INTERIM ADVICE NOTE 175/13

Updated air quality advice on risk assessment related to compliance with the EU Directive on ambient air quality and on the production of Scheme Air Quality Action Plans for user of DMRB Volume 11, Section 3, Part 1 'Air Quality

Summary
This IAN provides supplementary advice to users of DMRB Volume 11, SECTION 3, PART 1 (HA207/07). Advice is provided on the methodology and reporting for the Compliance Risk Assessment.

This IAN is to be used in combination with the Defra's National Compliance reporting on the EU Directive on ambient air quality and clean air for Europe (2008/50/EC).

Instructions for Use
This guidance is supplementary to existing guidance given in DMRB Volume 11, Section 3, Part 1 (HA207/07)

Summary

Introduction
This IAN provides updated air quality advice for users of DMRB Volume 11, Section 3, Part 1 'Air Quality' (HA207/07). It enables HA projects to undertake and report on the risk of a scheme of being non-compliant with the EU Directive on Ambient Air Quality (2008/50/EC); and consequently provide advice to decision makers.

The outcome of the compliance risk assessment should also be used to inform the judgement on significance of the scheme impacts as set out in IAN 174/13, "Assessment of Significant Air Quality Effects".

This IAN also introduces a new requirement to produce a report for the HA, which will present concentrations at 4m from the edge of the hard shoulder or kerbside, in line with Defra's National Compliance reporting, based on the results from scheme's air quality assessment.

Where schemes are provisionally judged to be at high risk of non-compliance with the EU Directive on Ambient Air Quality, this IAN provides guidance on the production of Scheme Air Quality Action Plans (SAQAPs) containing mitigation actions to reduce this risk.

Relationship
This IAN provides updated air quality advice for users of DMRB Volume 11, Section 3, Part 1 'Air Quality' (HA207/07).

Implementation
This advice relates to the EU Directive on Ambient Air Quality (2008/50/EC) and Defra's annual reporting to the European Commission.

This guidance should be used forthwith on relevant projects in England, where air quality assessments are undertaken and where such projects have yet to be submitted for statutory process purposes, including Determination of the need for a statutory Environmental Impact Assessment.

Implementing the advice in this IAN will add approximately a week to the air quality assessment to complete and report. Although this is dependant on the size of the air quality study area for the scheme and the number of roads reported by Defra within this study area.

Where there is a requirement to produce a SAQAP, then this will take additional time, the length of which will be dependant on the number and complexity of actions within the plan, which may be extensive.

1. Compliance Risk Assessment

1.1. Introduction

Development projects need to assess the impacts of their scheme on compliance with the EU Directive on ambient air quality. This is in addition to, but also supports, an assessment of significant air quality effects for the environmental assessment.

This IAN sets out the assessment approach for identifying and quantifying impacts of a scheme on Defra's 'UK National Compliance Assessment for the EU Directive on ambient air quality'. The approach uses the reported information from Defra's Pollution Climate Mapping (PCM) model and the results of the scheme's air quality assessment. The outcome of the assessment determines the compliance risk rating for the scheme and subsequent information to be prepared for the Decision Maker.

In addition this IAN sets out the information from the scheme assessment that should be prepared for the HA. The advice set out in the IAN has been developed to support the assessment of road schemes, but could be adapted for the road transport impacts of other developments, if required.

Where schemes are provisionally identified as having a high risk of non-compliance, this IAN also describes the mechanism for the production of Scheme Air Quality Action Plans (SAQAPs) containing actions designed to further mitigate scheme impacts and so reduce the risk of non-compliance.

The SAQAPs may also be developed to support schemes identified as having a significant air quality effects as set out in IAN 174/13.

1.2. EU Directive on Ambient Air Quality and Clean Air for Europe

The EU Directive on ambient air quality (2008/50/EC) sets out a range of mandatory Limit Values (LV) for different pollutants including nitrogen dioxide (NO_2) and particulate matter less than 10 microns (PM_{10}) (Table 1.1).

Table 1.1 Objectives for Key Traffic Related Pollutants

Pollutant	Air Quality Threshold Concentrations	Measured as
Nitrogen Dioxide (NO_2)	200 µg m^{-3} not to be exceeded more than 18 times a year	1-hour mean
	40 µg m^{-3}	Annual mean
Particles (PM_{10}) (gravimetric)	50 µg m^{-3}, not to be exceeded more than 35 times a year	Daily mean
	40 µg m^{-3}	Annual mean

Defra assess and annually report on the status of air quality in the UK, as compared to the LV for each pollutant, to the European Commission. For the purposes of their assessment and reporting, the UK is divided in to 43 zones and agglomerations (hereafter referred to as zones). The main pollutants of concern with respect to compliance are NO_2 and PM_{10}.

