

A57 Link Roads

TR010034

**9.59 Applicant's response to Issue
Specific Hearing 2 Item 6 c) and d)
Cumulative Carbon Assessment**

Rule 8(k)

Planning Act 2008
Infrastructure Planning (Examination Procedure) Rules 2010

February 2022

Infrastructure Planning Planning Act 2008

The Infrastructure Planning (Examination Procedure) Rules 2010

A57 Link Roads Scheme Development Consent Order 202[x]

Applicant's response to Issue Hearing 2 Item 6 c) and d) (Vol 9)

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1. Introduction

1.1 Scope of the document

- 1.1.1 The Agenda for the A57 Link Roads' *Issue Specific Hearing 2 Item 6 Climate Change* on Thursday 10 February 2022, noted that the Department for Transport's letter dated 7 January 2022 on the A38 Derby Junctions project raises matters in relation to cumulative effects that are relevant to the Proposed Development (see Appendix A). National Highways (the Applicant) was asked to provide in writing its assessment of the cumulative effects of Greenhouse Gas emissions from the Proposed Development in the same way as had been requested on the A38 Derby Junctions project.
- 1.1.2 This document sets out National Highways' response to the Examining Authority's request.

2. Secretary of State's request 3. Update to the Environmental Information

2.1 Background

2.1.1 The following is taken directly from Item 3 of the DfT's letter to the A38 Derby Junctions project, which mirrors the request made by the ExA in Item 6c) of the Issue Specific Hearing 2 Agenda for the A57 Link Roads project:

Please could the Applicant provide its assessment of the cumulative effects of Greenhouse Gas emissions from the Proposed Development 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 Road Investment Strategy (RIS) 1 and RIS 2 at a national level)?

This 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.

Please could the Applicant confirm that the response to all parts of this question has been prepared by a competent expert. Please provide all documents referenced, highlighting relevant paragraphs or sections, and their relevance fully explained.

2.1.2 In Item 6 (d) of Issue Specific Hearing for the A57 Link Roads DCO, the Examining Authority asked the following:

Please could the Applicant respond in writing? When does it anticipate that a response can be provided?

2.1.3 The Applicant responded to confirm that a written response that is consistent with the DfT's request can be provided. This response is provided in Section 2.2.

2.2 National Highways' response

2.2.1 National Highways has responded to this request by breaking it down into various constituent parts as follows:

- National Highways' assessment (*or updated assessment*) of the cumulative effects of greenhouse gas emissions from the A57 Link Roads (the Scheme) with other existing and/or approved projects;
- For the assessment (*or updated assessment*) to be on a consistent geographical scale at a national, regional and local scale accounting for construction and operational contributions;
- How the assessment (*or updated assessment*) which identifies the baseline used at each local, regional and national level compares against any identified

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);

- How an assessment was undertaken to evaluate the likely significant effects of the Scheme and any difficulties encountered in compiling the information;
- How the assessment presented for the Scheme complies with the Environmental Impact Assessment Regulations;
- A confirmation that this response has been prepared by a competent expert

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

Assessment of cumulative effects of greenhouse gas emissions from the Scheme with other existing and/or approved projects

2.2.3 National Highways follows the advice set out in the Design Manual for Roads and Bridges (DMRB) for the design and evaluation of the impact of any of its road schemes. This ensures consistency in how any scheme is progressed and how the outcomes are evaluated.

