

# Lower Thames Crossing

## 9.10 Post-event submissions, including written submission of oral comments, for ISH1

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#### List of contents

	Page number
<b>1 Introduction .....</b>	<b>1</b>
1.1 Item 1: Introduction .....	1
<b>2 Purpose of the Issue Specific Hearing .....</b>	<b>2</b>
<b>3 The Applicant’s Proposed Development.....</b>	<b>3</b>
3.1 Project Purpose and Definition .....	3
<b>4 ExA Questions on Project Definition.....</b>	<b>8</b>
4.1 Item 4(a) The need case.....	8
4.2 Item 4(b) Transport demand, traffic modelling and the role of the road in the national and regional transport system .....	11
4.3 Item 4(c) Effects of the two-year rephasing in capital funding .....	14
4.4 Item 4(d) Road design approach .....	16
4.5 Item 4(e) Routing and intersection design .....	18
4.6 Item 4(f) Mitigation design and delivery .....	24
4.7 Item 4(g) Utilities and transmission diversions.....	27
4.8 Item 4(h) Economic benefits .....	29
<b>5 Next Steps.....</b>	<b>33</b>
<b>6 Closing.....</b>	<b>34</b>
<b>7 Annexes .....</b>	<b>35</b>

# 1 Introduction

Please note: this document contains the Applicant’s oral summary of evidence and post-hearing comments on submissions made by others at Issue Specific Hearing 1 held on 21 and 23 June 2023. Where the comment is a post-hearing comment submitted by National Highways, this is indicated.

This document uses the headings for each item in the agenda published for Issue Specific Hearing 1 by the Examining Authority on 12 June 2023.

## 1.1 Item 1: Introduction

1.1.1 National Highways (the Applicant), which is promoting the A122 Lower Thames Crossing (the Project), was represented at Issue Specific Hearing 1 (ISH1) by Tom Henderson, BDB Pitmans, Partner (TH). The following persons were also introduced to the Examining Authority (ExA):

- a. Mustafa Latif-Aramesh, BDB Pitmans, Partner and Parliamentary Agent (MLA)
- b. Dr Tim Wright, Lower Thames Crossing, Head of Consents (TW)
- c. Professor Helen Bowkett, Transport Modelling and Economic Appraisal Lead (HB)
- d. Barney Forrest, Environment Lead (BF)
- e. David Cook, Head of Strategic Operations and Maintenance (DC)
- f. Steve Roberts, Design and Engineering Director (SR)
- g. Nick Clark, Lead Ecologist (NC)
- h. Keith Howell, Utilities Development Lead (KH)

## 2 Purpose of the Issue Specific Hearing

2.1.1 The Applicant did not make any submissions under this Agenda Item.

## 3 The Applicant's Proposed Development

### 3.1 Project Purpose and Definition

- 3.1.1 TH explained that the Applicant had prepared an opening position statement, which addresses to the purpose and definition of the proposed development in order to “set the scene” for matters to be explored in detail under Agenda Item 4. [**Post hearing note:** The Applicant’s opening position statement is set out in the paragraphs that follow].
- 3.1.2 The proposed development can be defined by way of five sub-categories, as follows:
- a. **Physical definition (the proposed works):** The Applicant is seeking development consent under the Planning Act 2008 for the construction, operation and maintenance of the A122 Lower Thames Crossing (the Project). The Project would provide a connection between the A2 and M2 in Kent and the M25 south of junction 29, crossing the River Thames. Junctions would be provided with the A2 to the south-east of Gravesend, at the A13 and A1089 in Thurrock, and at the M25 between junctions 29 and 30. Additional works include utilities diversions and new connections, the construction of supporting infrastructure such as drainage ponds, modifications to the alignment of local roads, the realignment of existing and creation of new public rights of way, and environmental mitigation and compensation measures. The works are described extensively in the Applicant’s Development Consent Order (DCO) application, including in Environmental Statement Chapter 2: Project Description [[APP-140](#)], and in Schedule 1 to the draft DCO [[AS-038](#)], and in the plans and drawings included in the application, in particular the Works Plans [[APP-018](#), [APP-021](#), [AS-024](#), to [AS-030](#)]. The DCO application is founded upon a preliminary design for the proposed development. Should the application be granted development consent, the detailed design would be developed in the post-DCO consent stage in accordance with the preliminary scheme design and subject to the other controls and constraints secured by the draft DCO, including the Design Principles document [[APP-516](#)].
  - b. **Spatial definition (land required):** TH noted that the Land Plans [[AS-006](#) to [AS-010](#)] and Statement of Reasons [[AS-040](#)] identify parcels of land required to deliver the A122 Lower Thames Crossing, including land (and rights in land) required permanently and temporarily. The outer extent of this land is known as the “Order Limits”. The draft DCO contains a suite of compulsory acquisition and temporary possession powers in respect of this land. In identifying the land required for the Project, the Applicant has had careful regard to Section 122 of the Planning Act and associated guidance related to procedures for the compulsory acquisition of land (Department for Communities and Local Government, September 2013), in order to ensure

the various tests are met. This is set out fully in the Statement of Reasons [AS-040]. Within the Order Limits, the works are subject to “limits of deviation”, which means that the land included application allows for a degree of flexibility laterally and vertically. The Applicant’s position is that the level of flexibility is proportionate and reasonable for a Project of this nature, and is necessary to ensure that the Project can be delivered efficiently and effectively, and at best value to the public purse. TH noted that compulsory acquisition and temporary possession will be matters for examination through later written exchanges and compulsory acquisition hearings.

- c. **Operational definition:** The A122 Lower Thames Crossing would be an All-Purpose Trunk Road (APTR) with a 70mph speed limit and restrictions on certain slow-moving traffic. Operational measures sought within the consent include the power to levy a road user charge, and powers to allow for safe operation of the tunnel.
- d. **Legal definition:** As set out in Section 2.3 of the Planning Statement [APP-495] and the Explanatory Memorandum [APP-057], the Project is a Nationally Significant Infrastructure Project (NSIP) by reason of it meeting the definitions and thresholds for “highway-related development” under the Planning Act 2008, sections 14(1)(h) and 22. Having regard to the different limbs under section 22 (namely construction, alteration and improvement), the Applicant’s position is that the Strategic Road Network (SRN) elements of the proposed development fall under section 22(1)(a) of the Planning Act 2008, namely the “construction” of a highway within the meaning of section 22(2). As a consequence of the construction of the highways NSIP, there is a need to divert utilities. Of these, the scale and significance of the works means that four constitute NSIPs in their own right:
  - i. three gas transporter pipelines are NSIPs under sections 14(1)(f) and 20 of the Planning Act 2008; and
  - ii. one overhead electric line is a NSIP under sections 14(1)(b) and 16(1)(a) of the Planning Act 2008.

The remainder of the proposed development, including construction activities, works to local roads, replacement special category land, and environmental mitigation and compensation, fall within the definition of “associated development” under section 115(2) of the Planning Act 2008. A replacement travellers’ site falls under section 115(4B) of the Planning Act as “related housing development”.

- e. **Defining the Scope of Impact and Benefits:** the Project impacts and benefits are defined through a series of assessments which include, but are not limited to: (i) the Transport Assessment [APP-529 to APP-538]; (ii) the Economic Assessment [APP-524 and APP-526]; (iii) the Environmental

Impact Assessment [[APP-139](#) to [APP-486](#)]; and (iv) the Habitats Regulations Assessment [[APP-487](#) to [APP-488](#)]. Each of these has their own extent defined physically and temporally in accordance with relevant legislation, policy and guidance. By way of example:

- i. Transport Analysis Guidance (TAG) issued by the Department for Transport (DfT) forms the basis for the approach to traffic modelling and economic assessment, in accordance with paragraphs 4.5 and 4.6 of the National Policy Statement for National Networks (NPSNN). This is explained in the Combined Modelling and Appraisal Report [[APP-518](#) to [APP-527](#)].
- ii. The Design Manual for Roads and Bridges (DMRB) informs the approach taken to environmental assessment, which reflects the requirements of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. The scope of the assessment was also validated through the obtaining of a scoping opinion from the Planning Inspectorate adopted by the Secretary of State on 13 December 2017.
- iii. The assessments included in the Environmental Statement have employed the “Rochdale Envelope” principle in order to account for the level of flexibility permitted by proposed development via the “limits of deviation”. This is explained in further detail in Chapters 2 and 4 of the Environmental Statement [[APP-140](#) and [APP-142](#)].

3.1.3 The purpose of the Project is best encapsulated by the Scheme Objectives, set out in Table 1.1 of the Need for the Project document [[APP-494](#)]. These objectives are sub-divided under three headings: (i) transport; (ii) community and environment; and (iii) economic. The Need for the Project [[APP-494](#)] explains the severity of the problems currently faced at the Dartford Crossing and which give rise to the need for intervention, and how the proposed development will address those problems and meet the Project’s purpose and objectives. In summary, the Applicant’s position is that there is a critical need for a new Lower Thames Crossing and the proposed development will meet that need.

3.1.4 This draws clear policy support at paragraphs 2.10, 2.22, 2.23 and 2.27 of the NPSNN, which identifies that there is a compelling need for development of the national road network, including new alignments and links which cross rivers and estuaries. For the purposes of the decision-making test under section 104 of the Planning Act 2008, the Applicant’s position is that the proposals fully accord with the NPSNN, and that the benefits of the proposed development clearly outweigh its impacts. This is set out fully in the Planning Statement [[APP-495](#)].

### Minor Refinements Consultation

3.1.5 TH explained that the Minor Refinements consultation sets out three proposed changes to the Project, as described in the document Notification of Proposed

Changes [[AS-083](#)]. The Applicant considers these to be not material changes. The three changes proposed are as follows:

- a. **MRC01 – Blue Bell Hill and Burham nitrogen deposition compensation sites** – this proposes the removal of farmland from the Order Limits (Work No. E2 and part of Work No. E1) which was proposed for nitrogen deposition compensation. Further analysis by the project’s advisors has concluded that can be removed from the Order Limits, whilst still retaining sufficient compensatory habitat to respond to the effects of nitrogen deposition.
- b. **MRC02 – Limits of deviation on bored tunnel headwall** – this involves an increase in the North Portal headwall limits of deviation (north on alignment) from 125m to 275m (associated with Works No. 4A and referenced on Sheet 2 of the Tunnel Limits of Deviation Plans [[APP-046](#)]), to provide additional design flexibility. This may result in a reduction in the length of the cut and cover tunnel Work No. 5A(ii) and an equal increase in the length of the bored tunnel Work No. 4A(i).
- c. **MRC03 – East Tilbury utilities relocations and Order Limits reduction** – this proposes to change the location of the two Utility Logistics Hubs, known as Muckingford Road and Low Street Lane Utility Logistics Hubs (ULH 11 and 12 respectively), and to modify the alignment of the temporary Linford bore pipeline (Works No. MUT6). This allows for a reduction in the temporary land requirements in the area, reducing the Order Limits and impacts on land as a result. This change would also move construction works further away from residential properties in East Tilbury, reducing the potential environmental impacts associated with those works. These changes would involve the acquisition of new permanent rights over a small number of land plots which were previously proposed to be subject to powers of temporary possession only.

3.1.6 MRC01 and MRC03 arose through engagement with interested parties and both of these changes are intended to address concerns raised either explicitly or indirectly in relevant representations.

3.1.7 Independent of the three changes noted above, the Minor Refinements consultation also provided an update on construction, setting out how construction of the two road tunnels could be delivered using a single Tunnel Boring Machine (TBM), as an alternative method to two TBMs. The Applicant does not consider this to be a change for the following reasons:

- a. The use of a single TBM is within the scope of the environmental assessments prepared for the Environmental Statement – i.e. it does not result in materially new or materially different effects.
- b. The DCO application contains no constraint or commitment (either in the draft DCO or control plans) that requires the use of two TBMs. Thus, the



application contains a proportionate degree of construction flexibility, which includes flexibility to employ a single TBM.

- c. The decision on construction methodology, in terms of one or two TBMs, has not been made at this stage and would be made at detailed design and delivery stage.
- d. It is commonplace for major DCO applications to allow for an appropriate degree of construction flexibility, and indeed in the case of a public project it is very much in the public interest, allowing for projects to be delivered at best value to the public purse – provided always that the controls provided for in the suite of DCO documents are adhered to.

### Further change

- 3.1.8 In response to the ExA's query as to whether the Applicant envisages any further changes to the Project, TH confirmed that the Applicant does not currently anticipate any further substantial change. TH noted that ongoing engagement with interested parties may result in additional minor changes to respond to representations, and there is clearly value in advancing these with a view to closing out issues.
- 3.1.9 The Applicant is mindful of the ExA's comments at the Preliminary Meeting that any further changes should be introduced with sufficient time remaining for their examination.

## 4 ExA Questions on Project Definition

### 4.1 Item 4(a) The need case

#### Item 4(a)(i)

4.1.1 Item 4(a)(i) - Can the Applicant demonstrate that the proposed development will meet anticipated need?

#### Anticipated need

4.1.2 TW noted that the Applicant has demonstrated through the application that it will meet anticipated and current need. The Need for the Project [[APP-494](#)] sets out the following reasons for need:

- a. The high level of traffic demand for crossing the River Thames east of London significantly outstrips the available road space supply, which has become progressively worse over time.
- b. The Dartford Crossing suffers frequent transport congestion delays, making it one of the most unreliable sections of the SRN.
- c. This is a major impediment to economic growth in the South East of England and the rest of the country, given that this is a major strategic link to continental Europe.
- d. The severance caused by the River Thames at this location and the congestion of the Dartford Crossing has meant that the lower Thames area has lacked investment and economies to the north and south of the river have developed separately.
- e. Congestion and delays disrupt social and community interactions, and impact the environment and surrounding communities. TW concluded that there is a strong need for a new crossing of the River Thames.

4.1.3 TW made reference to the NPSNN, noting that it sets out how congestion and low journey time reliability have an adverse impact on drivers and the economy. The Applicant has provided information relating to the users of Dartford Crossing in the Need for the Project [[APP-494](#)].

4.1.4 TW noted that due to the volume of traffic at the Dartford Crossing, impacts often extend to the local road network, detail of which can also be found in the Need for the Project [[APP-494](#)].

#### How the Project will meet anticipated need

4.1.5 TW highlighted that the Project would increase the supply of available road space by over 80% to serve the traffic demand wishing to cross the River Thames east of London. The traffic modelling undertaken for the Project demonstrates that at Dartford for the modelled opening year of 2030 there would be a 19% average reduction of vehicles using the crossing in the peak hours, as well as reductions in traffic flows on the M25 / A282 corridor between

junction 30 and junction 2 of the M25 and the connecting A2, M20 and A13 west of the new crossing. TW noted that this would result in substantial improvements in both journey times and journey time reliability across the region. The benefits have been noted in a number of relevant representations submitted by businesses and the wider public.

- 4.1.6 TW stated that the Project would create better connections between Kent, Thurrock and Essex, both on the new crossing and the Dartford Crossing, with a transformational effect on local economies. The Applicant's position is that the connectivity between ports and the rest of the country will be improved, and congestion in the region will be reduced leading to better quality of life and reduction in blight that current congestion causes. These benefits continue through to the latest forecast year of 2051. A more detailed summary can be found in Section 8.4 of the Planning Statement [[APP-495](#)].
- 4.1.7 In response to the ExA's observation in relation to the anticipated newly integrated north and south economies, HB made reference to the Lower Thames Area Model (LTAM) created by the Applicant. HB explained that the model followed the DfT's transport appraisal guidance and is a variable demand model. HB explained that this means the change in journey times on the highway network that are experienced as a result of the division of new capacity across the Thames, alongside the behavioural response of drivers, is taken into account.
- 4.1.8 In response to the ExA's question as to whether the Applicant considers that the model is sufficiently conservative, HB noted that the strength of the response of drivers to changes in time and cost of journeys is calibrated using sensitivity tests set out in the appraisal guidance, as issued by the DfT. HB confirmed her professional opinion that this is a reliable and robust model.

#### **Item 4(a)(ii)**

- 4.1.9 Item 4(a)(ii) - Is it anticipated and if so, how swiftly is it anticipated that the proposed LTC alignment might become capacity constrained by traffic demand?
- 4.1.10 TW noted that within the forecast period it is not anticipated that the proposed Lower Thames Crossing alignment would become capacity constrained by traffic demand. The Applicant's transport model demonstrates this up to 2051. Traffic forecasting towards the later years of the modelling show that some of the slips will potentially experience slowing of vehicle speeds at certain times. The Applicant considers this appropriate in consideration of the performance of the wider road network and the direction set out in paragraph 2.24 of the NPSNN that it is not policy to meet unconstrained traffic growth or "predict and provide".
- 4.1.11 In response to comments from interested parties (including Gravesham Borough Council and Thurrock Council) regarding strategic capacity and whether the proposed development provides sufficient relief at Dartford, TW noted that the overall reduction in traffic at the Dartford Crossing in 2045 remains up to 30% in peak hours compared to without the crossing. TW noted the importance of considering the nature of the traffic, in particular:
- a. The traffic modelling demonstrates significant journey time savings and in 2045, the time to cross the Dartford Crossing is forecasted to fall from 14 to

7 minutes. Journey time reliability gains continue to be found until the end of the appraisal period, demonstrating that benefits continue to be seen.

- b. Tables 8.50 and 8.52 in Appendix C to the Combined Modelling and Appraisal Report [[APP-522](#)] set out changes in destination and choices people make using the Dartford crossing. TW highlighted that the largest increase in the number of people using the Dartford Crossing is people making local to local journeys. These people receive the benefit of capacity created and this continues to be felt by local communities through 2045.
- c. Table 5.3 of the Traffic Forecast Non-Technical Summary [[APP-528](#)] shows a reduction in the proportion of vehicles using the Dartford Crossing which are Heavy Goods Vehicles leading to improvement of user experience and traffic flows.

- 4.1.12 TW explained that whilst the Applicant acknowledges that there will be an increase in traffic flow across the Dartford Crossing, the benefits continue to grow, as the Project delivers economic benefits both to the country as a whole and each individually assessed area, including all affected local authorities, as set out in the Economic Appraisal Report [[APP-526](#)].
- 4.1.13 In response to Thames Crossing Action Group's (TCAG's) comments on design capacity, TW noted that the quoted design capacity value for the Dartford Crossing is an annual average daily traffic number. Whilst this is useful information, it does not explain the performance of a road as a link itself, combined with the surrounding road network. For this reason, the Applicant considers the journey time and reliability benefits in order to understand the overall benefits of the Project, rather than design capacity.
- 4.1.14 TW also responded to the TCAG's point regarding the provision of modelling for 2030, despite the ministerial statement and the announcement of a project rephase by two years. TW noted that the Applicant provides for both 2030 and for 2045 and that with any project there is always some uncertainty regarding the opening year. The Applicant considers that the 2030 and 2045 models set out sufficient information in order to understand performance during this period, in accordance with the expected standard approach.
- 4.1.15 In response to Thurrock Council's (TC's) submission regarding sufficiency of the LTAM, TH noted paragraph 4.6 of the NPSNN, which provides that "The Examining Authority and the Secretary of State do not need to be concerned with the national methodology, the national assumptions, around the key drivers of transport demand", On that basis TH submitted that there is clear support, in policy terms, for the approach taken to modelling.
- 4.1.16 HB continued to explain that the model has elasticity values showing the strength of response to a change in journey times and cost. The forecast of levels of predicted traffic growth follows the DfT's TAG and sets out both the forecasted traffic flows and journey times, both in high and low growth scenarios. This is reported in the Transport Forecasting Package [[APP-522](#) and [APP-523](#)].

- 4.1.17 In response to Transport for London (TfL)'s comments about the scheme generating more traffic north of the M25 junction 28, and the need for more mitigation – TW noted that the Applicant's position is that the overall benefits across the wider road network outweigh the adverse impacts, which is reflected in both in the economic benefit of the Project within each local authority area and on an aggregated basis. TW explained that the adverse impacts on traffic flows have been assessed and considered against NPSNN.
- 4.1.18 **Post-hearing written submissions:** These are contained within Annex A and include:
- Section A.2 – A further explanation of how the reduction of traffic at the Dartford Crossing links to the benefits of the Project
  - Section A.3 – Information explaining new (induced) and longer trips
  - Section A.4 – Responses to specific points made by interested parties, including Gravesham Borough Council, Thurrock Council, Medway Council and Uniper
- 4.1.19 **Post-hearing note:** The Applicant has noted that Dr Wright was unclear when stating the forecast in reduction in traffic in 2045. In 2045 the overall reduction in traffic at the Dartford Crossing remains an average 13% in the peak hours compared to without the crossing. The Transcript of Issue Specific Hearing 1 (ISH 1) - 21 June 2023 [[EV-023](#)] at line 15 of page 41 incorrectly states 30%.

