DEVELOPMENT CONTROL: PLANNING FOR AIR QUALITY

Updated guidance from NSCA on dealing with air quality concerns within the development control process

2006 Update

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Executive Summary

This document represents an update to the guidance originally published in November 2004. The first document has been widely used by local authorities and experience of its first year of application has led to a number of revisions (see summary below).

The local planning process has an important role to play in improving air quality and reducing exposure to air pollutants. This is the case at the strategic level, through planning policy and local development frameworks, and at the local level, through development control. This report confines its attention to the development control system, whereby new developments have to be approved by the local planning authority. The report also confines itself to local pollutants regulated under the local air quality management regime and does not cover impacts to climate change gas emissions. The planning process frequently requires assessment of the air quality impacts arising from the development, followed by the introduction of measures to minimise any adverse impacts. Account also needs to be taken of the location and design of the development to avoid exposing people to existing sources of air pollutants.

The NSCA has produced this guidance to help ensure that air quality is properly accounted for in local development control processes. Particular attention will inevitably be paid to development within or close to areas formally designated as air quality management areas (AQMAs). Measures to minimise air quality impacts and exposure to poor air quality will be especially important within such areas. In certain circumstances, air quality issues within AQMAs may be sufficient for planning permission to be refused, but there must be no blanket presumption against development within AQMAs. This will be especially so where whole-borough AQMAs have been declared. Air quality concerns are not restricted to AQMAs but can have an influence on planning decisions in many other circumstances.

A key element of this guidance is advice on the significance of air quality impacts. An important distinction is drawn between the requirements for the preparation of the air quality assessment submitted with the planning application and the subsequent consideration of the air quality assessment by the planning authority. An approach is proposed to help local authority decision makers address potential air quality impacts arising from new developments. This step by step approach leads to impacts being classified as ranging from an 'over-riding consideration' through to a 'low priority consideration'. These descriptors of the air quality significance are closely linked to the need for measures to reduce the air quality impacts.

Important aspects of the local planning process, such as early and effective dialogue across local government departments, planning obligations and mitigation are also explored. This applies both in the context of developments which increase air pollutant emissions, and those which increase public exposure due to their nature and location. The latter air quality impacts, involving a ‘low polluting’ development that gives rise to new or increased public exposure by bringing people into an existing area of poor air quality, is not always given due recognition in the assessment process.

Particular attention is paid to impact management, with examples provided of measures to minimise air quality impacts, firstly during the site preparation and construction phase and then during the operational phase of developments.

Summary of Revisions to Guidance

The 2006 version of this guidance takes account of a number of new guidance documents issued since the previous version, including Planning Policy Statement 23 (PPS23), BRE guidance on dust mitigation and the draft London Code of Construction Practice. Alongside numerous changes to the text throughout the document, the following are the main changes in context following the previous version:

- Further examples of local authority decisions on air quality have been included (Box 1 in Chapter 3).
- Chapter 5 on air quality assessments now includes a short checklist to assess the adequacy of an air quality assessment, as well as a number of amendments to the criteria for requiring air quality assessments.
- A distinction has been drawn between 'significance' as set out in the air quality assessment accompanying a planning application and 'significance' as judged by the local authority when considering the assessment (chapter 6).
- Also in chapter 6, revisions have been made to the flow chart for local authority assessment of significance of air quality impacts of a development proposal. In particular, the interference with an air quality action plan has become a high priority consideration rather than an over-riding consideration. This is largely due to the difficulty in practice in interpreting what an 'interference with an air quality action plan' consists of.
- Following feedback, largely from local authorities, the section on impact management (chapter 7) has been strengthened to include examples of impact management and conditions relating to planning decisions.
- The chapter on 'Particular Concerns' in the original guidance has now been incorporated into other sections of this version.

1: Introduction to the Guidance

1.1 New developments have the potential to affect air quality. When appropriate, the planning application for the development will be accompanied by an air quality assessment[1]. Local authorities, as planning authorities, are tasked with determining these local planning applications against a whole range of social, economic and environmental criteria. Air quality may be one of the material considerations, which local authorities have a duty to take into account, as part of the local planning and development control decision-making processes.

1.2 Under separate responsibilities, local authorities are tasked with identifying locations where concentrations of specific air pollutants are predicted to exceed national air quality objectives. These locations are identified through a detailed air quality review and assessment procedure, typically involving a combination of monitoring and modelling techniques. Where exceedences are identified in locations with relevant public exposure the local authority is required to declare an air quality management area (AQMA). Across the UK, local authority reviews and assessments have resulted in the declaration of AQMAs within many urban centres, as well as in market towns in rural areas. The exceedences are usually alongside busy roads, but can also be in close proximity to specific industrial sources[2]. Local authorities typically declare their areas four months following the completion of a Detailed Assessment, to allow for public consultation. AQMAs have a particularly important role to play in evaluating the significance of the air quality implications of new developments.

1.3 The air quality assessment for a new development will be prepared by the applicant, often a developer, and usually by independent consultants. Developers need to have a clear understanding of what is expected of them, and how their air quality assessment will be evaluated as part of the planning decision process. The focus of the formal environmental assessment process, of which the air quality assessment can form a part, has been very much on the impact the scheme will have on the environment both during construction and once the development is operational. Particularly new to the developer/applicant is the concept that they also need to take account, in the case of residential developments, of the impacts of existing sources on the potential for exposure of the residents of the new scheme. This new perspective on air quality assessments as part of the planning process has come to the fore with the encouragement of residential development on brownfield sites within urban areas, which are often close to busy roads, and sometimes to industrial sources of air pollution.

1.4 Whilst guidance and literature on the role of strategic planning in improving local air quality is available, specific guidance on development control and air quality management is limited. The Office of the Deputy Prime Minister's (ODPM)[3] Planning Policy Statement relating to Planning & Pollution Control (PPS23)[4] provides general information on air quality within the planning system in England. The aim of this NSCA document is to provide more specific non-statutory guidance on air quality and the planning system to:

- promote understanding of air quality management and development control requirements;
- provide a methodology to help planning authorities address air quality issues within development control decisions, and
- promote a consistent approach to the inclusion of air quality in development control decisions taken by local authorities.

1.5 The intended audience for the guidance is therefore the air quality and development control professions within local government, as well as developers and consultants involved in the preparation of development proposals and more specifically in the associated air quality assessments.

1.6 The guidance provides some clarification as to when an air quality assessment is required and what it should contain. Minimising the impact of development, through mitigation measures and other mechanisms is explored and examples provided. The guidance includes a methodology to help local authorities evaluate the significance of the air quality impacts associated with the development proposals and thereby help provide informed and consistent input into the planning decision process. This methodology has been developed and tested with the assistance of a large number of local authority officers, most notably at NSCA's Air Quality Spring Workshop in April 2004, and through a series of regional planning and air quality workshops held in late 2005 in England. Where air quality is seen to be a significant issue, then particular attention is paid to the measures proposed by the applicant to mitigate the impacts.

1 In some instances, for example for railways and trams, the process involves a Transport and Works Act Order or a Private Bill, and does not involve the local authority planning system.
2 See http://www.airquality.co.uk/archive/laqm/list.php
3 Now the Department for Communities and Local Government
4 See http://www.communities.gov.uk/index.asp?id=1143916

2: Introduction to Local Air Quality Management

2.1 Developments in air pollution policy during the 1990s resulted in the UK Government introducing the first National Air Quality Strategy in 1997[5], as a requirement of the Environment Act 1995[6]. It established a new approach to improving air quality in the UK, through a series of national air quality standards and objectives. The Act also established local air quality management as a way to address localised 'hot spots' of poor air quality, which could not be resolved effectively through national policy measures.

2.2 The national objectives set for the protection of human health are derived from health-based standards which have been developed taking account of human exposure to each pollutant. The standards are set purely on the basis of medical and scientific evidence of how each pollutant affects human health. They were originally set to protect the most sensitive members of the population from exposure to levels of outdoor pollutants on a 24-hour, 365-day basis. However, emerging health evidence suggests that adverse health effects occur at levels below the standards, particularly for the carcinogenic pollutants (such as benzene and 1,3-butadiene) and for fine particles (i.e. PM_{10}).

2.3 Central Government sets objectives by combining the standards with a target date, and the number of days in each year they are allowed to be exceeded, if any. In doing so, it takes account of economic efficiency, practicability, technical feasibility and timescale on a national basis.

2.4 In 2000, following an extensive review of the Strategy, a revised Air Quality Strategy[7] for England, Scotland, Wales and Northern Ireland was issued, together with a revised suite of air quality objectives. Standards for eight pollutants were established, with objectives for seven of the pollutants regulated through the Air Quality (England) Regulations 2000[8] (and their equivalent), Air Quality (Amendment) (England) Regulations 2002, Air Quality (Scotland) Amendment Regulations 2002, Air Quality (Amendment) (Wales) Regulations 2002, Air Quality (Amendment) Regulations (Northern Ireland) 2003, Air Quality Limit Values (Amendment) (England) Regulations 2004, Air Quality Limit Values (Scotland) Amendment Regulations 2005, Air Quality Limit Values (Wales) (Amendment) Regulations 2005 (see Appendix 2). The pollutants included nitrogen dioxide, PM_{10} and sulphur dioxide. Ozone was not included in these Regulations, as it is considered to be a regional or transboundary pollutant, and therefore its control is not practical at a local level. In general, these objectives are set at the same level and for similar target dates as the Europe-wide Air Quality Limit Values set under the Air Quality Framework Directive and subsequent “daughter directives”. Other pollutants, such as Polycyclic Aromatic Hydrocarbons (PAHs) are also not included in the Regulations at this time as their sources and effects are not fully understood, though they may be included in future revisions.

2.5 The local air quality management regime requires individual local authorities to periodically assess air quality and identify locations within their locality where the national air quality objectives may be exceeded by their target dates. Where any such exceedences are predicted, and where there is relevant public exposure, local authorities have a duty to declare AQMAs following a process of consultation. Such designations are a statutory requirement, and local authorities in England, Scotland, Wales and Northern Ireland have a duty to work towards achieving the national air quality objectives based upon standards for the seven pollutants.

2.6 Following the designation of AQMAs, local authorities are required to develop air quality action plans (AQAPs) to identify and implement actions to improve air quality locally[9]. Such plans require effective collaboration between authority departments and external agencies and stakeholders (such as the Environment Agency, the Scottish Environment Protection Agency, Highways Agency and industry[10]). Land-use planning and transport planning underpin the development of effective air quality action plans. As such, local authorities in England are guided to incorporate their AQAPs into their Local Transport Plans, where emissions from traffic are the main source of pollution relating to the AQMA. Government guidance is provided to assist local authorities in this process[11]. Where a point source is the major source of emissions, then a local authority has to develop an action plan in isolation from the Local Transport Plan. Moreover, central government has identified a key principle of the local air quality management regime process being that local authorities should integrate fully air quality considerations into local planning processes.

2.7 The development of local protocols or supplementary planning documents to address local air quality management and local planning processes can play an important role in providing consistency in the process of local decision-making. Local authorities are urged to develop such local planning protocols or guidance. Examples of protocols, supplementary guidance documents and other related documentation is provided for local authorities as part of the UK Government and Devolved Administrations' air quality review and assessment web site[12].

2.8 Air quality strategies, at the local or regional level, also have a significant role to play in the integration of various local authority planning functions (particularly local transport planning and economic development planning) to help improve local air quality. More specific guidance on developing air quality strategies is available in the NSCA guidance document on air quality action planning and from statutory government guidance[13].

5 Department of the Environment (DoE), The Scottish Office and The Welsh Office (1997). National Air Quality Strategy. CM 3587. London, The Stationery Office.
6 HM Government (1995). Environment Act 1995. London, The Stationery Office.
7 Department for Environment, Transport and the Regions (DETR) (2000), Welsh Assembly Government, Scottish Executive, and Department of the Environment for Northern Ireland. The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. CM 4548. London, The Stationery Office.
8 HM Government (2000). The Air Quality (England) Regulations 2000. London, The Stationery Office.
9 Other than those authorities in England who have been rated 'excellent'
10 For a comprehensive list of stakeholders, consult the NSCA's guidance on air quality action plans: Air Quality Action Plans: Interim Guidance for Local Authorities (NSCA, 2000) and Air Quality: Planning for Action (NSCA, 2001) (see www.nsca.org.uk).
11 See http://www.defra.gov.uk/environment/airquality/laqm/guidance/pdf/laqm-pga05-addend.pdf
12 See http://www.uwe.ac.uk/aqm/review/planning.html
13 Local Air Quality Management Policy Guidance (LAQM.PG(03)). Department for Environment, Food and Rural Affairs (DEFRA) & Welsh Assembly Government 2003. Separate Policy Guidance exists in Scotland and Northern Ireland.

Public exposure

2.9 Under UK air quality policy, likely exceedences of the objectives should be assessed in relation to 'the quality of the air at locations which are situated outside of buildings or other natural or man-made structures, above or below ground, and where members of the public are regularly present'. In other words, the public must be at the location for an amount of time relevant to that objective, e.g. one hour in the case of the 1 hour objective for NO_2, a day in the case of the 24 hour PM_{10} objective, etc. This relationship with exposure does not apply to the EU Air Quality Limit Values, which apply at all external locations except workplaces. The onus of compliance with the EU Limit Values lies with central government.

2.10 Consideration of the potential impacts of development proposals on local air quality should therefore be focused on those locations where members of the public are likely to be regularly present and are likely to be exposed over the averaging period of the objective. It is also reasonable for planning purposes to consider land designated for some form of public use, including residential development, but not currently in such use, as being a location with relevant exposure. For long-term averages (24-hour and annual mean) the national objectives are applied if exposure occurs for a substantial proportion of the averaging period. Table 1, taken from the UK Government and Devolved Administrations' Technical Guidance note on review and assessment (LAQM.TG(03)), provides an indication of which locations may or may not be relevant for each averaging period.