As of February 2013 only 3 out of the 43 zones comply with the EU Directive (only 1 in England) for NO_2. For PM_{10} only the Greater London zone does not comply with the Directive.

Where the attainment deadline for a LV is unlikely to be met, or has not been met, then the UK can apply for up to 5 years derogation of the need to comply for each zone. This is to be supported by an Action Plan for each zone setting out the appropriate measures to achieve the LVs in as short a time as possible up to 2015 for NO_2 and 2010 for PM_{10}. The European Commissioned has accepted derogation up to 2015 for 9 zones in England. The remaining zones are expected to exceed the LVs for NO_2 beyond 2015.

1.3. National Planning Policy Framework

Paragraph 124 of the National Planning Policy Framework (NPPF) published on the 27th March 2012 changed the framework for air quality in planning (Box 2.1).

Box 2.1 – Paragraph 124 from NPPF

> "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."

The NPPF sets out two considerations for air quality to inform the Competent Authority:

1. Consideration of the scheme air quality impacts on the EU Directive on ambient air quality and clean air for Europe (2008/50/EC)
2. Consideration of scheme air quality impacts on national objectives for pollutants

However, the NPPF does not provide guidance on how to undertake and assess compliance with the EU Directive.

2. Approach to be Adopted for Scheme Assessments

The air quality modelling should continue to be completed in accordance with the assessment methodology set out in HA207/07, relevant published IAN's and with reference to Defra's LAQM.TG(09) guidance (as updated) where required.

The approach set out in this IAN is applicable to assessments completed using the DMRB air quality spreadsheet and detailed air quality dispersion model.

Whilst the DMRB air quality model and Defra's Pollution Climate Mapping (PCM) model are similar in the way they undertake air quality modelling based on empirical calculations, the emissions in the DMRB air quality spreadsheet have been superseded and in this instance, it is unlikely that it should be used to inform the compliance risk assessment.

However, where the DMRB air quality spreadsheet model has been used to undertake the scheme assessment then contact the Overseeing Organisation for further advice.

Detailed air quality dispersion models calculate pollutant concentrations using a series of dispersion equations and meteorological data. The use of meteorological data notably influences how the pollutants are dispersed away from the road. The concentrations vary whether they are upwind and downwind of a road source; usually with downwind concentrations being higher than the upwind concentrations. In addition the alignment of a single road with respect to the wind direction may change along a given section. So for the same traffic characteristics, depending on the alignment of the road with respect to the wind direction the concentrations will vary along the length of each road.

The compliance risk assessment is concerned with the maximum concentration along a section of road, as well as the difference due to the impact of the scheme and allows for comparison with Defra's PCM modelling. It would not be practical nor pragmatic to model a series of additional receptors 4m from the edge of the hard shoulder of the motorway or kerbside of local roads (in line with Defra's PCM model) to identify the maximum modelled NO_2 concentration for every section of road included in the assessment, consequently the following approach should be followed.

2.1 Data Sources

The following data sources are required for the completion of the compliance risk assessment:

- Defra's road network from their EU Directive submission, including the PCM modelled total NO_2 concentrations for the latest reported year and reference years 2015, 2020, 2025 and 2030 projections
- Defra's zone and agglomeration maps
- Outputs from the local air quality assessment including the verified modelled results at all modelled receptors for the opening year Do-Minimum (without scheme) and Do-Something (with scheme), and air quality monitoring data

Data from the PCM model and the map of the zones should be requested using the following email address aqinfo@ricardo-aea.com. The email subject header should be, "Compliance Risk Assessment Data Request".

2.2 Identifying the Compliance Risk Road Network

The road network to be included in the compliance risk assessment is defined by overlaying the road network from the DMRB local air quality assessment onto the road network from the PCM model. **Where the two road networks intersect, only this subset of the road network should be used to inform the compliance risk. This road network is hereafter referred to as the Compliance Risk Road Network (CRRN)** Only those roads that Defra have identified should be used to inform the compliance risk assessment.

