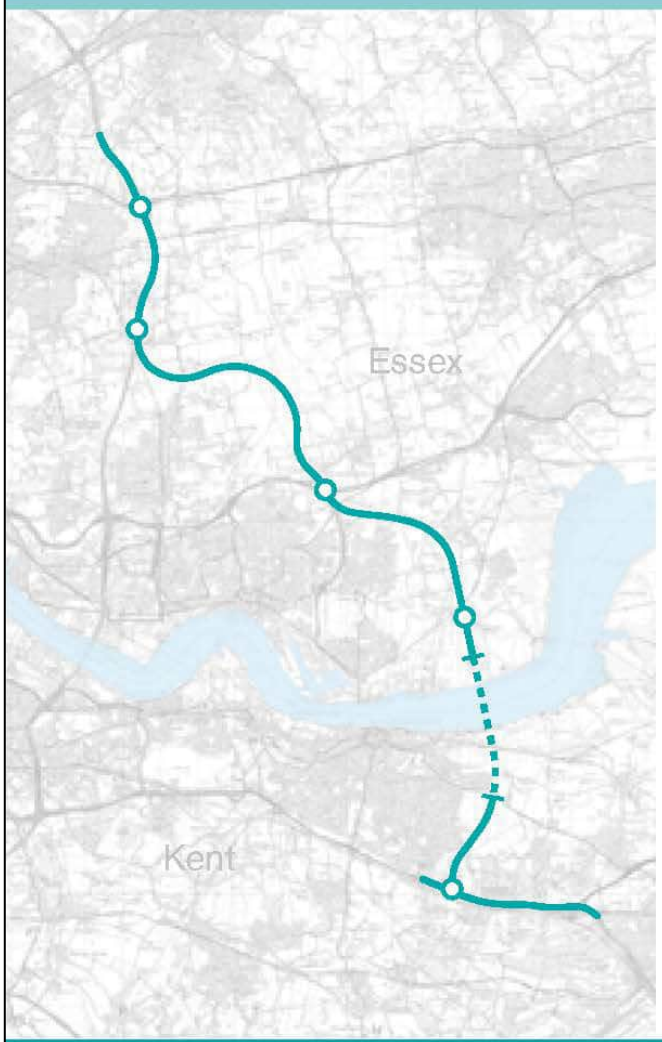
Lower Thames Crossing Consultation

October 2018



We want your views on the Lower Thames Crossing, a proposed new motorway connecting Kent, Thurrock and Essex through a tunnel beneath the River Thames.

This will provide much needed road capacity across the river east of London, and transform journeys throughout the south east region and beyond.

Our conversations with residents, community groups, businesses and other organisations have played a vital role in developing our proposals. This is your opportunity to shape the Lower Thames Crossing before we apply for the planning consent we need to start construction.

Have your say

It's your road, your tunnel, your journey

What is the Lower Thames Crossing?

It is the most ambitious project of its kind in the country, and the largest single road investment proposal in the UK since the M25 was completed more than 30 years ago.

The crossing under the Thames will be the longest road tunnel in the country. At 16 metres in diameter it will be one of the largest bored tunnels in the world.

On the south side of the Thames, the new road will link the tunnel to the A2 and M2. On the north side, it will link to the A13 and the M25.

If planning consent is given, we expect to begin construction in around 2021 with the crossing opening in 2027.

Why it is so important

The crossing will provide new connections, better journeys, fewer delays and give more certainty on how long journeys will take. This will help businesses to grow, bringing them closer to existing and potential customers, employees and markets.

The new crossing will provide 90% more capacity across the River Thames. It will make the roads more resilient by easing congestion at Dartford, the UK's busiest river road crossing.

In its first year, the Lower Thames Crossing will reduce the number of vehicles using the Dartford Crossing by 22%, improving journey times, resilience and reliability.

New training and job opportunities created during construction will boost both the local and regional economies.

The Lower Thames Crossing will provide benefits for local communities and the economy for generations to come.

Visit us at one of our events

Events in Kent	Date and time
Bluewater Shopping Centre, Bluewater Parkway, Greenhithe DA9 9ST	Saturday 20 Oct 9am – 9pm, Sunday 21 Oct 11am – 5pm
Cascades Leisure Centre, Thong Lane, Gravesend, Kent DA12 4LG	Thursday 1 Nov 2pm – 9pm
Chalk Parish Hall, Pirrip Close, Gravesend DA12 2ND	Monday 22 Oct 2pm – 9pm
Dover Town Hall, Biggin Street, Dover, Kent CT16 1DL	Tuesday 4 Dec 2pm – 9pm
Mick Jagger Centre, Shepherds Lane, Dartford, Kent DA1 2JZ	Tuesday 23 Oct 2pm – 9pm
Doubletree Dartford Bridge, Masthead Close, Crossways Business Park, Dartford DA2 6QF	Monday 3 Dec 2pm – 9pm
Gravesham Civic Centre, Windmill Street, Gravesend DA12 1AU	Wednesday 21 Nov 2pm – 9pm
The Rochester Corn Exchange, Northgate, Rochester ME1 1LS	Wednesday 5 Dec 2pm – 9pm
Shorne Village Hall, 16 The Street, Shorne DA12 3EA	Saturday 3 Nov midday – 6pm

Events in Essex	Date and time
Holiday Inn Basildon, Cranes Farm Road, Waterfront Walk, Basildon SS14 3DG	Monday 19 Nov 2pm – 9pm
Brandon Groves Community Club, Brandon Groves Avenue, South Ockendon RM15 6TD	Friday 16 Nov 2pm – 9pm
Chadwell Village Hall, Waterson Road, Chadwell St Mary RM16 4NX	Friday 7 Dec 2pm – 9pm
Civic Hall, Blackshots Lane, Grays RM16 2JU	Tuesday 6 Nov 2pm – 9pm
Havering College of Higher and Further Education, 42 Ardleigh Green Road, Hornchurch RM11 2LL	Monday 26 Nov 2pm – 9pm

Havering Town Hall, Main Road, Romford RM1 3BD	Friday 30 Nov 2pm – 9pm
Holiday Inn Brentwood, Brook Street, Brentwood CM14 5NF	Wednesday 28 Nov 2pm – 9pm
Lakeside Shopping Centre, West Thurrock Way, Grays RM20 2ZP	Saturday 27 Oct 9am – 9pm Sunday 28 Oct 11am – 5pm
Linford Methodist Church, East Tilbury Road, Linford SS17 0QS	Wednesday 14 Nov 2pm – 9pm
Orsett Hall Hotel, Prince Charles Avenue, Orsett RM16 3HS	Tuesday 16 Oct 2pm – 9pm
St Mary Magdalene Church, Church Lane, North Ockendon RM14 3QH	Thursday 22 Nov 2pm – 9pm
The New Windmill Hall, St Mary's Lane, Upminster RM14 2QH	Saturday 17 Nov midday – 6pm
Tilbury Community Association, Civic Square, Tilbury RM18 8AA	Tuesday 30 Oct 2pm – 9pm
West Horndon Village Hall, Thorndon Avenue, Brentwood CM13 3TP	Wednesday 24 Oct 2pm – 9pm

These details are subject to change. The consultation guide and response form are available locally – visit www.lowerthamescrossing.co.uk to find out where.

View the consultation documents

Brentwood Library, New Road, Brentwood CM14 4BP

Grays Library, Thameside Complex, Orsett Road, Grays RM17 5DX

Romford Central Library, St Edwards Way, Romford RM1 3AR

Tilbury Hub, Civic Square, Tilbury RM18 8AD

Dartford Library, Central Park, Market Street, Dartford DA1 1EU

Gravesend Library, Windmill Street, Gravesend DA12 1BE

Maidstone Library, James Whatman Way, Maidstone ME14 1LQ

Rochester Library, Community Hub, Eastgate, Rochester ME1 1EW

Have your say

Our consultation materials contain more information about the Lower Thames Crossing, including:

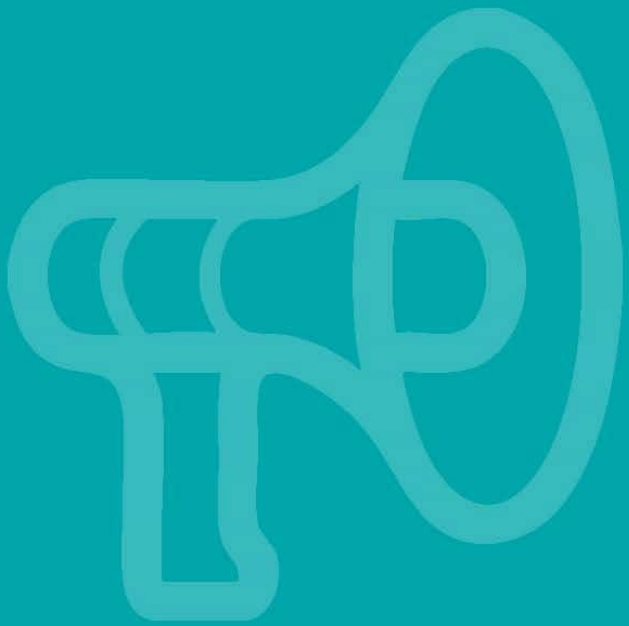
- how it will be built
- what it will be like to use the crossing
- how local traffic will be affected
- how we will protect the environment

You can find this information on our website at **www.lowerthamescrossing.co.uk/haveyoursay** and at the events and other locations listed in this leaflet.

You can also pick up copies of the consultation guide and response form at information locations - details are on the website.

The events give you the opportunity to meet the team and ask them any questions you have.

Please use our online or paper response form to tell us what you think by 23:59 on 20 December 2018.



Stay in touch

Please contact us if you have any questions:

info@lowerthamescrossing.co.uk
0300 123 5000
www.lowerthamescrossing.co.uk
Twitter – @lowerthames

Have your say

It's your road, your tunnel, your journey

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Highways England creative job number BED18 0171

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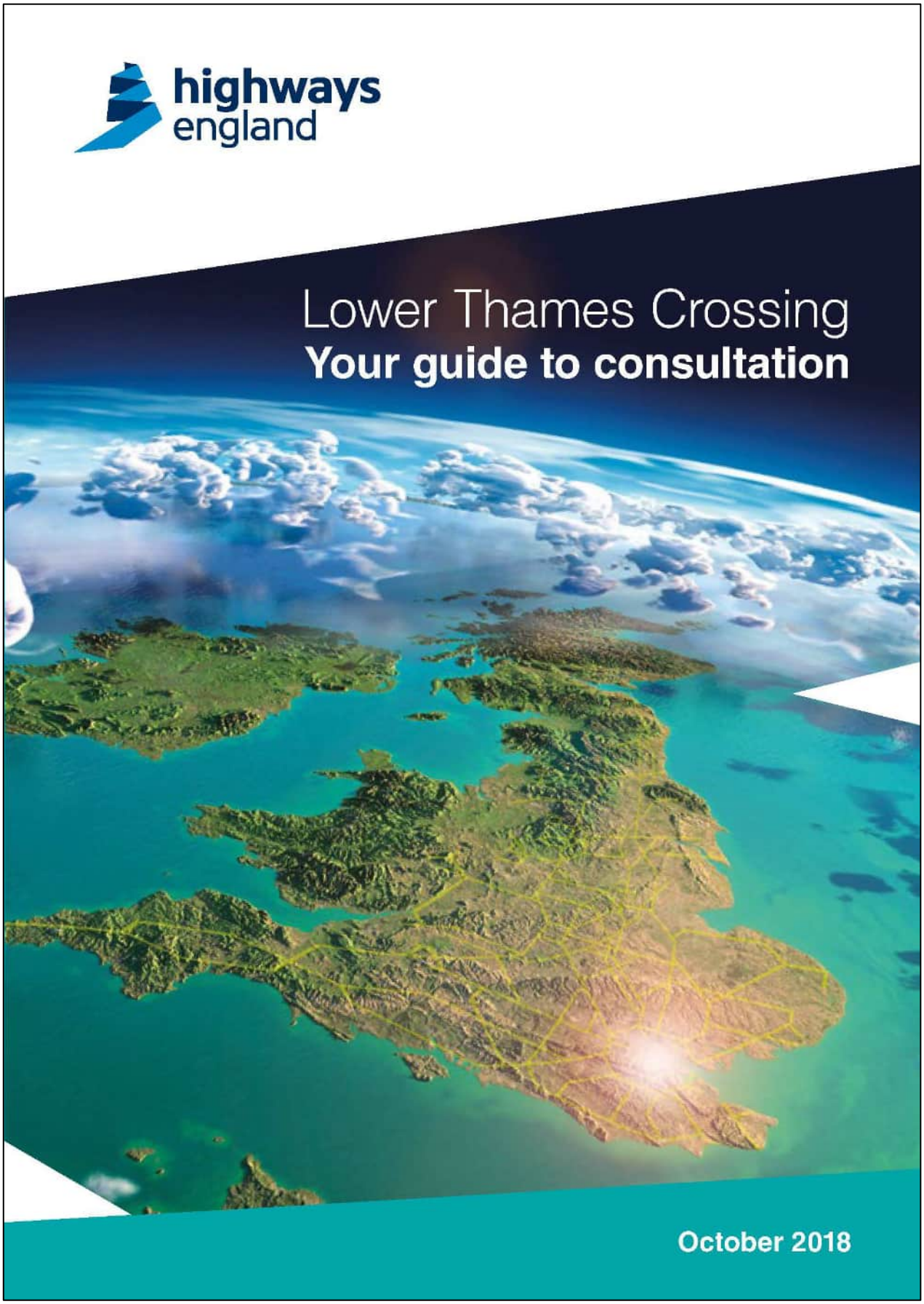
Plate M.3 Lower Thames Crossing – Your guide to consultation



About this guide

We would like to hear your views on the Lower Thames Crossing, a proposed new motorway connecting Kent, Thurrock and Essex through a tunnel beneath the River Thames. This will provide much needed road capacity across the River Thames east of London, and transform journeys through the South East region and beyond.

Over the past few years we have spoken with residents, community groups, businesses, local authorities, regulators and other organisations, and those conversations have already played a vital role in developing our plans.

This consultation is the latest stage in our proposal and an important opportunity for you to have your say. This guide outlines the project and explains how to give your feedback.

It describes the detail of the project, how it would be built, how to have your say, and the planning process we will go through before the final decision is made by the Secretary of State for Transport.

Highways England

Highways England is a government owned company that works with the Department for Transport.

We operate, maintain and improve England's motorways and major A roads, also known as the strategic road network.

Our aim is to ensure that road users have safer and more reliable journeys, and that businesses have the high quality, effective road links they need to prosper.

Contents

Have your say

It's your road, your tunnel, your journey

Throughout this guide we have highlighted the other documents that give more detail about our consultation, which are available on our website. Images used throughout this booklet are illustrative for this consultation and may change in the future.

1

Foreword

Project Director Tim Jones

Welcome to the Lower Thames Crossing consultation

Thank you for taking the time to learn more about this ambitious project. This is your opportunity to have your say about our proposals, which will transform journeys in South East England and beyond.

Highways England's motorways and A roads are the backbone of the country and key to driving a successful economy. We want a modern and reliable network that improves economic growth, reduces delays, creates jobs, helps business and opens up new areas for development. One of our ambitions is to make sure all our major roads are more dependable, durable and, most importantly, safe.

The Lower Thames Crossing will provide new connections and better journeys

Everyone knows that driving across the Thames east of London is frustrating. For many road users, including motorcyclists, the Dartford Crossing is the only viable way to cross the river. It is also a vital freight route connecting ports in the South East. As a consequence, it is the busiest river crossing in the country and is heavily congested, carrying more traffic than it was ever designed for. This puts huge pressure on roads and motorways on both sides of the river.

New connections, better journeys

Whether you're travelling just a short distance across the Thames to visit family and friends, looking for better access to jobs or business opportunities in the South East, or reaching new markets across the UK and Europe, the Lower Thames Crossing will provide new connections and better journeys.

Tim Jones and some of his team volunteering in the community

It will dramatically improve how people get from A to B and provide a gateway to the heart of the UK, connecting people, businesses and regions, underpinning economic growth locally and further afield.

It is vital we get all aspects of the design, construction and operation right. This means looking at how we can minimise environmental, noise and air quality impacts, and protect local roads. To help achieve this, we are putting local communities and the environment at the centre of our plans.

Share your views

Since the government announced the preferred route in April 2017, we have been working closely with residents, communities, businesses and local authorities to progress our designs.

We are putting local communities and the environment at the centre of our plans

Consultation plays a vital part in the development of these proposals, which is why I am encouraging you to share your views. This guide, along with our series of local consultation events and our website **www.lowerthamescrossing.co.uk** will provide you with the information you need. There are also more detailed documents online, at our events and at public locations across the area.

The consultation runs until 20 December 2018. Please take this opportunity to let us know what you think so we can develop the best possible solution for you, your local community, the region and the country.

[redacted]

Tim Jones, Project Director, Highways England

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What is the Lower Thames Crossing?

The Lower Thames Crossing is a proposed new motorway connecting Kent, Thurrock and Essex through a tunnel beneath the River Thames. It will provide much needed new road capacity across the river east of London.

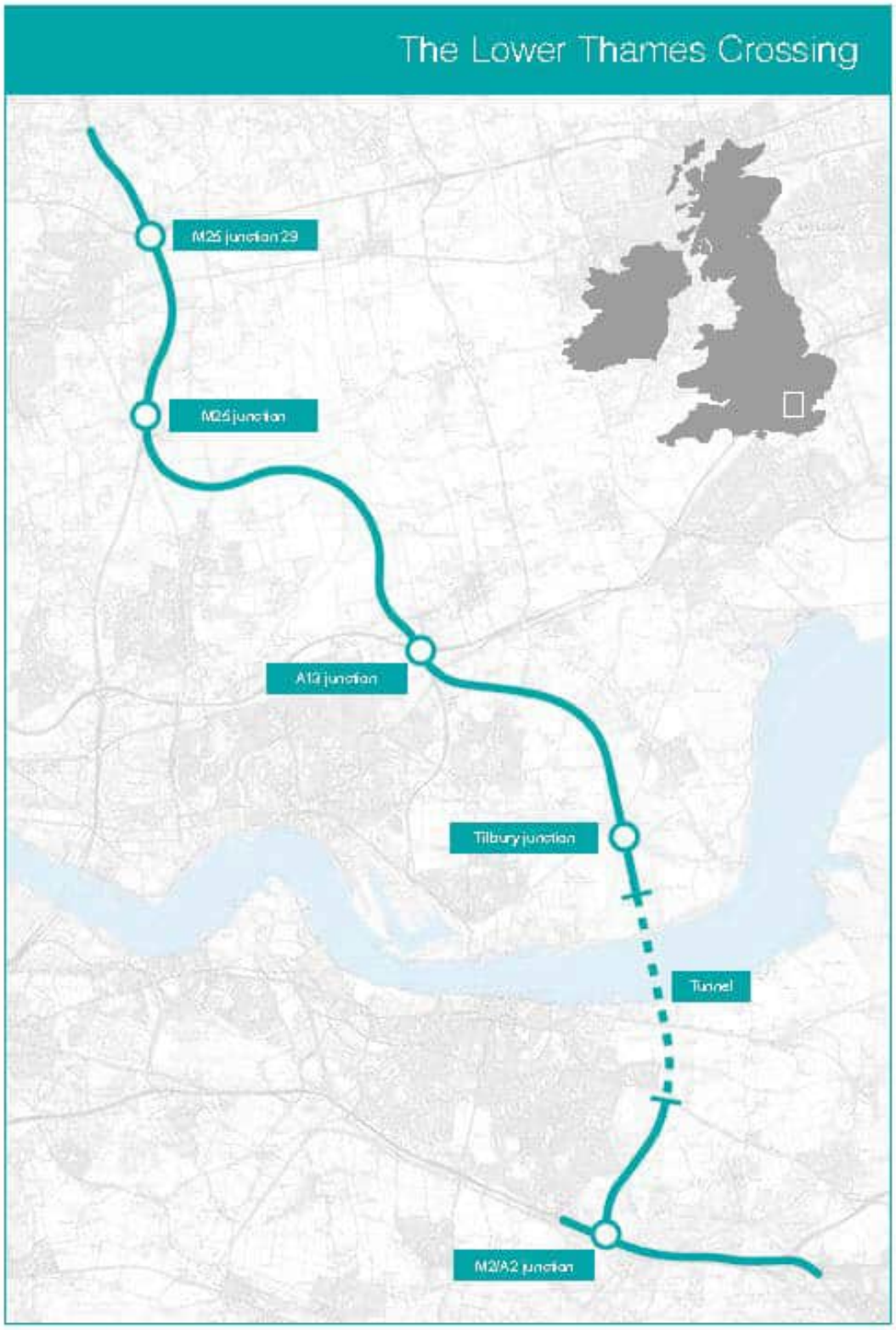
On the south side of the Thames, the new road will link the tunnel to the A2 and M2 in Kent. On the north side, it will link to the A13 and junction 29 of the M25 in the London Borough of Havering. The crossing and the new connecting road network will provide quicker and more reliable journeys locally, regionally and nationally.

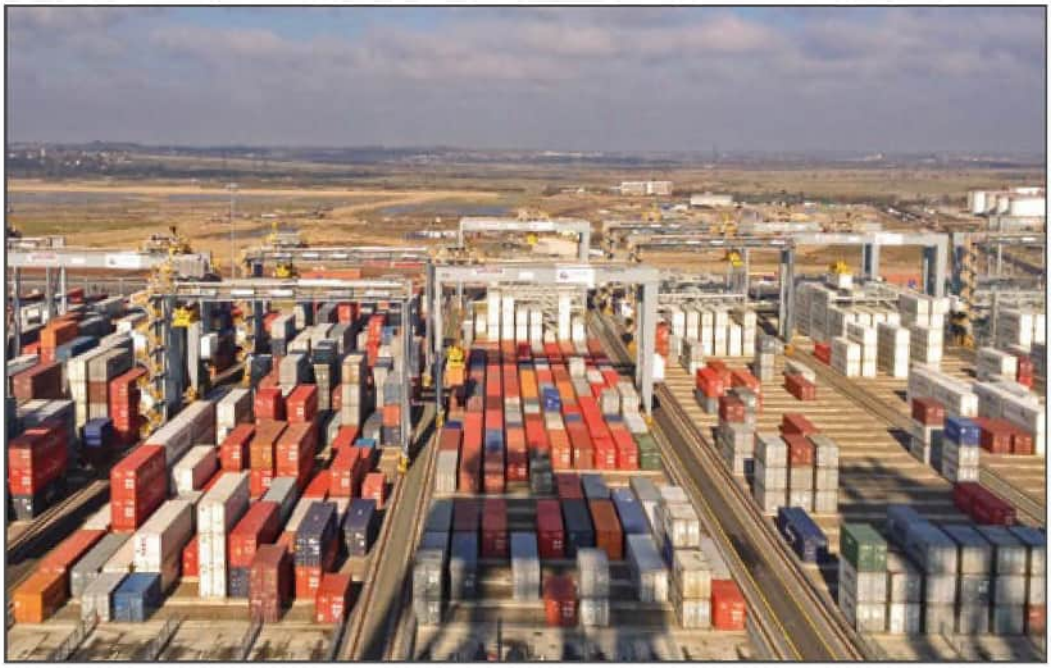
The Lower Thames Crossing will form a vital new part of the UK's transport infrastructure

This is the most ambitious project of its kind in the country. It is the largest single road investment project in the UK since the M25 was completed more than 30 years ago. The crossing under the Thames will be the longest road tunnel in the country. At 16 metres in diameter, it will be one of the largest bored tunnels in the world.

The Lower Thames Crossing will have:

- approximately 14.5 miles (23km) of new roads connecting the tunnel to the existing road network
- three lanes in both directions with a maximum speed limit of 70mph
- improvements to the M25, A2 and A13, where the Lower Thames Crossing connects to these roads
- new structures and changes to existing ones (including bridges, buildings, tunnel entrances, viaducts and utilities such as electricity pylons) along the length of the new road
- two 2.5 mile (4km) tunnels, one for southbound traffic, one for northbound traffic crossing beneath the river
- a free-flow charging system, where drivers do not need to stop but pay remotely, similar to that at the Dartford Crossing





The new crossing will support businesses, large and small

The crossing will form a vital new part of the UK's transport infrastructure, transforming the regional and national road network. Building a reliable, modern new road that is fit for the future will help businesses to grow, and bring people and communities closer to jobs, education and leisure opportunities.

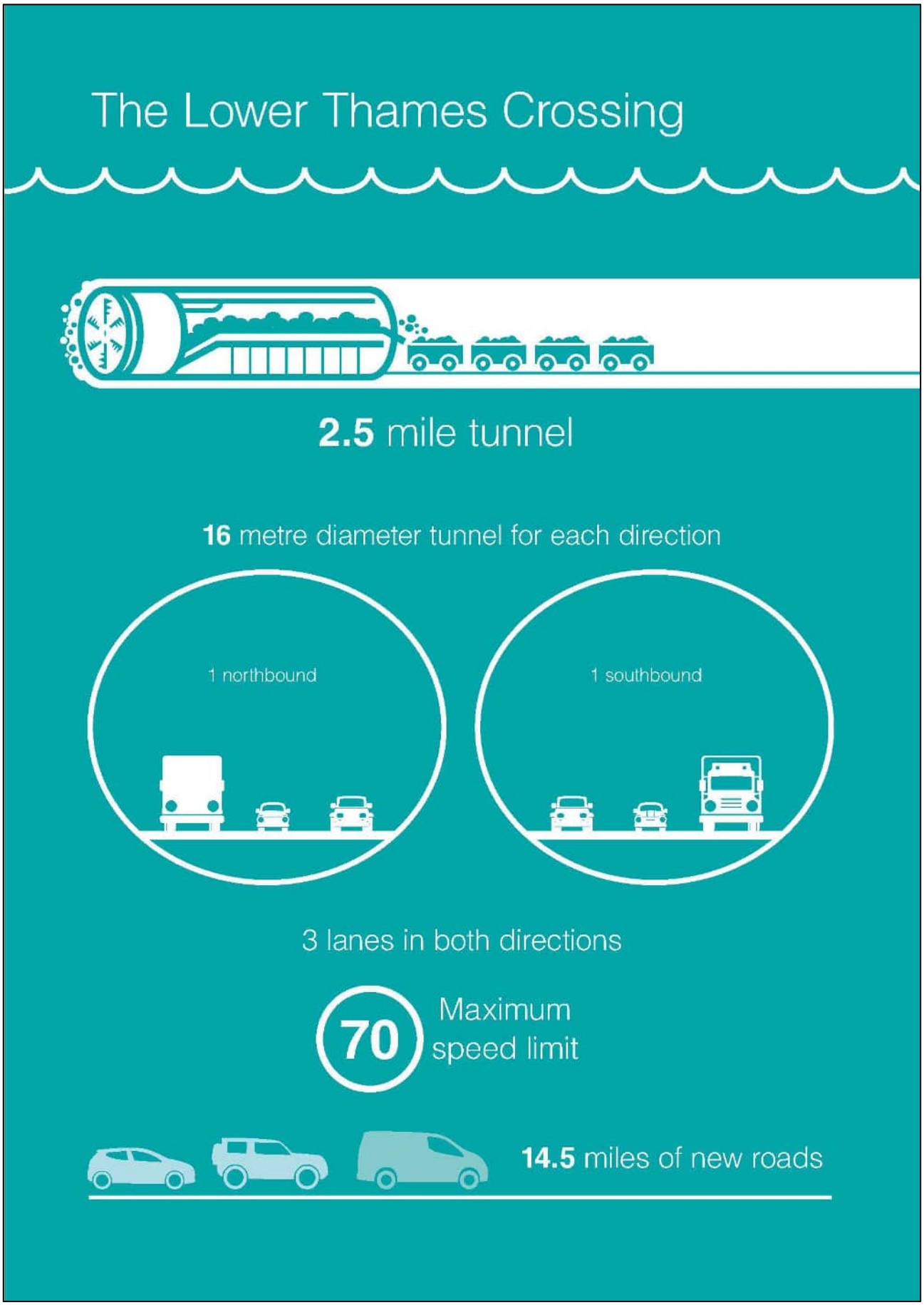
With a project of this size and scale, we must get all aspects of the design, construction and operation right. We can only do this by working with you and by listening to your views and concerns.

So far we have been working closely with residents, community groups, businesses, local authorities, regulators and other organisations to develop our designs. Now it is your opportunity to shape the Lower Thames Crossing before we apply for a Development Consent Order (DCO), which would give us the planning consent we need to start construction.

Go to page 140 to find out how to send us your feedback.

Did you know?

The Lower Thames Crossing will be around 7 miles from the Dartford Crossing.



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The story so far

We have explored many options before reaching our current proposal for the Lower Thames Crossing. We found that the current proposal was the best option, offering the right balance between providing value for money, moving traffic effectively, and reducing the impact on local communities and the environment.

One of the main ways we are reducing the environmental and community impact is by building a tunnel, as it has far fewer visual and noise impacts. It also avoids sensitive and valuable habitats such as the Thames Estuary and Marshes Special Protection Area and Ramsar sites (a wetland of international importance).

We will make sure local road users still have good connections to the nearby roads, and that the design will discourage 'rat running'.

We are complying with all relevant design and technical standards, and are getting our plans reviewed by external agencies that are experts in this field, including the Design Council.

When we submit our Development Consent Order application we will put together an Environmental Statement that will outline how we propose to minimise the impacts of the project.

Find out more

To find out more about the options we have considered, see Approach to Design, Construction and Operation.

Building a tunnel rather than a bridge has far fewer visual and noise impacts

Our aims

We have worked with the Department for Transport (DfT) to agree the following objectives that we want the Lower Thames Crossing to achieve.

- To support sustainable local development and regional economic growth in the medium to long term
- To be affordable to government and users
- To achieve value for money
- To minimise adverse impacts on health and the environment
- To relieve the congested Dartford Crossing and approach roads, and improve their performance by providing free flowing, north south capacity
- To improve resilience of the Thames crossings and the major road network
- To improve safety

Did you know?

Special Protection Areas are strictly protected sites classified in accordance with the European Commission Birds Directive to protect rare and vulnerable birds.

Find out more

To find out more about how we will meet our aims, see the Case for the Project.

The history of the project

The first crossing of the River Thames to the east of London was a single, two-lane tunnel that opened at Dartford in 1963. A second tunnel, adding a further two lanes, was completed in 1980.

It was not until 1991 that the Queen Elizabeth II (QEII) bridge was opened to southbound traffic over the Thames at Dartford. That was more than a quarter of a century ago. Since then the Dartford tunnels, both with two lanes, have been dedicated to carrying northbound traffic.

2009

Owing to increasing demand at the Dartford Crossing, the DfT looks at options for an additional crossing at five potential locations (A, B, C, D and E). The two furthest east (D and E) are ruled out as they are too far from the existing crossing. Rail is also ruled out.

2011

The government recognises the need for a new crossing by naming it a top 40 priority project in its National Infrastructure Plan.

2012

The three remaining location options (A, B and C) are investigated further.

2013

The DfT carries out a public consultation to ask for views on the location of the proposed crossing.

2014

The response to the consultation confirms the need for a new crossing between Kent, Thurrock and Essex. Option B is ruled out; the remaining two locations (A and C) are investigated further.

2016

DfT asks Highways England to assess the economic, traffic, environmental and community impacts for locations A and C. Location C is recommended as it offers far greater economic benefits and congestion relief.

A public consultation asks for feedback on proposals at location C, including three routes north of the river in Thurrock and Essex, and two south of the river in Kent.

2017

The Secretary of State for Transport announces the preferred route, a tunnel under the River Thames east of Gravesend and Tilbury (location C, route three with the Western Southern Link).

2018

Highways England holds a second public consultation.

Find out more

To find out more about our earlier consultation, see our Response to Consultation (produced in 2017) at **www.lowerthamescrossing.co.uk**

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Why the Lower Thames Crossing is so important

The Lower Thames Crossing is part of the biggest investment in the country's road network for a generation, including £15 billion that is being invested in motorways and major A-roads between 2015 and 2020. A further multi-billion pound investment programme will be announced in autumn 2018, covering the period 2020-2025.

The Lower Thames Crossing is part of the biggest investment in the country's road network for a generation

A boost to the economy

Good transport connections are vital for economic growth. The areas of Kent, Thurrock and Essex, which the Lower Thames Crossing will serve are already home to key economic hubs, vital ports and thriving neighbourhoods. The crossing will provide new connections between all of these and ensure better journeys, fewer delays and give more certainty on how long journeys will take.

The crossing will boost local, regional and national economies, and form an essential part of the UK's transport infrastructure, improving connections across the country.

The region's ports of Dover, Felixstowe, London Thamesport, Port of Tilbury and London Gateway will benefit from the increased capacity and enhanced reliability in journeys that the crossing will provide.

It will give businesses large and small the confidence to invest and grow, and bring them closer to existing and potential customers, employees and markets.

The Lower Thames Crossing will join local economies together

Easing our heavily congested roads

Motorists trying to cross the Thames face a daily challenge. Every day, on every journey, roads and motorways on both sides of the River Thames are under huge pressure.