The EU Thematic Strategy on Air Pollution

2.11 In September 2005, the European Commission published an Air Pollution Strategy as one of seven Thematic Strategies required under the EU's Sixth Environmental Action Programme. The Strategy aims to cut the annual number of premature deaths from pollution-related diseases by 40% in 2020 on 2000 levels, focusing on $PM_{2.5}$ and ozone. The Commission's intention is to streamline air quality legislation by developing a single Ambient Air Quality Directive. This will have more implication for central government than individual local governments across the UK.

Table 1. Examples of where the air quality objectives should apply

Averaging Period	Objectives should apply at:	Objectives should generally not apply at:
Annual mean	All locations where members of the public might be regularly exposed. Building façades of residential properties, schools, hospitals, libraries, etc.	Building façades of offices or other places of work where members of the public do not have regular access. Gardens of residential properties. Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
24-hour mean and 8-hour mean	All locations where the annual mean objectives would apply. Gardens of residential properties.	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
1-hour mean	All locations where the annual mean and 24 and 8-hour mean objectives would apply. Kerbside sites (e.g. pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where the public might reasonably be expected to spend one hour or more. Any outdoor locations at which the public may be expected to spend one hour or longer.	Kerbside sites where the public would not be expected to have regular access.
15-minute mean	All locations where members of the public might reasonably be expected to spend a period of 15 minutes or longer.	

A revised Air Quality Strategy for England, Scotland, Wales and Northern Ireland

2.12 The Air Quality Strategy for England, Scotland, Wales and Northern Ireland is currently under review[14], and has been informed by the EU Thematic Strategy. A range of additional policy measures to further improve air quality at the international, national and local levels is evaluated. These measures include technological approaches such as the fitting of abatement technologies to motor vehicles and industrial processes, as well as a range of measures that are designed to change behaviour, such as traffic management, incentives for cleaner vehicles, road pricing etc. A range of 'smarter choices' is also included, such as workplace and school travel plans, the promotion of public transport, cycling and walking.

2.13 The review proposes to retain the air quality objectives that are currently in Regulations. Whilst it is recognised that the objectives for PM_{10} and nitrogen dioxide were not met everywhere by the due dates of 2004 and 2005 respectively, it was considered that any postponement would undermine the LAQM system, and could delay the expected rate of improvement from local measures.

2.14 The review considers several options for new long term particle objectives. In particular, proposals are put forward to introduce new objectives for $PM_{2.5}$. This is based on the conclusions of the World Health Organization and the CAFÉ Working Group on Particulate Matter, both of which recommended the use of $PM_{2.5}$, as opposed to PM_{10}, as the principal metric for assessing public exposure to particles. For $PM_{2.5}$, a backstop objective 25 µg/m^3 and an exposure reduction objective (measured as the average exposure across urban areas of the UK) of 15% between 2010 and 2020, is proposed.

2.15 Chapter 4 (paragraph 112) of the consultation document states that "…local authorities carrying out their LAQM duties could consider measures that reduce concentrations of non-threshold pollutants such as particles across their whole areas and not just areas of exceedences of the objective. In particular, the planning and development functions carried out by local authorities will become increasingly more important to reduce local air pollution." Exposure reduction is not included explicitly in this guidance document, largely because it is not yet an agreed policy at national level. It is suggested at this stage that local authorities may wish to consider how, assuming it is taken up at national level, exposure reduction could be pursued through their own local planning policies and processes.

2.16 In respect of the provisional 2010 objectives for PM_{10}, and the proposed new objectives for $PM_{2.5}$, the review considers that it would be premature to set these in Regulation for the purpose of LAQM at this stage. This is due to the uncertainty surrounding the outcome of the proposed CAFÉ Directive, and an acceptance that local measures can only affect an increasingly small proportion of the PM concentration.

14 http://www.defra.gov.uk/corporate/consult/airqualstrat-review/index.htm for more details

3: Introduction to Planning

3.1 As the new ambient air pollution policy framework emerged in the early 1990s, a resurgence of planning policy guidance to reflect emerging UK local planning policy and regional planning policy occurred. Air quality began to be recognised as a material planning consideration in government planning policy guidance on town centres and retail developments, transport and planning and pollution control, and a more regional focus to air quality emerged with the development of regional planning guidance.

3.2 A new planning system emerged in England and Wales in late 2004. The enacted Planning and Compulsory Purchase Act 2004[15], replaced much of the Town and Country Planning Act 1990[16]. The provisions in the new Act are intended to provide a more flexible plan-making system at the regional and local level, with more community involvement and an improved development control process. The 2004 Act has abolished Structure Plans and Local Plans, replacing them with Local Development Frameworks (LDFs) and Local Development Documents (LDDs), which must have regard to the Regional Spatial Strategy (RSS). Fundamentally, the Act introduces a more strategic spatial approach to planning.

3.3 The new planning regime intends to speed up the planning process and improve upon the efficiency and predictability of planning decisions. All planning policy guidance is also to be revised, with former Planning Policy Guidance notes (PPGs) becoming Planning Policy Statements (PPSs). The new Planning Policy Statement relating to Planning & Pollution Control (PPS23) was amongst the first of the new guidance documents to be published, applying to England only. The statement includes key policies and principles, and a technical annex on pollution control, air and water quality. Air quality, and particularly AQMAs and action plans are matters for consideration in the preparation of Local Development Documents. In Wales, planning policy for improving air quality is contained in Planning Policy Wales[17] (PPW), chapter 13, issued in April 2002.

3.4 Work began on modernising the Scottish Planning system in 2001. This is a wide ranging reform program which includes the publication of a National Planning Framework and changes to development planning, supplementary planning guidance, the inquiries and appeals procedures, neighbour notification, planning agreements and many other aspects of the system. The proposed new system will be different to the new system in England. The intention is to introduce local development plans across Scotland and city region plans for just Edinburgh, Glasgow, Dundee and Aberdeen. In June 2005 the Scottish Executive published a White Paper, 'Modernising the Planning System', which set out the way forward for the Scottish planning system. In December 2005, the Planning (Scotland) Bill[18] was introduced in the Scottish Parliament.

3.5 Planning applications requiring an Environmental Statement or Impact Assessment, as part of the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 and Environmental Impact Assessment (Scotland) Regulations 1999[19] require an assessment of likely effect on air quality from the proposed development. However, other cases that fall outside of the EIA Regulations may still require an air quality impact assessment or further information on air quality related to local circumstances. The need for air quality assessments and the adequacy of such assessments is considered in Section 5. Requirements of Strategic Environmental Assessment are discussed in section (3.27-30).

3.6 Local planning authorities are required to achieve a balance between economic, social and environmental considerations in arriving at a decision about a specific proposed development. For this reason, appropriate consideration of factors such as air quality, noise and visual amenity is necessary. In terms of air quality, the impact of a development should be considered in terms of the potential for breaches of the national air quality objectives and EU Limit Values[20], the impact on any air quality action plan or strategy implementation, overall degradation in local air quality and the increase or introduction of new public exposure.

Types of development

3.7 The process of submitting a planning application to a local planning authority through to the planning application decision-making process is discussed in relation to air quality considerations in Chapter 4. In summary, development proposals may be submitted as outline applications or detailed applications. It may be more convenient, in complicated planning cases, for outline planning permissions to be granted to the applicant, where applicable, in order for development to be carried out subject to reserved matters which are decided at a later date.

3.8 With respect to planning decisions, there are three types: unconditional permissions, permission subject to conditions and refusal. Pre-application discussions between developers and local authorities are important for ensuring an application is complete and meets the necessary requirements.

3.9 Planning obligations (often known as 'section 106 agreements') are private agreements negotiated (usually in the context of planning applications) between local planning authorities and persons with an interest in a piece of land (i.e. developers). They are intended to make acceptable development which would otherwise be unacceptable in planning terms[21, 22], and can either prescribe the nature of development, secure a contribution from a developer to compensate for loss (for example loss of amenity) from development or else

15 See http://www.opsi.gov.uk/acts/acts2004/20040005.htm
16 See http://www.opsi.gov.uk/acts/acts1990/Ukpga_19900008_en_1.htm
17 See http://www.wales.gov.uk/subiplanning/content/planningpolicy/final/contents-e.htm
18 See http://www.scottish.parliament.uk/business/bills/51-planning/
19 See http://www.opsi.gov.uk/si/si1999/19990293.htm and http://www.scotland.gov.uk/library2/doc04/eia-02.htm
20 The duty to meet EU Limit Values for NO_2, PM_{10}, SO_2 etc. is placed on the Secretary of State and not local government.
21 See http://www.communities.gov.uk/pub/320/Circular0505PlanningObligationsPDF149Kb_id1144320.pdf
22 See http://www.hm-treasury.gov.uk/media/F59/D3/pbr05_planninggain_449.pdf

mitigate impacts from a development, through conditions for example. Chapter 7 considers examples of mitigation and impact manage-ment, such as the re-design of a development or provision of a buffer-zone between roads and property, off-setting and compensation. Both off-setting and compensation are potential measures to reduce the more indirect impacts on air quality from a development, and have less legal standing than planning obligations and conditions.

3.10 The land-use planning process has played an important role in determining the locations of both polluting sources and the location of sensitive receptors, for example residential sites. Planning frameworks will become particularly important as air quality action plans and air quality strategies are devised and implemented over the course of the next few years, to tackle air pollution hotspots and AQMAs. Where air quality is identified as a material planning consideration, planners require information on the proposed development's potential significance in air quality terms, to inform the local planning process. The process of assessing significance is discussed in Chapter 6.

Material consideration

3.11 With the movement towards a more plan-led system of development control over the last decade, planning applications are determined in accordance with a local development plan (or local development document as appropriate), where adopted or approved, unless material considerations indicate otherwise. If a Plan contains material policies or proposals and there are no other material considerations, the application is determined in accordance with the Development Plan[23]. Where there are other material considerations, the Development Plan should be the starting point, and other material considerations should be taken into account in reaching a planning decision. One such consideration will be whether the plan policies are relevant and up to date.

3.12 The UK Government and DAs general planning principles state that 'in principle...any consideration which relates to the use and development of land is capable of being a planning consideration. Whether a particular consideration falling within that broad class is material in any given case will depend on the circumstances'. Material considerations must be genuine planning considerations, relating specifically to the development and use of land in the public interest. They must also fairly and reasonably relate to the application concerned and can include the following (though by no means exhaustively):

- Government circulars, guidance and Statutory Instruments;
- Loss of daylight or sunlight;
- Light pollution, air (see 3.14) or noise pollution, ground contamination and odour;
- Loss of trees, nature conservation and landscaping;
- Effect on listed buildings and conservation areas;
- Loss of privacy or outlook;
- Previous appeal decisions.

Material planning considerations do not include the following:

- Matters controlled under Building Regulations or other non-planning laws (e.g. structural stability);
- Private issues between neighbours (e.g. land boundary disputes and damage to property);
- Loss of value of property.

3.13 Where a planning application goes against relevant policies within the local development plan or local development document, it is not normally permitted unless material planning considerations, or over-riding considerations, justify granting permission. This emphasises the importance of having appropriate planning policies dealing with air quality. Particular attention is paid to whether policies are met or not during the planning appeals process. If the policies are not in place it can be more difficult than it should be to argue that air quality is a material consideration of sufficient weight at a public inquiry.

Air quality as a material consideration

3.14 Any air quality consideration that relates to land use and its development is capable of being a material planning consideration. However, the weight given to air quality in deciding the application will depend on such factors as:

- the severity of the impacts on air quality;
- the air quality in the area surrounding the proposed development;
- the likely use of the development, i.e. the length of time people are likely to be exposed at that location; and
- the positive benefits provided through other material considerations.

Chapters 6 and 7 explore the significance of the air quality impacts of a development, and the likely outcome in terms of planning decisions, in more detail.

3.15 AQMAs and areas identified as having poor air quality are influencing planning decisions, and have done so over recent years in a number of cases. Examples of when air quality may constitute a material consideration is provided in Box 1. These examples are listed as those in which air quality has been a material consideration and has led to a refusal of planning permission, and examples of planning appeals involving air quality as a material consideration.

Wider assessments of environmental impacts

3.16 Decision-makers have to balance varying social, economic and environmental factors and needs in arriving at a particular outcome. In the context of local planning decision-making, local authorities may need to balance the potential environmental impacts from a particular development against impacts upon the local economy. Such decisions are informed through a wide range of impact assessments submitted with more significant developments. Air quality assessments are the most important mechanism for identifying specific

23 See http://www.communities.gov.uk/pub/816/ThePlanningSystemGeneralPrinciplesPDF106Kb_id1143816.pdf

Box 1. Examples of air quality having an influence over development control and other land-use decisions

- In the December 2003 White Paper, The Future of Air Transport, the further expansion of Heathrow Airport was ruled out (though not in the long-term) on air quality grounds (and other criteria), despite an identified economic benefit. The proposed development was found to breach EU limits for NO_2 and would worsen the air quality in the London Borough of Hillingdon (with a declared AQMA). The air quality assessments carried out predicted that even without a third runway, people within Hillingdon would be exposed to NO_2 concentrations above EU Limit Values.
- Planning permission for a Safeway supermarket in Bath was initially turned down by Bath and North East Somerset Council on grounds of increased traffic and air pollutant emissions. Permission was later granted, because it was argued that it would reduce car travel (1998).
- In the London Borough of Ealing, a Planning Inspector supported the Council's decision to block a DIY superstore in Park Royal because it was too isolated to be accessible on foot, thereby encouraging car use and increased pollutant emissions (1998).
- The release of land for residential development near the M3 motorway in Windlesham (Surrey Heath BC) was blocked on the grounds of potential health impacts. The Planning Inspector refused to grant planning permission until pollutant concentrations dropped below the national AQO levels. This was the first example of a planning application refusal solely on air quality grounds (1999).
- In Hilsea Road (Portsmouth), developers asked for planning permission for 12 dwellings close to the M27 motorway. Many restrictions were placed on the development, as the air quality in the area was already poor. Ultimately, 10 houses were allowed (2000).
- In the London Borough of Greenwich, a developer proposed to build flats close to the busy A2 Blackheath Road. Roadside levels of nitrogen dioxide and PM_{10} were above national objective levels and the Council had already declared the whole of the Borough an AQMA. The application was turned down on air quality and a number of other grounds. The appeal was refused, with air quality being one of the grounds. The Inspector did not accept that the details of a mechanical ventilation system could be left to conditions or an obligation.
- Portsmouth. A proposal for 28 residential units above shops, located close to a roundabout (junction A27/A397 at Cosham, near Portsmouth) was refused on grounds of air quality and noise. The Inspector agreed that conditions could be imposed to mitigate against noise and air quality (NO_2 annual mean objective predicted to be breached), but the resulting 'sealed environment' required would not be desirable (2005).
- Southwark. Refusal of application for a surface car park near to residential developments at Canada Waters Quays, and in an AQMA. Scheme was for several hundred cars for a park and ride to the Dome, via the Jubilee underground line because the Dome site had specifically designed out private parking to rely on public transport
- Royal Borough of Windsor & Maidenhead. Proposals for development of flats along Clarence Road in Windsor accepted on appeal, with planning inspector determining that the public exposure problem in an AQMA could be overcome by the application of a condition relating to the use of mechanical ventilation. This, in the opinion of the Inspector, would prevent the sterilisation of previously developed land within the urban area, in accordance with the advice set out in Appendix 1G of Annex 1 of PPS23 (2006).

impacts on local air quality (discussed in Chapter 3). However, transport assessments and health impact assessments may also indicate impacts on air quality concentrations likely to be experienced as a result of a particular development or package of developments. Also of potential significance to planning and air quality are efforts to reduce greenhouse gas emissions. Each is considered in more detail below.

