1 Introduction

Everyone has a right to live, work and relax in a healthy environment. Air quality is a measure of how good our air is in terms of the type and quantity of pollution contained within it. Good air quality is an important factor in protecting people’s health.

Our modern lifestyles mean that pollutants can be produced depending on how we travel, consume goods and heat our homes. It is important that we do everything we can to reduce our emissions and to prevent people being exposed to unacceptable levels of pollution.

The planning system can help us to manage our local air quality. The Environment Act 1995 places a duty on local authorities to review the quality of the air within their area. Where it is predicted that the UK Air Quality Objectives are unlikely to be met the local authority must declare an Air Quality Management Area (AQMA) and develop an action plan to improve air quality in that area.

The purpose of this guide is therefore to:

- To help to prevent people from being exposed to unacceptable levels of air pollution.
- To prevent the need to designate new AQMA’s.
- To prevent an increase of pollution, particularly within AQMA’s.
- To ensure that air quality is considered appropriately in the decision making process.
- To assist planners in dealing with air quality considerations in applications.
- To assist developers in assessing air quality in their application.
2 Planning Policy on Air Quality in Bristol

Air quality is a material planning consideration. Air quality issues must be given due weight when determining an application. An appropriate assessment of air quality must therefore be included with any application that may adversely affect local air quality or be significantly affected by existing levels. It is vital that the applicant considers the need for any assessment before any application is submitted. Failure to include appropriate information on air quality could result in an invalid application or in the application being refused or delayed. The documents listed below contribute to and underpin the overall policy on planning and air quality in the city.

Local Plan

The adopted Bristol Local Plan provides the framework for taking local decisions and it includes a specific policy (ME2) on environmental protection:

> Development, which has an unacceptable impact on the environmental amenity or wildlife of the surrounding area by reason of, fumes, odour, dust or other forms of air, land or water pollution will not be permitted.

BDF Core Strategy

The Local Plan has now been replaced by Local Development Frameworks. The core strategy (preferred options paper) for the Bristol Development Framework (BDF) of January 2008 also contains a policy BCS11, which commits the Council to:

> Implement the Joint Local Transport Plan to seek to reduce CO\textsubscript{2} emissions, and mitigate air quality impacts on population in central areas.

The Planning Protocol

Bristol City Council has developed a protocol in consultation with developers, property agents and planning consultants to clarify the process for dealing with “super major” applications. The Protocol outlines what each party can expect from the others, and what those parties can expect back in return, to achieve sustainable, accessible and viable development. The protocol includes guidance on Planning Performance Agreements (PPAs), which set out an agreed way of working between developers, stakeholders and Bristol City Council. Air quality will need to be considered at the earliest stage possible, as it will usually be a significant consideration in a “super major” development.
Validation of Planning Applications (Local List of Requirements) (draft)

This consultation document has been produced in order to assist users of Bristol City Council’s Development Control service when making applications for planning permission or other similar consents. It complements the national list of mandatory information required by government to be submitted for planning applications.

The Local List will formalise the submission of sources of information that are often either submitted anyway with applications or requested by the Council during the life of the application. The main difference is that the Local List will require the submission of specified documents before applications are registered, rather than requested after registration.

Bristol City Council’s local list is currently in a draft for consultation purposes. Once the consultation responses have been collated and taken into account, the final local list will be formally adopted by the Council and used for the validation of planning applications.

The Local List includes a section on air quality assessment that gives guidance on when an air quality assessment is required and a brief description of the purpose of the assessment. It refers to PPS 23 and the Bristol City Council web site for further guidance, which is contained in this document.

3 National Planning Policy

The following documents comprise national planning policy in relation to air quality.

Planning Policy Statement 23

PPS 23 (Planning and Pollution Control) sets out the importance of considering air quality at an early stage in the application process and gives guidance on what pollution issues should be considered when preparing local development documents and deciding individual planning applications.

Environmental Impact Assessment


National Air Quality Strategy

The national air quality strategy sets out the objectives for air quality in the UK and describes the arrangements for securing clean air through a range of measures. The relevant planning processes are summarised and links are made to other national planning guidance.
Health Impact Assessment

Potentially polluting developments in sensitive areas may be required to submit a Health Impact Assessment. This is an area of policy which is currently developing.

4 Determining whether an assessment is required

The Council has a legal duty to establish an Air Quality Management Area where it predicts that the relevant air quality objectives will not be met. An AQMA has been declared which covers the city centre and arterial routes, shown in Appendix 1.