## 4.2 Item 4(b) Transport demand, traffic modelling and the role of the road in the national and regional transport system

### Item 4(b)(i)

- 4.2.1 Item 4(b)(i) How will the proposed LTC affect the operation of the existing M25/A282 Dartford crossing?
- The Applicant did not make any further submissions under this Agenda Item, as the ExA agreed that this had been covered under agenda item 4(a) of ISH 1.

### Item 4(b)(ii)

- 4.2.2 Item 4(b)(ii) How will the proposed LTC address traffic demand arising from the M20 corridor (and possible demand for trips between the LTC alignment and the M20 alignment in Kent)?
- HB noted that one of the modelled responses in the LTAM is for road users to change the route that they use either to the same or a new destination as a result of the Project. HB referred to the maps shown in the Traffic Forecast Non-Technical Summary [[APP-528](#)] illustrating the forecast changes in traffic flows on the road network, and to Chapter 7 of the Transport Assessment Application [[APP-529](#)] describing forecast changes in detail.

- b. In response to Gravesham Borough Council's (GBC's), Kent County Council's (KCC's) and TCAG's comments concerning the A229 Bluebell Hill corridor, TH noted that a potential intervention was considered in the development of the Project, known as 'C variant', but had been discounted, as it was not required to meet the scheme's objectives. Detail in respect of the reasoning is set out in Chapter 5 of the Planning Statement [[APP-495](#)]. TH confirmed that active reconsideration ("back-checking") had been given to options throughout the development and up to submission of the DCO application.
- c. TH noted that there is a parallel process (i.e. separate from the Project) underway, led by KCC, to consider a potential intervention at Bluebell Hill. TH emphasised that this was an example of the "wider network impact" strategy outlined earlier in the hearing by TW, which was necessary and appropriate for a project on the scale of the Project – unprecedented for a highways DCO in terms of scale and impact, given that it will redistribute traffic across the region. TH emphasised that all traffic modelling and economic assessment takes account of the benefits and adverse impacts of the project, and so this is fully reflected in the Applicant's case. The Applicant's ultimate position is that the Project clearly demonstrates a beneficial impact, both in terms of traffic and economics.
- d. **Post-hearing written submission:** The response to Shorne Parish Council's comments on the A2 / M2, the A289 and traffic diverting from the M25, is provided in Annex B.1. In response to the ExA's remarks around resilience, TH noted that this is addressed in the Need for the Project [[APP-494](#)] at paragraph 5.26. TH highlighted that in the Applicant's view, the construction of a second crossing clearly adds resilience to a network that currently only has one road crossing east of London, and provides extensive network performance improvements.

### Item 4(b)(iii)

#### 4.2.3

Item 4(b)(iii) Are there elements of demand for the LTC alignment that can be met by existing or new heavy rail, or light rail/tram services (such as KenEx/Thames Gateway Tramlink) and to what extent has the contribution of such modes and options been explored?

- a. HB explained that the transport model used by the Applicant includes the ability for trips to change mode as a result of the introduction of the Project. The Applicant does not consider that future light or heavy rail schemes would have the capacity, or be sufficiently attractive to users, to carry a sufficiently high number of trips across the Thames so as to reduce the need for the Project. The Applicant has considered this in the Planning Statement [[APP-495](#)].

- b. HB noted that with regards to heavy rail, the Planning Statement [[APP-495](#)] concludes that a service sufficient to accommodate projected number of passengers, along with diverse origins and movement patterns would not be feasible.
- c. HB commented that with regards to rail freight, the Planning Statement [[APP-495](#)] concludes that it was very unlikely that sufficient new infrastructure (including rail intermodal distribution terminals) would be provided over the foreseeable future. As such, enhanced provision would not represent a viable modal alternative.
- d. HB noted that with regards to a new light rail crossing of the Thames, the Applicant considers that this could meet some elements of the local demand for the Project, but that this would not be able to accommodate a sufficient level of demand to reduce the need for the Project. The Applicant considers that complementary provision of light rail or bus rapid transit system across the Thames area would not serve to release the Dartford Crossing demand. HB also noted that there is currently a bus service (the X80) across the Dartford Crossing of which the project would serve to decrease the journey time, as set out in Section 7.11 of the Transport Assessment [[APP-529](#)].
- e. HB highlighted that the Project would provide a new route across the Thames that public transport operators or regional coach services may choose to use. Local buses would not be required to pay the user charge at the crossing, as set out in Section 2.2 of the Road User Charging Statement [[APP-517](#)].
- f. In response to the ExA's query regarding whether alternative modes had been fully explored, HB explained that when considering public transport alternatives to the Project, there are two main issues to consider. These are: (1) the business case of the alternatives and whether they would be financially and commercially viable – that is a supply side constraint; and (2) whether, on the demand side, sufficient demand would exist for these services, taking into account journey times. The Applicant has considered whether enough people would want to move to public transport away from use of their own vehicle, and has concluded that this would not be the case. HB noted that although local light rail services or extensions to or new bus routes could be helpful in serving transport needs of passengers crossing the river, the Applicant considers that they are not in themselves sufficient to reduce the need for the Project.
- g. In response to submissions made by TC and TCAG concerning the assessment of public transport alternatives, TH stated that the Applicant would provide written responses. TH also noted that in respect of the 2009 Dartford river crossing study, Chapter 5 of the Planning Statement

[[APP-495](#)] contains an updated reappraisal of the information contained in this study.

4.2.4 **Post-hearing written submissions:** These are contained within Annex B and include:

- a. Section B.2 – Consideration of rail alternatives
- b. Section B.3 – Response to specific points made by Shorne Parish Council
- c. Section B.4 – Response to specific points made by Thurrock Council

### 4.3 **Item 4(c) Effects of the two-year rephasing in capital funding**

#### **Item 4(c)(i)**

4.3.1 Item 4(c)(i) Is there sufficient scope within the Rochdale Envelope for the proposed development (effects as assessed in the Environmental Statement (ES)) to take account of the two-year rephasing in capital funding that has occurred in the period between the acceptance of the application and the commencement of the Examination?

- a. TH agreed with the ExA in stating that the Applicant has already made full written submissions in relation to the Rochdale Envelope and as such, had nothing further to add.
- b. In response to submissions made by GBC, the Port of London Authority (PLA) and the Port of Tilbury (PoT) about the need for more environmental information about the effects of rephasing, TH explained that the Applicant had anticipated responding to these matters once raised in the ExA's first written questions. TH noted however, that the Applicant does not agree with the submission that the two-year rephasing should be conceived as a change to the application. The Applicant considers that, in line with other DCO applications, the draft DCO permits a period of five years to begin development. Accordingly, the application accommodates a proportionate degree for flexibility around the timing of construction, which allows for the two-year rephasing announcement. The level of flexibility sought here by the Project is no different to the level of flexibility contained in many other, if not all, DCO applications.

4.3.2 **[Post-hearing note:** it is noted that the ExA's action list for ISH1 [[EV-023a](#)], and item 1, contains a request for more information on this matter which will be submitted by Deadline 2.]



## Item 4(c)(ii)

- 4.3.3 Item 4(c)(ii) What is the effect on construction duration and environmental effects of the proposed use of a single tunnel boring machine (TBM)?
- a. TH reiterated that the Applicant’s position is that this is not a “change”, rather something that was already accommodated within the proportionate degree of construction flexibility that the application allows for.
  - b. In response to the ExA’s question relating to the DCO and the various control documents, TH reiterated that no change is required to those documents in order to accommodate the delivery of the scheme using a single TBM.
  - c. BF explained that the overall construction duration and tunnelling programme remains consistent with the timeline shown in Plate 2.13 on page 147 in the Environmental Statement Chapter 2: Project Description [APP-140]. BF further explained that with one TBM, the elements of the construction works required at the northern tunnel entrance before the tunnelling can start would be smaller in scale, allowing tunnelling to start approximately 10 months earlier in the programme. The remaining works at the northern tunnel entrance would then be constructed in parallel whilst the TBM operation is underway. The construction of the second tunnel would be serviced from the north portal compound with tunnelling slurry and tunnel segments brought through the tunnel which is constructed first.
  - d. BF noted that the proposed use of a single TBM would not constitute a change to the permanent works nor footprint of the development. In addition, the works at the north portal would start earlier with an increase in early-phase activity (albeit lower in the more intensive subsequent phase and therefore within the envelope of assessment), and that the Applicant has assessed that there would be a benefit of approximately a 38,000 tonnes reduction in carbon as a result of using one less TBM.
  - e. The ExA requested that the Applicant, in tandem with its change request, submit clear reasoning why the single TBM was not a change. TH noted that the Applicant’s proposed addendum to the Environmental Statement for Deadline 1 could include modifications to the project description to recognise that the tunnel could be constructed using either one or two TBMs.
- 4.3.4 **[Post-hearing note:** the Applicant notes that the ExA’s action list for ISH2 [EV-30a], item 2, requests additional information about the implications of a single TBM for Deadline 2. On that basis, the Environmental Statement addendum [Document Reference 9.8] to be submitted at Deadline 1 will *not* include any changes to the Project description associated with a single TBM approach. This update can follow later, once the ExA has come to a view on whether or not it agrees with the Applicant that it is not a “change”.]

- 4.3.5 In response to submissions made regarding consultation on the forthcoming change application, TH confirmed that the Applicant intends to submit a consultation report which thematically reports on comments made by interested parties in relation to the three changes proposed by the Applicant.

## 4.4 Item 4(d) Road design approach

### Item 4(d)(i)

- 4.4.1 Item 4(d)(i) Having regard to anticipated traffic levels and user safety, is there a case for a different road design approach, including consideration of a special road/motorway, provision of a continuous hard shoulder or any other particular safety measures?
- a. MLA explained that the A122 is not proposed to be a smart motorway nor a special road. In relation to how this is secured in the terms of the order, MLA noted that Article 15 of the draft DCO [[AS-038](#)] relates to the classification of roads. The A122 is proposed to be an All-Purpose Trunk Road (APTR), which is also shown in the Classification of Roads Plans [[APP-041](#)]. MLA noted that there are important distinctions between different roads, in particular in relation to appropriate design standards.
  - b. DC proposed splitting this agenda item into two parts: (1) the distinction between the classifications of road type; and (2) safety measures and whether it would be appropriate to incorporate hard shoulders.
  - c. In relation to the first part, the Applicant's position is that there is not a case for an alternative road design approach. DC submitted that the current design is compliant with standards and is appropriate for the traffic levels and user safety.
  - d. DC explained that consideration has been given to whether the Project could be a motorway and that this had subsequently been ruled out. The Project provides a link between the M25, the A13 and the A2. Motorways generally provide long distance corridors across the country and two of the three roads the Project provides a link between are also APTRs. Most of the surrounding roads are also APTRs, so in order to maintain route consistency and ease of customer experience, an APTR has been deemed most suitable by the Applicant.
  - e. DC noted that APTRs do not usually feature hard shoulders and that the Project has been designed in accordance with the DMRB and its requirements for APTRs. DC explained that the Project features full width lanes (3.65 metres) each side of the carriageway, with a minimum of one metre hard strip. The road will also feature verges in order to create a feeling of open space and safety. Under the preliminary design, almost half of the road would have no barrier at all or would comprise an emergency

area or layby to stop in. In these areas road users would have full access, if they absolutely needed to, to the verge area.

- f. Where the road includes vehicle restraint barriers – for example, if that’s protecting a structure or equipment that needs to be in that verge – this will feature the one metre hard strip, in addition to 1.3 metres of hardened drainage area. So if a road user did need to leave the nearside lane and there was a barrier there, there would be at least 2.3 metres of space, which is a typical car width.
- g. DC explained that the Project incorporates additional road safety features that would not usually be found on an APTR, for example, lane control signs, variable mandatory speed limits, stopped vehicle detection for all lanes, full CCTV coverage, places of relative safety at regular and predictable intervals, and on-road resource from traffic officer service patrolling. DC also noted that the Applicant envisages continuing to incorporate features as and when the DMRB standards change.
- h. It is the Applicant’s view that it would therefore not be appropriate to include a hard shoulder or necessary to include additional safety measures over and above the measures outlined.
- i. In response to the ExA’s queries regarding the effectiveness of stopped vehicle protection, DC confirmed that a huge amount of effort has gone developing and improving stopped vehicle protection, which is subject to annual reporting and will continue to be enhanced. DC also confirmed, in response to the ExA’s question, that speed enforcement by way of speed cameras would be included in the road safety features.
- j. In response to the ExA’s queries (arising from representations) around whether the LTC had been modelled as a motorway, HB confirmed that the LTC has been modelled as an APTR. HB advised that the cause of the confusion had arisen From the Combined Modelling and Appraising Report, Appendix D [[APP-526](#)], which explains the approach to accident appraisal using the COBALT software prescribed by TAG. This has within it a prescribed set of road types with the accident rates that get used in the software, and applying professional judgment the Applicant had to consider – of the very limited set of road types and accident rates that are available in COBALT – which would be the most representative to use for the LTC in the accident appraisal. Based on the fact that the road would have prohibited traffic measures, segregated junctions, and given the distance of the junctions, a professional judgment decision was taken to use the “motorway” accident rate provided in COBALT for that assessment.
- k. In response to the ExA’s questions about tunnel restrictions, MLA confirmed that traffic restrictions are often seen as features on APTRs. DC confirmed

that the Applicant has included traffic restrictions in the Project for safety reasons.

- l. The Applicant said it would respond in writing to the ExA's request around what circumstances would lead to the LTC being designated as a motorway, as opposed to an APTR
- m. In response to the submission made by TC about the project not meeting the scheme objective relating to safety, MLA confirmed that paragraph 9.3.7 of the Transport Assessment [[APP-529](#)] shows how on a per kilometre travel basis, the accident rate drops. He reiterated that there are no smart motorway features proposed for the Project, rather these are features of an APTR. MLA noted that the Applicant and the government have been reviewing the position in respect of the status of the road and have concluded that it is indeed an APTR.
- n. In response to the submission made by the PoT about tunnel evacuation measures, MLA referenced clause number S9.24 in Table 5.5 of the Design Principles [[APP-516](#)] which sets out the requirement for evacuation points.

#### 4.4.2 **Post-hearing written submissions:** These include:

- a. Annex D, Section D.2 – Response to the points made by TCAG on coding as a motorway
- b. The document Design and Operational distinction between an APTR and Smart Motorway [Document Reference 9.17] – provided to respond to the ExA's ISH1 action list [[EV-023a](#)], at item 3, which requests a summary document describing the design and operational distinction between a three lane per side AAPT and a Smart Motorway.

## 4.5 **Item 4(e) Routing and intersection design**

### Item 4(e)(i)

- 4.5.1 Item 4(e)(i) What consideration has been given to possible alternative routes and/or alignment design mitigations at route 'pinch points', specifically in open land between North and South Ockendon, at Baker Street and between the hamlet of Thong and Riverview Park?
  - a. TH explained that the response to this question had been divided by the Applicant into (1) a regional consideration which culminated in the preferred route announcement in 2017, and (2) a detailed consideration which led to the exact alignment as in the Application Documents.
  - b. On (1), TW confirmed that:
    - i. As required by the NPSNN, paragraph 3.3, 4.11, 4.26 and 4.2, the Applicant undertook an options appraisal process in developing the

alignment for the scheme. This is set out in Planning Statement Chapter 5: Project Evolution and Alternatives [APP-495], and in Environmental Statement Chapter 3: Assessment of Reasonable Alternatives [APP-141]. Hence the early development of the Lower Thames Crossing involved a detailed options appraisal, and between 2009 and 2017, a series of corridors were considered, narrowed down into defined potential routes through a process of study and consultation. As part of this process, corridors were located both east and west of the proposed alignment, and they were considered and discounted.

- ii. By 2016, the options had been narrowed down, and four alignments were set out at consultation, alongside information on the process and all of the routes that had been considered up to that point. These included crossing the river Thames at the current location, which historically was referred to as Location C, and at Dartford, which was referenced as Location A. At Location C, there were three potential alignments north of the river Thames, which were referred to as Routes 2, 3 and 4, which converged on a single crossing and then diverged onto two alignments south of the river, referred to as the Eastern Southern Link and the Western Southern Link. At Dartford, a single alignment was considered, referred to as Route 1.
- iii. Each of these routes was considered in turn for their different impacts on communities and the environment. For example, the pinch point between North and South Ockendon and at Baker St would have been avoided by selection of Routes either 1 or 4, simply as the route did not pass through this area. The pinch point between the hamlet of Thong and Riverview Park would have been avoided by the Eastern Southern Link for the same reason. However, while these pinch points would have been avoided, each of these potential alignments brought with them other issues and other pinch points which brought their own community and environmental impacts. Detailed explanations of why these routes were not selected as the preferred route by the Secretary of State in 2017 are set out in Planning Statement Chapter 5 [APP-495].
- iv. Fundamentally, the preferred alignment was selected by the Secretary of State on the grounds that only a new crossing at Location C satisfies the transport-based elements of the scheme objectives. Route 3 provides the most direct route with the lowest environmental and community impacts north of the river, and the Western Southern Link would achieve the transport and economic objectives whilst having a material lower impact than the Eastern Southern link on the environment and communities.

- c. On (2), SR explained that localised considerations were made following the preferred route alignment. These included minimising environmental, local community and land and property impacts, impacts on physical constraints and working with existing topography and considering existing ground conditions. SR explained that the Applicant applied the relevant standards under the DMRB for an APTR. In respect of the three pinch points identified by the ExA under this Agenda Item, SR addressed each of these in turn:
  - i. North and South Ockenden: The Applicant has sought to align the route so that it is approximately equidistant between the two communities, avoiding the North Ockendon conservation area and listed buildings. The Applicant is proposing to use false cuttings to assist with mitigation and screening the road in this location and has also sought to minimise the impact on the environmentally sensitive area of The Wilderness. The route location has also been selected so that it ties in with the M25 to the north and avoids impacts on the Upminster and West Branch railway and the Ockenden landfill site.
  - ii. Baker Street: Working within the constraints of the existing A13/A1089 junction, the Applicant has sought to tie LTC in at this location to achieve the required connectivity and has sought to avoid specific heritage assets in the area, in particular the Baker Street Windmill.
  - iii. Between the hamlet of Thong and Riverview Park: The Applicant has sought to align the LTC to lie approximately equidistant between the two communities, avoiding the conservation area and associated listed buildings. The Applicant also sought to tie the road into the A2 junction to the south, and to the southern tunnel portal. The Applicant also took into account the topography in the area, with the deep cutting providing visual and noise mitigation at this location.
- d. In response to the ExA's question about protected heritage assets at Baker Street that would be lost as a result of the project, and what priority had been given to these matters in connection with the requirements of the road's design, TH agreed with the ExA's proposal to respond in writing.

