

# Lower Thames Crossing

## 9.89 Responses to the Examining Authority's ExQ1 Appendix A – 1, 2, 3

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## 9.89 Responses to the Examining Authority's ExQ1

### Appendix A – 1, 2, 3

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# 1 Introduction

## 1.1 Introduction

- 1.1.1 This document has been prepared by the Applicant to set out its responses to the Examining Authority's (ExA's) first round of written questions [[PD-029](#)]
- 1.1.2 These can be found in Tables set out under the following headings:
- a. Climate Change and carbon emissions (Found in Appendix A)
  - b. Consideration of alternatives (Found in Appendix A)
  - c. Traffic and transportation (Found in Appendix B)
  - d. Air quality (Found in Appendix C)
  - e. Geology and soils (Found in Appendix D)
  - f. Waste and materials (Found in Appendix D)
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  - h. Road Drainage, water environment and flooding (Found in Appendix F)
  - i. Biodiversity (Found in Appendix G)
  - j. Physical effects of development and operation (Found in Appendix H)
  - k. Social, economic and land-use considerations (Found in Appendix I)
  - l. Draft Development Consent Order, planning obligations, agreements and adequacy of security (Found in Appendix J)
  - m. The acquisition and temporary possession of land and rights (Found in Appendix J)
  - n. General overarching questions (Found in Appendix J)

## 2 Responses to the Examining Authority's ExQ1 1

No questions submitted by the Examining Authority for this topic.

### 3 Responses to the Examining Authority's ExQ1 2

PINS ID	External Stakeholder (where applicable)	Question / Response
ExQ1_Q2.1.1	N/A	<p><b>Carbon Valuation Toolkit</b> Can the Applicant provide a copy of its Carbon Valuation Toolkit in addition to any results, input assumptions and other relevant information pertaining to its valuation of embodied carbon emissions?</p> <p><b>Response:</b> A copy of the Carbon Valuation Toolkit version 1.4.2, as applied to the Project, has been included as an Annex to this document. It includes sheets showing data sources, inputs and outputs. The Carbon Valuation Toolkit is a National Highways tool, acknowledged by the Department for Transport (DfT), which is used to value, in monetary terms, all carbon emissions associated with major strategic road projects. It was created in March 2022 and became National Highways' preferred tool for monetising greenhouse gas emissions for the purposes of economic appraisal. Monetisation is undertaken for investment decision purposes and not for planning considerations. The Toolkit was introduced to ensure that embodied emissions, such as those associated with the Project's construction, operational and maintenance activities, are correctly valued and presented along with road user tailpipe emissions. This provides a more complete appraisal than the Department for Transport's Transport Analysis Guidance (TAG) workbook which only includes road user tailpipe emissions. The Toolkit requires an input of the annual profile of the change in greenhouse gas impacts in tonnes of CO<sub>2</sub> equivalent (tCO<sub>2</sub>e), for both traded and non-traded emissions, as a result of the Project, along with cost and other benefits information. The carbon appraisal results from the application of, and the input assumptions used in, the Carbon Valuation Toolkit, are set out in Chapters 4, 8 and 11 of the Economic Appraisal Report [APP-526]. The tool <b>does not</b> help to assess, or give guidance on how to assess, the impacts of a project in terms of tCO<sub>2</sub>e. It simply takes the profile of change in tCO<sub>2</sub>e outputs from other, established methods and applies a monetary valuation calculation to it. Consequently, any assumptions in the assessment of tCO<sub>2</sub>e impacts of a scheme are not affected by this toolkit. The Toolkit does not change the quantities of emissions, in tonnes, included in the appraisal which are reported in Chapter 8 of the Economic Appraisal Report [APP-526]. The Toolkit is an Interim appraisal tool pending new TAG advice on carbon appraisal from the DfT.</p>