The Local List of Requirements gives the following criteria for triggering the need for an air quality assessment:

1. major development (>10 dwellings / 1,000m² floorspace) within or adjacent to an identified AQMA
2. development in excess of 100 dwellings or 10,000m² new floorspace (or an equivalent combination) anywhere in the city
3. development that falls within Class B2 of the Use Classes Order

For the purposes of development control, a buffer zone has also been defined to clarify what is meant by “adjacent” in item 1 above. The buffer zone is intended to screen for developments which, although outside the AQMA may have the potential to affect air quality in the AQMA by virtue of their proximity to the AQMA and the effects of the development on traffic flows. Applications within the buffer zone, but not the AQMA will need to consider air quality in terms of increases in concentrations due to the development only.

If the development is within the buffer zone, but not the AQMA and not likely to generate significant emissions, an air quality assessment will generally not be required.

Applications within the AQMA will need to consider air quality, both in terms of any increase in levels and in terms of the effect of the existing levels on the development itself.

The table below illustrates the air quality screening process for applications.
<table>
<thead>
<tr>
<th>Development category</th>
<th>Development within an AQMA.</th>
<th>Development outside AQMA but within buffer zone.</th>
<th>Development outside both AQMA and buffer zone.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor works / Tree Preservation Order.</td>
<td>No action required.</td>
<td>No action required.</td>
<td>No action required.</td>
</tr>
<tr>
<td>Small residential development; limited car parking.</td>
<td>Inform Environment Team</td>
<td>No action required.</td>
<td>No action required.</td>
</tr>
<tr>
<td>Medium/large residential development. (&gt;100 dwellings or 10K square metres floor space)</td>
<td>Assessment required - Consult ESU</td>
<td>Assessment required - Consult ESU</td>
<td>Assessment required - Consult ESU</td>
</tr>
<tr>
<td>Small industrial including biomass rated at &gt;200Kw</td>
<td>Consult Pollution Control Team</td>
<td>Consult Pollution Control Team</td>
<td>Consult Pollution Control Team</td>
</tr>
<tr>
<td>Major commercial development (e.g. superstore, commercial development).</td>
<td>Assessment required - Consult ESU</td>
<td>Assessment required - Consult ESU</td>
<td>Assessment required - Consult ESU</td>
</tr>
<tr>
<td>Industrial development requiring PPC registration.</td>
<td>Assessment required - Consult ESU</td>
<td>Assessment required - Consult ESU</td>
<td>Assessment required - Consult ESU</td>
</tr>
</tbody>
</table>

The AQMA and buffer zone is shown in Appendix 1.

It is possible that air quality will need to be considered outside of the AQMA and buffer zone if the scheme is likely to result in significant emissions. Professional judgment is required to decide whether an assessment is required and the applicant is strongly advised to contact us to check. However the guidelines produced by Environmental Protection UK provide a useful first screen:

- Proposals that will result in increased congestion, a change in either traffic volumes (for example 5% AADT or peak) or a change in vehicle speed +/-10kph), or both on a road with greater than 10,000 vehicles per day.
- Proposals that would significantly alter the traffic composition in an area (e.g. bus stations, distribution centres).
- Proposals that include new car parking (>300 spaces).
- Proposals that by themselves are not likely to be significant but when consider in combination with other schemes may result in a significant increase in air quality levels.

Certain types of application will automatically be required to consider air quality under the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999. The Council can offer an opinion on whether a full assessment is likely to be required. Some industrial applications will also require the company to apply for a permit to operate.
For developments that will introduce people into an AQMA (e.g. schools, residential, care homes) the assessment should evaluate the exposure to key pollutants of these receptors. The key pollutants in Bristol are NO\textsubscript{2} and PM\textsubscript{10}. For developments that may introduce significant emissions that are within the AQMA or buffer zone, the assessment should calculate the effect of these emissions on ambient concentrations of key pollutants at relevant receptors (usually the façade of residential property) and propose suitable mitigation. There will often be projects that fall into both of these categories, e.g. large residential development.

There is no moratorium against development in the AQMA and the assessment does not have to be unduly complicated. The nature of the assessment will instead depend upon the type of application and the likely significance of the impact on air quality.

5 Assessment Approaches and Tools

The type of approach and rigour of the assessment is largely dependent on the nature of the proposed scheme and what is known about the area. A professional air quality consultancy should conduct the assessment and should contact the Environment and Sustainability Unit for advice on the detailed requirements of the assessment.

The statutory review and assessment reports of air quality in Bristol will provide a valuable source of information for air quality assessments. These are all available from www.bristol.gov.uk/airquality.