Climate change, planning and air quality

3.17 Emissions of pollutants such as nitrogen oxides and fine particles are closely linked to emissions of greenhouse gases such as carbon dioxide (CO_2). Planning policies, such as those that focus on the reduction of total traffic kilometres travelled will help bring about reductions in emissions of both greenhouse gases and local air pollutants. The UK Government and DAs target of a 60% cut in carbon dioxide (CO_2) emissions by 2050[24] is, however, likely to be more difficult to meet than the achievement of the national air quality objectives in all but a few cases.

3.18 Although closely linked, it cannot be assumed that measures to reduce emissions of NOx and PM will also reduce emissions of CO_2, and vice versa. As an example, retrofitting particle traps to vehicles reduces emissions of PM, but can cause a demonstrable increase in fuel use that may lead to increased CO_2 emissions.

3.19 Conflict may also exist, for example, where there is a proposal to re-route traffic around a polluted area (such as an AQMA). Although pollutant concentrations may fall in the hot spot location, an overall increase in distance travelled by vehicles may result in increased CO_2 emissions across the area. A further example of conflict is the promotion of diesel vehicles for increased fuel efficiency despite the potential for increased emissions of PM.

3.20 Integrating climate change policies with council planning (and other) policies is the way forward, although this is not as well advanced as the integration of local air quality considerations in many local authorities. In England, the recent integration of many Air Quality Action Plans into the Local Transport Plan will assist this

24 http://www.defra.gov.uk/environment/climatechange/index.htm

process, and quantification of climate change issues can form an aspect of the LTP submission. Development control procedures may wish to consider the impact on CO_2 emissions concurrently with air quality considerations. This will usually apply to applications incurring and involving traffic generation and those with implications for traffic management more generally.

Transport assessments and air quality

3.21 The requirement to undertake a Transport Assessment (TA), known previously as a Transport Impact Assessment (TIA) is not statutory, but is an important mechanism for outlining an applicant's intention for improving access by public transport and reducing overall mileage travelled in relation to the proposed development. Transport assessments are regarded as important instruments for use by planning authorities to secure transport improvements in relation to a proposed development. Section 106 agreements, together with Section 278, of the Town and Country Planning Act 1990 (and in Scotland Section 75 of the Town and Country Planning (Scotland) Act 1997), can be used actively to expand public transport services to a particular site or increase access. Air quality information may be requested to support the transport assessment in identifying specific transport needs locally.

Health impact assessments and air quality

3.22 Increasingly, large-scale development proposals include Health Impact Assessments (HIAs) in order to assess the impact of a proposal on wider health issues. Under the Strategic Environmental Assessment (SEA) Directive, a consideration of health impacts from a development is a requirement. At the European level, the European Health for All policy states the importance of establishing mechanisms for health impact assessments and ensuring 'that all sectors become accountable for their policies and actions on health' by 2020. The Council of the European Union has also concluded that priority should be given to developing broader health impact assessment methodologies.

3.23 In the UK, health impact assessments are increasingly being undertaken as part of other national policies and programmes such as the NHS plan, Regional Planning Guidance, the New Deal for Transport, and the New Deal for Communities. At a local level, health impact assessments can contribute to large-scale agendas such as sustainable development, by encouraging collaboration between organisations and by the consideration of short, medium and long-term impacts. It is also useful in other evaluations of community strategies, transport and land-use plans, regeneration plans and in industrial permitting.

Noise assessments and air quality

3.24 There is potential for some technical fixes aimed at mitigating noise from road traffic to affect ambient air quality and result in a worsening of indoor air quality. This highlights the need for noise problems not to be considered in isolation from other and wider environmental concerns. Planning and pollution are therefore best dealt with through addressing noise attenuation and air quality management together in certain circumstances such as the mitigation of impacts from a major road.

Air quality and amenity

3.25 Amenity can be defined as a positive element (or elements) that contribute to the overall character or enjoyment of a particular area. Examples include tangible elements such as open land, trees, historic buildings and the inter-relationship between them. Development which is considered to impact upon less tangible or less visible elements or factors such as tranquillity, noise and air quality can be considered to impact upon the amenity of a local area. Some local authorities have policies in place to resist development leading to pollution that would have an unacceptable impact on amenity.

3.26 Government guidance on planning and pollution control[25], states that the 'possible impact of potentially polluting development (both direct and indirect) on land-use, including effects on health, the natural environment or general amenity should be considered in the preparation of development plan documents and may also be material in the consideration of individual planning applications where pollution considerations arise'.

Strategic Environmental Assessment (SEA)

3.27 The European Community Directive on Strategic Environmental Assessment (SEA) came into force in June 2001, with the UK Government and the Devolved Administrations incorporating its requirements into law in 2004[26]. Strategic Environmental Assessment requires national, regional and local authorities to carry out environmental assessment on certain plans and programmes they promote. This may include large-scale developments, road-building proposals, business and retail parks and airport expansions. Strategic Environmental Assessment is an emerging process, which may have implications for improving air quality locally and particularly for the action planning process.

3.28 Guidance published on the Strategic Environmental Assessment Directive[27] in 2005 suggests that SEA may or may not apply to air quality action plans (AQAPs). The guidance states that where a plan or programme is prepared or adopted by a national, regional or local authority (or is prepared by an authority for adoption through a legislative Parliament or Government procedure) and the plan or programme is required by legislative, regulatory or administrative provisions, then the Directive requires an SEA. Local authorities are required to make a judgment based on the content of the action plan (on a case by case basis), and are required to determine whether the plan 'sets a framework for future development consent of projects'. SEA applies to Local Transport Plans (LTP), and therefore if an Air Quality Action Plan is integrated into an LTP, this should already be covered in practice. The development and implementation of air quality strategies does not require an SEA.

3.29 For the purpose of development, both air quality professionals and planning colleagues will need to be

25 http://www.communities.gov.uk/pub/918/PlanningPolicyStatement23PlanningandPollutionControlPDF262Kb_id1143918.pdf
26 http://www.communities.gov.uk/index.asp?id=1143280
27 http://www.communities.gov.uk/pub/290/APracticalGuidetotheStrategicEnvironmentalAssessmentDirectivePDF776Kb_id1143290.pdf

aware when an SEA is required and of the requirements of the SEA process. In principal, the SEA process involves the preparation of an environmental report, in which the likely significant effects on the environment of implementing the plan or programme (i.e. Local Development Document or LTP), and reasonable alternatives, are identified, described and evaluated. With respect to an AQAP encompassed within an LTP, this will involve establishing the main objectives of the LTP, reviewing the current status of the environment (i.e. local air quality status) and the likely impacts on the environment as a result of proposed actions. Consultation is an important component of the process, as is monitoring of the significant environmental effects of the plan or programme implementation.

3.30 In terms of monitoring requirements, SEA monitoring involves using indicators which can establish a link between the implementation of a plan and the likely significant impact being monitored. Measures being monitored need to be clearly linked to the SEA process, and can include the following:

- Baseline indicators which will indicate the effects of the plan;
- Likely significant effects identified; and
- Mitigation measures proposed to reduce any adverse effects.

4: Dealing with Planning Applications

Communication, systems and procedures

4.1 The first step in ensuring that air quality considerations are properly addressed within the development control process is to make sure that systems are in place, which allow the consideration of the air quality impacts to be undertaken by appropriate personnel at the appropriate time. In order to do this, it is essential that two-way dialogue is established between air quality and planning professionals. This dialogue is necessary to ensure that:

- the air quality professionals are made aware as early as possible of development proposals with identified or potential air quality implications (or which are in areas where air quality is already poor);
- the development control professionals are aware of the importance of air quality in their decision-making processes; and
- that air quality considerations are taken into account in the development control process.

4.2 In Northern Ireland, responsibilities for planning and road transport lie with the Planning Service and Road Service respectively, both of which are agencies of the Department of the Environment Northern Ireland. Weekly bulletins from the Planning Service are circulated to relevant environmental health officers, who have the responsibility for determining whether they wish to review and comment upon applications within their area. This is not the case in England, Wales and Scotland.

4.3 In England, the Department for Communities and Local Government (DCLG) (formerly Office of the Deputy Prime Minister) is responsible for national and regional planning policy, promoting sustainable development in the English regions, and for providing planning guidance for regional government and local government alike. Planning application decision-making is devolved down to local government. In certain circumstances, the Secretary of State can 'call-in' planning applications for determination, although this step is only taken when planning issues of more than local importance are involved. Such issues may include potential conflict with national planning policy, issues of national controversy or security. The Secretary of State uses the powers of intervention rarely, and will not interfere with the jurisdiction of local planning authorities unnecessarily. Within the Welsh Assembly Government, the Planning Division's role, similar to that of DCLG, is to oversee the planning system in Wales, advising the Assembly Minister for Environment, Planning and Countryside of applications requiring intervention. In Scotland, the Planning Division of the Scottish Executive's Development Department plays the equivalent role of England's DCLG.

Pre-application discussions and development briefs

4.4 Generally, the earlier environmental protection concerns are addressed within the development control process, the less likelihood there is for conflict and contention. Pre-application discussions usually take place with respect to significant major developments only (i.e. those most likely to have an air quality impact). It is therefore imperative that air quality professionals are involved in such discussions. Clarification as to whether relevant exposure exists, either now or in future in relation to proposals, can take place at this stage, and the requirement for air quality monitoring or preparation of a detailed air quality assessment made. The final shape of the development may be influenced as much by the outcome of these decisions as by the formal development control process. Therefore, if air quality problems can be addressed at this stage, the need for expensive and time-consuming retrospective re-design or mitigation can be avoided.

4.5 Development briefs and supplementary planning documents are often prepared for large sites, in which constraints governing noise, air quality, contaminated land and other issues are described. The development of such documents may require an SEA (see section 3.27). Requirements within the brief might include the location of specific buildings and their distance to major roads, provision and design of footpaths and open space provision. Once prepared for internal use and finalised following internal consultation, a developer would find the document difficult to ignore when developing the site.

Communications post-application submission

4.6 Local authorities structure their services in different ways, although in the majority of cases air quality and development control issues are addressed by different officers within different departments and divisions. It is common for the air quality professional to be located within a unit dealing with other environmental protection concerns, such as noise, contaminated land, industrial regulation and so on, and development control to be within a more general land-use planning department.

Development listing

4.7 There are two basic ways in which air quality professionals can be made aware of development proposals. One is by means of a weekly bulletin, either hard copy or an electronic circulation, listing all the applications for that week. This has the advantage that the air quality officer is, in theory, aware of all new applications, and can pick out those with a likely air quality impact. The majority on the list will, however, have little or no relevance for environmental protection, and those that do will generally be dominated by noise or odour concerns (not considered in this guidance).

4.8 A variant on this approach is the electronic logging of planning applications and allowing comments to be made on them. This type of system has the advantage that it allows the non-air quality significant applications to be filtered out relatively easily. Both of these systems suffer from the fact that they are somewhat impersonal.

4.9 The second basic approach is for development control, possibly through a designated officer, to refer to the air

quality professional(s) only those applications which they feel would have a relevant impact. This has the advantage of encouraging the development control officers to consider and recognise the environmental impacts of application, rather than simply ceding this function to environmental protection. However, there is always the risk that key applications will not be picked up until a much later stage. Given the usual 8-week timeframe in which decisions on planning applications are made, it is important that any commentary in relation to air quality is delivered within the first month of consulting on an application.

4.10 Both of these systems, or variants of them, are in place within different local authorities. Neither are ideal, and both suffer from the disadvantage that environmental protection is only involved once the application has been made, i.e. not in the pre-application discussions which have a significant part to play in shaping major developments. However, they can be made to work very effectively. In general, what differentiates a good efficient system from those that operate poorly is the quality of the personal contact between the two professionals. In other words, the key is whether the system used is the only contact between the two professions, or whether it is simply a formal support mechanism for more informal information exchange.

Personal information exchange

4.11 The value of effective inter-departmental (inter-sectional, etc.) communication, co-operation and information exchange cannot be over-stated. There are potentially very large advantages in mutual understanding if information is exchanged on a person to person basis. This includes the need to involve transportation departments in such discussions as well as air quality officers and planning departments. This is useful, for example, to ensure that the scope of any required transport assessment also meets the requirements of the air quality assessment, and vice versa. There are a number of ways in which such exchanges can be set up. One is to establish regular, preferably weekly, surgeries where information can be exchanged. These should be attended by qualified and experienced officers from each relevant department to ensure the correct information is exchanged. Another is for each team to designate a liaison officer who would meet with each other on a regular basis. Regular mutual training and information sessions could also be arranged, to ensure that environmental protection, transportation and development control departments are kept up to date with the latest local and national policy developments. The over-riding aim is that regular contact and mutual understanding is established between the departments.

