

Our ref: Redetermination 3.0

Sent by e-mail to
A303Stonehenge@planninginspectorate.gov.uk:
Transport Infrastructure Planning Unit
Department for Transport
Great Minster House
33 Horseferry Road
London
SW1P 4DR

Derek Parody
A303 Stonehenge Project Director
National Highways
Temple Quay House
2 The Square
Temple Quay
Bristol
BS1 6HA

Tel: 0300 123 5000
4 April 2022

Dear Sir / Madam

Planning Act 2008 and The Infrastructure Planning (Examination Procedure) Rules 2010

Re-determination of the Application for an Order granting Development Consent for the construction of a new two-lane dual carriage way for the A303 between Amesbury and Berwick Down in Wiltshire (“A303 Stonehenge Scheme”)

Update to the Environmental Information – Cover letter

I write with reference to your letter of 24 February 2022 requesting that National Highways as the Applicant updates section 4 of their document of 11 January 2022 concerning carbon (our document reference Redetermination 1.3) in line with the requirements of that letter. The 11 January 2022 document responded to the Secretary of State’s Statement of Matters of 30 November 2021.

We attach our response document under cover of this letter.

If you have any queries, please do not hesitate to contact me.

Yours faithfully



Derek Parody
A303 Stonehenge Project Director
Email: info@a303stonehenge.co.uk

A303 Amesbury to Berwick Down

Secretary of State letter 24 February 2022

Applicant's response to the request to update section 4 of their response to the Statement of Matters on carbon

Document reference: Re-determination 3.1

Planning Act 2008

The Infrastructure Planning (Examination Procedure) Rules 2010

April 2022



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1 Update to the Environmental Information

- 1.1 Further to their letter dated 24 February 2022, the Secretary of State invites the Applicant to update section 4 of their document of 11 January 2022 concerning carbon (our document reference Re-determination 1.3), which responded to the Secretary of State's Statement of Matters of 30 November 2021. This update is to provide (or, to the extent that it has already been provided, identify) National Highways' assessment of the cumulative effects of Greenhouse Gas (GHG) emissions from the A303 Amesbury to Berwick Down (Stonehenge) scheme (the Scheme) with other existing and/or approved projects on a local, regional and national level on a consistent geographical scale (for example an assessment of the cumulative effects of the Roads Investment Strategy RIS 1 and RIS 2 at a national level).
- 1.2 The Secretary of State requested in the 24 February 2022 letter that this update should: take account of both construction and operational effects; identify the baseline used at each local, regional and national level; and identify any relevant local, regional or national targets/budgets where they exist and how the assessment complies with these (including the carbon budgets, the 2050 zero target under the Climate Change Act 2008, and the UK's Nationally Determined Contribution under the Paris Agreement). It should be accompanied by reasoning to explain the methodology adopted, any likely significant effects identified, any difficulties encountered in compiling the information, and how the assessment complies with the Environmental Impact Assessment Regulations.
- 1.3 The Secretary of State stated that they would welcome confirmation that the response to all parts of this question has been prepared by a competent expert. The Secretary of State also asked that links be provided to any documents referenced and their relevance fully explained.

1.1 Response

1.1.1 National Highways has responded to each of the respective elements of the Secretary of State's letter, as follows:

- Setting out National Highways' assessment of the cumulative effects of Greenhouse Gas emissions from Scheme with other existing and/or approved projects;
- Explaining that the assessment is on a consistent geographical scale and accounts for construction and operational contributions;
- Identifying the baseline used at each local, regional and national level; and identifying any relevant local, regional or national carbon targets and/or budgets (including the carbon budgets, the 2050 net zero target under the Climate Change Act 2008 and the UK's Nationally Determined Contribution under the Paris Agreement);
- Explaining with reasoning the methodology adopted for the assessment, any likely significant effects of the Scheme that are identified and any difficulties encountered in compiling the information;

- Explaining how the assessment presented for the Scheme complies with the Environmental Impact Assessment Regulations; and
- Providing confirmation that this response has been prepared by a competent expert.

1.1.2. To assist the Secretary of State, National Highways has set out its response for each of the matters raised in turn.

1.2 Assessment of Cumulative Effects of Greenhouse Gas Emissions from the Scheme with other Existing and/or Approved Projects

Design Manual for Roads and Bridges (DMRB)

1.2.1 National Highways follows the guidance set out in the Design Manual for Roads and Bridges (DMRB) for the design and evaluation of the impact of its road schemes. This ensures consistency in how any scheme is progressed and how the outcomes are evaluated. DMRB includes all current standards, advice notes and other documents relating to the design, assessment and operation of trunk roads, including motorways. The DMRB has been developed from many separate series of documents previously published by the overseeing organisations of England, Scotland, Wales and Northern Ireland. These documents, together with later additions, have been gathered together in 15 volumes to help road transport professionals meet the requirements of quality assurance procedures.

Approach to GHG Impact assessment for the 2018 Environmental Statement (ES) and DCO application

1.2.2 The GHG assessment presented in Chapter 14: Climate of the 2018 Environmental Statement (the 2018 ES) [APP-052]¹ was produced prior to the publication of DMRB LA 114 Climate² and DMRB LA 104 Environmental assessment and monitoring³. The environmental assessment work undertaken for the climate assessment presented in Chapter 14 of the 2018 ES was undertaken in compliance with the Environmental Impact Assessment (EIA) Regulations. The assessment was completed following the guidance presented in the DMRB in place at that time (see paragraph below).