The roads that make up the CRRN, should be overlaid on the map of the 43 Zones as defined by Defra. For each road record the Zone reference, and the status of the Zone i.e. compliant or non-compliant. For each non-compliant zone record the earliest year Defra have identified for compliance (see Annex B).

2.3 Calculating the Opening Year Total NO_2 Concentrations from Defra's PCM Model

On an annual basis Defra provides an update on the status of air quality in the UK to the European Commission as part of the requirements of the EU Directive on ambient air quality. Defra also produce a series of projections for the following 'reference years' 2015, 2020, 2025 and 2030. The total NO_2 concentrations are available for each road included in Defra's PCM Model.

Where a scheme opening year coincides with a reference year then the total NO_2 concentrations from the PCM model can be used directly. However, where the scheme opening year does not coincide with one of the reference years, then equivalent opening year concentrations need to be calculated. This is to be achieved using linear interpretation between the two reference years either side of scheme opening year.

Step 1. Identify the scheme opening year

Step 2. Identify the reference year from Defra's PCM model that occurs before the opening year and also the year that occurs after the opening year. For example scheme opening year 2017, select reference years 2015 and 2020.

Step 3. For the total NO_2 concentrations apply the following formula:

Annual Rate of Change = (Following Reference Year concentration – Preceding Reference Year concentration) / 5

Step 4. Calculate the number of years of change between the opening year and preceding reference year

Number of years = Opening year – preceding reference year

Step 5. Calculate the equivalent opening year PCM concentration as follows:

Preceding year PCM concentration – (annual rate of change x number of years)

An example of the calculations as set out in Steps 1 to 5 is illustrated in Table 2.1 for Total NO_2 concentrations.

Table 2.1 Example Total NO_2 Calculation Steps

		Total NO_2 Concentrations ($\mu g/m^3$)
Scheme Opening Year	2017	
Preceding Year PCM NO_2	2015	33.5 $\mu g/m^3$
Following Year PCM NO_2	2020	24.3 $\mu g/m^3$
Annual Rate of Change	(24.3-33.5) / 5	-1.84
Number of Years	2017 – 2015	2
Equivalent Opening Year PCM NO_2 concentration	33.5 + (-1.84 x 2)	29.8 $\mu g/m^3$

2.4 Calculating Equivalent Scheme NO_2 Concentration Consistent with the PCM Model

As the CRRN is based on the overlap between the DMRB affected road network and Defra's PCM road network, then the air quality assessment would have identified receptors at risk of exceeding the air quality thresholds (Table 1.1). Modelled results will therefore be available which show the impact of the scheme i.e. the change in annual mean NO_2 concentration between the Do Minimum and Do Something Scenarios in the opening year.

Receptors with the largest change in annual mean NO_2 concentration as a result of the scheme (positive and negative) located within 200m of each of road link in the CRRN should be selected. The equivalent scheme NO_2 concentration is then calculated by taking the Equivalent Opening Year PCM (Section 2.3) and adding the change in modelled concentration at selected receptors as a result of the scheme

Defra's PCM model, assesses on a link-by-link basis and there is no interaction between links where they cross / meet e.g. at junctions or flyovers. Where the CRRN includes 'real world junctions' and Defra's PCM model has assessed NO_2 concentrations to be above the limit value on any link forming part of the real world junction or the impact of the scheme would result in one Defra's PCM links going above the EU Limit Values, then contact the Overseeing Organisation for further advice.

Steps 1 to 3 below sets out the approach to be followed to calculate the equivalent scheme PCM NO_2 concentration for each road link. These steps should be repeated for each road in the CRRN. Table 2.2 provides an example of the calculations as set out in Steps 1 to 3.

Note: The road links from the traffic model used to inform the air quality assessment are unlikely to exactly match Defra's PCM road network. Consequently, there may be a need to calculate a number of Equivalent Scheme PCM NO_2 concentrations for each Defra PCM road links.

Step 1. Calculate the Equivalent Scheme PCM NO_2 concentration for each of the links within the Compliance Risk Road Network

Step 2. For those road links where the Equivalent Opening Year PCM or the Equivalent Scheme PCM modelled total NO_2 concentrations are greater than 40$\mu g/m^3$ then for each road link record the change in concentrations.

For those road links, where NO_2 concentrations are less than 40$\mu g/m^3$, but the outcomes of the air quality assessment indicates an increase in NO_2 concentrations, also record these road links, where there is a risk of creating a new exceedance of the EU Limit Values.