Planning applications in areas of poor air quality

4.12 It is not necessarily the case that proposed development in an area of poor air quality will have a negative impact on air quality. The difficulty arises, however, when low polluting development causes people to be moved into an area, thereby causing them to be exposed to elevated pollution as a result of the location of development. This is particularly the case in an AQMA.

4.13 Following the establishment of the local air quality management regime, areas of poor air quality in the UK can be characterised in one of three ways:

- areas which have been declared as an AQMA;
- areas adjacent to, or which can affect, a declared AQMA; and
- areas where air quality is poor enough to breach one or more of the air quality objectives, but which has not been declared an AQMA due to lack of exposure.

4.14 The declaration of an AQMA does not mean that there will be a total ban on development within that area. Rather, it means that greater weight must be given to the consideration and removal of the impacts of the proposed development. This consideration should address not only the impacts in the immediate vicinity of the development but also the wider impacts on air quality within the AQMA.

4.15 It is also relevant to bear in mind that the boundary of an AQMA does not necessarily define the areas of poor air quality. The only constraint on the definition of the AQMA boundary is that it should be at least as large as the area of likely exceedence. In many instances local authorities have declared whole boroughs as AQMAs. In these instances, the mere fact that a development is within or close to an AQMA does not mean that it is necessarily affecting an area of exceedence of the objective(s), nor that it is affected by air pollution exceeding the objective(s).

4.16 It is important to balance all aspects of development within an AQMA. One example is that of a residential development in the central area of a town or city. On the one hand this is a clear example of increasing the number of people exposed to concentrations of pollution in excess of the objective values, i.e. poor air quality. Conversely, there may be social and economic benefits arising from the regeneration of the city centre. Moreover, if the development is close to a main shopping or employment area, there may be a reduction in the need to travel by car or public transport with a corresponding potential for an overall reduction in emissions and therefore improved air quality. There may also be benefits in terms of the emission of greenhouse gases, although a fully balanced consideration of this would be needed.

4.17 However, the case outlined above does not mean that the immediate air quality impacts of the development can be dismissed. Local planning processes can assist with off-setting[28], removal or overall reduction of impacts of development. As such, land-use planning and development control can become an effective tool to improve air quality by first locating developments in such a way as to reduce emissions overall, and secondly reducing the direct impacts of those developments.

4.18 DCLG's Planning Policy Statement 1 (PPS1)[29] contains important statements on the impacts of development, with the section on protecting and enhancing the environment (paragraph 19) stating that 'both planning policies and planning decisions should be based on:

28 Off-setting is defined as mitigation measures that don't directly mitigate impacts of the scheme but would generally improve air quality elsewhere, for example contributions to an air quality action plan, or Travel Plan

29 http://www.communities.gov.uk/index.asp?id=1143805

- up-to-date information on the environmental characteristics of the area;
- the potential impacts, positive as well as negative, on the environment of development proposals (whether direct, indirect, cumulative, long-term or short-term); and
- recognition of the limits of the environment to accept further development without irreversible damage'.

4.19 Although the presence of an AQMA makes consideration of the air quality impacts of a proposed development more important, there is still a need to regard air quality as a material factor in determining planning applications in any location. An example is where a development is proposed within an area of a local authority with a declared AQMA, and where the proposed development is not physically within it but could have adverse impacts on air quality within it. Another aspect of this is development within a neighbouring local authority (perhaps with no AQMA) which may adversely influence air quality in the AQMA of the first local authority.

Potential for new air quality management areas

4.20 Applications within areas with poor air quality but no AQMA, due to lack of exposure (the third case set out in paragraph 4.13), will be contentious because of the potential to trigger the declaration of a new AQMA. Equally, an area may be border-line in requiring an AQMA, and a development may lead to an exceedence if not carefully planned. This will in turn require the preparation of a new action plan or the extension of an existing action plan.

4.21 There is a need, in addition to taking AQMAs into consideration, to also consider Review and Assessment reports which will be available from the local authority in question. Such reports may identify other areas of poor air quality which have not been declared due to a lack of exposure. Consultation with air quality officers within the local authority may also highlight further potential air quality issues relevant to the development site.

Whole borough declarations

4.22 Where a local authority has declared its entire area as an AQMA, as is common in London and other urban local authorities, the consideration of whether a development is in, or adjacent to, an AQMA is less relevant than the consideration of whether the development is close to the boundary of an air quality objective exceedence.

5: Air Quality Assessments

5.1 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 that, where reasonable, all input data used, assumptions made, and the methods applied, need to be detailed in the report.

The need for an air quality assessment

5.2 Developments will require an air quality assessment where a significant change in air quality is expected or anticipated. The judgement as to when a change might be deemed significant is discussed in Chapter 6. The change will include both construction and operational impacts. There will also be a need to assess air quality implications where a significant change in relevant exposure (i.e. introduction and increase) is anticipated, such as the development of residential properties in an area of already poor air quality.

5.3 The decision as to whether an air quality assessment is required or not should be based on the physical characteristics of the proposals and/or the changes in traffic flows predicted. For industrial type development, an air quality assessment will be required when processes are permitted under the PPC, LAAPC (where deemed appropriate) or waste management licensing regime.

5.4 Professional judgement will be required for deciding when an air quality assessment is necessary, as it is not possible to apply an exact and precise set of criteria to all development proposal situations. However, the following criteria may help define when an air quality assessment should be considered necessary:

- Proposals that will result in increased congestion, a change in either traffic volumes – typically a change in annual average daily traffic (AADT) or peak traffic flows of more than ±5% or ±10%, depending on local circumstances – or a change in vehicle speed (typically of more than ±10 kph), or both, usually on a road with more than 10,000 AADT. This is based on the sensitivity of emission rates to traffic speeds and volumes, and roads below 10,000 AADT normally having a minimal impact on local air quality.
- Proposals that would significantly alter the traffic composition (i.e. increase the proportion of HGVs) in an area (e.g. bus stations, HGV parks, increased delivery traffic).
- Proposals that include new car parking – e.g. >300 spaces or an increase in current parking provision by, for example 25%, although account should be taken of car park turnover, i.e. the difference between short-term and long-term parking – or new coach or lorry parks.
- Developments located in, or which may affect, sensitive areas (e.g. ecological sites) or areas of poor air quality (including AQMAs), where either direct emissions to air occur, or where any of the preceding criteria are met.
- Introduction of new exposure close to existing sources of air pollutants, including road traffic, industrial operations, agricultural operations etc.
- Potential impacts from construction on nearby residents.
- Developments that would give rise to significant dust emissions in areas where people and/or commercial activities would be exposed.

Some local authorities make use of the criteria used to trigger a transport assessment as trigger criteria for an air quality assessment. Sheffield City Council, for example, uses criteria based on transport assessment criteria to require air quality assessments, including:

- Food retail development with a site area of >0.2ha or gross floor space of >1000m^2;
- Office development with a site area of >0.8ha or gross floor space of >2500m^2;
- Residential development with a site area of >1.0ha or >80 residential units; and
- Other development that leads to >60 vehicle movements in an hour.

5.5 Assessments may not be required in all cases, and will depend upon local circumstances. Equally, such circumstances may require an assessment where changes are below those shown above. For example, in one London Borough, significant changes in concentration were noted where AADT increased by 2-3%. In another, supplementary planning guidance requires assessments for any development with 100 or more parking spaces, where AQOs are already being breached. The existence or creation of street 'canyons' may also be a factor. A balance must be struck between burdening developers with unnecessary assessments, and ensuring that all significant impacts are quantified. It would be reasonable, however, for policies to be biased towards the latter.

Content of an air quality assessment

5.6 The intention of an air quality assessment is to demonstrate the likely changes in air quality or exposure to air pollutants, as a result of a proposed development. Inevitably, there will be some qualitative assessment of these changes included in the report, alongside the quantitative assessment. However, it is ultimately for the local or other planning authority to decide the 'significance' of the air quality impacts, and therefore the priority given to air quality concerns in deciding the application. The assessment therefore needs to provide sufficient information to allow this decision to be made.

5.7 It is important that an agreement is made between the applicant and the local authority as to the proposed assessment methodology. The basis of the assessment should be to compare the existing situation[30] 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,

30 It may in some situations be appropriate to consider permitted as well as current land use, e.g. a disused / vacant Council fleet depot could attract a bus / coach operation without planning permission, while a change of use to residential could have a lesser impact than the original use or permitted use.

requiring the assessment to be consistent with the target years for the limit values and objectives. There are three basic steps in an assessment:

(i) Assess the existing air quality situation in the study area (existing baseline);
(ii) Predict the future air quality without the development in place (future baseline);
(iii) Predict the future air quality with the development in place (with development).

5.8 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. However, if the area under question has no residential property or locations of public exposure, then a local authority may not have undertaken a Review and Assessment of the location. It would not be expected that all pollutants detailed 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. Assessments will, more often than not, be required for PM_{10} and NO_2 alone, but this should be specified from the outset.

5.9 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 for a specified year, e.g. the opening year or year the project is completed if phased, and/or an air quality objective year. Local receptors should be identified, including residential and other properties close to and within the proposed development, and specific locations where people are likely to be exposed for the appropriate averaging time (dependent on the air quality objective being assessed against), Ecologically sensitive areas should also be identified.

b) *Description of the relevant air quality standards and objectives.* Most air quality assessments will be carried out to assess compliance with UK air quality objectives, but limit values are also important because there is an absolute duty on the UK government to ensure compliance with them.

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. However, details should be provided on all local input data and assumptions, including:

- Traffic data used in the assessment;
- Emission data;
- Meteorological data;
- Baseline pollutant concentrations;
- Choice of baseline year, and whether it is a high, typical or low pollution year;
- $NOx:NO_2$ relationship; and
- Other relevant input parameters used.

d) *Results of the modelling assessment.* Details of model verification should also be supplied. Model verification includes a comparison of the predicted versus measured concentrations, and allows an adjustment to be made to account for systematic errors. Such errors may include traffic flow uncertainties, vehicle emission estimates and estimated background concentrations[31]. Model verification will be important, especially where predicted concentrations are close to the objective. A more complete description of the approach to model verification is provided in LAQM.TG(03).

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:

- Impacts of the construction phase of the development (usually on dust and PM_{10});
- The impact that changes in emissions will have on ambient air quality concentrations;
- Any exceedences of the air quality objectives or EU air quality limit values 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.

5.10 In some cases, it would be useful to include source-apportionment within the air quality assessment. For example where a development includes a large car park, it would not be necessary to know the contributions of specific vehicle classes to the overall contribution, but an understanding of the relative contribution of the car park to local annual mean pollutant concentrations as compared with local roads could be useful. In some cases the likely changes in population exposed over time should also be included in an assessment, particularly where new receptors are being introduced into an area of high pollution.

5.11 It is helpful for longer-term air quality predictions to form part of an air quality assessment. This is common practice due to assessment for 2010 objectives and against Limit Values, and many assessments include future projections relating to the opening year of proposed developments. This is particularly important, as in most cases the first year of development operation or scheme opening represents the worst-case scenario for predicted local air quality concentrations.

Agreement of datasets and methodologies

5.12 Before undertaking an assessment, every effort should be made to obtain agreement between the local, or other planning authorities, and whoever is to undertake the assessment, on the appropriate datasets and methodologies to be used. This will include the

31 See http://www.defra.gov.uk/environment/airquality/laqm/guidance/pdf/laqm-tg03.pdf

meteorological data to be used, background concentrations, traffic flows, model type, etc. As a default, the methods and 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.

5.13 It is important to note that the Updating and Screening Assessments, Detailed Assessments and annual Air Quality Progress Reports undertaken by local authorities, as required by the UK Government and Devolved Administrations, do not constitute air quality assessments for development purposes. The assessment processes addressed within local air quality management policy and technical guidance are 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, though may help inform air quality assessment processes.

Selection of modelling methodology

5.14 A wide range of assessment methods are available for air quality assessment; 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 Design Manual for Roads and Bridges (DMRB)[32] 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 (available commercially in the Breeze Roads package), AERMOD and AAQuIRE.

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, AIRVIRO and the KC-ERG model for London.

5.15 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 methods are 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 these situations screening models work well and more complex modelling is often unnecessary. The Highways Agency is investigating the establishment of a level where a qualitative rather than a quantified screening approach is used. In many cases, particularly where the pollutant concentrations in the area 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[33].

5.16 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 contain 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 the latter case a local screening study would normally be sufficient, such as a DMRB modelling study, especially if verified by local monitoring data.

5.17 Regional scale modelling will only be required where the study area is large (i.e. where the proposed development is large or where it affects a wide area, e.g. traffic flows are affected over an area larger than an urban conurbation). For planning, such situations are relatively rare and it would not normally be expected that such a modelling approach would be required.

Assessing the adequacy of an air quality assessment

5.18 Once an air quality assessment has been received by a local authority, this must be reviewed for adequacy. The local authority should review whether the assessment report contains all the information required, whether an appropriate assessment has been undertaken and if the conclusions are consistent with the assessment results. Where relevant expertise is not available within the local authority, then the need for an external peer review should be considered. At the conclusion of this process, the planning authority should be informed as to the significance of the air quality impacts of the development, with associated recommendations on the acceptability of these impacts and the level of mitigation required. Chapter 6 sets out a method for assessing significance.

5.19 A local authority may choose to develop a simple pro forma or checklist to ensure that various issues or considerations have been addressed within the air quality assessment accompanying a planning application. Table 2 (page 20) suggests some criteria to be considered in assessing whether an air quality assessment is adequate. All criteria will not necessarily be required for every screening assessment.

