

# Review of the Highways Agency's Approach to Evaluating Significant Air Quality Effects

## Document Control

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## Reviewer List

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## Approvals

Name	Title	Date of Issue	Version
Mima Garland	Environment Group Manager	07 Sept 2012	1.1

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## Table of Contents

<b>1</b>	<b>Introduction</b>	<b>4</b>
1.1	How to comment	4
1.2	Confidentiality	5
<b>2</b>	<b>Environmental Assessment Framework</b>	<b>6</b>
2.1	Environmental Impact Assessment	6
2.2	Principles guiding determining a significant environmental effect	7
<b>3</b>	<b>Air Quality Framework</b>	<b>10</b>
3.1	EU Air Quality Directive	10
3.2	UK Air Quality Strategy	10
<b>4</b>	<b>Review of Approaches to Evaluating Significant Air Quality Effects</b>	<b>12</b>
4.1	Previous Highways Agency Approach	12
4.2	Institute of Air Quality Management Position on the Description of Air Quality Impacts and the Assessment of their Significance	13
4.3	Environmental Protection UK Development Control: Planning for Air Quality	14
<b>5</b>	<b>Proposed Highways Agency's Approach to Evaluating Significant Air Quality Effects</b>	<b>16</b>
5.1	Introduction	16
5.2	Consideration of the Air Quality Directive	16
5.3	Consideration of National Air Quality Objectives and AQMAs	17
5.4	Taking Account of the Probability of an Effect Occurring	17
5.5	Using Air Quality Indicators to Inform a Judgement	18
5.6	Forming a Professional Judgement	21
<b>Appendix A</b>	<b>EIA Directive Annex III Selection Criteria</b>	<b>22</b>
<b>Appendix B</b>	<b>Checklist of Criteria for Evaluating the Significance of Environmental Effects</b>	<b>23</b>

## 1 Introduction

- 1.1.1 The publication of the National Planning Policy Framework<sup>1</sup> (NPPF) on 27 March 2012 changed the framework for air quality in planning. This framework seeks to remove some of the complexities in planning policy, but also protect the environment and promote sustainable growth.
- 1.1.2 The framework on air quality contained within the NPPF is,  
*124. Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan.*
- 1.1.3 While the NPPF does not contain specific policies for nationally significant infrastructure projects (which are determined under Planning Act 2008), it is recognised that the planning policies contained within the NPPF can be taken into account when development consent decisions are made.
- 1.1.4 In light of these changes to the planning policy framework, the Highways Agency has undertaken a review of approaches to evaluating significant environmental effects, and is updating its approach for evaluating significant air quality effects for use on Highways Agency schemes.
- 1.1.5 Sections 2, 3 and 4 provide background information on EIA and air quality regulations and other approaches used to assess significant impacts for air quality.
- 1.1.6 We would welcome your views on the proposed new approach to evaluating significant air quality effects for Highways Agency schemes as described in Section 5. After this review is completed, we will collate all responses and consider these as we further develop the Highways Agency's approach to evaluating significant air quality effects.

### 1.1 How to comment

- 1.1.1 The closing date for your comments is 5 October 2012.
- 1.1.2 Your comments should be sent to the following email address:

Louise.Pritchard@highways.gsi.gov.uk

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<sup>1</sup> <http://www.communities.gov.uk/publications/planningandbuilding/nppf>

1.1.3 Or by post to:

Louise Pritchard  
Principal Air Quality Advisor  
Highways Agency  
Piccadilly Gate  
Store Street  
Manchester  
M1 2WD

## 1.2 Confidentiality

- 1.2.1 After the review period, copies of the responses we receive may be published in a summary. If you do not consent to this, you must clearly request that your response be treated as confidential. Any confidentiality disclaimer generated by your IT system in email responses will not be treated as such a request.
- 1.2.2 Respondents should be aware that there may be circumstances in which the Highways Agency will be required to communicate information to third parties on request, in order to comply with its obligations under the Freedom of Information Act 2000.

## 2 Environmental Assessment Framework

### 2.1 Environmental Impact Assessment

2.1.1 The EU Directive on the assessment of the effects of certain public and private projects on the environment (codified in 2011/92/EU, hereafter referred to as the EIA Directive) states that, before consent is given, projects likely to have significant effects on the environment by virtue, inter alia, of their nature, size of location are made subject to a requirement for development consent and an assessment with regard to their effects.

