London Borough of Hounslow

Air Quality

Supplementary Planning Document to the Hounslow Local Development Framework

Environmental Strategy
London Borough of Hounslow

March 2008

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Glossary

Air Quality Assessment (AQA)	An assessment of the impact of a development on the levels of certain pollutants in the local area.
Air Quality Management Areas (AQMAs)	Areas where the air quality objectives are likely to be exceeded. Declared by way of an order issued under the Section 83(1) of the Environment Act 1995.
Air Quality Objectives	Air quality targets to be achieved locally as set out in the Air Quality Regulations 2000 and subsequent Regulations. Objectives are expressed as pollution concentrations over certain exposure periods, which should be achieved by a specified target date. Some objectives are based upon long term exposure (e.g. annual averages), with some based on short term objectives. Objectives only apply where a member of the public may be exposed to pollution over the relevant averaging time.
Best Available Techniques (BAT)	The basis for determining the appropriate technique for reducing pollution under the Prevention and Control of Pollution Regulations.
LAQM.TG(03)	Local Air Quality Management Technical Guidance (2003). This document provides national advice on how local authorities should assess air quality.
Exceedence	Concentrations of a specified air pollutant greater than the appropriate Air Quality Objective.
Limit Values/EU limit values	The maximum pollutant levels set out in the EU Daughter Directives on Air Quality. In some cases the limit values are the same as the national air quality objective, but may allow a longer period for achieving.
Line source	Mathematical models are important tools for assessing air quality. Necessarily they require a number of assumptions to be made. Sources such as constantly flowing road traffic is typically modelled as a line source rather than as a large series of individual cars.

Mitigation	The SPD places most emphasis on significant air quality impacts or issues by the correct design or redesign of the development. Where it is accepted that redesign cannot resolve the air quality issues satisfactorily mitigation may be acceptable. Mitigation measures will minimise (but not necessarily remove) the impact of or effect of poor air quality on a development.
National Air Quality Objectives	See Air Quality Objectives.
National Air Quality Strategy	The Air Quality Strategy for England, Scotland, England, Wales and Northern Ireland. The current version at the time of producing this SPD was January 2000 with addendum published in February 2003. This sets out the Governments strategy for improving air quality in the UK. It makes reference to the importance of the planning process.
NO_2	Nitrogen dioxide
NOx	NOx = nitrogen oxides, which covers both nitric oxide and nitrogen dioxide. Most pollution sources emit nitrogen oxides primarily as nitric oxide . However, once in the atmosphere nitric oxide can be converted to nitrogen dioxide. Therefore it is important to know the concentrations of both NOx and NO_2.
Offsetting	Measures which 'compensate' for anticipated increases in pollution in the area but not necessarily at the exact locality. This might be for example by funding more general measures in the air quality action plan to improve air quality in Hounslow.
PM_{10}	Fine particulate matter with a diameter of less than 10 microns diameter (full definition available in the National Air Quality Strategy).
Part A1 and A2 Processes (installations)	Industrial processes which are regulated under the Pollution Prevention and Control (PPC) Regulations and subsequent Integrated Pollution Prevention and Control (IPPC) for emissions to all media (i.e. atmosphere, land and water).
Part B processes (installations)	Industrial processes which are regulated under the Local Air Pollution Control (LAPC) and Local Air Pollution Prevention and Control (LAPPC) Regulations for emissions to air only.
Point source	A specific location where a known concentration of a certain pollutant is emitted such as a discharge stack.

Polluting development	A development which will directly or indirectly increase levels of relevant pollutants. This may include industrial processes but may also include developments which could cause increased traffic emissions within Hounslow. These types of developments may increase pollution concentrations within Hounslow
PPC Regulations	Pollution Prevention and Control Regulations 2000 (as amended).
Risk Assessments	A comprehensive assessment of the risks associated with a particular hazard which is relevant to the development site.
Sensitive development	A development which would allow users of the site to potentially be exposed to pollutants above the objective for the relevant period. For example, the introduction of a new residential development into an area where an air quality objective is already exceeded, would create the potential for the exposure of residents to poor air quality above the objective. Incidentally, this type of development may also generate significant additional traffic flow and also be a polluting development.

