

Note on Air Quality Requirements of the NPS

Introduction

5.3 Increases in emissions of pollutants during the construction or operation phases of projects on the national networks can result in the worsening of local air quality (though they can also have beneficial effects on air quality, for example through reduced congestion). Increased emissions can contribute to adverse impacts on human health, on protected species and habitats. Impacts on protected species and habitats are covered in later paragraphs.

5.4 Current UK legislation sets out health-based ambient air quality objectives. In addition, the European Union has established common, health-based and eco-system based ambient concentration limit values (LVs) for the main pollutants in the Ambient Air Quality Directive (2008/50/EC) ('the Air Quality Directive'), which Member States are required to meet by various dates.

5.5 The geographical extent and distribution of these effects can cover a large area, well beyond an individual scheme. Air quality impacts are generated by all types of infrastructure development to varying extents. Development on the national networks in general and road schemes in particular, creates complex challenges with regards to air quality, given the very wide geographical area over which impacts (positive and negative) can potentially be felt. The guidance below provides additional clarity (when compared to other NPS guidance) given the complex nature of impacts created by national network development.

Relevance to M4

1. Paragraphs 5.3 to 5.5 of the NPS NN set out the general need and context for the assessment of the air quality effects of a proposed scheme. Air quality impacts are acknowledged as capable of being harmful to human health and habitats. The relevant thresholds for these considerations are set out in domestic and European legislation.
2. All scheme assessments undertaken by Highways England recognise the importance of air quality and the consequent impacts a scheme can have both on local air quality and on the reported ability of the UK to comply with its treaty obligations under the Air Quality Directive ("AQD"). Therefore, assessments are completed to address this. The assessment of the M4 J3-12 Scheme is consistent both with the standards promulgated by the Secretary of State for Transport as part of the Design Manual for Roads and Bridges ("DMRB") (prior to it becoming the responsibility of Highways England), Interim Advice Notes ("IAN") and the assessments undertaken for other schemes promoted by Highways England and its predecessor, the Highways Agency
3. Volume 11, Section 3, Part 1 Air Quality of DMRB sets out the approach for determining the relevant study area, including the scheme and wider scale impacts on local roads.
4. In particular, DMRB v1, s3, p1 paragraph 3.12 sets out the criteria for defining the affected road network based on the changes in modelled traffic characteristics between the 'with scheme' and 'without scheme' scenarios in the opening year. This enables the extent of the "wide geographical area" referenced in the NPS to be managed.
5. DMRB v1, s3, p1 paragraphs 3.13 to 3.17 then goes on to set out the consideration of other air quality matters e.g. consideration of Air Quality Management Areas ("AQMAs") and designated habitats, that may need to be considered as part of the air quality assessment.
6. This enables the Scheme to define the study area including the Scheme and areas beyond the scheme where relevant (as shown in Figure 6 of the ES).
7. DMRB v1, s3, p1 is supported by four Interim Advice Notes which provide supplementary advice covering:

- 7.1.1 IAN 170/12 v3 (dated November 2013) – Managing uncertainty in future projections of NO_x and NO₂ concentrations;
- 7.1.2 IAN 174/13 (dated June 2013) – Ensuring all relevant receptors are captured in the air quality assessment and collating the outcome of a scheme’s assessment to inform a professional judgement as to the significance of a scheme’s air quality impact;
- 7.1.3 IAN 175/13 (dated June 2013) – Collating the outcome of a scheme’s assessment to determine the risk of affecting the UK’s reported ability to comply with the Air Quality Directive (2008/50/EC); and
- 7.1.4 IAN 185/15 (dated January 2015)– Improving the robustness of traffic speeds based on observed data and describing congested effects within air quality and noise models.