1.2.3 For the climate assessment in the 2018 ES, construction related CO_{2e} emissions were quantified following guidance in 'Highways England's Interim Advice Note (IAN) 114/08 – Highways Agency Carbon Calculation and Reporting Requirement' and in line with PAS 2080:2016 – 'Carbon Management in Infrastructure' principles. DMRB, Volume 11, Section 3, Part 1 Air Quality: HA207/07 was used to quantify the CO_{2e} road user emissions.

¹ https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010025/TR010025-000205-6-1_ES_Chapters_14_ClimateChange.pdf

² <https://www.standardsforhighways.co.uk/prod/attachments/d1ec82f3-834b-4d5f-89c6-d7d7d299dce0?inline=true>

³ <https://www.standardsforhighways.co.uk/prod/attachments/0f6e0b6a-d08e-4673-8691-cab564d4a60a?inline=true>

1.2.4 In respect of the cumulative assessment for the Scheme as set out in the 2018 ES, guidance provided in DMRB Volume 11, Section 2, Part 5: Assessment and Management of Environmental Effects was followed as this document was considered to represent best practice for cumulative effects assessments at the time the Scheme assessment was undertaken. The assessment is set out in Chapter 15 [APP-053]⁴ of the 2018 ES.

Approach to GHG assessment for 2022 Re-determination of the DCO

1.2.5 The updates to the GHG assessment presented in this response to the Secretary of State's 24 February letter, and the Applicant's January 2022 response to the Secretary of State's Statement of Matters (our document reference Re-determination 1.3)⁵ both have followed the guidance set out in DMRB LA 114 Climate and LA 104 Environmental Assessment and Monitoring.

1.2.6 DMRB LA 114 Climate, first published in October 2019 and revised in June 2021, sets out the current requirements for assessing and reporting the effects of climate on highways (climate change resilience and adaptation), and the effect on climate of greenhouse gas from construction, operation and maintenance projects.

1.2.7 Both construction and operational emissions have been put into the context of the carbon budgets. This outcome of this assessment is presented in Table 1 (in section 1.5 of this document).

Construction emissions

1.2.8 The method for calculating GHG emissions from construction activities presented in DMRB LA 114 aligns with the previously published guidance in IAN 114/08. The publication of DMRB LA 114 does not therefore have any implications to the approach for calculating the impact of construction emissions from the Scheme. DMRB LA 114 does however formalise the requirement to present Scheme emissions in the context of UK carbon budgets.

1.2.9 The construction carbon methodology undertaken in the 2018 ES and in subsequent assessments includes the embedded GHGs in the lifecycle of the Scheme, including the GHGs associated with raw materials supply, manufacture, transport, on site construction activity and waste. This has been calculated using the National Highways Carbon Emissions Calculation Tool. Similarly, operational maintenance and energy use has been considered with carbon calculations made using the Carbon Calculation Tool and the Department for Business, Energy and Industrial Strategy (BEIS) transport factors. This approach accounts for GHGs that accumulate across the project lifecycle.

1.2.10 The assessment of construction GHG emissions has assessed the following construction effects of the Scheme:

⁴ https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010025/TR010025-000206-6-1_ES_Chapters_15_CumulativeEffects.pdf

⁵ <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010025/TR010025-002230-A303.SoM%20Response.BP3%20Carbon.Redetermination-1.3.Final%2020220111.pdf>

- Embodied carbon in the materials used for Scheme construction;
- Waste generated during construction; and
- Energy used in plant and vehicles required to construct the Scheme.

1.2.11 Construction carbon emissions have been recalculated using the current version of the National Highways Carbon Tool, version 2.4. As a result, GHG emissions from construction have decreased due to a change in GHG emissions factors. The updated assessment of construction GHG emissions is presented in Table 1 (in section 1.5 of this document).

Operational emissions

1.2.12 The assessment of operational GHG emissions has assessed the following operational effects of the Scheme:

- Emissions produced by vehicles using the completed Scheme, and associated journeys from the wider road network that incorporate or have a change in their journey following opening of the Scheme; and
- Emissions produced by maintenance activities and energy use over its design life (i.e. 60 years).

Road user emissions

1.2.13 Following an update to the traffic model, road user emissions were recalculated using version 11 of the Emissions Factor Tool Kit (EFT). The publication of EFT v11 provides an updated basic fleet split for England to extend the basic fleet data out to 2050. The basic fleet splits are based on data provided by the Department for Transport (DfT). As a result, the predicted overall CO₂e emissions have decreased with the use of EFT v11 with the updated fleet mix including the projected uptake of electric vehicles (EVs) up to 2050. The updates of EFT are covered in more detail in section 1.5 of this document.

Traffic model

1.2.14 The updated traffic model is based on a revised opening year of 2029 and a future assessment year of 2044. The output of the updated traffic modelling is presented in the Applicant's January 2022 response to the Secretary of State's Statement of Matters (our document reference Re-determination 1.4.1)⁶.