4.5.2 **Post-hearing written submission:** The Applicant has provided more information in Annex E as follows:

- a. Section E.2 provides information on the consideration of alternatives in relation to heritage at Baker Street.
- b. Section E.3 provides information on the ecological value of the Wilderness

## Item 4(e)(ii)

- 4.5.3 Item 4(e)(ii) What consideration has been given to land take at intersections and whether alternatives to the ‘all directional slip’ model for the main intersections at Baker Street and Shorne /A2/M2 have been considered?
- a. SR explained that the land take at the junctions is a function of the connectivity required and the type of junction used, and the connectivity is predominantly based on forecast traffic flows, and what the Applicant has sought to do is to maximise the benefits of the scheme by minimising journey times, whilst seeking to minimise impacts. The Applicant also wishes to seek to balance the strategic nature of the Project, whilst ensuring adequate connectivity for local journeys.
  - b. ‘All directions to all directions’ movements at the A13 junction are not included, as some of these movements are not required. SR explained that the connectivity between the A122 and the A13 provides east facing slip roads, which are essential links for traffic connecting Kent and east Thurrock and Essex, including London Gateway Port. This traffic currently uses the A13 between the proposed A122 alignment and M25 junction 30.
  - c. SR further explained that due to substantially lower demand for traffic from Grays and Tilbury, due to the proximity of the Dartford Crossing, no free flowing west-facing connections have been provided between the A122 and the A13.
  - d. The A2 junction is proposed as an all-movements junction, with free-flow slip roads. The predominant movement is to and from Lower Thames Crossing and the A2 to the east. However, the connections to the west are also important to facilitate local access from Gravesend, reflecting the need to maintain a balance between the strategic nature of Lower Thames Crossing and ensuring adequate local connectivity.
  - e. In terms of junction type, SR explained that the main considerations were capacity, likely journey origins and destinations, physical and environmental constraints, compatibility of the junction type with the wider Strategic Road Network, and suitability for use on an APTR. SR noted that the land take and scale of junction would still be significant with a ‘roundabout’ junction, and referenced the existing M25 junction 2 where a multi-level roundabout junction has been retrofitted with free-flow slip roads to/from the M25.
  - f. SR noted that the Applicant’s design can generally be seen to provide free flow links in order to minimise journey times and maximise economic benefits, as informed by the traffic modelling undertaken.
  - g. In response to the submission made by GBC, TH confirmed that the rationale for the option selection of Location C versus Location A is set out in detail in Chapter 5 of the Planning Statement [[APP-495](#)]. He emphasised

that this represented a significant body of assessment over a number of years, of which only a brief summary had been possible within the confines of this hearing.

- h. The Applicant noted the ExA's agreement to the suggestion that the Applicant responds in writing to the submissions made by TCAG in relation to the Wilderness, and the submissions made by TC and the PoT in respect of the chosen layout. The Applicant also noted the ExA's request for further information on the Orsett Cock junction, which as the ExA noted, will be addressed at a future Traffic and Transport hearing.

**4.5.4 Post-hearing written submission:** The Applicant has provided more information in Annex E as follows:

- a. Section E.4 – Information on a potential future junction between North and South Ockendon in response to the comments made by Thurrock Council
- b. Section E.5 – Information on capacity at Orsett Cock Junction in response to comments made by Thurrock Council
- c. Section E.6 – information on the consideration of alternative configurations at Orsett Cock junction that could be realised by including the Tilbury Link Road as part of the proposed A122 Lower Thames Crossing in response to comments made by Thurrock Council.
- d. Section E.7 – information on the option selection process for Location A vs Location C in response to comments made by Gravesham Borough Council

#### **Item 4(e)(iii)**

**4.5.5** Item 4(e)(iii) Has adequate provision been made in the proposed LTC design for port access (referring specifically to Tilbury, Tilbury 2, DP World London Gateway Port and extension) and for access to other proposed and emerging business, industrial and employment uses of land?

- a. TW summarised the Applicant's position, which he confirmed would follow in writing at Deadline 1. In summary, the Project provides improved access for ports and other employment in the area, which the Applicant considers to be adequate provision. Appendix C of the Combined Modelling and Appraisal Report [[APP-522](#)] provides tables of route-based journey time comparisons between the Port of Tilbury, London Gateway and a series of locations both north and south of the river. TW further noted that the PoT will retain existing connectivity and benefit from substantial relief on the approach roads to the Dartford Crossing. In addition, London Gateway will retain existing connectivity and benefit from direct free flowing links from the A13 onto the LTC both northbound and southbound, and from the LTC southbound onto the A13.



- b. As previously stated therefore, the port facilities would benefit from the new connectivity provided, and particularly from the new connections between the Lower Thames Crossing, the A13 and the A1089.

### Item 4(e)(iv)

4.5.6 Item 4(e)(iv) Has adequate provision been made for the provision/restoration of community connections across the LTC alignment?

- a. TH noted that the Applicant has addressed severance of community connections as an important aspect of the Project's design. All local roads severed by the Project will be provided with grade-separated connections, save for Hornsby Lane – in the latter case, alternative access would be available via a short diversionary route. TH noted that in most cases, re-provided local road links will include new or enhanced provision for walkers, cyclists and equestrian users, and some re-provided local road links include green corridors to reconnect or enhance connections with ecological habitats.

4.5.7 Item 4(e)(v) Has adequate provision been made for the provision/restoration of connectivity across the LTC alignment for non-motorised users (NMUs)?

- a. TH highlighted that the Applicant has made provision for the restoration and enhancement of existing public rights of way impacted by the Project. TH explained that in the majority of cases, existing routes will remain along their current alignments, and where that is not possible, an alternative route has been provided. Many new public rights of way are also promoted by the project, which augment and enhance the existing public rights of way network, and these have been identified through an assessment of existing and potential user needs to inform the project design. In some locations the Applicant has promoted NMUs that address historic severance in the wider area.
- b. TH referenced the NPSNN at paragraphs 3.17, 5.184, 5.205 and 5.216, which set out a strong expectation to mitigate impacts on NMUs, in addition to require developers to consider opportunities for improving NMU access.

4.5.8 The ExA invited combined comments from Interested Parties on agenda items 4(e)(iii)-(iv), and it was agreed that the Applicant would respond to these in writing at Deadline 1.

4.5.9 By way of a summary response, TH re-emphasised that the Applicant's position is that the Project improves connectivity for ports. TH also noted that the Applicant considers the LTAM to be adequate for the purposes of understanding junction impacts and benefit to cost ratio. In response to the PoT's comment in relation to port facilities, TH directed the PoT to the outline Materials Handling Plan [[APP-338](#)] which contains a firm commitment to use port facilities. TH further noted that the Tilbury Link Road is not required to meet the scheme objectives and is being progressed separately under the road investment strategy process.

- 4.5.10 **Post-hearing written submission:** The Applicant has provided more information as follows:
- a. Annex E Section E.8 – more information is provided on the enhancement to access for London Gateway, Port of Tilbury and other employment uses in the area
  - b. Annex E Section E.9 – responses are provided to comments from Interested Parties.
  - c. The Applicant has provided a report setting out more information on Localised Traffic Modelling [Document Reference 9.15]. This submission also address Action Points 8, 9 and 10 as set out in ISH1 Hearing Actions [[EV-023a](#)]

## 4.6 Item 4(f) Mitigation design and delivery

- 4.6.1 The Applicant noted the ExA's additional question at the start of this Agenda Item in relation to where nitrogen deposition site selection was reported. In response to the ExA's query, BF referred to the Local Refinement Consultation [[APP-088](#)] and the Project Air Quality Action Plan in the Environmental Statement [[APP-350](#)], which set out how the sites were selected and then refined, and provide details on how the calculations for the area were carried out, based on designated habitats which were impacted by nitrogen deposition.

### Item 4(f)(i)

- 4.6.2 Item 4(f)(i) There appears to be some element of double counting of the benefits of some elements of mitigation design and delivery. Examples arising from site inspections include the following:
- a. The observation that land at Hole Farm near Great Warley is identified as already having been purchased and drawn into the creation of community woodland that has been publicly described as serving some general purposes not directly linked to the effects of LTC.
  - b. The observation that land proposed for nitrogen management at Bluebell Hill and Burham was added to the land requirement for the project between the first application and the second application, but that elements of this land are identified in the minor refinements consultation as potentially surplus to need and to be reduced in extent. The possible inclusion of some of this land in Stewardship is given as a basis for some of the exclusion, but again there does not appear to be a direct link between the management of land under Stewardship and the management of the effects of LTC?
    - i. BF explained that Hole Farm was initially purchased by the Applicant to provide community woodland as part of a legacy and benefit function. Following its purchase of Hole Farm, the Applicant identified it would be suitable to provide, within the Hole Farm site: ancient woodland compensation (26 hectares, Work E50); compensation for nitrogen

deposition compensation site (75.2 hectares, Work E52); and replacement special category land (2.9 hectares). The sit within the Order Limits.

- ii. BF explained that for any infrastructure elements unique to the community woodland and outside of the Order Limits, these would be brought forward as a separate planning application.
- iii. BF explained that in the event that the DCO does not proceed, the Applicant is still committed to providing a community woodland in partnership with Forestry England, although in such circumstances, it would not be bound by Design Principles and Outline Landscape and Ecology Management Plan which form part of the Project.
- iv. In response to the ExA's query, BF confirmed that five hectares of early planting had already been undertaken with active engagement from the community. The provision of planting is aligned with the compensation requirements of the DCO scheme, and as woodland takes a long time to establish, the Applicant considers its ownership of the site offers an excellent opportunity to provide that benefit earlier. The car parking and community facility are outside the remit of the Project.
- v. TH summarised the position, namely that Hole Farm was initially purchased as a legacy and benefits opportunity. It was subsequently recognised that the Project required land for ancient woodland compensation, replacement of special category land, and importantly the requirement to provide compensation for the effects of nitrogen deposition. In line with law and practice around compulsory purchase, the Applicant looked to land that it owned first, before looking to potential acquisition of land from private landowners. As such, the land at Hole Farm was effectively "repurposed" in order to deliver the compensation / mitigation required for the Project. A separate local application is being made for small elements outside of the Order Limits, which will deliver specific elements required to support the community woodland facility. TH confirmed that there was no "double counting" associated with what is being proposed.
- vi. In response to the submission made by TCAG, TH introduced Mrs Suki Coe, Planning Lead (SC) who explained that tree planting is not development and therefore does not require planning permission. SC noted that the Town and Country Planning Act 1990 application in relation to Hole Farm, which has been jointly submitted by Forestry England and the Applicant, focuses only on those elements of the Hole Farm project that require planning permission.

- vii. In response to the ExA’s question on Bluebell Hill and Burham, BF explained that the detail surrounding the identification of compensation land is set out in the Project Air Quality Action Plan [APP-350]. BF further explained that, through ongoing engagement, the Applicant had been made aware of two matters: the implications of the habitat creation proposal on the viability farm business, as well as the existence on the site of a newly agreed Countryside Stewardship Scheme.
- viii. BF explained that the Applicant considered the benefits associated with the Countryside Stewardship Scheme and its contribution to the ecological connectivity, set along alongside the impact of the application proposal on the viability of the landowner’s business, justified a reduction in the extent of compensation provided in this location.
- ix. BF noted that the framework of how individual sites will be managed is set out in the outline Landscape and Ecology Management Plan [APP-490], in Section 5.16.
- x. In response to the ExA’s query, BF clarified that the Countryside Stewardship Scheme is not mitigation or compensation for the purposes of the Project, rather it will deliver benefits alongside the Project. The Applicant’s position is that it is providing sufficient nitrogen deposition sites, without relying on the Countryside Stewardship Scheme.

#### Item 4(f)(ii)

- 4.6.3 Item 4(f)(ii) Can the extent of land take and acquisition for mitigation be fully justified as addressing need arising from LTC?
  - a. BF confirmed that the Applicant is confident that it is proposing comparable levels of compensation land to the level of significant effect identified on designated habitats due to nitrogen deposition. BF noted that the Applicant’s approach to the provision of compensation and mitigation has been developed in consultation with Natural England, as statutory stakeholder with an interest in biodiversity matters.
- 4.6.4 **Post-hearing written submission:** The Applicant has provided more information in Annex F as follows:
  - a. Section F.2 – more information is provided on the extent of the nitrogen compensation areas. This submission also address Action Points 5 as set out in ISH1 Hearing Actions [EV-023a]

## 4.7 Item 4(g) Utilities and transmission diversions

### Item 4(g)(i)

- 4.7.1 Item 4(g)(i) These works are currently characterised as Nationally Significant Infrastructure Projects (NSIPs) in their own right. The statutory basis for this approach will be explored in ISH2.
- a. MLA noted that the Applicant is expecting to address the statutory basis for the approach to characterising the works as NSIPs, at ISH2, as the Agenda Item suggests. MLA explained that there are three gas pipelines and an overhead line identified as NSIPs in their own right, as each of these elements fall into the thresholds and definitions set out in sections 16 and 20 of the Planning Act 2008. The Applicant's position is that the only way these elements can be legally granted permission to proceed is to grant them development consent.
  - b. MLA noted that the Planning Statement [[APP-495](#)] considers the Energy National Policy Statements (Energy NPSs), insofar as they apply to the elements of the Project which are considered separate energy NSIPs in their own right. However, the Applicant's position is that the primary NPS is the NPSNN, as the Project is a highways construction project. MLA confirmed that the Planning Statement [[APP-495](#)] demonstrates how the Applicant fully accords with the Energy NPSs, and noted that it is difficult to identify conflict between the different NPSs on more general aspects of policy compliance, particularly given the high degree of uniformity in what the NPSs require. The consideration of these policies is set out in the Explanatory Memorandum [[APP-057](#)] and the Planning Statement [[APP-495](#)].
  - c. In response to the submission made by GBC on the NSIP versus associated development issue, MLA agreed that development consent and associated development are mutually exclusive categories. The Applicant's position is that it has taken a precautionary approach by preparing the Application Documents it has and that the Applicant meets the relevant tests.
  - d. In response to TC's submission about the extent of utilities NSIP analysis contained in the DCO application, MLA noted that the Applicant had followed a standard approach in terms of presenting the relevant assessments. MLA noted that the analysis for whether the utilities works are themselves NSIPs, is presented in the Explanatory Memorandum [[APP-057](#)] and is also referenced in Annex 2 of the Explanatory Memorandum [[APP-057](#)] and Appendix 1.3 of the Environmental Statement [[APP-334](#)]. The Applicant considers that Appendix 1.3 forms part of the Environmental Statement, because the test relates to considering significant environmental effects. MLA further explained that the Environmental

Statement assess all works associated with the Project, including utilities works, whether or not they are NSIPs. The assessment against policy is set out in the Planning Statement [[APP-495](#)].

- e. MLA noted that the Applicant's position is that the Works Plans [[APP-018](#), [APP-021](#), [AS-024](#), to [AS-030](#)] are clear in disaggregating the different types of gas pipeline, overhead line and multi-utility corridors.

**4.7.2 Post-hearing written submission:** The Applicant has provided more information as follows:

- a. ISH2 Hearing Actions [[EV-030a](#)] Action Point 4 required the Applicant to submit a joint note of legal advice (with Gravesham Borough Council, Thurrock Council and Kent Country Council. on the handling of energy (gas transport and electricity transmission) NSIPs within the draft DCO. This is provided separately as Annex D to the document 'Post-event submissions, including written submission of oral comments, for ISH2' [Document Reference 9.11].

#### **Item 4(g)(ii)**

**4.7.3** Item 4(g)(ii) What design approach has been taken to the siting and design of replacement utilities and transmission alignments?

- a. KH noted that electricity transmission works had been subject to iterative design development in conjunction with other Project design elements and he referred to Plate 2.11 of ES Chapter 2: Project Description [[APP-140](#)] for further information on this. KH noted that these works have been proposed in consultation with National Grid Electricity Transmission (NGET), as detailed at paragraph 5.6.12 of the Planning Statement [[APP-495](#)].
- b. The Applicant noted the PoT's submission in relation to concerns about multi-utilities below Substation Road (MUT4), and committed to responding in writing at Deadline 1 (18 July 2023), as agreed by the ExA.

**4.7.4 Post-hearing written submissions:** The Applicant has provided more information in Annex G as follows:

- a. Section G.2 – further information is provided on the siting and design approach of transmission networks.
- b. Section G.3 – provides a response to the question put by the Examining Authority as to whether '*any specific consideration had been given to alternative approaches to the ... design of the landscape-visible elements of the utility alignment, including the possible utilisation of sub-surface alignment and/or the possible utilisation of alternative infrastructure such as, for example, T-pylons*'.
- c. Section G.4 – provides a response to statements made by the Port of Tilbury London Limited

## [ISH 1 adjourned and resumed on 23 June 2023]

### 4.8 Item 4(h) Economic benefits

#### Item 4(h)(i)

- 4.8.1 Item 4(h)(i) Are the economic benefits (BCR) of the proposed LTC robust and measurable?
- a. HB explained that the Applicant's position is that the Benefit Cost Ratio (BCR) of the Project is robust, measurable and has been undertaken in line with the DfT's Transport Analysis Guidance (TAG). HB explained that TAG sets out three levels of impacts: i) Level 1 – impacts which are well established methods to measure and value for example, vehicle time savings and operating costs; (ii) Level 2 – impacts which have been introduced more recently, covering issues such as journey reliability and wider economic impacts; and (ii) Level 3 – impacts for which only a qualitative assessment is recommended by TAG.
  - b. HB noted that the BCR only includes Levels 1 and 2, as set out in TAG. The Applicant's assessment of the economic impacts for all levels has been carried out strictly in accordance with TAG and is presented in Appendix D of the Combined Modelling and Appraisal Report [[APP-526](#)].
  - c. In response to the ExA's query relating to the appraisal period, HB reiterated that the BCR assessment has been carried out strictly in accordance with TAG and the Applicant has presented a 1:22 BCR. The Applicant has also presented a series of sensitivity tests that test the robustness of the assessment to changes in input data.
  - d. HB explained that the Applicant has also included an appraisal carried out over 100 years, rather than 60 years. HB explained that the standard appraisal period in TAG is 60 years but the DfT considers that some items of investment have a greater lifespan, and so the appraisal should equally be carried out over a longer time period. The BCR for a 100-year appraisal of the Lower Thames Crossing provides is 1.66.
  - e. In response to the ExA's query on base dates, HB noted that in accordance with TAG, the costs are calculated in today's prices, but that all data is converted back for appraisal purposes into 2010 prices and values, which enables all projects to be compared on an equal basis.
  - f. In response to the submissions made by TC and TCAG, TH confirmed that the economic appraisal report included in the application is the up-to-date business case, and so the Applicant does not consider it necessary to provide a separate business case. TH also clarified in response to the submission made by TCAG, that the Combined Modelling and Appraisal Report [[APP-526](#)] sets out all data that is required in relation to economic

benefits. Otherwise TH noted that the Applicant would provide a detailed response in writing to the submissions made by TC and TCAG about the BCR.

- g. In response to GBC's submission, TH confirmed that a sensitivity test in relation to the value of time is not included in the Applicant's application, and confirmed that the Applicant would explain why in writing.

4.8.2 **Post-hearing written submissions:** The Applicant has provided more information in Annex H as follows:

- a. Section H.2 – provision of a value of time sensitivity test. This includes the response to Action Point 7 of the ISH1 Hearing Actions [[EV-023a](#)].

#### Item 4(h)(ii)

Item 4(h)(ii) Do costs figures adequately address current positions in relation to labour and materials availability and costs? Has inflation been taken into sufficient account?

- a. In response to the ExA's question, HB confirmed that the assured costs, as presented in the application, take into account labour, material and inflation. HB noted that these adequately represent the Applicant's current position in relation to these cost items. The net scheme costs were assured by the Applicant in February 2022 as stated in Table 4.4 of the Combined Modelling and Appraisal Report, Appendix D [[APP-526](#)].
- b. The Applicant considers that inflation has sufficiently been taken into account using construction inflation rates that reflect the Project's use of labour and materials and construction schedule when the costs were prepared and assured. A sensitivity test which shows the impact on the BCR of the Project with a range of capital expenditure costs is provided in Table 7.19 of the Combined Modelling and Appraisal Report [[APP-518](#)].
- c. HB further explained that when the Applicant prepared the economic appraisal, costs contain a variety of components, taking into account inflation and risk, and what the costs are forecast to be in the years where expenditure occurs. HB noted that further details on inflation numbers used in the costs are provided in Table 6.1 of the Economic Appraisal Report [[APP-526](#)]. When the costs were assured in February of 2022, the inflation rate assumed was 4.10%.
- d. HB noted that inflation rates are highly volatile, so it is not appropriate for the Applicant to be providing month by month updates to inflation rates. In addition, HB highlighted that that the Economic Appraisal Report includes a very wide range of capital costs (and the associated impact on the BCR) and inflation is a very small element of the scheme cost. Hence the change in inflation is unlikely to change to value for money banding.



4.8.3 **Post-hearing written submissions:** The Applicant has provided more information in Annex H as follows:

- e. Section H.3 – provision of information on the consideration of inflation

#### Item 4(h)(iii)

4.8.4 Item 4(h)(iii) Is any adjustment to economic benefits necessary, given submissions from Ports to the effect that the lack of local highway connectivity to the waterfront could reduce local journey time reliability and have negative economic impacts on port operations?