For example where the air quality assessment indicates a change of +3$\mu g/m^3$, but the PCM model concentration is 25$\mu g/m^3$ then this link does not need to be included. However, if the

PCM model was 38µg/m³ then this road link does need to be included as a 3µg/m³ increase would create a new exceedance i.e. 41µg/m³.

Step 3. If the change in NO_2 concentrations are less than 0.4µg/m³ then those roads can be scoped out of the compliance risk assessment, as the changes are considered to be imperceptible.

Table 2.2 Example of Calculating Equivalent Scheme PCM NO_2 Concentrations

	Total Annual Mean NO_2 Concentration (µg/m³)
Equivalent Opening Year PCM NO_2 concentration	29.8 µg/m³
DM Concentration Modelled at Worse Case Receptor	45.3 µg/m³
DS Concentration Modelled at Worse Case Receptor	49.8 µg/m³
Change in NO_2 concentration as a result of the scheme	+4.5 µg/m³
Equivalent Scheme PCM NO_2 Concentration	34.3 µg/m³

2.5 Recording the Outputs

A table of results should be prepared for each road link in the CRRN. This should include:

- the road link reference used in the air quality assessment
- Defra's 'Census ID', which zone / agglomeration the road link resides within
- The maximum concentration in the zone and the projected year Defra expect compliance to be achieved (Annex B)
- the PCM Total NO_2 concentration (representative of the DM i.e. no scheme)
- the equivalent PCM DS NO_2 concentration (Section 2.4) for the opening year; and
- the difference in NO_2 concentration.

Table 2.3 depicts how the inputs and outputs are to be presented for each road link.

A spreadsheet has been developed to help support the compiling the outputs and support the analysis of the compliance risk assessment.

2.6 Determining a Scheme's Compliance Risk Rating

Annex A contains the compliance risk flow chart, which should be used in conjunction with the information prepared in Table 2.3. This will allow a series of yes / no decisions to be made to enable the compliance risk to be determined.

For each road determine whether the change in NO_2 concentrations, would result in:

- A compliant zone becoming non-compliant; and / or

- Delay Defra's date for achieving compliance for the zone i.e. the change on a road link would result in concentration higher than the existing maximum value in the zone.

- An increase in the length of roads in exceedance in the zone which would be greater than 1% when compared to the previous road length.

  This is determined based on a change in NO_2 concentrations associated with the scheme results a PCM road link moving from either below the EU Limit Value to above the EU Limit Value or above the EU Limit Value to below the EU Limit Value, then record the road length for each of the road, and all roads in the same zone included in the CRRN.

- An overall increase, decrease or no change in NO_2 concentrations.

  This is based on the overall change in concentrations along the various roads included in the CRRN for each zone (as a scheme may impact across several zones) calculate, based on the change in concentrations from the nearest receptors.

Table 2.3 Compliance Risk Assessment Inputs and Outputs (Inputs)

Inputs				Defra PCM Model and Compliance Information					HA Receptor result			
Scheme	Defra's PCM Data			Total NO_2 (µg/m³)			Compliance Info (see Annex B)		Annual Mean NO_2 Concentration (µg/m³) (Nearest Receptor to Defra Link)			
				Proceeding Year	Following Year	Equivalent Opening Year						
HA link ID	Defra Link Census ID	Zone / Agglomeration Ref No	Is it a Compliant Zone?	NO_2 (T)	NO_2 (T)	NO_2 (T)	Maximum Modelled Conc in Zone 2011	Projected Compliance Year	DM	DS	Change (DS-DM)	Equivalent PCM DS (µg/m³)

Continuation of Table 2.3 (Outputs)

Compliance Descriptors (see Flow Chart in Annex A)						Outcome	
A - Change (increase) greater than 1% of EU LV	B- Does the Scheme cause a compliant zone to become non-compliant?	C - Delay Defra Compliance?	D- Does the Scheme Increase Change in Road Length that Exceeds	E - Does the scheme worsen air quality overall?	If the answer to A,B,C or D is Yes Proceed to AQAP (See Annex C)	AQAP effective?	Compliance Risk Rating (High / Neutral / Low)

Where a yes decision is reached following the flow chart e.g. a compliant zone is made non-compliant, then an Scheme Air Quality Action Plan (SAQAP) is required for the scheme (Section 2.8).

