

Mitigation of Development Air Quality Impacts

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The IAQM issues Position Statements on matters that could affect the way in which Members carry out their professional tasks and on air quality topics and issues where the IAQM can provide a unique perspective from which to give a professional opinion.



The issue

Members are able to predict the pollution concentrations from/at individual new developments with an acceptable degree of precision in their Air Quality Assessments. Members compare these numbers with AQS objectives or limit values to inform their professional judgement on the impacts. In those situations where a significant adverse impact is predicted, mitigation usually needs to be applied. As one example, if exposure of new occupants to NO₂ at a representative receptor within the new development is forecast to be 45 µg m⁻³, then the aim should be to reduce the level to below the 40 µg m⁻³ objective.

For point sources, we often have good evidence/data on the abatement efficiency of proposed emissions controls, allowing us to be reasonably certain in our prediction of the residual impact after implementation of the mitigation for the individual development. However, for non-point sources of pollution there is much less quantitative evidence on the efficacy of the various mitigation options available. This makes it more difficult to confidently recommend a mitigation solution for a new development that would, for example, reduce the 45 µg m⁻³ by at least 5 µg m⁻³ at the point of receptor exposure. Yet members must still arrive at a conclusion on the residual impact in their Air Quality Assessment.

This raises a number of questions for Members assessing the operational impacts of individual general development schemes (e.g. residential, commercial, retail, etc), where distributed sources such as road traffic are often the main issue:

- How do we weigh up the likely efficacies of different mitigation solutions in removing the “excess impact”, when there are few robust data sources available to allow a comparison on a like-for-like basis?
- Where there are several alternative mitigation/control options, how should we choose?
- Should some mitigation approaches be used in preference to others, or are all born equal?
- Should all possible mitigation options be applied, or just a selection; and if the latter, on what basis do we choose the right mix?
- What is and is not within the developer’s power to influence?
- And how far should a developer reasonably be expected to go?

The National Planning Policy Framework gives no specific detail on air quality mitigation for general development purposes (only for minerals development under para 144). The national Planning Practice Guidance does provide some high-level general advice, noting that mitigation should be proportionate to the likely impact (suggesting a cost-benefit balance) and listing some examples of mitigation; however, it provides no guidance on how the most appropriate mitigation option(s) should be chosen for a given application, or on the efficacy of the different mitigation options.

The IAQM position on this issue

The IAQM position is that the appropriate mitigation solution for the operational air quality impact of any given individual general development scheme should be principle-led rather than specified by detailed prescription.

The IAQM recommends that the following basic hierarchy principles (drawn from similar well-established mitigation hierarchies used for EIA development¹ and for dealing with pollution exposure in workplace/occupational situations^{2,3}) be used as the basis for mitigating the operational air quality impacts associated with general development schemes. This hierarchy is suitable both for impacts caused by a potentially polluting new development, and for the impact of exposure of new occupants of a development proposed in an area of existing poor air quality.

- I. Preference should be given to **preventing or avoiding** exposure/impacts to the pollutant in the first place by eliminating or isolating potential sources or by replacing sources or activities with alternatives. This is usually best achieved through taking air quality considerations into account at the development scheme design stage.
- II. **Reduction and minimisation** of exposure/impacts should next be considered, once all options for prevention/avoidance have been implemented so far as is reasonably practicable (both technically and economically). To achieve this reduction/minimisation, preference should be given first to:
 - a. mitigation measures that act on the source; before
 - b. mitigation measures that act on the pathway; which in turn should take preference over
 - c. mitigation measures at or close to the point of receptor exposure... ►

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...all subject to the efficacy, cost and practicability of the available solutions. In each case, measures that are designed or engineered to operate passively are preferred to active measures that require continual intervention, management or a change in people's behaviours.

- III. **Off-setting** a new development's air quality impact by proportionately contributing to air quality improvements elsewhere (including those identified in air quality action plans and low emission strategies) should only be considered once the solutions for preventing/avoiding, and then for reducing/minimising, the development-specific impacts have been exhausted. Even then, offsetting should be limited to measures that are likely to have a beneficial impact on air quality in the vicinity of the development site. It is not appropriate to attempt to offset local air quality impacts by measures that may have some effect remote from the vicinity of the development site.

Within II (Reduction and minimisation), the efficacies and costs of the different mitigation options should be taken into account; as more research and operational data become available on these, the use of this hierarchy as a selection tool can be expected to move from a mainly qualitative towards a more quantitative basis.

References

¹ Institute of Environmental Management & Assessment (IEMA), *Guidelines for Environmental Impact Assessment* (2004).

² The Management of Health and Safety at Work Regulations 1999, Regulation 4.

³ COSHH Regulation 7, *Prevention or control of exposure to substances hazardous to health*.

About the Institute of Air Quality Management (IAQM)

The IAQM aims to be the authoritative voice for air quality by maintaining, enhancing and promoting the highest standards of working practices in the field and for the professional development of those who undertake this work. Membership of the IAQM is mainly drawn from practising air quality professionals working within the fields of air quality science, air quality assessment and air quality management.

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Change Log

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Clarification throughout that application is for individual developments.

Insertion of additional final two sentences in Point III of the table to highlight that offsetting benefits should apply to the vicinity of the development.