Applicant’s assessment

5.6 *Where the impacts of the project (both on and off-scheme) are likely to have significant air quality effects in relation to meeting EIA requirements and / or affect the UKs ability to comply with the Air Quality Directive, the applicant should undertake an assessment of the impacts of the proposed project as part of the environmental statement.*

Relevance to M4

- 8. Paragraph 5.6 flags to the applicant (Highways England in this instance) that there are two tests to be undertaken and reported on as denoted by the “and / or” clause in this paragraph.
- 9. The first part of this paragraph “Where the impacts of the project (both on and off-scheme) are likely to have significant air quality effects in relation to meeting EIA requirements...” deals with significant effects. Sections 2 and 3 of IAN 174/13 sets out the approach and the matters to be considered to support a professional judgement on an effect that could be deemed to be “significant”. IAN 174/13 sets out Highways England’s approach to gathering the relevant outcome from the Scheme assessment to inform a professional judgement. This is reported in Section 6.15.16 of the Environmental Statement.
- 10. The second part of this paragraph “...affect the UKs ability to comply with the Air Quality Directive”, deals with the risk of a scheme affecting the UK’s compliance with the AQD. IAN 175/13 sets out Highways England's approach to responding to this requirement of the NPS NN. This is reported in the ES in sections 6.15.4 to 6.15.7.
- 11. Highways England has reviewed DCLG’s planning portal provides planning guidance on air quality (<http://planningguidance.communities.gov.uk/blog/guidance/air-quality/>), which is an important and relevant consideration to investigate whether DCLG has any published advice on assessing and determining significant air quality effects and / or sustaining compliance with the AQD. The various sections of the advice on air quality make reference to significant air quality effects in terms of the Environmental Impact Assessments and also about sustaining compliance with EU limit values. However, nowhere within their guidance is there any advice on how a judgement for either significance or compliance should be undertaken.
- 12. As required by the NPS the assessment undertaken for the M4 considers both the significance of the Scheme’s impact on air quality (ES 6.15.16) and the risk to affecting the UK’s reported ability to comply with the AQD (ES 6.15.4 – 6.15.7).

5.7 *The environmental statement should describe:*

- *existing air quality levels;*
- *forecasts of air quality at the time of opening, assuming that the scheme is not built (the*

future baseline) and taking account of the impact of the scheme; and

- any significant air quality effects, their mitigation and any residual effects, distinguishing between the construction and operation stages and taking account of the impact of road traffic generated by the project.*

Relevance to M4

13. To comply with this requirement of the NPS the Environmental Statement has provided details of the baseline air quality along various sections of the Scheme, as set out below.
14. The existing air quality levels are reported at the start of sections 6.5 to 6.14 of the ES, which details the various monitored concentrations and locations of AQMAs. The location of AQMAs are presented in Figure 6.0.
15. The prediction of future air quality without the Scheme is also reported in sections 6.5 to 6.14 of the ES, where it is referred to as the future baseline. This provides information on the concentrations predicted at receptors in the Scheme opening year of 2022 based upon the traffic monitoring carried out in respect of the Scheme. The impact of the Scheme on receptors is reported in the same sections under local operational impacts.
16. The determination of the Scheme impacts in terms of significance during construction is reported in section 6.15.3 of the ES. The determination of the Scheme significance in relation to the operational impacts is reported in section 6.15.16 of the ES.

5.8 Defra publishes future national projections of air quality based on evidence of future emissions, traffic and vehicle fleet. Projections are updated as the evidence base changes. Applicant's assessment should be consistent with this but may include more detailed modelling to demonstrate local impacts.

Relevance to M4

17. The ES provides the details of the future emissions used in Appendix 6.4, which are based on Defra's emission factor toolkit and associated tools. The ES details how local impacts have been accounted for in the projections through the use of the latest guidance as outlined in section 6.2.58 of the ES. This is supported by IAN 170/12 to account for local uncertainties in monitored air quality trends.

5.9 In addition to information on the likely significant effects of a project in relation to EIA, the Secretary of State must be provided with a judgement on the risk as to whether the project would affect the UK's ability to comply with the Air Quality Directive.