- a. TH reiterated the Applicant's position (set out in response to agenda item 4(e)(iii)) that it considers that the Project would provide improved access to ports. TH noted that the Applicant does not consider any adjustment to the economic benefits necessary, given they have been assessed in line with TAG and already take into account both the benefits and disbenefits of the Project.
- b. In response to the ExA's question, TH noted that the modelling that has been undertaken inherently accounts for port usage, which feeds into the economic assessment. The Applicant's position is that the combination of LTAM and TAG appropriately addresses the economic impacts on ports. TH referenced paragraph 4.6 of the NPSNN which provides clear national policy support for the use of TAG.
- c. In response to submissions made by interested parties, TH reiterated the Applicant's case that the ports would be better off with the Lower Thames Crossing than without it. In terms of traffic performance, the Applicant's position is that the Project meets its objectives and sufficiently mitigates its impacts, and so it performs acceptability in traffic terms.
- d. In response to comments made by the PoT, TW clarified that the Applicant's assessment does not take into account any economic benefits that would arise were the Tilbury Link Road to be brought in. The Tilbury Link Road is being developed separately by the Applicant and would go through its own investment decision process and consenting process. TW also confirmed that the Applicant is in constructive discussions with the PoT about access along the A1089 route during construction, and the Applicant hopes to continue to work towards a collaborative solution.
- e. TW confirmed that the Applicant, in using the LTAM model, has undertaken construction modelling and operational modelling across the region, which does include the Asda roundabout, Orsett Cock and Manor Way, as well as a large number of other junctions in the area. This information has been shared with the relevant stakeholders and forms the basis of all the information the Applicant put forward in the application.

- f. TW noted that in order to help stakeholders understand localised impacts, the Applicant has conducted and shared with stakeholders localised modelling. The Applicant maintains its position that the modelling set out in the application is robust, it sets out the impacts, and is suitable for the consideration of this scheme. In response to the ExA's query, TW confirmed that the Applicant has shared information with stakeholders where specific concerns have been raised, and has been proportionate in its provision of detailed assessment, in order to maintain public value as the Project develops.
- g. TW confirmed that the Applicant aims to be as transparent as possible and has shared relevant information where it can. TW noted that the Applicant has carried out extensive modelling so that it can understand traffic at the junctions, and believes that this modelling validates the material set out in the application, which the Applicant is willing to share with stakeholders or otherwise.
- h. TW understood the ExA's request that the Applicant submits all modelling information as soon as possible and noted that the Applicant will review the material it holds and consider the most appropriate way to submit it. TW noted that this material is extensive and may take some time to put it into a suitable form for submission. TW also noted that the Applicant has had extensive discussions with stakeholders regarding data sharing and considers that the parties' positions are quite well-formed.

4.8.5 **Post-hearing written submissions:** As previously stated, the Applicant has provided a report setting out more information on Localised Traffic Modelling [Document Reference 9.15]. This submission also addresses Action Points 8, 9 and 10 as set out in ISH1 Hearing Actions [[EV-023a](#)]

## 5 Next Steps

- 5.1.1 TH explained that the Applicant has three essential categories of documents it would like to submit at Deadline 1 on 18 July 2023:
- a. Changes to control documents:
    - i. Outline Landscape and Ecology Management Plan – addition of Kent Downs Area of Outstanding Natural Beauty as a consultation engagement body
    - ii. Outline Traffic Management Plan – introduction of additional constraints on construction matters, in response to stakeholder feedback
    - iii. Code of Construction Practice – minor changes
  - b. Errata – the Applicant intends to provide an update to the Errata report submitted in December 2022 following the ExA’s section 51 advice. This is intended to rectify some additional minor errors to Application Documents that the Applicant has identified since December. The Applicant noted the ExA’s suggestion that it could submit an updated Errata report, if required, at each deadline in the examination. [**Post-hearing comment:** this is now confirmed in the ExA’s updated Rule 8 letter.]
  - c. Addendum to the Environmental Statement – the Applicant intends to include additional inter-project cumulative effects identified through developments that have come forward since assessments were concluded by the Applicant for the application. [**Post-hearing comment:** this is now confirmed in the ExA’s Rule 8 letter.]
- 5.1.2 The Applicant is grateful for the ExA’s agreement that these additional documents can be submitted at Deadline 1.
- 5.1.3 In response to the ExA’s query, TH confirmed that the Applicant does not propose to submit anything in relation to the Minor Refinement Consultation at Deadline 1.
- 5.1.4 In response to TCAG’s question, TH confirmed that the Applicant is well aware of the new targets set under the Environment Act and that it intends on addressing those when air quality matters are considered as part of the Examination.

## 6 Closing

6.1.1 The Applicant did not make any submissions in relation to this Agenda Item.

## 7 Annexes

# Lower Thames Crossing

## 9.10 Annexes to Post-event submissions, including written submission of oral comments, for ISH1

Infrastructure Planning (Examination  
Procedure) Rules 2010

Volume 9

**DATE: July 2023**  
**DEADLINE: 1**

Planning Inspectorate Scheme Ref: TR010032  
Examination Document Ref: TR010032/EXAM/9.10

**VERSION: 1.0**

## Lower Thames Crossing

### 9.10 Annexes to Post-event submissions, including written submission of oral comments, for ISH1

#### List of contents

	<b>Page number</b>
Annex A Post-hearing submissions on the Need Case .....	40
A.1 Introduction .....	40
A.2 Linking the reduction of traffic at the Dartford Crossing to the benefits of the Project 40	
A.3 New and longer trips .....	47
A.4 Responding to points raised by Interested Parties .....	52
Annex B Post-hearing submissions on Transport demand, traffic modelling and the role of the road in the National and regional transport system.....	54
B.1 Introduction .....	54
B.2 Rail alternatives .....	54
B.3 Response to Shorne Parish Council .....	57
B.4 Response to points made by Thurrock Council .....	58
Annex C Post-hearing submissions on Effects of the two-year rephasing in capital funding 60	
Annex D Post-hearing submissions on Road Design Approach .....	61
D.1 Introduction .....	61
D.2 Coded as a motorway .....	61
Annex E Post-hearings submissions on Routing and intersection design .....	62
E.1 Introduction .....	62
E.2 Baker street heritage alternatives .....	62
E.3 The Wilderness and ancient woodland .....	64
E.4 Potential future junction between North and South Ockendon .....	65
E.5 Capacity of Orsett Cock Junction.....	66
E.6 Comments on the Tilbury Link Road, including consideration of alternative configurations at Orsett Cock junction that could be realised by including the Tilbury Link Road as part of the proposed A122 Lower Thames Crossing. ....	66
E.7 Option selection for Location A vs Location C .....	67
E.8 Ports Provision.....	67
E.9 Applicant’s response to Interested Parties comments on agenda item 4(e)(iii)- (iv) 69	

Annex F Post-hearing submissions on mitigation design and delivery .....	75
F.1 Introduction .....	75
F.2 Extent of the Nitrogen Compensation areas .....	75
Annex G Post-hearing submissions on Utilities and transmission diversions .....	78
G.1 Introduction .....	78
G.2 Further information on design approach has been taken to the siting and design of replacement utilities and transmission alignments .....	78
G.3 T Pylons .....	83
Annex H Post-hearing submission on Economic benefits .....	86
H.1 Introduction .....	86
H.2 Value of time sensitivity test .....	86
H.3 Inflation .....	87

### List of plates

#### Page number

Plate F.1 Illustration of the changes in order limits at Bluebell Hill and Burnham Nitrogen Deposition Compensation Sites .....	77
---	----

### List of tables

#### Page number

Table A.1 Forecast peak and inter-peak two-way hourly traffic flows at the Dartford Crossing and the Lower Thames Crossing (PCUs) .....	41
Table A.2 Journey times M25 junction 2 to M25 junction 29 (Northbound), minutes .....	43
Table A.3 Traffic flows at Dartford Crossing (northbound) junction 1A to Traffic Management Cell, northbound, PCUs .....	44
Table A.4 Trips from the local area within M25 using Dartford Crossing, northbound .....	45
Table A.5 Traffic flows through M25 junction 30, northbound, PCUs .....	45
Table A.6 Journey times M25 junction 29 to M25 junction 2 (Southbound), minutes .....	46
Table A.7 Traffic flows over QE2 bridge (southbound) PCUs .....	47
Table A.8 Traffic flows through M25 junction 30, southbound, PCUs .....	47
Table A.9 Number of cars per modelled hour, 2030, relevant area .....	50
Table A.10 Number of cars per modelled hour, 2045, relevant area .....	50
Table A.11 PCU/km in each modelled time period in 2030, with and without the Project ..	51
Table A.12 PCU/km in each modelled time period in 2045, with and without the Project ..	51
Table F.1 ES Appendix 5.6 Project Air Quality Action Plan Table 7.7 Proposed compensation .....	76
Table F.2 Table Extent of nitrogen deposition compensation proposed at Minor Refinement Consultation .....	77
Table H.1 Sensitivity test on values of time .....	87



## List of figures

Figure 1 Example trip matrix.....	49
-----------------------------------	----

## Annex A Post-hearing submissions on the Need Case

### A.1 Introduction

- A.1.1 This section provides the post-hearing submissions for agenda item 4(a) the Need Case from Issue Specific Hearing 1 (ISH1) on the 21 June 2023 [EV-014] for the A122 Lower Thames Crossing (The Project).
- A.1.2 The Applicant has no additional submissions to make for Item 4(a)(i) on “Can the Applicant demonstrate that the proposed development will meet anticipated need?”.
- A.1.3 The Applicant has additional submissions for Item 4(a)(ii) on “*is it anticipated and if so, how swiftly is it anticipated that the proposed LTC alignment might become capacity constrained by traffic demand*”. These are contained in the sections below.

### A.2 Linking the reduction of traffic at the Dartford Crossing to the benefits of the Project

- A.2.1 To understand the performance of the Dartford Crossing, in scenarios with and without the proposed A122 Lower Thames Crossing (ie the Do Minimum and Do Something scenarios) it is the journey time benefits and the journey time reliability benefits that provide the means to understand the benefits of the project, and to assess whether the proposed new road would continue to provide relief to the Dartford Crossing into the future.
- A.2.2 While the A122 Lower Thames Crossing provides substantial new capacity across the River Thames, the existing crossing will remain a fundamentally important link on the road network, as the closest crossing to the existing Blackwall tunnel and the under construction Silvertown tunnel, both located over 10 miles to the west. As a result, there will continue to be high levels of traffic flow across the Dartford Crossing. The A122 Lower Thames Crossing will relieve the Dartford Crossing by allowing a substantial number of journeys to reroute, but as well as a substantial number of existing journeys continuing, there will be an increase in the number of people choosing to travel over the River Thames, and of these many will choose to use the Dartford Crossing. While it is recognised that the 2045 forecasts show an increase in the flows across Dartford, as would be expected, the overall reduction in traffic at the Dartford crossing in 2045 remains up to 13% in the peak hours compared to without the crossing. it is important to look at the nature of this traffic. There are three key aspects to note:
- A.2.3 Firstly the traffic modelling demonstrates that there would still be significant journey time savings in 2045 – a journey across the Dartford Crossing from

junction 2 of the M25 to junction 31 would fall from 14 minutes without the project to less than eight minutes with the Project (as set out in the Traffic Forecasts Non-Technical Summary [APP-528]. The journey time reliability assessment shows that reliability gains continue to be found in all of the modelled years (as set out in the Combined Modelling and Appraisal Report – Appendix D – Economic Appraisal Package – Economic Appraisal Report [APP-526]

A.2.4 Secondly, the largest group of people who would choose to make journeys across the Dartford Crossing after the opening of the Lower Thames Crossing would be making journeys from the local areas north and south of the river, as demonstrated in Tables 8.50 and 8.52 of the Combined Modelling and Appraisal Report - Appendix C - Transport Forecasting Package [APP-522]

A.2.5 Thirdly, the nature of traffic flows across the Dartford Crossing are fundamentally changed by the Project. Table 5.3 of the Traffic Forecasts Non-Technical Summary [APP-528] shows that there is forecast to be an average reduction of 31% in 2030, and 25% in 2045, in the number of Heavy Goods Vehicles (HGVs) across the peak hours. As a consequence of this, there are both improvement in the operation of the Dartford Crossing, and improvements to the user experience for car drivers using the Dartford Crossing.

A.2.6 The Traffic Forecasts: Non-Technical Summary [APP-528] show the forecasts flows at Dartford Crossing with and without the Project. These are reproduced here in Table A.1.

**Table A.1 Forecast peak and inter-peak two-way hourly traffic flows at the Dartford Crossing and the Lower Thames Crossing (PCUs)**

Period	Year	Without the Project	With the Project
		Dartford Crossing*	Dartford Crossing*
AM peak hour	2016	14,430	-
	2030	16,020	13,280
	2045	16,260	14,870
Inter-peak hour	2016	11,790	-
	2030	14,410	10,780
	2045	15,660	12,770
PM Peak Hour	2016	12,830	-
	2030	15,310	12,020
	2045	16,280	13,540

\*Flows at the Dartford Crossing (northbound only) are approaching the Traffic Management Cell. Note: Flows rounded to nearest 10. Source: Lower Thames Area Model (LR\_N108 (Run 1), LR\_CM49, LR\_CS72)

- A.2.7 There are two aspects to the impact of the Project on trips using the Dartford Crossing:
- a. First, for a considerable time into the future, the forecast journey times for longer distance trips using the Dartford Crossing, going from junction 2 to 29, are similar to the to 2016 journey times, and are significantly lower than the forecast journey times would be were the Project not provided (the Do Minimum scenario). There are few other, if any, busy sections of the Strategic Road Network that would see similar journey time improvements in 2045 when measured against 2016.
  - b. Second, more local trips are able to use the Dartford Crossing to make short distance trips across the river, using the capacity released as some longer distance traffic from Kent uses the Project. This is a benefit for local residents who wish to travel to the other side of the river, for example to take advantage of a job opportunity.

### Northbound

- A.2.8 The Combined Modelling and Appraisal Report - Appendix C - Transport Forecasting Package [APP-522] shows the journey times northbound from junction 2 to junction 29 with and without the Project. The times for 2016 have been added and are shown in Table A.2.

**Table A.2 Journey times M25 junction 2 to M25 junction 29 (Northbound), minutes**

Year	Scenario	AM	IP	PM
2016	DM	14.9	14.0	14.0
	DS	-	-	-
2030	DM	19.2	17.3	17.5
	DS	13.5	13.0	13.3
	<b>Difference</b>	<b>5.7</b>	<b>4.3</b>	<b>4.2</b>
2037	DM	20.5	19.4	19.1
	DS	14.1	13.5	13.9
	<b>Difference</b>	<b>6.4</b>	<b>5.9</b>	<b>5.2</b>
2045	DM	21.5	21.3	20.3
	DS	14.7	13.9	14.5
	<b>Difference</b>	<b>6.8</b>	<b>7.4</b>	<b>5.8</b>
2051	DM	22.1	22.1	20.7
	DS	15.3	14.3	15.0
	<b>Difference</b>	<b>6.8</b>	<b>7.8</b>	<b>5.7</b>

- A.2.9 The worst levels of congestion in 2016 are northbound through the Dartford Crossing. The time savings achieved for drivers going from junction 2 to junction 29 as a result of the A122 Lower Thames Crossing are maintained in the modelled forecasts through to 2051. The times northbound from junction 2 to junction 29 remain at the 2016 levels well into the future and in all cases are significantly lower than they would be in the future if the Project was not provided. In 2051 the time saving due to the Project is around six – eight minutes throughout the day.
- A.2.10 The journey time savings over the northbound section of the M25 are maintained in the future because even though the number of vehicles measured at the Dartford Crossing rises again, the reduction in flows on the M25 north of the Crossing is maintained. The reduced flows and higher speeds north of the Crossing are a direct consequence of the provision of the Project.
- A.2.11 Table A.3 shows the flows northbound by time period at the Dartford Crossing. This shows that the flows northbound before the Traffic Management Cell<sup>1</sup> at the Dartford Crossing remain below the 2016 levels in the AM peak by 2045 but are higher by 2045 in the interpeak and the PM peak hour. This is because the released capacity at the Dartford Crossing is used by local short distance trips that would be able to cross the river at this location. These trips will be of benefit to the drivers making those trips for example to reach a better suited job on the other side of the river.

<sup>1</sup> The Traffic Management Cell is a traffic safety system for the Dartford Tunnels with advance detection of queues and the active management of the use of the tunnels by restricted vehicles. It is controlled by the TMC Control System that provides a strategic operational control facility for the operational staff that manage the crossing 24 hours per day

**Table A.3 Traffic flows at Dartford Crossing (northbound) junction 1A to Traffic Management Cell, northbound, PCUs**

Period	Year	Without the Project	With the Project
		Dartford Crossing*	Dartford Crossing*
AM peak hour	2016	6,763	-
	2030	7,517	5,747
	2045	7,759	6,425
Inter-peak hour	2016	6,249	-
	2030	7,378	5,497
	2045	7,754	6,384
PM peak hour	2016	6,044	-
	2030	7,338	5,950
	2045	7,794	6,707

A.2.12 The increase in local trips using the Dartford Crossing is shown in Tables 8.8 – 8.10 for 2030 and Tables 8.50 and 8.52 for 2045 in the Combined Modelling and Appraisal Report - Appendix C - Transport Forecasting Package [APP-522]. A summary is shown in Table A.4 which shows the number of trips that start in the area local to the Dartford Crossing, within the M25, and use the Dartford Crossing northbound, with and without the availability of the Project. It also shows the percentage of the trips using the Dartford Crossing northbound that come from this local area. In 2030 in the AM peak hour, for example, the number of trips from this local area using the Dartford Crossing is forecast to rise from 2,660 to 3,210 PCUs as a result of the Project, although the total number of trips using the Dartford Crossing would fall. The percentage of the total trips at the Dartford Crossing, northbound, from the local area within the M25, rises from 17% to 24% of all the trips using the tunnels at Dartford.

**Table A.4 Trips from the local area within M25 using Dartford Crossing, northbound**

Year	Time Period	Without the Project		With the Project	
		Trips (PCU)	% of total	Trips (PCU)	% of total
2030	AM	2,659	17%	3,212	24%
	IP	2,197	16%	2,477	23%
	PM	2,443	17%	2,877	24%
2045	AM	2,576	17%	3,671	25%
	IP	2,325	16%	2,894	23%
	PM	2,519	17%	3,140	23%

A.2.13 Table A.5 shows the flows northbound for the M25 mainline through junction 30 that has crossed the Thames using the Dartford Crossing and continues at least as far as M25 junction 29. This is the longer distance traffic using the Dartford Crossing northbound. The reduction in flows on the M25 north of the Dartford Crossing is maintained well after 2045 and this contributes to the overall time saving experienced by users of this section of the M25, as set out in Table A.2.

**Table A.5 Traffic flows through M25 junction 30, northbound, PCUs**

Period	Year	Without the Project	With the Project
AM peak hour	2016	4,216	-
	2030	4,071	2,942
	2045	4,120	3,232
Inter-Peak hour	2016	3,562	-
	2030	3,660	2,376
	2045	3,710	2,801
PM peak hour	2016	3,180	-
	2030	3,239	2,448
	2045	3,307	2,833

## Southbound

A.2.14 Southbound, from junction 29 to junction 2 travel times are forecast to rise slightly above the 2016 levels in the AM peak period by 2045, but are similar to 2016 times in the inter peak and PM peak periods. Maintaining 2016 travel times into the future is a remarkable forecast for any part of the Strategic Road Network given the predicted general growth in traffic levels. The travel times are significantly lower than they would be without the Project in all years and time periods. The time savings are lower in the inter peak period as there is more growth in traffic over time in the inter peak period. This can be seen in Table A.6 which shows the forecast journey times over the QE2 bridge, Dartford Crossing southbound.