PINS ID	External Stakeholder (where applicable)	Question / Response
ExQ1_Q2.1.2	N/A	<p><b>Carbon Valuation Toolkit</b> Can the Applicant provide a calculation using the higher carbon value and explain why this has not been provided for LTC when it has provided it for other NSIPs.</p> <p><b>Response:</b> Previous transport Nationally Significant Infrastructure Projects (NSIPs) used the Department for Transport's Transport Analysis Guidance (TAG) Greenhouse Gas (GHG) workbook<sup>1</sup> to value, in monetary terms, road user tailpipe emissions as part of their economic appraisals. The workbook reports valuations for these emissions based on Low, Central and High sets of carbon prices. However, based on TAG Unit A3<sup>2</sup>, only valuations using Central carbon prices are used in the appraisal results and the Benefit-Cost Ratios. The Applicant's Development Consent Order (DCO) appraisal used National Highways' Carbon Valuation Toolkit (CVT) to monetise both road user tailpipe and embodied carbon emissions, including construction, operational and maintenance emissions, providing a more complete appraisal of the Project's carbon impacts. The CVT has been included as an Annex to this document, as per the Applicant's response to ExQ1_Q2.1.1. As part of the Project's economic appraisal [APP-526], the Applicant presented calculations from the CVT using the valuation based on a central set of carbon prices. This is reported in Table 8.7 in the Economic Appraisal Report [APP-526] as a disbenefit of £526.1 million (2010 prices and values). The valuation includes an appropriate adjustment between traded and non-traded carbon prices. As requested by the Examining Authority, the Applicant has undertaken further analysis based on the High set of carbon prices using the CVT. A valuation based on a High set of carbon prices has been calculated as a disbenefit of £807.8 million (2010 prices and values). This does not change the Project's central case Benefit-Cost Ratio.</p>
ExQ1_Q2.1.3	N/A	<p><b>Electrification: Carbon Savings</b> The Applicant assumes carbon savings if policies in the Transport Decarbonisation Plan are implemented. However, given that DEFRA's Emissions Factor Toolkit (EFT) v11 has factored in increased usage of electric vehicles (EVs) and a reduction in tailpipe emissions, is the Applicant potentially double-counting carbon savings from electrification of the vehicle fleet</p>

<sup>1</sup> Department for Transport (2023). Greenhouse Gases Workbook. Accessed August 2023.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1159361/tag-workbook-greenhouse-gases-may-2023.xlsx](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1159361/tag-workbook-greenhouse-gases-may-2023.xlsx)

<sup>2</sup> Department for Transport (2023). TAG Unit A3 Environmental Impact Appraisal. Accessed August 2023.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1164821/tag-unit-a3-environmental-impact-appraisal.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1164821/tag-unit-a3-environmental-impact-appraisal.pdf)

PINS ID	External Stakeholder (where applicable)	Question / Response
		<p><b>Response:</b></p> <p>The carbon emissions projections from the Emissions Factors Toolkit (EFT) v11 include assumptions relating to future reductions in emissions such as, for example, increases in the proportion of electric vehicles in the fleet. The TDP sensitivity tests calculate the Project’s carbon emissions if the Upper Bound and Lower Bound carbon reduction trajectories in Figure 2 in the Transport Decarbonisation Plan (TDP)<sup>3</sup> were applied.</p> <p>The TDP Upper Bound and Lower Bound sensitivity tests take the rate of change in carbon generated by EFTv11 and factors it so that it aligns with the projected Upper and Lower Bound reductions in carbon emissions outlined in the TDP.</p> <p>The Applicant can therefore confirm that there is no double counting of carbon savings in the appraisal results for the TDP sensitivity tests.</p>
ExQ1_Q2.1.4	N/A	<p><b>Emissions Factor Toolkit</b></p> <p>DEFRA’s Emissions Factor Toolkit (EFT) v11 already accounts for carbon savings from the electrification of the vehicle fleet. Has the Applicant double counted carbon savings from electrification by assuming that further carbon savings can be achieved through the implementation of policies in the Transport Decarbonisation Plan?</p> <p><b>Response:</b></p> <p>The carbon emissions projections from the Emissions Factors Toolkit (EFT) v11 include assumptions relating to future reductions in emissions such as increases in the proportion of electric vehicles in the fleet. The Transport Decarbonisation Plan (TDP) sensitivity tests calculate the Project’s carbon emissions if the Upper Bound and Lower Bound carbon reduction trajectories in Figure 2 of the TDP<sup>4</sup> were applied.</p> <p>The TDP Upper Bound and Lower Bound sensitivity tests take the rate of change in carbon generated by EFTv11 and factors it so that it aligns with the projected Upper and Lower Bound reductions in carbon emissions outlined in the TDP.</p> <p>The Applicant can therefore confirm that there is no double counting of carbon savings in the appraisal results for the TDP sensitivity tests.</p>