The new crossing will provide an alternative route when Dartford is fully or partially closed

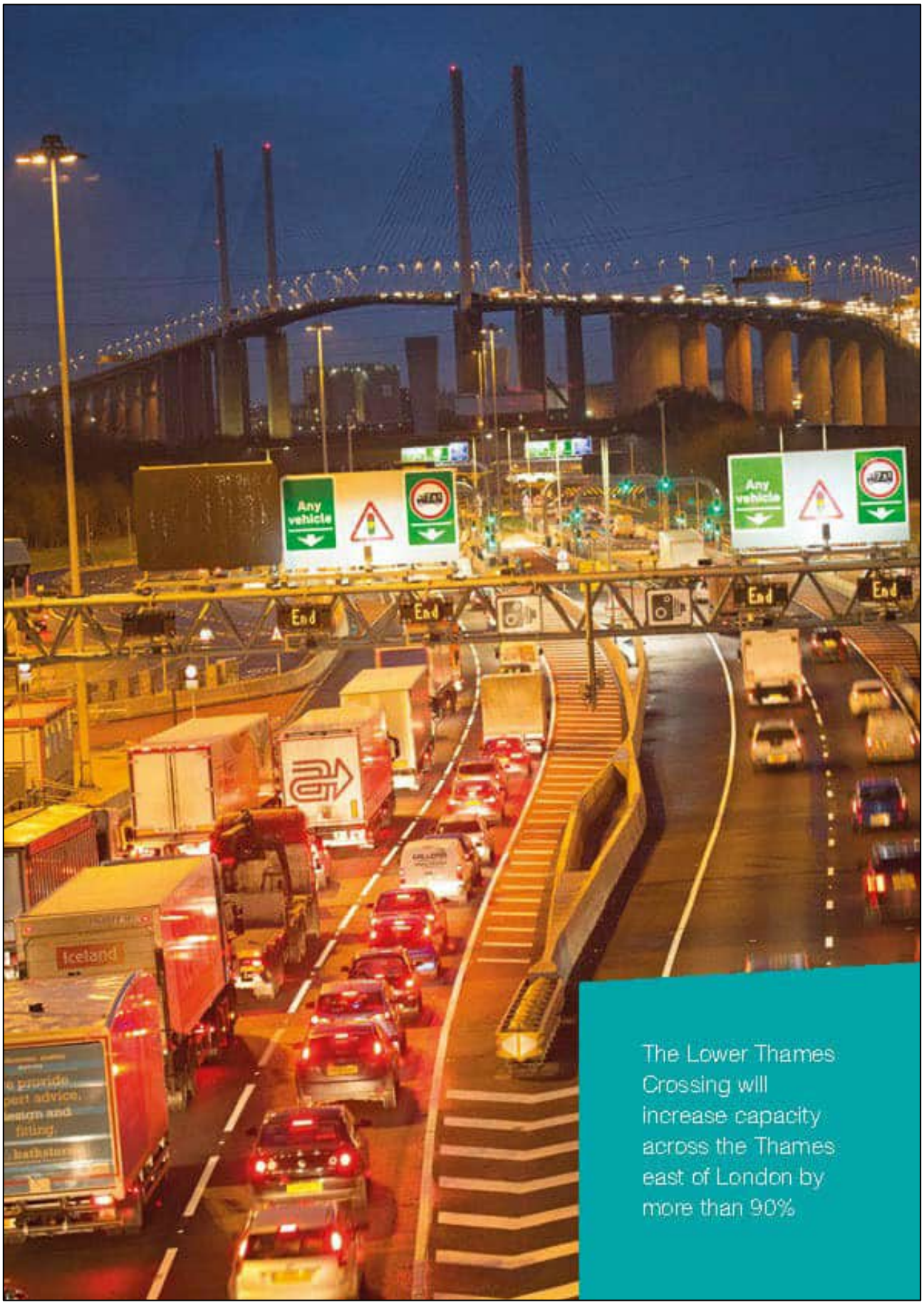
As those who regularly use the Dartford Crossing know, it is already far too congested far too often, and unless we do something now to provide more road capacity across the Thames, the situation is only going to get worse.

The Lower Thames Crossing will make the region's road network more resilient. The Dartford Crossing is the only road spanning the Thames east of London between Kent, Thurrock and Essex, and for many motorists it is the only viable route across the river. It is the busiest river road crossing in the UK, carrying millions of tonnes of freight from the Channel ports, vehicles from the M25 as well as local traffic.

The Dartford Crossing was designed for 135,000 vehicles a day, yet carried more than 180,000 on some days in 2017. This is one reason why there are often long delays, particularly at peak times, and why roads and motorways on both sides of the crossing also experience frequent problems.

Did you know?
More than 27 million drivers are forecast to use the Lower Thames Crossing in its first year.

The Dartford Crossing regularly closes as a result of vehicle collisions, high winds and other incidents such as oversized lorries in the tunnels. The new crossing will provide an alternative route when Dartford is fully or partially closed.



The problem at the Dartford Crossing

50 million
crossings a year and traffic volumes are increasing

Designed for

135,000 vehicle crossings a day

Can operate at above

180,000 vehicle crossings a day

Has one of the highest incident rates on the strategic road network

Air quality

For much of a typical day, air quality in some areas close to the crossing **does not meet current standards.**

20

Lower Thames Crossing consultation 2018

It can take

3 to 5 hours

for the roads to clear following a closure

The western tunnel is **50** years old

Lower Thames Crossing consultation 2018

Current alternatives to the Dartford Crossing

When incidents and congestion occur at the Dartford Crossing, there are limited options to cross the Thames. Drivers either have to wait in long queues, make a 100-mile diversion around the M25 or use limited local alternatives.

The Woolwich Ferry is approximately 10 miles from the crossing by road but it only operates 14 hours a day, has size limitations and cannot carry vehicles with hazardous loads.

The Blackwall Tunnel is 15 miles away by road yet prohibits HGVs carrying hazardous materials and large vehicles that are more than 4 metres in height northbound and 4.7 metres in height southbound. Routes around the Blackwall Tunnel also experience severe congestion during peak times.

The Silvertown Tunnel is planned to open in 2023 and is intended to reduce congestion at the nearby Blackwall Tunnel. It will offer an additional alternative route to cross the Thames but it is not a viable alternative to local and regional traffic across Kent, Thurrock and Essex as it is approximately 15 miles from the Dartford Crossing.

Quicker journeys

The Lower Thames Crossing will benefit the Lower Thames area around Kent, Thurrock and Essex. It will:

- improve journey times along parts of the A127 and M20
- cut congestion on approach roads to the Dartford Crossing (including parts of the M25, A13 and A2)
- increase capacity across the Thames from four lanes in each direction currently (at Dartford) to seven lanes each way (Dartford plus the Lower Thames Crossing)
- allow nearly double the amount of traffic to cross the Thames

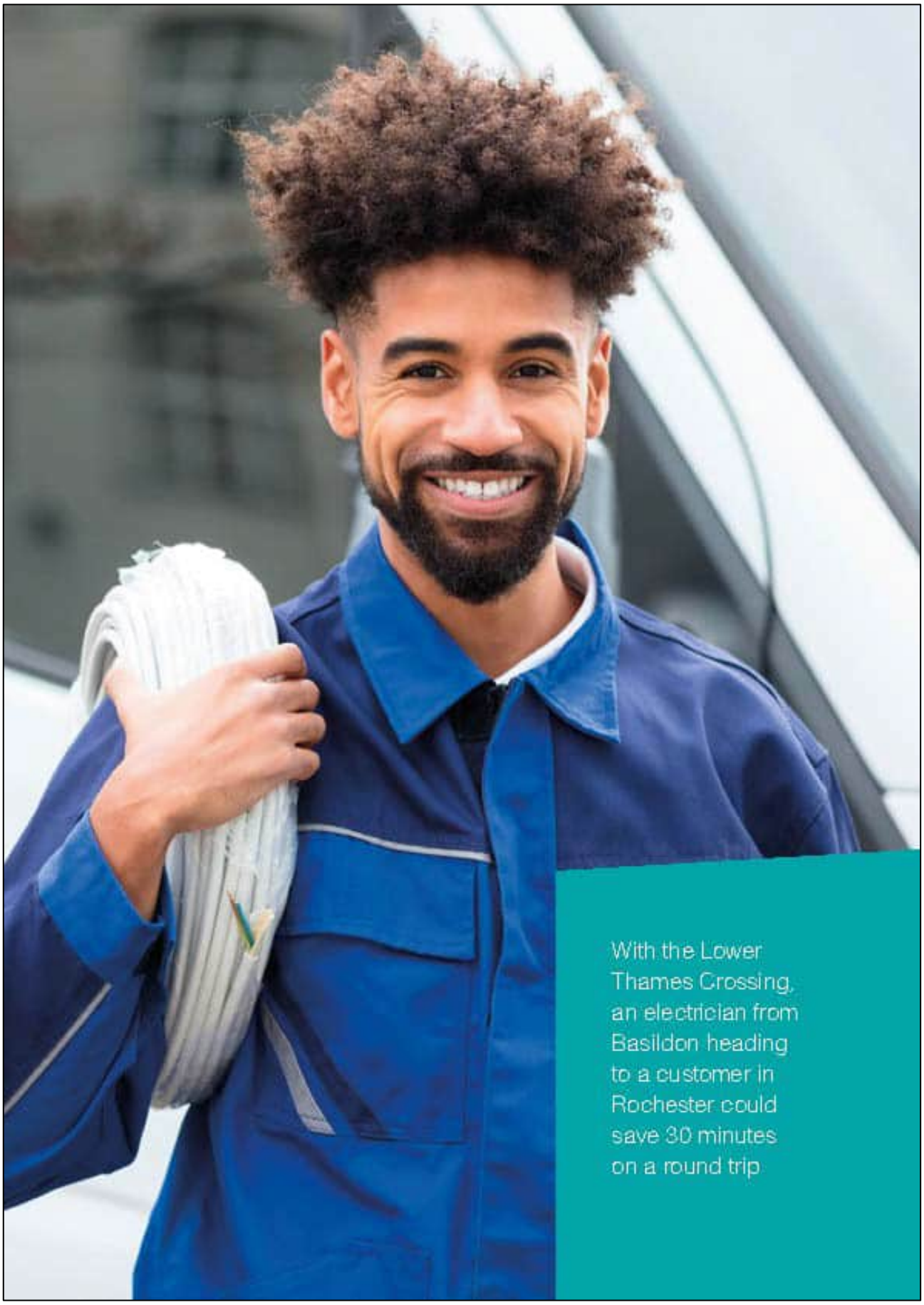
In its first year, more than 27 million drivers are forecast to use the Lower Thames Crossing (around 75,000 vehicles a day). This will relieve congestion at Dartford by reducing the number of vehicles using the crossing by 22%, immediately improving journey times, resilience and reliability.

22% reduction in the number of vehicles using the Dartford Crossing

Designing the Lower Thames Crossing to the latest safety standards means HGVs carrying hazardous materials, such as fuel or chemicals, will be able to use it safely and unescorted. This is in stark contrast to today where escorted lorry convoys at Dartford cause significant delays for all traffic.

More than 2,000 HGVs have to be escorted every month at Dartford, with convoys of restricted vehicles on average leaving every 15 minutes. Each time an HGV is escorted, a lane is closed for around 90 seconds – that adds up to 5-7 minutes of closures each hour, cutting road capacity on the crossing by 8-12%. Even removing escorted vehicles from general traffic lanes can lead to disruptions.

The Lower Thames Crossing is expected to carry nearly 5 million HGVs in the first year of opening (13,000 a day), while HGV traffic using the Dartford Crossing will be reduced, improving journey reliability for all road users.



We want to encourage more young people to consider a STEM career

Creating a better future

The crossing will be designed and built for the future, and will unlock opportunities for regional and national economic growth.

As part of their development plans, local authorities in Kent and Essex have committed to building tens of thousands of new homes in the coming years. The Lower Thames Crossing will support this by strengthening and connecting local communities and improving access to jobs, housing, leisure and retail facilities on both sides of the river.

Employment and education

The Lower Thames Crossing will provide benefits for local communities and the economy for generations to come. New training and job opportunities created during construction will boost both the local and regional economies.

As with any large construction project, the Lower Thames Crossing provides an ideal opportunity to highlight to local children and young people the variety of careers available to those with a background in science, technology, engineering and mathematics (STEM).

There is currently a national shortage of people with a good knowledge of these subjects and we are talking to primary and secondary schools to establish a programme that would encourage more pupils to consider STEM careers.

Already the Lower Thames Crossing team includes dozens of volunteer STEM ambassadors who are committed to supporting our local initiatives. Anyone working on the project can volunteer to be a STEM ambassador and be given training to work with local schools and offer career mentoring, training and industry insights to young people in the region.

1,000s of jobs and training opportunities will be created

As well as talking to local schools, we are working with colleges and universities in the region. They are excited about the opportunities presented by the project and what this might mean to them and their students.

Organisations such as the Local Enterprise Partnership, as well as local businesses and local authorities are helping us shape the training we will offer. This will mean that local people have the skills needed to support development in the area for years to come.

We will actively look for apprentices from local schools and colleges, and work with our supply chain to develop a long-term apprenticeship programme. Irrespective of where the apprentices come from they will be trained in skills that open up long-term, sustainable job opportunities.

Did you know?

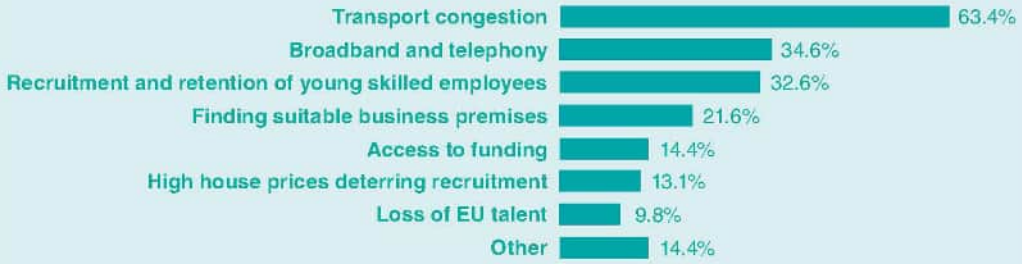
We will support veterans and women returners through our existing employment programmes, and help other, often under-represented, groups back into work.

Federation of Small Business (FSB) survey June 2018

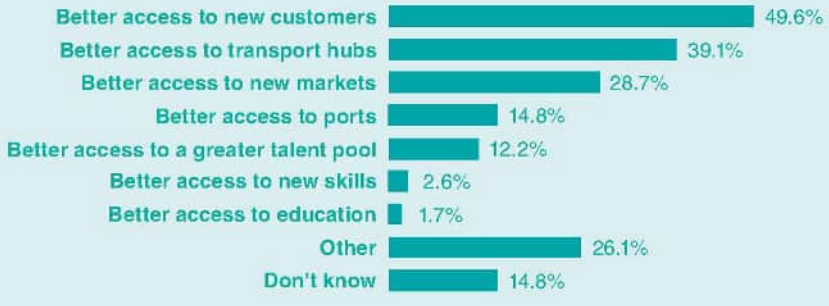
Where is your business based?

As an FSB member, which of the following would be your biggest ask of government

As an FSB member, what are the major challenges for your business?*



How do you think the Lower Thames Crossing will help your business grow?*



*FSB members were able to select more than one answer.

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Better connections across the river will mean more job opportunities for those in the region

Supporting local growth

Good connections across the region and throughout the country are essential for business growth. We have spoken with many representatives from businesses large and small who have told us that their main concern is transport infrastructure.

A Federation of Small Business (FSB) survey in June 2018 found almost half (49%) of small business owners think the new infrastructure project would give them better opportunities to reach new customers. More than a third (39%) say it would improve their access to transport hubs, and 28.7% think new markets would be more accessible after the crossing is built.

Of those who took part in the survey, carried out by FSB in Kent, London and Essex, 63% of SMEs said they found traffic congestion a major challenge to their business, and 62% of those surveyed want the government to focus on investment.

Businesses in Kent, Thurrock and Essex rely on the area's road network, with staff, customers and their supply chain all dependent on it. They also need to be able to deliver their goods on time and to do that they need reliable journeys.

Better connections across the river mean more job opportunities for those living in the region, and a greater pool of potential employees. They also boost the market for local businesses.

Once the Lower Thames Crossing opens, more companies will be able to pursue other markets that they couldn't before because of unreliable journey times across the Thames.

Have your say

To comment on the need for the Lower Thames Crossing, answer question 1 in the response form.

5

The route

We have listened to your feedback on the preferred route, which the government announced in April 2017. Together with our own investigations, this has helped us to continue to assess and refine our proposals.

The responses we receive from stakeholders and communities during this consultation will continue to help us develop our designs further.

NOTE: Throughout this section we will refer to the Lower Thames Crossing as LTC. Images used throughout this section are illustrative for this consultation and may change in the future. The "after" pictures show locations 15 years following the opening of the LTC.

Design changes

Road height – we have lowered the height of the road in some locations by as much as 5-6 metres to reduce its visual impact. This change was made following feedback from the 2016 consultation.

Number of lanes – the route will be a motorway with three lanes in each direction, along the whole route from the M25 to the A2. It will have no hard shoulders in common with smart motorways. This will provide enough capacity for peak hours and to meet future demand. It will reduce journey times across the Thames and increase capacity for road users across the river by more than 90% east of London.

Did you know?

A smart motorway uses technology to manage traffic flow.

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South of the river in Kent

1. **M2 and A2** – we have widened the road through junction 1 of the M2 to provide four lanes rather than three, which will cut journey times for road users. There are also two additional lanes in both directions running parallel to the A2 to provide connections to the A289 and the old A2. We have included green bridges to reduce the visual and environmental impact where possible. Go to page 88 to find out more about green bridges.

2. **A2** – we have redesigned the junction to make journeys faster and to allow drivers to join and leave the A2 and M2 safely.

3. **A226 junction** – we have removed this junction from the proposal following feedback from the 2016 consultation. It also reduces the impact of traffic on Higham and other local roads.

The crossing

4. **Southern tunnel entrance** – following further site investigations and community feedback, we have moved the southern entrance to the tunnel approximately 600 metres further south. This will reduce the visual impact on local communities, such as Chalk, and will not split the village from the church. Extending the tunnel southwards means we need to acquire less land, and reduces the impact on the adjacent Ramsar site.

North of the river in Thurrock and Essex

5. **Tilbury junction** – we have added a junction south of the Tilbury loop railway so we can provide access to a proposed rest and service area and maintenance depot. This junction also allows us to turn vehicles around if there is an incident in the tunnel.

6. **Rest and service area** – we are proposing a rest and service area to the west of East Tilbury which means motorists can take regular breaks.

7. **Routing between Tilbury and A13 junction** – we have moved the route around 80 metres east, away from properties in Chadwell St Mary. This will limit the need to move some power lines in this area. We have also lowered the road in this location by between 5-6 metres to reduce its visual impact.

Find out more

To find out about the options considered, see Approach to Design, Construction and Operation.

8 **A13 junction** – we have modified the design of the junction to cope with the traffic levels and reduce delays. Existing links between the A1089 and A13 will be maintained, while the junction will also connect:

- LTC to A13 eastbound
- A13 westbound to the LTC
- A1089 to the LTC

9 **Mardyke crossing** – previously on an embankment, we have changed the road to run along a viaduct and embankment. This will reduce the impact on the flood area and it will also allow us to return more of the land to be farmed after the road has been built.

10 **Ockendon** – we have altered the route to avoid the associated costs and long-term maintenance work that would be needed if we went through a landfill site.

11 **M25 junction** – we have changed the design to reduce the visual impact of the junction and to avoid crossing the railway line twice. The road will now cross under the M25 and Ockendon Road.

12 **M25 corridor and M25 junction 29** – we have widened this section of motorway and made changes to the junction 29 roundabout, which will improve journey times for motorists while avoiding impacts on ancient woodland around the junction.

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Road terms explained

Viaduct: an elevated road bridge supported by pillars.

Embankment: a wall of earth or stones to support a road, or to stop water from flooding an area.

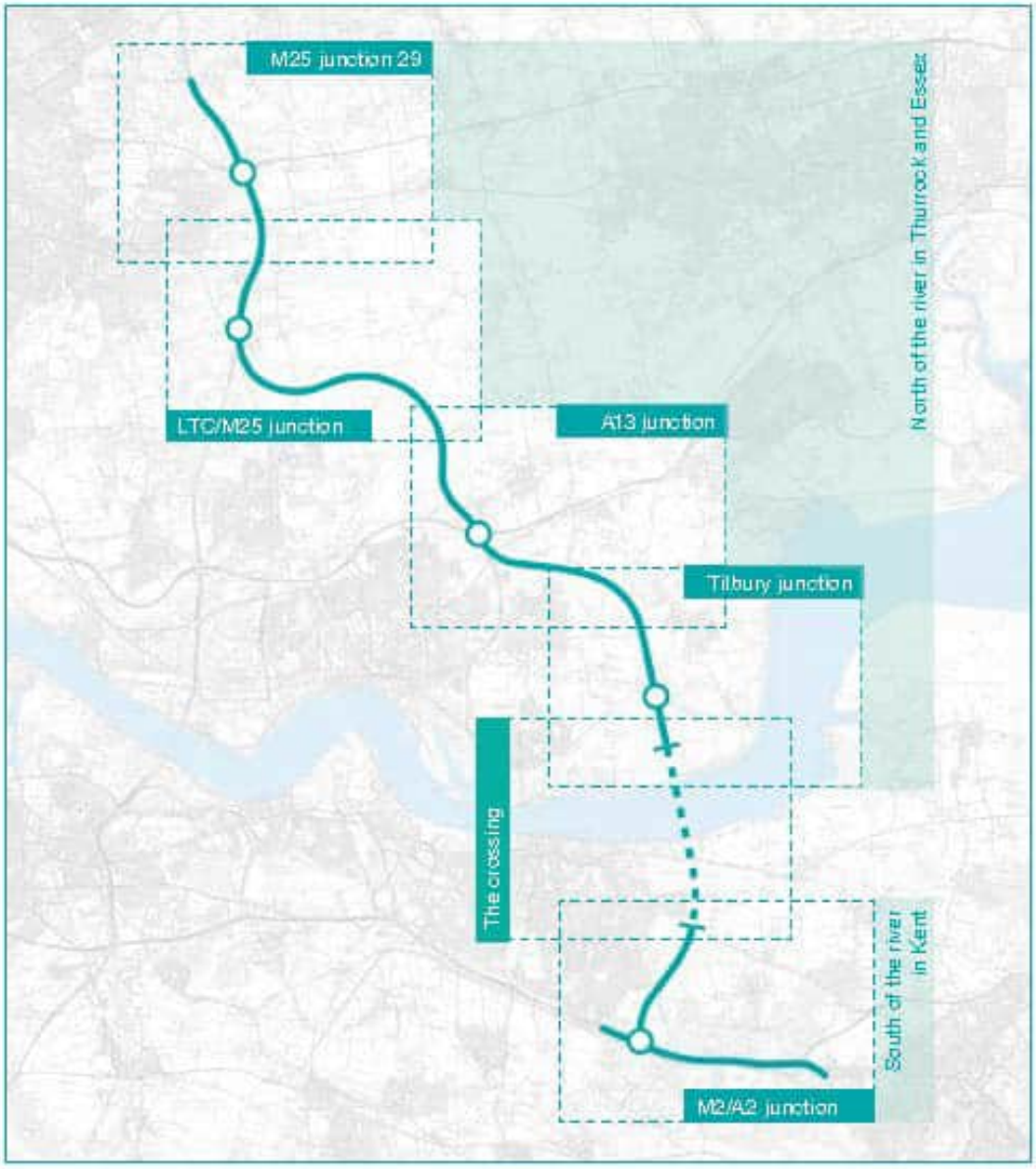
Cutting: when a road is to go below existing ground, the soil or rock is removed, either altogether or to form landscape embankments on each side.

The route explained

For the purpose of describing the route in more detail, we have divided it into three sections:

- South of the river in Kent M2/A2 junction
- The crossing
- North of the river in Thurrock and Essex Tilbury junction, A13 junction, LTC/M25 junction, M25 junction 29

First we will describe our proposals from the south of the river, then the crossing, and lastly north of the river.



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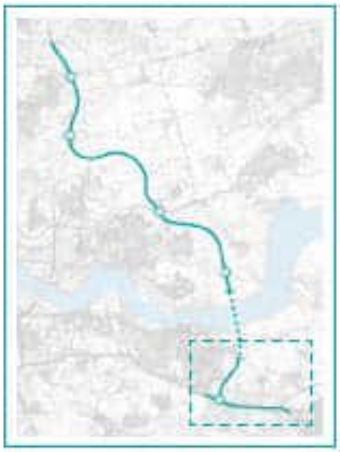


South of the river in Kent

M2/A2 junction

The A2 will remain as four lanes in both directions with hard shoulders throughout. The M2 will be widened from three lanes to four in both directions through junction 1.

Two one way link roads will be provided north and south of the A2, connecting to the existing A289 and the old A2 at the eastern end. Neither of these link roads will connect to the A2 at M2 junction 1, with these connections being made at the site of the new LTC junction instead.

The A2 will be kept at its existing height and the link roads will be at approximately the same height.

We will need to rebuild a section of the M2/A2 immediately to the west of the new junction and for approximately 2 miles (3.5km) to the east, including junction 1 of the M2.

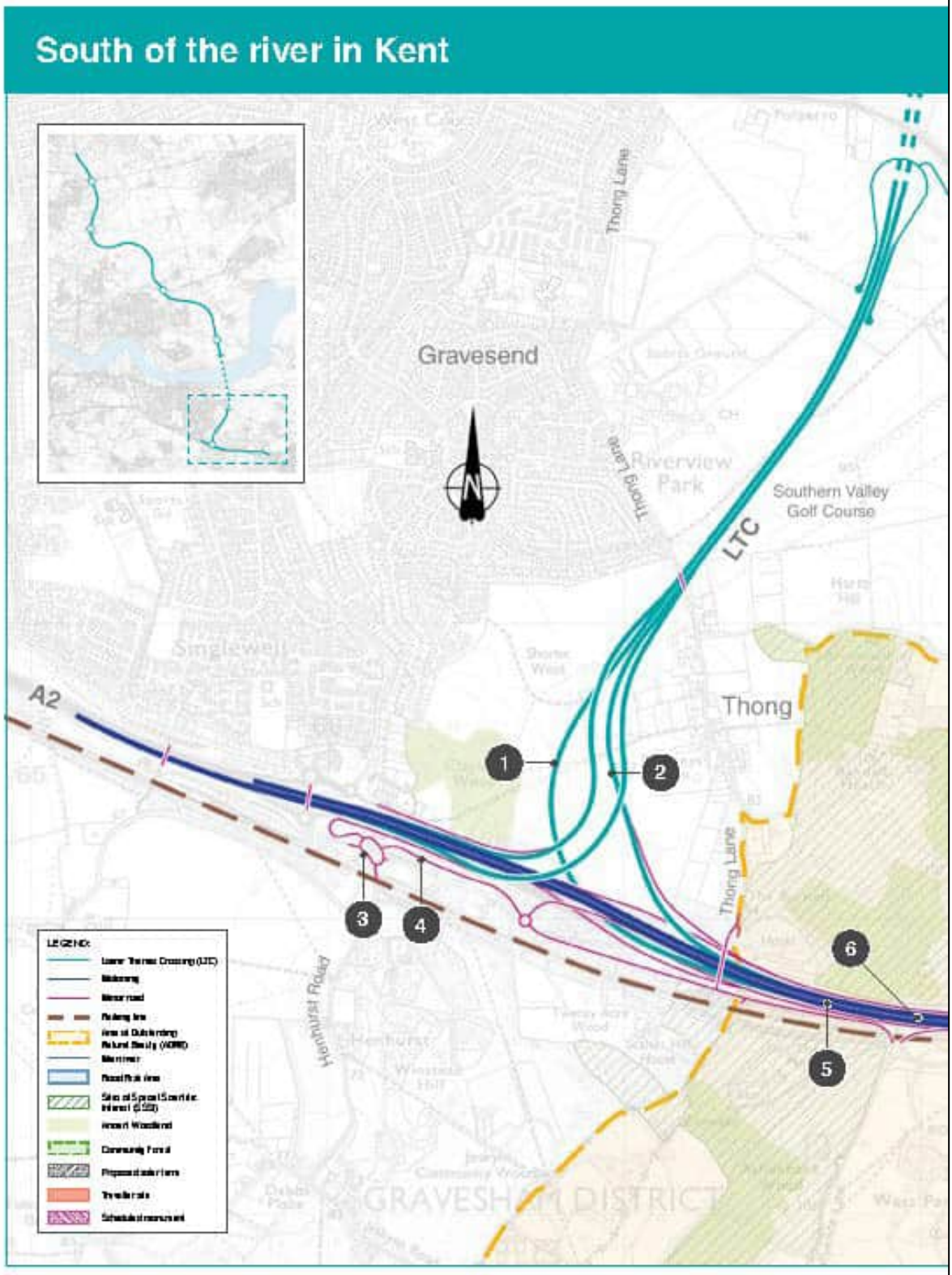
The route will pass under Thong Lane and approach a new junction with the A2, situated at the eastern edge of Gravesend. The road will be in a cutting approaching the tunnel.

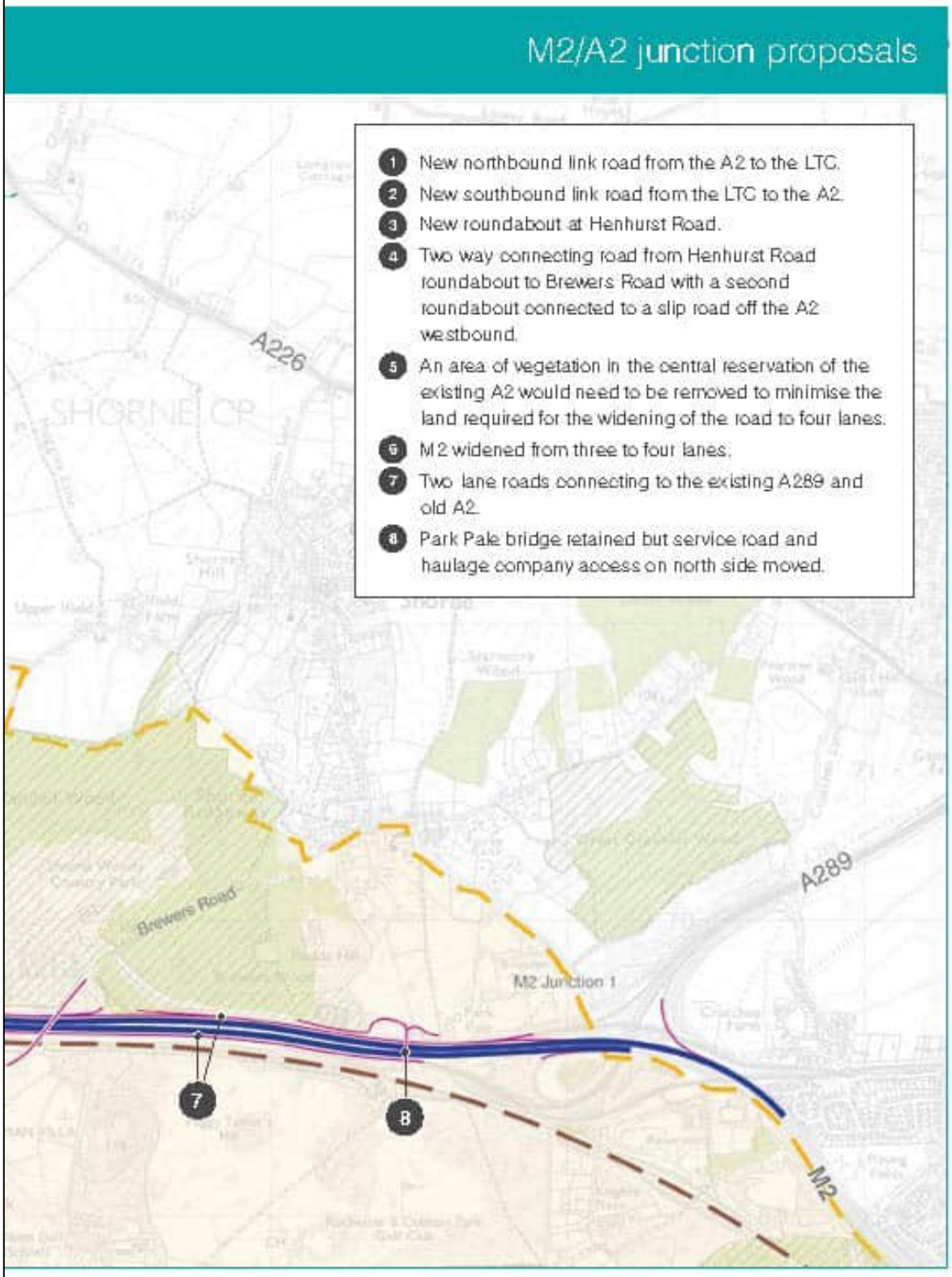
The maps on the next few pages show the proposals for the section south of the river in Kent.