2.1.2 Some projects by virtue of their nature and size are considered likely to have significant effects on the environment and therefore automatically require an EIA. These projects are listed in Annex I of the EIA Directive. The relevant sections for the Highways Agency are:

*7(b) Construction of motorways and express roads (defined as a road reserved for motor traffic accessible only from interchanges or controlled junctions and on which, in particular, stopping and parking are prohibited on the running carriageway(s).); and*

*7(c) construction of a new road of four or more lanes, or realignment and/or widening of an existing road of two lanes or less so as to provide four or more lanes, where such a new road, or realigned and/or widened section of road would be 10km or more in a continuous length.*

2.1.3 However, projects not covered by Annex I fall under Annex II of the EIA Directive and they *may* have a significant effect on the environment. A case-by-case examination and/or thresholds/criteria should be used to determine whether an EIA is required. The relevant sections for the Highways Agency are:

*10(e) construction of roads [...] (projects not included in Annex I);*

*13 Any change or extension of projects listed in Annex I or Annex II, already authorized, executed or in the process of being executed, which may have significant adverse effects on the environment;*

2.1.4 For projects proposed under the Highways Act 1980, that Act introduces a number of thresholds to screen the need for an EIA. For Nationally Significant Infrastructure Projects, promoted under the Planning Act 2008, no equivalent thresholds are used.

2.1.5 The EIA Directive sets out that the decision of whether an EIA is required (by virtue of having a significant effect on the environment) for projects listed under Annex II should be determined using the selection criteria in Annex III. The Directive does not appear to provide the basis for a Member State to take account of other factors or circumstances in addition to those contained in Annex III in determining the whether there are likely to be significant effects on the environment. Therefore, **it is the criteria listed under Annex III which must inform the determination of whether a project has a significant effect on air quality.**

- 2.1.6 Separately to determining if an assessment is required, the EIA Directive also sets out what is required to be identified, described and assessed within an EIA (Annex IV) and that this should be relevant to the stage of the consent procedure, project characteristics and the environmental features likely to be affected.

## 2.2 Principles guiding determining a significant environmental effect

- 2.2.1 For projects not classed as Annex I, whether a project has a significant environmental effect or not should be answered taking account of the criteria listed in Annex III, presented in Appendix A for convenience.
- 2.2.2 In summary these are
1. the characteristics of a project;
  2. the location of a project; and
  3. the characteristics of the potential impact.
- 2.2.3 Focusing on point 3 above, the 'characteristics' criteria are described as ***"extent of the impact (geographical area and size of affected population); the transfrontier nature of the impact; the magnitude and complexity of the impact; the probability of the impact; the duration, frequency and reversibility of the impact."***
- 2.2.4 As part of our technical review, we have identified that some of these characteristics may not be strictly relevant to determining whether an effect of a Highways Agency scheme *on air quality* is significant. These include the complexity of the impact, or transfrontier impacts for the pollutants most commonly assessed for road schemes (oxides of Nitrogen (NO<sub>x</sub>), Nitrogen dioxide (NO<sub>2</sub>) and fine particulate matter (PM<sub>10</sub>)) and with the exception of construction related impacts, frequency.
- 2.2.5 Therefore, the most relevant characteristics in defining the significance of air quality impacts from Highways Agency schemes will include the extent, magnitude, probability and duration/reversibility of any impact.
- 2.2.6 Currently significance is judged and reported at the level of the project overall, but it is hoped that the following explanations might aid understanding of the Highways Agency's interpretation of these factors.
- 2.2.7 **Extent:** Effects at a local/individual scale can be judged very differently from an area/regional or national scale. In relation to air quality, it is considered appropriate to consider the number of receptors (indicative of population) affected in relation to health related thresholds and the geographical extent. Scale is taken to be the size of the effect relative to the size of the project. For example, a change in the environment from the project has the potential to affect a large number of receptors, but that the assessment concludes that only a few are affected to a great degree. The judgement overall may be the effect is insignificant when judged at the scale of the project overall.