**Table A.6 Journey times M25 junction 29 to M25 junction 2 (Southbound), minutes**

Year	Scenario	AM	IP	PM
2016	DM	14.1	12.8	13.5
	DS	-	-	-
2030	DM	18.6	13.3	15.8
	DS	14.3	12.2	12.8
	<b>Difference</b>	<b>4.3</b>	<b>1.1</b>	<b>3.0</b>
2037	DM	20.4	14.0	16.9
	DS	15.3	12.5	13.3
	<b>Difference</b>	<b>5.1</b>	<b>1.5</b>	<b>3.6</b>
2045	DM	21.9	15.0	17.7
	DS	16.4	12.9	13.8
	<b>Difference</b>	<b>5.5</b>	<b>2.1</b>	<b>3.9</b>
2051	DM	22.4	15.6	18.3
	DS	17.2	13.1	14.1
	<b>Difference</b>	<b>5.2</b>	<b>2.5</b>	<b>4.2</b>

A.2.15 The reduction in travel times over the section from the M25 junction 29 southbound to M25 junction 2 is a result of the lower flows on the M25 in Essex and Thurrock. The flows on the QE2 bridge are shown in Table A.7. Again the reduction in flows at the Crossing itself is not as high as slightly further north on the M25, as more local trips start to use the Crossing once the Project opens. The forecast traffic flows on the M25 mainline, through junction 30 are shown in Table A.8. It is the forecast reduction in the number of longer distance trips using the Dartford Crossing and the section of the M25 from junction 29 to junction 2 that results in the substantial reduction in travel times along this section of the M25.



**Table A.7 Traffic flows over QE2 bridge (southbound) PCUs**

Period	Year	Without the Project	With the Project
		Dartford Crossing*	Dartford Crossing*
AM peak hour	2016	7,665	-
	2030	8,500	7,530
	2045	8,500	8,443
Inter-Peak hour	2016	5,542	-
	2030	7,031	5,279
	2045	7,905	6,389
PM peak hour	2016	6,784	-
	2030	7,974	6,071
	2045	8,484	6,834

**Table A.8 Traffic flows through M25 junction 30, southbound, PCUs**

Period	Year	Without the Project	With the Project
AM Peak Hour	2016	4,507	-
	2030	4,801	3,901
	2045	5,168	4,381
Inter-Peak Hour	2016	3,403	-
	2030	3,959	2,668
	2045	4,426	3,327
PM Peak Hour	2016	4,074	-
	2030	4,465	2,995
	2045	4,752	3,439

## A.3 New and longer trips

A.3.1 The creation of new capacity on the road network will lead to changes in the way people travel. Some people will choose to make different journeys because

shorter or less congested routes become available, and some people who would not previously have travelled will choose to make new journeys because the faster or shorter journey becomes more affordable. As a result, there will be changes in the lengths of journeys made, and in the total number of journeys made.

- A.3.2 A term that is often used in relation to the development of highways projects is 'Induced Traffic'. This term can be used in different ways, sometimes relating to the number of new trips that are forecast to arise following opening of a project, and sometimes in reference to the change in the overall distance travelled. To avoid confusion, the term induced traffic is avoided here, and instead the narrative explains the number of new trips and the increase in the overall distance travelled (in relation to new and existing trips).
- A.3.3 The Lower Thames Area Model (LTAM) is used to predict the number of people in the area choosing to travel by road or rail and the route they would use. A brief summary of the LTAM is provided in Chapters 3 and 4 of the Traffic Forecasts Non-Technical Summary [[APP-528](#)].
- A.3.4 The time and distance to make trips in the future is forecast to change for a variety of reasons such as changes in the price of fuel, more traffic on the roads affecting speeds and changes in the road network such as the opening of the Project.
- A.3.5 As set out in Chapter 4 of the Traffic Forecasts: Non-Technical Summary [[APP-528](#)], the transport model predicts how people would react to changes in the time and cost of their journeys. The possible changes include:
- a. how often they make the same trip
  - b. the time of day they travel
  - c. whether they switch to or from public transport
  - d. where they travel to/from
  - e. what route they choose to take
- A.3.6 Government forecasts and evidence from schemes of a similar nature to the Project suggest that, in the main, people would continue to travel by car but may change where they travel to. As traffic speeds fall, or trips become more expensive, people tend to respond by making shorter journeys. Where journeys become quicker or cheaper, some people choose to travel to places further away; for example, they choose employment further away from home.
- A.3.7 The LTAM holds the information on where people travel to and from in a set of tables, known as a matrix. The rows of a matrix represent the different zones, or small sub-areas of a region, where the trips come from. The columns represent

the different zones to which trips travel. For example, in the example matrix shown in Figure 1 there are three zones representing three different areas. This matrix shows there are 18 trips going from zone B to zone C.

**Figure 1 Example trip matrix**

		DESTINATION		
		A	B	C
ORIGIN	A	4	2	5
	B	6	7	18
	C	3	3	4

- A.3.8 The LTAM also contains a description of the highway network and chooses the best routes for all these vehicles to take. It then reports the time and distance of each journey, which depends on the route chosen to travel between each pair of zones e.g. the route followed to travel from zone B to zone C. It accumulates all these journey times and distances to report the total travel time and distance of vehicles using the road network.
- A.3.9 More details of the summary statistics for each of the model's forecast years and time periods are reported in the Combined Modelling and Appraisal Report - Appendix C - Transport Forecasting Package [\[APP-522\]](#). Table 7.29 of that report shows the number of vehicles in the trip matrices in the LTAM for the 2030 forecast year. **Error! Reference source not found.** Table A.9 summarises this data and shows the total number of cars in the matrices in the relevant area if the Project were not built (the Do Minimum scenario) and the forecast change in the number of trips with the Project (the Do Something scenario).
- A.3.10 The change is presented for cars only as the variable demand model only considers cars (not LGVs or HGVs) in line with TAG Unit M2.1 and as noted at paragraph 6.4.2 of the Combined Modelling and Appraisal Report - Appendix C - Transport Forecasting Package [\[APP-522\]](#). TAG Unit M2.1 sets out that LGVs and HGVs do not experience variable demand as their journeys are driven by commercial needs, and therefore remain consistent between the Do Minimum and Do Something scenarios.
- A.3.11 The trips in the relevant area for the variable demand modelling were all trips which start or finish in the Fully Modelled Area (as shown in Plate 3.7 of Combined Modelling and Appraisal report - Appendix B - Transport Model Package [\[APP-520\]](#)) and all external-to-external movements which crossed the Fully Modelled Area boundary.

**Table A.9 Number of cars per modelled hour, 2030, relevant area**

Time Period, hour	Do Minimum	Do Something	Difference	Difference, %
AM	467,657	468,504	847	0.18
Inter Peak	403,929	404,159	230	0.06
PM	584,032	584,925	893	0.15
Off Peak	146,335	146,202	-133	-0.09

**Table A.10 Number of cars per modelled hour, 2045, relevant area**

Time Period, hour	Do Minimum	Do Something	Difference	Difference, %
AM	515,633	516,363	730	0.14
Inter Peak	454,991	455,342	351	0.08
PM	644,707	645,994	1,287	0.20
Off Peak	170,406	170,215	-191	-0.11

- A.3.12 Table A.9 **Error! Reference source not found.** shows that the forecast increase in the number of car trips made in 2030 is between 800 – 900 across the relevant area in the peak hours and 230 in the interpeak period. There is forecast to be a small decrease in the number of trips made per hour in the off peak period (between 18:00 and 06:00) as some trips change the time at which they are made into the peak periods.
- A.3.13 Table A.10 shows that the forecast increase in the number of car trips made in 2045 is between 700 - 1,300 across the relevant area in the peak hours and 350 in the interpeak period. There is forecast to be a small decrease in the number of trips made per hour in the off peak period (between 18:00 and 06:00) as some trips change the time at which they are made into the peak periods.
- A.3.14 Cumulatively the change in the number of car trips made in each modelled hour is a result of some people making the same trip more often, some people switching mode between rail and road and some people changing the time of day at which they travel. The increase in the number of trips in the AM peak, interpeak and PM peak periods represents a very small percentage of the total number of trips from the relevant area.
- A.3.15 The biggest impact on travel behaviour as a result of the Project is people changing their destination, for example replacing a trip from Chatham to Bexley with a trip from Chatham to Basildon. This change in destination for some trips leads to a change in the distance travelled on the road network but does not constitute a new trip. Tables 7.30 and 7.40 in the Combined Modelling and Appraisal Report - Appendix C - Transport Forecasting Package [\[APP-522\]](#) shows the total distance travelled in the Lower Thames area for each of the

modelled hours, including both changed and new trips. A summary of the data is shown in Table A.11 and Table A.12. **Error! Reference source not found.** The units are the number of Passenger Car Units (PCU) kilometres driven on the network. For cars, each is 1 PCU but each Heavy Goods Vehicle is 2.5 PCUs as they take up more road space than a car.

**Table A.11 PCU/km in each modelled time period in 2030, with and without the Project**

Time Period, hour	Do Minimum	Do Something	Difference	Difference, %
AM	13,486,434	13,624,895	138,461	1.03
Inter Peak	11,119,632	11,202,414	82,782	0.74
PM	13,565,661	13,714,291	148,630	1.10
Off Peak	4,528,455	4,538,841	10,386	0.23

**Table A.12 PCU/km in each modelled time period in 2045, with and without the Project**

Time Period, hour	Do Minimum	Do Something	Difference	Difference, %
AM	15,059,440	15,220,741	161,301	1.07
Inter Peak	12,667,716	12,772,716	105,000	0.83
PM	15,109,576	15,296,170	186,594	1.23
Off Peak	5,595,459	5,609,832	14,373	0.26

- A.3.16 Tables A.11 and A.12 shows that as a result of the Project, with an increase in the number of trips made and some trips changing their destination, the overall number of kilometres driven on the network increases. The net increase in kilometres driven is highest in the PM peak hour, with an overall increase of 1.1% in 2030 and 1.23% in 2045.
- A.3.17 The actual increase in the number of vehicles on a particular road will vary. The maps presented in the Traffic Forecasts Non-Technical Summary [APP-528], the Combined Modelling and Appraisal Report - Appendix C - Transport Forecasting Package [APP-522] the Transport Assessment [APP-529] and the Community Impact Report [APP-549] show the change in traffic forecast on the roads in the area.
- A.3.18 On many roads to the west of the Project, such as the A2, the A13, the Dartford Crossing and the M25 in Thurrock, the number of vehicles would fall when the Lower Thames Crossing opens. However, roads on the approach to the Project, including the M2, A228, A229, and some roads to the east of the Project, such as the A13, and on some sections of the M25, would experience an increase in

traffic levels as travel across the River Thames becomes easier and more reliable.

## **A.4 Responding to points raised by Interested Parties**

### **Gravesham Borough Council**

- A.4.1 In response to comments from Gravesham Borough Council, The Applicant acknowledges, as was stated at ISH1, that traffic volumes at the Dartford Crossing would continue to grow. However, the 2045 AM peak flow at the Dartford Crossing without the Project is forecast to be 16,260 PCUs (as stated in Table 5.1 of the Traffic Forecasts Non-Technical Summary [APP-528]); which results in the Project forecast to provide 8.5% relief in the 2045 AM peak, as the flow is forecast to be 14,870 PCUs with the Project..

### **Thurrock Council**

- A.4.2 In response to comments from Thurrock Council, Table 5.1 of the Traffic Forecasts Non-Technical Summary [[APP-528](#)] provides forecast crossing flows for 2016, 2030 and 2045. The Transport Assessment [APP-529] provides a suite of forecast outputs for 2045. The Applicant does not consider that within five years after opening that existing levels of congestion would return on the Dartford Crossing. Indeed Table 5.1 of the Traffic Forecasts Non-Technical Summary [[APP-528](#)] shows that in 2045, 15 years after opening, traffic flows are only slightly higher than the flows in 2016, and indeed are lower than the flows that would have occurred on the Dartford Crossing if the Project had not been built.
- A.4.3 As set out in Chapter 4 of Combined Modelling and Appraisal Report - Appendix C - Transport Forecasting Package [APP-522], the traffic forecasts have been produced in line with DfT's Transport Analysis Guidance and are in line with DfT traffic forecasts, published as TEMPro 7.2 and spatially adjusted by developments in the Uncertainty Log. Sensitivity tests for low and high growth, in line with TAG have been undertaken and are reported within the Transport Forecasting Package [[APP-522](#)] and Transport Assessment [[APP-529](#)]. The Applicant does not consider that the traffic forecasts underestimate demand.

### **Medway Council and Uniper**

- A.4.4 Medway Council and Uniper set out concerns in relation to an application by Uniper for development on the Hoo peninsula (Medway planning application reference MC/21/0979, approved in November 2022). During the planning process, National Highways made a representation requiring that a trip cap be placed on the development restricting the amount of trips that the development can generate on the A2 eastbound to A289 off-slip and A289 to A2 westbound

on-slip at M2 junction 1 to an initial cap and afterwards potentially amended through a monitoring and management framework.

- A.4.5 In the planning consent set out above, National Highways worked with the developer to agree the initial cap.
- A.4.6 The Applicant acknowledges that there will be increased traffic flows through M2 junction 1 following the opening of the A122 Lower Thames Crossing, but considers this needs to be considered against the overall benefits resulting from the better connections and improved journey times resulting from the Project, as set out in 7.9 Transport Assessment Appendix F Wider Network Impacts Management and Monitoring Policy Compliance [[APP-535](#)].
- A.4.7 Unlike a conventional developer, National Highways operates both as the Applicant for the A122 Lower Thames Crossing and as custodian of the Strategic Road Network as set out in the Highways England: Licence (DfT, 2015). As custodian of the Strategic Road Network, National Highways must consider the provision for sufficient flexibility and future-proofing in planning the long-term development and improvement of the network (paragraph 5.6c). In some instances this requires that National Highways makes decisions relating to the availability of capacity on the network, and results in some reductions in available capacity at certain locations on the network, with potential consequences for new development in that area, in order to optimise the performance of the network overall where necessary to deliver government infrastructure priorities, such as the A122 Lower Thames Crossing.

## Annex B Post-hearing submissions on Transport demand, traffic modelling and the role of the road in the National and regional transport system

### B.1 Introduction

- B.1.1 This section provides the post-hearing submissions for agenda item 4(b) on Transport demand, traffic modelling and the role of the road in the National and regional transport system from Issue Specific Hearing 1 (ISH1) on the 21 June 2023 [EV-014] for the A122 Lower Thames Crossing (The Project).
- B.1.2 The Applicant has no additional submissions to make for item 4(b)(i) on “*How will the proposed LTC affect the operation of the existing M25/ A282 Dartford crossing?*”
- B.1.3 The Applicant has additional submissions to make for:
- a. item 4(b)(ii) on “*How will the proposed LTC address traffic demand arising from the M20 corridor (and possible demand for trips between the LTC alignment and the M20 alignment in Kent)?*”
  - b. item 4(b) (iii) on “*Are there elements of demand for the LTC alignment that can be met by existing or new heavy rail, or light rail/ tram services (such as KenEx/ Thames Gateway Tramlink) and to what extent has the contribution of such modes and options been explored?*”
- B.1.4 These are contained in the sections below.

### B.2 Rail alternatives

- B.2.1 As set out in section 5.3 of the Planning Statement [APP-495], the role that other transport modes, including rail, might play in addressing congestion at the Dartford Crossing has been considered from the outset. Further information is set out below in relation to rail freight and passenger rail.

#### Rail freight

- B.2.2 The provision of a new rail freight crossing of the River Thames, or any other rail freight improvements, as an alternative to the Lower Thames Crossing is not a viable or realistic alternative to the Lower Thames Crossing because there are insufficient rail intermodal distribution terminals or other facilitating infrastructure to support a transfer from road to rail freight and it is unlikely this will change in significantly in the near future, as set out in paragraphs 5.3.9 and 5.3.17 of the Planning Statement [APP-495].



- B.2.3 In addition to this, the Department for Transport Dartford River Crossing Study (2009) concluded that a new rail freight crossing to the east of Dartford would only serve freight movements between the Isle of Grain / Medway Towns areas of Kent and the West Coast Main Line / Great Western Main Line due to the networks existing rail freight connections. The report also concludes that the freight forecasts suggest minimal growth in these areas, with little scope for modal shift away from road movements. As set out in paragraph 5.3.17 of the Planning Statement [[APP-495](#)], these conclusions were reviewed as part of the preparation of the DCO Application and are considered to remain valid.
- B.2.4 It is important to note that Lower Thames Crossing would not prevent other improvements to the rail freight network being provided should the DfT or Network Rail consider such infrastructure is required and feasible to reduce road-based transportation of freight. There are no currently published plans by the DfT or Network Rail to provide significant improvements to increase capacity of the rail freight. However, even if there were, it is very unlikely to enable a significant proportion of the 141,500 vehicles (AADT, 2016, LTAM version N108R1), including 27,000 HGV's, using the Dartford Crossing to be transferred to rail within the foreseeable future and not before the opening year for the Lower Thames Crossing. Therefore, rail freight is not considered to be a viable alternative solution to a road crossing as it would not relieve the congested Dartford Crossing, which is a key part of the Scheme Objectives for the Project as set out in Table 4.1 of the Planning Statement [[APP-495](#)].

### Passenger rail

- B.2.5 The provision of new passenger rail services crossing of the River Thames as an alternative to a Road Crossing is also not considered to be a viable or realistic alternative as set out in paragraph 5.3.16 of the Planning Statement [[APP-495](#)]:
- B.2.6 'With regards to passenger rail, a review of these findings by National Highways indicates that current passenger rail demand between stations from the north Kent/ Medway towns to and from stations in south Essex, along with total travel volumes between north Kent/Medway towns and south Essex, remain low in each case. Radial movements into and out of London from either Kent or south Essex, rather than across the Thames to the east of London continue to be the principal form of rail travel for the region. Furthermore, a service sufficient to accommodate the projected number of passengers, along with their diverse origins, would not be feasible. The conclusion reached at the time of the DfT 2009 study, therefore, remains valid and the provision of new rail capacity as a modal alternative to the Project would not meet the Scheme Objectives.'

B.2.7 The Department for Transport Dartford River Crossing Study (2009)<sup>2</sup> paragraph 11.21 also concludes that ‘there is little current justification for the inclusion of rail passenger services as part of any future Lower Thames crossing facility’. As set out in paragraph 5.3.16 of the Planning Statement [[APP-495](#)], these conclusions were reviewed as part of the preparation of the DCO Application and are considered to remain valid. Therefore, a new passenger rail crossing of the River Thames is considered not to be a viable or realistic alternative solution to a road crossing to relieve congestion at the Dartford Crossing and there is little justification of including as a combined road and rail crossing.

### Policy Accordance

B.2.8 The National Policy Statement for National Networks (NPSNN) (2014) supports this consideration of modal alternatives. Paragraphs 2.1 to 2.20 of the NPSNN summarise need for the development of the national road network. Paragraph 2.21 of the NPSNN states that:

*‘...relying solely on alternatives (or a combination of alternatives as set out in Table 1) is not viable or desirable as a means of managing need.’*

B.2.9 NPSNN Table 1: Options for addressing need states:

*‘Modal Shift - Across Government, policies are being implemented and considered which encourage sustainable transport modes including public transport, significant improvements to rail capacity and quality, cycling and walking... If freight carried by rail was to increase by 50% (in terms of tonne kilometres) this would only be equivalent to a reduction of around 7% in goods carried by road.’*

B.2.10 NPSNN paragraph 2.22 states that:

*‘Without improving the road network, including its performance, it will be difficult to support further economic development, employment and housing and this will impede economic growth and reduce people's quality of life. The Government has therefore concluded that at a strategic level there is a compelling need for development of the national road network.’*

B.2.11 Therefore, in accordance with the NPSNN, a new road crossing of the River Thames is considered to be the only feasible and deliverable option to relieve the congested Dartford Crossing, which is a key part of the to meet the Scheme Objectives for the Lower Thames Crossing as set out in Table 4.1 of the Planning Statement [[APP-495](#)].

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<sup>2</sup> Department for Transport. Dartford River Crossing Study (2009)

## B.3 Response to Shorne Parish Council

### Traffic on the A2 eastbound from the M25 would use the Project

- B.3.1 Plates 8.3, 8.6 and 8.9 of the Combined Modelling and Appraisal Report - Appendix C - Transport Forecasting Package [APP-522] show the distribution of traffic origin/destinations for traffic using the Lower Thames Crossing in the AM peak, inter-peak and PM peak in 2030, with the thickness of the green lines indicating the volume of traffic.
- B.3.2 In addition, Tables 8.8, 8.9 and 8.10 of the same document show that only 6%, 5% and 8% of the total flow on the A122 Lower Thames Crossing would come from the A2 west of the Project.
- B.3.3 As shown in Plates 5.1, 5.3 and 5.5 of the Traffic Forecasts Non-Technical Summary [APP-528], the Applicant forecasts that the Project would reduce traffic on the eastbound A2 to the west of the Project in all three modelled time periods, in some cases by over 1,000 PCUs an hour. The Applicant does not consider therefore that there would be a “considerable slowing of traffic”.