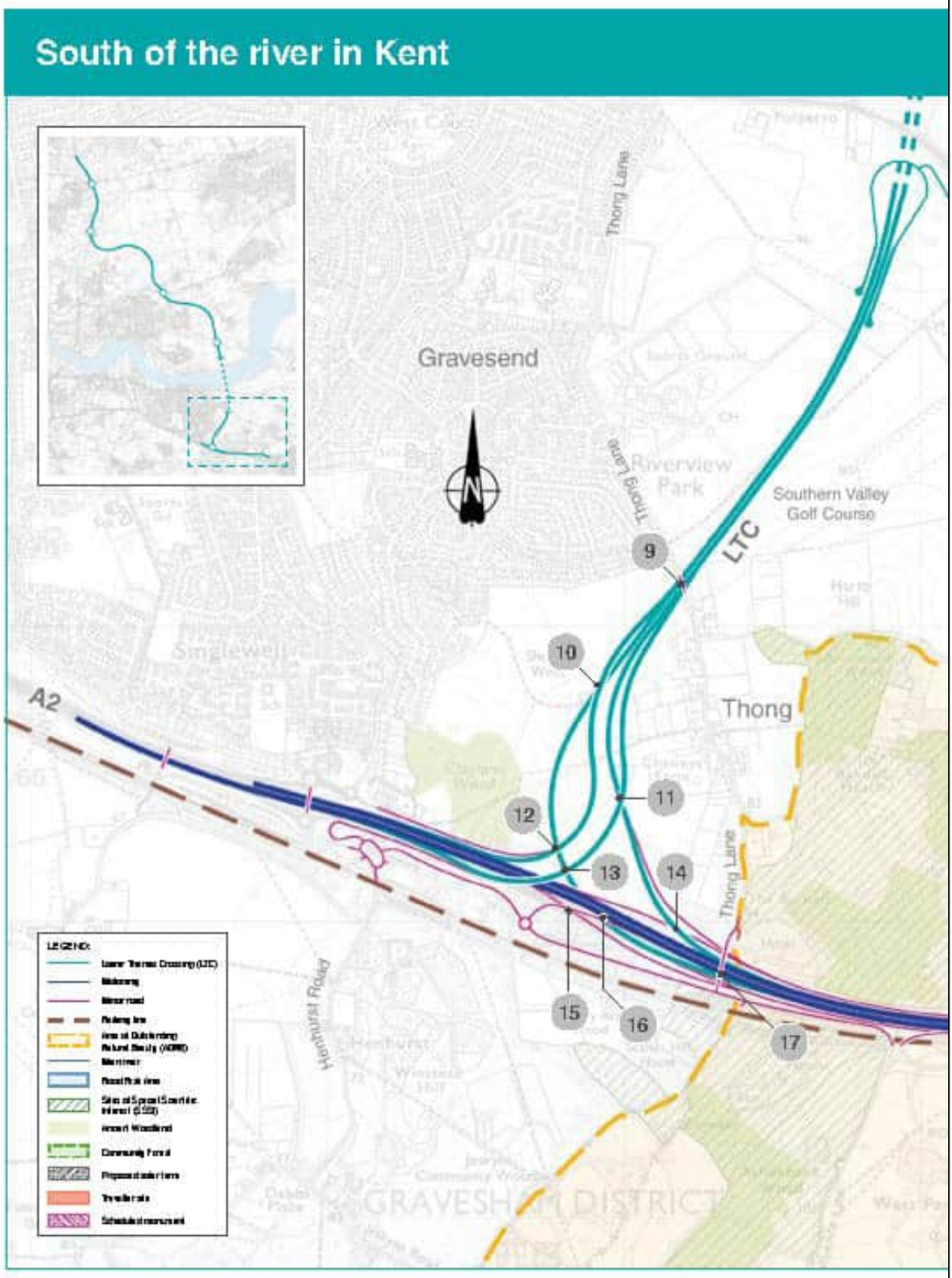
Have your say

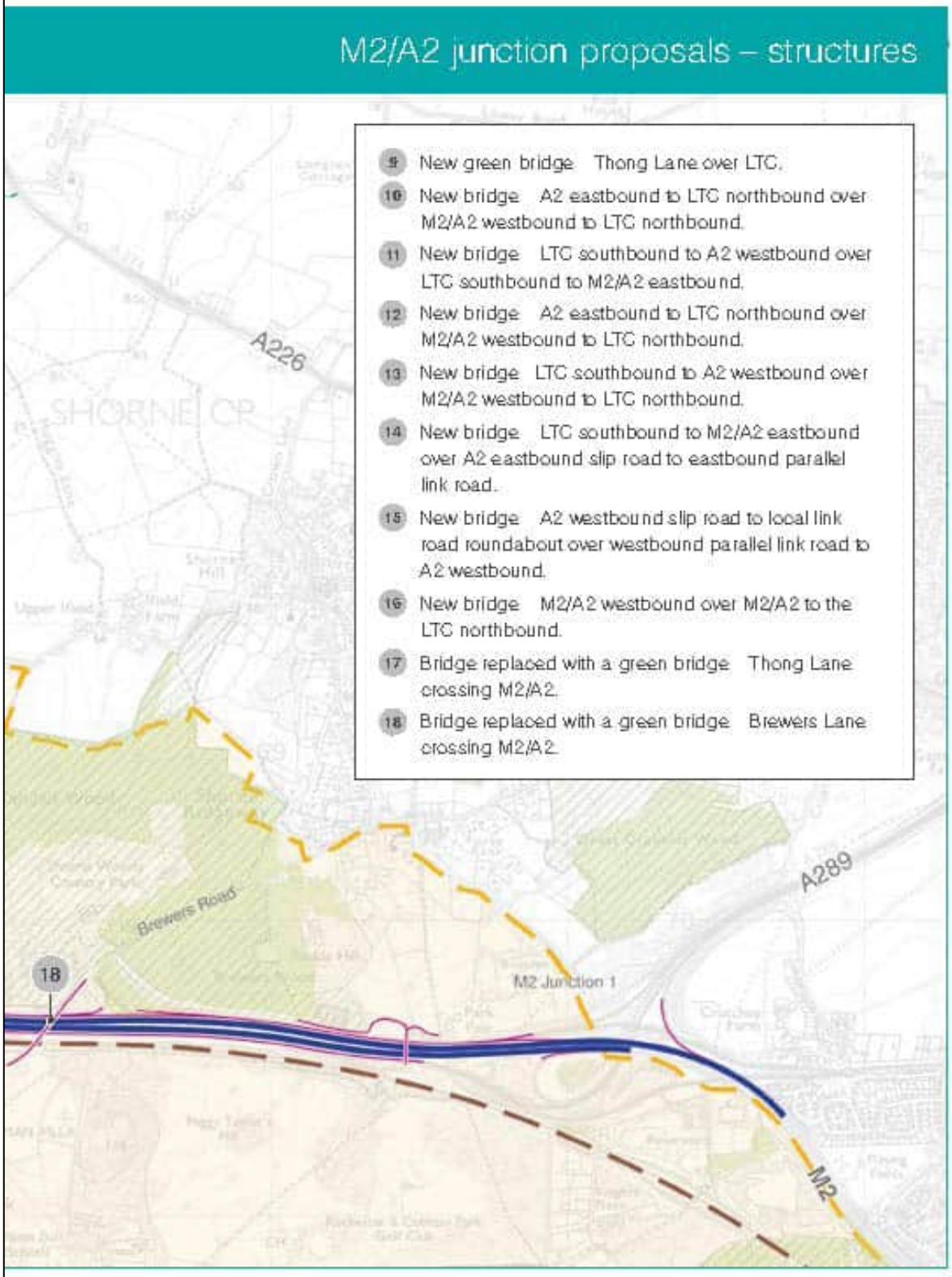
To comment on the proposed route, answer questions 2, 3 and 4 in the response form.

To comment on the proposed route south of the crossing, answer question 3a and 3b in the response form.









M2/A2 junction connections

The maps below show connections that can be made from the M2/A2 junction shown on page 34.

Figure 5 1. **Leaving the LTC to join the M2/A2 eastbound.** Slip road leaving the LTC southbound divides to connect to both the M2/A2 and the eastbound parallel link road (which leads to local roads). The road passes under the LTC in a cutting before being elevated on an embankment and passing over the A2 eastbound parallel link road

Figure 5 2. **Leaving the LTC to join the A2 westbound.** Also connects to the Gravesend east junction, where the existing slip road will no longer connect to the A2. The road will pass over the LTC, the M2/A2 westbound to the LTC northbound and the A2 main road

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Figure 5 3. **Joining the LTC from the A2 eastbound and slip road from the Gravesend east junction.** The connection will be elevated on an embankment and will pass over the M2/A2 westbound to the LTC northbound twice to merge on the left

Figure 5 4. **Joining the LTC from the M2/A2 westbound.** Traffic from the westbound parallel link road will also join here. The road will be in a cutting, passing below the A2 main road and two LTC slip roads

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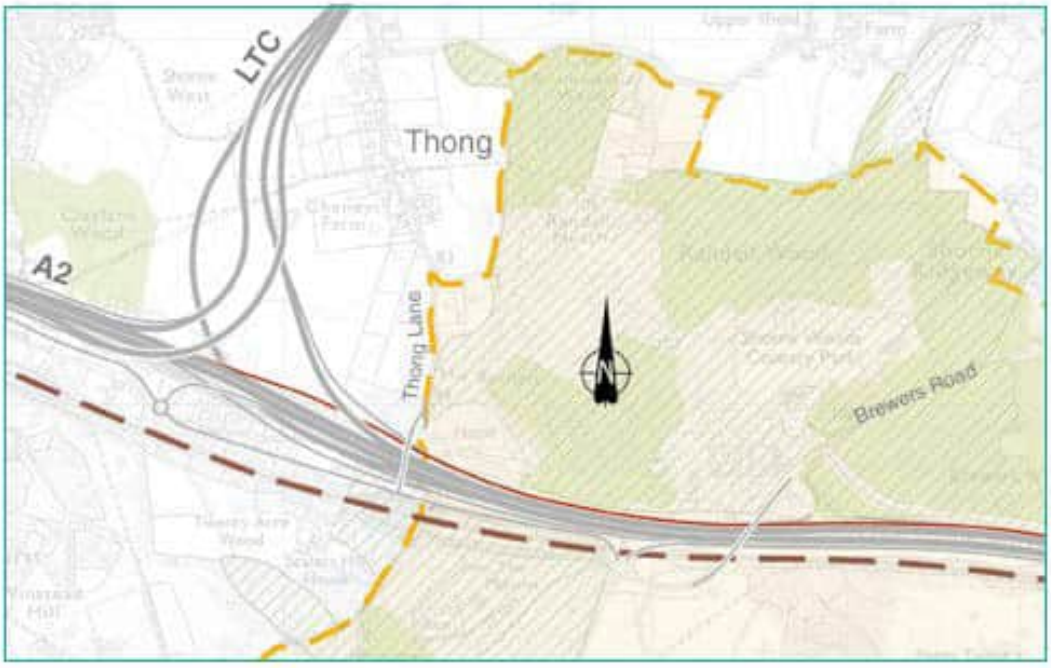

Figure 5 5. A2 eastbound to eastbound parallel link road

Figure 5 6. Eastbound parallel link road to M2 eastbound (at M2 junction 1)

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M2/A2 junction images

Figure 5 7. Existing M2/A2 along the A2 near Park Pale bridge, looking west

Figure 5 8. Proposed M2/A2 along the A2 near Park Pale bridge, looking west

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Figure 5 9. Existing Thong Lane linking Gravesend and Thong, looking north

Figure 5 10. Proposed Thong Lane bridge linking Gravesend and Thong, and the approach to the south tunnel entrance, looking north

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Figure 5 11. Existing A2, looking north

Figure 5 12. Proposed M2/A2/LTC junction, looking north

The crossing

This section covers the tunnel part of the route highlighted above.

The tunnel crossing will pass beneath the River Thames with its southern entrance located to the east of the village of Chalk, and its northern entrance to the west of East Tilbury.

On the southern section, the tunnel will pass under the:

- A226
- Lower Higham Road
- Thames and Medway Canal
- North Kent railway line
- Thames Estuary and Marshes Ramsar site
- South Thames Estuary and Marshes Site of Special Scientific Interest (SSSI)
- Metropolitan Police Service Specialist Training Centre at Gravesend

On the northern section, the tunnel will pass under the East Tilbury Marshes.

Have your say

To comment on the crossing, answer question 3c in the response form.

Figure 5 13. Proposed view inside the tunnel

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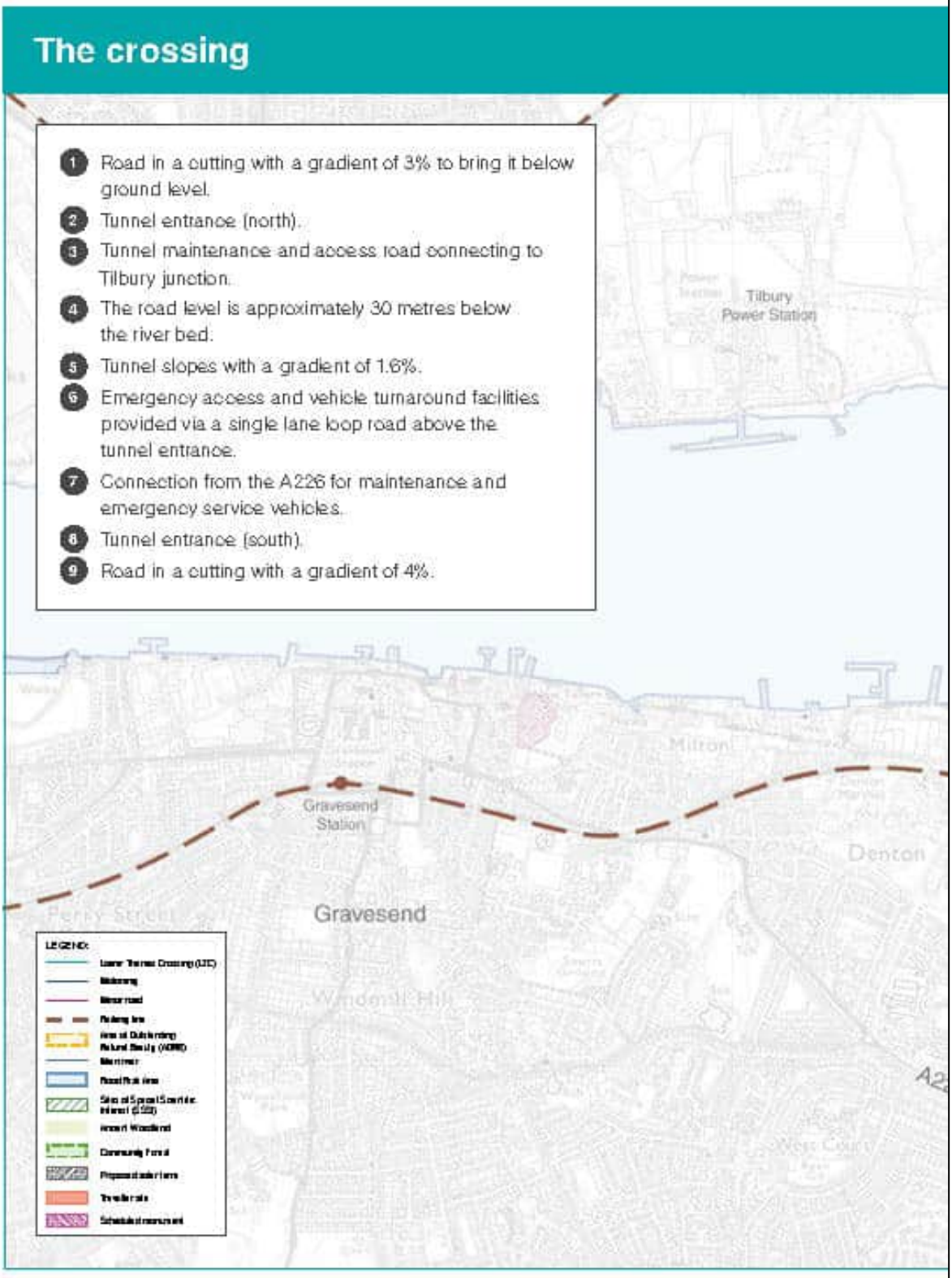

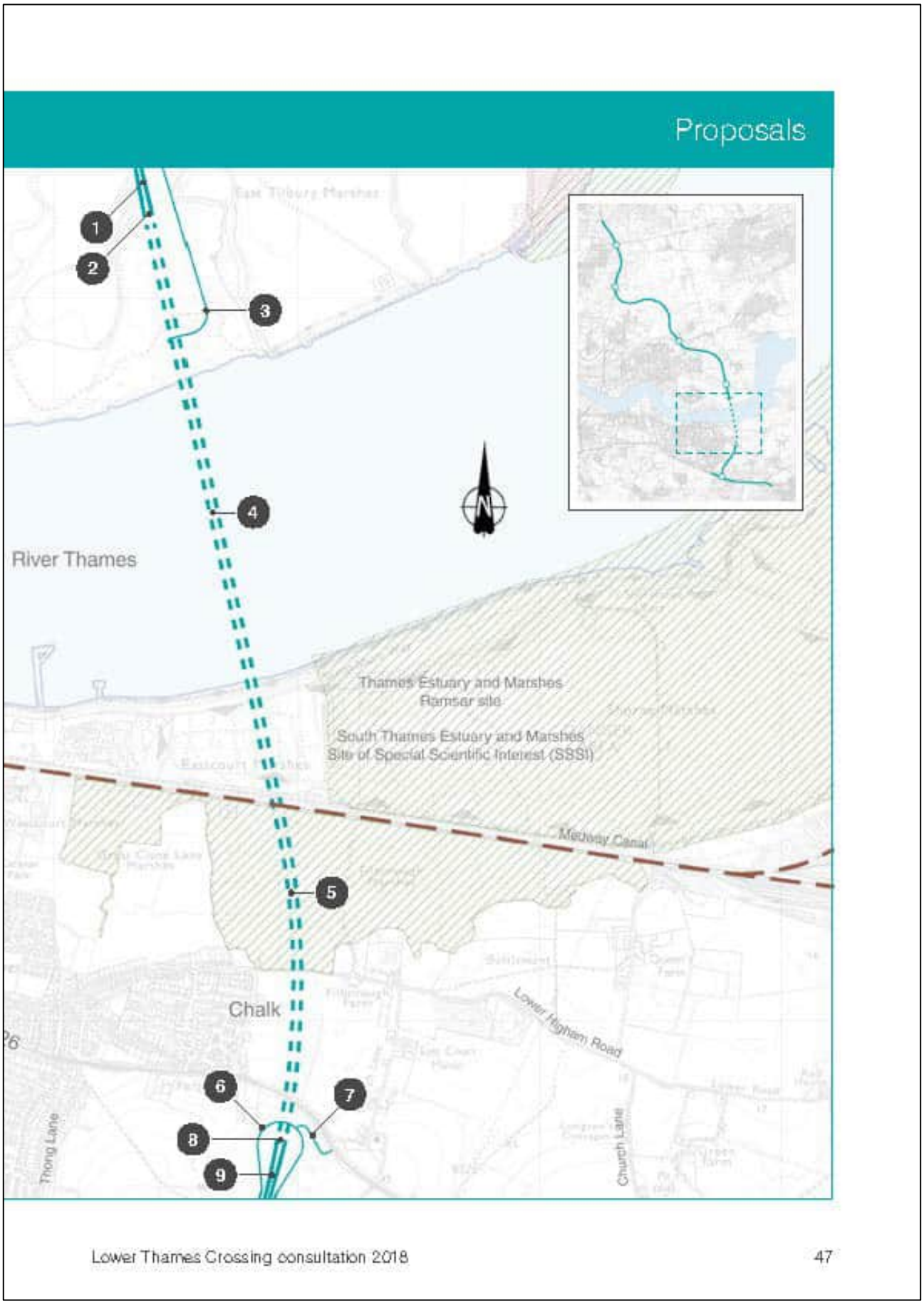

The crossing images

Figure 5 14. Existing landscape near Chalk, looking north

Figure 5 15. Proposed south tunnel entrance approach, looking north

Figure 5 16. Proposed south tunnel entrance, looking north

Figure 5 17. Existing landscape near East Tilbury, looking south

Figure 5 18. Proposed north tunnel entrance approach, looking south

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Figure 5 19. Proposed north tunnel entrance, looking south

North of the river in Thurrock and Essex

This section covers the part of the route highlighted above which passes from the crossing through Tilbury, Chadwell St Mary, Linford, Orsett and Dokendon. There are four smaller areas to describe the route, which are:

- Tilbury junction
- A13 junction
- LTC and M25 junction
- M25 junction 29

Have your say

To comment on the proposed route north of the crossing, answer question 3d and 3e in the response form.

To comment on the connections between the proposed route north of the tunnel and the surrounding roads, answer question 4c to 4f.

Tilbury junction

Leaving the northern tunnel entrance, the route will pass near to Tilbury and East Tilbury. Approaching the new Tilbury junction, it will be elevated, initially passing on an embankment and then on a viaduct as it passes through a flood zone.

The junction will be located west of East Tilbury, just over half a mile (approximately 1km) north of the northern tunnel entrance and 400 metres south of the Tilbury loop railway. It will form a roundabout with four single lanes to and from the new route. On the east side of the roundabout two connections have been included, one to a proposed rest and service area and another for tunnel maintenance and an access road.

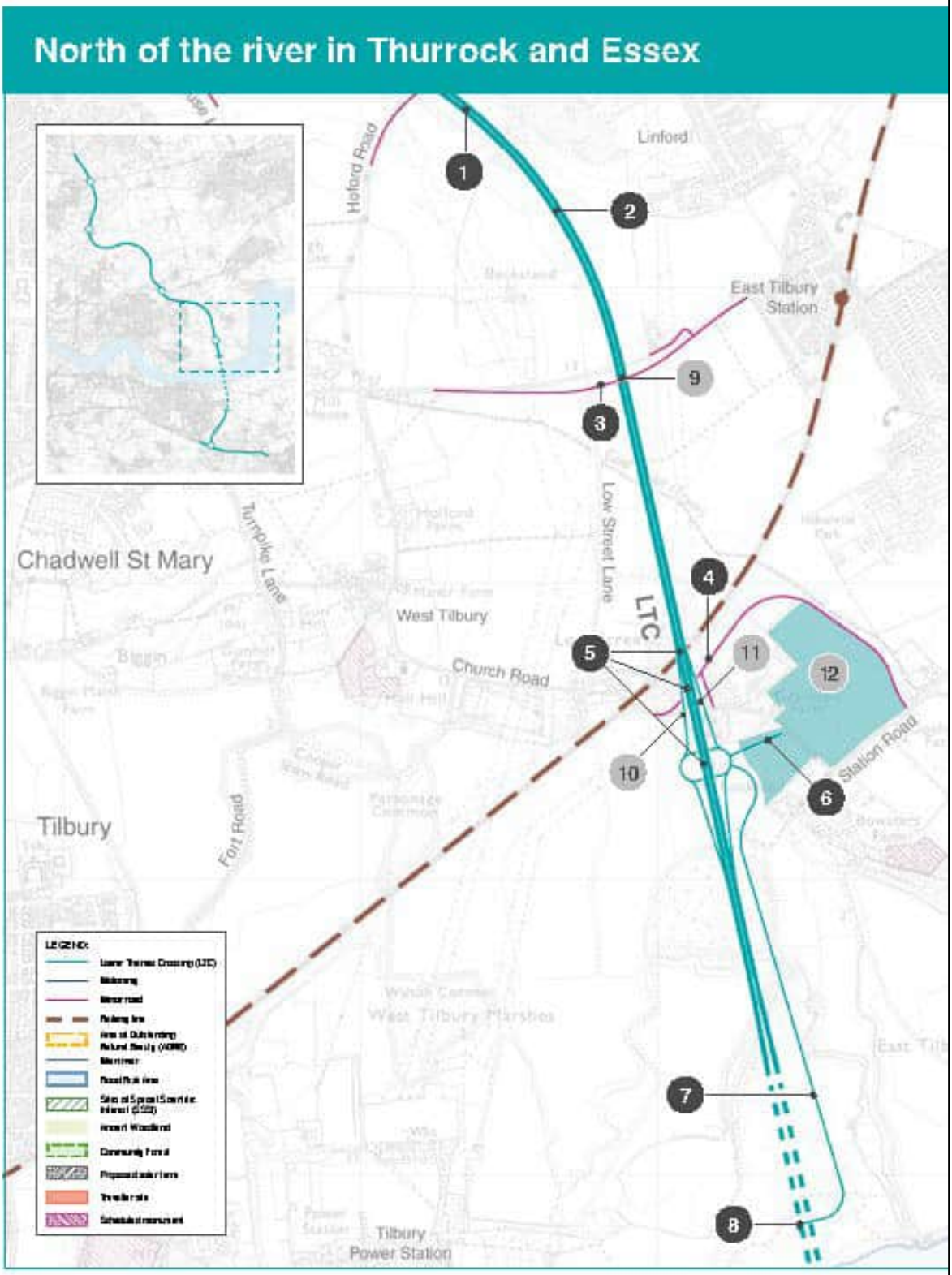
The proposed rest and service area west of East Tilbury could be open 24 hours a day. See Figure 5 22. Proposed rest and service area on page 57.

Beyond the Tilbury junction, the route will continue passing by West Tilbury and Linford.

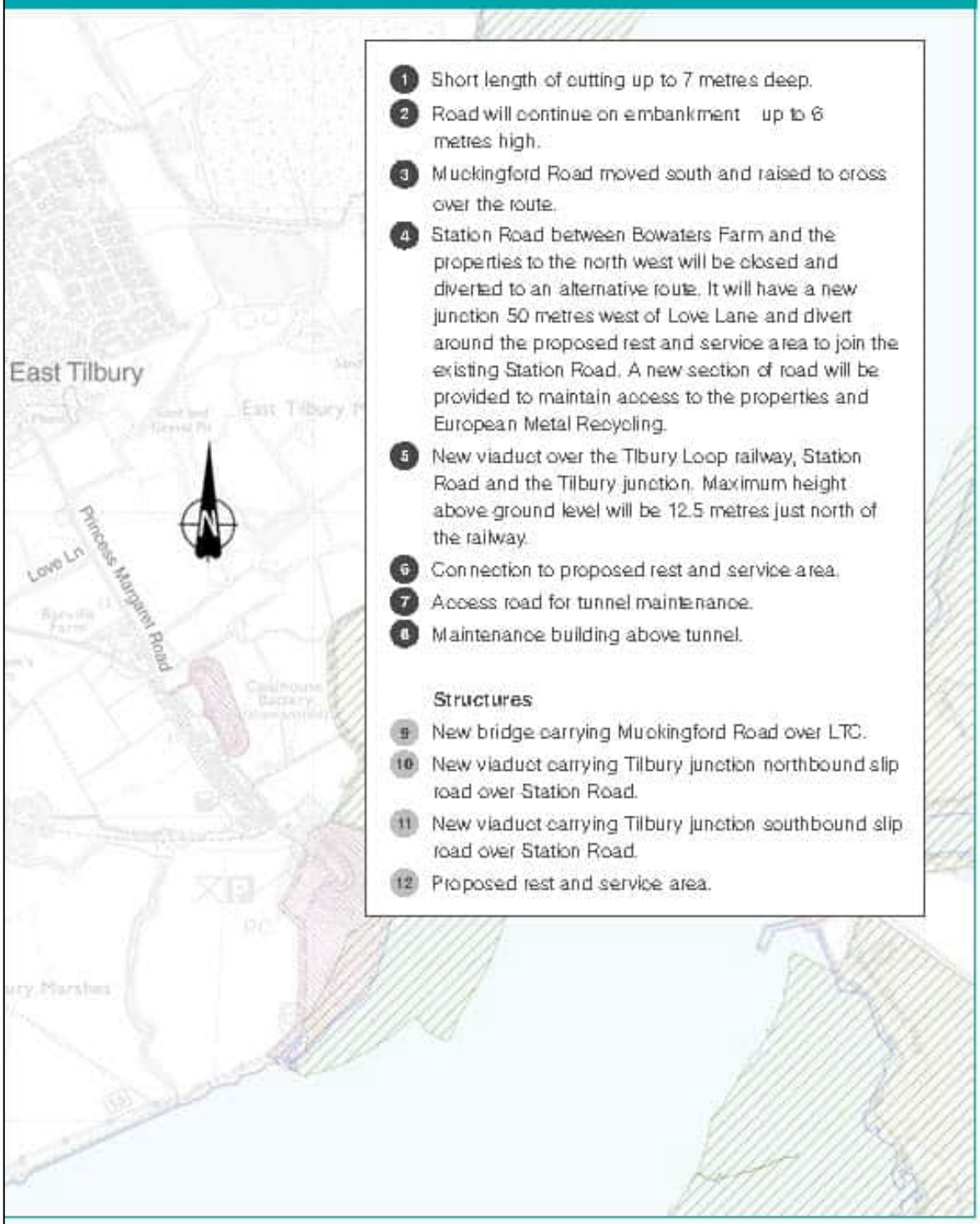
Tilbury link road we are not proposing a link road to Tilbury from the junction. Our modelling highlighted a number of drawbacks to our potential design at Tilbury and the A13, including unnecessary delays to HGV journeys and significant impacts on the local roads. The inclusion of the Tilbury junction means that the opportunity remains to deliver a direct link to Tilbury in the future, subject to necessary funding and consents.

Have your say

To comment on the proposed rest and service area, answer question 8 in the response form.



Tilbury junction proposals



1. Short length of cutting up to 7 metres deep.
2. Road will continue on embankment up to 6 metres high.
3. Muckingford Road moved south and raised to cross over the route.
4. Station Road between Bowaters Farm and the properties to the north west will be closed and diverted to an alternative route. It will have a new junction 50 metres west of Love Lane and divert around the proposed rest and service area to join the existing Station Road. A new section of road will be provided to maintain access to the properties and European Metal Recycling.
5. New viaduct over the Tilbury Loop railway, Station Road and the Tilbury junction. Maximum height above ground level will be 12.5 metres just north of the railway.
6. Connection to proposed rest and service area.
7. Access road for tunnel maintenance.
8. Maintenance building above tunnel.

Structures

9. New bridge carrying Muckingford Road over LTC.
10. New viaduct carrying Tilbury junction northbound slip road over Station Road.
11. New viaduct carrying Tilbury junction southbound slip road over Station Road.
12. Proposed rest and service area.

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Tilbury junction images

Figure 5 20. Existing landscape near to East Tilbury, looking west

Figure 5 21. Proposed Tilbury junction and a proposed rest and service area, looking west

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Figure 5 22: Proposed rest and service area

A proposed rest and service area, situated west of East Tilbury would be open 24 hours a day. This would include parking for 400 cars (including disabled and motorcycle spaces), 80 HGVs and 16 coaches. There would also be provision for electric charging points, toilets, washing facilities and showers for HGV drivers, fuel, and food and drink. Within this site we have included a proposed maintenance depot and a provisional Driver and Vehicle Standards Agency (DVSA) facility.

1. Tilbury junction
2. Access road to rest and service area
3. Maintenance depot
4. Fuel station
5. DVSA site (provisional)
6. Building with toilets, washing facilities and showers for HGV drivers, food and drink
7. Car parking
8. Coach parking
9. HGV parking
10. Station Road diversion

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A13 junction

The route continues passing by West Tilbury, Linford and Chadwell St Mary to approach a new junction layout between the Lower Thames Crossing, A13 and A1089. It will be located at the site of the existing junction between these roads to the west of Orsett.

The new route will pass under the A13 to the east of the existing A1089 bridge. The existing connections between the A13 and A1089 will all be retained with some modifications. A short section of the new route will reduce to two lanes in both directions around the A13 junction.

The connections to other roads that can be made from this junction are described after the main junction maps.

Beyond the A13 junction the route would continue north west of Orsett turning further west.

Have your say

To comment on the proposed route travelling north of the crossing, answer question 3d and 3e in the response form.

To comment on the connections between the proposed route travelling north of the crossing and the surrounding road network, answer question 4c to 4f.