1.2.15 The traffic modelling for the Scheme has been undertaken in line with Transport Appraisal Guidance published⁷ by DfT. The Transport Assessment Report for the Scheme was submitted as part of the DCO application [APP-297]⁸. The traffic model used for the Scheme has been developed in line with DfT requirements

⁶ <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010025/TR010025-002231-A303.SoM%20Response.BP4%20Appendix%20Transport%20Assessment%20Review.Redetermination-1.4.1.Final%2020220110%20.pdf>

⁷ <https://www.gov.uk/guidance/transport-analysis-guidance-tag>

⁸ <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010025/TR010025-000450-7-4-Transport-Assessment.pdf>

and is inherently cumulative. This is because, in brief, the traffic models used to support scheme assessment contain data about the following:

1. The Scheme and adjoining Strategic Road Network and local road network;
2. Other schemes promoted by National Highways in the near vicinity of the Scheme with high certainty that they are to be progressed i.e. progressed beyond preferred route announcement stage;
3. They are based on discussions with the relevant planning authority, of foreseeable developments promoted by third parties as likely to be developed in a similar timeline to the National Highways' Scheme. Knowing where the proposed third party development is to be sited, the extents and types of development, and the timescales of when it is to be completed are requirements to ensure that the third party developments can be reasonably described in the traffic model; and
4. National government regional growth rates which include a representation of likely growth rates excluding known planning developments already included in the traffic model. This is represented by DfT's NTEM/TEMPRO⁹ growth factors for car usage, and growth in freight is derived from DfT's National Transport Model¹⁰.

1.2.16 National Highways, for its operational carbon assessments for the Scheme presented in the 2018 ES, during Examination and subsequently, has evaluated the changes in CO₂e emissions of the Scheme by comparing changes in the road traffic on the Strategic Road Network and local road network between the 'without scheme scenario' and the 'with scheme scenario'. This takes into account the assessment of the Scheme and all other developments likely to have an influence on the Scheme and on the area the Scheme is likely to influence.

Assessment of cumulative GHG effects

1.2.17 DMRB LA 104 Environmental assessment and monitoring, published in August 2020, provides the requirements and procedures to be followed when assessing, reporting and monitoring the environmental effects of projects in line with the requirements of the EIA Directive 2014/52/EU. This includes overarching advice on the assessment and evaluation of cumulative impacts. It updates previous environmental assessment advice contained in Volume 11 Section 2 (HA 205/08 and HD 48/08) of the DMRB, consolidates information contained in IAN 125/15 and IAN 133/10 and makes provision for requirements outlined under EU Directive 2011/92/EU as amended by 2014/52/EU 2014/52/EU [Ref 1.N].

1.2.18 DMRB guidance LA 104 provides the following overarching advice on the assessment and evaluation of cumulative impacts on pages 17-18:

"[Paragraph] 3.21 Environmental assessments shall assess cumulative effects which include those from:

⁹ <https://www.gov.uk/government/publications/tempo-downloads>

¹⁰ <https://www.gov.uk/government/publications/national-transport-model-ntmv2r-overview-of-model-structure-and-update>

- 1) a single project (e.g. numerous different effects impacting a single receptor); and
- 2) different projects (together with the project being assessed).

[Paragraph] 3.21.2 *The assessment of cumulative effects should report on:*

- 1) roads projects which have been confirmed for delivery over a similar timeframe;
- 2) other development projects with valid planning permissions or consent orders, and for which EIA is a requirement; and
- 3) proposals in adopted development plans with a clear identified programme for delivery.

[Paragraph] 3.22 *The assessment of cumulative effects shall:*

- 1) establish the zone of influence of the project together with other projects;
- 2) establish a list of projects which have the potential to result in cumulative impacts; and
- 3) obtain further information and detail on the list of identified projects to support further assessment.”

1.2.19 The approach undertaken to assess GHG impacts on climate within this Scheme is inherent within the DMRB LA 104 methodology applied for the 2022 assessment, which considers ‘single project’ embedded construction and maintenance and user tailpipe emissions and ‘different projects’ through the traffic model and consideration against carbon budgets.

1.2.20 For the 2018 ES, Examination submissions and the updated calculations presented in the Applicant’s Statement of Matters response in January 2022 and this document, construction and operational carbon assessments have been compared to the national carbon budgets which are themselves cumulative, i.e. the sum of carbon emissions from a range of sectors.

1.2.21 In essence, as both ‘with scheme’ and ‘without scheme’ scenarios already include all likely developments and traffic growth factors in the traffic model and make comparison with national carbon budgets for both operational and construction carbon, the assessment is inherently cumulative as regards carbon emissions. This is a state of affairs recognised in general terms for operational assessments in paragraph 3.4.4 of the Planning Inspectorate’s Advice Note 17 (“Cumulative effects assessment relevant to nationally significant infrastructure projects”), the first two sentences of which state that:

“Certain assessments, such as transport and associated operational assessments of vehicular emissions (including air and noise) may inherently be cumulative assessments. This is because they may incorporate modelled traffic data growth for future traffic flows. Where these assessments are comprehensive and include a worst case within the defined assessment parameters, no additional cumulative assessment of these aspects is required (separate consideration may be required of the accumulation or inter-relationship of these effects on an individual set of receptors e.g. as part of a socio-economic assessment).”

1.3 The Appropriate Geographical Scale of Assessment of Greenhouse Gas Emissions

1.3.1 In line with the requirements set out in Climate Change Act 2008¹¹ (CCA 2008), Part 1, Section 4 (see below) Parliament has legislated for the setting of carbon budgets¹² at the national scale.