Where the SAQAP measures have successfully demonstrated that the impacts can be fully mitigated, or the difference between DM and DS is less than 1% (e.g. 0.4µg/m³ for annual average NO_2), then the flow chart indicates the scheme can be considered to be low risk. However, where there are no viable mitigation measures or the mitigation measures are unable to offset the scheme impact then the SAQAP is not fully effective. The outcome of the compliance risk would be classed as high.

2.7 Scheme Air Quality Action Plans

The SAQAP must demonstrate the required measures to mitigate the impacts back down to either the DM levels or to 40µg/m³ which ever is the higher threshold. A template outlining the headings and the supporting information required for scheme's AQAP is included in Annex C.

All proposed AQAP measures must be quantified, including the evidenced used to support the mitigation measure, and this should be recorded in the action plan table. The measures must state whether they are deliverable as part of the scheme design by the HA or require delivery by other bodies outside the scheme design.

Note: In developing the SAQAP, actions with Defra's Air Quality plans and local authority Air Quality Action Plans have already been taken into account in Defra's reference year projections. These measures cannot be included in the SAQAP as this would be double counting.

The outcomes of the SAQAP should also be taken into account in the assessment of local air quality effects and the consequent judgement on the significance of the scheme impacts (IAN 174/13).

2.8 PM_{10}

Defra's reports to the European Commission indicate that exceedances of the PM_{10} Limit Values are only recorded in London. There are no reported examples in Defra's reporting of PM_{10} exceedances along the SRN. However, where a scheme's assessment indicates PM_{10} exceedances then the approach set out in Sections 2.2 to 2.7 of this IAN should be followed.

3 Reporting the Results of the Compliance Risk Assessment

3.1 Information to Be Provided to the HA

A letter should be prepared and issued to the HA Project Manager containing the:

- Compliance Risk Table (shown below)
- A figure depicting the Compliance Risk Road Network and receptor locations used to inform the compliance risk assessment.
- A table including all receptors used in the compliance risk assessment with their Do-Minimum, Do-Something concentrations and change in concentrations.

Risk Rating:	Neutral / Low / High		
Advice:	The scheme is non-compliant with the Directive The scheme is compliant with the Directive		
Reason(s) for High Risk	A compliant Zone will become non-compliant	Yes / No	
	The scheme delays Defra's date for achieving compliance	Yes / No	Report the number of years
	The scheme increases the road length in exceedance	Yes / No	Report the % increase
	The scheme increases concentrations overall on roads that exceed	Yes / No	Report the change in concentrations
Note: * Delete as Appropriate			

Where:

Risk Rating	**Corresponding Advice**
High Risk	Non-compliant with the Directive
Neutral / Low Risk	Compliant with the Directive

Where the scheme has been identified as High Risk then a summary setting out the reason for the risk and any work undertaken to mitigate the impact should be provided.

3.2 Informing the Assessment of Significant Air Quality Effects

The outcome of the compliance risk assessment should be used in the judgement of significant effects. IAN 174/13 describes how the compliance risk should be used to inform professional judgement of the scheme impacts.

A copy of the Compliance Risk Road Network figure and table provided to the HA (as set out in Section 3.1) should be included in an appendix to the air quality chapter in either the Environmental Assessment Report or Environmental Statement as applicable.

4. Information to be Provided to Defra

4.1 Introduction

The HA recognises that the air quality work undertaken to support scheme assessments is at a more detailed level than the national compliance modelling, as reported by Defra.

The HA will share the outcomes of individual scheme air quality assessments with Defra to inform their decisions on the reporting and to support their duties as set out in the EU Directive on ambient air quality.

This is a standalone report to be sent to the HA PM, copied to the HA NetServ Air Quality Lead, for onward issue to Defra.

4.2 Approach to be Adopted

Based on the road network included in the air quality assessment, identify the highest modelled or monitored NO_2 concentration along each section of road. A section of road is defined as continuous piece of road between two junctions or points e.g. M1 Jn 8 to 9, rather than sub-divisions of the traffic model.

In line with the requirements of Annex III of the EU Directive on ambient air quality, receptors within 25m of a junction should be excluded. A motorway junction is defined as 25m from the edge of the slip road where it leaves or joins the motorway, and local roads as 25m from the centre of junction.