A13 junction images

Figure 5 23. Existing A13 junction, looking south

Figure 5 24. Proposed LTC/A13 junction, looking south

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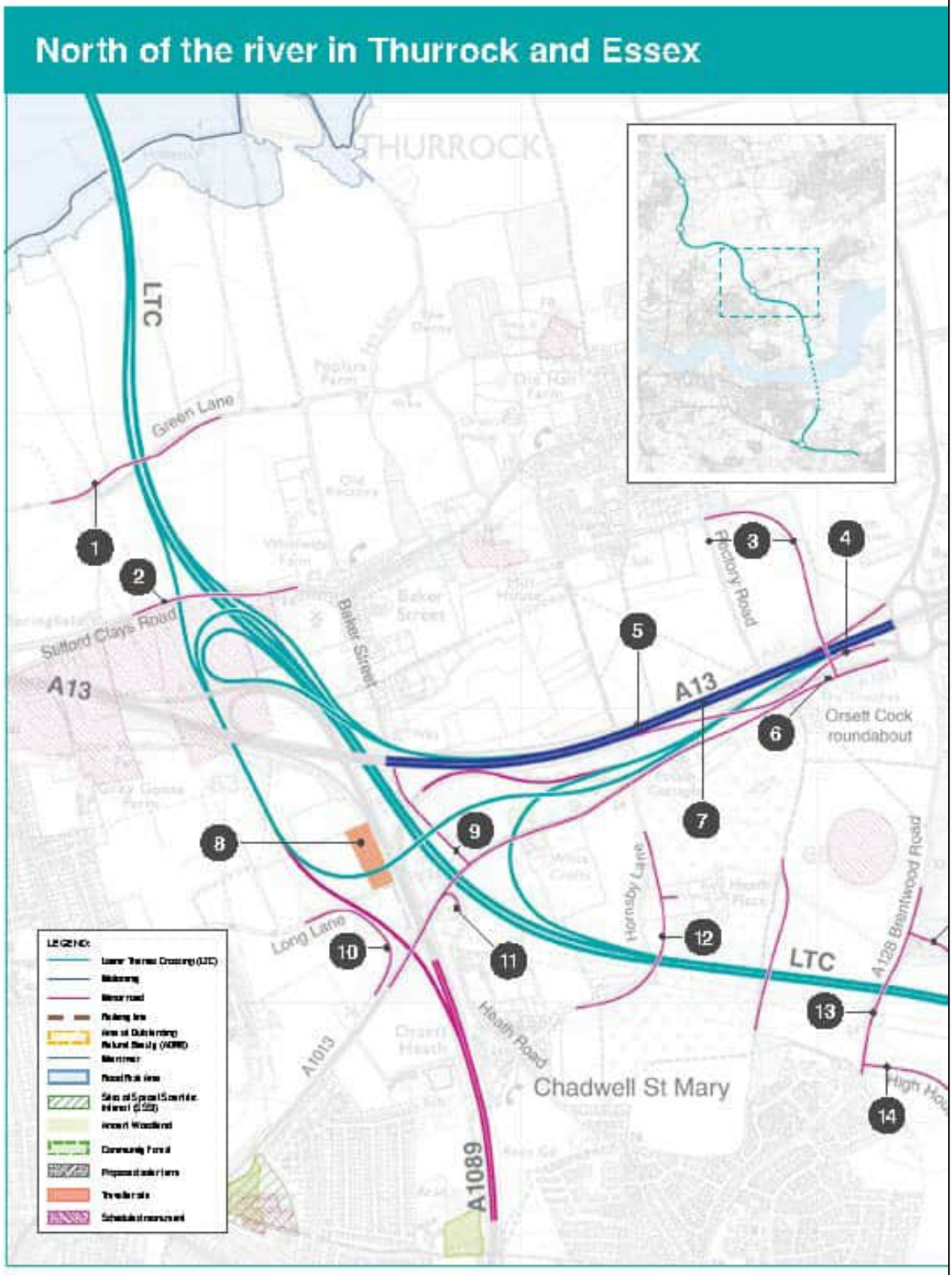
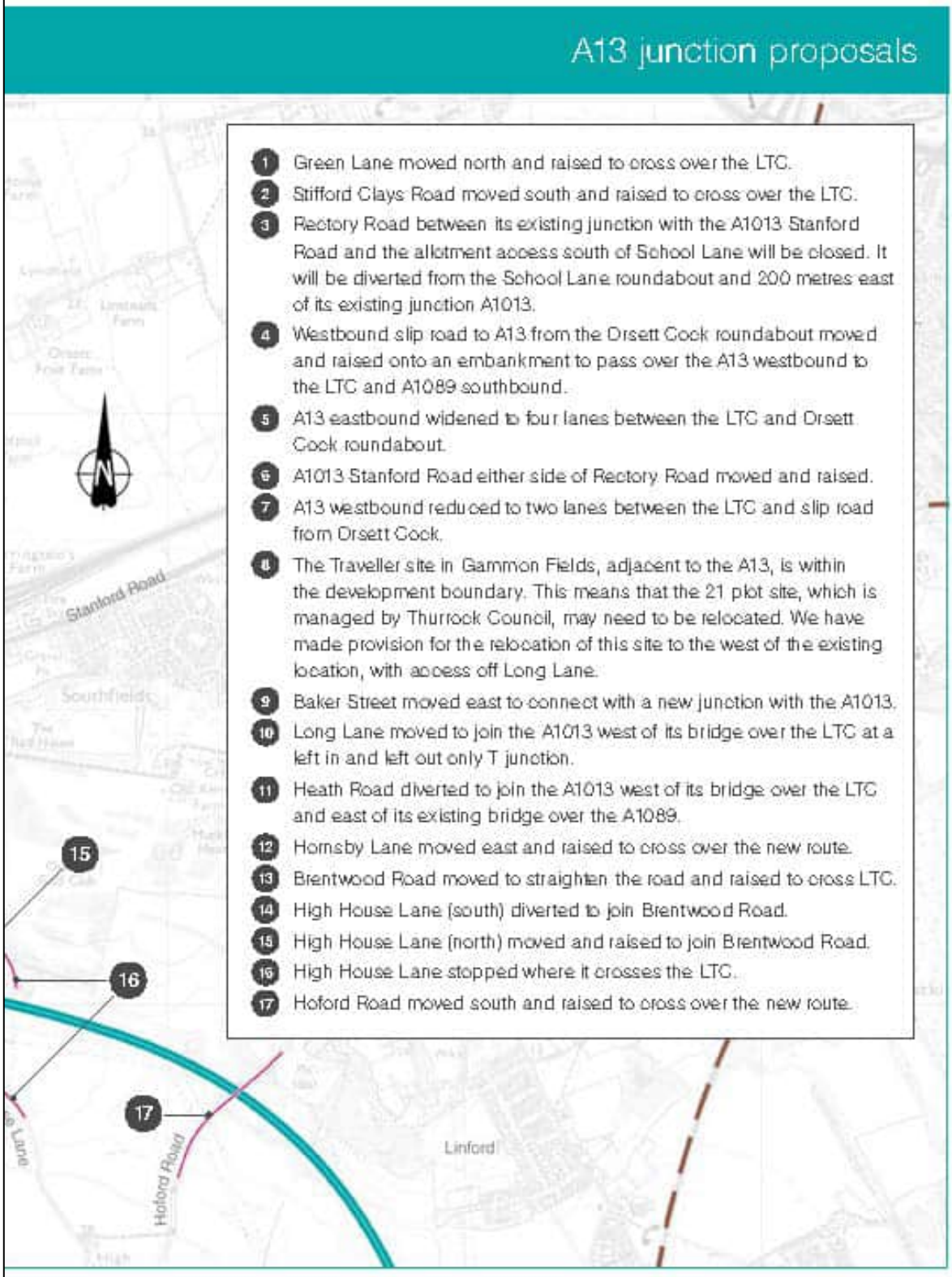
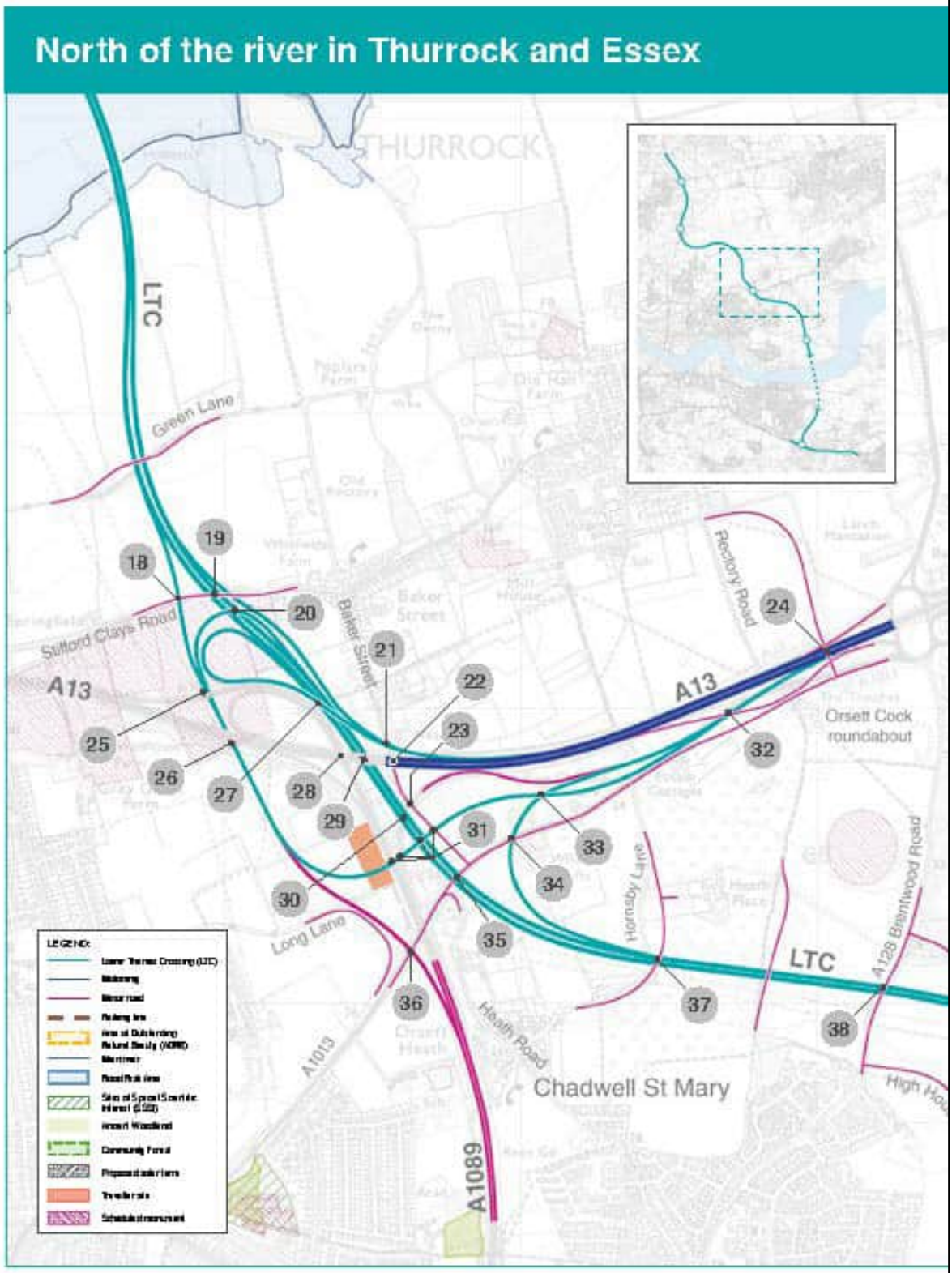
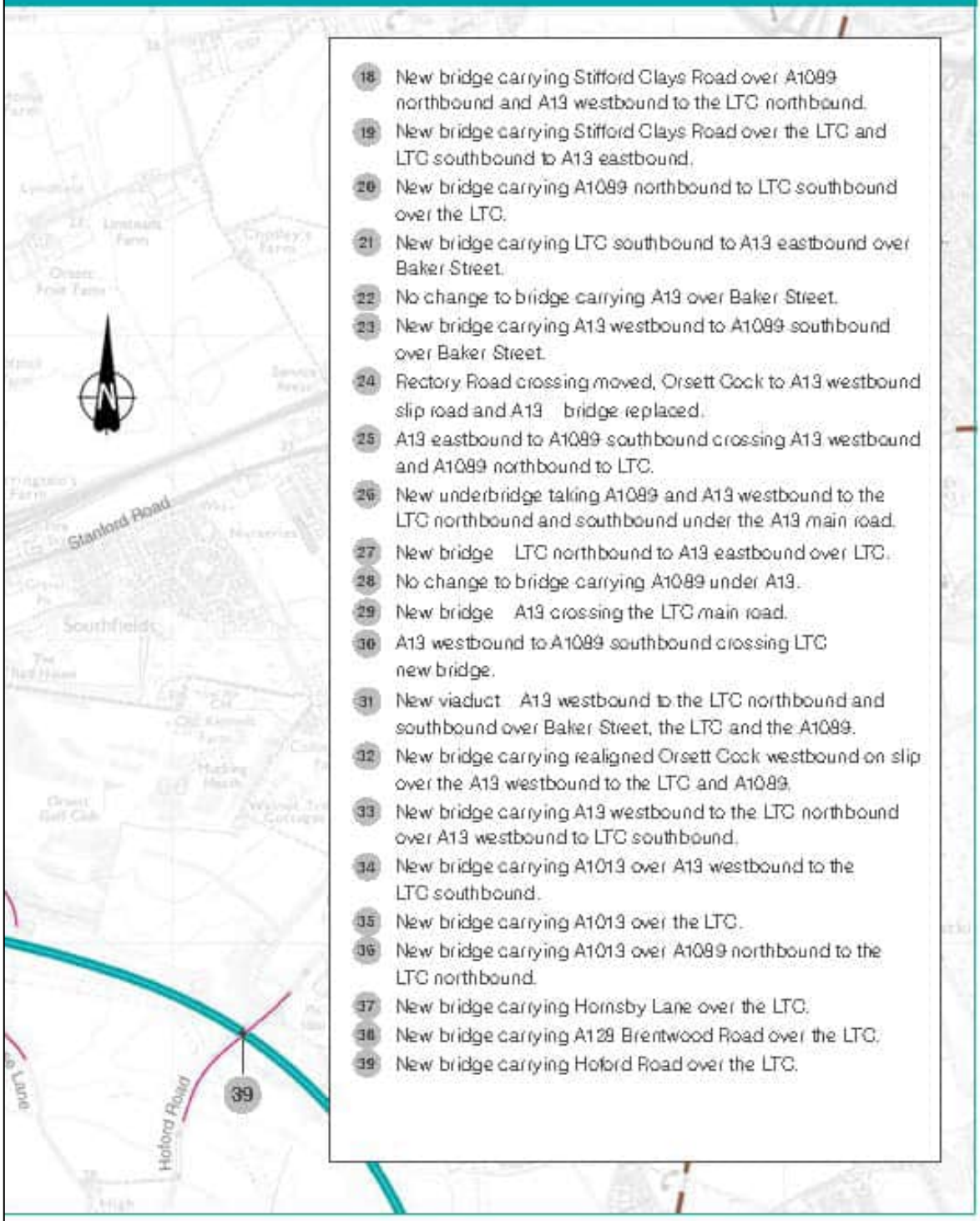






A13 junction proposals – structures



18 New bridge carrying Stifford Clays Road over A1089 northbound and A13 westbound to the LTC northbound.
19 New bridge carrying Stifford Clays Road over the LTC and LTC southbound to A13 eastbound.
20 New bridge carrying A1089 northbound to LTC southbound over the LTC.
21 New bridge carrying LTC southbound to A13 eastbound over Baker Street.
22 No change to bridge carrying A13 over Baker Street.
23 New bridge carrying A13 westbound to A1089 southbound over Baker Street.
24 Rectory Road crossing moved, Orsett Cock to A13 westbound slip road and A13 bridge replaced.
25 A13 eastbound to A1089 southbound crossing A13 westbound and A1089 northbound to LTC.
26 New underbridge taking A1089 and A13 westbound to the LTC northbound and southbound under the A13 main road.
27 New bridge LTC northbound to A13 eastbound over LTC.
28 No change to bridge carrying A1089 under A13.
29 New bridge A13 crossing the LTC main road.
30 A13 westbound to A1089 southbound crossing LTC new bridge.
31 New viaduct A13 westbound to the LTC northbound and southbound over Baker Street, the LTC and the A1089.
32 New bridge carrying realigned Orsett Cock westbound on slip over the A13 westbound to the LTC and A1089.
33 New bridge carrying A13 westbound to the LTC northbound over A13 westbound to LTC southbound.
34 New bridge carrying A1013 over A13 westbound to the LTC southbound.
35 New bridge carrying A1013 over the LTC.
36 New bridge carrying A1013 over A1089 northbound to the LTC northbound.
37 New bridge carrying Hornsby Lane over the LTC.
38 New bridge carrying A128 Brentwood Road over the LTC.
39 New bridge carrying Hoford Road over the LTC.

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A13 junction connections

The maps below show connections that can be made from the A13 junction shown on page 60.

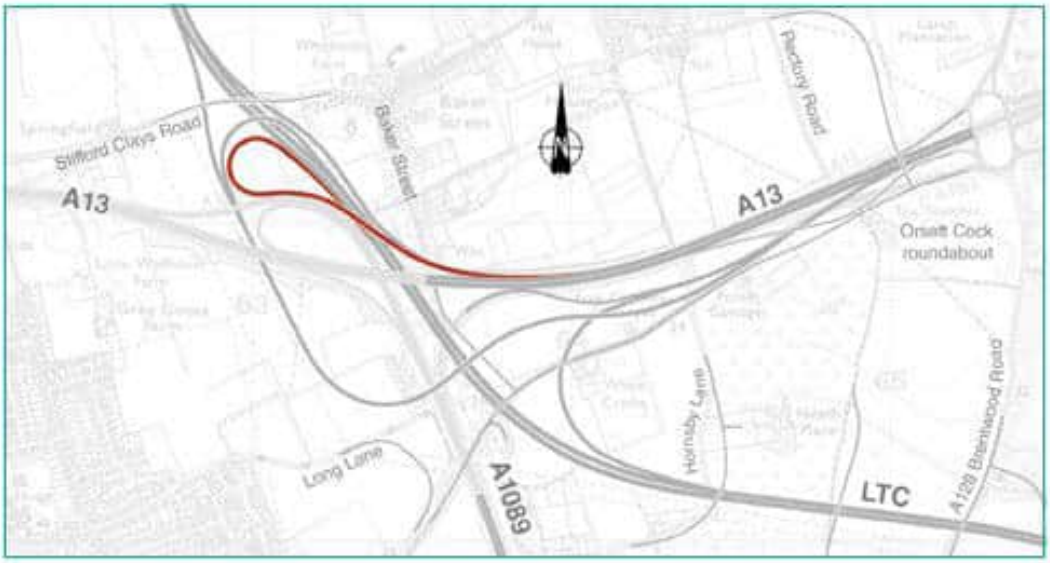

Figure 5 25. **LTC northbound to join the A13 eastbound.** This connection will start in a cutting before rising to cross the LTC and merge with the connection from the LTC southbound on an embankment, passing over Baker Street and joining the A13

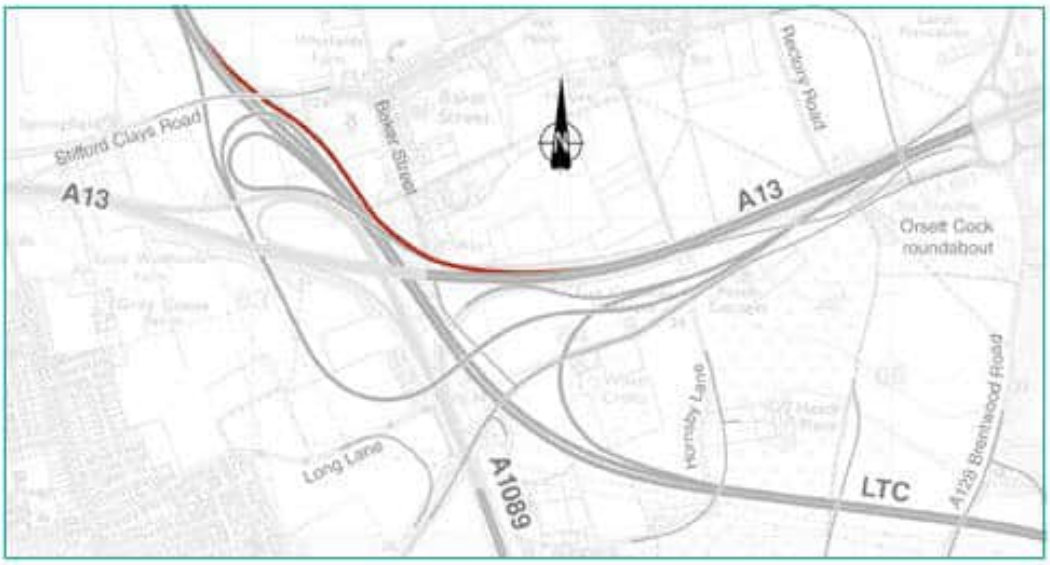

Figure 5 26. **LTC southbound to join the A13 eastbound, joins with the connection from LTC northbound (figure 5-25).** This connection will start in a cutting to pass under Stifford Clays Road before merging with the connection from the LTC northbound, passing over Baker Street and joining the A13

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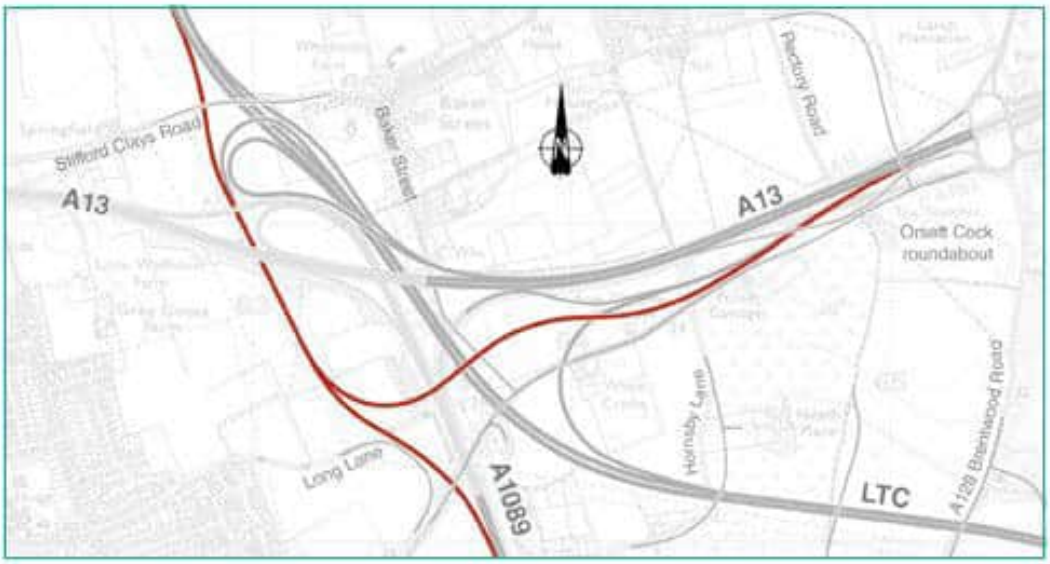

Figure 5.27. **Joining the LTC northbound from the A13. Traffic leaving the A1089 northbound also joins this connection.** This connection is in a cutting as it leaves the A13 at Orsett Cock. It travels under the realigned Orsett Cock roundabout A13 westbound on slip road, over the A13 westbound to the LTC southbound and the A1089. It is in a cutting to pass under the A13 and Stifford Clays Road and joins the LTC northbound

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A13 junction connections

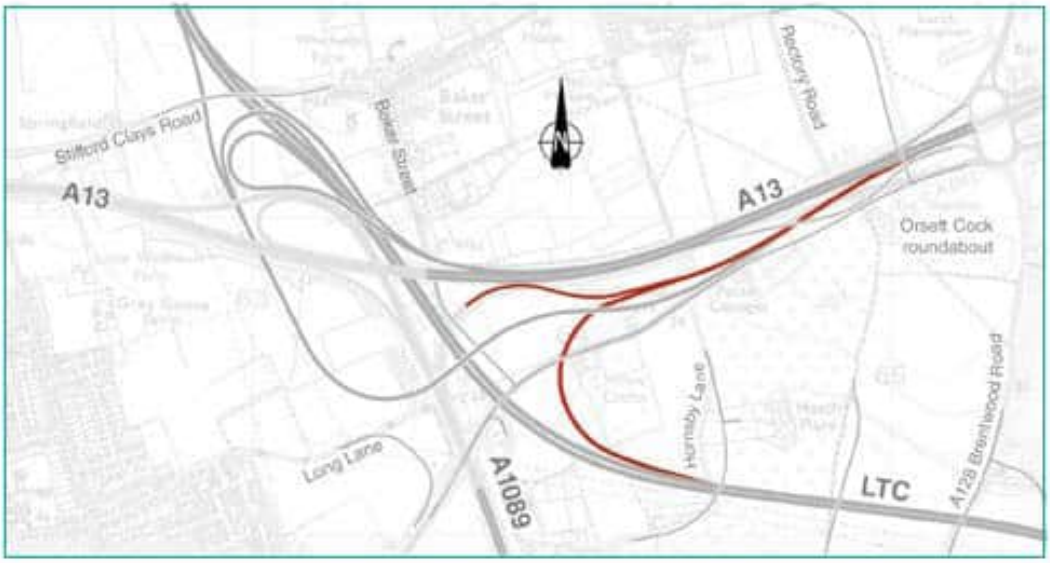

Figure 5 28. **Leaving the A13 westbound to join the LTC southbound joins a connection to A1089 southbound (this will require changes to the existing A13 westbound to A1089 southbound slip road).** This connection leaves the A13 westbound in a cutting under the realigned Orsett Cock roundabout A13 westbound on slip road. It is also in a cutting beneath the A13 to the LTC northbound and the A1013 before joining the LTC

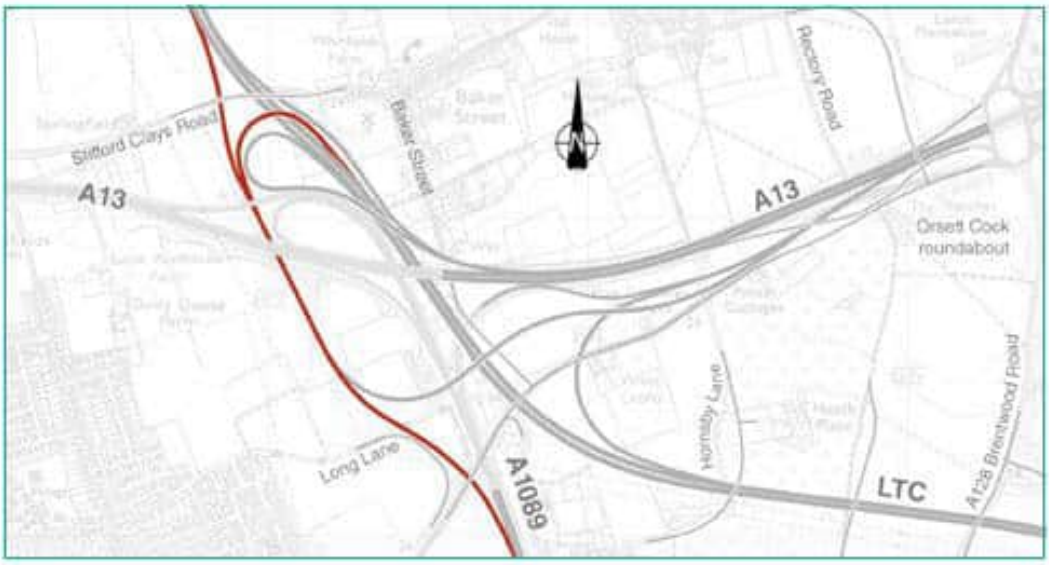

Figure 5 29. **Leaving the A1089 northbound to join the LTC northbound and southbound.** This connection leaves the A1089 in cutting under the A1013, remaining in a cutting to pass under the A13 and Stifford Clays Road, then joins with the LTC northbound. The LTC southbound connection diverges after passing under the A13 and crosses over the LTC to merge on the left.

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Traffic from the Port of Tilbury

Northbound (A1089) traffic from the Port of Tilbury would access the Lower Thames Crossing directly by using the new free-flow link roads at the A13 junction to go north or south.

Southbound (A1089) traffic wanting to access the Port of Tilbury would use the existing free-flow connections between the A13 and A1089 junction.

Traffic travelling northbound or southbound on the Lower Thames Crossing and wanting to access the port would have to come off at the A13 junction and travel east along the A13 to Manorway Roundabout, three miles away, and u-turn to use the existing A13 and A1089 junction.

A13 junction images

Figure 5.30. Existing view from Baker Street looking west towards the A13 junction

Figure 5.31. Proposed view from Baker Street looking west towards the LTC/A13 junction showing more vegetation shielding the view and reducing noise from the road

Figure 5 32. Existing view from Brentwood Road looking north west towards the A13 junction

Figure 5 33. Proposed view from Brentwood Road looking north west towards the LTC/A13 junction showing realigned pylons

LTC/M25 junction

The route would continue across the Mardyke river and Golden Bridge Sewer. It would then connect with the M25. The junction with the M25 will be located just under two miles (3km) south of junction 29 on the M25, near Dolendon Road.

The junction will have slip roads for northbound LTC traffic to join the M25 and southbound M25 traffic to join the LTC.

A short section of the M25 will be reduced from four lanes to three lanes.

Improvement work will also be carried out on the M25 between the new junction and junction 29.

Figure 5 34. Existing M25 junction looking north

Figure 5 35. Proposed LTC/M25 junction looking north

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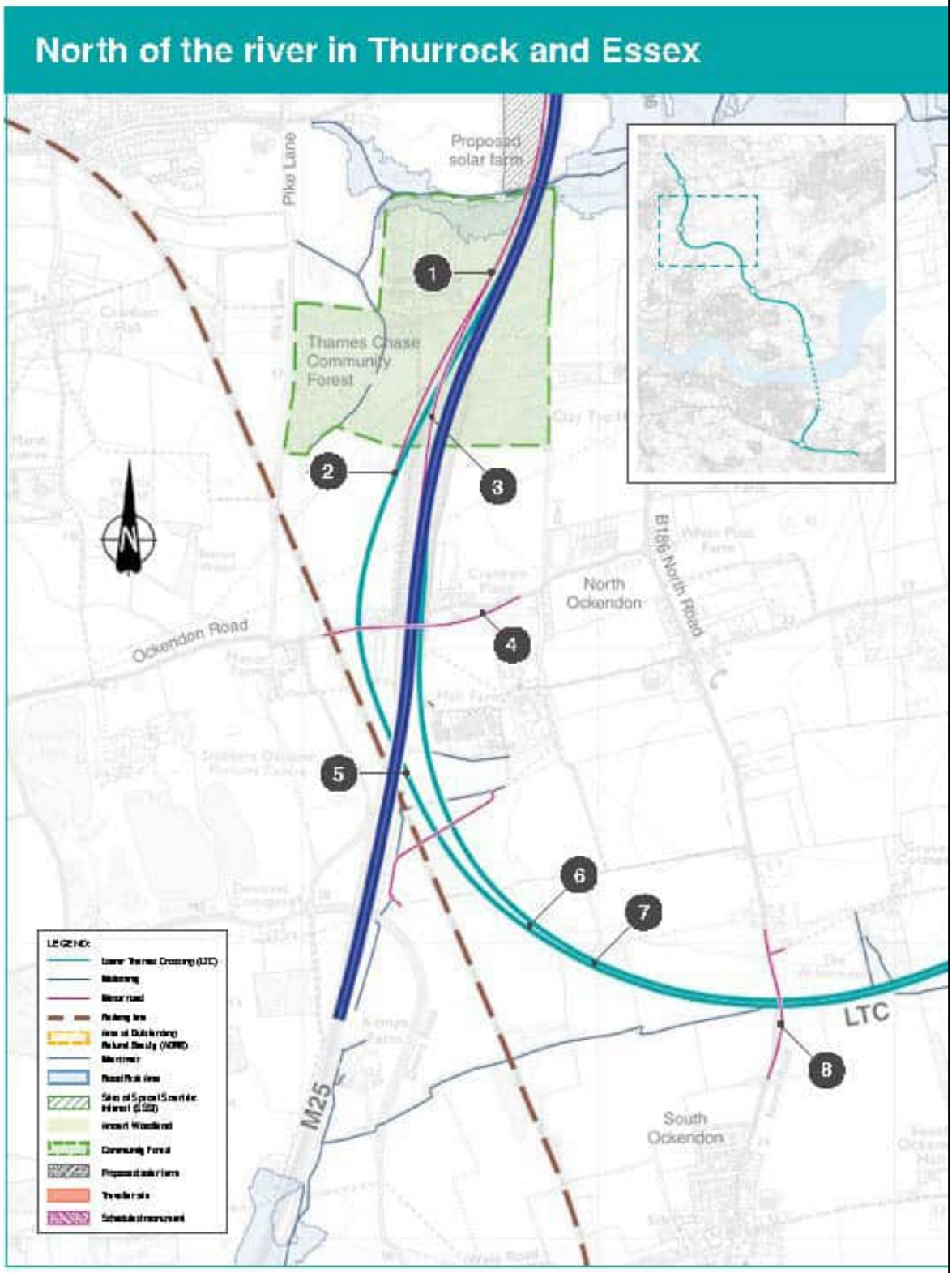