ASSESSMENT OF THE IMPACT OF NEW DEVELOPMENT ON AIR QUALITY

1. Introduction

1.1 Aims of this Supplementary Planning Document

1.1.1 This document provides technical advice on how to deal with planning applications that could have an impact on air quality. If the procedures in this document are followed it will help ensure consistency in the approach to dealing with air quality and planning in Hounslow. This SPD will supplement planning policy ENV.P.1.6 Air Quality, of the Adopted UDP, December 2003

1.1.2 This Supplementary Planning Document aims to:

i. identify those circumstances when an air quality assessment will be required to accompany a development proposal.

ii. provide technical guidance on the process of air quality assessment (see Technical Appendix).

iii. provide guidance on the circumstances when air quality conditions and S106 planning obligations will be sought in accordance with national guidance, The London Plan, saved UDP policies and Hounslow's emerging LDF policies for air quality. The guidance is aimed at ensuring that air quality has been considered in enough depth and to help minimise any potential impacts.

1.1.3 The recent draft Air Quality Expert Group (AQEG) Air Quality and Climate Change report recognises the potential for both local and global air quality improvements. Hounslow will be looking towards reductions in both and developers should take this into account throughout the design, construction and operational phases and bear in mind any potential trade-offs between global and local air quality improvements.

1.2 Sustainability Appraisal of this Supplementary Planning Document

1.2.1 This Supplementary Planning Document was also subjected to a Sustainability Appraisal. The process of undertaking sustainability appraisal (SA) is now mandatory under the 2004 Planning & Compulsory Purchase Act for local development documents in the Local Development Framework (LDF). There is also an EU Directive which requires a 'Strategic Environment Assessment' (SEA) of plans and programmes, including development plans. The Department for Communities and Local Government (DCLG) has issued guidance on how to incorporate the two processes. The London Borough of Hounslow Sustainability Appraisal Scoping Report (Adopted by the Council's Executive on 13th September 2005) was produced following the suggested format in the then draft government guidance. Through an assessment of existing plans and proposals, collecting baseline data and identifying sustainability issues specific to Hounslow the document arrives at a set 23 objectives designed to promote the creation of sustainable communities. The purpose of sustainability appraisal is to promote sustainable development through the better integration of sustainability considerations into the preparation and adoption of plans. It is an iterative process that identifies and reports on the likely significant effects of the plan, and the extent to which its implementation will achieve the social, environmental and economic objectives by which sustainable development can be defined. Therefore, the sustainability appraisal aims to investigate the social, economic and environmental effects of the SPD.

1.3 Background

1.3.1 Clean air is vital to human health. High levels of PM_{10} air pollution were projected for 2005 to cause 1,031 accelerated deaths and 1,088 respiratory hospital admissions in London [1]

1.3.2 The Government adopted the UK Air Quality Strategy (AQS) in 1997 to deal with, amongst other issues, local air quality and its impact on health. This was revised as the AQS for England, Wales, Scotland and Northern Ireland in 2000, which set requirements from the Environment Act 1995 for local authorities to undertake a process of Local Air Quality Management (LAQM). As part of this process, local authorities must Review and Assess air quality and work towards objectives to be achieved between 2003 and 2008. Where the prescribed air quality objectives are unlikely to be met, local authorities must designate Air Quality Management Areas (AQMAs) and produce an Air Quality Action Plan setting out measures they intend to take to work towards objectives. Under the requirements of