2.2.4 In respect of the assessment of cumulative effects, DMRB Chapter LA 104- Environmental assessment and monitoring¹ 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:

- 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.”*

- 2.2.5 The DMRB LA 114, Climate² describes the approach to be undertaken to assess and evaluate the climate impacts and adaptation for schemes. This is set out in Chapter 14 of the environmental statement for the Scheme.
- 2.2.6 The assessment of carbon dioxide (CO₂) undertaken has assessed the construction and operational effects of the Scheme as follows:
- Construction – the materials and energy required to construct the Scheme;
 - Operational – 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; emissions produced by maintenance activities over its design life (i.e., 60 years).
- 2.2.7 The traffic modelling for the Scheme has been undertaken in line with Transport Appraisal Guidance published³ by the Department for Transport (DfT). The Transport Assessment Report for the Scheme has been submitted to the DCO examination⁴. The traffic model used for the Scheme has been developed in line with DfT requirements and is inherently cumulative. This is because, in brief, traffic models used to support scheme assessment contain data about the following:
- 1) The proposed scheme and adjoining Strategic Road Network and local road network;
 - 2) Other schemes promoted by National Highways in the near vicinity of the proposed 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 proposed 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/TEMPRO⁵ growth factors for car usage, and growth in freight is derived from DfT's National Transport Model⁶.
- 2.2.8 In terms of operational carbon, when National Highways evaluates the changes in CO_{2e} emissions of their proposed schemes they do so 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 proposed scheme and all other developments likely to have an influence on the proposed road scheme and on the area the proposed road scheme is likely to influence.

³ <https://www.gov.uk/guidance/transport-analysis-guidance-tag>

⁴

⁵ <https://www.gov.uk/government/publications/tempo-downloads>

⁶ <https://www.gov.uk/government/publications/national-transport-model-ntmv2r-overview-of-model-structure-and-update>

2.2.9 In essence, as both with and without scheme scenarios already include all likely developments and traffic growth factors, the assessment is inherently cumulative as regards operational carbon emissions. This is a state of affairs recognised in general terms 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)."

The appropriate geographical scale of assessment of greenhouse gas emissions

2.2.10 In line with the requirements set out in Climate Change Act 2008⁷ (CCA 2008), part 1, Section 4 (see below) parliament has set carbon budgets⁸ 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].

2.2.11 Carbon budgets cover the following 11 sectors:

1. Surface Transport
2. Buildings
3. Manufacture and Construction
4. Electricity Generation
5. Fuel Supply
6. Agriculture and land use, land use change and forestry
7. Aviation
8. Shipping
9. Waste

⁷ https://www.legislation.gov.uk/ukpga/2008/27/pdfs/ukpga_20080027_en.pdf

⁸ <https://www.gov.uk/guidance/carbon-budgets>

10. Fluorinated gases (F-gases)

11. Greenhouse gas removals

- 2.2.12 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).
- 2.2.13 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 required. 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 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.
- 2.2.14 There is, therefore, no legal requirements to assess the impact of an individual project against the total carbon emissions from RIS 1 and RIS 2.
- 2.2.15 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).
- 2.2.16 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.

- 2.2.17 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.
- 2.2.18 Relevant to this 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).
- 2.2.19 There is no reasonable bases 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)⁹.
- 2.2.20 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 at the national level carbon budgets.

How the assessment complies with various carbon budgets and wider carbon policies

- 2.2.21 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.
- 2.2.22 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).
- 2.2.23 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**

⁹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/387223/npsnn-web.pdf

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 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].

- 2.2.24 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.

How an assessment was undertaken to evaluate the impacts of the Scheme including consideration of likely significance effects

- 2.2.25 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 defines 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.
- 2.2.26 Chapter 14 of the Environmental Statement for the Scheme 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.
- 2.2.27 However, since the submission of the Environmental Statement, and the commencement of the DCO examination, the Department for Environment, Food and Rural Affairs (Defra) has released (on the 19th November 2021) a new version of the Emission Factor Toolkit (EFT) (version 11) (EFT v11). 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 a greater uptake rates of electric vehicles, aligned to electric vehicle penetration rates described in worksheet labelled 'A1.3.9' of DfT's Databook¹⁰ for all road types (motorways, urban and rural) listed in EFT.