All air quality assessments will be appraised by the Air Environment Team in ESU according to the checklist provided in Table 2 of the Development Control: Planning for Air Quality guidance issued by Environmental Protection UK (formerly NSCA). If air quality assessments fall short of the standard required the relevant items will need to be revisited, which may cause a delay in determining the application.
Assessment | Situation
--- | ---
Qualitative risk assessment | All assessments should include a qualitative risk assessment to identify the likely pollutant levels with or without the scheme and the likely nature of exposure, e.g. short or long term with regard to the national objectives. The council has published various reports on air quality and these may provide valuable information. The checklists in LAQM.TG(08) can be used to discount sources. All sources discounted on this basis must be stated.
Design Manual for Roads and Bridges. | This is available to be downloaded from www.airquality.co.uk/archive/laqm/tools.php. Its use is accepted for the assessment of transport sources only, where other emission sources are unlikely to make a significant contribution. It cannot be used to assess short-term exposure. All input and output sheets must be included in the report. The authority may request more detailed modelling depending upon the results and/or the complexity of the situation. See checklist for assessment.
Road transport models | There are various road transport models available. It is vital that the applicant justifies the use of the model prior to its use.
Detailed dispersion models | It may be necessary to use a detailed dispersion model where there are a number of different emission sources, where the results from the screening models are close to or higher than the national standards, where the situation is complex or where the authority has already undertaken dispersion modelling to a higher standard to the screening model.
Monitoring | Monitoring can be extremely useful in identifying the existing levels and in validating any modelled results. Relevant existing monitoring data should be reviewed as part of the assessment. Data from the city council’s extensive monitoring network is available from the council web site and should be the starting point for an assessment.
A minimum of three months data is required and the data must be corrected to provide a 12-month equivalent to allow for any seasonal variation in air quality levels. Passive diffusion tubes can be used but these should be corrected for bias. Equipment such as chemiluminescent analysers can be hired although siting of equipment can be problematic due to the requirement for a power supply and for the site to be representative of the likely exposure. Sometimes post-development monitoring may be required as part of a planning condition.
Environmental and Health Impact Assessments | An Environmental Impact Assessment may be required depending upon whether there is likely to be a significant environmental effect. This is described in the relevant regulations but it generally takes account of the importance of the development, its locations and its likely effects. A scoping opinion may be sought from the council. The Council may request a full Health Impact Assessment if it considers that the local community may be affected by the proposed development.

6 How will the local authority decide whether the development is appropriate in terms of air quality?

The Council will consider the relative merit of the application with regard to national and local planning policy. The relative weight given to air quality will depend on the significance of any impact. The Council is committed to reducing air pollution in places where people live, work and relax but it accepts that the National Air Quality Objectives provide the basis for assessing significance. Any development that would interfere with the Air Quality Action Plan, result in a breach of a relevant objective, increase relevant pollutant concentrations in an AQMA or create a new AQMA will be treated as significant.
7 Will development be allowed within an Air Quality Management Area or where it has been deemed to be significant?

Planning Policy Statement 23 Planning and Pollution Control makes it clear that “It is not the case that all developments inside or adjacent to AQMA’s should be refused”. The Council will instead consider the relative merits of the application and it may instead choose to secure appropriate mitigation.

It should be noted that the authority would only determine the application where it is satisfied that it has sufficient information. The applicant is therefore advised to submit the information with their application.

8 What mitigation will be appropriate?

The Council will consider whether any road improvements are required, particularly junction improvements. It may restrict the layout of the building or insist on mechanical ventilation for new residential properties within an area of poor air quality. Increasingly employers may be required to develop workplace travel plans and provide facilities for cyclists and walkers. The provision of additional air quality equipment may be appropriate in certain circumstances. The developer may be required to provide air quality monitoring at their own cost and fund suitable mitigation depending on the results of the monitoring.

The Council recognises the critical role that trees and green space play as ‘air conditioners’. Urban trees positively improve air quality by absorbing gaseous and particulate pollution. In addition, well-treed environments attract wildlife, are more pleasant places to live, bring associated psychological benefits and tend to encourage inward investment. We need to see more trees planted in Bristol and this should be seen as public / private partnerships in improving neighbourhoods. In particular, there are significant opportunities to mitigate the effects of development by tree planting both on sites and close by.

Increasingly developers are being required to fund elements of low emissions strategies such as: electric vehicle charging points, city car clubs, emissions based parking schemes, emissions standards for delivery vehicles and data provision for low emissions plans (e.g. traffic counts). Guidance on this was issued by CENEX. http://www.cenex.co.uk/ in 2008.

