

A12 Chelmsford to A120 widening scheme

TR010060

9.21 Inclusion of construction and operational maintenance-related greenhouse gas emissions within the BCR Technical Note

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CONTENTS

1	Introduction	1
2	Assessment of construction and operational maintenance-related greenhouse gas emissions	1
2.1	Background.....	1
2.2	Monetised results and impact on BCR.....	2
2.3	Impact on Value for Money conclusions	2

1 Introduction

- 1.1.1 Historically, the additional estimated greenhouse gas (GHG) emissions associated with scheme construction and operational maintenance were reported within the Environmental Statement as part of the assessment of scheme effects on climate, but not monetised for inclusion within the Benefit Cost Ratio (BCR). This is based on guidance in the Department for Transport's Transport Analysis Guidance (TAG) Unit A3. This was the approach taken in the economic appraisal reported in Chapter 6 of the Case for the Scheme [APP-249]. The overall Value for Money conclusion in section 6.6 of that document did take into account estimated construction and operational maintenance-related GHG emissions, but treated them as a non-monetised impact.
- 1.1.2 In spring 2022, new guidance was released by National Highways which recommends that estimated construction and operational maintenance-related GHG emissions should now be treated as a monetised impact and included within the BCR.
- 1.1.3 This technical note describes a sensitivity test undertaken for the proposed scheme, where estimated construction and operational maintenance-related GHG emissions are monetised and included in the BCR. It describes the impact this has on the overall Value for Money conclusions.

2 Assessment of construction and operational maintenance-related greenhouse gas emissions

2.1 Background

- 2.1.1 As part of the proposed scheme's application for development consent, Environmental Statement - Chapter 15: Climate [APP-082] provided information on estimated GHG emissions. As shown in Section 15.11 of that document, this included information on estimated GHG emissions during both the construction and operation of the proposed scheme.
- 2.1.2 Historically, the estimated GHG emissions associated with a transport scheme's construction and operational maintenance were reported within its Environmental Statement, but not monetised for inclusion within the BCR.
- 2.1.3 This is because GHG emissions released during the production of raw materials (i.e. embodied carbon) are covered under the EU or UK Emissions Trading System (ETS): permits purchased under which should already capture the social welfare impact of GHG emissions associated with embodied carbon. Including estimated embodied carbon emissions within the monetised benefit calculations would therefore be double counting. This approach is recommended in paragraph 4.2.23 of TAG Unit A3.
- 2.1.4 However, the difference between the monetary value of GHG emissions as published in 2021 by the Department for Business, Energy and Industrial

Strategy (BEIS)¹ and the permit price means that this is no longer the case. Excluding estimated embodied carbon emissions from a scheme's monetised benefit calculation would therefore underestimate the social welfare impact.

2.1.5 To address this, National Highways developed a toolkit which allows the monetised social value of all estimated construction and operational maintenance-related GHG emissions to be calculated. Although it is not a formal appraisal requirement in TAG, with effect from April 2022, National Highways recommends that the outputs from this toolkit should be reported within a scheme's economic appraisal either as part of the core appraisal or as a sensitivity test.

2.1.6 This toolkit (*'Interim Appraisal Valuation of Traded Greenhouse Gas Emissions Toolkit, v1.4'*) has been used to calculate the monetised impact of estimated construction and operational maintenance-related GHG emissions for the A12 Chelmsford to A120 widening scheme. The results of the appraisal, and its impact on the proposed scheme's value for money conclusions, are discussed below.

2.2 Monetised results and impact on BCR

2.2.1 Using the National Highways toolkit described above, the value of estimated construction and operational maintenance-related GHG emissions is **£43,810,244** (presented in 2010 prices discounted to 2010, which is in line with all scheme benefits as explained in paragraph 6.3.1 of the Case for the Scheme [APP-249]). This represents a disbenefit, i.e. it would reduce the overall monetised benefits of the scheme and reduce the BCR.

2.2.2 The impact of including this in the BCR is shown in the table below.

	Total Benefits, £000s (2010 prices, discounted to 2010)	Benefit to Cost Ratio (BCR)
Economic assessment submitted as part of the DCO application	775,438	1.72
Including monetised impacts from construction-related emissions	731,628	1.62

2.3 Impact on Value for Money conclusions

2.3.1 As shown in the table above, including the monetised impact of estimated construction and operational maintenance-related GHG emissions would reduce the proposed scheme's BCR from 1.72 to 1.62.

¹ <https://www.gov.uk/government/publications/valuing-greenhouse-gas-emissions-in-policy-appraisal/valuation-of-greenhouse-gas-emissions-for-policy-appraisal-and-evaluation>

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- 2.3.2 However, because the impact of estimated construction and operational maintenance-related GHG emissions was already taken into account in the value for money appraisal reported as part of the DCO submission, albeit only as a non-monetised impact, this change in BCR does not change the overall value for money conclusions. Even including these new monetised impacts, the proposed scheme is still considered to represent medium value for money.