¹⁰ <https://www.gov.uk/government/publications/tag-data-book>

- 2.2.28 Previous versions of EFT, including EFT 10.1 which was used to calculate CO₂e emissions from road traffic for the Scheme, stopped at 2030. In the absence of CO₂e emission factors after 2030 in earlier versions of the EFT, 2030 emissions were used as the last available set of factors to represent CO₂e emissions into the future. This clearly over estimated the CO₂e 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.
- 2.2.29 The DfT published their Transport Decarbonisation Plan (TDP)¹¹ on the 14th 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 measures Government is considering to decarbonise transport. "Figure 2: Decarbonising Transport domestic transport GHG emission projections, versus the baseline", page 45 of the TDP (see Figure 2.1 below), illustrates the anticipated reduction in CO₂e emissions from transport, including road traffic between 2020 and 2050.
- 2.2.30 The DfT have 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 Figure 2 of the TDP which can be applied to CO₂e emissions calculated for the Scheme assessment.
- 2.2.31 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 EFTv11 and TDP sensitivity test (upper and lower bounds).

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

	CO ₂ e (million tonnes)		
Carbon Budget Period	4 (2023-2027)	5 (2028-2032)	6 (2033-2037)
Carbon Budget	1,950 Mt	1,725 Mt	965 Mt
Previously Reported in the Environmental Statement			
Construction (a)	0.0390	-	-
Operation (b)	0.0163	0.0292	0.0318
Total	0.0553	0.0292	0.0318
Updated Government Guidance Since the Publication of the Environmental Statement			
Construction (c)	0.0393	-	-

¹¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1009448/decarbonising-transport-a-better-greener-britain.pdf

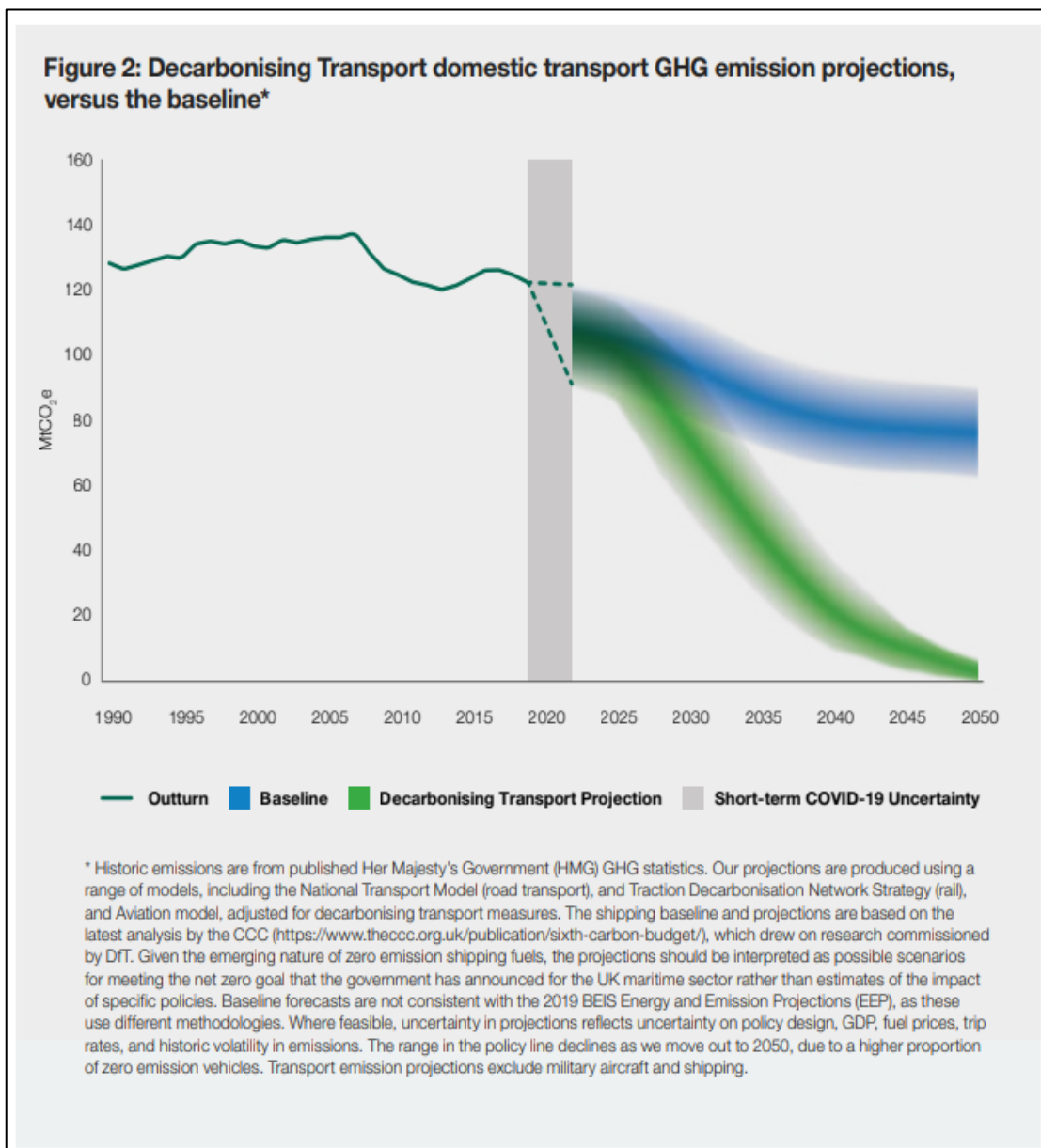
Operation (d)	0.0161	0.0264	0.0259
Total	0.0554	0.0264	0.0259
Sensitivity Test for Operational Emissions			
TDP (upper bound)	0.0152	0.0209	0.0138
TDP (lower bound)	0.0111	0.0121	0.0062