“Carbon budgets

1) *It is the duty of the Secretary of State—*

(a) to set for each succeeding period of five years beginning with the period 2008-2012 (“budgetary periods”) an amount for the net UK carbon account (the “carbon budget”), and

*(b) to ensure that the **net UK carbon** account for a budgetary period does not exceed the carbon budget” [our emphasis].*

1.3.2 Carbon budgets cover the following 11 sectors¹³:

- Surface Transport
- Buildings
- Manufacture and Construction
- Electricity Generation
- Fuel Supply
- Agriculture and land use, land use change and forestry
- Aviation
- Shipping
- Waste
- Fluorinated gases (F-gases)
- Greenhouse gas removals

1.3.3 As explained above therefore, the national carbon budgets are themselves cumulative, i.e. the sum of carbon emissions from a range of sectors between now and the end of the 6th Carbon Budget (2037).

1.3.4 The CCA 2008 does not impose a legal duty to set carbon budgets at a smaller scale than those set out nationally, i.e. regional or local budgets are not a statutory requirement. Specifically:

- a) In setting carbon budgets Parliament has not imposed any legal duty upon local authorities to attain any particular targets whether carbon budgets or for net zero 2050, i.e. there are no legal duties which require particular

¹¹ https://www.legislation.gov.uk/ukpga/2008/27/pdfs/ukpga_20080027_en.pdf

¹² <https://www.gov.uk/guidance/carbon-budgets>

¹³ <https://www.theccc.org.uk/publication/sixth-carbon-budget/>

geographical areas within the UK to achieve particular reductions in carbon emissions by particular dates.

- b) Neither Parliament nor Government has identified any sectoral targets for carbon reductions related to transport, or any other sector. There is no requirement in the CCA 2008, or in Government policy, for carbon emissions for all road transport to become net zero. This was explained in the **R (Transport Action Network) v Secretary of State for Transport** [2021] EWHC 2095 (Admin) (“the TAN case”) in which Holgate J held that:

“...there is no sectoral target for transport, or any other sector, and that emissions in one sector, or in part of one sector, may be balanced against better performance in others. A net increase in emissions from a particular policy or project is managed within the government's overall strategy for meeting carbon budgets and the net zero target as part of "an economy-wide transition.”

- c) A net increase in emissions from a particular policy or project is thus managed within the Government's overall strategy for meeting carbon budgets and the net zero target as part of an economy-wide transition.

1.3.5 There is, therefore, no legal requirement to assess the impact of an individual project against the total carbon emissions from RIS 1 and RIS 2.

1.3.6 To conduct an impact assessment at a local or regional scale some form of baseline would need to be identified, and that baseline would need to comprise:

- a) A forecast of carbon emissions from all cumulative sources relevant to the geographic / sectoral scale being adopted;
- b) A forecast which addresses the time frame relevant to the proposed road scheme;
- c) A forecast which reflects existing government policy to attain the 6th Carbon Budget and net zero 2050; and
- d) A forecast which does not include carbon emissions from the proposed road scheme (to avoid double counting).

1.3.7 The Government sets carbon budgets at a national level in accordance with the CCA 2008. Carbon budgets are not produced at a local or regional level.

1.3.8 National Highways is therefore unable to produce a baseline at a local or regional scale itself. Such a baseline would have to be consistent with the Government's understanding of the likely implications of its policies over time in a particular geographic area. In relation to carbon reductions, those policies are myriad and extend to matters beyond the planning system and into issues relating to the use of fiscal incentives / disincentives to manage carbon emissions across the country as a whole.

1.3.9 Relevant to the Secretary of State's 24 February letter and request for information is that an environmental statement is required to include such information as is reasonably required to assess the environmental effects of the development and which the applicant can reasonably be required to compile having

regard to current knowledge (see *R. (Khan) v London Borough of Sutton* [2014] EWHC 3663 (Admin) and *Preston New Road Action Group v Secretary of State for Communities and Local Government* [2018] Env. L.R. 18).

1.3.10 There is no reasonable basis upon which National Highways can assess the carbon emissions impact of the Scheme at a local or regional level and it is not required to do so by law or by the National Policy Statement for National Networks (NPS NN)¹⁴

1.3.11 Accordingly, National Highways is not in a position to provide an assessment of the cumulative effects of the greenhouse gas emissions for the Scheme for anything other than the national level carbon budgets.

1.4 How the Assessment Complies with Various Carbon Budgets and Wider Carbon Policies

1.4.1 Overall compliance with, or attainment of, ‘carbon budgets’ and ‘the 2050 zero target’ under CCA 2008, and the ‘UK’s Nationally Determined Contribution’ under the Paris Agreement are the responsibility of Government to manage as they are matters of national policy and not policies set at an individual scheme level.

1.4.2 The NPS NN sets the national policy framework against which decision makers can evaluate the outcomes of proposed road infrastructure project. The NPS NN sets policy advice across a range of topics such as air quality, noise, biodiversity and carbon (see paragraphs 5.16 to 5.29 pages 49 and 50).

1.4.3 The specific advice on the evaluation of carbon impacts from a proposed scheme and decision-making considerations is set out in paragraphs 5.17 and 5.18 respectively.

“Applicant’s assessment

5.17 Carbon impacts will be considered as part of the appraisal of scheme options (in the business case), prior to the submission of an application for DCO. Where the development is subject to EIA, any Environmental Statement will need to describe an assessment of any likely significant climate factors in accordance with the requirements in the EIA Directive. It is very unlikely that the impact of a road project will, in isolation, affect the ability of Government to meet its carbon reduction plan targets. However, for road projects applicants should provide evidence of the carbon impact of the project and an assessment against the Government’s carbon budgets [our emphasis].