- 2.2.8 **Magnitude:** Projects can potentially generate large impacts. Those that happen below relevant air quality thresholds may be less important to the decision making process than those that happen around and over thresholds. Large scale changes don't by themselves generate significant effects, but could do depending on the context, e.g. in relation to air quality thresholds, numbers of receptors experiencing large changes etc.
- 2.2.9 **Probability:** The EIA Directive requires project that are likely to have significant effects to be assessed. A Court judgement (see footnote) has described this to mean "real risk and not probability" of an impact happening<sup>2</sup>. Air quality assessments make a forecast of what the air quality will be like in a future year both with and without the scheme under consideration using air quality modelling techniques. Modelling verification (or calibration) seeks to reduce the modelled uncertainties, but by virtue of both undertaking modelling and forecasting, there remains uncertainty in the impacts, but these reflect the most reasonable assessment of the air quality impacts. The EU Commission in its own guidelines<sup>3</sup> recognises that farther into the future there becomes "*too much uncertainty associated with most development proposals.*" The decision maker needs to be able to make a decision based on a reasonable degree of certainty. Air quality modelling can also report the impacts to fractions of micrograms per metre cubed ( $\mu\text{g}/\text{m}^3$ ), but this does not reflect the precision or accuracy of the model or indeed the likelihood of an impact occurring. In general, it is viewed that we can be more confident of the direction of the impact (i.e. improvement / deterioration) than we can of the magnitude of the impact at an individual location, especially when predicted impacts can be small, e.g. fractions of  $\mu\text{g}/\text{m}^3$ .
- 2.2.10 **Duration:** This means whether the effects are likely to be short, medium or long term. Projects which give rise to long term adverse effects i.e. those that are irreversible will have a greater weight attached to them in the decision making process. For air quality, the consideration of the duration and reversibility of impacts should be appropriate to the averaging period of the relevant thresholds. In coming to a view on significance, a key factor in relation to duration might be the potential delay in the achievement of the relevant air quality thresholds arising from the scheme beyond the timescales without the scheme.
- 2.2.11 We recognise that Annex III requires the determination of significant effects to take account of other factors, including, but not limited to, the impacts
- (1b) in cumulation with other projects,
  - (2) the environmental sensitivity of the geographical areas likely to be affected, including,
    - (v) areas classified or protected under Member States' legislation; special protection areas designated by Member States pursuant to Directive

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<sup>2</sup> R.(Morge) v Hampshire CC [2010] EWCA Civ 608 Case No: C1/2009/2589

<sup>3</sup> *Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interaction*, European Commission, May 1999



2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds and to Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora; and

(vi) areas in which the environmental quality standards laid down in Union legislation have already been exceeded.

- 2.2.12 In relation to 1b above, the HA recognises that if an EIA is required, it is a legal requirement to consider the environmental effects of a scheme in “cumulation with other projects”. For non-statutory environmental assessments, we recognise that consideration of cumulative effects is best practice, and it is required by the Highways Agency’s Design Manual for Roads and Bridges (DMRB), Volume 11.
- 2.2.13 Specifically in relation to air quality, the Highways Agency’s guidance on undertaking air quality assessments set out in DMRB Volume 11 requires consideration of any designated nature conservation sites (SACs (SCIs or cSACs), SPAs, pSPAs, SSSIs and Ramsar sites) within 200m of affected roads, including those listed in 2v above. Furthermore, the Highways Agency’s approach also requires the presence of Air Quality Management Areas (AQMAs) and the achievement of the EU limit values to be considered.

### 3 Air Quality Framework

#### 3.1 EU Air Quality Directive

- 3.1.1 The EU Directive on ambient air quality and cleaner air for Europe (hereafter referred to as AQ Directive) sets limit values for certain pollutants which must not be exceeded. The aim of the AQ Directive is the protection of human health and the environment 'as a whole' and its purpose is to deliver good air quality across Europe.
- 3.1.2 The AQ Directive requires competent authorities and bodies to be made responsible for assessing ambient air quality with respect to the requirements of the AQ Directive. In the UK, it is Defra who assess compliance with the AQ Directive.
- 3.1.3 The AQ Directive describes how to assess compliance by dividing countries into zones. The AQ Directive also requires that compliance shall be assessed in accordance with the requirements set out in Annex III of the AQ Directive.
- 3.1.4 Some of the key principles of the AQ Directive are to maintain air quality where they are below the limit values and endeavour to preserve the best ambient air quality, compatible with sustainable development. Where limit values are breached, action plans should be drawn up to mitigate the exceedances and the exceedance period should be kept as short as possible.
- 3.1.5 In relation to the determination of the need for a statutory EIA, it is incumbent on developers to consider areas in which the environmental quality standards laid down in Union legislation, in this case limit values, have already been exceeded (EIA Directive Annex III, 2 vi). This is different to whether a scheme might impact on national compliance with the AQ Directive and the picture of compliance Defra report to the European Commission, as some impacts at a local scale may potentially have no effect at all on the ability of that zone to comply with the Directive, for example in locations that do not meet the requirements set out in Annex III of the AQ Directive.
- 3.1.6 The HA's statutory and non-statutory environmental assessments continue to seek to identify environmental effects on potentially affected receptors at the local scale rather than on national compliance with legislative obligations.