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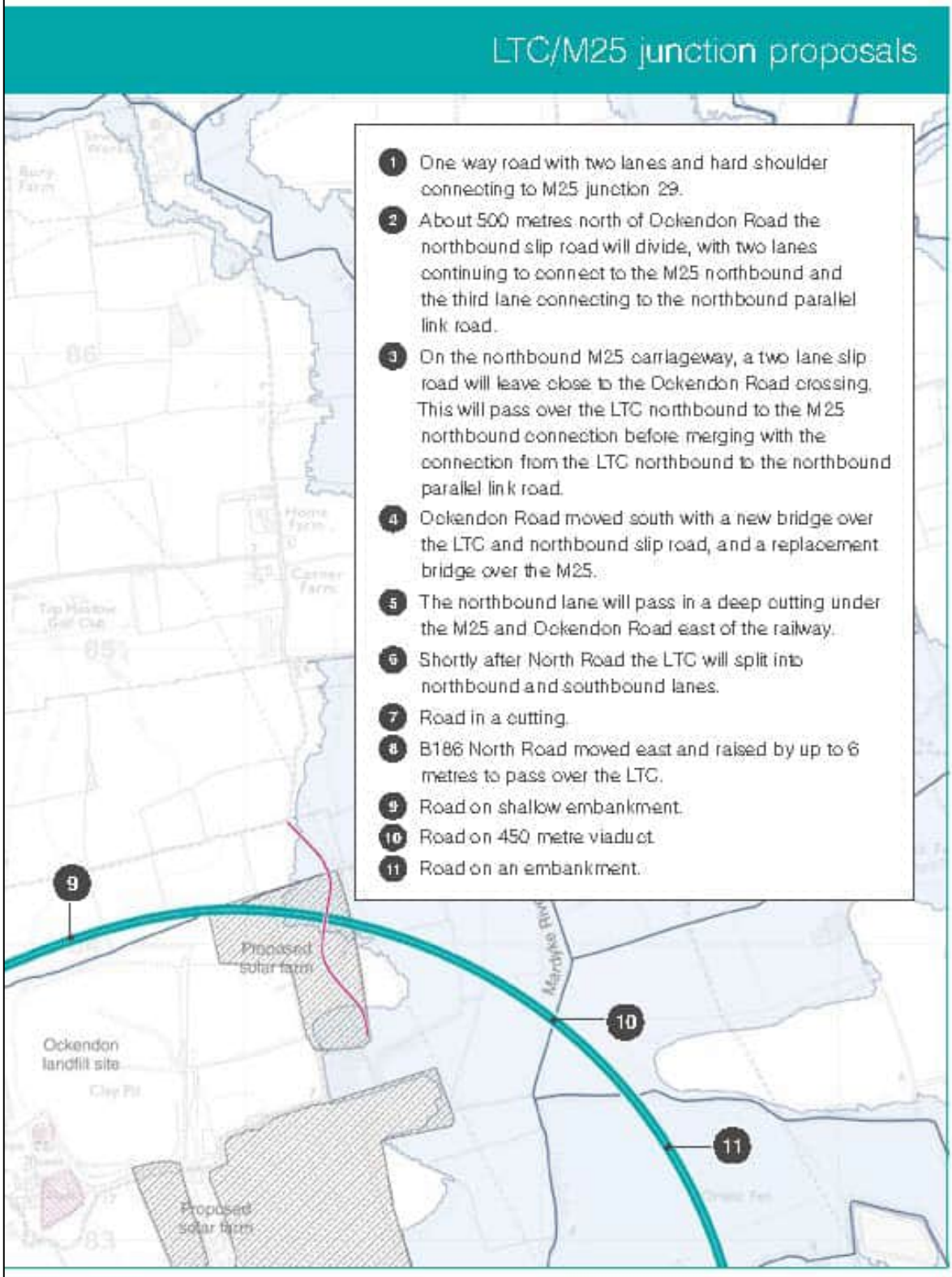

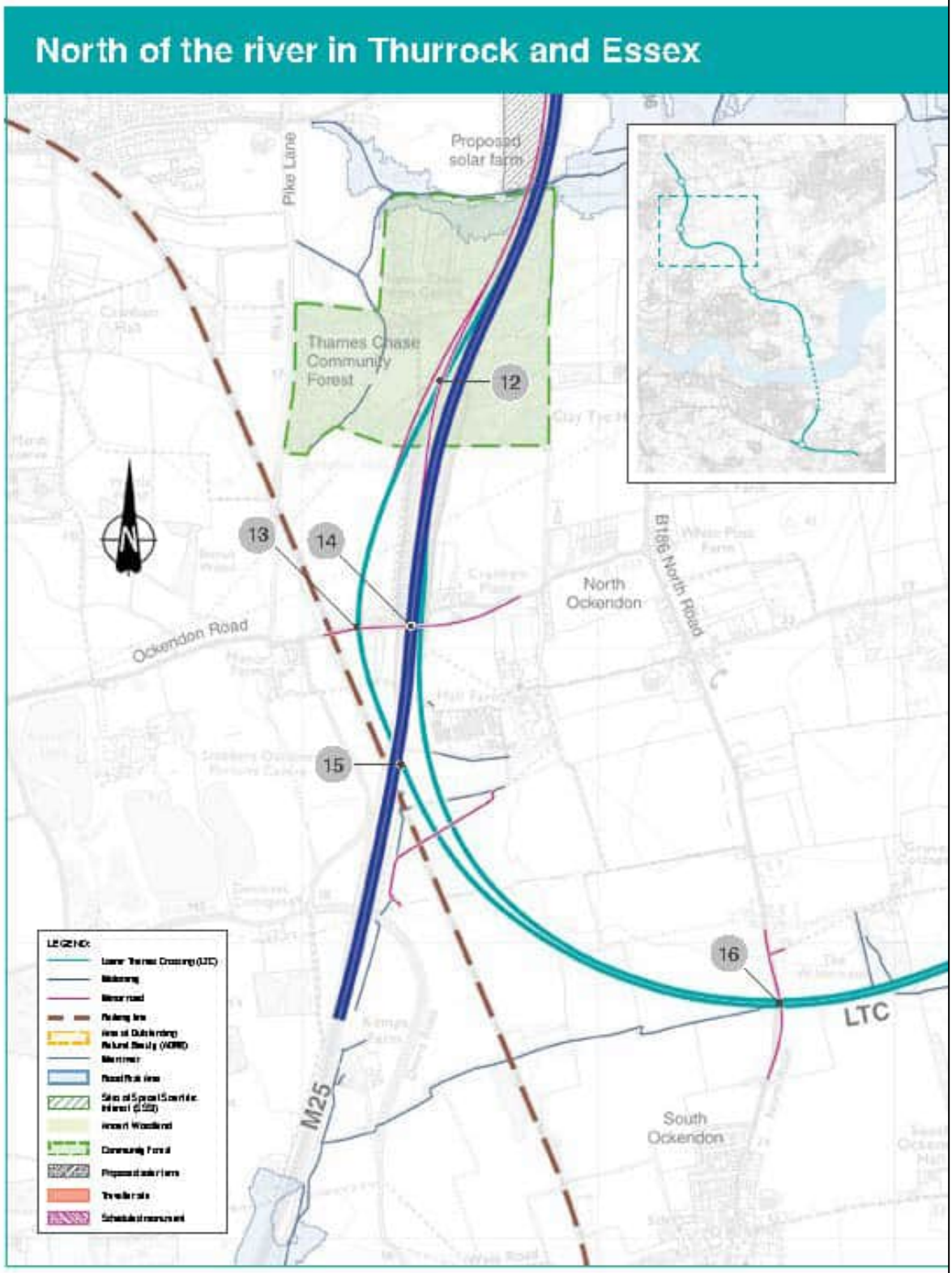

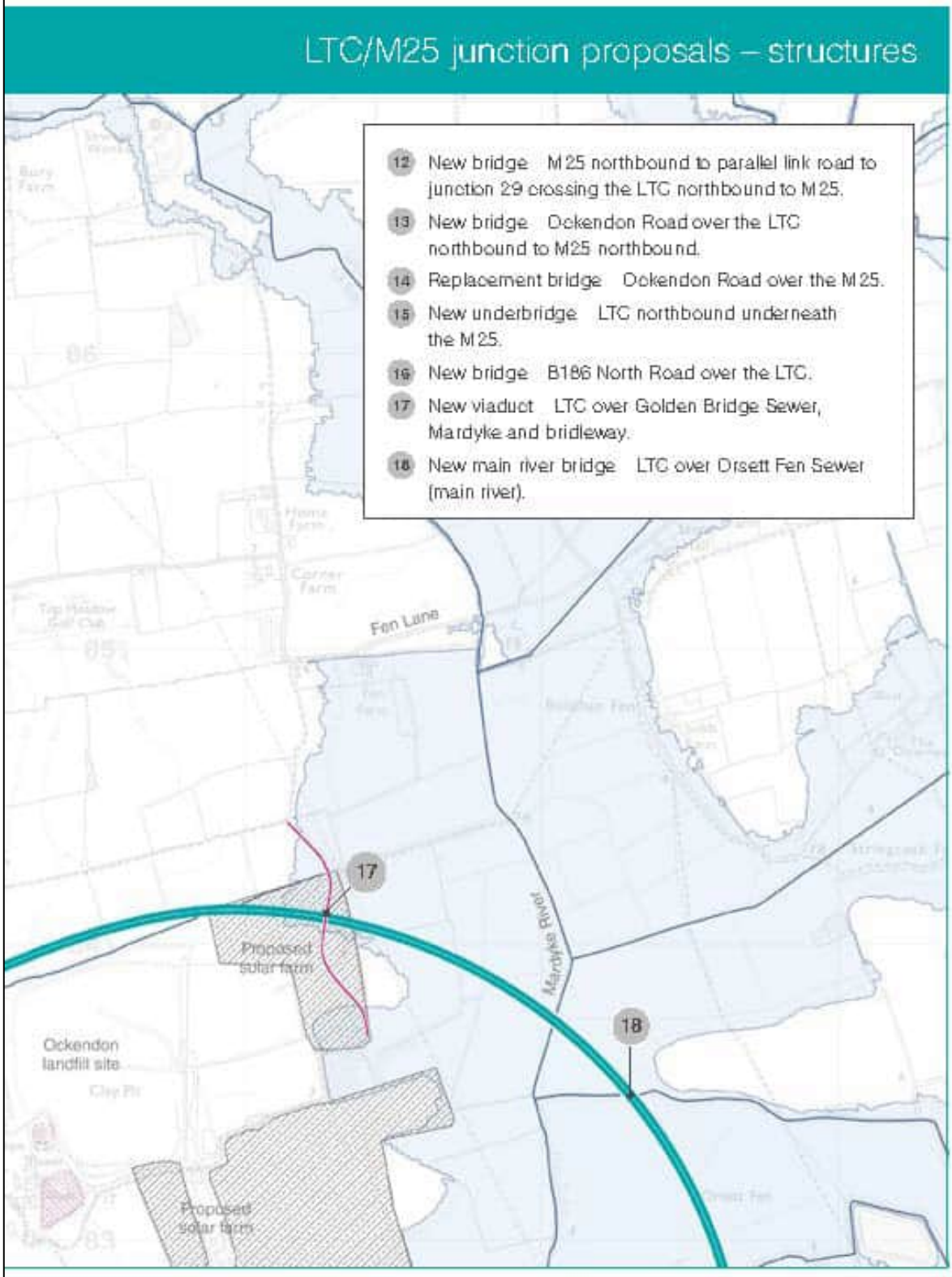

LTC/M25 junction images

Figure 5.36. Existing Mardyke Valley, looking north east

Figure 5.37. Proposed LTC viaduct over Mardyke Valley, looking north east

M25 junction 29

Beyond the northern section of the Lower Thames Crossing, improvement and modification works will also be needed at junction 29 on the M25 and to the north of junction 29.

The M25 through junction 29 will be widened from three lanes to four in both directions with hard shoulders.

The connections of the north facing slip roads at this junction will be changed because of the widening through the junction. Changes will also be carried out at the existing junction 29 roundabout.

Figure 5 38. Existing view of M25 between junction 29 and 30, looking north

Figure 5 39. Proposed M25 between junction 29 and 30, looking north

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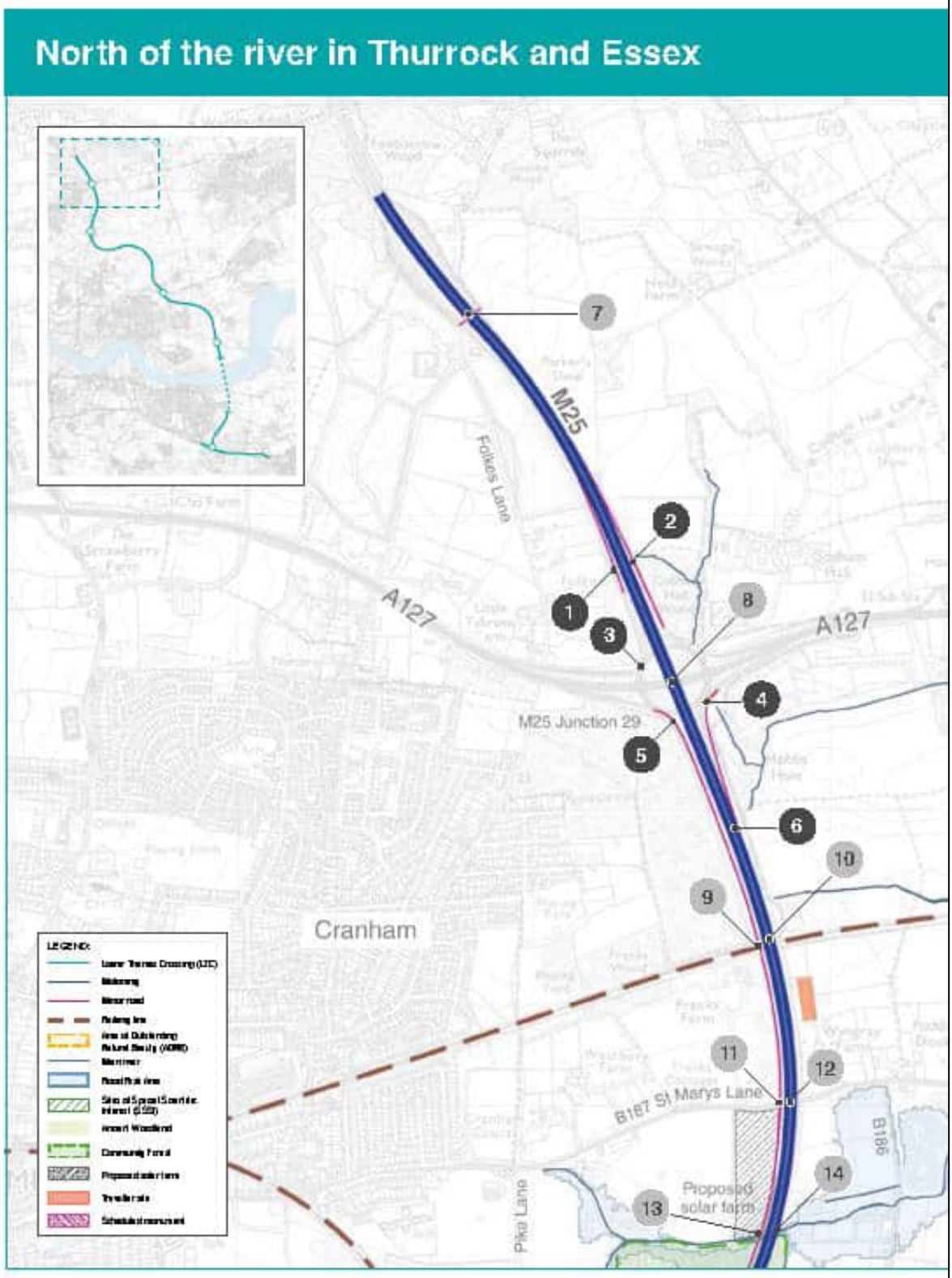

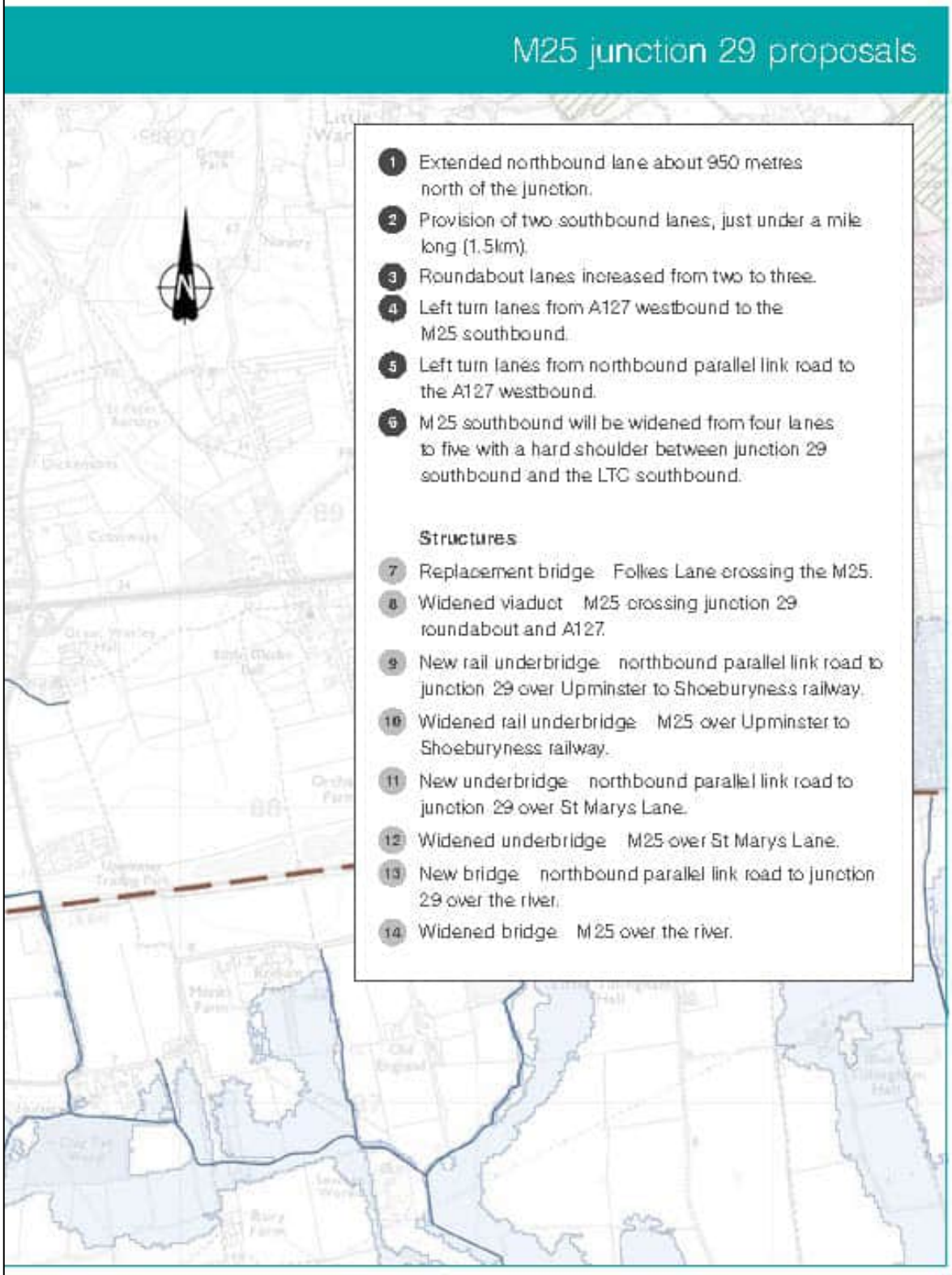

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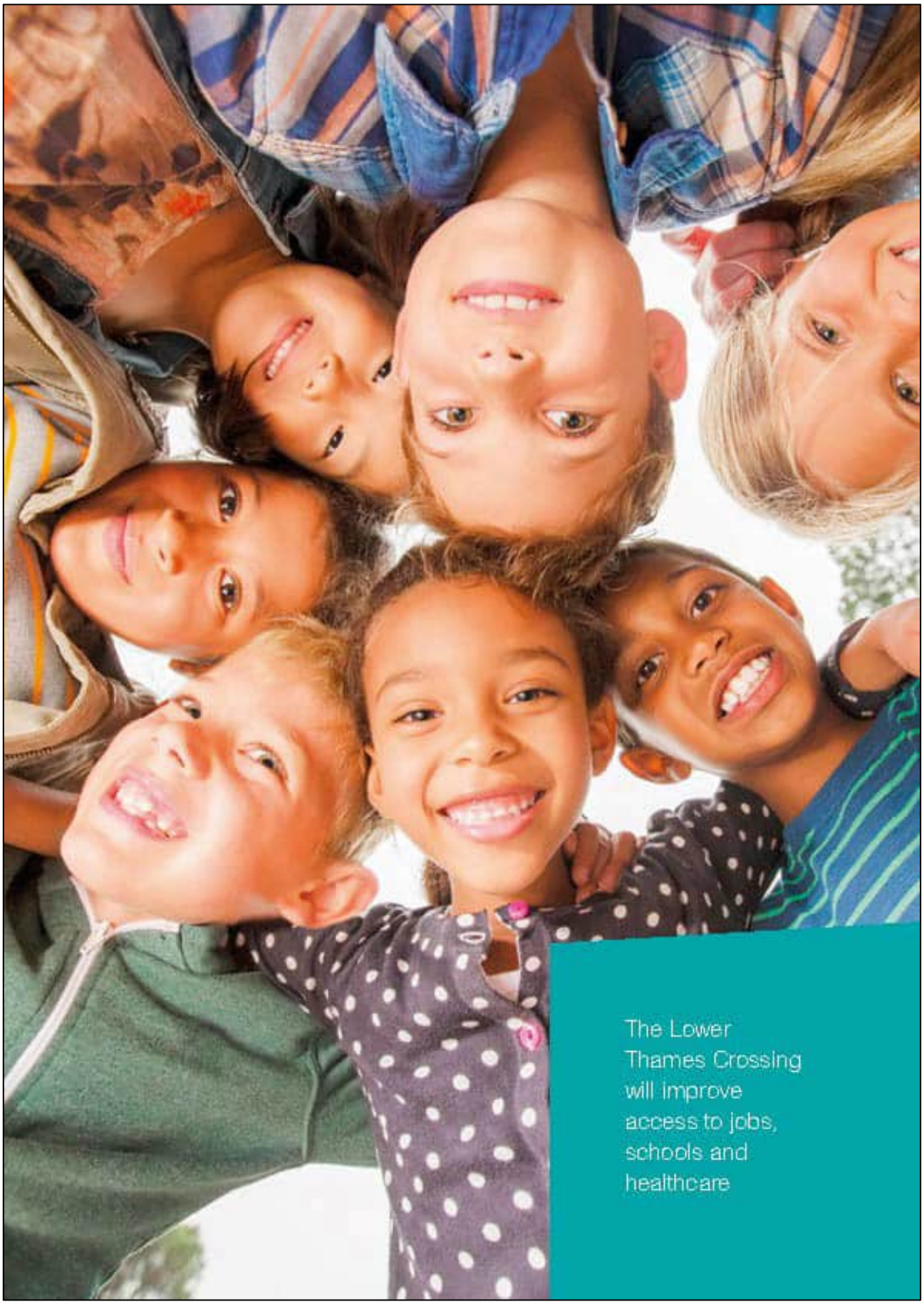
Local communities, landscapes and the environment

We are designing much more than roads and a tunnel. We are considering how everyone will see, hear, feel and respond to the Lower Thames Crossing. This includes local communities, people who will use the crossing and other road users such as pedestrians, cyclists and horse riders.

Talking with the people who will use the route to better understand their needs and concerns is central to our plans. We are working closely with residents, community groups, businesses, local authorities and other organisations to make sure we develop the right proposal for the crossing during construction and after. This includes making sure we:

- limit negative health and environmental effects – including air quality, noise levels and protecting areas of open space
- improve access to jobs, schools and healthcare facilities
- assess how communities and road users will be affected, for example how the works may change travel routes
- investigate how walkers, cyclists and horse riders will be affected
- do not discriminate against anyone and minimise disadvantages to communities affected by the route

We are also working with the Institute of Transport Studies at Leeds University – a globally respected academic facility and one of the UK's leading centres for teaching and research in transport. The teams there are offering us independent advice on transport studies and how we assess community impacts.



Property and landowners

We are already talking with landowners and occupiers affected by the Lower Thames Crossing and we will continue to work closely with them. We understand that if you live in the area, you will have concerns about how the project may affect you – and we will provide all the help and support we can.

While significant areas of land are required for the scheme, we are seeking to reduce the impact on landowners. We are talking to landowners at every stage to understand their specific concerns.

We have set out a development boundary that outlines the land we may need

We have set out a development boundary, pictured opposite, that outlines the extent of the land we may need. Since the preferred route was announced in April 2017, we have contacted people whose land or property we believe is within the boundary. Our dedicated team is working with them to explain the proposals and rights they may have.

Within this boundary, some of the land along the route of the new road will be needed permanently and other areas, such as construction sites or land needed to divert utilities including power lines or gas pipes, may only be needed temporarily.

When work is complete, any land that is not needed permanently or for environmental purposes will be returned to its previous use wherever possible.

Have your say

To comment on the development boundary, answer question 7 in the response form.

There is more information about the compulsory purchase process and when compensation may be available in the Highways England publications listed below. To access them, go to **www.lowerthamescrossing.co.uk** and click on 'In my area'. If you are not able to access them online, get in touch using the contact details at the back of this guide and we will send you the information.

Your Property and Blight
Information for property owners within the development boundary

Your Property and Discretionary Purchase
Information for those who live outside the development boundary but may need to sell their property

Your Property and Compulsory Purchase
How compulsory purchase works

Find out more

To look at the development boundary and the land affected, see Map Books 1 and 2.

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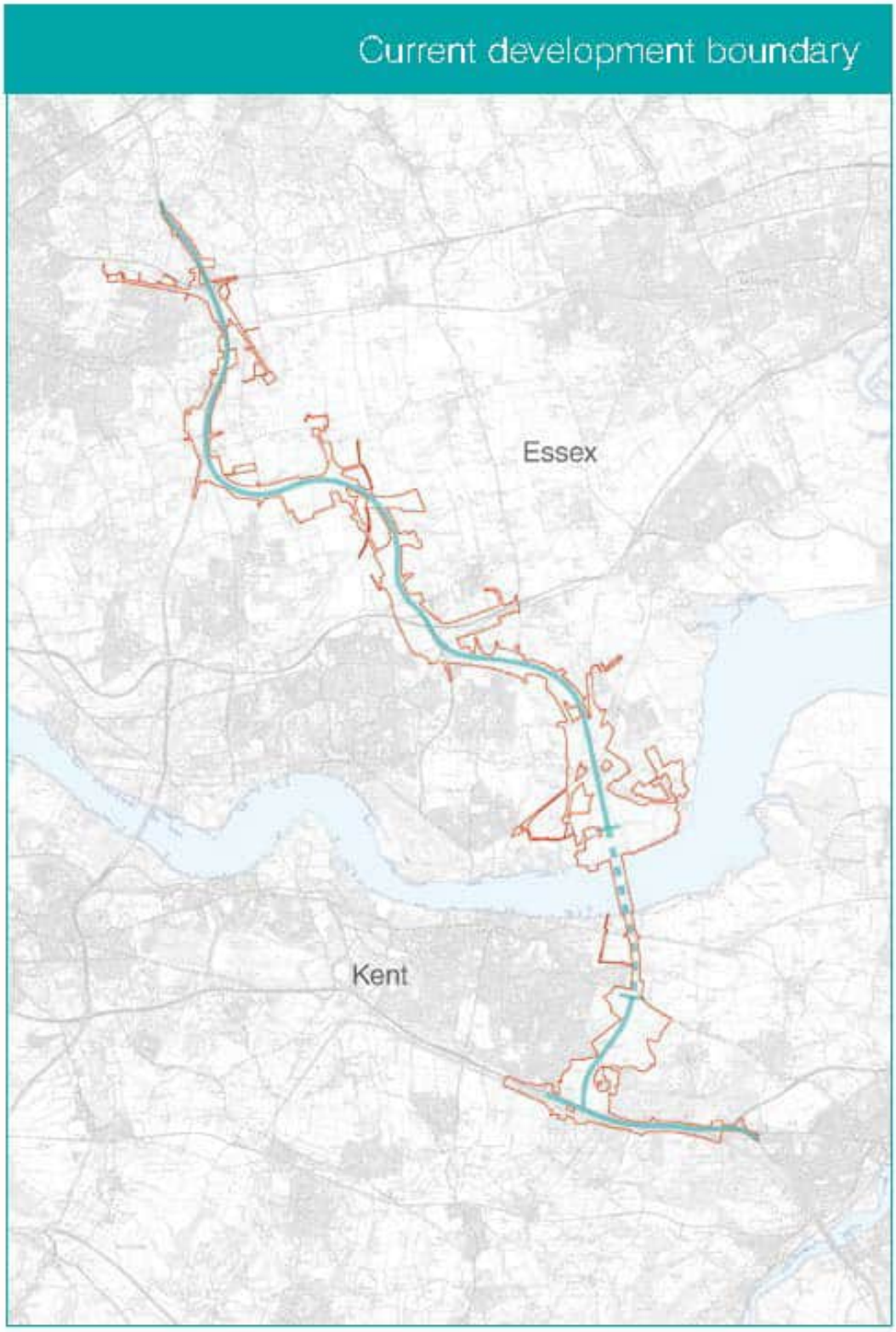

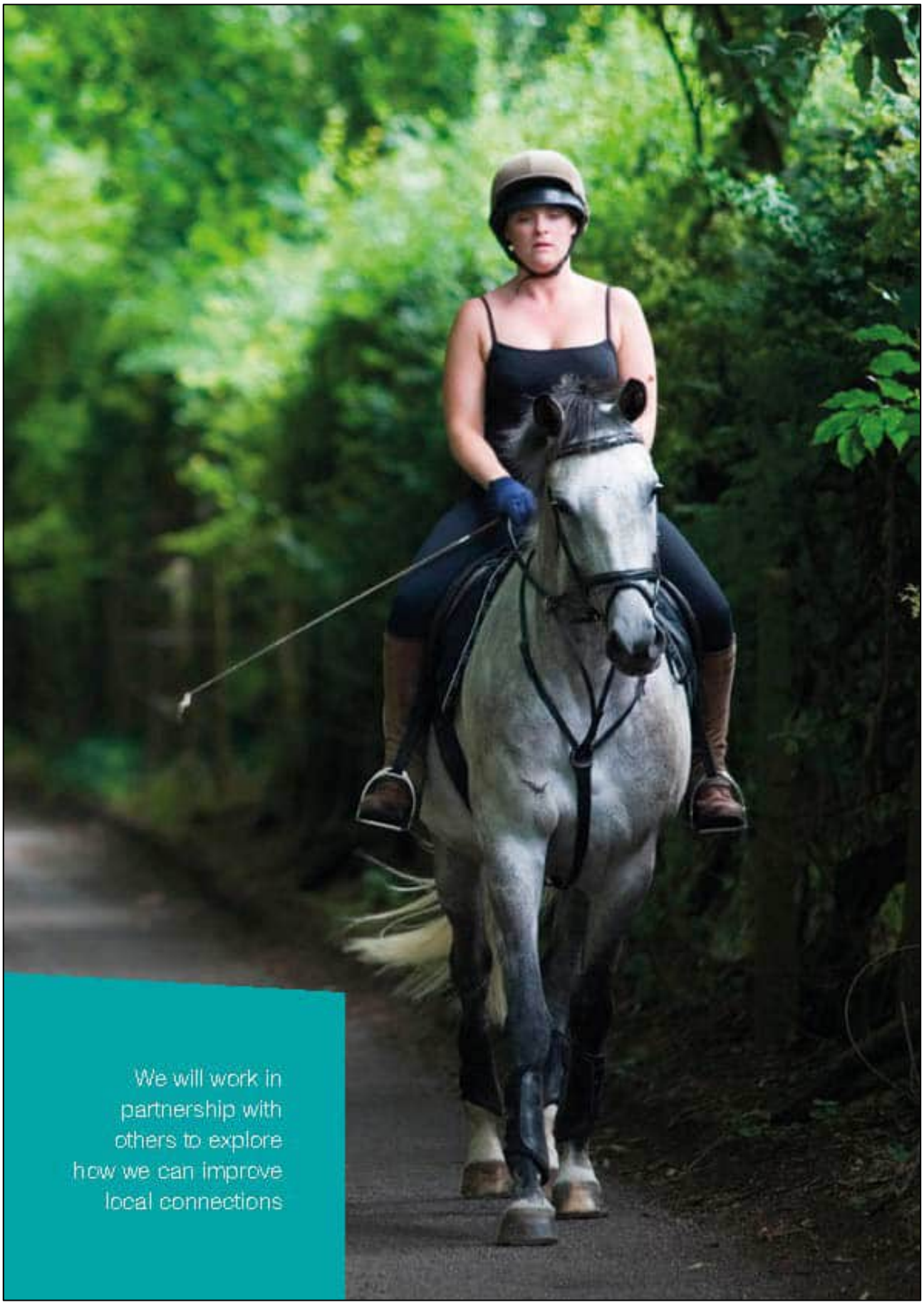

We will keep disruption to rights of a way to a minimum during construction

Walkers, cyclists and horse riders

The Lower Thames Crossing is a motorway and will have the same restrictions, which means walkers, cyclists and horse riders will not be allowed to use the tunnel or road.

If footpaths, bridleways and cycle paths along the route are affected by the Lower Thames Crossing, we will reinstate them where practicable when construction is complete to ensure people continue to enjoy access to the landscape. Throughout the design process we will look to improve and enhance these routes as we consider how they will be affected.

During construction, we will keep disruption to public rights of way used by walkers, cyclists and horse riders to a minimum, by limiting full route closures and providing alternative routes. Wherever a right of way is affected, we will provide a nearby alternative.

Throughout the project, we will work in partnership with local authorities and community interest groups to explore how we can improve accessibility and local connections.

Have your say

To comment on rights of way for walkers, cyclists and horse riders, answer question 5 in the response form.

Find out more

To find out more about how walking, cycling and horse riding routes are affected, see Map Book 1.

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A number of green bridges are being considered

Landscape

We want to develop a project that respects, and responds to, its local context and history. We are carefully designing the landscape along the route, including the structures we intend to build such as bridges, viaducts, buildings and a proposed rest and service area.

Structures along the route will be designed to blend in with local surroundings as sympathetically as possible. A number of green bridges are being considered with features such as timber barriers and bollards, gravel, coppice woodland, ground cover planting and shrubs. We will also keep the road as low as possible within the landscape and use natural screening.