“Decision making

5.18 The Government has an overarching national carbon reduction strategy (as set out in the Carbon Plan 2011) which is a credible plan for meeting carbon budgets. It includes a range of non-planning policies which will, subject to the occurrence of the very unlikely event described above, ensure that any carbon increases from road development do not

¹⁴

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/387223/npsnn-web.pdf

compromise its overall carbon reduction commitments. The Government is legally required to meet this plan. Therefore, any increase in carbon emissions is not a reason to refuse development consent, unless the increase in carbon emissions resulting from the proposed scheme are so significant that it would have a material impact on the ability of Government to meet its carbon reduction targets” [our emphasis].

1.4.4 The NPS NN requires assessment against the Government’s climate reduction targets, i.e. the carbon budgets which are set at a national geographical scale. It does not require assessment against any local or regional targets. This is because the Government has not identified or adopted any carbon reduction targets at a scale smaller than the UK as a whole i.e. National Carbon Budgets.

1.4.5 As is set out in the 2018 ES, during Examination, the Applicant’s Statement of Matters response in January 2022 and in this document, the Scheme has been assessed against all relevant carbon budgets, including the 6th carbon budget, as well as relevant policies on climate including the Climate Change Act 2008 (2050 Target Amendment) Order 2019, requiring the UK to achieve net zero emissions by 2050. The results of this assessment are presented in Table 1.

1.5 How an Assessment was Undertaken to Evaluate the Impacts of the Scheme Including Consideration of Likely Significance Effects

1.5.1 As explained above, the environmental assessment work presented in Chapter 14 of the 2018 ES was completed before DMRB LA 114 was published. However, the methodology used for the 2018 ES substantially follows that set out in LA 114 and so National Highways does not consider that the results of the assessment would be materially different if it were undertaken using the LA 114 methodology. A subsequent revision of the GHG assessment presented in the Applicant’s January 2022 response to the Secretary of State’s Statement of Matters (our document reference Re-determination 1.3)¹⁵, followed the approach set out in DMRB LA 114 and concluded that the results would not be materially different to that presented in the 2018 ES.

1.5.2 National Highways’ approach to assessing and evaluating the CO₂e impacts associated with proposed schemes is set out in DMRB LA 114 Climate, Section 3 Methodology. Within Section 3 of LA 114, paragraphs 3.18 to 3.20 define the reporting requirements for comparison against the relevant carbon budgets (*in existence at the time of the assessment*) and the evaluation criteria for significance, which is consistent with the decision-making requirements set out in paragraphs 5.17 and 5.18 of the NPS NN. An assessment against the 6th and most recent carbon budget is presented in Table 1.

1.5.3 Chapter 14 of the 2018 ES sets out the climate assessment completed for the Scheme. It concludes that the Scheme does not cause a significant effect for changes in CO₂e emissions when compared to carbon budgets.

¹⁵ <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010025/TR010025-002230-A303.SoM%20Response.BP3%20Carbon.Redetermination-1.3.Final%2020220111.pdf>

1.5.4 Road user emissions for the Scheme are calculated by applying outputs from the traffic model through the EFT. The EFT allows users to calculate road vehicle pollutant emission rates for NO_x, PM₁₀, PM_{2.5} and CO₂ for a specified year, road type, vehicle speed and vehicle fleet composition. The EFT is updated periodically due to updates to underlying data including vehicle fleet composition and emissions factors.

1.5.5 Previous versions of EFT used to calculate CO_{2e} emissions from road traffic for the Scheme - EFT v8 used for the 2018 ES and EFT v10.1¹⁶ used for the Applicant's January 2022 response to the Secretary of State's Statement of Matters (our document reference Re-determination 1.3) - stopped at 2030. In the absence of CO_{2e} emission factors after 2030 in earlier versions of the EFT, 2030 emissions were used as the last available set of factors to represent CO_{2e} emissions into the future. This overestimated the CO_{2e} emissions in future years because it did not take into account the higher uptake rates of electric vehicles post 2030 as described by the DfT Databook. The impacts of the assessment against EFT v11 in reducing the estimate for CO_{2e} emissions in future years are shown in Table 1. Further detail can be found in the Applicant's January 2022 response to the Secretary of State's Statement of Matters (our document reference Re-determination 1.3)¹⁷.

1.5.6 However, since the submission of the 2018 ES and the DCO Examination, the Department for Environment, Food and Rural Affairs (Defra) has released (on 19 November 2021) a new version of the EFT (version 11). This update is notable because, for the first time, the EFT now includes data relating to the UK vehicle fleet and associated emissions for the period between 2031 and 2050 inclusive. EFT v11 also now includes greater uptake rates of electric vehicles, aligned to electric vehicle penetration rates described in worksheet labelled 'A1.3.9' of DfT's Databook¹⁸ for all road types (motorways, urban and rural) listed in EFT.

1.5.7 The DfT published their Transport Decarbonisation Plan (TDP)¹⁹ on 14 July 2021, which sets out the Government's aspirations to decarbonise transport to support the wider approach to achieving Net Zero by 2050. The TDP represents a series of policy and other measures Government is considering to decarbonise transport. "*Figure 2: Decarbonising Transport domestic transport GHG emission projections, versus the baseline*", page 45 of the TDP, illustrates the anticipated reduction in CO_{2e} emissions from transport, including road traffic between 2020 and 2050.