#### 3.2 UK Air Quality Strategy

- 3.2.1 The UK Air Quality Strategy provides the policy context for Local Air Quality Management (LAQM) and assessment in the UK. This strategy establishes a range of air quality "standards", and "objectives" for delivering the strategy. These air quality objectives are either effectively identical to the EU limit values, or more stringent. For England, these air quality objectives are incorporated into the Air Quality (England) Regulations 2000 (as amended in 2002).
- 3.2.2 The LAQM process was introduced as a way of assessing and managing local areas of poor air quality and requires all district and unitary local authorities to regularly review air quality in their areas against the air quality objectives.

Where the objectives are not achieved, then the local authority is required to declare an AQMA and prepare an Air Quality Action Plan (AQAP) which sets out the actions they plan to take to improve air quality in pursuit of the objectives.

- 3.2.3 The NPPF states that planning policies should sustain compliance with and contribute towards national objectives for pollutants, taking into account the presence of Air Quality Management Areas and that planning decisions should ensure that any new development in AQMAs is consistent with the local air quality action plan.
- 3.2.4 Air quality objectives may not be exceeded across the entirety of all AQMAs, for example, some AQMA boundaries are set for administrative reasons. However, the declaration of an AQMA indicates that air quality is currently of concern in at least some locations. Consequently, receptors considered in our assessments as potentially being affected which lie within an AQMA may not always have pollutant concentrations in excess of the national air quality objectives either currently or by the assessment year.
- 3.2.5 Our assessment approach does not explicitly consider the presence of an AQMA, but considers the potential impacts on affected receptors within an AQMA.

## 4 Review of Approaches to Evaluating Significant Air Quality Effects

### 4.1 Previous Highways Agency Approach

- 4.1.1 The Highways Agency considers the environmental impacts of its schemes, and where there are expected to be effects will undertake an environmental assessment. Where the impacts are expected to be significant, either by virtue of the type of project (Annex I project) or where the environmental impacts of Annex II projects are determined to be significant, then a statutory EIA is carried out.
- 4.1.2 Currently, the HA has an approach to identifying significant air quality impacts based on whether or not a scheme makes air quality worse overall in relation to compliance with the air quality limit values.
- 4.1.3 In essence, this was done by creating a subset of all the receptors considered where concentrations were expected to be over the air quality limit values (LV) either with (Do-Something) or without the scheme (Do-Minimum), then calculating the scheme impact for each of those receptors, and then totalling those impacts. An example is set out below:

Receptor	Do Minimum Concentration	Do Something Concentration	Scheme Impact
White House	36.3	37.4	n/a as below LV
23 High Street	39.8	41.2	+1.4
78 High Street	42.3	42.4	+0.1
The Burrows	40.2	39.5	-0.7
Village School	45.2	45.3	+0.1
			+0.9

- 4.1.4 Where the total of those impacts was below zero, it was considered that the scheme was improving air quality overall and so did not constitute a significant impact on air quality.
- 4.1.5 Where the total of those impacts was greater than zero, it was considered that the scheme was worsening air quality overall and was, therefore a significant adverse impact on air quality. This approach is a very mechanical test in that it simply aggregates the impacts.
- 4.1.6 The Highways Agency recognises the need to improve on this approach to align with the requirements of the EIA Directive and the NPPF, taking better account of the magnitude of the impacts on receptors and the duration, frequency and reversibility of the impact.

## 4.2 Institute of Air Quality Management Position on the Description of Air Quality Impacts and the Assessment of their Significance