Assessing the effectiveness of mitigation as part of an air quality assessment

5.20 An air quality assessment should consider the likely effectiveness of any pollution reducing, mitigation or compensating measures included in the development plan. Requesting this analysis has the added benefit of encouraging the consideration and adoption of such measures. Over time, it will also lead to a better

32 http://www.archive2.official-documents.co.uk/document/deps/ha/dmrb/

33 Local Air Quality Management Technical Guidance (LAQM.TG(03)). Department for Environment, Food & Rural Affairs (DEFRA), Welsh Assembly Government, Scottish Executive, and Department of the Environment for Northern Ireland. 2003.

understanding of their strengths and weaknesses. Unfortunately, impact assessment is difficult to do quantitatively, and at present is rarely even considered. At the very least applicants should explore likely benefits of mitigation in qualitative terms.

Cumulative impacts and impact mitigation

5.21 As mentioned elsewhere in this guidance, a key feature of the UK development control system is that each planning application must be considered on its own merits, within the policy confines imposed by Local Development Frameworks (LDFs), Local Development Documents (LDDs), and the Regional Spatial Strategy (RSS). This clearly presents difficulties where a series of developments are permitted which individually have a relatively low polluting potential, but which cumulatively result in a significant worsening of air quality.

5.22 In general, this type of problem will occur in one of three circumstances:

- A single large site divided up into a series of units, such as an industrial estate or retail park;
- A major development which is broken down into a series of smaller planning applications for administrative ease; or
- The cumulative impact of a series of unrelated developments in the same area.

Table 2. Criteria for assessing whether an air quality assessment is adequate.[34]

Modelling		
Appropriate model validation? (only required for non-standard models)[35]		Y/N
Appropriate model verification?	Y/N	
Appropriate modelling scenarios and projections?	Y/N	
■ Adequacy of input data?	Traffic & emissions data?	
	Meteorological data?	Y/N
	Background concentrations?	Y/N
	$NOx:NO_2$ relationship?	Y/N
	Other relevant input data	Y/N
Monitoring		
■ Baseline information provided	Monitoring locations described?	Y/N
	Relevant exposure considered?	Y/N
■ QA/QC information provided	Bias adjustment of NO_2 tubes provided?	Y/N
	Other QA/QC information provided?	Y/N
Results presented		
■ Appropriate pollutants and/or objectives considered?		Y/N
■ Correct units?		Y/N
■ Changes in emissions (source, pollutants, time period)? and likely concentrations as a result of development?		Y/N
■ Impact in relation to air quality objectives and EU Limit Values?		Y/N
■ Significance of impact described?		Y/N
■ Potential impact on neighbouring local authorities (some evidence of consideration at least)?		Y/N
Other information		
■ Description of proposals?	Pollutant sources?	Y/N
	Expected changes to traffic volumes, composition, speed etc.?	Y/N
■ Description of relevant standards, objectives against which impacts of development are being assessed?		Y/N
■ Details and proposals for mitigation required?		Y/N
■ Consideration of any AQAP, and any likely impact on implementation of the AQAP?		Y/N

34 It should be noted that some elements of this table will not be required if only undertaking a screening assessment

35 Model verification refers to a comparison of modelled results versus any local monitoring data. Model validation refers to the general comparison of modelled results against monitoring data carried out by the model developers.

5.23 In the first two cases, the development is being brought forward by a single developer who puts forward an outline planning application. The cumulative impact is then dealt with in part by the imposition of design parameters, which will determine the maximum areas of the site to be used for specific activities etc, which in turn determine the traffic volumes. The cumulative impact is thus dealt with in some detail as part of the environmental assessment of the scheme.

5.24 For the major development which is broken down into a series of smaller planning applications, the use of a master plan or 'parameter plan' which covers the whole site, could be used. A parameter plan, which is an accepted method, can set a limit on development, for example maximum limits for car parking, floor areas, building heights etc, and allows the environmental effects to be properly assessed.

5.25 For individual, unrelated developments (the third case in paragraph 5.22), controls on cumulative emissions or impacts are much less apparent. The main solution in this case lies at the policy level, through the development of local supplementary planning documents. Such documents have already been developed by some local authorities. Carefully framed local guidance can provide a basis for adopting a more rigorous approach to air quality protection and improvement through development control, and such guidance can allow a local authority to act at a more strategic level to avoid cumulative impacts and 'background creep'. Examples of local authority supplementary planning documents are provided at www.uwe.ac.uk/aqm/review/planning .html.

5.26 An example of an approach to addressing cumulative impacts is York City Council's approach to applications relating to the Foss Basin study. A situation arose where the City Council received applications for a number of very large developments in a relatively small area of the city at the same time, including a supermarket, another supermarket extension, a new leisure and hotel facility, a new road and several new housing and office developments. Due to the potential for cumulative impacts, the City Council commissioned cumulative traffic and air quality assessments. The result was that each development was required to contribute a certain financial sum towards the 'Foss Basin Transport Masterplan', as devised by the City Highways and Transport planning units. The Transport Masterplan consists of initiatives such as new bus lanes, provision of new bus routes, provision of cycle lanes etc. There was also a sum included in the Transport Masterplan for future air quality monitoring. However, the financial support will only be available once the development is well on the way to being completely occupied.

5.27 Another example of impacts cumulatively affecting an area may be lots of smaller developments, all adding traffic into a central urban location which already has an air quality problem. The developments themselves may not be 'significant' and may not even be in the vicinity of the air quality problem. It is proposed that in the same way as described in the example above, a process could be implemented whereby each of the developments provides a financial contribution to the air quality action plan relative to the size (or traffic generating ability) of the development. The overall 'pot' could then be used to implement elements of the action plan such as improvements in public transport, encouragement of sustainable modes of travel etc. It is unlikely that any one measure would be directed at the location of any particular development, but instead would be aimed at reducing traffic flows over a wider area. Some London Boroughs have already used this approach.

6: Assessing Significance

6.1 Land use planning and development control are two of the key tools to delivering improvements in air quality in the UK. However, a number of years after the first Government guidance on the subject[36] there still remains considerable ambiguity over how air quality should be considered in the planning process. In that guidance, it was stated that air quality could be used as a reason for refusal of a planning application where the impact was 'significant'. No definition of significance was provided, nor a method for its assessment.

6.2 Significance can come into the process at two stages:

- The first is the requirement to set out the significance of any air quality impacts within the air quality assessment using the professional judgement of the authors;
- The second is the requirement for the local authority to evaluate the significance of the air quality impacts, using the professional judgement of its officers, to help it reach a decision on the planning application.

These can be mutually exclusive requirements serving different functions and the determination of significance can be different between the air quality assessment and the judgement of the local planning authority. Ultimately, disputes on these matters are dealt with by the judgement of a planning inspector following a planning appeal inquiry.

Significance within the air quality assessment

6.3 There is no specific guidance on determining the significance of air quality impacts within an air quality assessment. Clearly the UK air quality objectives and the EU limit values play an important role. This links directly to the presence or absence of an AQMA. The key role of these factors is emphasised in PPS23. However this alone is not enough. The environmental assessment process requires the magnitude of changes to be set out and taken into account. In many instances there is also a desire to use a consistent descriptive terminology across all environmental impacts within an environmental statement so that, for example, ecological and noise impacts can be described using the same terminology as applied to air quality.

6.4 The main requirement within the air quality assessment will be to describe significance in terms of the change in concentration and the absolute concentration after the change in relation to the air quality objectives. The numbers of people exposed to the change should also form part of the judgement of significance. The magnitude of the change will undoubtedly become an increasingly important component of the significance definition, as it is now recognised that for many pollutants, and in particular for particulate matter, there is no threshold for effects. An example of one set of descriptors used in air quality assessments is set out in Appendix 3 (Tables 10 and 11).

Limitations of assessment descriptors

6.5 It should be noted that the use of descriptors can be assumed to be the first step in determining significance. There are limitations with Table 11 provided in Appendix 3, which is intended as an example. The Table, for instance, does not take into consideration the numbers of people exposed to a particular change in concentration. This limitation has to some extent been addressed by Table 12, also in Appendix 3. Where a scheme has both benefits and disbenefits an overall 'worst case' approach should be taken - for example, where one receptor has a 'medium' decrease in air quality but a large number of receptors show a significant improvement in air quality, a judgement may need to be taken on the overall impact of the scheme. The example provided is also limited to operational impacts and does not cover construction impacts. Clearly, professional judgement is required in the interpretation of air quality assessment significance. Tables 10 and 11 provided should only be utilised as a tool to help standardise and interpret the outcomes of an air quality assessment; it may, however, be appropriate to adapt the Table and descriptors to meet local requirements, such as the use of a different set of descriptors to conform with the rest of an environmental statement.

Assessment of significance by the planning authority

6.6 The local planning authority that receives a planning application with an accompanying air quality assessment will have to carry out its own evaluation of the significance of the impacts. Once again, there is no official guidance on how this should be done, although PPS23 sets out general considerations that need to be taken into account. NSCA has therefore developed a flow chart approach (see Figure 1, page 24) to help the local authority evaluate the significance of the air quality impacts. This is based on a series of criteria developed in California[37] and adapted to fit the UK air quality management system.

6.7 The flow chart starts at the top left box, with the assumption that the air quality impacts have been assessed and quantified (see Chapter 5). The significance of the impacts is assessed through a series of questions with closed (yes or no) answers. Each question is addressed in descending order, until the answer “yes” is obtained. This leads to the priority which air quality should be afforded in consideration of the development proposal on a scale ranging from over-riding priority to low priority.

6.8 There are a number of key points which should be borne in mind when using the flow chart:

- Air quality has the potential to be a 'material consideration' in all planning applications. Whether it is a material consideration for any individual application will depend on the circumstances of the case, both in terms of the proposed development and its environment or location.
- Likewise, the significance of the impacts will depend on the context of the development. For example, a proposal for a highly polluting industry in an already

36 Air Quality and Land Use Planning, DETR, LAQM.G4(97).

37 The California Resources Agency has produced guidelines for the implementation of the California Environmental Quality Act. Appendix G sets out a checklist for assessing the environmental impact of development projects, Part III addresses air quality (http://ceres.ca.gov/ceqa).

highly polluted, and populated, urban area would see air quality as one of the prime considerations. For a low polluting office development in an area of low pollution, air quality is likely to be of low priority.

- The flow chart is equally applicable to a development which increases emissions (degrades air quality) as to one where the main impact is to increase exposure, such as a residential development.
- The weight given to the EU Limit Values reflects their status in law. The Limit Values are binding on the UK as a whole, whereas there is no legal obligation placed on central government or local authorities to meet the UK Air Quality Objectives, despite the fact that they are contained in regulation (see Appendix 2).
- Several steps require a judgement to be made of the 'significance' of the worsening that will take place. This judgement should be carried out by a suitably qualified officer, as discussed in the next section.

6.9 It should also be noted that the flow chart could be adapted to fit in with specific local considerations within a Supplementary Planning Document.

Professional judgement

6.10 The exercise of professional judgement by local authority officers is an important part of the assessment of significance as set out in this guidance. Those exercising such judgement should clearly be competent to do so. In the field of air quality, there are no set qualifications for assessing competence, and professional recognition is in its early stages. Staff engaged in assessing the significance of air quality impacts should be expected to hold qualifications in pollution control and/or environmental assessment/management, or to hold degree level qualifications which contained a substantial proportion devoted to such topics. A number of years experience in air quality should also be required, and extensive experience could be taken as a substitute for a formal qualification. Membership of the Institute of Air Quality Management would clearly be advantageous, as this is professionally assessed and dependent on sufficient knowledge, experience and qualifications, or other relevant professional bodies such as the Chartered Institute of Environmental Health (CIEH), Chartered Institute of Water and Environmental Management (CIWEM), Chartered Scientist or Chartered Environmentalist, or their equivalents in Scotland, Northern Ireland and Wales.

6.11 The exercise of judgement by the local authority should be as transparent and open as possible, and is clearly open to challenge by either the developer or third party stakeholders.

Actions following first use of significance flow chart

6.12 Table 3 (page 25) sets out recommendations as to the steps to take following the initial judgement of impact significance. Where the flow chart identifies significant impacts, then an important element of the response will be to assess the adequacy and appropriateness of the measures incorporated in the proposal to mitigate the impacts. The measures available to mitigate or compensate for impacts are considered in Chapter 7.

6.13 A key to the issue of mitigation will be open and frank discussions with the applicant at as early a stage as possible, with a view to modifying the proposal to achieve an air quality impact that is no longer judged to be unacceptable. This will inevitably lead to the process of judging significance being iterative, as the applicant may modify the proposals following feedback from the Council, and thereby change the significance level.

6.14 For increases in PM_{10} concentrations, a pollutant for which no health based threshold is apparent, a local authority may wish to encourage the implementation of mitigation measures even where increases are below air quality objectives or Limit Values, as any increases are likely to result in health disbenefits. This approach is in line with the review of the UK Air Quality Strategy which is moving towards overall decreases in pollutant concentrations for PM_{10} in addition to an approach based on objectives and Limit Values.

6.15 At the conclusion of this process, the appropriately qualified officer will need to report the findings on the air quality assessment to the planning officer, who will take all other matters into account in reaching a decision on the planning application.