<sup>3</sup> Department for Transport (2021). Transport Decarbonisation Plan. <https://www.gov.uk/government/publications/transport-decarbonisation-plan>

<sup>4</sup> Department for Transport (2021). Transport Decarbonisation Plan. <https://www.gov.uk/government/publications/transport-decarbonisation-plan>

PINS ID	External Stakeholder (where applicable)	Question / Response
ExQ1_Q2.3.1	All IPs	<p><b>Carbon and Climate Considerations: R (oao) Boswell v Secretary of State for Transport</b></p> <p>What are the implications of the recent Boswell v Secretary of State for Transport High Court Judgement <a href="#">[2023] EWHC 1710 (Admin)</a> in relation to the treatment of carbon and climate in NSIP decision-making for the A47 Blofield to North Burlingham, A47 North Tuddenham to Easton and A47/A11 Thickthorn Junction applications for the consideration of carbon and climate matters in the LTC Examination and decision?</p> <p><b>Response:</b></p> <p>In <i>R (oao) Boswell v Secretary of State for Transport</i> [2023] EWHC 1710 (Admin), the High Court held that the approach to assessment of the cumulative impacts of carbon emissions for three road schemes along the A47 in Broadland, Norfolk was consistent with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) and therefore lawful.</p> <p>Central to the court’s decision was the finding that the claimant’s case was, ‘... on analysis, a challenge to the acceptability of the carbon impacts from the three road schemes’ – which was ‘not a matter for the courts’ – rather than a challenge to the method of assessing those impacts. The Applicant considers this analysis to be true of the submissions made by Dr Boswell on behalf of Climate Emergency Policy and Planning (CEPP) in respect of this application.</p> <p>As regards the acceptability of the Project’s carbon impacts, the Applicant has set out within the Application how the Project represents a step change in approach for a road scheme of this scale, in terms of the scope and nature of the measures which it is committing to deliver to reduce emissions during the construction and operation of the Project. Together with the policies which the Government has set out in its Transport Decarbonisation Plan<sup>5</sup>, these measures ensure that the Project is aligned with a trajectory to net zero and that the Project’s emissions would not therefore be significant, in accordance with relevant guidance.</p> <p>Turning to the detailed reasons for the court’s rejection of the claimant’s case in <i>Boswell</i>, the court confirmed that: ‘The question of what impacts should be addressed cumulatively; how the cumulative impacts might occur; whether the effects are likely to be significant and if so, how they should be assessed are all matters of evaluative judgement for the Secretary of State’ (para 6(i) of the judgement).</p>

<sup>5</sup> Department for Transport (2021). Transport Decarbonisation Plan. <https://www.gov.uk/government/publications/transport-decarbonisation-plan>



PINS ID	External Stakeholder (where applicable)	Question / Response
		<p><b>Applicant's comment:</b></p> <p>In Environmental Statement (ES) Chapter 15: Climate, the Applicant has assessed the cumulative effects of the Project in terms of greenhouse gas (GHG) emissions (see Section 15.7). The approach reported in the ES is consistent with that taken for other projects on the strategic road network, including the three A47 schemes considered in <i>Boswell</i>. The assessment compares the net GHG emissions of the Project during construction and operation against the national carbon budgets. Net GHG emissions are calculated by deducting the 'do-minimum' scenario, which presents the GHG emissions of the road network without the Project over the appraisal period and accounts for traffic growth and for traffic generated by developments classed as near certain or more than likely within the study area over the appraisal period, from the 'do-something' scenario, which includes GHG emissions from both construction and operation of the Project.</p> <p>In <i>Boswell</i>, Dr Boswell argued that the correct method of assessing the cumulative effects of each of the A47 schemes in terms of GHG emissions, was to deduct from the 'do-minimum' scenario the GHG emissions of the other A47 schemes. This approach would necessarily result in the reporting of a higher figure for cumulative GHG emissions in relation to each scheme. Dr Boswell on behalf of CEPP has also argued that this approach should be taken in relation to the application for the Project [<a href="#">REP1-323</a>]. The Applicant understands Dr Boswell to be suggesting that, to arrive at a figure which represents the Project's cumulative GHG emissions, traffic generated by other developments within the study area over the appraisal period should be ignored in the 'do-minimum' scenario.</p> <p>As noted above, the Applicant has undertaken its carbon assessments for the Project in a manner which is consistent with that taken for other projects on the strategic road network, including the three A47 schemes considered in <i>Boswell</i>. The rationale for this approach is set out in Section 15.7 of the ES. The Secretary of State has confirmed that the Applicant's approach is valid across a number of applications for development consent, including most recently the decision letters for the A47 Wansford to Sutton Development Consent Order<sup>6</sup> and the A57 Link Roads Development Consent Order<sup>7</sup>. The High Court has also now confirmed in <i>Boswell</i> that this approach is lawful. In the Applicant's view, these are matters to which the Examining Authority and Secretary of State should have regard in examining and determining the Application.</p>