- 4.2.1 In 2009, the Institute of Air Quality Management (IAQM) published their position on the Description of Air Quality Impacts and the Assessment of their Significance<sup>4</sup>.
- 4.2.2 The advice and opinion offered by the IAQM in this document relates to the task of describing local air quality impacts and assessing their significance.
- 4.2.3 The Highways Agency agrees with many of the key points set out in the IAQM position, including,
- Assessing the significance of impacts of development on air quality cannot be reduced to strict, formulaic methodology and judgement will always be required.
  - An appreciation of the relative reliability and limitations of methods and data are required to produce credible conclusions
  - The number of decimal places that impacts are reported to is ultimately a compromise between reducing the number of places in recognition of the uncertainty normally associated with air quality calculations and the need to contribute to the decision making process by being able to demonstrate a small but widespread change, if one exists.
  - That by defining the magnitude as a percentage of the relevant air quality threshold it is possible to apply a common approach to assessments of impacts for any pollutant.
  - The significance of air quality impacts should always be undertaken by a suitably qualified person.
- 4.2.4 However, while a change below 1% of the relevant threshold as “imperceptible” provides consistency with existing screening methods promoted by the Environmental Agency and Natural England, the magnitude of change descriptors are not otherwise justified. From the perspective of evaluating Highways Agency schemes, large (>10%) and medium (5-10%) changes in NO<sub>2</sub> and PM<sub>10</sub> would only very infrequently be identified. These generic bands may not therefore be particularly useful in describing the magnitude of the impact from Highways Agency schemes.
- 4.2.5 The next step in the IAQM approach is to describe the impact at each relevant receptor based on the magnitude of change and the absolute concentration in relation to the objective/limit value.
- 4.2.6 Finally the IAQM recommends that a professional judgement be made of the overall significance of the air quality impacts due to the development. The IAQM suggest that this should take into account the following factors:

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<sup>4</sup> [http://www.iaqm.co.uk/text/news/2009/iaqm\\_significance\\_nov09.pdf](http://www.iaqm.co.uk/text/news/2009/iaqm_significance_nov09.pdf)

- The magnitudes of the changes and the descriptions of the impacts at the receptors.
  - Number of people affected by increases and/or decreases in concentrations and a judgement on the overall balance.
  - Where new exposure is being introduced into an existing area of poor air quality, then the number of people exposed to levels above the objective or limit value will be relevant.
  - Whether or not an exceedance of an objective or limit value is predicted to arise in the study area where none existed before or an exceedance area is substantially increased.
  - Whether or not the study area exceeds an objective or limit value and this exceedance is removed or the exceedance area is reduced.
  - Uncertainty, including the extent to which worst-case assumptions have been made.
  - The extent to which an objective or limit value is exceeded, e.g. an annual mean NO<sub>2</sub> of 41 µg/m<sup>3</sup> should attract less significance than an annual mean of 51 µg/m<sup>3</sup>.
- 4.2.7 This review identified that this approach does not take account of all of the relevant criteria guiding the determination of significant environmental impacts listed in Annex III of the EIA Directive, particularly the duration, frequency and reversibility of the impacts.
- 4.2.8 Nonetheless, we strongly support the IAQM's position that the assessment of significance should include a clearly reasoned justification of the conclusions reached.

### **4.3 Environmental Protection UK Development Control: Planning for Air Quality**

- 4.3.1 Environment Protection UK (EPUK) has developed guidance on dealing with air quality concerns within the development control process. This guidance was last published in 2010<sup>5</sup>, and consequently predates the changes to the planning policy framework.
- 4.3.2 The primary audience of this guidance is air quality and development control professionals within local government, but it is also considered relevant to developers and consultants involved in the preparation of air quality assessments.
- 4.3.3 This guidance provides advice on dealing with planning applications and an overview of air quality assessments including criteria for evaluating whether an air quality assessment is adequate.

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<sup>5</sup> [http://www.environmental-protection.org.uk/assets/library/documents/Air\\_Quality\\_Guidance\\_2010\\_\(final2\).pdf](http://www.environmental-protection.org.uk/assets/library/documents/Air_Quality_Guidance_2010_(final2).pdf)

- 4.3.4 In relation to assessing significance, the recommended method for judging significant impacts within the air quality assessments is that of the IAQM (section 4.2).
- 4.3.5 Additionally, guidance is provided to the local planning authority on how to assess the significance of air quality impacts using a flow chart. However, in giving additional weight to impacts on limit values, designed to reflect the greater legal obligation to meet limit values than for national air quality objectives, the legal context within which the limit values are assessed and compliance judged is lost.