Figure 1: Steps for local authority to assess the significance of air quality impacts of a development proposal

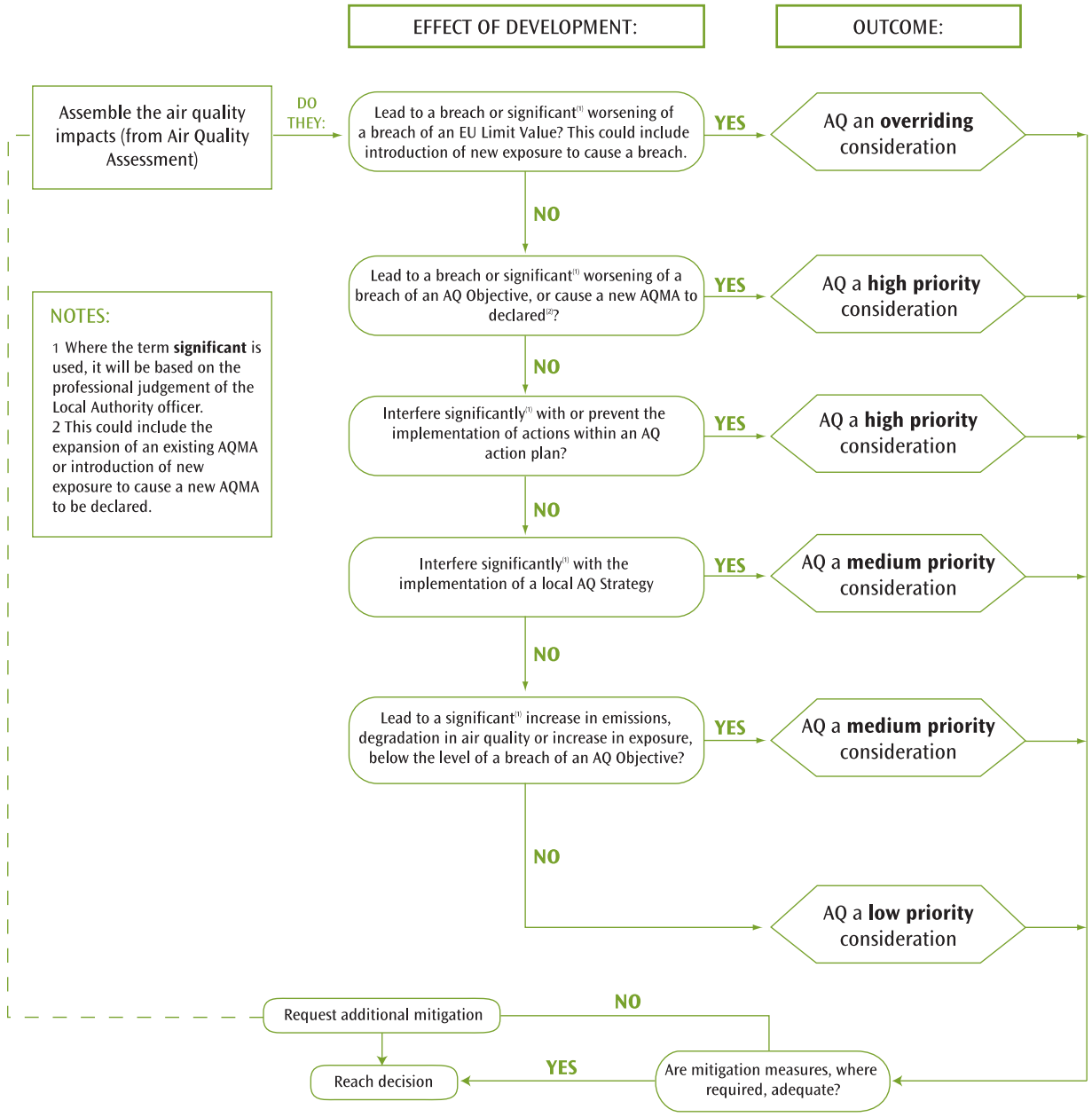

Table 3. Recommendations following the assessment of significance by the local authority

Impact significance from flow chart	Recommendation
Over-riding consideration	Require mitigation measures to remove 'over-riding' impacts. If the impact is still 'over-riding', there should be a strong presumption for a recommendation for refusal on air quality grounds[38].
High priority consideration	Ensure that measures to minimise 'high priority' impacts are appropriate in the proposal. Recommend strengthening the measures if appropriate. Consideration may also be given to compensation/offsetting. Depending on the scale of the impacts, taking into account the number of people affected, the absolute levels and the magnitude of the changes, and the suitability of the measures to minimise impacts, it may be appropriate to recommend refusal.
Medium priority consideration	Seek mitigation measures to reduce 'medium priority' impacts. Offsetting and compensation measures may also be considered. It is unlikely that refusal would be recommended.
Low priority consideration	Encourage the use of readily available measures to mitigate, offset or compensate for impacts, where appropriate.

38 An automatic refusal will not always be necessary or appropriate. Dealing with exceedences of Limit Values is a national obligation. There may be situations where large areas are in exceedence of the limit value, and a blanket ban on new developments would risk sterilising large areas. In these circumstances it would be appropriate to take account of the contribution the new development would make to the exceedence. If this is small, and strong measures are incorporated in the proposal to minimise the impacts, then it would probably not be appropriate to recommend refusal on air quality grounds.

7: Mitigating Impacts

7.1 The previous Chapters have dealt with the way in which development proposals are processed, the form and content of air quality assessments and some of the concerns relating to certain types of development. Chapter 6 in particular dealt with the assessment of the significance of air quality impacts, and offered a way in which impacts could be classified according to their priority.

7.2 The final stage in the process is to recommend the actions which should be undertaken, or measures put in place, in order to remove impacts as far as is reasonably practicable. The key point to bear in mind is that it is not the development itself which is the issue, rather its impacts on air quality. If these impacts can be removed or sufficiently mitigated, there is no reason, on air quality grounds, why the development cannot proceed.

7.3 The type of measures proposed to achieve improvements in air quality will depend on the nature and scale of the proposed development. Where the proposal is for a small number of new residential units it would be reasonable to examine design and ventilation arrangements to reduce the impact of the external environment on occupants in the building. Where the proposed development is larger then a larger number of measures would be available including improvements in public transport and funding for traffic management measures over a wider area.

7.4 One of the basic principles of development control in the UK is that each application must be considered on its own merits. Accordingly, the management of the impacts of each development will, to a greater or lesser extent, also be individual to that application. Although it is not possible to describe measures to be undertaken in every given circumstance in this guidance, it is possible to put forward a general approach which will guide impact management decisions. Following on from the assessment of significance in Chapter 6, an approach for developing recommendations was provided (para 6.12). This Chapter considers specific examples of mitigation in more detail.

Planning obligations and conditions

7.5 As a reminder, planning obligations (or 's106 agreements') are private agreements negotiated (usually in the context of planning applications) between local planning authorities and persons with an interest in a piece of land (i.e. developers) (see PPS23, page 15). They are intended to make acceptable development which would otherwise be unacceptable and can either prescribe the nature of development, secure a contribution from a developer to compensate for loss from development or else mitigate impacts from a development, through conditions.

7.6 Where development in areas of poor air quality is proposed, the overall benefit of the development must be balanced against the specific harm, in air quality exposure terms, of locating that particular development at that particular site. It may also offer the opportunity to secure air quality or other environmental improvements which would not otherwise be available. In general terms, development can often be allowed to proceed providing due regard has been made to the air quality in the area. In all cases, the planning process should seek to obtain the best possible air quality conditions that would be reasonable for the development proposed. This has led to some innovative planning measures which have made a positive contribution to improving air quality.

Planning gain

7.7 Planning gain is the Government's proposed tool to replace s106 agreements, as part of the overall intention to make the planning system more transparent, speedy and practicable. Consultation on the proposed planning gain supplement is underway, with such supplements being a charge intended to capture the increase in land value as a result of a scheme being given planning permission. The idea is for the supplements to help deliver sustainable development which delivers social, economic and environmental benefits to the community as a whole. Site specific matters can include air quality improvements.

Examples of impact management

7.8 Examples of measures to mitigate against the impact of development are provided in Table 4 (page 28) and include both construction phase and post-development mitigation measures. The list is by no means exhaustive[39]. Some specific examples of mitigation measures which have proved effective and workable are provided in Table 5 (page 29).

Problems associated with planning conditions and mitigation measures

7.9 Some specific difficulties experienced with developing planning conditions are listed below. This is not an exhaustive list, but does include some of the more difficult issues to address:

- Agreements with bus companies, with respect to new developments, need to be provided from the time that residents first move into properties within a development, so as to ensure take up of services provided. All too often, an agreement only comes into effect once the whole development is completed, which can be years following the completion of the first properties on site. Discussions with public transport providers and operators therefore need to take place at the pre-application and early design stage.
- Difficulties are often experienced in determining financial contribution to the cost of, for example, monitoring, in the context of a planning condition. In the case of funding for, or towards, monitoring, the local authority may wish to express the duration of monitoring as covering a period both before and after the proposed development is operational. This may help determine the financial contribution necessary.
- Applying a condition relating to mechanical ventilation is not straightforward, not least because there are no formal standards and objectives relating

39 Further details on mitigation measures to apply during construction are set out in a Building Research Establishment publication "Controlling particles, vapour and noise pollution from construction sites", BRE, London, 2003.

to indoor air quality; the Department of Health's Committee on the Medical Effects of Air Pollution has, however, recently recommended guidelines for indoor air quality, which are essentially based on outdoor standards[40]. It is accepted that indoor air quality is influenced by the ingress of pollution from external sources, although the use of gas appliances will increase indoor exposure to concentrations of NOx and PM. Ventilating property from rear façades at rooftop level is likely to be most effective where mechanical ventilation is used. The regular maintenance of ventilation systems is essential if they are to be installed, and issues of responsibility for this and for payment of electricity costs will need to be sorted out.

- The use of a 30-50m buffer zone between, for example, residential properties and a major road, can be an effective mitigation option. In practice, while modelling studies can provide evidence to defend at least a 30m buffer, the measure can be difficult to agree. This is especially true in London and other conurbations, where the zones tend to conflict with the need to maximise property densities. For residential properties, the zones may also create perceived risks to personal safety. Although it may be difficult to agree a 30-50m zone, negotiations around this range may result in agreement of a zone of 15-25m. Given the rapid fall-off in concentrations with distance from a road this still represents a significant reduction in potential exposure.
- Air quality assessments should not be imposed as planning conditions. They should be completed prior to submission to enable the results to be taken into consideration when the application is determined. The use of conditions requiring post-hoc assessments usually results from poor communication between the planning and environmental health departments prior to an application being submitted. If air quality assessments are required as planning conditions, careful consideration should be given to the wording. For example, what should the assessment include? When should it be carried out, prior to building commencing or occupation? What happens if the assessment indicates that significant impacts would occur, or if concentrations above the objectives are predicted at areas of new exposure?

Impacts from construction and demolition

7.10 An important consideration for any planning application is activity during any demolition and site preparation phase and during the construction and landscaping phase. Although these phases will have a well defined beginning and end they still have the potential for bringing about exceedences of both UK Air Quality Objectives and EU Limit Values for particles (PM_{10}).

7.11 Other factors which will need to be considered during the construction phase include the operation of vehicles entering and leaving the site, re-entrained dust, the operation of site vehicles and possible temporary traffic diversions. The impact of a site will be dependent in part on the size of the site and in part on the amount of unpaved haul routes within the site.

7.12 Studies have also identified diesel engine exhaust emissions as a significant source of PM_{10}, particularly those from engines powering construction-specific activities such as cranes, excavators, generators, and diesel-powered trucks involved in the transportation of materials to the site.

7.13 A number of initiatives and guidance documents have emerged recently, to address issues relating to the control of dust and emissions from construction and demolition activities. Below are two examples, with contact details.

- *Association of London Technical Guidance:* (at the time of writing the update of this guidance is still under consultation).[41]
- *London Code of Practice: the control of dust and emissions from construction and demolition (LCCP):* produced in partnership by the Greater London Authority, London Boroughs and the Association of London Government – at the time of writing this document is still under consultation).[42]

Considerate contractor schemes

7.14 These schemes, also known as Considerate Builder Schemes, are part of a national initiative to improve the image of the construction industry through better management and presentation of its sites, over and above the statutory requirements. A number of local authorities have developed these, including the Corporation of London, Westminster City Council, Southwark Council, and Birmingham City Council.

7.15 The schemes can differ in detail between local authority areas. For example some include annual awards for the best contractors, whereas others are more explicit on what constitutes 'consideration'. However, the basic elements of the schemes are common to all.

7.16 The schemes are intended to benefit all parties and stress the importance of partnership. The scheme operated by the City of London makes clear that 'co-operation is the key to the success of the scheme', which is designed to 'promote high standards on all building sites, to encourage builders to take pride in their sites, and to ensure the development proceeds without making life unpleasant for those who live and work nearby'. The Considerate Contractor Scheme is a co-operative initiative open to all contractors undertaking building and civil engineering in the City of London.

7.17 The essence of Considerate Contractor Schemes is that contractors who join a scheme commit themselves to following a Code of Good (or Considerate) Practice. There are eight main features: Consideration; Environmental awareness; Cleanliness; Being a “Good Neighbour”; Respect; Safety; Responsibility; and, Accountability.

7.18 Sites registered under the scheme are visited regularly to check that the Codes are being complied with. Obviously the Codes go far wider than air quality but compliance with them can bring a range of benefits. The most important points are that proper management procedures are in place; that equipment use is managed efficiently (e.g. switched off when not in use); that all equipment details are recorded in a log-book; and that means of reducing emissions are properly fitted and maintained. Above all else, all personnel should be properly educated in considerate working practices.