<sup>6</sup> Application for the Proposed A47 Wansford to Sutton Development Consent Order [TR010039-001210-TR010039-SoS-Decision-Letter-230217.pdf](#) ([planninginspectorate.gov.uk](#))

<sup>7</sup> Application for the Proposed A57 Link Roads Develop Consent Order [TR010034-001747-221114 - A57 LINK ROADS DL - Final.pdf](#) ([planninginspectorate.gov.uk](#))

PINS ID	External Stakeholder (where applicable)	Question / Response
		<p><i>'The carbon emissions from each road scheme were calculated and compared against the UK's national carbon budget' (para 6(ii) of the judgement).</i></p> <p><b>Applicant's comment:</b></p> <p>The Applicant has calculated and compared Project emissions during construction and operation against the UK's national carbon budgets. In <i>Boswell</i>, the court accepted that the carbon budgets were, in effect, cumulative, being targets for the reduction of greenhouse gas (GHG) emissions for the whole of the UK economy and society rather than targets for any given sector. For that reason, an assessment of the Project's emissions against the UK's national carbon budgets was an (or, indeed, one) acceptable and lawful form of cumulative assessment.</p> <p><i>'Consideration was given to the cumulative impacts of carbon emissions from the three road schemes. A figure was produced for the combined emissions from the three schemes (and other local schemes), thereby satisfying the requirement of Schedule 4 paragraph 5 of the Regulations for a 'description' of the likely significant effects of the development on the environment resulting from the cumulation of effects with other existing and/or approved projects. The figure produced was not however assessed for significance against the UK's national carbon budgets. This was a matter of evaluative judgement for the Secretary of State.'</i> (para 6(iii) of the judgement).</p> <p><b>Applicant's comment:</b></p> <p>In Table 15.16 of ES Chapter 15: Climate [<a href="#">APP-153</a>], the Applicant has presented the 'Do Something' figure for GHG emissions with the Project. As explained in Table 15.3 of ES Chapter 15, the future baseline in the Do Something scenario accounts for traffic growth, and for traffic generated by developments (new housing and other developments such as employment, retail and leisure sites) classed as near certain or more than likely (as defined by Transport Analysis Guidance (TAG) Unit M4<sup>8</sup>) within the study area between 2030 and 2045 as well as the full 60-year appraisal period. <i>Per</i> the decision in <i>Boswell</i>, the figures presented in Table 15.16 of ES Chapter 15 therefore satisfy the requirement of Schedule 4, paragraph 5 of the EIA Regulations for a 'description' of the likely significant effects of the development on the environment resulting from the cumulation of effects with other existing and/or approved projects.</p> <p><i>'The Secretary of State's reasons for not comparing the combined emissions against the national target were, broadly speaking, threefold: 1) there is no single prescribed approach to assessing the cumulative impacts of</i></p>

<sup>8</sup> Department for Transport (2019). TAG Unit M4 forecasting and uncertainty.

<https://webarchive.nationalarchives.gov.uk/ukgwa/20220507072020/https://www.gov.uk/government/publications/tag-unit-m4-forecasting-and-uncertainty>