## 5 Proposed Highways Agency's Approach to Evaluating Significant Air Quality Effects

### 5.1 Introduction

- 5.1.1 In promoting schemes, under the EIA Directive, the assessment of the likely significant environmental effects of public and private projects must be conducted on the basis of appropriate information supplied by the developer<sup>6</sup>. While it is for the developer to justify whether a scheme is likely to have significant environmental effects, we would welcome your views on our proposed new approach to evaluating significant air quality effects for Highways Agency schemes as described in this section.
- 5.1.2 For consideration of traffic sources, it is widely understood from previous HA scheme assessments and local authority air quality reporting that the pollutants of concern are oxides of Nitrogen (NO<sub>x</sub> and NO<sub>2</sub>) and particulate matter (PM<sub>10</sub>). The proposed approach to assessing significance should be sufficiently flexible as to be potentially applied to other pollutants with air quality objectives if required.
- 5.1.3 The table below lists the objectives for the key traffic related pollutants.

Pollutant	Air Quality Objective Concentration	Measured as
Nitrogen Dioxide	200 µg m <sup>-3</sup> not to be exceeded more than 18 times a year	1-hour mean
	40 µg m <sup>-3</sup>	Annual mean
Oxides of Nitrogen	30 µg m <sup>-3</sup>	Annual mean
Particles (PM <sub>10</sub> ) (gravimetric)	50 µg m <sup>-3</sup> , not to be exceeded more than 35 times a year	Daily mean
	40 µg m <sup>-3</sup>	Annual mean

- 5.1.4 Our proposed approach for assessing significance can be applied to any pollutant.
- 5.1.5 For the hourly mean NO<sub>2</sub> objective, Defra's advice in their local air quality management technical guidance (LAQM.TG(09)) is that the 1 hour mean is unlikely to be exceeded unless the annual mean exceeds 60 µg/m<sup>3</sup>. We would propose that we use this annual mean concentration as a proxy for the hourly mean in line with Defra's published guidance.

### 5.2 Consideration of the Air Quality Directive

- 5.2.1 While the NPPF states that planning policies should "sustain compliance with and contribute towards EU limit values", in relation to matters of compliance, the limit values cannot be taken out of context of the AQ Directive's other requirements and principles.

<sup>6</sup> But this information may be supplemented by others



- 5.2.2 In relation to the issues presented here, there are two key decision making points,
- a) the decision (determination) of the need for a statutory EIA, and
  - b) the decision to grant or refuse consent for the scheme.
- 5.2.3 As described in 2.1.5, the EIA Directive requires that the examination of whether projects are likely to have a significant effect on the environment must take account of the relevant factors in Annex III. Consequently, the Highways Agency proposes to base its decisions on whether an air quality impact from its schemes are significant by taking account of areas identified through the scheme assessment as being over the limit values where there is exposure for a significant period of the averaging time, recognising that these areas may differ from those assessed by Defra for compliance with the AQ Directive.
- 5.2.4 The EIA Directive does not appear to provide a basis for considering whether a scheme might impact on national compliance with the AQ Directive in determining the need for a statutory EIA. However, we recognise that the scale of the risk of a scheme potentially affecting national compliance with the requirements of the AQ Directive may be valuable information for decision makers when considering whether to grant or refuse consent for the scheme.
- 5.2.5 Consequently, the Highways Agency is currently working with Defra to develop an approach to assessing the risk of a scheme affecting compliance with the AQ Directive and making such information available to our decision makers. Therefore, matters of compliance with the AQ Directive are not included in this technical review on the approach to evaluating significant air quality impacts.

### **5.3 Consideration of National Air Quality Objectives and AQMAs**

- 5.3.1 The Highways Agency's approach to air quality assessment identifies receptors near roads where air quality might be affected, and assesses the impacts there. Consequently, areas where national air quality objectives might be expected to be exceeded are considered, including within AQMAs. It is worth noting however, that we do not focus solely on the presence of AQMAs to inform our scheme assessments.
- 5.3.2 The Highways Agency currently reports whether a scheme will potentially impact on AQMAs to decision makers. There are no plans to change this requirement following this review.

### **5.4 Taking Account of the Probability of an Effect Occurring**

- 5.4.1 The EIA Directive requires, in determining significant effects, that consideration should be given to the probability of an effect. As modelling has its limitations, there are several ways we could consider the probability:
- Making allowances for precision in the numbers used, e.g. numbers of decimal places, or scale of change that can be confidently determined

- Accumulating factors, e.g. if it meets more than a number of tests, then it might confidently be described as a probable significant effect. The principle of accumulating factors builds on the guidance set out by the EU on EIA screening where they describe (for environment rather than air quality) that

*In theory if there is one "Yes" answer to the question is it likely to result in a significant effect, EIA may be required, however, as a general principle, the greater the number of "Yes" answers and the greater the significance of the effects identified, the more likely it is that EIA is required.*

- 5.4.2 It proposed that for air quality effects, these approaches referred to above should be taken into account in identifying a probable significant effect on air quality.

