‘Planning for Air Quality’ – Supplementary Notes for Assessors

Background and Purpose

The guidance published in 2015 by Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM), and updated in January 2017, has been used extensively by many people working within the planning system. It was intended to fill an obvious gap in land use planning guidance and not to replace, or compete with, any other guidance from Government or Government agencies, such as National Highways. It provides assessors with a means of evaluating air quality impacts arising from new development within the legislative framework. In this respect, it has been largely successful, although realistically it can never satisfy everyone’s needs in all cases.

With the benefit of hindsight and the feedback generated by users over the intervening period, it is apparent that there is merit in providing some explanation behind the concepts underpinning the guidance. By providing these supplementary notes, it is hoped that users can apply the guidance with greater confidence and understanding, whilst avoiding some common mistakes. There is no intention to revise or amend any of the substance within the guidance.

These notes should be seen as a ‘companion document’ to the guidance and are intended to add insight to the application of the principles and methodology set out in the planning guidance.

For convenience, the commentary follows the sequence of material set out in the guidance document.

Planning Policies and Legislation

The planning system and decisions on consent for many new developments are inherently contentious. In addition, planning legislation and policies at the national level are frequently revised, often quite drastically, in an attempt to shift outcomes on the extent or pace of development and to change the way in which decisions are made. Housing is a major consideration in these revisions. This constant flux present in the planning system can make guidance seem quickly out of date in some points of detail, but the principles are usually invariant. The assessment of any new development and its impacts should be an objective one within the context of the prevailing air quality standards[1], or equivalent thresholds where appropriate.

Paragraph 4.3 reminds the reader that, ‘*In arriving at a decision about a specific proposed development the local planning authority is required to achieve a balance between economic, social and environmental considerations*’. This paragraph also goes on to list four aspects of air quality changes that should be considered. One of these is *’whether the development will introduce new public exposure into an area of existing poor air quality*’. This could easily be neglected if a development under consideration is not associated with substantial emissions of its own; such an omission should be avoided.

Making a sound judgement on the balance of the considerations described above will never be an easy one and the prescription for it is not defined in legislation. The guidance seeks to

[1] The word ‘standard’ is used here to refer to any legal instrument such as a limit value or objective value, chiefly to avoid having to specify all such regulations on each occasion.

equip the assessor with a means of making a judgement for air quality that enables a decision maker to understand how air quality contributes to this balance.

Commentary on the reasoning behind the methodology for assessing impacts is described in a later section of these notes, but there is a key relationship with air quality standards in that, the methodology has to be rooted in some recognisable benchmark measure of air quality. The aim is to make a judgement on the effect of a development on local air quality (and, the effect of local air quality on the development) in a way that decision makers in the planning system can understand and have confidence in. Over time, air quality standards may change; in this case, users of the guidance can simply adopt the new standards in making any assessment of impacts.

The guidance should also be consistent with national planning policy. A Planning Inspector, for example, will need to be first and foremost assured that a development will not cause any non-compliance or delay in compliance with a legal air quality standard, or be a major contributor to any non-compliance. Questions of harm to human health or habitats are more subtle and, in any event, are dealt with by other means in an air quality context. The EPUK/IAQM planning guidance very deliberately avoids these considerations, as it does odour and construction dust.

It has become increasingly acknowledged that land-use planning can have a substantial influence on local air quality, sometimes through the unintended consequences of an accumulation of poor decisions over time. Conversely, it should be possible to improve air quality over the long term by a sequence of good decisions. Paradoxically, however, local planning policies rarely specify measures to improve air quality directly. Paragraphs 3.1 and 4.16 emphasise the value of sound and direct policies on air quality as a means of making the planning system deliver decisions that account for air quality.

It must be acknowledged, however, that the local air quality experienced by people is a consequence of many factors, some of which are related to transport and therefore an indirect outcome of land-use planning. Local plans and strategic plans have to be far sighted to account for all of these complex interactions.

‘**Better by Design**’

This section of the guidance is an explicit recognition of the limitations inherent in local plans and policies to deliver better air quality and the frequent absence of mechanisms to encourage or demand lower emissions. The intention behind this section is to act as a spur to local authorities for the development of policies and guidance on new development that is inherently less polluting, either directly or indirectly. Development control is not sufficient by itself as a means of improving air quality in a locality; it merely acts as a ‘brake’ on development that is excessively polluting. Ideally, it is a more progressive approach if development can be brought forward that is less polluting than would otherwise be the case. As the guidance notes at paragraph 2.4, new development presents an opportunity to reduce overall emission in an area by installing new, cleaner technologies and implementing sustainability policies. Embedding sustainability is easiest in new developments, as distinct from ‘retrofitting’ in existing buildings.