Relevance to M4

18. Paragraph 5.9 of the NPS reaffirms that both a judgement of significance and a judgement about the risk to compliance with the AQD must be completed as part of the assessment process and that they are separate tests.
19. The ES provides the results in relation to whether the Scheme has a significant impact in relation to EIA, which is reported in section 6.15.16.
20. The ES also provides the results of whether the Scheme is at risk of affecting the UK's ability to comply with the AQD. Section 6.2.65 of the ES outlines the methodology that has been used to assess the risk and section 6.15.7 outlines the results of the risk assessment. The conclusion of the assessment is that the Scheme does not have a significant air quality impact nor does it affect the UK's reported ability to comply with the AQD.

Decision making

5.10 The Secretary of State should consider air quality impacts over the wider area likely to be affected,

as well as in the near vicinity of the scheme. In all cases the Secretary of State must take account of relevant statutory air quality thresholds set out in domestic and European legislation. Where a project is likely to lead to a breach of the air quality thresholds, the applicant should work with the relevant authorities to secure appropriate mitigation measures with a view to ensuring so far as possible that those thresholds are not breached.

5.11 Air quality considerations are likely to be particularly relevant where schemes are proposed:

- within or adjacent to Air Quality Management Areas (AQMA);*
- roads identified as being above Limit Values or nature conservation sites (including Natura 2000 sites and SSSIs, including those outside England); and*
- where changes are sufficient to bring about the need for new AQMAs or change the size of an existing AQMA; or bring about changes to exceedences of the Limit Values, or where they may have the potential to impact on nature conservation sites.*

Relevance to M4

21. Paragraphs 5.10 and 5.11 of the NPS set the scene for the decision maker, by highlighting for the Secretary of State ("SoS") those elements that will inform the decisions identified in paragraphs 5.12 and 5.13 of the NPS. The various elements for the SoS to consider include air quality impacts around the Scheme and in the wider area; relevant air quality legislation; consideration of the relevant thresholds; mitigation where required; and particular features that sign-post to the SoS where air quality is particularly relevant e.g. AQMAs.
22. Highways England understands 'breaches of air quality thresholds' to mean whether a scheme would result in a significant air quality impact and / or affect the UK's reported ability to comply with the AQD. This is consistent with the rest of the air quality section of the NPS, in particular the requirements and structure of paragraphs 5.6 and 5.9. In addition, paragraphs 5.12 and 5.13, which guide the SoS's judgement, are structured to consider impacts in relation to the separate requirement of EIA and compliance with the AQD respectively.
23. The NPS does not direct either the applicant or the decision maker to make a judgement on an individual receptor basis. Rather, it is based on the overall balance of impacts across the study area as a whole as set out in IAN 174/13 and IAN 175/13. However, it is appropriate to consider concentrations that are above the AQD objectives and / or EU limit values at individual receptors as part of the air quality assessment and use this information to inform the judgement of significant effects and risk to affecting the UK's ability to comply with the AQD.
24. In relation to the duty to work with relevant authorities to secure mitigation measures, the duty is not triggered by the Scheme. This is because neither a significant air quality impact is predicted, nor is an effect upon the UK's reported ability to comply with the AQD predicted under the paragraph 5.9 judgement.

5.12 The Secretary of State must give air quality considerations substantial weight where, after taking into account mitigation, a project would lead to a significant air quality impact in relation to EIA and / or where they lead to a deterioration in air quality in a zone/agglomeration.

5.13 The Secretary of State should refuse consent where, after taking into account mitigation, the air quality impacts of the scheme will:

- result in a zone/agglomeration which is currently reported as being compliant with the Air Quality Directive becoming non-compliant; or*
- affect the ability of a non-compliant area to achieve compliance within the most recent timescales reported to the European Commission at the time of the decision.*

Relevance to M4

25. Paragraphs 5.12 and 5.13 of the NPS should be considered together, set against the scene setting context of paragraphs 5.10 and 5.11. Paragraphs 5.6 and 5.9 reaffirm that context.