## 5.5 Using Air Quality Indicators to Inform a Judgement

- 5.5.1 Rather than having absolute tests to determine significance, we propose that we guide professional judgement in determining whether a project is having a significant effect on air quality, based on the principles set out in the EIA Directive and how air quality is evaluated on the local scale.
- 5.5.2 How changes in local air quality are evaluated:
- Effect on "hot-spots": change in absolute concentrations
  - Change in exposure: change in number of receptors (human or ecological as appropriate) already exposed to AQ over objectives, i.e. removal and creation of exceedances
  - Change in exposure: number of properties where AQ is improved/worsened
  - Triggering statutory duties: concentrations pushed over national air quality objectives *in a new location*
  - Change in timescales to achieve air quality thresholds
- 5.5.3 The Highways Agency has used these, together with the relevant criteria from Annex III of the EIA Directive in developing a new approach to evaluating significant air quality effects which can be applied to the Highways Agency's roads schemes.
- 5.5.4 The approach in Box 1 below seeks to describe the sensitivity, or capacity, for changes to air quality when compared with air quality thresholds, together with the extent, magnitude and duration of the effect to inform a professional judgement of whether the effect of the project as a whole are considered to be significant.
- 5.5.5 These indicators are sufficiently broad as to apply to the range of projects the Highways Agency currently progress and across the pollutants considered. The frequency distribution ranges presented have been developed taking account of typical impacts from Highways Agency schemes and drawing on professional judgement.
- 5.5.6 To aid consistency in the evaluation of significant effects, the Highways Agency is proposing that all its schemes should compile the same information on a

range of air quality indicators, upon which the professional judgement of the likely significance can be based.

- 5.5.7 The steps to gather the information required to inform that professional judgement of whether the effects of the project as a whole on air quality are significant is described below.

Box 1	Collating Information on Air Quality Indicators
1.	Collate verified Do Minimum (without scheme) and Do Something (with scheme) concentrations in the assessment year for all receptors considered.
2.	<p>For any receptors with concentrations above the relevant air quality threshold, count the number of receptors with a large change (Do Something – Do Minimum), defined as greater than or equal to 5% of the threshold, noting those with improvements or deteriorations. Count the number of receptors (with concentrations above the threshold) with changes less than 5% of the threshold; i.e.</p> <ul style="list-style-type: none"><li>a. XX receptors experience a deterioration of more than 5% of the relevant threshold</li><li>b. YY receptors experience an improvement of more than 5% of the relevant threshold</li><li>c. ZZ receptors experience a change of less than 5% of the relevant threshold</li></ul>
3.	<p>For receptors with concentrations over the relevant air quality threshold in either the Do Minimum or Do Something scenario, calculate frequency distribution of the change in concentration under the following ranges:</p> <ul style="list-style-type: none"><li>a. Improvements of more than 5% of the threshold</li><li>b. Improvements of between 2.5% and 5% of the threshold</li><li>c. Improvements of between 1% and 2.5% of the threshold</li><li>d. Changes (both improvements and deteriorations) of less than 1% of the threshold</li><li>e. Deteriorations of between 1% and 2.5% of the threshold</li><li>f. Deteriorations of between 2.5% and 5% of the threshold</li><li>g. Deteriorations of more than 5% of the threshold.</li></ul>
4.	<p>Based on rounding the modelled concentrations to the nearest whole number, count the number of receptors predicted to experience a deterioration, improvement or no change in air quality due to the scheme, i.e.</p> <ul style="list-style-type: none"><li>a. XX receptors above the thresholds experience a deterioration in air quality</li><li>b. YY receptors above the thresholds experience no change in air quality</li><li>c. ZZ receptors above the thresholds experience an improvement in air quality</li></ul>

5. Based on rounding the modelled concentrations to the nearest whole number, count the number of receptors where the scheme impact is predicted to create or remove an exceedance of the relevant air quality threshold (greater than, but not equal to) and the number of receptors where there is no change in the exceedance status, i.e. remains below / above threshold.
  - a. XX receptors experience a new exceedance of the threshold due to the scheme
  - b. YY receptors experience a removal of an exceedance of the threshold
  - c. ZZ receptors experience no change in exceedance, but were already in exceedance
  