40 See http://www.advisorybodies.doh.gov.uk/comeap/PDFS/guidanceindoorairqualitydec04.pdf
41 Previous version available at http://www.uwe.ac.uk/aqm/review/planning.html. This site will be updated with 2006 version.
42 Current version available at http://www.alg.gov.uk/upload/public/attachments/473/draftlondoncodeofpracticep2.pdf

Table 4. Examples of measures to mitigate against local air quality impacts

CONSTRUCTION PHASE MEASURES	
1. Control of dust	**Commentary (where applicable)**
▮ Building enclosures; use of screens; sheeted vehicles;	
▮ Early implementation of paved haul routes	
▮ Hard-standing cleaning	
▮ Water spraying; wheel washing	
▮ Consideration of location of stockpiles, stone-cutting activity; designated storage areas; diversion routes	
▮ Prohibit fires	
▮ Just-in-time deliveries	
2. Monitoring strategies	
▮ Site boundary monitoring pre-development and post-development (at closest receptor)	
▮ Liaison meetings with local residents	
▮ Considerate contractor schemes (and their equivalent)	
3. Construction plant emissions	
▮ Age and type of plant	
▮ Plant maintenance	
▮ Alternative fuel use	
POST-DEVELOPMENT MEASURES	
1. Transport related measures	
▮ Travel Plans	
▮ Parking standards	Apply maximum standard
▮ Service vehicle fuel use	
2. Non-Transport related measures	
▮ Monitoring programme (development specific)	Needs careful consideration as to the usefulness of the specific monitoring programme
▮ Ventilation	Mechanical ventilation becoming increasingly common. Care required on location of inlet. Need to ensure long term maintenance
▮ Contribution to action plan and monitoring programmes	Can be a financial contribution to help the authority develop and implement its action plan. May be a contribution to the authority's air quality monitoring programme
▮ Buffer Zone	Can be useful, but not simple to define extent. Not always practicable. May need to set against other benefits of development.
3. Building design	
▮ Balconies	May be best avoided in locations of poor air quality, especially at ground and first floors
▮ Habitable rooms	Consider placing away from façade fronting pollution source, e.g. in flats put corridors, stairwells, bathrooms etc. in these locations
▮ Avoid canyon streets or creating canyons	creating gaps in building façades can help ensure free flow of air in the street
▮ Non-opening front windows	Consider this option for worst affected locations, e.g. very close to busy roads and for first and ground floor units. To be balanced against loss of freedom for occupants.

Table 5. Some specific examples of measures applied by local authorities to mitigate against local air quality impacts of new developments

Local authority	Nature of mitigation or measure	Commentary (where applicable)
1. York CC	Pre-design mitigation	College Learning Centre: negotiated setting back and curving of the front of the building by having early meeting with developers and advising that there was a potential to produce a canyon effect within the street if they built up to the road side. Leisure centre: negotiated to get building set back and communal staircases/utility areas placed on ends of blocks closest to road. Mixed use development: recently approved application where negotiation has limited residential units on the main road to second storey and above only. The original plans showed residential at all levels on road frontage. Requirement for non-opening windows/rear ventilation: used for relatively small residential developments in the existing technical breach areas where there are already existing properties which we don't want to be seen to blight but likewise don't want to allow further exposure.
	Air quality monitoring	£5000 secured in each of two new housing sites in 'technical breach' areas through s106 to go towards air quality monitoring. A problem with these types of conditions is that generally they are only initiated once a certain number of units are built or have been occupied. Problems also include being dependent on the planning enforcement team to ensure compliance and difficulties in arriving at a specific financial sum to request.
2. London Borough of Hammersmith & Fulham	Conditions	London Borough of Hammersmith & Fulham. Re-development of land along Westway, comprising residential units and off street parking. Two conditions of planning permission related to the assurance that air quality will be of an 'acceptable level' for the occupants of the proposed residential units, in accordance with policy EN21 of the Council's UDP. One related to development not being permitted until details of the proposed mechanical ventilation and air filtration systems have been submitted and approved. The second related to the maintenance and cleaning of the ventilation and filtration systems.
3. Gloucester City Council	Mechanical ventilation	The development in question (residential property) is within an Air Quality Management Area, therefore all habitable rooms to the ground and first floor fronting onto Barton Street must have non-opening windows and mechanical ventilation shall be installed that only draws air from the rear of the property and maintained thereafter. This scheme must be approved by Local Planning Authority prior to commencement of work.
4. London Borough of Greenwich	Transport	Re-development of the Greenwich Dome area – where it has been possible to minimise the road traffic generation during the construction phase by using water transport for large quantities of construction material such as sand. Congestion on surrounding roads, and the subsequent poor reliability of HGV deliveries, have also made this an attractive measure for the developer. This type of action is obviously limited to those locations where such alternatives are feasible.
	Parking	An application for a residence for >1000 students in Greenwich included just 12 car parking spaces (6 for staff and 6 for disabled students). If a student uses a space, they receive an initial warning. If they repeat the offence they face eviction.

8: Conclusions and Key Points

8.1 The need for closer integration of air quality within planning policy and development control has been apparent since the inception of the LAQM regime, if not before. This NSCA guidance seeks to facilitate this closer integration and promote a consistent approach to the treatment of air quality issues within development control decisions. In addition to the outline methodologies provided for undertaking air quality assessments, the assessment of significance, and the development of planning policy recommendations, there are a number of key points which the guidance sets out. These are listed in the order in which they first appear in the guidance:

- Development control is an important tool in the improvement of air quality (Chapter 2).
- Local authorities should develop their own protocols, in the form of a Supplementary Planning Document, or SPD, on the integration of air quality, development control and land-use planning processes. These should reflect the local area, environmental conditions, and working practices. SPDs can also be developed on a wider basis by groups of local authorities (Chapter 2).
- Any air quality consideration that relates to land use and its development is capable of being a material planning consideration. The weight it is given against other considerations is context specific (Chapter 3).
- Two kinds of impact must be considered - the impact of the development on air quality (including both construction and operational impacts), and the impact of existing sources of air quality on the development (e.g. low polluting developments in areas of poor air quality) (Chapter 4).
- Air quality concerns need to be addressed at as early a stage in the development control process as possible, preferably at the pre-application stage (Chapter 4).
- In order for air quality to be properly considered in development control decisions, effective inter-professional relationships and administrative systems are vital (Chapter 4).
- AQMAs are a tool to assist in the improvement of air quality, not a block on development (Chapter 4).
- Where air quality assessments are undertaken, it is important to seek agreement on the datasets, methodologies and outputs which are appropriate to the assessment of the development's air quality impacts (Chapter 5).
- Within the planning process, the ultimate assessment of the significance of the air quality impacts should be made by the local authority, with the assistance of data provided by the developer (air quality assessment) (Chapter 6).
- In assessing significance, professional judgement is necessary (Chapter 6).
- The scale of mitigation imposed on a development must reflect the severity of its impacts and the context in which the development is to take place (Chapter 7).
- In the majority of cases, development control decisions must strike a balance between protecting local communities and providing benefits to the wider population. In this, the air quality management process can assist in mitigating the air pollution impacts on local communities (Chapter 7).

8.2 The management of social, economic and environmental issues at a local level has become increasingly complex, requiring interactions across a wide range of policy areas. Air quality is no exception. Information relating to the state of the atmospheric environment has traditionally come from within the environmental health/pollution control functions of local authorities. The main levers for action exist within the policy spheres of transport planning, land use planning and development control. However, the improvement of air quality exists as a duty of local authorities as a whole, and it is only through coherent corporate action that this duty can be discharged.

8.3 Development control carries the responsibility for integrating a very wide range of issues into planning decisions. Development control officers must therefore rely on the input of experts from other policy areas to inform those decisions. The process for doing this has varied considerably, both across different local authorities and over time. This guidance is intended to promote greater consistency in this process, and through doing so, to help maximise the beneficial effects of good development control on air quality and the wider environment.

APPENDIX 1: Glossary of Abbreviations

AADT: Annual average daily traffic.

AQAP: Air quality action plan: required by a local authority to identify and implement actions to reduce air quality concentrations below the objectives.

AQMA: Air quality management area: a local authority is required by the Environment Act 1995 to declare an AQMA where it believes UK air quality objectives prescribed in Regulations (see Appendix 3) will be exceeded.

AQO: Air quality objective: targets set by the Government and Devolved Administrations as minimum acceptable standards of air quality (see Appendix 3).

CO: Carbon monoxide.

CO_2: Carbon dioxide.

DCLG: Department for Communities and Local Government; established May 2006 when it took over the responsibilities of the former ODPM for local government policy and the land-use planning regime.

Defra: Department for Environment, Food and Rural Affairs: responsible for environment policy, including the production of the Air Quality Strategy for England, Scotland, Wales and Northern Ireland, and the supervision of the LAQM and LAAPC regimes.

DETR: Department of the Environment, Transport and the Regions. In 2001 DETR's functions were divided between Defra, ODPM and the Department for Transport (DfT).

DoENI: Department of the Environment, Northern Ireland: the Devolved Administration for air quality issues in Northern Ireland.

EA: Environment Agency (England and Wales).

EIA: Environmental impact assessment (see Chapter 3).

EU: European Union.

HIA: Health impact assessment (see Chapter 3).

LAAPC: Local Authority Air Pollution Control: the system introduced in England and Wales by the Environmental Protection Act 1990 for the permitting and control of emissions to air by locally important industrial and commercial polluting processes (Part B processes). More significantly important processes (Part A) are regulated by the Environment Agency, for all media. Modified and largely superseded by the Pollution Prevention and Control (PPC) regime (see below).

LAQM: Local air quality management: system introduced by the Environment Act 1995 to address local air quality 'hot spots'. Includes the review and assessment process, the designation of AQMAs and the development of action plans. Steered through the production of Secretary of State's Guidance notes.

LDD: Local Development Documents (which replace Local Plans and Unitary Development Plans under the Planning and Compulsory Purchase Act, 2004) are the new framework for local authorities to prepare local land-use plans. Local Development Schemes set out the LDDs that local planning authorities propose to produce.

LDF: Local Development Frameworks (previously Structure Plans) contain Local Development Documents, some of which have development plan status (and therefore subject to independent examination) and Planning Policy Statements (formerly Planning Policy Guidance).

LTP: Local Transport Plans in England (not including London) provide the funding mechanism by which local highways authorities set out strategies for improving public transport, roads and transport within their authority. In Scotland the Scottish Executive is responsible for transport, with local authority local transport strategies helping to deliver national and local transport objectives. The Welsh Assembly Government (Environment, Planning and Transport), and Department of the Environment, Northern Ireland are responsible for transport planning in Wales and Northern Ireland respectively.

NO_2: Nitrogen dioxide.

NOx: Oxides of nitrogen: NO_2 is largely a secondary pollutant, being formed by the oxidation of nitrogen oxide (NO) after emission, although some NO_2 is directly emitted, the proportion being due to exhaust treatment technology. NOx is the sum of NO and NO_2 (plus other minor oxides) and is often used to express the emitted pollutant quantity.

NSCA: National Society for Clean Air and Environmental Protection.

ODPM: Office of the Deputy Prime Minister – until May 2006 responsible for local government policy, including the land-use planning regime – see DCLG above.

PAH: Polycyclic Aromatic Hydrocarbon: a complex group of pollutants some of which are powerful carcinogens. Usually represented in concentration terms by the marker compound benzo[a]pyrene (B[a]P).

PM_{10}: Particulate matter with an effective diameter of less than 10 microns (μm). Particulate matter can be expressed in a number of different size ranges ($PM_{2.5}$, PM_1, etc.), most commonly by mass ($\mu g/m^3$), but also by particle number.

PPC: Pollution prevention and control: Europe wide system which is largely replacing the earlier UK based integrated pollution control (IPC) system, a process which will be complete by 2007. Introduced in England, Scotland and Wales through the Pollution Prevention and Control Regulations 2000 (Regulations for Northern Ireland followed in 2003).

PPG: The former Planning Policy Guidance notes set out the policy framework in which local planning authorities were required to draw up their local development plans.

PPS: Planning Policy Statements will replace the former Planning Policy Guidance notes under the new planning regime.

RSS: Regional Spatial Strategies, statutory requirements under the Planning and Compulsory Purchase Act 2004, replace the Regional Planning Guidance, and are prepared by regional planning authorities.

SE: Scottish Executive: the Devolved Administration for Scotland.

SEA: Strategic Environmental Assessment is a requirement under the Strategic Environmental Assessment Directive 2001/42/EC, requiring the assessment of the effects of certain plans and programmes on the environment.

SEPA: Scottish Environment Protection Agency: body with national responsibility for industrial pollution control and regulation in Scotland, including Part A and B processes under IPC, and A1 and A2 installations under PPC.

SO_2: Sulphur dioxide.

TA: Transport Assessments consider the potential impact from new development on a transport network. Though not statutory, the requirement for a TA is identified as an important way of reducing traffic, as stated in government Planning Policy Guidance (to be replaced by the PPS series).

TIA: Transport Impact Assessments have been superseded by Transport Assessments.

UDP: Unitary Development Plans have been superseded by Local Development Documents (see LDDs).

VPH: Vehicles per hour.

WAG: Welsh Assembly Government: the Devolved Administration for Wales.

APPENDIX 2: Air Quality Objectives

A2.1 The air quality objectives and limit values currently applying to the UK can be split into three groups. Each group has a different legal status and is therefore handled in a different way within the framework of UK air quality policy. The groups are:

- UK air quality objectives set down in regulations for the purposes of local air quality management;
- UK air quality objectives not included in regulations; and
- EU Limit Values transcribed into UK legislation.

UK Objectives for local air quality management

A2.2 Part IV of the Environment Act 1995 requires that local authorities review and assess the quality of air in their areas, against any air quality standards or objectives, and that regulations may be made setting out what these standards or objectives are. This means that local authority air quality review and assessment only refers to those objectives laid out in the following regulations:

- The Air Quality (England) Regulations 2000 (similar regulations were also passed in 2000 covering Wales and Scotland);
- The Air Quality Regulations (Northern Ireland) 2003;
- The Air Quality (Scotland) (Amendment) Regulations 2002;
- The Air Quality (England) (Amendment) Regulations 2002.

A2.3 Local authorities (or anyone else) are not under a legal duty to achieve the objectives. Rather, the duty is to carry out an assessment against the objectives, where there is likely to be a breach to declare an AQMA, and thereafter to prepare a plan setting out how the authority proposes to use the powers at its disposal in pursuance of the objectives. The current objectives are set out in Table 6.

UK Objectives not included in regulations

A2.4 The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (the UK Air Quality Strategy) also contains a number of objectives which are not included in regulations for the purposes of LAQM – Table 7. They are intended as drivers for UK air pollution policy, as are the other objectives, but it is not thought appropriate for local authorities to assess against them at this time. The main reasons for this are that local authorities lack the necessary policy instruments to address the pollutant in question, or that the pollutant is regional in nature and therefore not suitable for local control (e.g. ozone). The long term objective for particles (PM_{10}) is included in regulations in Scotland, but not England, Wales or Northern Ireland (the long term objective is derived from EU legislation, which is currently under review).