For receptors located within 50m of the edge of the road the drop off equations set out in Box 2.3 in TG(09), reproduced below, can be used to adjust the NO_2 concentrations reported in the air quality assessment to a distance of 4m off the edge of the hard shoulder, in line with UK National Compliance Assessment as reported by Defra. Use of this approach will provided indicative NO_2 concentrations 4m from the road edge.

There is a greater uncertainty in adjusting modelled or monitored concentrations more than 50m away from a road back to an equivalent 4m concentration. The Drop-Off equation should not be used to adjust any modelled or monitored NO_2 concentrations greater than 50m away. Where the nearest modelled or monitoring location is greater than 50m, then record the NO_2 concentrations and the distance from the road.

Box 4.1 Drop Off Equation

$$CZ = ((Cy-Cb) / (-0.5476 \times Ln(Dy) + 2.7171)) \times (-0.5476*Ln(Dz)+2.7171) + Cb$$

Where:
Cz is the total predicted concentration (µg/m³) at 4m from the edge of the hard shoulder;
Cy is the total measured concentration (µg/m³) at modelled / monitored location;
Cb is the background concentration (µg/m³);
Dy is the distance from the edge of the hard shoulder (m) at which concentrations were modelled/measured; and
Dz is the distance 4m from edge of the hard shoulder at which concentrations are to be predicted.
Ln() is the natural log

The total NO_2 concentration from the air quality assessment, background NO_2 concentration and the distance from hard shoulder are entered into the drop off equation. The corresponding concentration at 4m is then calculated. A spreadsheet to aid calculation of the drop off equation is available from Defra's website (http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html).

Where the concluding view of assessment as set out in Section 3.6 of IAN 170/12 indicates that the outcome of the air quality assessment should be based on Long Term Trends rather than TG(09) then the following approach (Section 4.3) needs to be undertaken. Assessment outcomes based on TG(09) can follow the advice set out in the Box 4.1 above.

4.3 Long Term Trends

IAN 170/12 should be referred to, to support this element of the compliance risk assessment.

For each receptor, identified as highest concentration for link, use the corresponding TG(09) modelled concentration for that receptor. The background and road NO_2 contributions will be available for the base year, projected base year, Do-Minimum and Do-Something from the work completed to support the scheme assessment.

Apply the equation in Box 4.1 to calculate the equivalent NO_2 concentration at 4m from the edge of the hard shoulder for the base year, projected base year, and opening year DM and DS. The outputs from these calculations should be entered in to the spreadsheet that supports IAN 170/12, to calculate the equivalent LTT NO_2 concentration at 4m for the DM and DS.

The results should be reported as shown in Table 4.1

4.4 Reporting

The following information should be included in the report for Defra.

1. **Introduction**
   - A brief summary of the scheme and the area the affected road covers.

2. **Source of Data**
   - Record the province of the datasets issued by Defra e.g. 2010, 2011, as Defra update the data sets at regular intervals.

3. **Results**
   - The information set out in Table 4.1 is to be included in the report for Defra.

Table 4.1 Example of Information to be Provided for Defra

Scheme Opening Year: 2017												
Road Descriptor	Scheme Receptor Ref	Receptor Type: Model / Monitor	OS Grid Reference		Distance from Road Edge (m)	Annual Average NO_2 Concentrations (µg/m³)						
						From Scheme AQ Assessment		Adjusted to 4m from Edge of Road		Information from Defra's PCM Model		
			X	Y		DM	DS	DM	DS	Census ID	Proceeding Year 2015	Following Year 2020
Mway j11-12	R3704	Model	123456	654321	22	51.9	51.0	74.3	72.2	6058	39.4	26.4
Mway j12-13	R4034	Model	234567	765432	7.5	69.0	80.7	77.9	92.6	No Link	N/A	N/A
Mway j17-18	R13455	Model	346789	986541	16.5	56.7	57.0	76.2	76.6	No Link	N/A	N/A
Mway j13-14	R9622	Model	635987	231475	31.5	60.5	54.3	106.4	89.6	No Link	N/A	N/A
Mway j21-22	R18614	Model	131346	124578	24.8	35.8	35.7	44.2	43.9	No Link	N/A	N/A

Please Note: For those locations that do not coincide with a road included in Defra's National Compliance Report, under the heading Census ID please denote as "No Link", and record as "N/A" in the proceeding year and following year column. Else please record Defra's Census ID, and proceeding year and following year NO_2 concentrations from Defra's PCM model.