We will use landscaping, embankments and noise barriers to reduce noise pollution, and we will relocate some wildlife and create new habitats for protected species before we start construction works that would affect them.

Once we have analysed all the feedback from this consultation, we will put together an Environmental Statement that assesses the likely significant environmental effects of the project, drawing on consultation responses and further survey and design work. This will support our DCO application.

Did you know?

A green bridge is designed to carry a road or public right of way that has landscaped features added to improve its appearance and to maintain or link habitats.

Landscape areas explained

Figure 6.1.
Ramsar site:
A wetland of international importance.

Figure 6.2.
Site of Special Scientific Interest:
Provides statutory protection for the best examples of the UK's flora, fauna or geological or physiographical features.

Figure 6.3.
Area of Outstanding Natural Beauty:
To conserve areas of natural beauty which includes wildlife features, cultural heritage, landscape and scenery.

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The changing landscape

We have divided the route into eight sections to show the changing landscape along the proposed route.

Shorne woodlands

The A2 is near this heavily wooded high ground of the North Downs. We will add a junction and widen this section of the A2.

Chalk sloping farmland

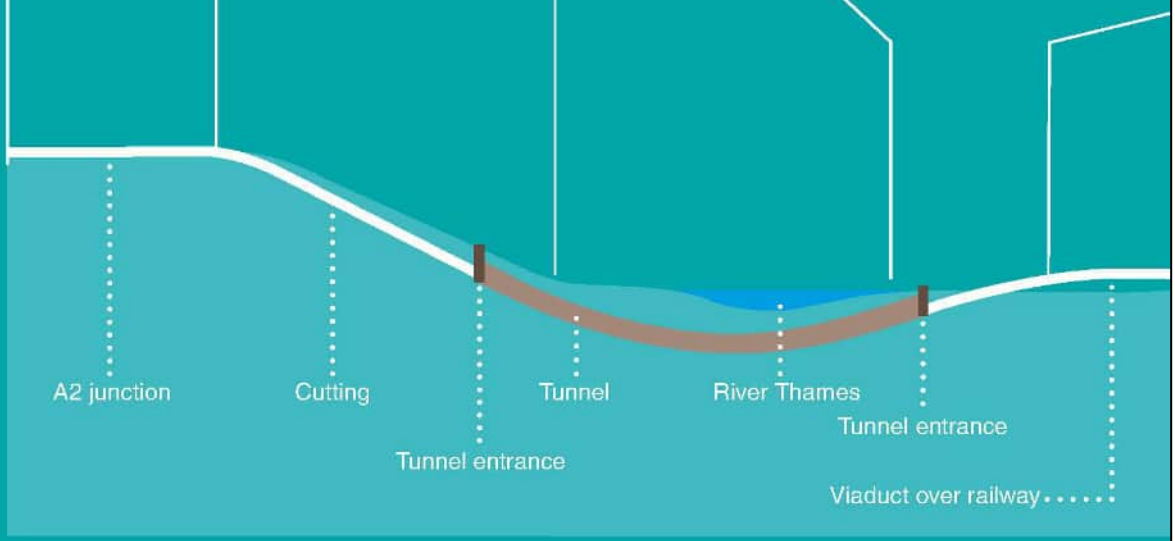
This area, mainly arable farmland, slopes from the A2 down to the marshes on the south bank of the Thames between the village of Thong and the edges of Gravesend. We will build slip roads north of the A2, and a 25-30 metre cutting leading to the tunnel entrance.

Shorne Marshes and Thames

The River Thames and the marshland area along its south bank is protected by national and international biodiversity designations. We will tunnel beneath this entire area.

Tilbury Marshes

The tunnel entrance will be in this low lying, flat drained marshland on the north bank of the Thames. At its north edge, we will build a junction giving access to a proposed rest and service area and maintenance depot.



We are carrying out surveys to understand the wildlife in the local area

Protecting the environment

Our countryside is home to many plants, animals and habitats, and several of them are protected by law. Knowing exactly where these species are is vital to making sure we can protect them and their habitats. We are carrying out detailed surveys already to understand wildlife populations and movements, and identify how best to avoid or reduce effects on protected areas, riverside marshes and the river bed.

We are carrying out surveys in lots of different ways, from walking across the land and looking for animals to taking water samples, drilling bore holes and digging trenches to look at the ground. We are even using a helicopter and drones to map the contours of the land.

Our landscape, air quality and noise assessments will also help us to understand and minimise potential effects on people. This includes reducing the effects of traffic noise such as using low noise road surfaces or keeping the road as low as possible within the landscape and using natural screening and cuttings.

Our surveys will continue to make sure we have as much information as possible to help us make the right decisions about the design of the crossing.

Find out more

As part of our consultation we have produced a Preliminary Environmental Information Report (PEIR) and a summary to help people understand the effects of the proposed development.

Managing the environmental impacts

We are carrying out an Environmental Impact Assessment to consider the effects of the proposed route, and to meet planning policy and legislation requirements. Our findings are set out in the Preliminary Environmental Information Report, and summarised below.

Aspect of the environment	Expected effects	What we are doing and why
Air quality Clean air is an essential ingredient for a good quality of life. The government is committed to meeting health-based air quality criteria for human health and for the protection of vegetation and ecosystems. There are several locations that currently exceed UK Air Quality Strategy objectives in the area around the proposed route. We must demonstrate that the project would not impact on the UK's ability to comply with the EU Ambient Air Quality Directive.	**Construction** ■ Temporary adverse effects related to dust and exhaust emissions impacting residential properties, schools, hospitals, ecological designated sites and other sensitive locations within 200m of the roads affected by the project. **Operation** ■ Beneficial effects on air quality in the Dartford Air Quality Management Area, around the approach to the Dartford Crossing. ■ Adverse effects on air quality experienced in other areas, although these are unlikely to cause air quality to exceed UK Air Quality Strategy objectives. The project is also unlikely to affect compliance with the EU Ambient Air Quality Directive.	**What we are doing** ■ We are continuing to assess the impact of the project on air quality, both during and after construction. ■ We have identified potential measures to control and minimise construction dust such as maintaining all dust control equipment in good condition, using waste water for dust suppression, and cover seed or fence stockpiles. **Why** ■ To understand the full effect of the project, including any likely improvements to air quality. ■ To reduce any adverse effects of construction.

Have your say

To comment on the environmental aspects of the project, answer question 6 in the response form.

Aspect of the environment	Expected effects	What we are doing and why
Noise and vibration The route will pass close to populated areas, and rural areas with outlying dwellings. There are 26 Noise Important Areas within the study area. These are areas capturing the top 1% of the population that are affected by the highest noise levels from major roads in England.	**Construction** ■ Temporary adverse noise impacts from activities such as using construction machinery, tunnelling activities, temporary road closures and diversions, and site deliveries. ■ Temporary adverse vibration effects from piling activities and the tunnel boring machines. **Operation** ■ Permanent adverse effects experienced as short-term and long-term perceptible changes in road traffic noise levels. ■ Permanent localised adverse effects associated with the tunnel ventilation system.	**What we are doing** ■ We are continuing to assess the impact on noise levels and vibration, both during and after construction. ■ We will use best practice during construction to make sure we minimise any noise impacts, such as the careful location of our sites. ■ We will identify additional measures to control and reduce noise levels during construction where appropriate, such as using noise barriers. We will identify locations where measures such as noise barriers and low noise surfacing can reduce traffic noise levels once the new road is open. ■ We will identify appropriate measures to control noise from the tunnel ventilation system, using intelligent design and modern technology. **Why** ■ To understand the full effect of the project on noise and vibration. ■ Where possible to reduce adverse noise and vibration during construction. ■ To mitigate potential increases in levels of traffic noise caused by the project at sensitive locations such as residential properties, hospitals, care homes and schools. ■ To ensure the road and tunnel are operated and maintained in a considerate manner for communities.

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Aspect of the environment	Expected effects	What we are doing and why
Cultural heritage Cultural heritage influences how people relate to places and cultures, and can provide a sense of place and stability to a community. The study area holds a rich variety of heritage assets, including 17 scheduled monuments, 229 listed buildings, 14 conservation areas, two registered parks and gardens, as well as buried archaeology.	**Construction** ■ Permanent adverse effects to buried archaeological, Palaeolithic and palaeo-environmental remains, and geological deposits owing to physical damage, removal, compaction, or changes to groundwater levels. The Orsett Crop Mark Complex scheduled monument will mostly be removed. ■ Permanent adverse effects through the demolition of two listed buildings and activities within a registered park and garden. ■ Temporary adverse effects on the setting of heritage assets, including conservation areas, listed buildings and registered parks and gardens owing to the removal of vegetation screens, introducing new structures and movement of construction vehicles. **Operation** ■ Permanent adverse effects on heritage assets as a result of the new road, other structures and vehicles.	**What we are doing** ■ We are continuing our assessment work to develop a comprehensive picture of the archaeology and cultural heritage of the area by carrying out surveys and investigations before construction starts. ■ We have collected detailed records of any unknown archaeological remains that are uncovered during construction. ■ We have identified how we will limit the likely effects on the setting of heritage assets such as screening vegetation and careful earthworks design. ■ Where appropriate, bridges will be designed to take into account local landscape character and features. **Why** ■ To avoid or reduce any impacts, where possible, on conservation areas, listed buildings, monuments, archaeological remains, and registered parks and gardens. ■ To deal sensitively with unknown archaeological remains that may be uncovered during construction.

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Aspect of the environment	Expected effects	What we are doing and why
Landscape We recognise the importance of the landscape, not just in terms of its scenery or backdrop, but because it links culture with nature, and past with present. The Lower Thames Crossing will pass through a variety of landscapes including the Kent Downs Area of Outstanding Natural Beauty, green belt land, four National Character Areas and through or near to 23 local authority local character areas.	**Construction** ■ Temporary adverse impact on landscape character and tranquillity along the entire route, but most notably in the Kent Downs Area of Outstanding Natural Beauty, along the A2 corridor, Tilbury Marshes and Orsett Fen. ■ Temporary adverse visual effects for residential properties, visitors to heritage assets, and users of public rights of way, paths, the national cycle route network and other recreational land. **Operation** ■ Permanent adverse effects on landscape character, tranquillity and visual impact owing to the presence of the new road and resulting traffic.	**What we are doing** ■ We have lowered the road where possible to avoid the visual impacts for local communities. ■ We have worked into our plans design elements such as mounds, hills, trees and shrubs to help screen the road and vehicles from nearby properties and footpaths. ■ We are considering upgraded bridge structures (green and architectural) to blend into the existing landscape. ■ We are proposing using tunnel entrances and service buildings that reflect the local landscape/townscape and character of the area. ■ We will plan the location and layout of construction sites, access routes and associated night-time lighting to minimise impacts on nearby properties and footpaths. **Why** ■ To mitigate potential impacts on views and landscape character features, both during and after construction. ■ To maximise the opportunities to integrate the route with the landscape.

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Aspect of the environment	Expected effects	What we are doing and why
Biodiversity on land The conservation of biodiversity is important to maintain populations of the country's characteristic fauna and flora. There are several statutory internationally and nationally designated sites within the study area, as well as local nature reserves, local wildlife sites and ancient woodland areas.	**Construction** ■ Temporary adverse effects relating to habitat loss cause by site clearance and land take, noise, lighting, movements of construction vehicles, water or air pollution, contamination of soils, and tunnelling. ■ Temporary adverse effects on the functioning of the Special Protection Areas and Ramsar site owing to changes in the water regime. **Operation** ■ Permanent adverse effects on biodiversity on land from noise and visual disturbance from traffic and street lighting, pollution from surface water run-off and accidental spillages, changes in air quality and fragmentation of foraging habitat and key flight lines for species.	**What we are doing** ■ We are carrying out ecological surveys to fully understand where important flora and fauna are – and how they might be affected by the project. ■ We will relocate protected species, where necessary, to other sites before we start construction in that area. ■ We are continuing to work with relevant environmental and conservation organisations, and local authorities, to create new habitats as needed. ■ We have incorporated infrastructure, such as fencing and planting, to connect habitats either side of the route and to guide animals under, over and away from the road where possible. **Why** ■ To avoid or reduce the impact of the project on important habitats and protected species such as great crested newts, bats, water voles, reptiles, badgers and birds.

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Aspect of the environment	Expected effects	What we are doing and why
Marine biodiversity The Thames Estuary is a significant biodiversity asset, and there are several designated ecological sites with marine components that could be affected by the project. The estuary has areas of intertidal mudflat, sandflats and saltmarsh that provide key foraging, breeding and nursery habitat for invertebrates and numerous species of fish. These, in turn, support important bird and mammal populations, including seals and porpoises.	**Construction** ■ Potential temporary adverse effects relating to the loss of habitat supporting designated sites such as the Thames Estuary and Marshes SPA and Ramsar site during construction, operation and demolition of a potential jetty. ■ Temporary adverse effects from dredging to the way water moves and changes the environment around it, potentially leading to the loss of habitat or disturbance of species. ■ Temporary adverse effects on water quality, which would then have an effect on migratory and resident fish species. ■ Temporary adverse effects relating to underwater noise, which would have an effect on marine mammals and fish. ■ Temporary adverse effects relating to lighting, which would have an effect on marine mammals and fish. **Operation** ■ No likely significant effects are anticipated.	**What we are doing** ■ We have moved the southern entrance of the tunnel approximately 600 metres south, which reduces the impact on the adjacent Ramsar site. ■ We will continue to carry out marine ecological surveys to fully understand the presence and distribution of habitats and species, as we may need to build a temporary jetty in the Thames Estuary for the delivery or removal of construction material when we begin work on the tunnel. ■ We are using the huge amount of existing data to help us determine the potential effects of our work. We will minimise these impacts as much as possible. ■ Noise and vibration limits will be set to minimise impacts on marine mammals and fish. **Why** ■ To minimise the impact of the project on the mudflat habitat at the proposed location of the jetty, which houses many species. The area is also a migratory route for important fish species such as the European eel.

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Aspect of the environment	Expected effects	What we are doing and why
Water environment The government is committed to maintaining and, where justified, improving the quality of UK drinking water, surface waters, groundwater and coastal waters. The main surface water features in the Lower Thames Crossing area are the River Thames, watercourses draining through the ecologically designated sites adjacent to the Thames, the Mardyke and its tributaries, and the Tilbury Main and other watercourses which drain West and East Tilbury Marshes.	**Construction** ■ Adverse effects associated with the pollution and degradation of watercourses and groundwater owing to spillages, handling and storage of materials and waste or mobilisation of sediments. ■ Resultant adverse effects on ecologically designated sites including the Thames Estuary and Marshes Ramsar site and the South Thames Estuary and Marshes Site of Special Scientific Interest. ■ Adverse effects on wells and boreholes such as the permitted drinking water supply at Linford and unlicensed or private sources of water supply. ■ Adverse effects owing to an increased demand for water, which would lower river or groundwater levels. ■ Adverse effects associated with the temporary loss of flood plain storage in the Thames Estuary tidal flood plain and the Mardyke river flood plain. **Operation** ■ Permanent adverse changes in groundwater levels, flow and pollution. ■ Permanent adverse effects on water quality in water bodies that receive run-off from the new road. ■ Adverse effects on flood risk owing to works within the flood plain and new watercourse crossings.	**What we are doing** ■ We have designed appropriate drainage systems along the road to store and control run-off. ■ We will incorporate good practice pollution prevention measures in line with relevant legal requirements to reduce the risk of water pollution during construction. ■ We are proposing to increase the floodplain in some areas to compensate for the lost floodplain as a result of the project. **Why** ■ To prevent negative impact on water quality during construction. ■ To prevent the project causing any increased flood risk. ■ To help slow the flow of surface water from the road to the surrounding environment, and prevent silt pollutants flowing into nearby water channels, such as brooks, rivers and streams.

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Aspect of the environment	Expected effects	What we are doing and why
Geology and soils The government is committed to maintaining and protecting geology and soils receptors and, when possible, improving the quality by cleansing contaminated sites. The Lower Thames Crossing route crosses areas of gravels, clays, sands and alluvium that sit on a bedrock of White Chalk to the south of the river with London Clay to the north. Certain types of soil, left behind on areas previously used for industry, developments and historic landfill sites, are present across areas of the project. There are also active landfill sites within the study area.	**Construction** ■ Permanent adverse effects associated with the loss of geological resources. ■ Permanent adverse effects relating to the contamination of soils, ground and surface waters. This has a risk to human health owing to the disturbance of contaminated land during activities such as piling, or spillages of oil or other substances. ■ Temporary adverse risk to construction activities from ground instability, areas of soft ground, sink holes or other geohazards. ■ Temporary adverse effects relating to the risk of disturbance of unexploded military ammunition. ■ Temporary adverse effects relating to the potential migration of ground gases from landfill sites and build-up in confined spaces. **Operation** ■ Permanent adverse effects from the migration of ground gases into service ducts or other structures. ■ Permanent adverse effects associated with the sterilisation of minerals within safeguarded areas.	**What we are doing** ■ We are continuing to assess whether we can use minerals from safeguarded and other suitable areas. ■ We are carrying out investigations to identify contaminated land and unexploded military ammunition. ■ We have identified potential measures to avoid contaminating land during construction. This includes ensuring we store and transport waste appropriately during construction to prevent spillages and contamination. ■ Appropriate working methods and personal protective equipment will be used and good site hygiene adopted to reduce the risk of exposure to contaminated materials. ■ We will develop a soil management plan. ■ We will reduce the risk of contamination and settlement through careful design and monitoring. ■ The design and maintenance regime will take into consideration ground gas conditions and be adapted to avoid migration of gases. **Why** ■ To prevent harm to people and the environment from contaminated land. ■ To avoid or reduce loss, damage and contamination of soil, which is a valuable resource.

Aspect of the environment	Expected effects	What we are doing and why
Materials and waste The materials required for construction include metals, aggregate, pavement, concrete and soils. Most materials will need to be purchased and transported to the site. Some materials may be available on site, for example soils that will be excavated during the project may be suitable to reuse elsewhere. Many of the materials required are finite resources. Use of these resources therefore needs to be minimised where possible, and sustainable sources of material need to be considered. Materials will be sourced locally where available.	**Construction** ■ Permanent adverse effects relating to the depletion of material resources for the construction of the project. ■ Temporary adverse effects on the local waste management infrastructure owing to the disposal or recovery of construction phase wastes. ■ Temporary adverse effects relating to road congestion, air quality and noise owing to the transfer of materials and waste. **Operation** ■ No likely significant effects are anticipated.	**What we are doing** ■ We have identified potential measures to keep the use of materials and waste production to a minimum. ■ We are exploring options to reuse excavated soil and other resources onsite where possible, and recycle materials such as timber offcuts that cannot be reused in the project. ■ We are considering alternative modes of transport, such as river barges, to move materials and waste to and from construction sites. ■ Where possible we will procure materials and resources in a sustainable manner to protect the environment. **Why** ■ To limit the carbon footprint of the project. ■ To reduce construction traffic movements, and therefore vehicle emissions.

Aspect of the environment	Expected effects	What we are doing and why
People and communities We need to consider the impact of the project on people in their daily lives, for example where they live and work, services they use, places they visit, and the connections between these places. The Lower Thames Crossing will pass close to residential properties, businesses, public rights of way and other access routes, open access land and other amenity and recreation areas. Agricultural land and farm businesses are present across the development boundary. The route will pass through, or near to, rural and urban areas, with a mixture of highly populated areas and areas with a sparser population.	**Construction** ■ Temporary adverse effects owing to land take from businesses or private landowners, including land allocated for development, community open space and sports and leisure spaces. ■ Permanent adverse effects owing to the demolition of certain commercial and residential properties within the development boundary. ■ Temporary adverse effects owing to changes in access to commercial and residential properties, including disruption to agricultural business operations. ■ Temporary adverse effects from diversions to public rights of way, cycle routes and national trails. ■ Temporary adverse effects associated with changes to the noise, air quality and visual impacts for people living in or visiting the area. ■ Temporary beneficial effects on the local and wider economy through job creation and demand for goods and services. **Operation** ■ Permanent and temporary adverse effects associated with land take. ■ Beneficial effects associated with improved access to jobs.	**What we are doing** ■ Where possible, we have provided alternative routes and crossing points for pedestrians, cyclists and horse riders when rights of way are affected, such as footbridges or underpasses. ■ Where possible, we will restore land that is needed temporarily for construction to its previous use. ■ Where possible, we are proposing to maintain uninterrupted access to public and private properties, such as community facilities, homes, businesses and agricultural land. ■ We are exploring options where appropriate to provide a number of structures for all users that may bring environmental benefits for communities and biodiversity. **Why** ■ To avoid or reduce diversions or severance of public rights of way and other routes and enable continued access. ■ To mitigate the potential impact of the project on access to, or use of, community facilities, as well as on local homes, businesses, potential developments and agricultural land.

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Aspect of the environment	Expected effects	What we are doing and why
Climate It is predicted that climate will increase the frequency and severity of some types of extreme weather events in England. The UK Climate Projections 2009 generally show that warmer, drier summers are more likely along with warmer, wetter winters.	**Construction** ■ Permanent adverse effects are likely owing to the project's contribution towards greenhouse gas emissions and therefore climate change. **Operation** ■ Permanent adverse effects are expected due to the greenhouse gas emissions from road user vehicle emissions. ■ Adverse effects may arise owing to the impact climate change may have on some of the project's structures due to increased rainfall. This could result in: flooding or ground movement; increased stress on bridge joints caused by higher temperatures; flooded drains; collapsed culverts; contaminated water; and the need for road or tunnel closures owing to heavy rain or flooding; or collapsed earth embankments due to heavy rain.	**What we are doing** ■ We have identified measures to reduce the project's greenhouse gas emissions such as considering the specification of materials with an optimum design life and lower carbon footprint. This could include using recycled materials or materials sourced from nearer to the site to minimise transportation movements. ■ We have identified measures to help the project adapt to climate change, for example incorporating climate change allowances within the drainage design and introducing flood bunds around the north tunnel entrance. **Why** ■ To ensure that the project will be able to adapt to climate change and avoid any further environmental impacts resulting from future climate change. ■ To reduce the project's impact on climate change.

7

Building the crossing

When construction will take place

We will build the new roads and tunnel in phases, which will be the most efficient way of working so that different elements of the project can be completed at the same time. Our suggested plans, alongside indicative timings, are below:

* The start year depends on consent

We will carry out most of the work between 8am and 6pm on weekdays (excluding bank holidays), and between 8am and 4pm on Saturdays. These are standard hours for construction projects up and down the country, although crews may work for up to an hour before and after to prepare and close the site. From time to time we may also have to do some maintenance work on Sundays. We will work closely with highways teams from the local authorities in each affected area to identify the best working times for each site, so these times may vary.

As with any project of this scale, we will have to do some of the work at night. For example, where possible we will work on existing roads overnight to reduce disruption to drivers going about their daily journeys. Tunnel construction will be a 24-hour operation throughout.

Most of the construction work will take place during the day

Getting ready for construction

Before the main construction work can begin, we need to acquire land and prepare the site. This includes:

- diverting public rights of way and utilities
- creating new habitats
- carrying out flood avoidance measures
- species relocation
- removing vegetation as necessary
- making any contaminated land safe
- completing detailed surveys about the land and surrounding area
- archaeology

Next we will prepare individual sites for construction. We expect to tackle the most complex sites, including the tunnel, M25, A13 and A2 junctions, first

Have your say

To comment on our construction plans, answer question 11 on the response form.

Find out more

To find out more about construction, see Approach to Design, Construction and Operation.

This is very similar to the tunnel boring machine we plan to use

Tunnelling work

It is likely to take around six years to build the tunnel. During this time, we plan to have a construction site next to the northern entrance. This will include equipment for producing the precast concrete for the tunnel lining, a water treatment system and a temporary substation to provide power for the tunnelling machines.

During construction, we will make sure we keep residents, businesses and road users informed of planned works in advance and share information on progress

Tunnelling work could begin from either the northern or southern entrance. Based on the information we currently have, we expect to begin near the northern entrance. Two machines will excavate the tunnel, which will then be lined with precast concrete segments.

On average, a tunnel boring machine excavates at a rate of between 50 and 125 metres a week, depending on the model.

This project is an enormous undertaking using the most sophisticated tunnelling equipment in the world. It will mean underground construction and activity will take place 24 hours a day, seven days a week to complete the tunnel as soon as possible. It is standard practice during 24 hour operations to put in place special measures such as noise barriers to keep potential impacts to a minimum.

During construction, we will make sure we keep residents, businesses and road users informed of planned works in advance and share information on progress.

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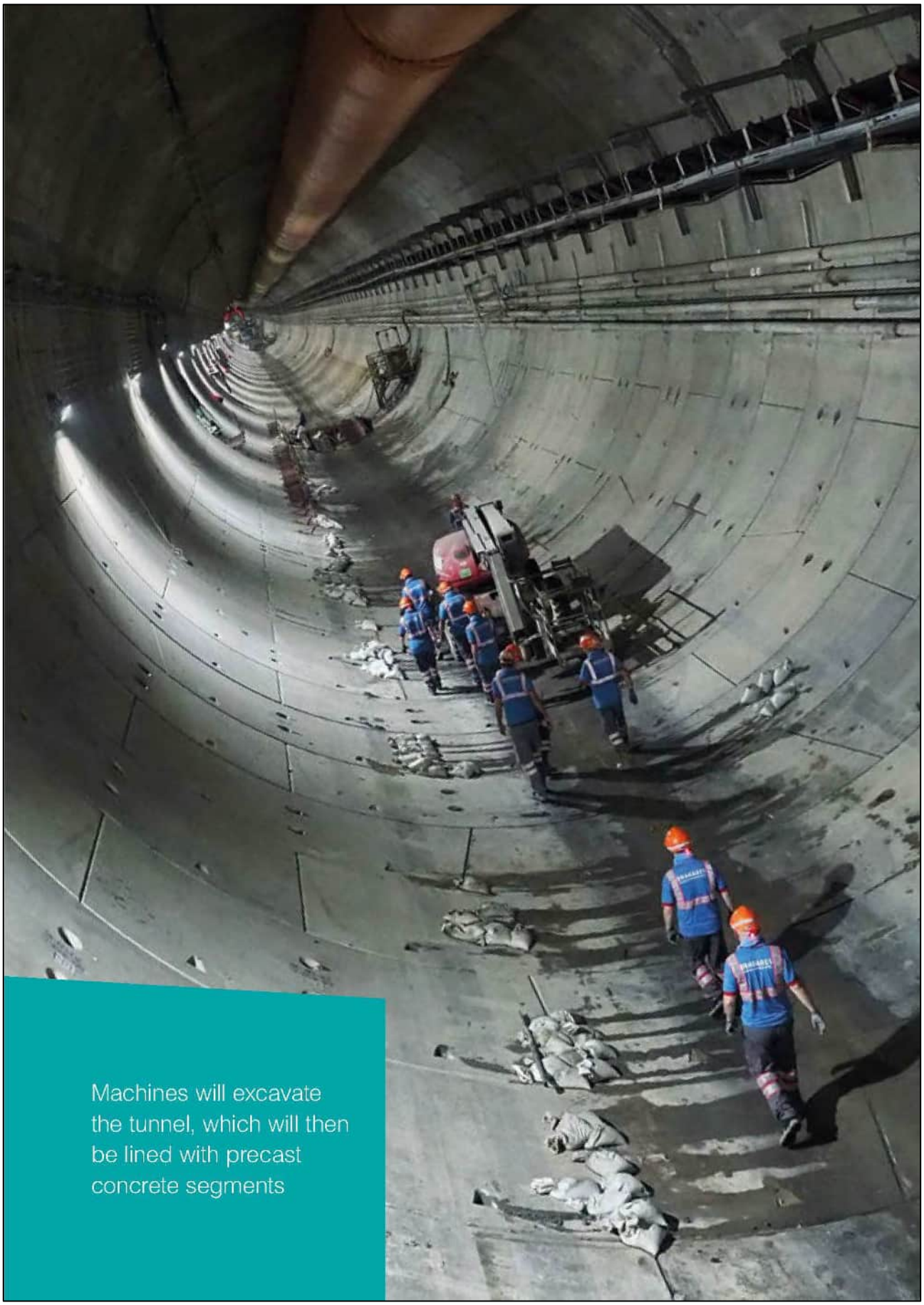
Lower Thames Crossing consultation 2018



We will carefully plan which roads construction traffic will use to reach our sites

Building the roads

We will build the new roads, junctions, bridges and underpasses at the same time as the tunnelling work. Most of this will be done during standard hours as we discussed earlier in this chapter.

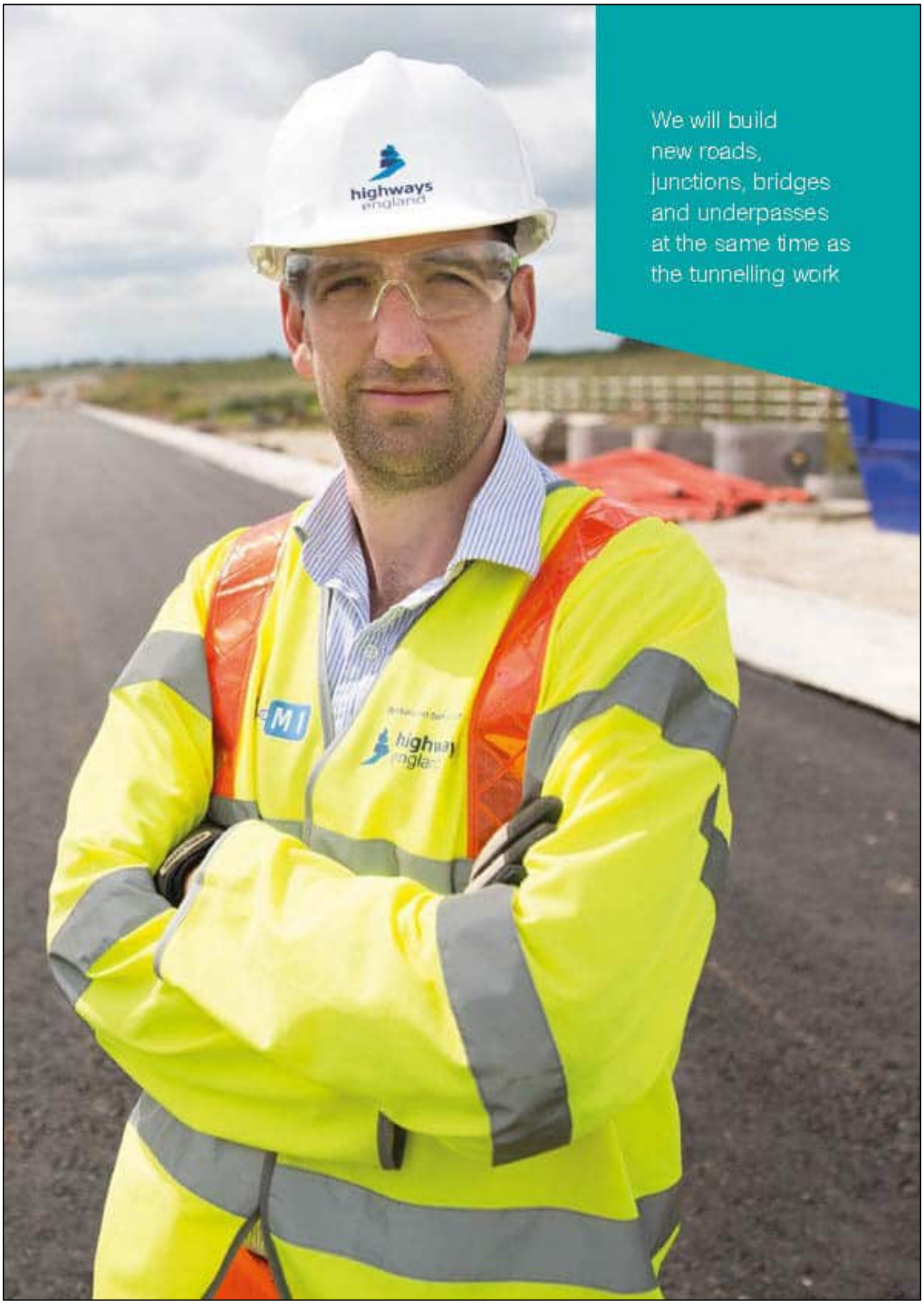
The new road will connect the M2/A2 in Kent with the M25 south of junction 29 in Essex, crossing the A13 north of Chadwell St Mary. To connect with these existing roads, as well as the A1089, we will construct new junctions and will have to carry out some work on these roads as well. This includes improvements such as road widening for the M2/A2 and M25.

How we will use other public roads

We always try to keep road closures during construction to a minimum. Where diversions, temporary traffic lights or lane restrictions are planned, we will give road users and people living nearby plenty of notice so they can consider alternative routes or travel arrangements.

A significant number of HGV journeys will be needed to transport material to and from the sites. An estimate of the average number of HGV journeys per month for each of the five construction areas is shown on pages 110 113, with each HGV journey making one trip to the sites and another away from the sites. The maps also show the areas where construction traffic may travel. The exact routes will be agreed at a future stage of the project.

We will carefully plan which roads construction traffic will use to reach our sites. Where there are no roads to the construction site, we will build access roads connecting to the existing network. We will work with the local highways authorities to identify routes that minimise the impact on local roads and communities.