1.5.8 The DfT has advised National Highways that a sensitivity test based on the impact of the policy measures set out in TDP can now be undertaken for schemes. The DfT have approved a sensitivity test based on the rate of improvement shown in

¹⁶ Road user emissions presented in the DCO Application were calculated using EFT v8. Road user emissions calculated for the Applicant's response to the Secretary of State's Statement of Matters concerning carbon (our document reference Re-determination 1.3) were calculated using EFT v10.1. While EFT v11 had recently become available, an updated road user emissions assessment using EFT v10.1 already was underway. It was not possible to use EFT v11 in time to respond to the Statement of Matters. Road user emissions presented in Table 1 of this document have been calculated using the current version of the EFT (v.11).

¹⁷ <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010025/TR010025-002230-A303.SoM%20Response.BP3%20Carbon.Redetermination-1.3.Final%2020220111.pdf>

¹⁸ <https://www.gov.uk/government/publications/tag-data-book>

¹⁹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1009448/decarbonising-transport-a-better-greener-britain.pdf

Figure 2 of the TDP which can be applied to CO₂e emissions calculated for the Scheme assessment.

1.5.9 For the purposes of this exercise, the construction and non-road user operational emissions calculations have also been updated using the latest National Highways Carbon Tool (v2-4), the latest set of BEIS carbon factors (2021), and accounting for decarbonisation of the national grid using the latest BEIS projected grid factors.

1.5.10 Table 1 presents the change in CO₂e emissions between the 'with scheme scenario' (also referred to as the **Do-something** scenario) and 'without scheme scenario' (also referred to as the **Do-minimum** scenario), split by carbon budgets, for the CO₂e emissions previously reported in the Environmental Statement, the updated CO₂e emissions based on EFT v11 and TDP sensitivity test (upper and lower bounds).

Table 1: Change in CO₂e Emissions (*With Scheme Scenario – Without Scheme Scenario*)

Carbon Budget Period	CO ₂ e (Million tonnes)			
	3 (2018-2022)	4 (2023-2027)	5 (2028-2032)	6 (2033-2037)
Carbon Budget	2,544	1,950	1,725	965
	Previously Reported in the Applicant's January 2022 Response to the Secretary of State's Statement of Matters [Table 3-1] as relevant to the 2018 ES			
Construction (a)	0.0778	0.3891	0	-(e)
Operation (b)	0	0.0498	0.1361	-
Total	0.0778	0.4389	0.1361	-
	Updated Government Guidance Since the Publication of the Environmental Statement²⁰			
Construction (c)	0	0.3689	0.0738	
Operation (d)	0	0 ²¹	0.0371	0.0709
Total	0	0.3689	0.1109	0.0709
	Sensitivity Test for Operational Emissions (f)			
TDP (upper bound)			0.0230	0.0330
TDP (lower bound)			0.0130	0.0120
	<p>Notes:</p> <ul style="list-style-type: none"> (a) National Highways Carbon Emissions Calculation Tool v1.03 (2018). (b) EFT v8 (road user emissions) and emissions from maintenance activities and the use of grid electricity. N.B. maintenance and grid electricity are based on 2018 BEIS carbon factors and are therefore a worst-case scenario. As grid electricity decarbonises and the UK transitions towards net zero these emissions are anticipated to decrease. (c) National Highways Carbon Emissions Calculation Tool v2.4 (2021). The remodelled figures are in alignment with the data used in the DCO application. (d) EFT v11 (road user emissions) and emissions from maintenance activities and the use of grid electricity. N.B. maintenance and energy use calculations have also been updated using the National Highways Carbon Emissions Calculation Tool v2.4 (2021) for embodied carbon, the latest set of BEIS carbon factors (2021) for transportation, and electricity use accounts for decarbonisation of the national grid using the latest BEIS projected grid factors. The remodelled figures are in alignment with the data presented in the DCO application). (e) The 6th Carbon Budget was not published at the time the ES was produced. Therefore, emissions were not presented against the 6th Carbon Budget in the ES. (f) Road user emissions only (EFT v11). 			

²⁰ The figures in the Applicant's response to the Secretary of State's Statement of Matters (<https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010025/TR010025-002230-A303.SoM%20Response.BP3%20Carbon.Redetermination-1.3.Final%2020220111.pdf>) (Table 3-3) are based on the use of EFT v10.1. The figures in this table have been updated based on the use of EFT v11.

²¹ The Applicant's response to the Secretary of State's Statement of Matters concerning carbon (our document reference Re-determination 1.3) restated the opening date of the Scheme as 2029, and figures in Table 1 reflect this revised opening year.