### Traffic on the M25 anti clockwise would use the M26 and A227/A228 to use the Project

- B.3.4 The information shown on Plates 8.3, 8.6 and 8.9 of the Combined Modelling and Appraisal Report - Appendix C - Transport Forecasting Package [APP-522] show the pattern of traffic that is forecast to use the Project. This shows that there would be very few trips on the M25 anticlockwise where routing via the Lower Thames Crossing would offer a shorter journey time.

### Design of the A2/M2/A122 junction and traffic using the A289 to access the M2 coastbound

- B.3.5 The Applicant has designed the A2/M2/A122 junction to segregate some traffic movements to help reduce the potential for accidents. This means that some direct movements would no longer be possible, including that from Brewers Road onto the A2 (and then M2). Instead, traffic wishing to make that movement once the Project opens would instead be able to access the M2 via:
- the A226 eastbound and A289; or
  - the Gravesend East junction to access the M2 coastbound.
- B.3.6 The Applicant’s transport model forecasts that at most five trips in any modelled hour would u-turn at the A289/A226 junction.

## B.4 Response to points made by Thurrock Council

- B.4.1 Thurrock Council set out their position that as (in their view) the level of change in traffic flows across the Dartford Crossing is low, a public transport scheme could deliver the same level of change in traffic flows.
- B.4.2 The Applicant does not agree with this proposition. The Applicant considers that there is no viable public transport solution at this location that could deliver the outcomes sought, considering the diversity of journeys, in terms of origin, destination and purpose, the limitations of the existing infrastructure in the region that could connect onto such a solution, and the likely long term operational subsidy required.
- B.4.3 The Department for Transport is responsible for both setting transport policy and planning and investing in transport infrastructure across England, with responsibility for the motorway and trunk road network (the Strategic Road Network), setting the strategic direction for the rail industry and funding investment in rail infrastructure, and producing the overall strategy and planning policy for ports.
- B.4.4 The Department for Transport sets out the principal purpose of the SRN as being to enable safe, reliable, predictable, rapid, often long distance, journeys of both people (whether as drivers or passengers) and goods in England between:
- a. Main centres of population;
  - b. Major ports, airports and rail terminals;
  - c. Geographically peripheral regions of England; and
  - d. Chief cross-border routes to Scotland and Wales.
- B.4.5 It is the Department for Transport who provide the oversight on infrastructure requirements across the country and it determined, initially in 2013 when instructing Highways Agency to develop the A122 Lower Thames Crossing as an appropriate and necessary infrastructure investment, in 2017 when determining the preferred route, and again in the Road Investment Strategy 2: 2020-25 (DfT, 2020).
- B.4.6 It has been suggested that an expansion of public transport provision would provide an adequate alternative means of reducing the number of vehicles using the Dartford Crossing. A significant proportion of the traffic using the Dartford Crossing currently is movements of good vehicles, with heavy and light goods vehicles accounting for a third of all vehicles in the morning and evening peak hours. In the interpeak period, only 57% of the vehicles in 2016 were private cars. This means that a high proportion of the private car trips would

have to transfer onto public transport, to achieve the same level of congestion relief on the Dartford Crossing and approaches as compared to the A122 Lower Thames Crossing.

- B.4.7 A very large number of public transport services would be required to carry this number of people. The number of people required to switch from car to public transport would also be higher than first appears from looking at the number of cars using the crossing at Dartford at the moment. This is because, as some people transfer from car to public transport and space is released at Dartford, journey times would decrease and more people would then decide to travel by car across to the other side of the River Thames. This behavioural response has been incorporated into the transport modelling undertaken for the new A122 Lower Thames Crossing, and needs to be taken into account when assessing the magnitude of the public transport network that would need to be provided.
- B.4.8 The challenges with providing such an extensive network are the capital costs of providing new rail and light rail services and the ongoing level of financial subsidy required for the services. In order to be attractive to people, so that people choose to travel by public transport than car, the services would need to serve many of the diverse origins and destination of trips that cross the river with a reasonably high frequency of service on each route. Providing the necessary network and service frequency would be financially challenging and unlikely to be commercially viable on many routes.
- B.4.9 The Applicant would note there is no provision for a rail solution to address congestion at the Dartford Crossing in the Government's Integrated Rail Plan.

## Annex C Post-hearing submissions on Effects of the two-year rephasing in capital funding

- C.1.1 (ISH1) [[EV-014](#)] for the A122 Lower Thames Crossing (The Project). The Applicant has no additional submissions to make for agenda item 4(c) however the Applicant notes that Action 1 and 2 from ISH1 [[EV-023a](#)] are in response to this agenda item and will respond at Deadline 2.

## Annex D Post-hearing submissions on Road Design Approach

### D.1 Introduction

- D.1.1 This section provides the post-hearing submissions for agenda item 4(d) on the Road Design Approach from Issue Specific Hearing 1 (ISH1) on the 21 June 2023 [EV-014] for the A122 Lower Thames Crossing (The Project).
- D.1.2 The Applicant has additional submissions to agenda item 4(d)(i) on “*Having regard to anticipated traffic levels and user safety, is there a case for a different road design approach, including consideration of a special road/ motorway, provision of a continuous hard shoulder or any other particular safety measures?*”.

### D.2 Coded as a motorway

- D.2.1 The reason for coding the Project as a motorway is provided in paragraph 6.2.3 of Combined Modelling and Appraisal Report - Appendix C - Transport Forecasting Package [APP-522]. To emphasise, the coding used for the purposes of the Saturn software modelling does not affect the position that the Project is an All-Purpose Trunk Road (and not a motorway or smart motorway).
- D.2.2 By way of explanation, when a link is coded into the Saturn software information is provided on the distance of the link and the capacity of the link. The capacity is affected by a number of factors, such as the road type, number of lanes, the width of the lanes, the gradient of the road and the mixture of traffic using the road. Given the prohibition of slow moving vehicles on the Project, its mainline links were coded with the capacities and speed flow curves used to describe motorway links rather than the coding for an all purpose trunk road. As the forecast volume of traffic on the mainline of the Project is well below the theoretical capacity of the links, the coding of the links in this way would make no discernible difference to the forecast traffic flows and times along the Project. Nor does coding it in this way affect the clear design, legal and safety features of the Project as an All-Purpose Trunk Road.
- D.2.3 When calibrating the coding of links in a Saturn highway model that already exist on the ground, the capacity and other characteristics of the road used in the coding of that road in the model is checked against the observed traffic characteristics on that road. During the calibration process, as reported in paragraph 5.5.2 of Combined Modelling and Appraisal report - Appendix B - Transport Model Package [APP-520], the A2 eastbound between the M25 and M2 junction 1 was coded using a motorway capacity, as this matched the observed use of the road. This section of the A2 is adjacent to the Project.

## Annex E Post-hearings submissions on Routing and intersection design

### E.1 Introduction

E.1.1 This section provides the post-hearing submissions for agenda item 4(e) on the Road Design Approach from Issue Specific Hearing 1 (ISH1) on the 21 June 2023 [EV-014] for the A122 Lower Thames Crossing (The Project).

E.1.2 The Applicant has additional submissions to the following agenda items:

- a. Item 4(e)(i) on *“What consideration has been given to possible alternative routes and/ or alignment design mitigations at route ‘pinch points’, specifically in open land between North and South Ockendon, at Baker Street and between the hamlet of Thong and Riverview Park?”*
- b. Item 4(e)(ii) on *“What consideration has been given to land take at intersections and whether alternatives to the ‘all directional slip’ model for the main intersections at Baker Street and Shorne /A2 /M2 have been considered? Are all directions to all directions outcomes needed at these intersections? If not, could some slips be deleted to reduce land take? If so could it be feasible to incorporate roundabouts into elements of intersection designs to reduce land take?”*
- c. Item 4(e)(iii) on *“Has adequate provision been made in the proposed LTC design for port access (referring specifically to Tilbury, Tilbury 2, DP World London Gateway Port and extension) and for access to other proposed and emerging business, industrial and employment uses of land?”*
- d. Item 4(e)(v) on *“Has adequate provision been made for the provision/ restoration of connectivity across the LTC alignment for non-motorised users (NMUs)?”*

E.1.3 These are contained in the sections below.

E.1.4 The Applicant has no additional submissions for Agenda Item 4(e)(iv) on *“Has adequate provision been made for the provision/ restoration of community connections across the LTC alignment?”*.

### E.2 Baker street heritage alternatives

E.2.1 At ISH1 the Examining Authority asked why the proposed route avoids the Grade II listed Baker Street Windmill (LB57) but heritage assets elsewhere, specifically in proximity to Baker Street, are proposed for removal.



- E.2.2 The Applicant has sought to avoid and/or reduce impacts on designated as well as non-designated heritage assets wherever practicable through the design development process, in accordance with national planning policy requirements.
- E.2.3 The Applicant has carefully considered the feasibility of reasonable design alternatives that avoid impacts to the heritage assets. This is set out in Environmental Statement (ES) Chapter 3: Assessment of Reasonable Alternatives [[APP-141](#)] and Chapter 5 of the Planning Statement [[APP-495](#)].
- E.2.4 ES Chapter 3 identifies the reasonable alternatives, including locational, route and design options, considered by the Applicant and provides an assessment of them, taking into account impacts on the historic environment and heritage assets among other constraints. The documentation produced to assess environmental effects of the options considered as part of the iterative design process are listed at Sections 3.5 and 3.6 of Environmental Statement Chapter 3: Assessment of Reasonable Alternatives [[APP-141](#)].
- E.2.5 The proposed route passes west of the Grade II listed Baker Street Windmill (LB57), which is located approximately 60m east of the order limits. The proposed design represents the most sustainable solution in response to the need for the project (as set out in Need for the Project [[APP-494](#)]). It does not require the demolition of the Grade II listed Baker Street Windmill because the new road(s) are geographically separate to the heritage asset.
- E.2.6 A number of other heritage assets in proximity to Baker Street do, however, need to be removed to construct the Project. These include Orsett Cropmark Complex (SM1) – Scheduled Monument and the Grade II listed 1 and 2 Grays Corner Cottages (LB89), Thatched Cottage (LB58) and Murrells Cottages (LB96). This represents substantial harm in planning terms. Paragraph 5.131 of the NPSNN provides that substantial harm to or loss of Grade II listed buildings should be exceptional and substantial harm to or loss of scheduled monuments should be wholly exceptional.
- E.2.7 Paragraphs 6.5.179, 6.5.187, 6.5.196 and 6.5.206 - 6.5.209 of the Planning Statement [[APP-495](#)] specifically address the feasibility of design alternatives relevant to the Orsett Cropmark Complex, 1 and 2 Grays Corner Cottages, Thatched Cottage and Murrells Cottages respectively. Broadly, the constraints of the existing road infrastructure and the need to provide links that meet highway safety technical standards mean there are no reasonable design alternatives that avoid the assets that would meet the need for the Project (as set out in Need for the Project [[APP-494](#)]) and deliver the substantial public benefits set out in Chapter 4 of the Planning Statement [[APP-495](#)].
- E.2.8 The assessment has considered:

- a. the compromising effect of the existing A13 junction on the setting of the heritage assets;
- b. the mitigation measures proposed;
- c. the overriding need for the Project; and
- d. the lack of feasible alternative routes.

E.2.9 Together these represent a clear and convincing justification which is considered to be ‘exceptional’, or ‘wholly exceptional’ in the case of Orsett Cropmark Complex (SM1), in the context of paragraph 5.131 of the NPSNN. Paragraphs 6.5.180, 6.5.189, 6.5.198 and 6.5.210 of the Planning Statement [APP-495] respectively set this out with regard to Orsett Cropmark Complex, 1 and 2 Grays Corner Cottages, Thatched Cottage and Murrells Cottages specifically.

### E.3 The Wilderness and ancient woodland

- E.3.1 There are a number of constraints to the route alignment close to the area of woodland known as ‘The Wilderness’ including most notably the existing and historic landfill sites, various utility constraints, a solar farm and existing watercourses. Whilst the Applicant has sought to minimise the impact of the route on the constraints in this area, including The Wilderness, it has not been possible to avoid The Wilderness altogether. It should be noted that since statutory consultation (held in 2018), impacts on The Wilderness have been reduced; for example the earthworks cutting has been removed and a retaining wall proposed along the Project route to the south of The Wilderness – to retain as much of the existing woodland as far as reasonably practical.
- E.3.2 To inform the baseline assessment Phase 1 habitat surveys and bryophyte and lichen surveys of The Wilderness were completed and no ancient woodland indicator species were found to be present [Environmental Statement - Appendix 8.2 - Plants and Habitats [APP-391]]. As part of the desk based assessment the ancient woodland inventory for England was examined and The Wilderness was not shown on the Natural England-Defra GIS map layers. Review of historic mapping including the 1691 Map of the Manor of South Ockendon and the 1775 estate maps around North Ockendon, did not include the area in question. The 1777 Map of Essex by Chapman and Andres possibly shows woodland in the area, but the scale of the mapping is not suitable to be able to determine this with certainty. The 1840 South Ockendon Tithe map shows a comparable area as woodland and the written appointment that accompanies the map confirms this, as does the 1st edition of the OS 1:10,560 scale maps of the area and the subsequent sequence of OS maps throughout the 20th century.

- E.3.3 On this basis the Project does not believe that The Wilderness qualifies as ancient woodland. Within the Environment Statement – Chapter 8: Terrestrial Biodiversity [APP-146] we refer to the Wilderness in our overall assessment in relation to the habitat it offers and the species it supports (Table 8.21, paras 8.4.98, 8.4.125, 8.4.144, 8.5.55, and 8.6.367) and associated technical appendices and supporting figures for Terrestrial Invertebrates, Amphibians, Ornithology, Bats and Badgers (confidential)).
- E.3.4 The Applicant recognises the ecological value of The Wilderness based on the habitats and species that it contains and relative to the surrounding habitats which consist primarily of arable farmland and an active landfill. As such the Applicant has sought and considered how to minimise the impacts to the Wilderness through the Project’s mitigation strategy which is designed to provide more high quality semi-natural habitats which would be managed in perpetuity and using these habitat creation areas to create new links and strengthen existing ecological networks and are shown on ES Figure 2.4 - Environmental Masterplan – Section 12 [APP-166] sheets 5 and 6. This not only provides more habitat to support the range of wildlife recorded within the area, but also helps facilitate the movement of animals and the spread of seeds and spores across the wider landscape.

## E.4 Potential future junction between North and South Ockendon

- E.4.1 Thurrock Council have proposed a potential future junction onto the A122 Lower Thames Crossing in the Ockendon area, to facilitate the future delivery of their emergent local plan, and have requested that the Applicant provide passive provision for the delivery of a junction in this area. This is considered in the Statement of Common Ground between National Highways and Thurrock Council [APP-130] as item 2.1.278. Any such junction would be subject to future funding and consenting decisions and would be required to meet the relevant requirements for development on the Strategic Road Network.
- E.4.2 The Applicant has developed a design that does not preclude the potential for a junction at this location, by keeping the area as clear as reasonably practicable of any obstructions such as major utility diversions or significant permanent structures. Thurrock Council have requested that the passive provision be secured through the draft Development Consent Order [AS-038]. The current design is secured by Requirement 3 of the draft Development Consent Order [AS-038], and the Applicant’s position is that to provide any further provision would require more certainty on the nature of any proposed junction. At present, such a junction is not set out in any local plan (adopted or in development) and therefore it is not appropriate to legally require integration with a proposal that has yet to be developed.

## **E.5 Capacity of Orsett Cock Junction**

- E.5.1 Thurrock Council expressed concern that the changes in traffic flows arising after the opening of the Project led to increases in traffic flows at Orsett Cock, using “all available local road capacity”. In preparing the model, the Applicant has considered growth in the area as set out in Chapter 5 of the 7.7 Combined Modelling and Appraisal Report - Appendix C - Transport Forecasting Package [APP-522]. The Applicant acknowledges that there would be increases in flows on certain connections to the Orsett Cock junction, though on other connections, such as on the A128 northern connection and the A1013 connections, as shown in Plates 7.11, 7.13 and 7.15 of the 7.9 Transport Assessment [APP-529], flows are forecast to decrease. Overall there would be an overall increase of traffic through the junction as a result of the Project, but the Applicant considers that this needs to be considered alongside the reductions in traffic flows in other areas, as set out in Appendix F of the Transport Assessment, Wider Network Impacts Management and Monitoring Policy Compliance [APP-535].

## **E.6 Comments on the Tilbury Link Road, including consideration of alternative configurations at Orsett Cock junction that could be realised by including the Tilbury Link Road as part of the proposed A122 Lower Thames Crossing.**

- E.6.1 Thurrock Council stated that the proposed Project design does not provide adequate provision for port access and for future access to industrial and employment uses, and that alternatives incorporating a Tilbury Link Road would allow for the potential to significantly reduce the need for land around the A13/A1089/A122 junction incorporating the Orsett Cock junction. This is covered in the Statement of Common Ground between National Highways and Thurrock Council [APP-130] as item 2.1.68.
- E.6.2 National Highways has considered a link from the Project to Tilbury as set out in document 7.17 Interrelationship with other Nationally Significant Infrastructure Projects and Major Development Schemes [APP-550].
- E.6.3 As part of the pre-application engagement with Thurrock Council, a series of models were run that included a Tilbury Link Road and then removed a series of links from the connections between the A1089, the A13 and the A122. In summary, the modelling showed that the inclusion of a Tilbury Link Road did not provide sufficient additional connectivity to support the removal of the links between the A122 Lower Thames Crossing and either the A1089 or the A13. Configurations that did not include the connections between the A122 Lower Thames Crossing and either the A1089 or the A13 would fail to meet the

Scheme Objectives as they would fail to relieve both the Dartford Crossing and the approach roads.

## E.7 Option selection for Location A vs Location C

- E.7.1 In response to Gravesham Borough Council's (GBC's) comments on the option selection process for Location A vs Location C. GBC referenced Table 3.4 of in ES Chapter 3 Assessment of Reasonable Alternatives [Application Document APP-141], indicating that the information in this table was inconsistent with the decision set out at paragraph 3.82 of the same document summarising the basis for the decision not to proceed with location A.
- E.7.2 The table referenced by Gravesham Borough Council sets out the assessment undertaken in 2013, prior to the further study, assessment and consultation that led to the selection of the preferred route. By 2016 the options had been narrowed down and four alignments were set out at consultation, including crossing the River Thames at the current location, historically referred to as Location C, and at Dartford, referenced as Location A.
- E.7.3 The Secretary of State set out the preferred route at Location C in 2017, and the basis for not selecting Location A (and specifically Route 1) were provided in Section 3.2 of the Post Consultation Scheme Assessment Report Volume 7 (Highways England, 2017)<sup>3</sup> In summary, Route 1 was determined not to meet the transport Scheme Objectives, provided lower economic benefits than Route options at Location C, and would have exacerbated existing air quality problems along the M25 / A282 corridor.
- E.7.4 Gravesham Borough Council also set out their position that, notwithstanding their concerns about the selection of Location C over Location A, their view that the connectivity provided by the currently proposed A2 junction provides the necessary access. The Applicant agrees that the junction has been designed to provide the necessary connectivity and that any reduction at this location would be detrimental to achieving the Scheme Objectives, and could also lead to existing communities being disadvantaged by the removal of important existing connectivity.

## E.8 Ports Provision

- E.8.1 The Project provides improved access for the ports and other employment uses, including those set out in the question, and the provision is considered adequate.

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<sup>3</sup> Post Consultation Scheme Assessment Report Volume 7 (Highways England, 2017) ([https://highwaysengland.citizenspace.com/ltc/lower-thames-crossing-consultation/supporting\\_documents/PostConsultation%20Scheme%20Assessment%20Report%20Volume%207.pdf](https://highwaysengland.citizenspace.com/ltc/lower-thames-crossing-consultation/supporting_documents/PostConsultation%20Scheme%20Assessment%20Report%20Volume%207.pdf)).

