

Guidance Note

Air Quality and Land Use Planning

**Environmental Services
Carlisle City Council**

**CARLISLE
CITY COUNCIL**



www.carlisle.gov.uk

1 Introduction

Carlisle City Council is keen to encourage, support and promote high quality development in the area.

In line with Government Planning Policy Guidance and the City Council's own mission statement we particularly encourage applications that adhere to sustainable development principles, part of which is minimising environmental impact. The information gained on the impacts on air from major planned developments is an important tool to help show that environmental impacts are being considered and where possible mitigated.

Where an air quality impact assessment is required as part of a planning application this document sets out suggested methods of undertaking such an assessment, and is intended for developers as well as providing information for City Council planning officers.

It is not the case that for every planning application submitted, there will be a need for an Air Quality Assessment. A set of trigger criteria has been developed to assist in deciding when air quality information may be required. Even if one or more triggers are met, it does not mean that an Air Quality Assessment will automatically be required, each application will be screened and assessed on its own merits.

The advice contained within this City Council guidance is aimed primarily at applicants where proposed developments may affect air quality through attracting significant numbers of road vehicles. It may also be relevant where there are significant emissions from a particular industrial/commercial process.

Applicants that require assistance in defining potential air quality impacts from any proposed development should read this guidance and may then wish to contact the Planning Department and or Environmental Quality Services of the City Council.

All Environmental Impact Assessments (EIA) projects will normally require a detailed study of the effects of the development on air quality, particularly where the development may impact on air quality in an Air Quality Management Area. In such cases, the approach set out in this guidance note should be followed.

Most proposals for commercial or industrial premises that have the potential to emit pollution will normally require an assessment of their air quality impact under Environmental Impact Association Regulations. Those that do not may still require an assessment as part of a permit application under the Integrated Prevention Pollution and Control Regulations. The same assessment can be used to help determine the impact of the development on air quality.

2 Why is the City concerned about Air Quality

Clean air is an essential ingredient of a good quality of life. People have a right to expect that the air they breathe will not harm them.

New developments should seek to prevent worsening the quality of the air and ensure that any emissions they produce do not result in an exceedance of the objectives detailed in the Air Quality (England) Regulations 2000 as amended.

Applications for planning consent that give rise to concerns regarding air quality will be assessed by the Environmental Protection Services Division of Carlisle City Council. It is advised that discussions should begin with Carlisle City Council's Development Control team and Environmental Protection Services as early as possible. This initial contact allows a team approach to be utilised for the assessment of the application and assists in alleviating delays and difficulties.

Where a development incorporates an A(1) installation that falls under the IPPC Regulations, early contact should also be established with the Environment Agency. Potential A(2) installations should also contact Environmental Protection Services.

3 What is Air Quality like in Carlisle

The Government produced the Air Quality Strategy for England, Scotland, Wales and Northern Ireland in early 2000, and provided objectives for seven pollutants recognised as being important with regard to human health effects. The Air Quality (England) Regulations 2000 as amended put these objectives into legislation.

In order to determine whether or not the objectives will be achieved by their due dates Carlisle City Council as well as every other Local Authority has carried out a Review and Assessment on air quality.

When the City Council assessed the air quality within Carlisle the general result was that in most parts of the city it is good and was below the Government's health based objectives for the specific air pollutants. The conclusion of the last round of Review and Assessment process for Carlisle is that six out of the seven pollutants specified by the Government are below their objectives.

The one pollutant out of the seven specified by the Government that is unlikely to meet its objectives by its target date is nitrogen dioxide. Nitrogen dioxide has two objectives that must be met by 31 December 2005. These relate to one hour and one year periods. It is only the single year objective that is unlikely to be met. At the present time this applies to only one part of the city, at points along the A7 from Hardwick Circus to Junction 44 of the M6 Motorway.

Nitrogen dioxide comes from some industrial processes, but mostly from road traffic exhausts. The area where the annual objective will be exceeded in 2005 has high densities of traffic.

As a result, the A7 stretching from Hardwicke Circus to Junction 44 of the M6 has been designated an Air Quality Management Area (AQMA). The City Council in partnership with a variety of interested parties, is required to devise and implement an Action Plan so that air pollution is reduced and the air quality objectives are met.

Developers should note that a Detailed Review and Assessment is currently being undertaken in several other locations within the city where the nitrogen dioxide annual mean objectives is at risk of being exceeded, due to road traffic emissions. A Detailed Assessment Report will be available in early 2006. The outcome of this process may cause new AQMAs to be created.