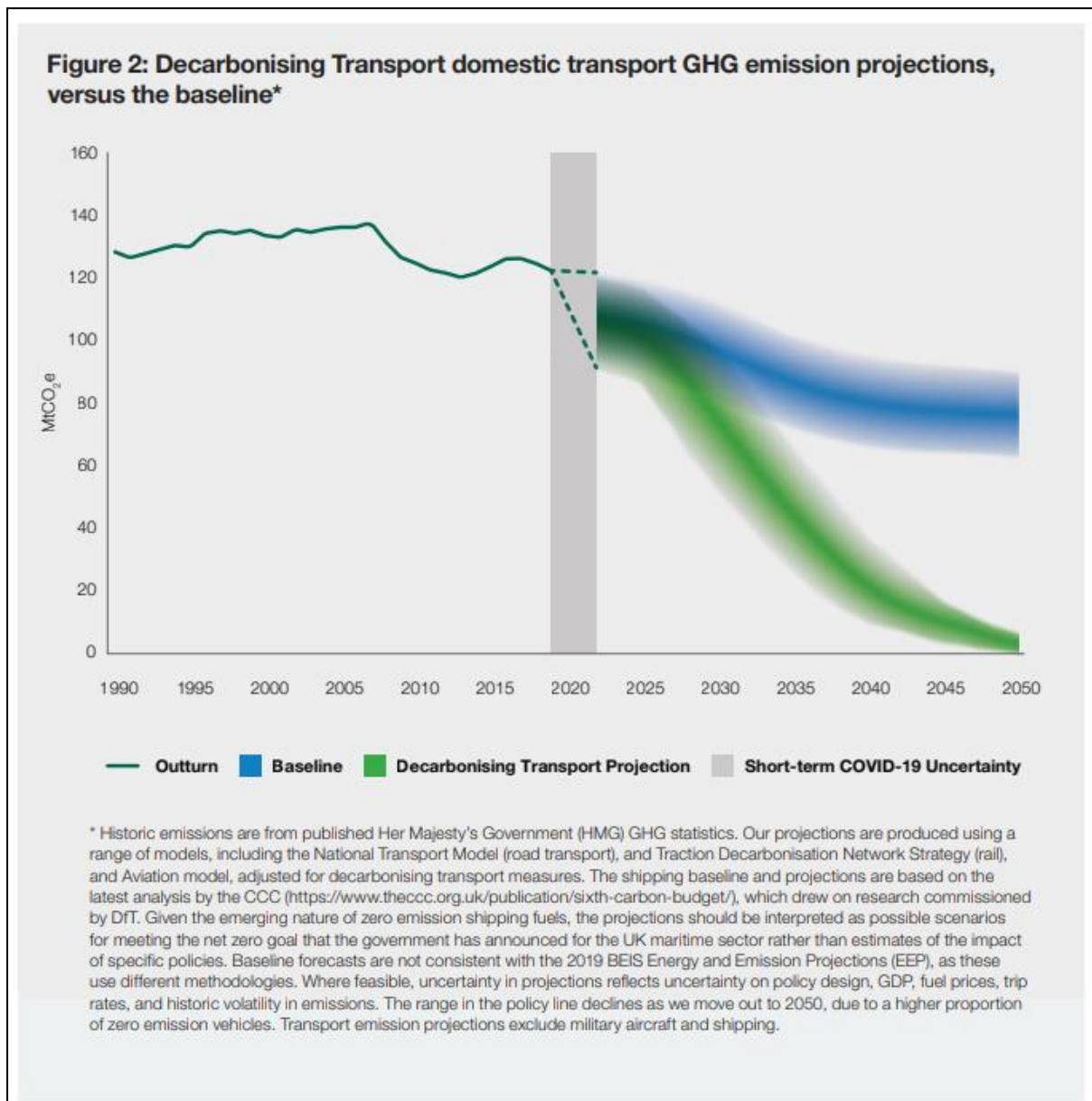


Figure copied verbatim from Transport Decarbonisation Plan

1.6 How the Assessment Presented for the Scheme Complies with the Environmental Impact Assessment Regulations

1.6.1 An environmental statement is required to describe the likely significant effects of a proposed development on the environment (Regulation 14 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017²². This includes a description of the likely significant effects on the environment from, inter alia, the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change. An environmental statement is also required to describe the likely significant cumulative impacts of the development proposed together with those from other

²² <https://www.legislation.gov.uk/ukxi/2017/572/contents/made>

“existing and/or approved projects” (see paragraph 5 (e) of Schedule 4 to the 2017 Regulations).

1.6.2 To undertake this work and come to an informed judgement an environmental statement is required to include such information as is reasonably required to describe the environmental effects of the development and which the applicant can **reasonably be required to compile having regard to current knowledge**²³. In the context of assessing cumulative carbon impacts, the only assessment National Highways can be reasonably required to undertake is one having regard to current knowledge.

1.6.3 Accordingly, the ES produced for the Scheme, the information submitted by the Applicant during the DCO Examination, the information submitted in the Applicant’s January 2022 Response to the Secretary of State’s Statement of Matters plus this submission comply with the 2017 Regulations.

1.6.4 Together, this information presents sufficient information and an up-to-date assessment of the likely significant effects on greenhouse gas emissions that are likely to arise as a result of the Scheme. This information still concludes that the increase in carbon emissions resulting from the proposed Scheme are not significant and would not have a material impact on the ability of Government to meet its carbon reduction targets.

1.6.5 As regards the additional material now requested by the Secretary of State, this amounts to a request by the Secretary of State for “*any other information*” within the meaning of regulation 3(1) of the 2017 Regulations.

1.6.6 However, there is no reasonable basis upon which National Highways can assess the carbon emissions impact of the Scheme at a local or regional level and it is not required to do so by law or pursuant to the NPS NN.

1.6.7 National Highways can only assess the change in CO_{2e} emissions from the Scheme in absolute terms and against the national carbon budgets.