6. Where 5a identifies a new exceedance of the threshold due to the scheme, comment whether these are clustered around existing exceedances (and therefore at least partially likely to be covered by existing AQAP measures) or whether they are in new areas of exceedance and new AQAP measures in pursuit of the thresholds may be required, i.e.
  - a. XX receptors experiencing a new exceedance are adjacent to existing areas of exceedance
  - b. YY receptors experiencing a new exceedance are in new areas of exceedance
  
7. For receptors with concentrations over the relevant air quality threshold in either the Do Minimum or Do Something scenario, calculate using current forecasting approaches, the estimated reversibility duration of the scheme's impact, and calculate frequency distribution of the reversibility durations in the following ranges
  - a. Less than 1 year
  - b. 1-3 years
  - c. 3-5 years
  - d. 5+ years

## 5.6 Forming a Professional Judgement

- 5.6.1 Based on all of the indicators set out in Box 1, in the context of the total number of receptors considered in the assessment, a suitably qualified professional should provide a judgement as to whether the impacts are considered to be significant and a commentary as to how that judgement was arrived at.
- 5.6.2 The Highways Agency recognises that the European Union has provided advice on evaluating the significance of environmental effects<sup>7</sup>. That guidance provides a Screening Checklist, presented in Appendix B for convenience, to help decide whether the effects are likely to be significant.
- 5.6.3 Some of the questions therein to be considered are not wholly relevant to air quality, and some may be answered taking account of more than one of the criteria listed in Annex III of the EIA Directive, e.g. both magnitude and extent. However, this checklist provides a useful tool to help shape a professional judgement, taking account all of the relevant factors, and may be used to evaluate the significance of the air quality effects of the Highways Agency's projects.
- 5.6.4 The professional judgement will, over time, be benchmarked against other scheme judgements to ensure broad consistency in application.

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<sup>7</sup> <http://ec.europa.eu/environment/eia/eia-guidelines/g-screening-full-text.pdf>

## Appendix A EIA Directive Annex III Selection Criteria

<b>1.Characteristics of projects</b> The characteristics of projects must be considered having regard, in particular, to:
—the size of the project,
—the cumulation with other projects,
—the use of natural resources,
—the production of waste,
—pollution and nuisances,
—the risk of accidents, having regard in particular to substances or technologies used.
<b>2.Location of projects</b> The environmental sensitivity of geographical areas likely to be affected by projects must be considered, having regard, in particular, to:
—the existing land use,
—the relative abundance, quality and regenerative capacity of natural resources in the area,
—the absorption capacity of the natural environment, paying particular attention to the following areas:
(a) wetlands;
(b) coastal zones;
(c) mountain and forest areas;
(d) nature reserves and parks;
(e) areas classified or protected under Member States' legislation; special protection areas designated by Member States pursuant to Directive 79/409/EEC and 92/43/EEC;
(f) areas in which the environmental quality standards laid down in Community legislation have already been exceeded;
(g) densely populated areas;
(h) landscapes of historical, cultural or archaeological significance.
<b>3.Characteristics of the potential impact</b> The potential significant effects of projects must be considered in relation to criteria set out under 1 and 2 above, and having regard in particular to:
—the extent of the impact (geographical area and size of the affected population),
—the transfrontier nature of the impact,
—the magnitude and complexity of the impact,
—the probability of the impact,
—the duration, frequency and reversibility of the impact.

## **Appendix B Checklist of Criteria for Evaluating the Significance of Environmental Effects**

From the European Commission's 2001 Guidance on EIA: Screening

### **Questions to be Considered**

1. Will there be a large change in environmental conditions?
2. Will new features be out-of-scale with the existing environment?
3. Will the effect be unusual in the area or particularly complex?
4. Will the effect extend over a large area?
5. Will there be any potential for transfrontier impact?
6. Will many people be affected?
7. Will many receptors of other types (fauna and flora, businesses, facilities) be affected?
8. Will valuable or scarce features or resources be affected?
9. Is there a risk that environmental standards will be breached?
10. Is there a risk that protected sites, areas, features will be affected?
11. Is there a high probability of the effect occurring?
12. Will the effect continue for a long time?
13. Will the effect be permanent rather than temporary?
14. Will the impact be continuous rather than intermittent?
15. If it is intermittent will it be frequent rather than rare?
16. Will the impact be irreversible?
17. Will it be difficult to avoid, or reduce or repair or compensate for the effect?