5. Withdrawal Conditions

This IAN will be withdrawn when an updated Volume 11, Section 3, Part 1 Air Quality has been published and / or if Defra's advice is changed.

6. Contacts

Any queries regarding this IAN should be addressed to either:

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7. References

Design Manual for Roads and Bridges, Volume 11, Section 3, Part 1, Air Quality (HA207/07) May 2007

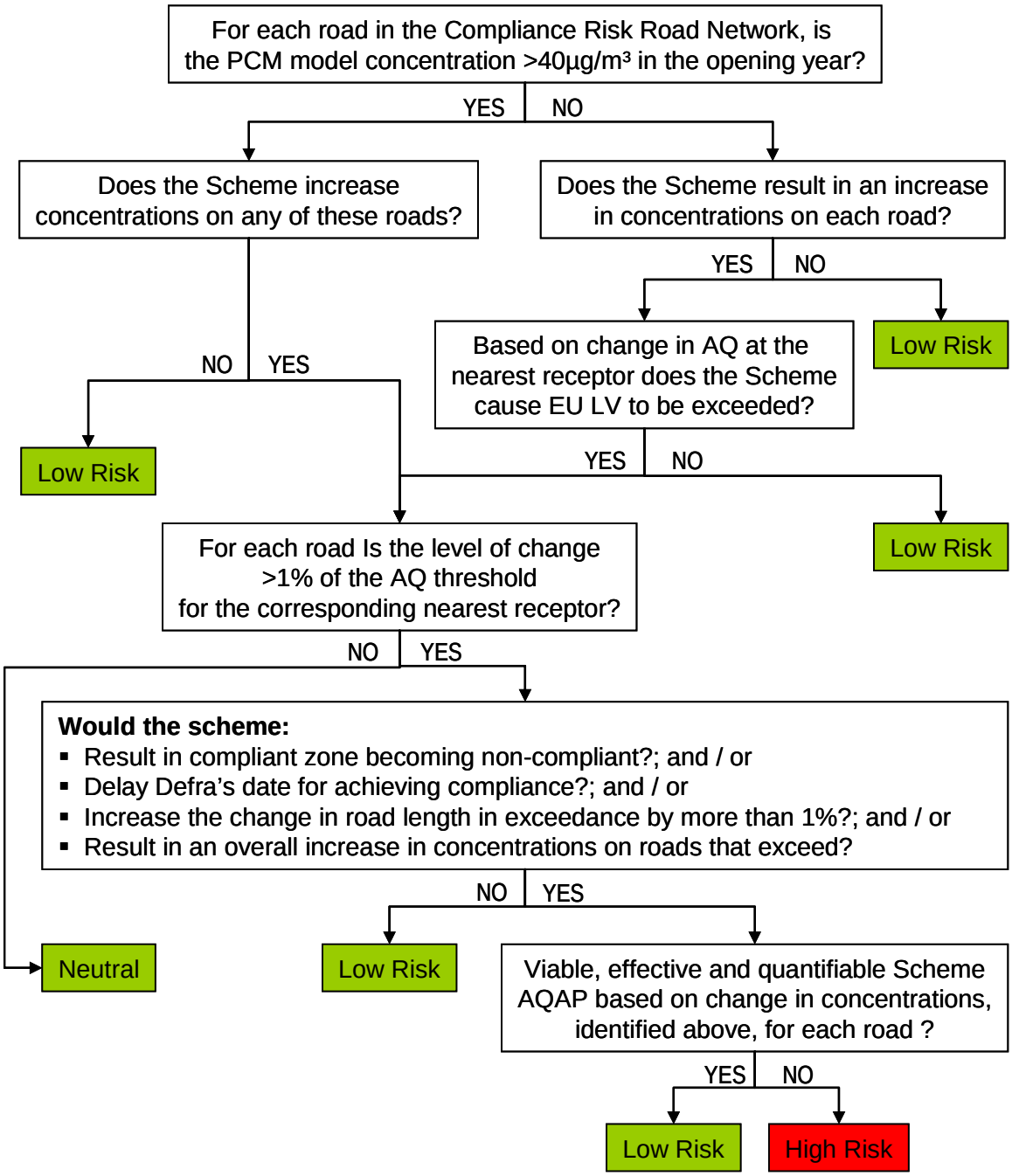
8. Additional Reading

Department for Environment, Food and Rural Affairs, Local Air Quality Management, Technical Guidance (LAQM.TG09), February 2009 [as updated by Defra]