The Council will also consider any cumulative impact when reaching its decision. If the applicant is agreeable with the proposed level of mitigation then either planning conditions can be agreed, or a formal “106 agreement” can be drawn up.
9 Bonfires and emissions control on construction and demolition sites

Fires on demolition sites are likely to be expressly forbidden by either the Environment Agency or under the building control approval. The authority can also take action under its statutory nuisance provisions. Dark smoke is also an outright offence on a commercial or trade premise, and trade premises should not burn waste.

Dust from a development site can be a major problem. It is important that you minimise the generation of dust wherever possible. A means for damping down temporary haul roads should be provided and storage compound should be located away from housing. The local authority can take action under its statutory nuisance provisions. The BRE guide “Control of dust from construction and demolition activities” ISBN 186081 6126 provides further information.

All construction sites should now have a Site Waste Management Plan Site, which should include these issues. Developers are strongly advised to adopt the Considerate Constructors Scheme as a way of reducing pollution and nuisance.

There is growing concern about emissions of both oxides of nitrogen and fine particles from Non Road Mobile Machinery (NRMM) in general and in particular NRMM on development sites. This is of special concern in London and in order to address the issue the GLA has developed Best Practice Guidance. This should be used as the basis for mitigating potential problems during the development phase of major projects.

10 Bristol City Council and Air Quality: Contacts

Air Quality:

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The CREATE Centre
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e. environment@bristol.gov.uk

Pollution Control

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Appendix 1: Air Quality Management Area and Buffer Zone
**Appendix 2: Reporting requirements for modelling assessments.**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction / scope</strong></td>
<td>This should state why the assessment is being carried and provide a description and map of the site.</td>
</tr>
<tr>
<td><strong>Qualitative risk assessment</strong></td>
<td>This should set out the pollutants to be assessed, the sources of emissions to be assessed, the receptors to be considered, the assessment year(s) and the values against which the results will be assessed.</td>
</tr>
<tr>
<td><strong>Ambient / background concentrations</strong></td>
<td>The national emissions inventory allows background emissions to be downloaded on a 1km grid square. These, however, tend to vary from locally monitored concentrations. Local data should be used where available. This should be requested from the Air Environment team at the city council. The applicant must state clearly which values have been used. Care should also be taken to avoid any element of double counting, i.e. the inclusion of background concentrations.</td>
</tr>
<tr>
<td><strong>Model description</strong></td>
<td>The choice of model should be justified and a description given.</td>
</tr>
<tr>
<td><strong>Emission sources</strong></td>
<td>The assessment must consider all relevant emission sources. This must include any approved developments, which are yet to be built, which have the potential to either affect ambient air quality levels or to introduce sensitive receptor types. Any cumulative impact must be considered.</td>
</tr>
<tr>
<td><strong>Emission parameters</strong></td>
<td>The council maintains an emission inventory, which can be supplied on request in a form that can be used for base-year dispersion modelling. Any assumed traffic growth data for the development must be fully explained and agreement must be sought as part of the Traffic Impact Assessment (TIA). Any significant changes to the TIA must result in a reassessment of the air quality assessment. Traffic data are available from the transport planning team, and should be clearly referenced in the assessment along with any calculations and assumptions used in processing the data.</td>
</tr>
<tr>
<td><strong>Industrial sources</strong></td>
<td>Any assessment of a new industrial site under the planning regime must clearly state the operating conditions that have been assumed, e.g. fuel types and loading and state whether building wake algorithms have been used.</td>
</tr>
<tr>
<td><strong>Meteorology</strong></td>
<td>The choice of meteorological data should be discussed in detail and justified, including the source of the data and the year chosen. This may need to include a sensitivity analysis of the dataset. The use of a data set greater than one year should not be used without prior agreement.</td>
</tr>
<tr>
<td><strong>NO\textsubscript{x} to NO\textsubscript{2} conversion.</strong></td>
<td>The conversion methodology can affect the results due to the uncertainty over the percentage of primary NO\textsubscript{2} and the effect of ozone. Despite these limitations the approach detailed in LAQM.TG 08 is still appropriate. The limitations of the conversion methodology should be fully accounted for within the reporting.</td>
</tr>
<tr>
<td><strong>Assessment of impacts.</strong></td>
<td>The report must clearly state in tabular form the predicted levels at the receptors with and without development scenarios. This should allow easy comparison between the scenarios and concentrations must be stated. The findings of the assessment must take account for any uncertainties and the level of uncertainty accounted for must be clearly stated. Any correction values used, e.g. year conversions must be stated.</td>
</tr>
<tr>
<td><strong>Validation</strong></td>
<td>It is important to validate the results to identify the degree of modelling uncertainty, which should be applied to the results. Data can be either downloaded from our ‘real-time’ sites and/or diffusion tubes using bias adjustment factors from the various annual reports.</td>
</tr>
</tbody>
</table>