- E.8.2 The importance of the ports to the national economy and the role of the Project in supporting access has been part of the consideration going back to the start of the process that led to the selection of the preferred route. The Dartford Crossing provides an important link for ports through the Thames estuary, including Purfleet, Tilbury, London Gateway, Thamesport and Sheerness, as well as on the south coast including Dover and Folkestone. Both the relief at the Dartford Crossing and the new route provided by the Project will support the planned growth that these ports, as well as for other business, industrial and employment uses across the area. In the 7.1 Need for the Project [\[APP-494\]](#) testimonials are provided from a number of businesses, across the region setting out how they support the Project, and these were also reflected in a number of relevant representations, including for example:
- a. RR-083 – Peel Ports Ltd, operators of Sheerness port.
  - b. RR-0397 – Hutchison Ports, operators of London Thamesport as well as Harwich International and Port of Felixstowe.
- E.8.3 Details of how the Project will support two ports in particular, can be found in Combined Modelling and Appraisal Report - Appendix C - Transport Forecasting Package [\[APP-522\]](#). Within the tables of route based journey time comparisons (Tables 8.17, 8.18 and 8.19), journey times between both the Port of Tilbury and London Gateway and a series of locations both north and south of the river Thames have been forecast, over a series of years between 2030 and 2051. In each journey, the time is reduced, because of the new connectivity provided by the Project, the relief to the existing road network provided by the Project, or in many cases both elements.
- E.8.4 Speaking specifically to the provision for each of the ports:
- a. The Port of Tilbury retains their existing connectivity to the road network and the M25 and benefit from substantial relief on this network. In addition, for traffic leaving the port a new free flow route is provided from the A1089 onto the M25 anti-clockwise, via the Project, supporting traffic that would have otherwise had to navigate along the A13 and around M25 junction 30.
  - b. London Gateway also retain their existing connectivity to the road network, and also benefit from direct free flowing links from the A13 onto the Project both northbound and southbound as well as from the Project southbound onto the A13.
  - c. Due to the traffic routing along the A13 westbound onto the A122 Lower Thames Crossing there would be an increase in traffic flows at the Manor Way junction, which is critical for access to the London Gateway port. As demonstrated by the journey time analyses, though, any slower travel

through this junction would be recovered and then surpassed by faster journey times along the whole route.

## **E.9 Applicant's response to Interested Parties comments on agenda item 4(e)(iii)-(iv)**

### **DP World London Gateway: analysis required in respect of Orsett Cock and Manorway junction impacts and consequential impacts on the port – in particular localised modelling**

- E.9.1 The Applicant has undertaken local junction modelling (using microsimulation modelling within VISSIM) for both the Orsett Cock and Manorway junctions. These models have been developed in partnership working with Thurrock Council. The Manorway junction model was also discussed with DP World London Gateway.
- E.9.2 Reports relating to both models have been submitted by the Applicant at Deadline 1. This has been provided in Localised Traffic Modelling (Document reference 9.15).

### **Port of Tilbury London Limited : consideration of traffic associated with the Thames Freeport**

- E.9.3 The Applicant has detailed the relationship between the Project and the proposed Thames Freeport in section 6.4 of the Interrelationship with other Nationally Significant Infrastructure Projects and Major Development Schemes [APP-550]. The Thames Freeport constitutes a series of proposed developments, at Dagenham, London Gateway and Tilbury, as defined in the following:
- a. Maps of Thames Freeport tax sites:  
(<https://www.gov.uk/government/publications/maps-of-thames-freeport-tax-sites>)
  - b. Map of Thames Freeport customs site:  
(<https://www.gov.uk/government/publications/map-of-thames-freeport-customs-site>)
- E.9.4 As such, the Thames Freeport proposals include both existing development and proposed new development. Existing developments, and proposed developments that meet the criteria in TAG Unit M4, have been included in the project's transport model, as described in Chapter 6 of the Transport Forecasting Package, Appendix C of the Combined Modelling and Appraisal Report [APP-522].
- E.9.5 The Applicant acknowledges that the Port of Tilbury London Limited provided in autumn 2021, information relating to their future growth aspirations at the Port

of Tilbury, some of which relates directly to the proposed Thames Freeport. The Applicant considered these against TAG Unit M4 and considered that they did not carry sufficient certainty to be included in the core scenario. However, the Applicant agreed to consider the feasibility of undertaking a run of the Project's transport model with them included, as a sensitivity test. The outcome of the test was that the existing highway network would not have sufficient capacity to accommodate the forecast traffic relating to these proposals, and that the model would not therefore be representative. The Applicant considered that it would not be appropriate for it to determine the scale or nature of any highway interventions necessary to support the proposals and to date these have not been provided by Port of Tilbury London Limited.

- E.9.6 The Applicant does not consider that the two year delay to the opening of the Project would affect the Applicants consideration of including these proposals within the core scenario, as the concerns relating to the proposals remain.

### **Port of Tilbury London Limited: Construction impacts on the ASDA roundabout**

- E.9.7 The Applicant has set out the impact of the Project during construction on the A1089 Asda roundabout in Chapter 8 of the Transport Assessment. An outline framework that would be applied for the design, management and communication of construction traffic management, road space booking and transport logistics is provided in the outline Traffic Management Plan for Construction [[APP-547](#)]. This requires the preparation of a Traffic Management Plan for Construction, on which Port of Tilbury London Limited would be consulted, and the implementation of a Traffic Management Forum.
- E.9.8 Acknowledging the statements made regarding localised modelling of traffic flows through the A1089 ASDA Roundabout, the Applicant has provided more information in a document titled Localised Traffic Modelling (Document reference 9.15) at Deadline 1.

### **Port of Tilbury London Limited: Use of the CMAT**

- E.9.9 In response to the Port of Tilbury, the Applicant considers that appropriate commitments on port use have been incorporated into the application. In particular, Requirement 4(2) secures the outline Materials Handling Plan [[APP-338](#)] which in turn secures two commitments. First, paragraph 1.3.7 requires the Project shall utilise port facilities for at least 80% by weight of bulk aggregates imported to the north portal construction area ('the Baseline Commitment'). This commitment translates into 35% of the total bulk aggregates across the Project being transported via port facilities. In this context, "port facilities" is specifically defined as "facilities within, or next to, the Port of Tilbury or facilities along the River Thames which do not require the use of the road network next to the Thames Freeport." The CMAT would fall within this definition. Second,



paragraph 6.2.11 contains a further commitment would require the Contractor to engage with aggregate and material suppliers collaboratively, to proactively maximise utilisation of river transport for the import of bulk aggregates for the north portal construction area beyond the Baseline Commitment so far as is reasonably practicable (subject to limited exemptions).

### **Port of Tilbury London Limited: Interfaces with the Tilbury Link Road**

- E.9.10 The Port of Tilbury London Limited made representation that the Lower Thames Crossing should be constructed in a way that enables the Tilbury Link Road to be brought forward in the future.
- E.9.11 The Applicant has considered the potential for connections to be made in this area at a future date and subject to a separate consenting process. However, there has been no decision on the preferred route or the specification of any connection in this area and consequently, it is not appropriate to make provision for development which is not directly required for the Project.

### **Gravesham Borough Council: Concerns that community connections and Non-motorised users connections not thought through in relation to construction impacts, in particular near Brewers Road and cycle route 177**

- E.9.12 With regards to the temporary diversion of National Cycle Route (NCR) 177 to facilitate the construction of the Project, this has been discussed with a range of stakeholders including Local Authorities, user groups and landowners. A comprehensive diversion proposal has been proposed which makes use of existing permissive paths and Public Rights of Way south of the A2 and the High Speed 1 (HS1) railway, through Jeskyns and Ashenbank Wood to temporarily divert NCR 177 users away from the proposed works. Once operational, the realigned NCR177 will sit alongside and to the south of the local connector road which will run parallel to the A2.

### **Thurrock Council: Tilbury Link Road not properly considered, concerns around connections not providing cycling or walking facilities and bus-priority facilities**

- E.9.13 A road connecting the Project and the Tilbury area was considered after the Preferred Route Announcement in 2017, and later included as a RIS3 pipeline scheme in the Road Investment Strategy 2: 2020-25 (DfT, 2020)<sup>4</sup> as the Tilbury Link Road. As set out in Section 6.5 of Interrelationship with other Nationally Significant Infrastructure Projects and Major Development Schemes [[APP-550](#)], a decision was taken to not include the Tilbury Link Road as part of the Project, as it was not considered necessary to help meet the Scheme Objectives. This

<sup>4</sup> Road Investment Strategy 2 2020 to 2025 (Department for Transport, 2020) [Road Investment Strategy 2 \(RIS2\): 2020 to 2025 - GOV.UK \(www.gov.uk\)](#)

decision was taken following an update of the Project's transport model in 2017, and rationalisation of the proposed design of the A13 junction

- E.9.14 National Highways has run five tests for Thurrock Council of their proposals for a Tilbury Link Road and design changes at the A13/A1089/A122 junction. Detailed outputs were provided to Thurrock Council from each model run, including GIS shapefiles, cordon models, global statistics, scenario wide outputs, journey time data and select link analysis which shows the origin and destination of trips using a specific, selected, link in the network. This work was provided to Thurrock Council in June 2022 with an additional run requested and supplied in December 2022.

### **London Borough of Havering: adequate connectivity to crossing points required – footbridge or right of way.**

- E.9.15 The Applicant considers that it has complied fully with the requirements of paragraph 3.17 of the National Policy Statement for National Networks in addressing several instances of historic community severance within the London Borough of Havering.
- E.9.16 With regards to the approach routes to the A127 Walkers, Cyclists and Horse Riders (WCH) bridge to the west of M25 junction 29, the Applicant is of the view that any further improvements required in this area are a matter for the Local Highway Authority to consider.

### **St Modwen Developments – important that Applicant does not prejudice the delivery of the Enterprise Park project.**

- E.9.17 The Applicant has been engaging with the promoter of the Brentwood Enterprise Park, St Modwen, and the landowner, Mr Christopher Padfield, for several years. The details of the interfaces between Brentwood Enterprise Park and the Applicant are set out in Section 6.8 of Interrelationship with other Nationally Significant Infrastructure Projects and Major Development Schemes [Application Document [APP-550](#)].
- E.9.18 The Applicant and the promoter continue to work collaboratively to address the outstanding interfaces between the two projects. This includes, but is not limited to, the interfaces between the Project and Brentwood Enterprise Park design of the proposed structures over the A127 and access from the B186. Design principles for the delivery of these interfaces are referenced in the Design Principles [[APP-516](#)], see design principles with the references S14.22 and S14.19.

**Thames Crossing Action Group: cross-river active travel, and information on standards, surfaces, widths etc. a lot of the routes claimed as new are existing.**

- E.9.19 With regards to cross-river provision, the Applicant has considered a range of options during the development of the Project to provide improved cross-river provision for walkers and cyclists. The options investigated include using the tunnel, upgrading the existing ferry, relocating the ferry, building a separate bridge or cable car, and providing a shuttle service through the tunnel. These options were not taken forward for a variety of reasons including technical feasibility, operational issues, lack of commercial viability, cost, environmental impacts, and poor safety.
- E.9.20 Latent demand for walking and cycling across the River Thames at the Project crossing point is low and therefore unlikely to unlock enough trips to make the required infrastructure for a dedicated shuttle service economically viable. Page 48 of the Project Design Report - Part G - Design Evolution [[APP-514](#)] provides further information. In addition, Chapter 5 of the Planning Statement [[APP-495](#)] provides an overview of the assessment undertaken on alternative modes of transport.
- E.9.21 The Project would create opportunities for public transport operators to develop new local and regional bus services, by providing new connectivity between Kent, Thurrock and Essex. Identification and development of these routes is the responsibility of the relevant operators. Local buses will not have to pay the user charge for the Project, reducing operating costs for operators as is set out in Section 2.2 of the Road User Charging Statement [[APP-517](#)].
- E.9.22 With regards to the exact dimensions and type of surfacing for Walking, Cycling and Horse Riding routes, these have not been determined yet in light of the design stage of the Project at this time. These details would be specified during the detailed design phase taking account of site specific conditions, relevant design standards and the requirements of the Design Principles [[APP-516](#)], with the most appropriate option being used for each route. The Applicant would highlight, in particular, design principle PEO.04 which sets out that WCH routes would be designed in accordance with the appropriate standards.
- E.9.23 Details of the proposed walking, cycling and horse-riding routes by category (new, improved, realigned) are set out in Transport Assessment - Appendix A - Public Rights of Way [[APP-530](#)].
- E.9.24 The Applicant has sought to restore and enhance existing Public Rights of Way (PROW) and routes for Walkers, Cyclists and Horse Riders (WCH) in the vicinity of the Project route. In some cases this includes the upgrade (e.g. widening and resurfacing) of existing WCH routes and in other cases involves a change of status of PROW to permit use by a wider group of users (e.g.

upgrading a footpath to a bridleway). Furthermore the Applicant is promoting new PROW and WCH routes which augment or enhance the existing network or deal with historic severance in the wider network. Overall therefore the Applicant is promoting a blend of new and improved PROW and routes for WCH. Subject to agreement by the Examining Authority, the Applicant intends to publish a new set of plans at Deadline 2 which will draw together all the various sources of WCH information into a single place.

- E.9.25 With regards to the zig-zag and spiral paths in Tilbury Fields referred to by Thames Crossing Action Group, these are intended to create interesting routes for recreational purposes and are augmented by more direct Public Rights of Way close by to support active travel. More information on the design of these routes is set out in paragraph 4.5.2 of the Project Design Report Part D [APP-509]

## Annex F Post-hearing submissions on mitigation design and delivery

### F.1 Introduction

- F.1.1 This section provides the post-hearing submissions for agenda item 4(f) on Mitigation design and delivery from Issue Specific Hearing 1 (ISH1) on the 21 June 2023 [EV-014] for the A122 Lower Thames Crossing (The Project).
- F.1.2 The Applicant has no additional submissions to make for item 4(f)(i) on “*There appears to be some element of double counting of the benefits of some elements of mitigation design and delivery. Examples arising from site inspections include the following:*”
- a. *The observation that land at Hole Farm near Great Warley is identified as already having been purchased and drawn into the creation of community woodland that has been publicly described as serving some general purposes not directly linked to the effects of LTC*
  - b. *The observation that land proposed for nitrogen management at Bluebell Hill and Burham was added to the land requirement for the project between the first application and the second application, but that elements of this land are identified in the minor refinements consultation as potentially surplus to need and to be reduced in extent. The possible inclusion of some of this land in Stewardship is given as a basis for some of the exclusion, but again there does not appear to be a direct link between the management of land under Stewardship and the management of the effects of LTC?”.*
- F.1.3 The Applicant has an additional submission to make for item 4(f)(ii) on “*Can the extent of land take and acquisition for mitigation be fully justified as addressing need arising from LTC?”*. This also responds to ISH1 Hearing Actions [EV-023a] Action 5 “*Please explain the extent of the Nitrogen compensation area sought. Is it clear that no land outside order limits is being relied upon as compensation for the LTC project (and is it also clear that no land outside the order limits is being counted as providing such benefits)?”*”.

### F.2 Extent of the Nitrogen Compensation areas

- F.2.1 The extent of nitrogen deposition compensation sought is as presented in the Minor Refinement Consultation; a total of 205.8ha. This is a reduction of approximately 40ha in area from that presented in the DCO application at the point of submission. The details of this change are given below.
- F.2.2 In both the DCO application and the Minor Refinement Consultation, all land sought for nitrogen deposition compensation lies within the Project Order Limits.

No land outside the Order Limits is being relied on as providing any form of compensation or benefit for adverse effects as a result of nitrogen deposition. This is accurate for both the DCO application as submitted, and the Minor Refinement Consultation.

F.2.3 The areas sought for nitrogen deposition compensation as reported within the DCO Application cover a total area of 245.7ha and are detailed within Table 7.7 of ES Appendix 5.6 Project Air Quality Action Plan [APP-350]. A copy of this table is provided below (Table F.1). Plate F.1 below shows the extent of the Blue Bell Hill and Burnham compensation areas.

**Table F.1 ES Appendix 5.6 Project Air Quality Action Plan Table 7.7 Proposed compensation**

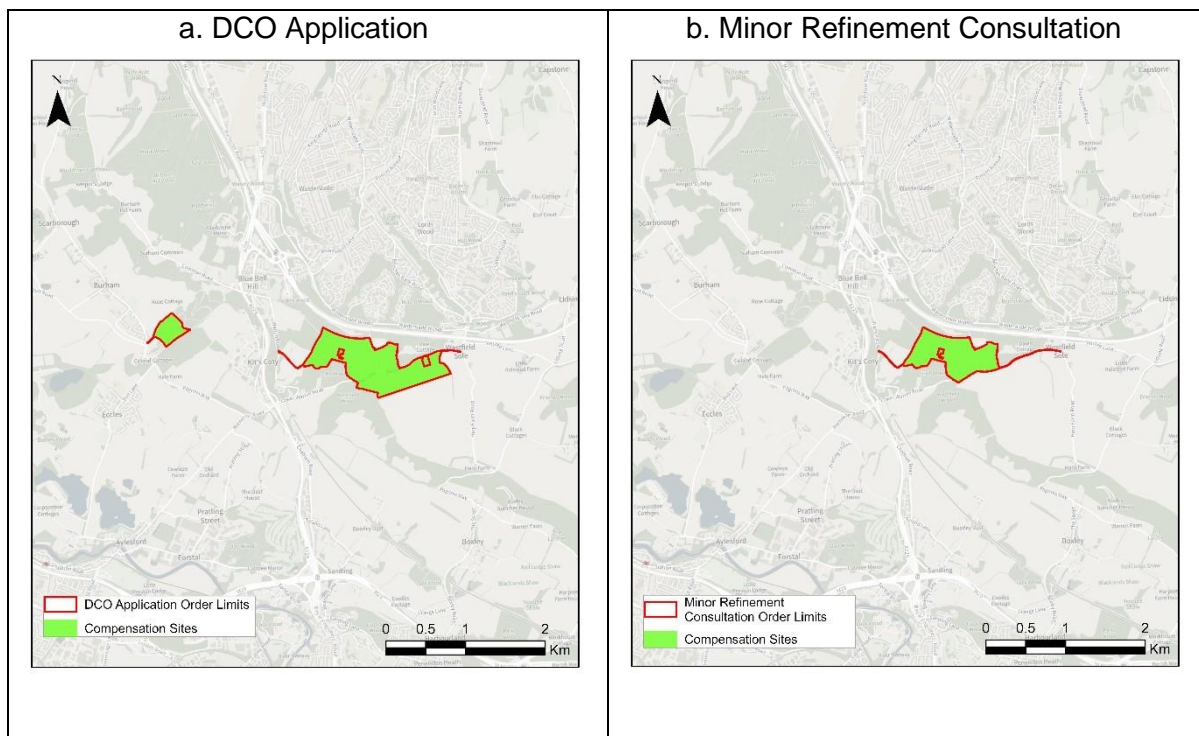
Compensation site name (location)	Size (ha)	Details
Hole Farm East	75.2	Located within Brentwood. Site owned by National Highways.
Buckingham Hill	24.4	Site located within Thurrock. Former landfill site owned by Thurrock Council.
Hoford Road	21.6	Privately owned land located in Thurrock, located south of Orsett Golf course.
Henhurst Hill	9.1	Most western site within the Gravesham/Shorne cluster. Site is privately owned and currently farmed. Located south of the A2, close to Ashenbank Woods and Jeskyns community woodland.
Fenn Wood	5.8	Privately owned site which appears to be used for horse grazing, located south of Shorne Village adjacent to Fenn Wood.
Court Wood	27.7	Privately owned site agricultural land located in Shorne, in between Starmore Wood and Court Wood.
Blue Bell Hill	72.2	Privately owned site located south of M2 in Blue Bell hill.
Burham	9.7	Privately owned site east of Burham
<b>TOTAL</b>	<b>245.7</b>	

F.2.4 The Minor Refinement Consultation proposed changes to the extent of nitrogen deposition compensation land being sought at Blue Bell Hill (a reduction of approximately 29ha), and removed the Burham site from the Project Order Limits. The revised total area of nitrogen deposition compensation is 205.8ha, an overall reduction of approximately 40ha. Table F.2 below details the total extent of land now being sought as nitrogen deposition compensation. Plate 1b below shows the reduced areas being sought at Blue Bell Hill and the removal of Burham from the Order Limits.