Department for Environment, Food and Rural Affairs, Air Quality Plans for the achievement of EU air quality limit values for nitrogen dioxide (NO2) in the UK Website, (http://uk-air.defra.gov.uk/library/no2ten/index)

EU Directive on Ambient Air Quality and Clean Air for Europe (2008/50/EC)

Annex A Compliance Risk Flow Chart



Annex B Defra's Projected Compliance Dates

Zone Ref	Zone Name	Max NO_2 Concentration in Zone	Defra's Expected Compliance Date	Expected Compliance Date Based on TG(09) Projections of the Max in Zone
UK0001	Greater London Urban Area	136	>2030	2030
UK0002	West Midlands Urban Area	74	<2030	2023
UK0003	Greater Manchester Urban Area	74	<2025	2023
UK0004	West Yorkshire Urban Area	75	<2030	2023
UK0005	Tyneside	72	<2025	2022
UK0006	Liverpool Urban Area	79	<2025	2025
UK0007	Sheffield Urban Area	65	<2020	2020
UK0008	Nottingham Urban Area	63	<2020	2020
UK0009	Bristol Urban Area	56	<2020	2018
UK0010	Brighton/Worthing/ Littlehampton	48	<2020	2015
UK0011	Leicester Urban Area	66	<2025	2020
UK0012	Portsmouth Urban Area	64	<2020	2020
UK0013	Teesside Urban Area	74	<2020	2023
UK0014	The Potteries	72	<2020	2022
UK0015	Bournemouth Urban Area	55	<2020	2018
UK0016	Reading/ Wokingham Urban Area	53	<2020	2017
UK0017	Coventry/Bedworth	62	<2020	2019
UK0018	Kingston upon Hull	67	<2020	2020
UK0019	Southampton Urban Area	72	<2020	2022
UK0020	Birkenhead Urban Area	48	<2015	2015
UK0021	Southend Urban Area	57	<2020	2018
UK0022	Blackpool Urban Area	34	2010	2010
UK0023	Preston Urban Area	41	<2015	2012
UK0029	Eastern	66	<2020	2020
UK0030	South West	65	<2020	2020
UK0031	South East	64	<2025	2020
UK0032	East Midlands	65	<2025	2020
UK0033	North West & Merseyside	80	<2025	2025
UK0034	Yorkshire & Humberside	68	<2020	2021
UK0035	West Midlands	73	<2020	2022
UK0036	North East	70	<2025	2021

Annex C Scheme Air Quality Action Plan Template

Scheme Name
Scheme Air Quality Action Plan

1 Scheme Description.

- *Include a brief description of Scheme*

2 Overview of Scheme Impacts

Include the following;

- *Description of Schemes Impacts;*
- *Description of the impacts of the scheme over the study area (whether there are areas of specific concern, areas worse than others)*
- *Include information on EU Limit Value Compliance;*
- *Include information on Significance of the scheme as reported in the air quality assessment (EAR/ES);*
- *A figure illustrating the single or combination of mitigation measures and the area they apply to.*

3 Mitigation Measures.

Outline the mitigation measures that have been considered as part of the action plan. The measures should be split dependent on the lead authority;

- HA
  Summary of Measures

- LA
  Summary of Measures

- Government
  Summary of Measures

4 Summary.

Provide a summary based on professional judgement as to whether the implementation of the air quality action plan would be effective to reduce the significance of the scheme refer to both compliance and AQS Objectives.

Appendix 1 - Summary SAQAP Outcomes

Includes the following:

- *Table of Mitigation Measures*
- *Cross reference from this Table to the Figure in Section 2, highlighting which measures apply to the various areas in the air quality study area.*

Action Reference.	**Action Plan Measure.**	**Lead Authority (i.e. Highways Agency, Government).**	**Viability of Measure.**	**Effectiveness of Measure (e.g. requires further research to quantify).**	**Cost to Implement.**	**Timescale for Measure to Become Effective is the measure time dependent.**	**Likely Reduction in Concentration as a result of Measure.**

Appendix 2 – Evidence Base for Mitigation Measures

Includes the following:

- *The evidence to support the effectiveness of the mitigation measures set out in Appendix 1.*
- *Statements and evidence must be provided for each of the mitigation measures set out in Appendix 1.*