PINS ID	External Stakeholder (where applicable)	Question / Response
		<p><i>carbon emissions; 2) the approach to assessing the cumulative impact of carbon emissions differs from that of other environmental impacts because carbon impacts are not geographically limited to a local area and 3) the appropriate basis for assessing the significance of the emissions was to compare them<sup>9</sup> against the UK's national carbon budgets' (para 6(iv) of the judgement).</i></p> <p><b>Applicant's comment:</b></p> <p>The Applicant's approach of assessing Project emissions against the national carbon budgets is sound and lawful. The Applicant has not presented its assessments on the alternative basis argued for in <i>Boswell</i>, which would as noted be to omit traffic growth unrelated to the Project and / or traffic generated by future developments in the calculation of the do-minimum scenario, nor has it prepared such an assessment for the Project notwithstanding Dr Boswell's submissions (on behalf of CEPP) to that effect. Given the decision in <i>Boswell</i>, the Applicant does not consider that those submissions should carry weight in the decision to grant or refuse consent for the Project.</p> <p><i>'Recent caselaw confirms that, on the basis of current policy and law, it is permissible for a decision maker to look at the scale of carbon emissions relative to a national target. The proposition that the impact of carbon emissions is not limited to a geographical boundary is a scientific assessment to which the Court should afford respect'</i> (para 6(v) of the judgement).</p> <p><b>Applicant's comment:</b></p> <p>As explained above, the approach of comparing the Project's emissions against national carbon budgets is compliant with the EIA Regulations and therefore lawful according to the decision in <i>Boswell</i>. Accordingly, the Examining Authority and Secretary of State are entitled to conclude that the approach adopted by the Applicant in this case, which involves the same comparison between the Project's emissions during construction and operation against the national carbon budgets, is sufficient and appropriate as a matter of law.</p> <p><i>'Accordingly, there is a logical coherence to the Secretary of State's decision not to compare the combined carbon emissions from local road schemes against the UK's national carbon budget, when those carbon emissions do not have a local geographic limit. Independent guidance counsels against the arbitrary cumulation of projects in these circumstances.'</i> (para 6(vi) of the judgement).</p>

<sup>9</sup> That is, each individual project's net GHG emissions as opposed to the combined emissions of all three projects (see further at para 63 of the judgement).

PINS ID	External Stakeholder (where applicable)	Question / Response
		<p><b>Applicant’s comment:</b></p> <p>The Applicant has not sought to compare the combined emissions from multiple local road or other schemes, including the Project. Such an approach would, as explained by the court in <i>Boswell</i>, be arbitrary. Dr Boswell on behalf of CEPP appears to suggest [REP1-323] that this means ‘... categorically, there is no assessment of the impact of cumulative carbon emissions in the ES’. However, it must be recognised that those submissions did not find favour and were rejected in <i>Boswell</i>.</p> <p><i>‘Dr Boswell’s concerns about the limited value of the exercise undertaken, of assessing the significance of an individual development project against national carbon target, is acknowledged in independent guidance and in recent caselaw. However, on the state of present scientific knowledge, such an approach cannot be considered unlawful. Dr Boswell’s case is, on analysis, a challenge to the acceptability of the carbon impacts from the three road schemes. Acceptability of impact is not a matter for the Courts, who must be astute to avoid being drawn in the arena of the merits of climate decision making’</i> (para 6(vii) of the judgement).</p> <p><b>Applicant’s comment:</b></p> <p>Dr Boswell on behalf of CEPP continues to raise concerns regarding the assessment undertaken by the Applicant in relation to this application. It should, however, be noted that those same concerns were ultimately rejected by the court in <i>Boswell</i>, which confirmed that the ‘<i>approach cannot be considered unlawful</i>’. As explained above, the Applicant considers that the submissions made by Dr Boswell in this case can again be characterised as a challenge to the acceptability of the carbon impacts from the Project, which are matters for the decision maker to evaluate on a case by case basis. The Applicant has set out in detail within the application the reasons why the carbon emissions of the Project are consistent with the Government’s ability to meet its binding carbon reduction targets and therefore acceptable, having regard to the extensive mitigation measures secured by the application for the Project together with the wider impact of Government policies to reduce road user emissions over time.</p> <p>In summary, therefore, the Applicant considers that the Examining Authority and Secretary of State can proceed with confidence on the basis that the approach to the cumulative assessment of carbon emissions undertaken in the Application, which is reported in ES Chapter 15: Climate [APP-153], complies with the EIA Regulations and is lawful. Submissions by Interested Parties seeking to question or cast doubt upon the assessment approach must be treated with a high degree of caution following the decision in <i>Boswell</i>.</p>

## 4 Responses to the Examining Authority's ExQ1 3

No questions addressed to the Applicant for this topic.

# Annex A National Highways Carbon Valuation Toolkit v1.4.2

Submitted as a Microsoft Excel file.

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