A significant stimulus for the introduction of policies requiring better design in development is the need to make all development as good as it could be and thereby minimise the cumulative impact of many developments that are individually minor in terms of their air quality impacts but perhaps significant in total. This perceived problem is often cited as a deficiency of the planning guidance and it is an aspect that the planning system is often ill equipped to address, because it tends to consider each planning application in turn. If all new development was obliged to be better in emission performance terms than merely

meeting a minimum standard, then some of this anxiety over cumulative development could be alleviated.

The ‘better by design’ section was also aimed at encouraging developers to bring forward proposals that recognise their responsibility to minimise air quality impacts and to integrate these considerations at an early stage in the design process, rather than amending the design at a later stage to mitigate impacts, when it is often more difficult. This is particularly relevant for consideration of exposure in developments to existing air quality, where opportunities should be explored to improve the air quality or reduce.

Air Quality Assessment

Section 6 of the guidance provides a pathway for describing the *impacts* on air quality of a new development. In many ways this is at the heart of the guidance. Assessors need to be aware that this pathway describes a logical sequence of evaluating emissions (or new exposure) and then air quality impacts. A highly simplified summary of this sequence of key elements is as follows:

- A judgement on the *need* for an assessment based on proxies for the magnitude of pollutant emission and also the potential for human exposure;
- A quantification of the *magnitude* of the air quality impacts; and
- A description of the *severity* of the air quality impacts.

At the end of this process, the assessor will have a description of the impacts expressed in terms of their severity at each location where the calculation has been made. It is crucial to recognise that this is not immediately an expression of the *significance* of the *effect* on local air quality. (This comes later.)

The distinction between the severity of an impact and the significance of effect is a deliberate one and arises in part because the guidance is designed to complement the Environmental Impact Assessment (EIA) regulations. Fundamentally, these regulations require an assessment to reach a conclusion on the significance of effect on the environment. In this context, significance is binary; an effect is significant, or it is not significant. (This aspect is explored in further detail in a later section.)

Severity of impact and *significance of effect* should not be confused and nor should they be used interchangeably. Unfortunately, these terms are often used as synonyms for each other, which erodes an understanding of the way in which the guidance is properly used.

The assessment process begins with a decision on whether an assessment of any kind is required and whether this should be a Simple Assessment or a Detailed Assessment. The planning guidance provides screening criteria that are intended to enable the assessor, or the planning authority, to make this judgement. The guidance makes clear that these screening criteria are precautionary (paragraph 6.10) and they should not be applied too rigidly although it notes that there are other situations, not listed, which could trigger the need for a detailed assessment; an example would be where a development results in a street canyon that restricts dispersion. It also reminds the reader that the objective of this exercise is to identify situations where there is a *possibility* of a significant effect on the local air quality or whether the introduction of new exposure to locations of poor local air quality is appropriate. It was not the intention in publishing the guidance to encourage the practice of assessment for its own sake, although as ‘better by design’ should be integral to any application, then all development proposals should consider the opportunities of reducing emissions by good design, potentially without the need for a detailed assessment. It is sometimes observed that many assessments made using the methodology in the planning guidance result in a conclusion of no significant effect, with negligible impacts. If this is true,

then it is also probably true that some of these assessments are being undertaken without a clear need and on an overly precautionary basis.

The approach to, and methods for, quantifying the magnitude of impacts are typically well understood by air quality professionals and this aspect of assessment does not require further explanation. There is, however, always some scope for an acknowledgement of the uncertainty in any predicted concentration in any assessment.

Of much greater interest is the translation of magnitude of predicted change into a description of severity (referred to in the guidance as 'impact descriptors'), which has been defined in the guidance as being dependent on a combination of factors relating to the magnitude and the baseline concentration, set in the context of the relevant air quality assessment level (AQAL).

This step is the one that generates the most debate, because the method of assigning descriptors to the severity of impact inevitably contains an element of subjectivity through the use of words, despite being intended as an objective means of establishing the severity of an impact. Alternative models for the description of severity could exist and will have their own advocates. The model adopted by the guidance, and set out in Table 6.3, is based firmly on the concept that the severity must, in some way, be related to an 'assessment level' that commands widespread recognition as an indication of harm, both in terms of the new ambient concentration with the development and the amount by which the overall concentration changes. Raising the concentration of a pollutant above a threshold concentration is an unwelcome outcome in planning terms, as is contributing an amount of additional concentration that is excessive, in relation to the assessment level. These should be uncontroversial concepts; the debating points centre on the precise numerical derivation of the descriptors.