1.6.8 The procedures and evaluation criteria set out in DMRB LA 114 Climate, are appropriate and sufficient to ensure that the cumulative effects of proposed road schemes upon climate change are assessed in accordance with the 2017 Regulations and to provide sufficient evidence for the decision-making requirements set out in paragraph 5.18 of the NPS NN.

1.7 The Assessment was prepared by a competent expert

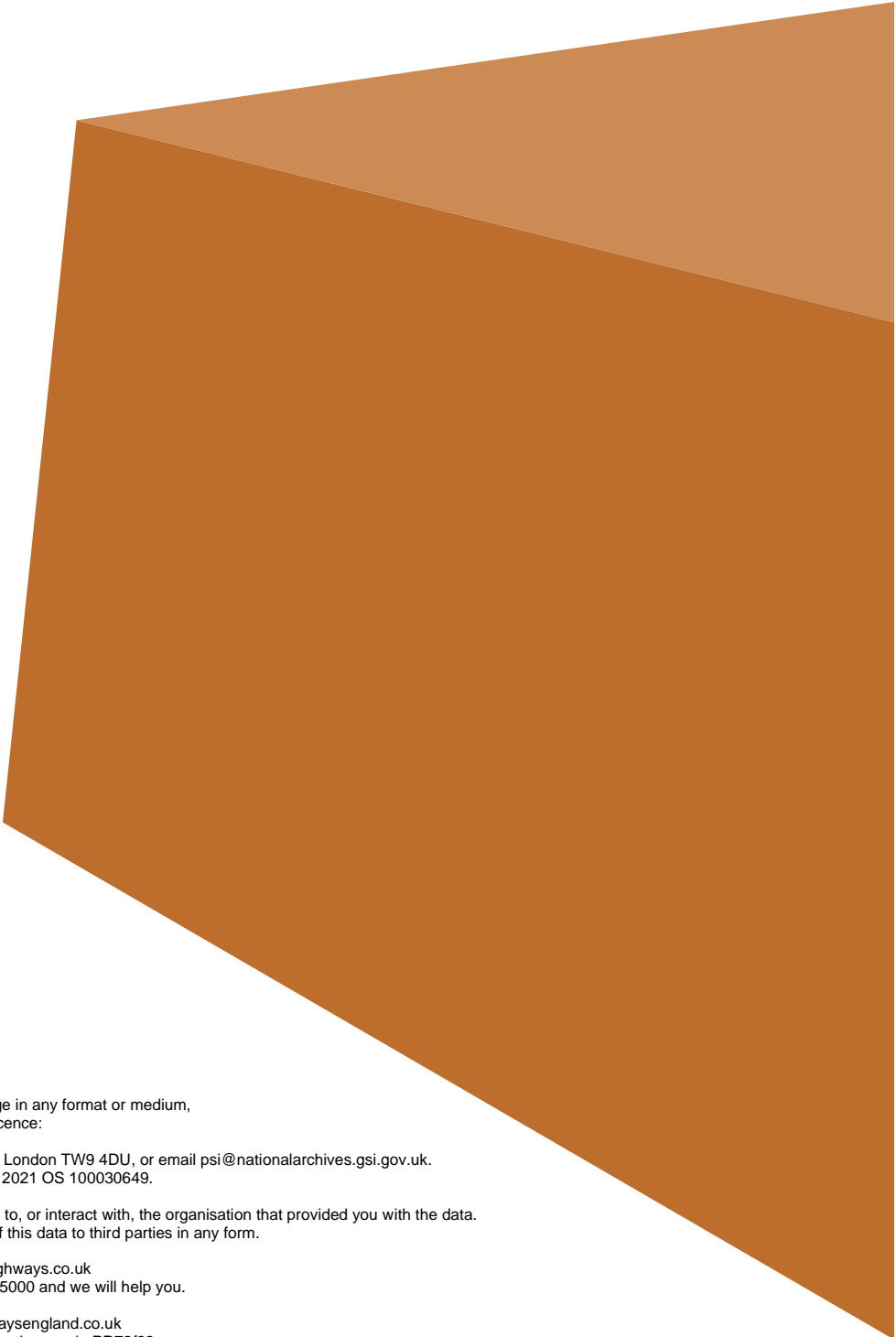
1.7.1 This response to the information requested by the Secretary of State on climate has been prepared by competent experts with relevant and appropriate experience.

1.7.2 The technical lead for air quality and vehicle emissions is the Principal Air Quality Advisor for National Highways with more than 25 years of relevant experience with appropriate professional qualifications. The technical lead for carbon

²³ (see R. (Khan) v London Borough of Sutton [2014] EWHC 3663 (Admin) and Preston New Road Action Group v Secretary of State for Communities and Local Government [2018] Env. L.R. 18)

from construction activities is the Senior Technical Advisor for Sustainable Development and Climate Change for National Highways with more than 16 years of relevant experience with appropriate professional qualifications.

1.7.3 National Highways confirm that the assessment work set out in Table 1 has been carried out by a suitably competent experts from AECOM. The Carbon Lead holds a BA (Hons) Environmental Studies and has over 20 years' experience in the provision of environmental sustainability assessment and strategic advice. They are a Lead Verifier for AECOM's Greenhouse Gas and Zero Emissions Technical Practice Group. The Air Quality Lead holds a BSc (Hons) and PhD in Earth Sciences and has almost 20 years' experience in the provision of environmental air quality and road user carbon emissions assessment and strategic advice. They are a Lead Verifier for AECOM's Air Quality Technical Practice Group.



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