26. Paragraph 5.13 sets out the conditions where the SoS should refuse consent. Compliance with the AQD is determined by Defra on behalf of the UK government, and is based on national scale modelling. This is to take place where a compliant zone becomes non-compliant as a result of a project, which is not the case in relation to the Scheme. In relation to the ability of a non-compliant area achieving compliance in the most recent timescales reported at the time of the decision to achieve such compliance, the judgement under paragraph 5.9 is relevant.
27. For the Scheme, the ES addresses the conditions set out in Paragraph 5.13 by applying the guidance as set out in IAN175/13. IAN175/13 specifies the methodology, agreed with Defra, for combining the detailed modelling produced for the ES with the modelling produced by Defra. There is then guidance on how the results of this process should be interpreted to inform the Decision Maker in relation to Para 5.13.
28. The results of the IAN175/13 assessment are set out in Section 6.15.7 of the ES. This concludes that the Scheme would not affect Defra's reported position of the UK's compliance with the AQD. Therefore, there is no reason to refuse consent for the Scheme under either requirement of paragraph 5.13.
29. Paragraph 5.12 is a two part test, dealing with significance and then compliance derived from the structure set out in paragraphs 5.6 and 5.9 of the NPS. Importantly, unlike paragraph 5.13, paragraph 5.12 only asks the SoS to give substantial weight to the considerations and does not direct refusal.
30. The assessment for the M4 has provided an assessment of the significance of the air quality impacts and a compliance risk assessment. The outcomes for both assessments indicate that the Scheme is consistent with the requirements of the NPS.

Mitigation

5.14 The Secretary of State should consider whether mitigation measures put forward by the applicant are acceptable. A management plan may help codify mitigation at this stage. The proposed mitigation measures should ensure that the net impact of a project does not delay the point at which a zone will meet compliance timescales.

5.15 Mitigation measures may affect the project design, layout, construction, operation and/or may comprise measures to improve air quality in pollution hotspots beyond the immediate locality of the scheme. Measures could include, but are not limited to, changes to the route of the new scheme, changes to the proximity of vehicles to local receptors in the existing route, physical means including barriers to trap or better disperse emissions, and speed control. The implementation of mitigation measures may require working with partners to support their delivery.

Relevance to M4

31. The text above in relation to the considerations that apply under paragraphs 5.11 and 5.12 demonstrates why the requirement for consideration of mitigation is not necessary in the context of the Scheme. Since the Scheme has been assessed as not having significant effects and nor does it affect compliance with the AQD, therefore mitigation is not required. This is consistent with judgements that the Planning Inspectorate have made for other recent roads schemes including the A160, A30 Temple to Higher Carblake Improvements and Norwich Northern Distributor Road. These schemes can be distinguished from those where mitigation is applied by Highways England, which demonstrates that judgement is properly applied in determining the approach on a case-by-case basis.
32. Thus, where Highways England identifies a significant impact and / or affects the UK's reported ability to comply with AQD, it has applied air quality mitigation. The A556 scheme is of relevance in this context. The A556 bypass scheme concluded that without mitigation the scheme would result in a significant air quality impact, although it was determined that the

scheme would not affect the UK's reported ability to comply with the AQD. In light of the significant air quality impact, a 60mph speed limit along the route of the new bypass was put forward as mitigation. This option resulted in a reduction in the total number of properties above the UK air quality objective for annual average NO₂ concentrations to a level not to result in a significant air quality impact, in accordance with IAN 174/13. This was due to a reduction in the number of vehicles travelling along the M56. The then Highways Agency also put forward air quality monitoring as a means to allow for the evaluation of the mitigation and subsequent removal of the 60mph speed limit after a number of years.

33. The mitigation approach put forward for the A556 scheme, including the worsening of NO₂ concentrations at a reduced number of properties, was accepted by the Examining Authority and the Secretary of State, and the DCO granted on this basis. The Examining Authority for the A556 scheme accepted the air quality 'trigger', based on the initial significant air quality impact (without mitigation) and the consequent determination that the scheme would no longer result in a significant air quality impact with mitigation.
34. Plainly, the A556 scheme represents a different scenario to the M4 Scheme. Since the M4 Scheme is predicted neither to have significant effects on air quality (distinguishing it from the A556) nor to affect compliance with the AQD, it is not required to put forward mitigation in this context. Nor, given the predicted air quality effects of the Scheme is there any requirement for monitoring to be provided, and it would be disproportionate to require Highways England to provide monitoring in such circumstances.