**Table F.2 Table Extent of nitrogen deposition compensation proposed at Minor Refinement Consultation**

Compensation site name (location)	Size (ha)	Details
Hole Farm East	75.2	Unchanged from application
Buckingham Hill	24.4	Unchanged from application
Hoford Road	21.6	Unchanged from application
Henhurst Hill	9.1	Unchanged from application
Fenn Wood	5.8	Unchanged from application
Court Wood site	27.7	Unchanged from application
Blue Bell Hill	42.0	Extent reduces as shown in Plate 1b. below
<b><u>TOTAL</u></b>	<b><u>205.8</u></b>	

**Plate F.1 Illustration of the changes in order limits at Bluebell Hill and Burnham Nitrogen Deposition Compensation Sites**



## Annex G Post-hearing submissions on Utilities and transmission diversions

### G.1 Introduction

- G.1.1 This section provides the post-hearing submissions for agenda item 4(G) on utilities and transmission diversions from Issue Specific Hearing 1 (ISH1) on the 21 June 2023 [[EV-014](#)] for the A122 Lower Thames Crossing (The Project).
- G.1.2 The Applicant has no additional submissions to make for Item 4(g)(i) on “*These works are currently characterised as Nationally Significant Infrastructure Projects (NSIPs) in their own right. The statutory basis for this approach will be explored in ISH2*”.
- G.1.3 The Applicant has additional submissions to make for Item 4(g)(ii) on “*What design approach has been taken to the siting and design of replacement utilities and transmission alignments?*” These are provided in the sections below.

### G.2 Further information on design approach has been taken to the siting and design of replacement utilities and transmission alignments

- G.2.1 The Applicant sets out information below in relation to the design approach for the utility works holistically and a transmission network works separately.

#### Holistic Design Approach

- G.2.2 The design is an extremely informed and integrated preliminary design appropriate for this stage of design that integrates the utility network requirements into the overall Project design. The utility works are consolidated into a suite of Works listed within Schedule 1 of the draft DCO [[AS-038](#)]. These have all been assessed as part of the Project to avoid the suggestion of salami slicing.
- G.2.3 The design considers the management of the existing utility networks, the diversionary works and those necessary new supplies required by and interfacing with the Project. The land-take includes the permanent and temporary requirements ensuring the utility networks and the highway can be safely constructed, operated and maintained minimising impact to each others customers whilst seeking to de-risk the overall construction programme.
- G.2.4 The preliminary design has been achieved via a prolonged and extensive period of engagement with, and designs being developed by or assured by the utility undertakers. All designs have been considered and incorporated with the project design and have undergone an iterative process as detailed in the Project Description [[APP-140](#)], simplified in Plate 2.11 Iterative process for



design development (pg.121). This has resulted in an application where a high number of matters between the Applicant and the utility network owners and operators have already been agreed as evidenced in those Statement of Common Grounds between the parties submitted and to be submitted as part of the application, and which are being submitted at Deadline 1 and/or at subsequent deadlines.

G.2.5 The design accords to the principles set out in the [\[APP-140\]](#) section 2.5 Construction of the Environmental Statement Project Description, in particular paragraphs 2.5.3 through 2.5.17 (pg120-124) and the relevant industry codes of practice, standards, legislative requirements and the utilities specific standards and guidance [\[APP-140\]](#) Para 2.2.8 (pg.5)] reflecting designs developed by the relevant utility undertaker and consultation feedback at various stages of the Project development.

G.2.6 Plate 2.11 Iterative process for design development (pg.121) [\[APP-140\]](#) shows the design process. This process has resulted in the reduction of the utility scope:

- a. Approximately 4.5km of electricity transmission overhead line diversionary (and associated) works at the M25 J29 and approximately 6.5km of electricity transmission overhead line diversionary (and associated) works around Chadwell St Mary
- b. Approximately 2.5km of high pressure gas pipeline diversionary works and the need to relocate a significant piece of gas infrastructure adjacent to the Mardyke, and 0.7km of high pressure gas pipeline at the M25 J29
- c. Approximately 1.3km of electricity distribution overhead line diversionary works at Ockendon Road and 0.6km of works over the residents of Linford
- d. Approximately 1.4km of water pipeline proposed to be installed within Dock Road, Tilbury

G.2.7 As per the Planning Statement [\[APP-495\]](#) paragraph 5.6.3 (pg.100) *“the development of the design...has recognised the potential for impacts from the proposals on features such as woodlands, open space and communities. The design development has sought to keep these impacts to a minimum through close working with the utility companies to agree how these works should be carried out and to identify the most appropriate diversion routes. Key considerations influencing the design have been:*

- a. *Limiting diversions*
- b. *Utility undertakers’ alignment requirements*
- c. *Reducing working areas*

- d. *Minimising the environmental impact*
- e. *Minimising the amount and duration of traffic management*

5.6.4 *To reduce disruption for road users and the local community, various construction methods have been considered, for example the use of trenchless technology such as directional drilling and tunnelling to install utilities beneath railways, watercourses and roads.”*

[these statements are repeated in [APP-141] Chapter 3 – Assessment of Reasonable Alternatives at para 3.28.2 and 3.28.3 (page 60)]

- G.2.8 The approach sought to determine a degree of flexibility in which to overcome any issues at the detailed design stage. A proportionate and necessary degree of flexibility has been built into the draft DCO [AS-038] and supporting documents, reflecting the preliminary nature of the design and that detailed design, which would be undertaken by the appointed contractors, will be undertaken at a later stage. There is a public interest in flexibility - it ensures that the scheme can be delivered in both an environmentally sensitive and cost-effective way, avoiding where possible unforeseen circumstances such as potential impediments to delivery. The flexibility afforded by the draft DCO has been assessed as part of the environmental impact assessment, which has led to appropriate and reasonable controls.

### **Electricity Transmission Lines Design Approach**

- G.2.9 The electricity transmission network’s function is to move high volumes of high voltage electricity between the location the electricity is generated to its point of distribution which is typically a substation. The transmission network provides electricity to regions, where via the distribution network, which converts the power to lower voltages, will supply the electricity customers. The Project requires works to four electricity transmission networks, promoted as Work Nos OH1, OH4, OH6 & OH7 within the draft DCO [AS-038] that are owned and operated by National Grid Electricity Transmission.
- G.2.10 These works are subject to the same design development process as the other Project design elements as at Project Description [APP-140] Plate 2.11 Iterative process for design development (pg.121) however these Works, which have been proposed in consultation with NGET, have applied the design approach as described in Planning Statement [APP-495] para 5.6.12 (pg.102) for each of the works before proposing them to the Applicant:

*“The various factors which have been considered in assessing the various options for overhead line diversions relevant to the Project include:*

- a. *Technical feasibility*
- b. *Ensuring clearance of the Project road design*

- c. *Minimising impacts on the existing OHL network*
- d. *Minimising the length of change and the number of new and temporary towers*
- e. *Ensuring efficient, safe and economical construction and maintenance*
- f. *Factoring in construction work areas associated with access, scaffolding and stringing activities*
- g. *Taking account of industry standard routeing practices through application of the Holford Rules and compliance with National Policy Statement EN-5 [where relevant]*
- h. *Avoiding/minimising impacts on known ecological, historic, landscape and visual, and socio-economic constraints*
- i. *Having regard to project design elements including compounds, environmental mitigation, flood mitigation.”*

G.2.11 Preliminary design information regarding pylon types and overhead line profiles are contained within Engineering Drawings and Sections (Volume H) (Overhead Diversion Routes and Pylon General Arrangement) [APP-037]. Alternatives considered for each of the transmission line Works can be found in Environmental Statement Chapter 3 Assessment of Reasonable Alternatives [APP-141]. By way of example, Work No OH1 – Thong Lane para 3.28.15 – 3.28.19 (pg62-63) sets out that four National Grid overhead transmission line diversion options were considered that would cross the Project between the A2 and Riverview Park and Thong Lane. The diversion option closest to a perpendicular crossing of the Project route at Thong Lane was preferred as it permitted future operation and maintenance of the network considering the alignment of the A122 and the proposed Thong Lane green bridge. It also considered the planting proposals of the Project along the boundary of Riverview Park and the alignment and engineering requirements of the diverted gas pipelines (Work Nos G3 & G4) both during construction and operation of both networks and sought to remove any unnecessary interface without introducing a series of additional impacts, such as the demolition of properties along Thong Lane.

G.2.12 Installing the overhead transmission lines underground was considered but discounted by the Project in agreement with National Grid. To underground the line would have required two Cable Sealing End Compounds to be constructed to enable the transition from overground line to underground. Due to the lack of space around Pylon 4YN050, which is located between HS1 and the A2 and provides a connection to the HS1 Substation, the length of line to be diverted would have had to have been considered from a location further south-west

along the alignment, potentially with new impacts to the environment (Pylon 4YN051) or residents (Pylon 4YN052) to achieve this.

- G.2.13 Undergrounding would have presented construction, operation and maintenance considerations for National Grid who had communicated to the Project that they could not accept any adverse impact on the safety, security, efficiency or reliability of the electricity and gas transmission networks or increase in the cost of the operating of these as a result of the Proposed Development (see paragraph 3.28.18 of Environmental Assessment - Chapter 3 Assessment of Reasonable Alternatives [[APP-141](#)]).
- G.2.14 In connection with the electricity transmission works, there is similar consideration given to Work No OH6 and Work No OH7 at 3.28.20 – 3.28.24 (pg63-64) and Work No OH4 – Low Street para 3.28.32 (pg66) of the Environmental Assessment - Chapter 3 Assessment of Reasonable Alternatives [[APP-141](#)]).

### Gas Transmission Pipeline Design Approach

- G.2.15 The gas transmission network's function is to move high volumes of natural gas at high pressure from gas processing plants to direct served customers such as power stations or to regional regulators where the pressure is reduced for the distribution to customers via the gas distribution network. The Project requires works to two gas transmission pipelines in three locations, which are described as Work Nos G2, G3 and G4 in Schedule 1 of the draft Order [AS-038] that are owned and operated by National Gas Transmission (NGT).
- G.2.16 These works are also subject to the same design development process as the other Project design elements as at Environmental Statement Chapter 2 Project Description [APP-140] Plate 2.11 Iterative process for design development (pg.121). Alternatives considered for the gas transmission Works can be found in Environmental Statement Chapter 3 Assessment of Reasonable Alternatives Para 3.28.9 - 3.28.14 (Pg61-62) [APP-141].
- G.2.17 Again, by way of example, the Environmental Statement considers alternatives in connection with NG Feeder 5 (Work Numbers G2 and G4) and Feeder 18 (Work Number G3). Eight initial options were considered in relation to the gas pipe diversions. The promoted design enables NGT to divert from connection points off both pipelines north of the A2, therefore retaining the existing crossings of the A2. This removes the need for two trenchless installations of circa 400m in length under the A2 and HS1, removing potential risk to HS1 which has a lower threshold of acceptable movement of the railway and the associated infrastructure, due to the speed that HS1 operates at. It also omits the potential impact to its customers that would occur if remediation works were required.

- G.2.18 If alternative alignments of the pipelines were promoted to the eastern side of the junction, they would have conflicted with large sections of the proposed A2 Construction Compound, which would then have needed an alternative location. It is likely that a relocation of the A2 Construction Compound would have moved it to the location of the A2 West Utility Hub, and so moved the associated impacts closer to the residents of Riverview Park. The preferred option alignments have been promoted following site investigations and assessments by NGT and aim to contain the works so far as reasonably practicable to those areas of previous tree felling to avoid mature trees, to minimise the ecological and arboricultural effects on Claylane Wood.

## G.3 T Pylons

- G.3.1 National Grid Electricity Transmission (NGET) have designed and adopted a new, alternative form of pylon known as a T-Pylon for consideration when designing parts of the national electricity transmission network. To date 116 have been installed as part of the Hinkley Connection Project for energising in 2023. T-Pylons are considered at the design stage as part of the technologies and approaches to mitigate visual impacts, including alternative lattice pylon designs and different types of underground cable systems. Each approach is chosen where it's operationally possible and cost efficient for electricity customers.
- G.3.2 The Project requires works to four electricity transmission networks, promoted as Work Nos OH1, OH4, OH6 & OH7 within the draft DCO [[AS-038](#)]. Steel lattice towers are proposed to be installed for all pylons to be constructed as part of these works (as shown in Engineering Drawings and Sections (Volume H) (Overhead Diversion Routes and Pylon General Arrangement) [[APP-037](#)]).
- G.3.3 These designs have been developed and agreed with NGET, the owners and operators of the network, and the Applicant. NGET developed these designs and then submitted them to the Applicant (see paragraph 5.6.12 of the Planning Statement [[APP-495](#)]). This development included considering the impacts on the landscape. The NGET proposals were then subject to the Project iterative design development in conjunction with other Project design elements as described in the Project Description Plate 2.11 [[APP-140](#)].
- G.3.4 By way of context, the overhead line works forming part of the Project form a limited amount of the full length of those networks which may include a significant number of pylons. Design of particular pylons must therefore be seen in that context: the Project is proposing the construction of only 23 pylons as part of the electricity transmission networks (four as part of Work No OH1, five as part of Work No OH4, four as part of Work No OH6, ten as part of Work No OH7) which form part of the wider transmission networks outside of the Project Order limits. Moreover, alternative pylon designs such as T Pylons would have

a different operation and maintenance regime, access and land requirements compared to the rest of the network which these pylons would be constructed within.

- G.3.5 The Applicant notes, in particular, that a T-pylon design would also not be feasible as they do not meet the height requirements in some cases, and further the diversions proposed as part of the Project contain at least one angle greater than 30 degrees which T-pylon designs cannot accommodate.
- G.3.6 Introducing T-pylons into the existing networks would result in landscape and visual affects non-compliant with the Holford Rules, known as ‘wirescape’, caused by the overhead lines transitioning from their arrangement between steel lattice pylons (parallel, stacked vertically) and T-pylons (diamond configuration).
- G.3.7 Accordingly, alternative pylon designs would entail safety, security, and potential efficiency and reliability issues. In addition the increases in the cost of the operating of these networks were communicated by NGET as not acceptable as a result of the proposed development (see paragraph 3.28.18 of Environmental Assessment - Chapter 3 Assessment of Reasonable Alternatives [[APP-141](#)]).

## Response to Port of Tilbury comments

- G.3.8 The Applicant’s position is that the Limits of Deviation (as per Article 6 of the draft Development Consent Order [[AS-038](#)]) are appropriately flexible and wide enough to ensure that the proposed utilities can be accommodated at the detailed design stage.
- G.3.9 More particularly, the Applicant understands that the Port of Tilbury’s concern related to Work No MUT4 which is shown on Sheets 16 and 20 of the Works Plans [[AS-024](#)]. This work is the installation of electricity networks connecting Pylon PEA04 (as shown on sheet 20 of the Works Plans) to Work No MUT5 (as shown on Sheets 16 and 20) and the existing substation equipment located at the western end of Work No MUT4. The proposal, typical for this type of arrangement, is to install the work in the verges each side of the highway. This separation of the work improves the resilience of the supply from the pylon (namely, it is unlikely both elements of the work on either side of the verges would be compromised at the same time due to the distance between them). If the design of Substation Road develops such that there is no available space for the networks to be installed in the verges, these networks would be considered in alternative locations such as beneath the highway (which is within the Limits of Deviation), with appropriate additional protection measures to be installed.

G.3.10 Work No MU27, which is shown on the Works Plans at sheets 16 and 20 [[AS-024](#)] and sheet 21 and 23 [[AS-026](#)] is the installation of electricity networks connecting the existing electricity network to the north portal tunnel services building. If there is no or limited capacity within the existing ducting, new ducting would be installed in which to locate the cables (again, this can be accommodated within the Limits of Deviation). Both Work Nos. MUT4 and MU27 must also be seen in the context of the Protective Provisions for the benefit of the Port of Tilbury. In particular, paragraph 129 of Schedule 14 to the draft DCO [[AS-038](#)] provides that "The undertaker must, before the carrying out of any specified work, supply to Port of Tilbury London Limited proper and sufficient plans of that work for the reasonable approval of PoTLL and the specified work must not begin except in accordance with such plans as have been approved in writing by Port of Tilbury London Limited " In this context, "specified works" includes the proposed utilities works over Port of Tilbury London Limited 's land.

# Annex H Post-hearing submission on Economic benefits

## H.1 Introduction

- H.1.1 This section provides the post-hearing submissions for agenda item 4(h) on Economic Benefits from Issue Specific Hearing 1 on the 21 June 2023 [[EV-014](#)] for the A122 Lower Thames Crossing (The Project).
- H.1.2 The Applicant has additional submissions to make for:
- a. Item 4(h)(i) on *“Are the economic benefits (BCR) of the proposed LTC robust and measurable?”*
  - b. Item 4(h)(ii) on *“Do costs figures adequately address current positions in relation to labour and materials availability and costs? Has inflation been taken into sufficient account?”*
  - c. Item 4(h)(iii) on *“Is any adjustment to economic benefits necessary, given submissions from Ports to the effect that the lack of local highway connectivity to the waterfront could reduce local journey time reliability and have negative economic impacts on port operations?”*
- H.1.3 These are included in the sections below.

## H.2 Value of time sensitivity test

- H.2.1 This particular sensitivity test is not commonly undertaken in UK transport economic cases, but it has been raised by Gravesham Borough Council and so the results of this sensitivity test are presented below.
- H.2.2 The sensitivity tests set out below have been carried out on the DCO Core growth appraisal results as set out in the Combined Modelling and Appraisal Report - Appendix D - Economic Appraisal Package: Economic Appraisal Report [[APP-526](#)].
- H.2.3 Table H.1 shows the impact of changing the value of time (as set out in paragraphs 4.2.20 and 4.3.6 of TAG Unit A1.3, plus and minus 25% for work time trips and plus and minus 60% for other trips) on the benefit cost ratio (BCR) for the Project based on the standard 60 year appraisal period. The central case BCR is 1.22, as reported within Combined Modelling and Appraisal Report - Appendix D - Economic Appraisal Package: Economic Appraisal Report [[APP-526](#)]. When the value of time for business travel is changed the BCR ranges from 1.20 to 1.24. When the value of time for commuting travel is changed the BCR ranges from 1.18 to 1.26. When the value of time for other non-work travel is changed the BCR ranges from 1.05 to 1.39.



H.2.4 In the combined test, were all the values of time to be at the lower end of the possible range from TAG the BCR would be 0.99. If the higher value of time is used for all the time elements then the BCR would be 1.45.

**Table H.1 Sensitivity test on values of time**

Time Element	BCR	
	Lower value	Higher value
Work time benefits	1.20	1.24
Commute time benefits	1.18	1.26
Other non-work time benefits	1.05	1.39
All elements change	0.99	1.45

H.2.5 For completeness, it should be noted the life expectancy of the civil engineering works for the tunnels far exceeds 60 years. Therefore, as described in the Economic Appraisal Report [APP-526], 100-year appraisal period sensitivity tests have been undertaken which show that the Adjusted BCR increases to between 1.66 and 1.72 depending on the assumptions relating to the implementation of the Transport Decarbonisation Plan<sup>5</sup>.

### H.3 Inflation

H.3.1 In line with HM Treasury’s Green Book<sup>6</sup> (see paragraph 2.22), transport appraisals and the calculation of BCRs are undertaken in real terms i.e. the average rate of inflation in the economy is removed from the future year cost estimates of the Project using the Gross Domestic Product (GDP) Deflator, which is a broad economy-wide measure of inflation. The GDP Deflator is published in DfT’s TAG databook.

H.3.2 If the rates of inflation for cost elements that are included in the capital and operating costs of the Project are greater than the general rate of inflation in the UK economy, then it is this element that is used in the appraisal. So if the inflation rate for construction materials rises at a greater rate than the rise in the general rate of inflation, then this net additional increase is a real increase in costs and is added to the scheme costs. The value that affects scheme costs and the BCR is the difference between the Project specific construction inflation rate and general inflation rates.

H.3.3 The Capital Expenditure (CAPEX) costs include a base construction cost which was estimated at 2019 Q1 prices and then additional amounts added for project risk, uncertainty, non-recoverable VAT, inflation and portfolio risk. The

<sup>5</sup> Department for Transport (2021) Transport decarbonisation plan

<sup>6</sup> HM Treasury’s Green Book (<https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government/the-green-book-2020>)

construction inflation rates used in the appraisal were specifically developed by the Building Cost Information Service (BCIS) to reflect the Project's construction programme and use of materials. The appraisal takes account of the difference between these rates and general rate of inflation for the UK economy.

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