Developers should note that the Air Quality Review and Assessment process is continuous. The outcome of the detailed assessment and future review and assessments may alter the size of the Air Quality Management Area or cause new Air Quality Management Areas to be created

4 What should I do if my application could adversely affect Air Quality

Carlisle City Council wishes to protect air quality within its boundaries and be mindful of any adverse impact on neighbouring communities, not just in the designated AQMA.

However applicants should note that any proposed developments that could adversely affect air quality does not inevitably mean a prohibition on the development.

Cases will be decided on merit, taking full account of all relevant consideration such as approved planning policies, local circumstances, government guidance, employment and economic benefits etc, so that a balanced assessment can be made. Applicants should also note that supporting air quality information may be required and this may take the form of an air quality assessment.

Carlisle City Council will have due regard to the findings of its Review and Assessment of Air Quality, and there will be occasions where an application is refused where the adverse impact of development on air quality is likely to be significant.

If any of the criteria listed in table 1 are met it is likely that an Air Quality Assessment will be required, in addition applications where air quality could be a material consideration include:

- Emissions arising directly or indirectly from the development causing the designation or extension of an AQMA.
- An application that would conflict with or render unworkable any air quality action plan.
- All new or extended industrial developments that will require an authorisation or a permit that fall under Part 1 of the Environmental Protection Act 1990 or the IPPC Regulations.

5 What information could I be asked to provide?

The two broad definitions of developments likely to affect air quality are:

- Industrial and /or commercial developments
- Developments that generate significant extra traffic

All applicants should note that future supporting air quality information might be required when a number of individual applications are received within an area. By themselves, these application may not have a significant impact on air quality, but the combined effect of emissions from the development may be significant.

Industrial/Commercial Developments

Proposed industrial/commercial developments that will produce emissions regulated by the Environment Agency or by the City Council under the Environmental Protection Act should follow the guidance outlined in the Government Planning Policy Guidance Note 23.

If an application could fall within these regulatory regimes, it is advised that discussions begin with Carlisle City Council's Development Control Team, Environmental Protection Services and the Environment Agency as soon as possible.

It should be noted that these types of development may also generate significant increases in road traffic and could fall into the category below.

Developments that generate significant extra traffic

Any proposed developments that fall into any of the categories listed below in Table 1 will trigger the likely requirement for an Air Quality Assessment.

The decision to require or not require an Air Quality Assessment will be decided after the application has been screened. The need for this initial screening by the Environmental Protection Services applies if the application meets the criteria anywhere in the City Council area, not just with an Air Quality Monitoring Area.

The planning officer dealing with the application will inform the developer or agent of the outcome of the screening. If the application has been the subject of pre application discussion with officers of the Council, the proposal should already have been screened to determine whether an Air Quality Assessment is needed.

Table 1

Trigger Criteria for Air Quality Assessments

- (i) residential development in excess of 100 units; or
- (ii) employment uses in excess of 5,000 m² gross floorspace; or
- (iii) other developments in excess of 1000m² gross; or
- (iv) hotel developments in excess of 100 bedrooms; or
- (v) caravan or similar holiday units in excess of 100 units; or
- (vi) any developments that either generates in excess of 100 heavy goods vehicles per day or 100 vehicles movements in any hour; or
- (vii) any development that materially adds to local congestion; or
- (viii) any developments than may impact on the trunk road network.

6 What should be included in an Air Quality Assessment

Where a development requires an air quality assessment this should be undertaken using an approach that is robust and appropriate for the scale of the likely impacts.

One key principle is that the assessment should be transparent and thus all input data used, assumptions made and the methods applied need to be detailed in the report.

The basis of the assessment should be to compare the existing situation with that following completion of the development and determine the changes in air quality expected. The assessment will also need to compare predicted pollutant concentrations with relevant air quality objectives and limit values, requiring the assessment to be consistent with the targets years for the limit values and objectives. There are three basic steps in an assessment:

- a) Assess the existing air quality situation in the study area.
- b) Predict the future air quality without the development in place.
- c) Predict the future air quality with the development in place.

Information required for the first two parts of this assessment may be available from the local authority's own air quality Review and Assessment Reports. It would not be expected that all pollutants detailed in the Air Quality Regulations would require an assessment. A justification should be provided for which pollutants require an assessment and details provided in the assessment report of the relevant limit values and objectives.

The report prepared detailing the results of the assessment should contain the following information.

- a) Relevant details of the proposed development. A description containing information relevant to the air quality assessment should be provided, although a fully detailed description of the proposal is not required. This should identify any on site sources of pollutants and an overview of the expected traffic changes or the changes in emissions from the site. Local receptors should be identified, including residential and other properties, locations where people are likely to be exposed for the appropriate averaging time (dependent on the air quality objective being assessed against) and ecologically sensitive areas.