Notes:

Mt – Millions of Tonnes

- (a) National Highways Carbon Emissions Calculation Tool v1.03
- (b) Road user emissions (Emission Factor Toolkit v10.1) and emissions from maintenance activities. 0.29% of road user emissions has been applied as a reasonable worst-case operation and maintenance figure, based on estimates from a limited data set (refer to section 14.3 of Chapter 14 of the ES (REP1-019))
- (c) National Highways Carbon Emissions Calculation Tool v2.4 (2021)
- (d) Road user emissions (Emission Factor Toolkit v11) and emissions from operation and maintenance activities. These calculations account for changes to road user fleet mix over time.

Figure 2.1: Decarbonising Transport domestic transport GHG emission projections versus the baseline



How to assessment presented for the Scheme complies with the Environmental Impact Assessment regulations

- 2.2.32 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 2017¹². 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 “existing and/or approved projects” (see paragraph 5 (e) of Schedule 4 to the 2017 Regulations).
- 2.2.33 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**¹³. 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.
- 2.2.34 Accordingly, the environmental statement produced for the Scheme complies with the 2017 Regulations.
- 2.2.35 As regards the additional material now requested by the ExA, this amounts to a request by the ExA for “any other information” within the meaning of regulation 3(1) of the 2017 Regulations.
- 2.2.36 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.
- 2.2.37 National Highways can only assess the change in CO₂e emissions from the Scheme in absolute terms and against the national carbon budgets.
- 2.2.38 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.

The Assessment was prepared by a Competent Expert

- 2.2.39 This response to the issues questions raised by competent experts with relevant and appropriate experience.
- 2.2.40 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 from

¹² <https://www.legislation.gov.uk/uksi/2017/572/contents/made>

¹³ (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)

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.

- 2.2.41 National Highways confirm that the assessment work set out in Table 1 has been carried out by a suitably competent expert from Balfour Beatty Atkins (BBA) who is a Chartered Scientist (MSc, CSci) who holds full professional membership with the Institution of Environmental Sciences and Institute of Air Quality Management. The relevant individual has over 19 years of knowledge and experience in air quality assessment and used that knowledge and professional judgement to undertake this assessment.

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