Some observers have commented that many pollutants have no lower threshold of harm (to human health) and therefore the methodology ought not to be related to an assessment level, but should simply be related to the magnitude of the change in concentration. (The guidance partly acknowledges this aspect at Paragraph 6.31). There is some merit in this point, although the magnitude of change must in some way be expressed as a function of an AQAL, as this is the only reasonable measure of harm that exists.

In practice, the planning system requires some reference to an assessment level, An air quality standard is often selected as an appropriate assessment level. In particular, the national policy framework highlights that planning applications which affect Air Quality Management Areas require greater scrutiny. In the current and recent pollution climate, this means that places where annual average NO_2 concentrations are close to, or above, 40 $\mu g/m^3$ are more sensitive in planning terms and the severity matrix in Table 6.3 reflects this. In these cases, the impact severity descriptor for NO_2 impacts is either 'moderate' or 'substantial', except when the change is less than 0.4 $\mu g/m^3$ and the overall concentration is less than 41 $\mu g/m^3$, in which case it is 'slight'.

To date, most assessments have focused on impacts related to NO_x emissions. In the future, this will be less likely to be the case, as new combustion processes are increasingly precluded by decarbonisation and the vehicle fleet is gradually electrified. This will place greater emphasis on particulate matter emissions and on $PM_{2.5}$ in particular. This poses some potentially interesting questions on the appropriate air quality assessment level (AQAL).

For NO_2, typical urban annual average concentrations have been at or near 40 $\mu g/m^3$ in many places, i.e. close to the legal standard. In contrast, the corresponding value for the $PM_{2.5}$ standard is much higher than typical urban concentrations. Arguably, this is an

anomalously lax legal standard, giving rise to pressure for the use of the WHO guideline instead. As of 2021, the WHO guideline for the annual mean is 5 µg/m^3, a value *lower* than observed background concentrations for much of the UK.

The environmental target of 10 µg/m^3 proposed by Defra under the Environment Act, to be achieved by 2040, might be used as the AQAL instead. The IAQM has no formal position on the appropriate value for the AQAL. The essential point is that the planning guidance provides an assessor with the latitude to choose the appropriate value for the circumstances in which the assessment is being made. It could be, for example, that a local authority has a policy for use of the previous WHO guideline of 10 µg/m^3. The outcome of an assessment, in terms of the severity of the impact, will encompass a large range, depending on whether the AQAL is taken to be 20, 10 or 5 µg/$^{-3}$. It may be that it is valid in some circumstances to calculate the severity of impact for $PM_{2.5}$ emissions using two different AQALs, so that decision makers can understand that there is no single 'correct' expression of this metric.

Significance of Effect

Reaching a conclusion on the significance of effect on local air quality in relation to human exposure is the culmination of an assessment. It should be noted that such a conclusion does not, of itself, provide any conclusion on the significance of health effects.

There are two different circumstances in which the conclusion of the effect on local air quality at locations of human exposure is presented and the guidance can be used flexibly for each of these.

For those air quality assessments carried out as part of EIA, an assessor will set out the criteria for defining significance of effect in a precise manner within a methodology section. Many disciplines in EIA define significance according to the boundary of 'slight' and 'moderate' impacts, i.e. crossing this boundary for a given receptor causes the effect to move from 'not significant' to 'significant'. The guidance is therefore easily adapted for use in this way and would be quite 'rigid' in the outcome for each receptor where it is evaluated. This approach is similar to that used for other disciplines, e.g. noise, although the boundary for 'significant'/'not significant' effects may occur between different grades of severity. There is no agreed consensus in air quality where this boundary should occur, and it is for the assessor to justify where this should be. The guidance does not explicitly state that this approach is an option for EIA, but it was also not written with an intention of precluding this approach. Indeed, this would be a conventional way of defining significance within EIA, i.e. for each receptor considered.

In drafting the guidance, the working group recognised that many air quality assessments are undertaken outside of EIA requirements and that this allowed more scope for the assessor to apply professional judgement on the significance of effect. One overall conclusion on significance, taking into account all relevant factors, might also be considered to be more useful to decision makers who are not familiar with air quality. Section 7 of the guidance explains what some of these factors might be. It draws the assessor's attention to the fact that it may be more meaningful to consider the overall effect on local air quality, as experienced by the people affected, rather than a series of individual receptors, as might be the case in EIA.

In either situation, the commentary on significance might also benefit from a consideration of the uncertainty present in the predictions of the future baseline concentrations and the magnitude of impacts.

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