- b) Description of the relevant air quality standards and objectives. Air quality assessments will be carried out to assess compliance with UK air quality objectives.
- c) Details of the assessment method. This section should provide details of the methods and the input data used for the assessment and any assumptions that have been made. Where a commonly applied method is used, a detailed description of the model is not required. Information should also be provided concerning the following.
- Traffic data used in the assessment
 - Emissions data
 - Meteorological data
 - Background pollutant concentrations
 - Other relevant input parameters used.
- d) Results of the modelling assessment. Where suitable local monitoring data are available, details of model verification should also be supplied. Model verification will be important, especially where concentrations are close to the objective. Models that work well for motorways often under-predict for congested urban roads and vice-versa.
- e) Summary of the assessment results. This should include the information required to assess the significance of the impacts of the development. As a minimum requirement, this should include:
- The changes in emissions to air as a result of the development, by source sector, pollutant and time.
 - The impact that these emissions will have on ambient air quality.
 - Where possible, and particularly in the case of residential developments, the likely changes in population exposure over time.
 - Any exceedances of the air quality objectives brought about as a result of the development, or any worsening of a current breach (including their geographical extent).
 - Where a local authority has developed an air quality action plan, or has adopted a local air quality strategy, the assessment should detail

whether any of the actions contained within these will be directly compromised or rendered inoperative by the development.

It is not the case that all proposed developments will require detailed source-apportionment to be undertaken, as prescribed in the first bullet point. For example where a development includes a large car park, it may not be necessary to know the contribution between specific vehicle classes to the overall contribution. Instead an understanding of the contribution of the car park to local annual mean pollutant concentrations experienced would be more appropriate.

Agreement of datasets and methodologies

Before undertaking an assessment, every effort should be made to obtain agreement between the City Council's planning services, and whoever is to undertake the assessment of the appropriate datasets and methodological data to be used. This will include the meteorological data to be used, background concentrations, traffic flow, model type etc. As a default, the methods and the datasets used should be the same as, or as close as possible to, those used in the preparation of the local authority's own review and assessment report. In all cases it is good practice to discuss the approach with the local planning authority to ensure that it will meet their requirements.

It is important to note that the Updating and Screening Assessments and Detailed Assessments undertaken by local authorities, as required by the UK government and Devolved Administration, do not constitute air quality assessments for development purposes. The assessment processes addressed within the local air quality management policy and technical guidance is intended for local authorities to assess local air quality relative to air quality objectives only. The guidance is not appropriate for determining likely impacts from proposed developments.

Selection of modelling methodology

A wide range of assessment methods are available for air quality assessment, however, these can be broadly broken down into three main types:

- a) Screening methods. These are generic approaches based on a limited number of variables that are intended to assess whether an air quality problem exists and if a more detailed assessment is required. Such methods are also very useful to compare various scheme options. The DMRB screening method is the only screening method commonly applied for road related impacts in the UK. Screening models, such as SCREEN3 and ADMS Screen are also available for industrial sources.
- b) Local scale dispersion models. The next level of assessment is the use of local scale dispersion models where only the local road network is included in the model, or the specific industrial source. The background pollutant concentrations in the area are added to the calculated values to predict the total pollution concentrations at each location. Typical examples are ADMS-Roads, ADMS-Urban, the Caline group of models and AERMOD.
- c) Regional scale dispersion models. Regional scale models include pollution sources over a wide area (several square kilometres) and usually only take background pollutant concentrations from rural areas outside of the model domain. Typical examples are ADMS- Urban, and AIRVIRO.

The selection of the type of assessment method will depend on the likely scale of the air quality impacts and the features of the development. Screening level methods are relatively quick to apply and can be used as an initial first step to identify whether further more detailed modelling is required. Where predicted changes in traffic or emissions are small (say <10%) a screening method will normally be adequate. In many cases, particularly where the pollutant concentrations in the areas are not near to air quality limit values and objectives (for example <75% of the objective) then a screening method would be appropriate for larger changes in emissions.

Screening methods do have limitations, they are based on simplifications of detailed modelling approaches and are not suitable where the proposed development or the local area contains features that are not included in the screening methods. In addition, in areas where air quality may be approaching or in excess of relevant standards then a more detailed approach will be required

unless changes in emissions are likely to be very small. In these cases a local dispersion modelling study would normally be required.

Regional scale modelling will only be required where the study area is large (ie where the proposed development is large) or where it affects a wide area eg traffic flows are affected over a wide area. For planning, such situations are relatively rare and it would not normally be expected that such a modelling approach would be required.