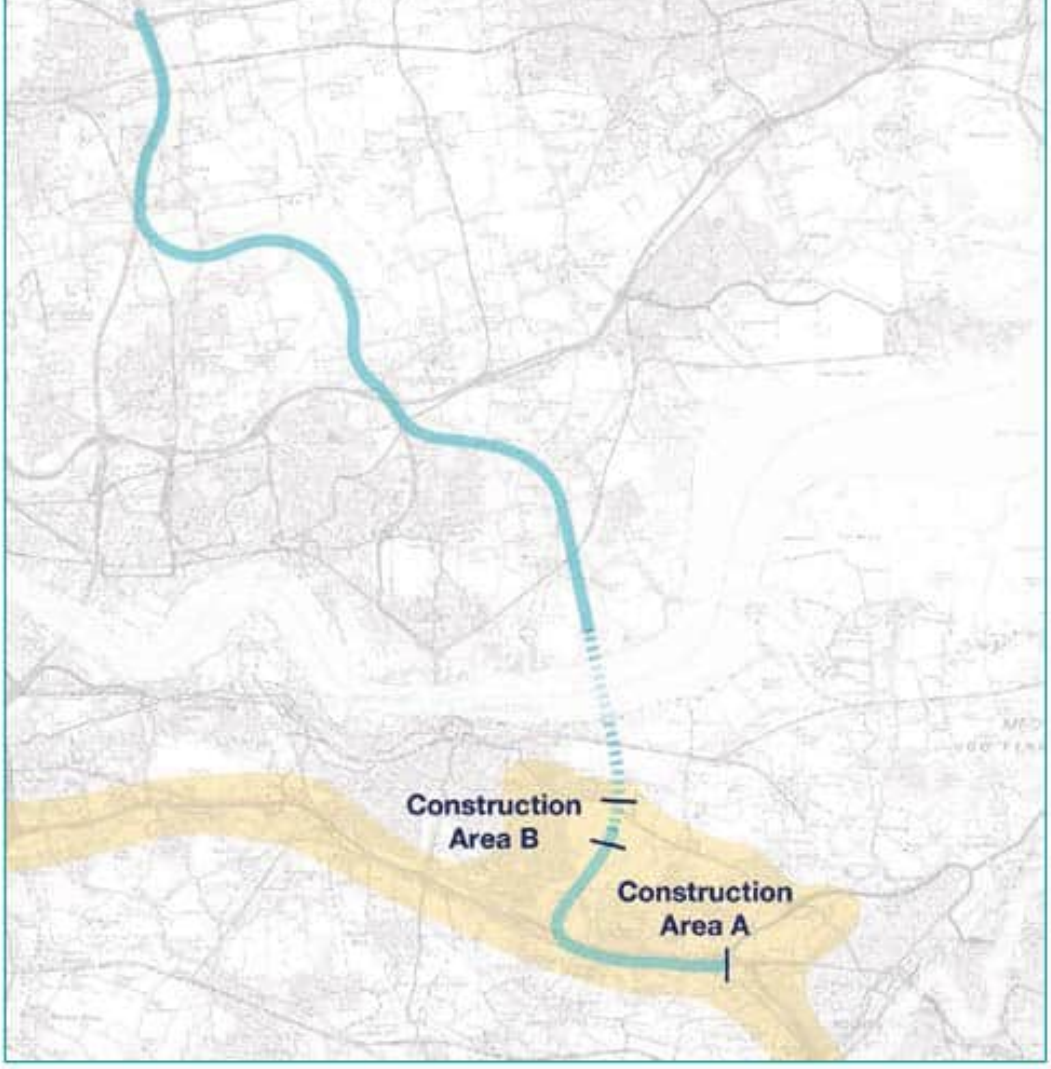


Roads to the construction sites

The crossing is split into five construction sites labelled A-D. The following maps show the roads that construction vehicles are likely to use to each of the sites. The exact routes will be carefully planned closer to the time.

Roads in this area to service construction Areas A and B South

Construction Area	Average number of HGV journeys / month
Area A	4,700
Area B South	1,100



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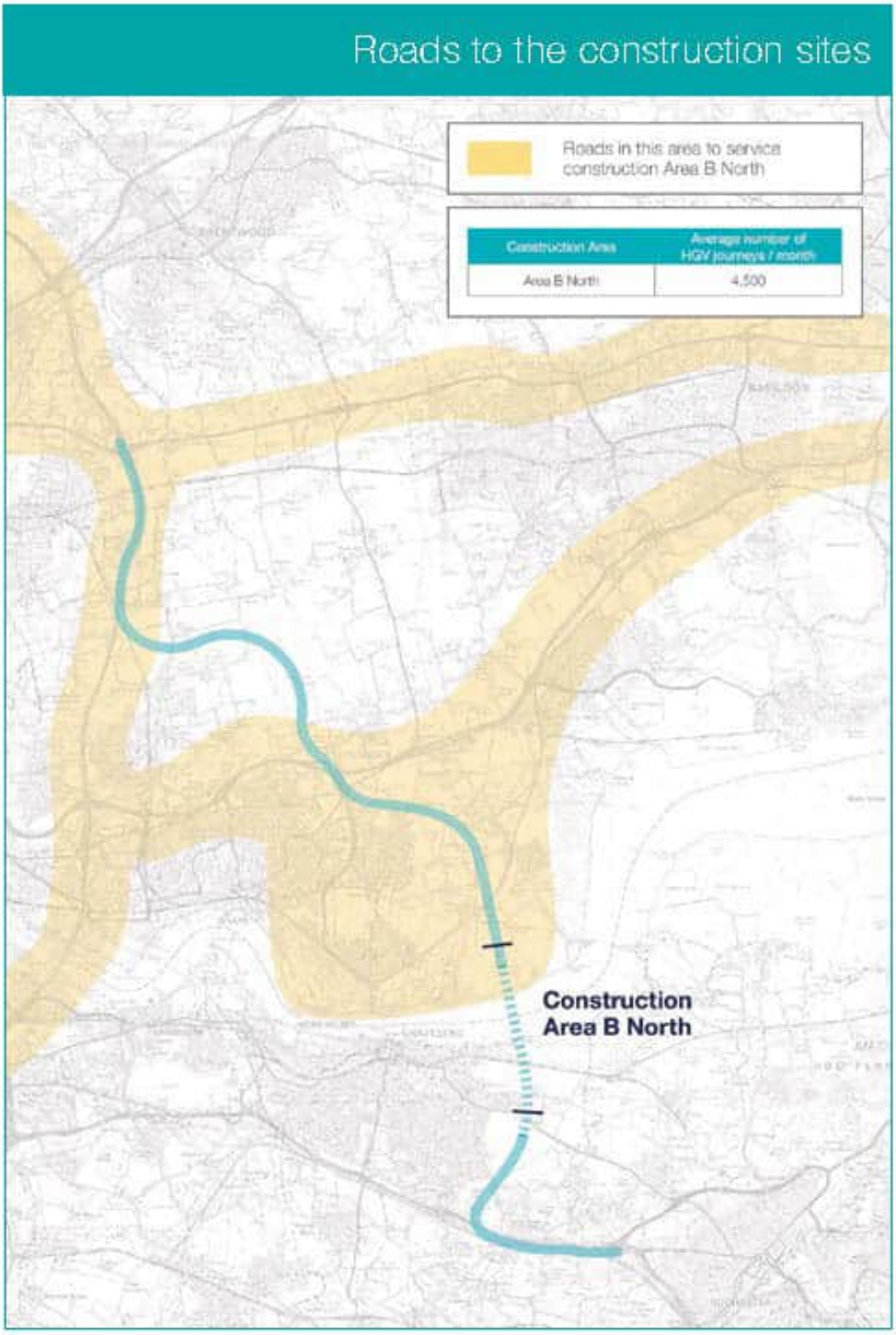
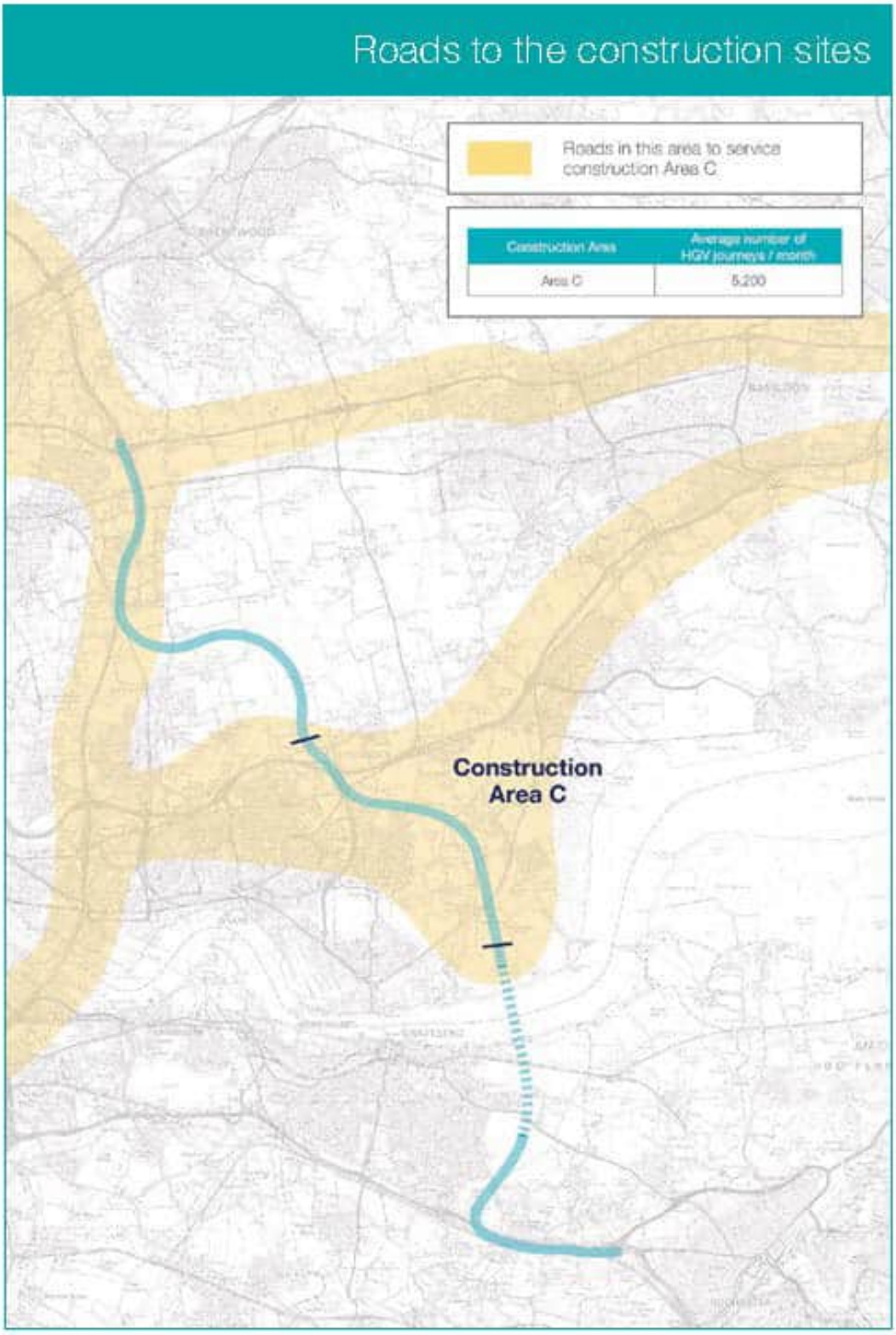
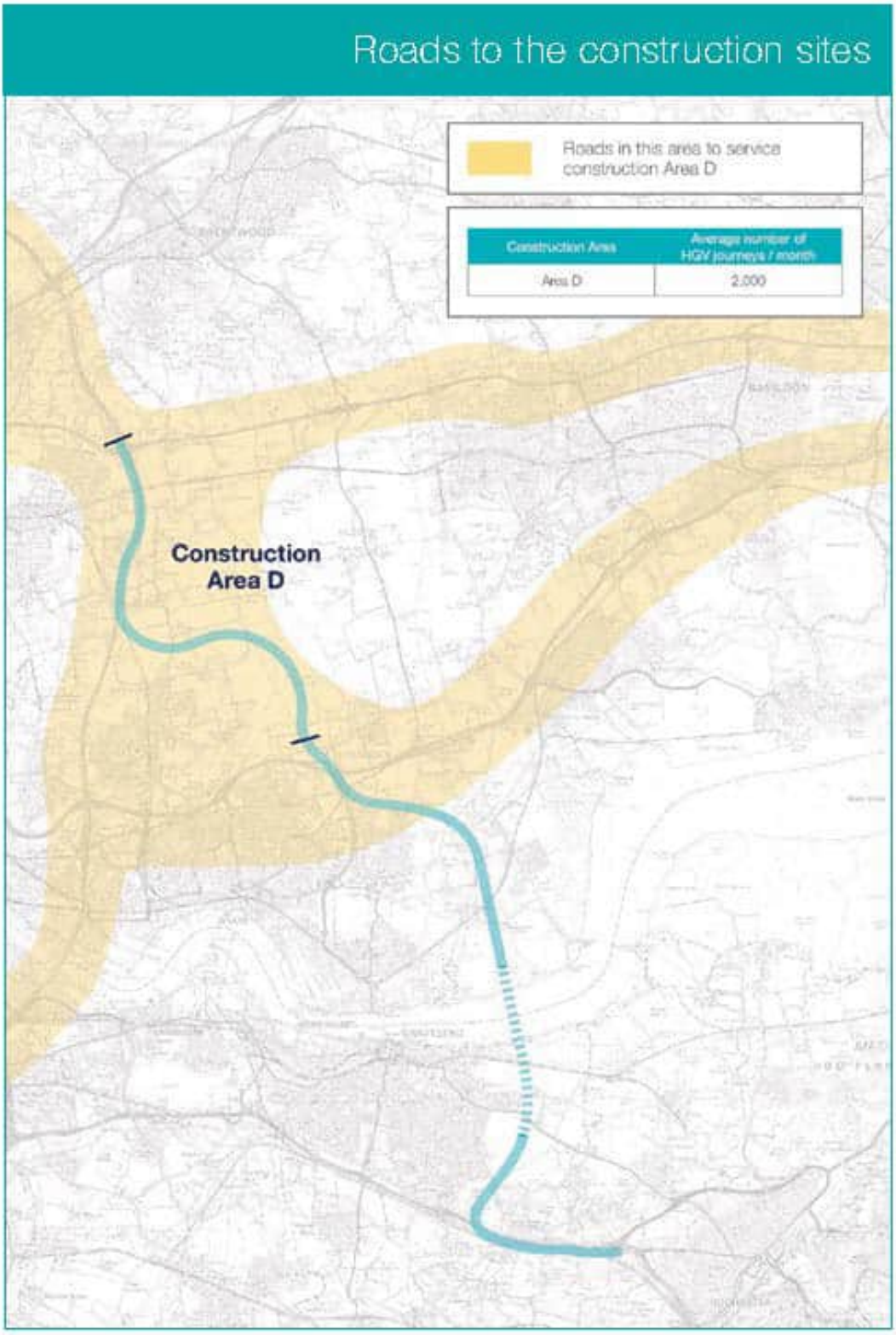
Lower Thames Crossing consultation 2018







The impact of construction on local roads

Most construction materials will be transported to the sites by road, which will have some impact on the road network and road users. At locations where new connections to the network will be created, we will carry out traffic management to segregate the construction sites from road vehicles.

Some local routes will be affected by construction, with some roads temporarily closed and others having temporary diversions, traffic lights and/or lane restrictions. We will provide advance warning so people can look at alternative routes or travel arrangements.

Road affected	Planned construction	Possible impact
Brewers Road	Replacement of bridge carrying Brewers Road over M2	High
Thong Lane	Replacement of bridge carrying Thong Lane over A2, plus new bridge carrying Thong Lane over LTC	Low
A2 (near LTC junction)	New bridge and tunnel at LTC junction with A2	Medium
Station Road	New viaduct to carry LTC over Station Road	Low
Muckingford Road	New bridge to carry Muckingford Road over LTC	Low
Hoford Road	New bridge to carry Hoford Road over LTC	Low
Brentwood Road	New bridge to carry Brentwood Road over LTC	Low
Hornsby Road	New bridge to carry Hornsby Road over LTC	Low
Heath Road	Northern end of Heath Road closed due to A1013 works	Low
A1013	New bridges to carry A1013 over LTC, A13 and A1089	Medium
A1089	New viaduct and bridges at LTC junction with A13 and A1089	Medium

The predicted impacts on specific roads are classified as follows:

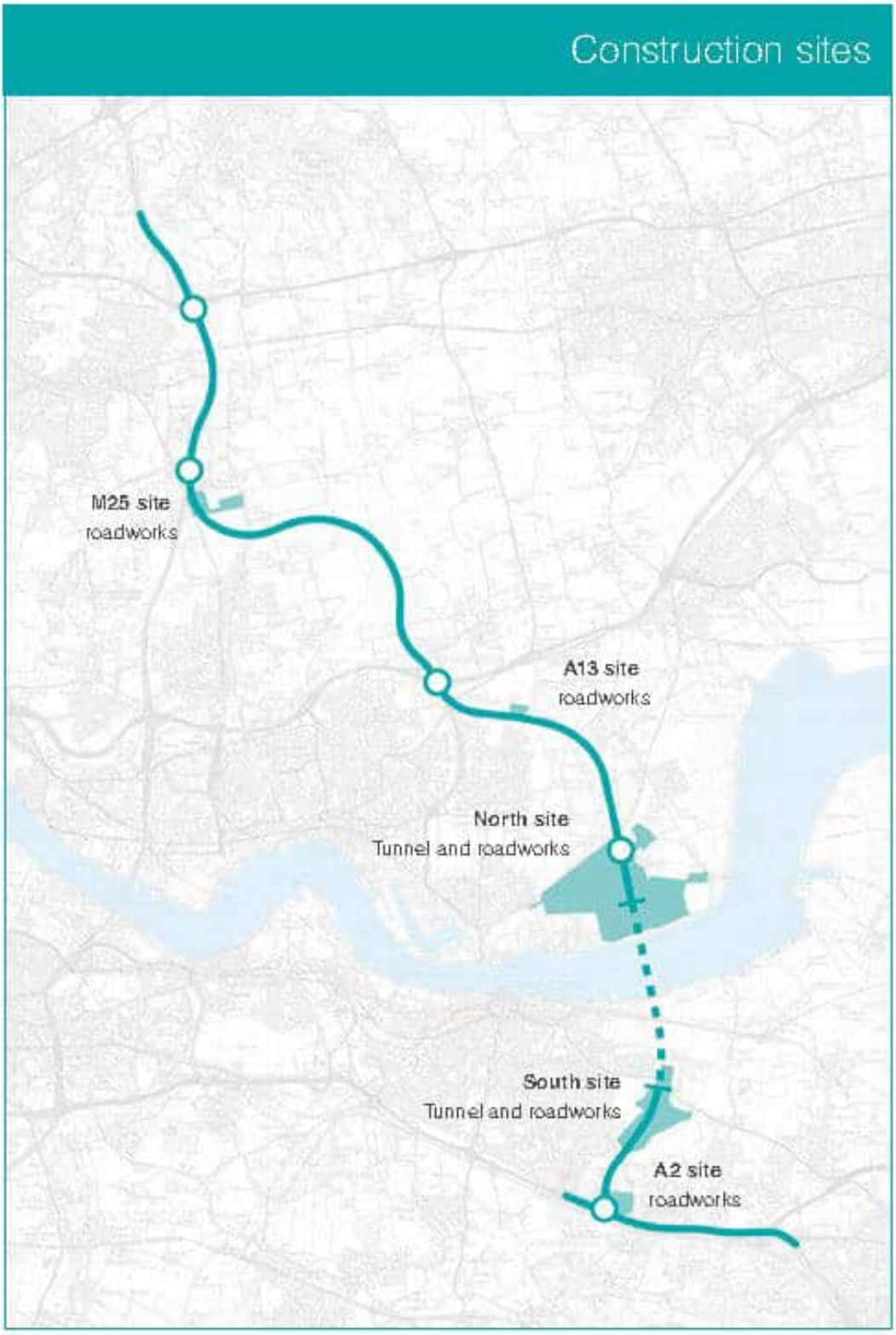
- High: road may close, with possible diversion and/or lane restrictions.
- Medium: road remains open, with temporary diversion, traffic lights and/or lane restrictions.
- Low: road remains open, with temporary diversion, traffic lights and/or lane restrictions.

Road affected	Planned construction	Possible impact
Baker Street	New viaduct and bridges at LTC junction with A13 and A1089	Low
A13	New bridges at LTC junction with A13 and A1089	Medium
Rectory Road	Replacement of bridge carrying Rectory Road over A13	Low
Stifford Clays Road	New bridges to carry Stifford Clays Road over LTC and slip roads	Low
Green Lane	New bridge to carry Green Lane over LTC	Low
B186 North Road	New bridge to carry B186 North Road over LTC	Medium
M25 (at LTC junction)	New structure to take LTC under M25	High
Ockendon Road	New bridge to carry Ockendon Road over LTC and M25	Medium
St Mary's Lane	Replacement of structure taking St Mary's Lane under M25	Low
M25 junction 29	Widening of Codham Hall Viaduct carrying M25 over A127	High
A127	Widening of Codham Hall Viaduct carrying M25 over A127	Low

Our construction sites will be operated to the highest standards in the industry

Construction sites

Each construction site will have temporary buildings and storage areas, and will include offices, space for equipment and materials, parking and staff facilities. Some sites will include specialist zones, such as the tunnel construction area at the north entrance site. The five main sites are shown on this map, and there will also be several smaller sites.



We will make sure we protect species and habitats

Managing the construction impacts

Building the new route will affect the local environment. Wherever possible, we are determined to protect, and look for opportunities to enhance, the local environment and improve biodiversity.

We are already carrying out extensive surveys, monitoring and investigations, which are helping us to understand how the crossing might affect air quality, noise and the landscape. This information is helping us to find ways to reduce these impacts. Once all that information has been fully assessed, we will publish the findings in our Environmental Statement, as part of our DCO application.

We will produce a draft Code of Construction Practice (CoCP), which we will submit with our DCO application. It will describe how we will reduce the disruption to local communities and the environment during construction and our approach to limiting noise and vibration.

Surveys will help us understand how the crossing might affect air quality, noise and the landscape

As we develop the CoCP we will work closely with specialists in the local authorities to make sure that it best reflects the needs of their local communities.

We will excavate a significant amount of material, which will be processed and reused onsite where possible. Material that cannot be reused, such as hazardous waste and contaminated soil, will be safely disposed of in line with regulations. If practical, we will transport some material that cannot be reused by river rather than by road. We are currently looking at how this might be possible. If we use the river, we may need to build a new temporary jetty or use an existing one.

To reduce construction traffic using the roads, we are considering alternatives, such as river transport, to move materials and waste to and from work sites

As with any road project, we will make sure we protect species and habitats in the area. These include great crested newt breeding ponds, reptile hibernation areas and bat breeding roosts. We will only remove vegetation during the bird breeding seasons (typically early March to late August) if absolutely necessary, and this will be overseen by an appropriately qualified ecologist.

Utilities and pylons

To build the road, high voltage electricity overhead lines, including pylons, gas pipelines and other utilities would have to be diverted across several locations in Kent, Thurrock and Essex. This would ensure we can build the road safely, with no overhead obstructions, and also allow for future maintenance.

National Grid is the owner and operator of the transmission networks and it is they who will carry out this work.

Here are the proposed locations for overhead lines and pylons diversions, also shown on the map on the next page:

1. M2/A2 junction
2. Westwood farm near Thong and Riverview Park
3. West of Low Street (East Tilbury)
4. Linford Road
5. A13 junction
6. South of Fen Lane and west of the Mardyke
7. M25 junction 29

There are other pylons and high voltage overhead lines, owned and operated by UK Power Networks, which will need to be diverted. The designs for these are being developed but the works involved will not be as large scale.

Have your say

To comment on changes to utilities and pylons, answer question 12 in the response form.

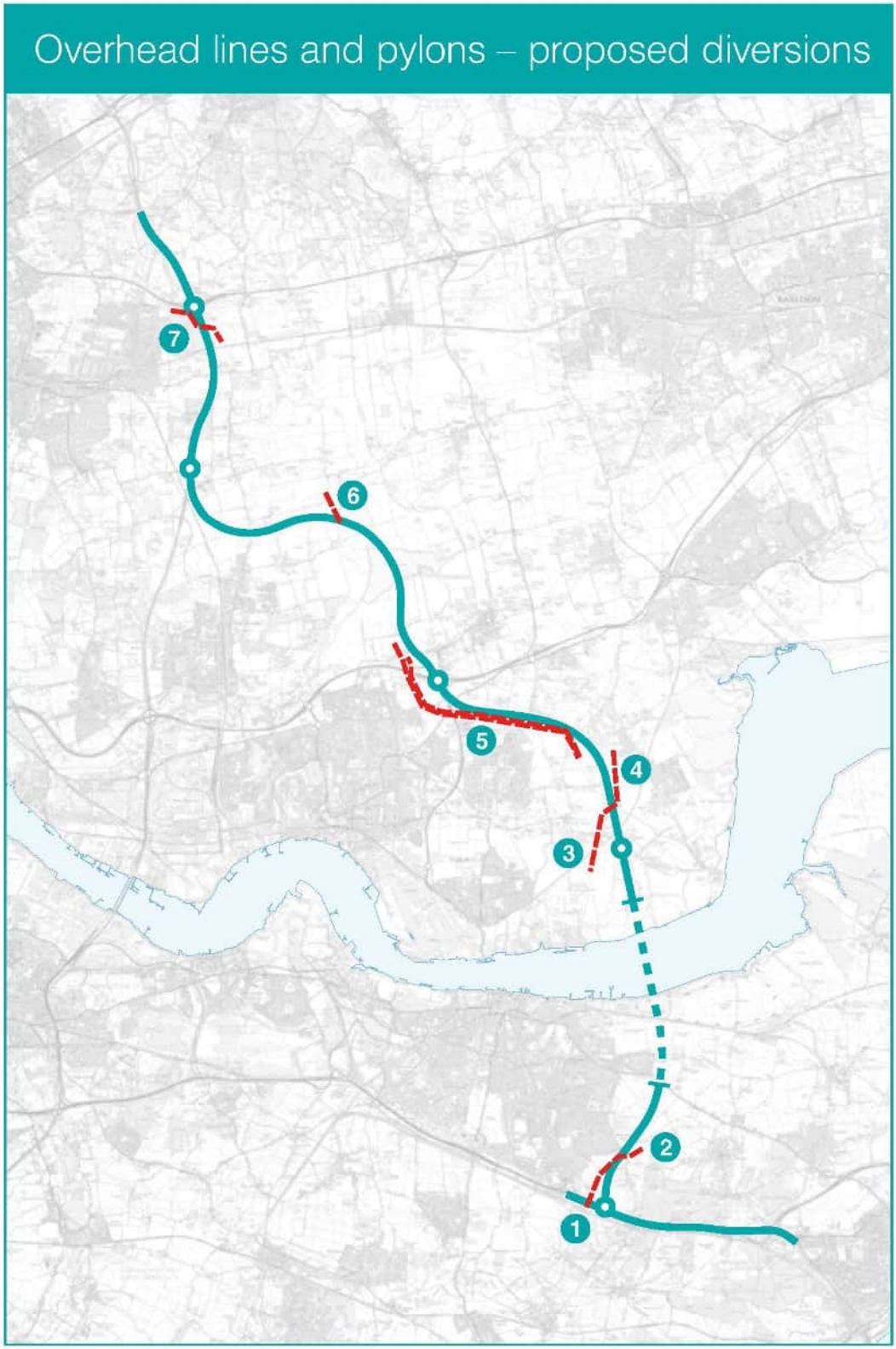
Gas pipelines and other utilites

National Grid has carried out onsite inspections and surveys to mark the precise routes where it needs to divert two existing gas pipelines. These are at the A2 and Claylane Wood. It has identified some preferred options.

Designs for the diversion of other pipelines carrying gas and water, and also electricity and telecoms cables, are being developed. We are working closely with the various energy, water and telecoms companies to agree how these works will be carried out.

Find out more

To find out more about utilities, pylons and gas pipelines see the Approach to Design, Construction and Operation.



Paying for the project

We estimate that the cost of developing and building the Lower Thames Crossing will be between £5.3-£6.8 billion. Making the right financial decisions is vital to make sure it offers value for money for taxpayers and is affordable to the government. Our plan is for the tunnel to be publicly funded and the approach roads, including the junctions, to be privately financed.

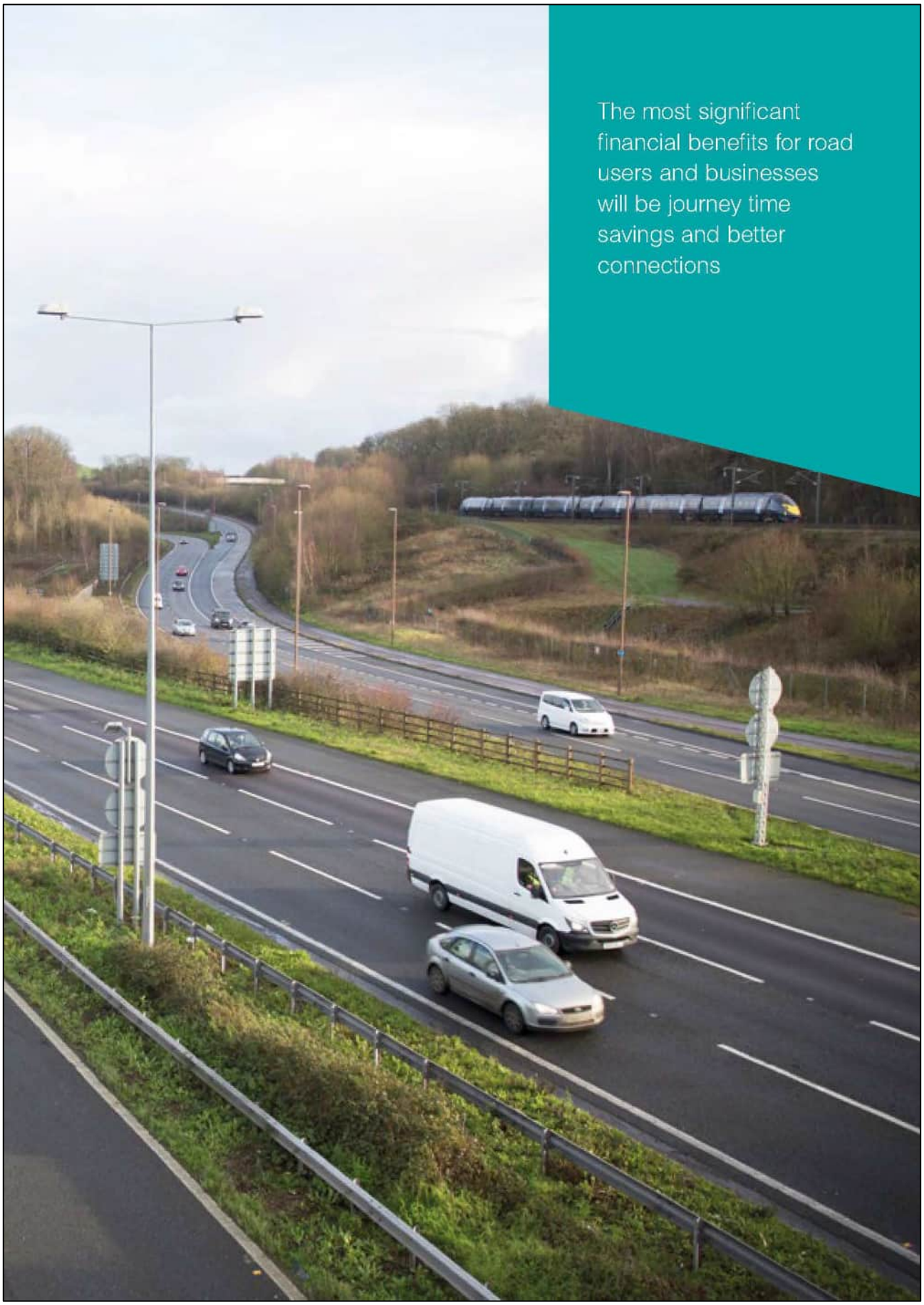
Private finance gives us far more certainty in terms of cost and timeframes, and makes it more affordable as payment can be deferred until the crossing is open, and spread out over 25-30 years. However, given the scale of spend and the capacity of the private finance market, this option is not considered to be an efficient way to pay for the tunnel.

We are working hard to make to make sure that every penny is spent wisely

As with any transport project of this kind, its value for money is assessed on how much benefit it would provide, against its cost. This is called a Benefit Cost Ratio (BCR), and it assesses how much benefit a project would provide per unit of cost. A BCR of more than 1 shows that a project delivers more value than its cost. For example, a BCR of 1.5 shows that for every pound spent a project will bring £1.50 in benefits.

The Department for Transport uses six value for money categories ranging from Very High to Very Poor. The Lower Thames Crossing is currently showing Medium value for money with an estimated BCR between 1.5 and 2, which means that every pound spent is expected to bring between £1.50 and £2 in benefits.