EU Air Quality Limit Values

A2.5 The EU's Framework *Directive on ambient air quality assessment and management* (96/62/EC) was formally adopted on 27 September 1996; it came into force on 21 November 1996, and had to be implemented by Member States by 21 May 1998. It requires the Commission to propose "Daughter" Directives setting air quality objectives, limit values, alert thresholds, guidance on monitoring, siting and measurement methods for individual pollutants.

A2.6 The first Daughter Directive (99/30) under the *Air Quality Assessment and Management Directive* was formally adopted on 22 April 1999 and had to be implemented by July 2001. The original 2001 *Air Quality Limit Values Regulations* implementing this and the framework Directive in England and in Scotland have now been revoked and replaced by 2003 Regulations with similar 2001 and 2002 Regulations in Wales and N. Ireland, respectively.

A2.7 The Directive sets limit values for sulphur dioxide, nitrogen dioxide, particulate matter and lead with the aim of avoiding, preventing or reducing their harmful effects on human health and on the environment as a whole (Table 8). Where the limit value is likely to be exceeded on more than the permitted number of days per year then action programmes setting out plans to meet the limit value by the target date must be drawn up; where the limit value is exceeded, steps must be taken to ensure it is met by the target date; where air quality is below the limit value, it should not be allowed to deteriorate.

A2.8 This Directive is currently under review by the European Commission. A working group has recommended that a Limit Value for $PM_{2.5}$ be introduced.

A2.9 The second "daughter Directive" was formally adopted in December 2000 (2000/69/EC), and had to be implemented by December 2002. The Directive establishes a limit value of 10 mg/m^3 (8.5 ppm) averaged over 8 hours for carbon monoxide to be achieved by 1 January 2005; for benzene a limit value of 5 $\mu g/m^3$ (about 1.66 ppb) averaged over a calendar year is to be achieved by 1 January 2010; for those countries which would have difficulty in meeting the limit, a five year derogation is allowed but benzene concentrations must not be allowed to exceed a yearly average of 10 $\mu g/m^3$.

A2.10 The third Daughter Directive was adopted in February 2002; Directive 2002/3/EC relating to ozone in ambient air, which also forms part of the Commission's acidification strategy, came into force on 9 March 2002. Member States were required to bring in the measures necessary to implement the Directive by 9 September 2003, when the 1992 Directive on Air Pollution by Ozone (92/72/EEC)1992 was repealed.

A2.11 Member States must identify zones and agglomerations where either the target values or long

term objectives are unlikely to be met within the specified period, and draw up action plans or programmes in accordance with the Directive. Member States should also identify those zones and agglomerations in which the long term objective is already met and should ensure that air quality is maintained in those areas.

A2.12 The fourth Daughter Directive, 2004/107/EC, was adopted in December 2004. It aims to minimise the harmful effects of heavy metals – arsenic, cadmium, nickel and polycyclic aromatic hydrocarbons (using B[a]P as a marker) – in ambient air.

A2.13 The Directive sets target values (Table 9) with Member States required to "take all necessary measures, not entailing disproportionate cost" to meet them by 31 December 2012. Installations regulated for PPC will be expected to use "best available techniques" to reduce emissions.

Table 6: Objectives for the Purposes of Local Air Quality Management (included in the Air Quality Regulations, as amended) (note: objectives are the same in England, Wales, Scotland and Northern Ireland unless otherwise stated)

Pollutant	Objective	Measured as	To be achieved by
Benzene	16.25 µg/m^3	Running Annual Mean	31 December 2003
	5 µg/m^3 (E & W)	Annual Mean	31 December 2010
	3.25 µg/m^3 (Scotland & NI)	Running Annual Mean	31 December 2010
1,3-Butadiene	2.25 µg/m^3	Running Annual Mean	31 December 2003
Carbon monoxide	10.0 mg/m^3	Maximum daily running 8 Hour Mean (E, W & NI)	31 December 2003
		Running 8 Hour Mean (Scotland)	
Lead	0.5 µg/m^3	Annual Mean	31 December 2004
	0.25 µg/m^3	Annual Mean	31 December 2008
Nitrogen Dioxide (Provisional Objective)	200 µg/m^3 Not to be exceeded more than 18 times per year	1 Hour Mean	31 December 2005
	40 µg/m^3	Annual Mean	31 December 2005
Particles (PM_{10}) (gravimetric)	50 µg/m^3 Not to be exceeded more than 35 times per year	24 Hour Mean	31 December 2004
	40 µg/m^3	Annual Mean	31 December 2004
	50 µg/m^3 Not to be exceeded more than 7 times per year (Scotland)	24 Hour Mean	31 December 2010
	18 µg/m^3 (Scotland)	Annual Mean	31 December 2010
Sulphur dioxide	266 µg/m^3 Not to be exceeded more than 35 times per year	15 Minute Mean	31 December 2005
	350 µg/m^3 Not to be exceeded more than 24 times per year	1 Hour Mean	31 December 2004
	125 µg/m^3 Not to be exceeded more than 3 times per year	24 Hour Mean	31 December 2004

Table 7: National Objectives not included in the AQ Regulations

Pollutant	Objective	Measured as	To be achieved by
Objectives for the protection of human health			
Ozone (Provisional)	100µg/m^3 Not to be exceeded more than 10 times per year	Daily maximum of running 8 hr mean	31 December 2005
Particles (PM_{10}) (gravimetric)	50 µg/m^3 not to be exceeded more than 7 times per year (excluding London)	24-hour Mean	31 December 2010
	20 µg/m^3 (excluding London)	Annual Mean	31 December 2010
	50 µg/m^3 not to be exceeded more than 10 times per year (London)	24-hour Mean	31 December 2010
	23 µg/m^3 (London)	Annual Mean	31 December 2010
	20 µg/m^3 (London)	Annual Mean	Aspirational objective, with the aim to be achieved by 31 December 2015
PAHs (Benz-a-pyrene)	0.25 ng/m^3	Annual Mean	31 December 2010
Objectives for the protection of vegetation and ecosystems			
Nitrogen Oxides (assuming as Nitrogen Dioxide)	30 µg/m^3	Annual Mean	31 December 2000
Sulphur dioxide	20 µg/m^3	Annual Mean	31 December 2000
	20 µg/m^3	Winter Mean (1 October-31 March)	31 December 2000

Table 8: EU Air Quality Standards

Pollutant	Objective	Measured as	To be achieved by
Benzene	5 µg/m^3	Annual Mean	1 January 2010
Carbon monoxide	10.0 mg/m^3	Maximum Daily 8-Hour Mean updated Hourly	1 January 2005
Lead	0.5 µg/m^3	Annual Mean	1 January 2005
Nitrogen Dioxide	200 µg/m^3 Not to be exceeded more than 18 times per year	1-Hour Mean	1 January 2010
	40 µg/m^3	Annual Mean	1 January 2010
Nitrogen Oxides (assuming as Nitrogen Dioxide)	30 µg/m^3 (for the protection of vegetation)	Annual Mean	19 July 2001
Ozone (Target)	120 µg/m^3 Not to be exceeded more than 25 times per year	Maximum Daily Running 8 hour Mean updated Hourly	1 January 2010
Particles (PM_{10}) (gravimetric)	50 µg/m^3 Not to be exceeded more than 35 times per year	24-Hour Mean	1 January 2005
	40 µg/m^3	Annual Mean	1 January 2005
Sulphur dioxide	350 µg/m^3 Not to be exceeded more than 24 times per year	1-Hour Mean	1 January 2005
	125 µg/m^3 Not to be exceeded more than 3 times per year	24-Hour Mean	1 January 2005
	20 µg/m^3 (for the protection of vegetation)	Annual Mean	19 July 2001

Table 9: Heavy Metals

Pollutant	Value	Measured as	To be achieved by
Arsenic	6 ng/m^3	Total content in the PM10 fraction averaged over a calendar year	31 December 2012
Cadmium	5 ng/m^3		
Nickel	20 ng/m^3		
BaP	1 ng/m^3		

APPENDIX 3: Descriptors for Impact Magnitude and Impact Significance in Air Quality Assessments

A3.1 When air quality assessments are prepared for planning applications it is often considered appropriate to use a set of descriptors to describe the significance of the impacts predicted. There are essentially three aspects of the impact that need to be taken into account when determining significance:

- the magnitude of the change;
- the absolute concentrations in relation to air quality objectives; and
- the number of people exposed to the changes.

A3.2 The following tables set out examples of descriptors for magnitude of change and significance, taking into account magnitude of change and absolute levels with the development. They do not at this stage incorporate an allowance for the number of people exposed to the changes or to the exceedences of the objectives. In preparing these descriptors it is considered important not to confuse terminology that is judgemental with terminology that is describing a magnitude. For example, a change in concentration of 2% is often described as insignificant or negligible. Insignificant or negligible are judgemental terms that apply to the significance, not the magnitude. The magnitude needs to be described using a descriptor such as very small.

A3.3 Clearly the magnitude descriptors could be ascribed to different numerical changes than those in Table 10, but what is important is that a consistency is applied throughout the air quality report, so that when the term 'small' is used the reader knows what this means.

A3.4 The impact significance descriptors in Table 11 take account of the magnitude of the change (both positive and negative, as this is a requirement of an environmental assessment) and the absolute concentration in relation to the air quality objective. Particular significance is given to a change that takes the concentration from below to above the objective or vice versa[43]. This is because of the importance ascribed to the objectives in assessing local air quality, as set out clearly in PPS23. The descriptors also allow for a very small change in concentration being more significant when the concentration is above the objective than when it is well below the objective.

A3.5 Clearly, the impact significance descriptors can be tailored to match terminology used by the consultants assembling a particular Environmental Statement. However, where possible the concepts set out above should be adhered to.

Important notes

A3.6 There are limitations with Table 11, which is intended as an example. The Table does not, for example, take into consideration the numbers of people exposed to a particular change in concentration. An example of how numbers of people exposed to a particular pollutant could be taken into consideration is provided in Table 12. Where a scheme has both benefits and disbenefits an overall 'worst case' approach should be taken; but where, for example, one receptor has a 'medium' decrease in air quality but a large number of receptors show a significant improvements in air quality some judgement may need to be taken. The example provided is also limited to operational impacts and does not cover construction impacts. Clearly, professional judgement is required in the interpretation of air quality assessment significance. The Tables provided should be utilised as a tool to help interpret the outcomes of an air quality assessment.

Table 10. An Example of Descriptors for Changes in Ambient Concentrations of Nitrogen Dioxide and PM_{10}

Magnitude of Change	Annual Mean NO_2 / PM_{10}	Days PM_{10} >50 µg/m^3
Very large	Increase/decrease > 25%	Increase/decrease > 25 days
Large	Increase/decrease 15-25%	Increase/decrease 15-25 days
Medium	Increase/decrease 10-15%	Increase/decrease 10-15 days
Small	Increase/decrease 5-10%	Increase/decrease 5-10 days
Very Small	Increase/decrease 1-5%	Increase/decrease 1-5 days
Extremely Small	Increase/decrease <1%	Increase/decrease <1 days

43 This is particularly so with the present system of air quality control that focuses on air quality objectives and limit values, which are absolute values not to be exceeded. The system is such that, rightly or wrongly, there is a substantial difference in significance between an annual mean nitrogen dioxide concentration of 39.9 µg/m^3 and 40.1 µg/m^3.

Table 11. An Example of Descriptors for Impact Significance for Nitrogen Dioxide and PM_{10}

Air Quality Impact Significance Criteria

Absolute Concentration in Relation to Standard	Extremely Small	Very Small	Small	Medium	Large	Very Large
Decrease with scheme						
Above Standard with Scheme	slight beneficial	slight beneficial	substantial beneficial	substantial beneficial	very substantial beneficial	very substantial beneficial
Above Standard without scheme Below with Scheme	slight beneficial	moderate beneficial	substantial beneficial	substantial beneficial	very substantial beneficial	very substantial beneficial
Below Standard without scheme, but not Well Below	negligible	slight beneficial	slight beneficial	moderate beneficial	moderate beneficial	substantial beneficial
Well Below Standard without scheme	negligible	negligible	slight beneficial	slight beneficial	slight beneficial	moderate beneficial
Increase with scheme						
Above Standard without scheme	slight adverse	slight adverse	substantial adverse	substantial adverse	very substantial adverse	very substantial adverse
Below Standard without scheme Above with Scheme	slight adverse	moderate adverse	substantial adverse	substantial adverse	very substantial adverse	very substantial adverse
Below Standard with Scheme, but not Well Below	negligible	slight adverse	slight adverse	moderate adverse	moderate adverse	substantial adverse
Well Below Standard with Scheme	negligible	negligible	slight adverse	slight adverse	slight adverse	moderate adverse

Well below the standard = < 75% of the standard level.

'Standard' in the context of this table relates to specific air quality objective or Limit Value in question

Table 12. An Example of Descriptors for Impact Significance for Introduction of New Relevant Exposure

Air Quality Impact Significance Criteria – New Exposure

Absolute Concentration at New Properties in Relation to Standard	**Number of new properties exposed to concentration**			
	0-20	**20-100**	**100-500**	**>500**
Above Standard	slight adverse	moderate adverse	substantial adverse	very substantial adverse
Below Standard but not Well Below	negligible	negligible	slight adverse	slight adverse
Well Below Standard	negligible	negligible	negligible	negligible

Well below the standard = < 75% of the standard level.

'Standard' in the context of this table relates to specific air quality objective or Limit Value in question
The number of properties relates to the number exposed to a particular concentration range, i.e. 10 properties within a development may be exposed to concentrations above the objective and therefore would be affected by slight adverse impacts. However 80 properties may be in locations where the predicted concentration is below the standard but not well below, and thus the impact on those properties is negligible.

Consideration may need to be given to drop off with height above ground level where there are flats involved.

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NSCA
44 Grand Parade
Brighton
BN2 9QA

Tel 01273 878770
Email admin@nsca.org.uk
Web www.nsca.org.uk

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