We are working hard to make sure that every penny is spent wisely. The government holds us to account to make sure the public money we spend will provide genuine benefits. The most significant financial benefits for road users and businesses will be journey time savings and better connections.



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Using the Lower Thames Crossing

Built for tomorrow, fit for the future

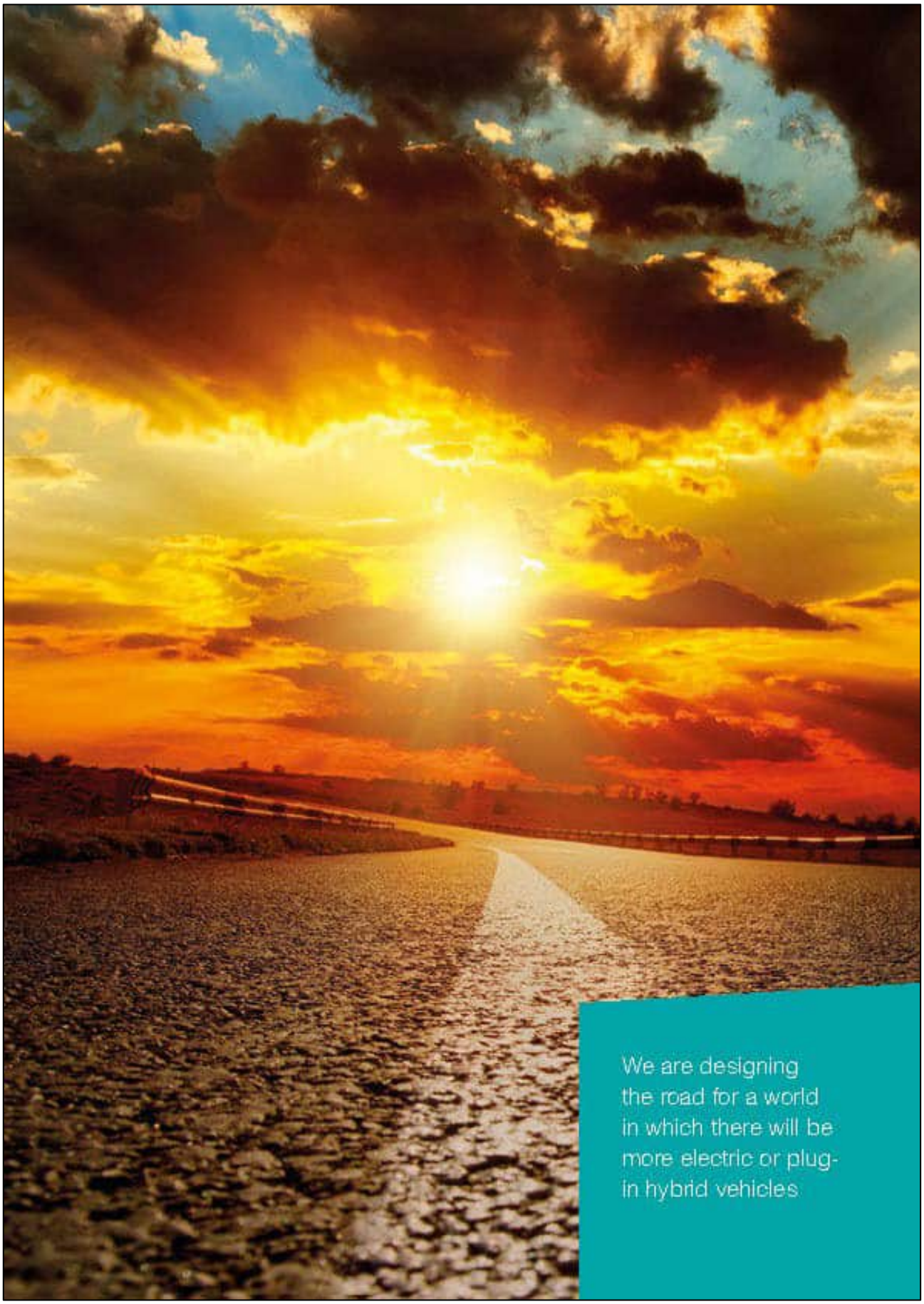
Transport is going through huge changes, spurred on by new technologies such as electric and driverless vehicles. For example, according to Department for Transport research, 60% of car and van sales will be electric or plug-in hybrid by 2030. To meet this demand, the number of charging points in the UK needs to rise to more than 27,000 by 2030. There are currently around 17,000 charging points.

We will continue to explore how we can integrate new and emerging technologies into the project

We are designing the road to consider the impact of these changes, both in terms of the infrastructure we build, and how this will affect drivers' behaviour.

It is important we design for the future to avoid unnecessary upgrades with added cost and disruption. For example, the way people use electric vehicles may be different to how they use petrol or diesel vehicles, particularly in terms of refuelling or recharging. As a result, if we do build a rest and service area, we would make sure there will be enough parking bays with electric charging points.

We will continue to explore how we can integrate new and emerging technologies into the project.



Shorter journey times

The Lower Thames Crossing will provide more reliable journeys across the river, and improve connections to the busy ports in South East England. This helps to spread the load of HGV traffic across the river.

The new crossing will reduce journey times across the Thames

We use traffic modelling to predict how many vehicles will be using each part of the network and the time it will take people to complete their journey, both with and without the crossing. Traffic models are highly sophisticated and take into account information such as population, fuel pricing and changes to income. They also consider other changes to the network, including the Silvertown Tunnel in east London and upgrades on the M25.

In its first year of operation, more than 27 million vehicles are forecast to use the Lower Thames Crossing. This will relieve congestion at Dartford by reducing the number of vehicles there by 22 per cent.

Have your say

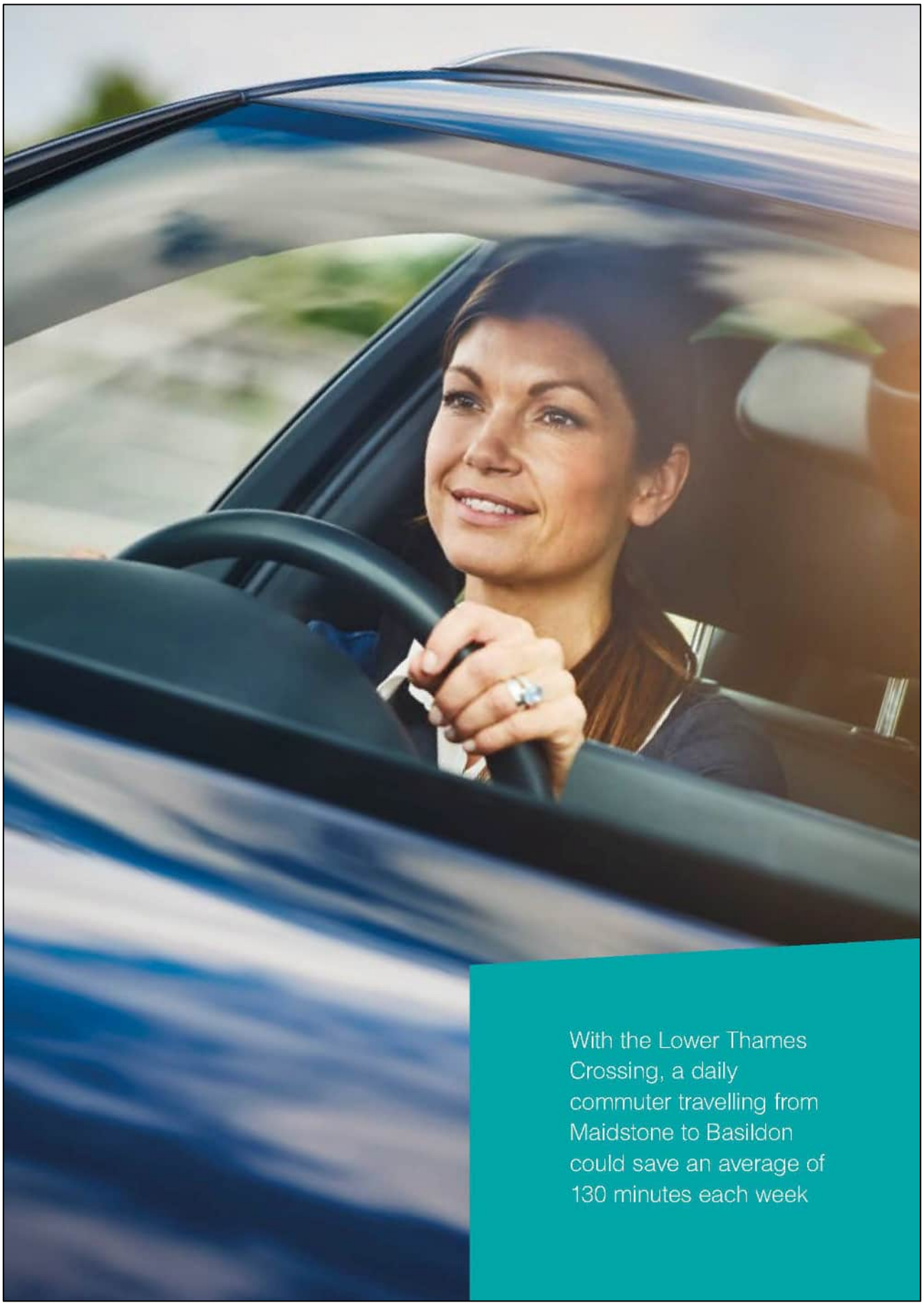
To comment on traffic predictions, answer question 9 in the response form.

With three lanes in each direction, the new crossing will have enough capacity to allow fast, reliable journey times well into the future. By 2041 – the year our traffic modelling runs to – we predict the new route will carry more than 32 million vehicles a year (around 90,000 vehicles a day).

The new crossing will reduce journey times across the Thames. For example, when the road opens, morning peak time journeys over the Dartford Crossing between M25 junctions 1b and 31 will be cut from nine minutes on average to just five minutes.

Find out more

To find out more about how these predictions are made, and more detail about journey times, see the Traffic Forecast Non-Technical Summary and Traffic Forecasting Report.

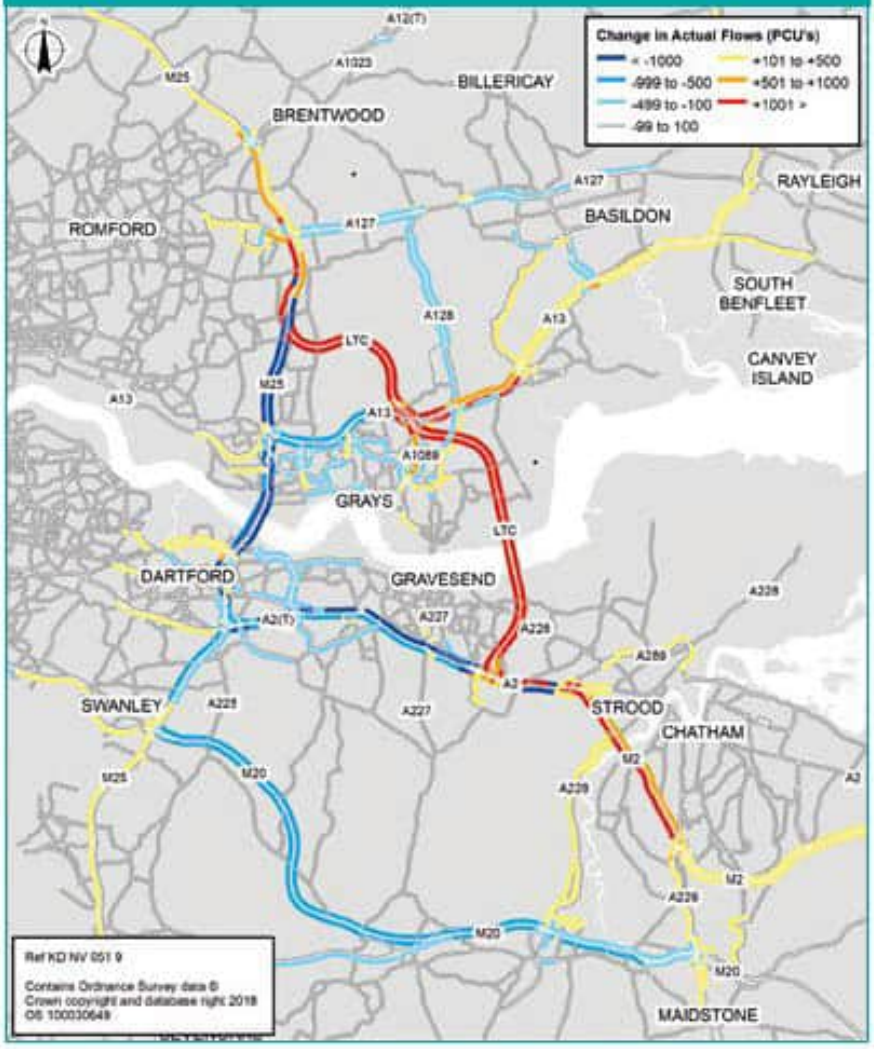


Traffic predictions

These maps show a decrease in traffic in blue and increases in traffic in yellow to red in the year of opening. Overall, the impact on traffic is similar during the morning, evening and inter peak periods, with the changes more pronounced, and covering a wider area, during the morning and evening peaks.

On some roads, such as the A2 west of its junction with the new crossing, the A13 west of its junction with the new crossing, the Dartford Crossing and the

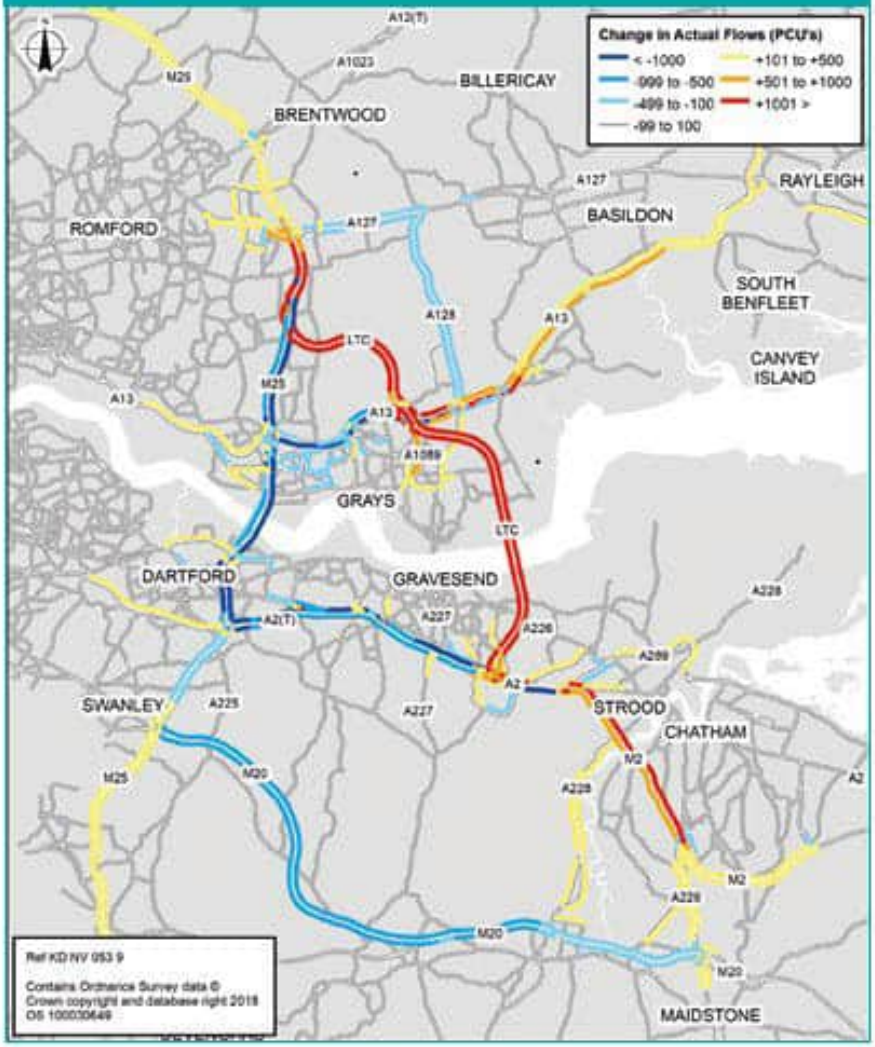
Change in traffic flow – 7am to 8am



M25 in Thurrock, the number of vehicles using these routes will fall when the new crossing opens.

Roads on the approach to the new crossing, including the M2, A229, the A13 east of its junction with the new crossing, the A2 east of Gravesend and some sections of the M25, will experience an increase in traffic levels as travel across the River Thames becomes easier and more reliable.

Change in traffic flow – 5pm to 6pm



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We are designing a project with safety as a priority

Safety

One of the Lower Thames Crossing's targets is that no one should be killed or seriously injured on the new route by 2041.

Road safety

Working with the emergency services, we are designing a project with safety as a priority. We will use the latest technology to make it one of the safest motorways in the country. For example, monitoring equipment will work with highly visible messaging to relay the most up to date traffic information. Clear motorway messaging can also help to reduce confusion at junctions.

Speed limits will vary along the route to make sure vehicles travel at a speed that is best suited to the current road conditions. We will monitor traffic flow 24/7 via a regional control centre.

Providing an alternative route for HGVs away from the Dartford Crossing, and for lorries carrying dangerous goods to pass through, the new tunnel will also significantly improve safety and reduce incidents.

Safety features in the tunnel

Inside the tunnel, safety features will include monitoring equipment to detect broken down vehicles, onsite vehicle recovery, and access routes at both entrances for the emergency services. The tunnel will incorporate fire and safety technology as illustrated on the next page.

Find out more

To find out more about safety, see Approach to Design, Construction and Operation.

1 **Emergency points**
located every 50 metres along the tunnel and marked by illuminated signs. They will hold emergency equipment and allow drivers to contact the tunnel operator.

2 **Cross passages**
at regular intervals along the tunnel to connect the northbound and southbound traffic. These are for emergency evacuation and maintenance works.

3 **Traffic surveillance**
the tunnel operator will oversee the CCTV cameras monitoring the tunnel 24 hours a day.

4 **Emergency announcements**
in the event of an emergency, advice will be made via PA announcements and on the radio so drivers can listen to announcements in their vehicles.

5 **Lighting**
there will be lighting that will remain on in an emergency to help evacuation.

6 **Ventilation**
a ventilation system will keep the air flowing through the tunnel, and control smoke in the tunnel in the event of a fire.

7 **Signs**
electronic signals will manage traffic entering the tunnel, with live information from detectors along the road helping a control centre to oversee traffic.

8 **Evacuation process**
emergency exits, and signs showing the distance to the tunnel exit, at regular intervals.

9 **Control room**
operational 24 hours a day to respond to emergencies.

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Connecting with other roads

We are investigating how the new crossing will impact both the nearby local roads as well as the wider regional road network. We are developing a detailed understanding of where there will be a reduction in traffic, and also where increases are predicted.

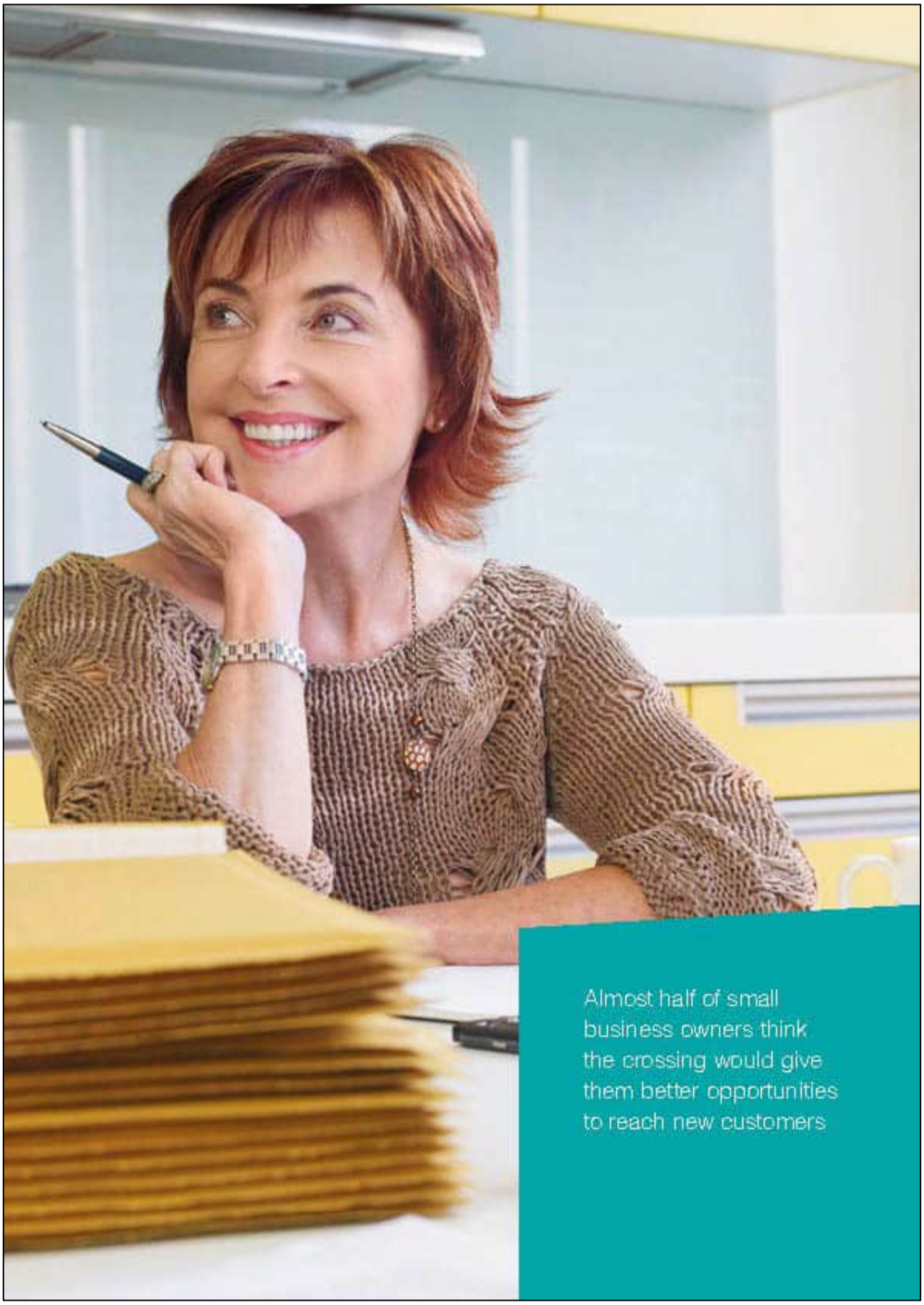
We will work with the relevant local highway authorities to identify the locations where further improvements may be needed. These can then be considered as part of both current and future road investment programmes.

Operations and maintenance

The roads will have a maximum speed of 70mph. A control centre will use live traffic information from cameras along the route to alter and monitor these speeds as needed. Signs on the road and in the tunnel will let drivers know what the current speed limit is, and provide further information in the event of an emergency.

All standard-height vehicles that use the motorway will be able to use the tunnel, including coaches and HGVs.

We expect to build a maintenance depot next to a proposed rest and service area. If we do, it would house de-icing equipment for the road and tunnel, maintenance vehicles and office facilities.



Charging will help us manage traffic demand

Charges for using the crossing

Our proposal is to charge users of the tunnel with a free flowing e charging system, similar to the Dart Charge at the Dartford Crossing where drivers do not need to stop but pay remotely.

If the Development Consent Order is granted, it would be some time before the crossing opens, so we plan to ask for flexibility over the design of the charging scheme to help meet our objectives, including optimised traffic management. This means that the charging regime for the Lower Thames Crossing may be different from the one at the Dartford Crossing.

Our current proposal is to ask for charging flexibility in the following areas:

- charge amounts
- charged and non charged hours
- application of peak charges
- vehicle classifications
- emissions based charging
- accounts, discounts and exemptions
- payment requirements and channels

Have your say

To comment on our approach to charging, answer question 10 in the response form.

Find out more

To find out more about our plans for charging, see Approach to Design, Construction and Operation.

We will confirm our charging proposals in our DCO application and will continue to engage with our stakeholders over the details of the scheme

We will confirm our charging proposals in our DCO application and will continue to engage with our stakeholders over the details of the scheme up to the point where the new crossing opens.

At this stage, to help shape our proposals, we are interested to hear your views on our proposal to seek flexibility over the setting of the new Lower Thames Crossing charging scheme.

To help you, we have summarised some of the existing characteristics of the Dart Charge scheme on the right. You can download a leaflet on the scheme from the Dart Charge website at **www.gov.uk** and search for Dart Charge key facts.

Dart Charge

About the Dart Charge scheme:

- Charges apply from 6am until 10pm
- No charge for journeys made outside of 6am and 10pm
- Charges to apply daily, including weekends and bank holidays
- Discounts are available to drivers with an account with us
- Selected vehicle classes and user groups to be exempt from charges

9

Consultation and development consent

The process

The Lower Thames Crossing proposal is classified as a Nationally Significant Infrastructure Project. This means that the Planning Inspectorate, on behalf of the Secretary of State for Transport, will consider our application to build it.

The Planning Inspectorate will make a recommendation to the Secretary of State. If our application is approved, we will be awarded a Development Consent Order (DCO). This gives us permission to build.

It is vital that our consultation is useful and accessible to everyone who lives and works in the area

We are required to hold this statutory consultation before submitting our application. This offers the public an opportunity to learn about our project and provide feedback, which we will use to develop our proposals ahead of submitting our DCO application.

We want our consultation to be useful and accessible to everyone who lives and works in the area. To achieve this, we have worked closely with local authorities to produce a Statement of Community Consultation (SoCC).

This sets out all the activities we have planned for the consultation, including holding a series of events and publishing a collection of documents.

You can read our SoCC on our website at **www.lowerthamescrossing.co.uk/haveyoursay**, at one of our consultation events or by visiting one of our deposit locations.

Find out more

For more information, see our Statement of Community Consultation.

Our public information events will allow you to ask the team questions

Some of the ways we have publicised the consultation include:

- sending letters and leaflets to addresses close to the proposed route
- emailing people on our database who have asked to be kept up to date
- issuing the required statutory notices (Section 48 Notices) to all people and organisations who are 'prescribed consultees'
- placing adverts in several local and national newspapers
- using social media to raise awareness

We will produce a consultation report that explains if, and how, we have changed the proposals in response to feedback provided from the consultation. It will form part of our application for development consent.

If we are awarded a DCO, it is unlikely that our design will change significantly during construction. Therefore, it is important that everyone gives us their views at this stage.

The Lower Thames Crossing timeline

The journey from this consultation to a DCO decision could take several years. The provisional timeline below provides an estimate of how long each stage may take.

October 2018	2019	2019
Pre-application	Submission of DCO application	Pre-examination of DCO application
Start of formal 10-week consultation on the proposals.	Subject to the outcome of the consultation, we will make our submission to the Planning Inspectorate, which will include feedback from the consultation. This is called the DCO application. The Planning Inspectorate has 28 days to decide if the application meets the required standards to proceed, including whether our consultation has been adequate.	You can register with the Planning Inspectorate as an interested party and make formal representations about the project. You will then be kept informed of progress and opportunities to be involved.

10

How to have your say

Please take this opportunity to give us your views on our proposals for the crossing. You can find all the information about the consultation and events, and download a response form at **www.lowerthamescrossing.co.uk/haveyoursay** or pick one up from:

- consultation and other promotional events
- information points
- deposit locations

You can also ask us to send you a form by:

- emailing us at info@lowerthamescrossing.co.uk
- calling us on 0300 123 5000

Send your completed response form using one of the communication channels below. These are all free to use. We cannot guarantee that responses sent to any other address will be included in our analysis and reporting.

Online

Fill in the online survey at **www.lowerthamescrossing.co.uk**

Post

Send your response form or comments to:
FREEPOST LTC CONSULTATION

The Freepost address is the only text needed on the envelope and no stamp is required.

Email

Comments or electronic copies of the response form should be emailed to ltc.consultation@traverse.ltd

Public information events

Fill in and submit the response form at our public information events. This may not be possible at other types of event.

Personal data

We will work with our appointed agents to analyse your comments. Copies may be made available to the Secretary of State, the Planning Inspectorate and other relevant statutory authorities, so your feedback can be considered as part of the Development Consent Order (DCO) application process.

Your personal details will not be placed on public record and will be held securely by us in accordance with the General Data Protection Regulation. They will be used solely in connection with the consultation process and our subsequent DCO application and, except as noted above, will not be passed to third parties.

Privacy

We are committed to protecting your personal information. Whenever you provide such information, we are legally obliged to use it in line with all applicable laws concerning the protection of personal data, including the General Data Protection Regulation (GDPR), which came into effect on 25 May 2018.

We will only use your personal data:

- to analyse your feedback to the consultation
- to produce a summary report, based on responses (individuals will not be identified)
- to write to you about this consultation and other developments
- to keep up-to-date records of our communications with individuals and organisations

Find out more

If you would like more information about how we manage data, email DataProtectionAdvice@Highwaysengland.co.uk. For a copy of our privacy notice, go to **www.highwaysengland.co.uk/terms-and-conditions/**

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Find out more

To access the online response form and to find out more, go to **www.lowerthamescrossing.co.uk/haveyoursay**

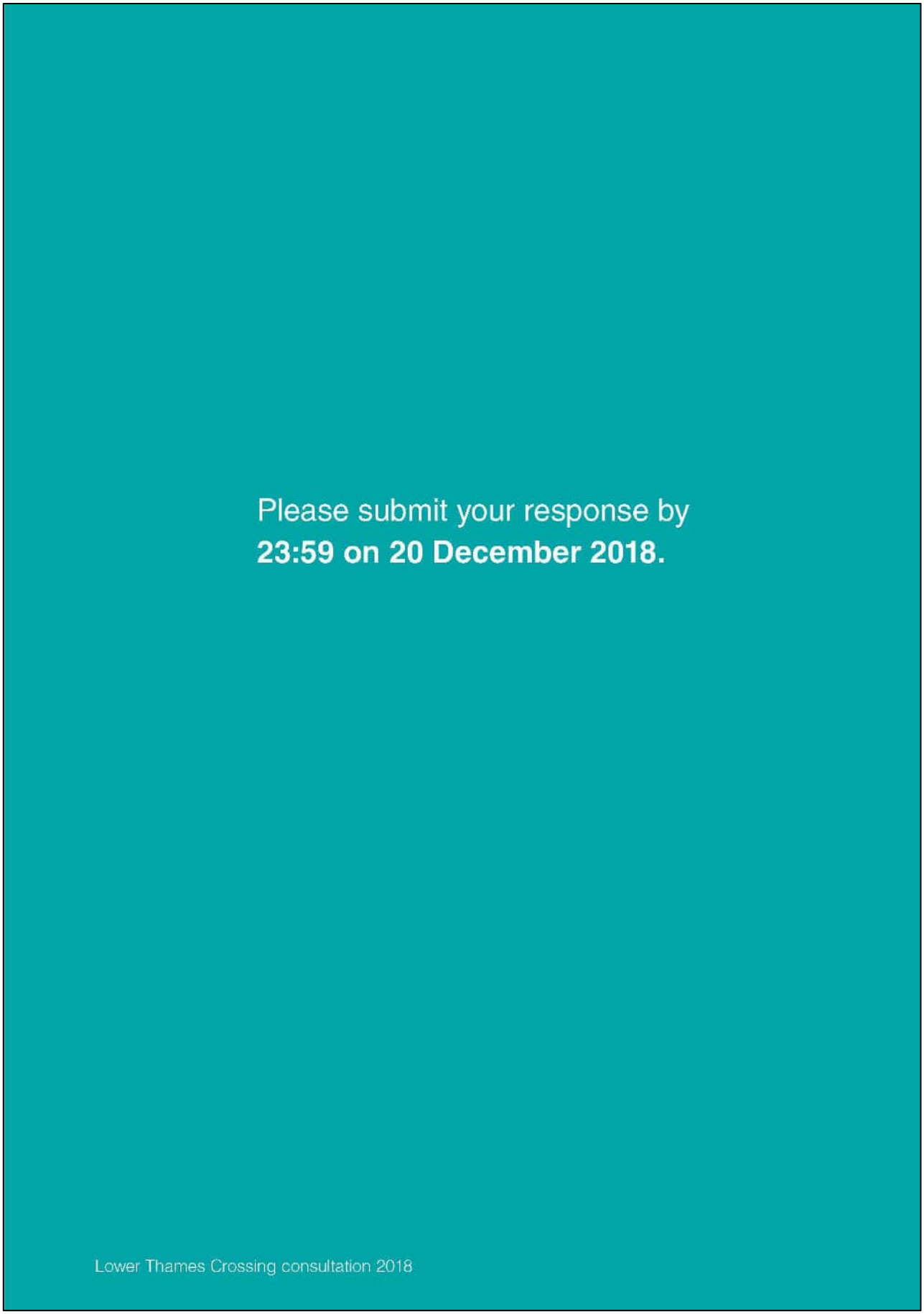
You can also stay in touch via Twitter – @lowerthames

The documents below, all available on our website, give more detail about our proposals:

Approach to Design, Construction and Operation
Case for the Project
Map Books
Preliminary Environmental Information Report (PEIR)
Preliminary Environmental Information Summary
Traffic Forecasting Report
Traffic Forecast Non-Technical Summary

Have your say

It's your road, your tunnel, your journey



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