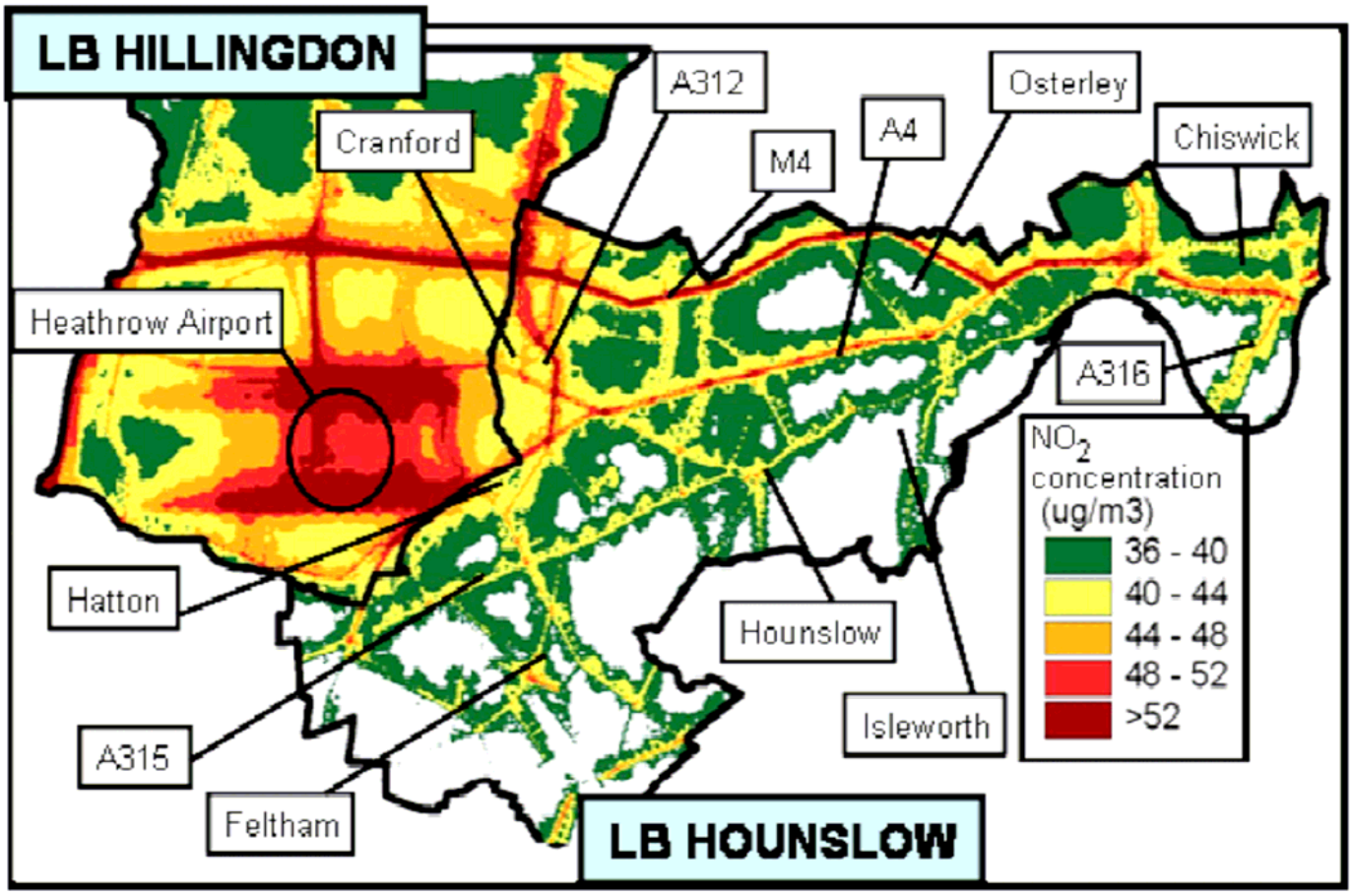
[1] The Mayor's Air Quality Strategy: Progress Report to March 2005

the Greater London Authority Act 1999, the Mayor for London produced an Air Quality Strategy setting out how the National Strategy will be implemented in London as a whole. London Borough Action Plans need to have regard to the Mayor's Strategy.

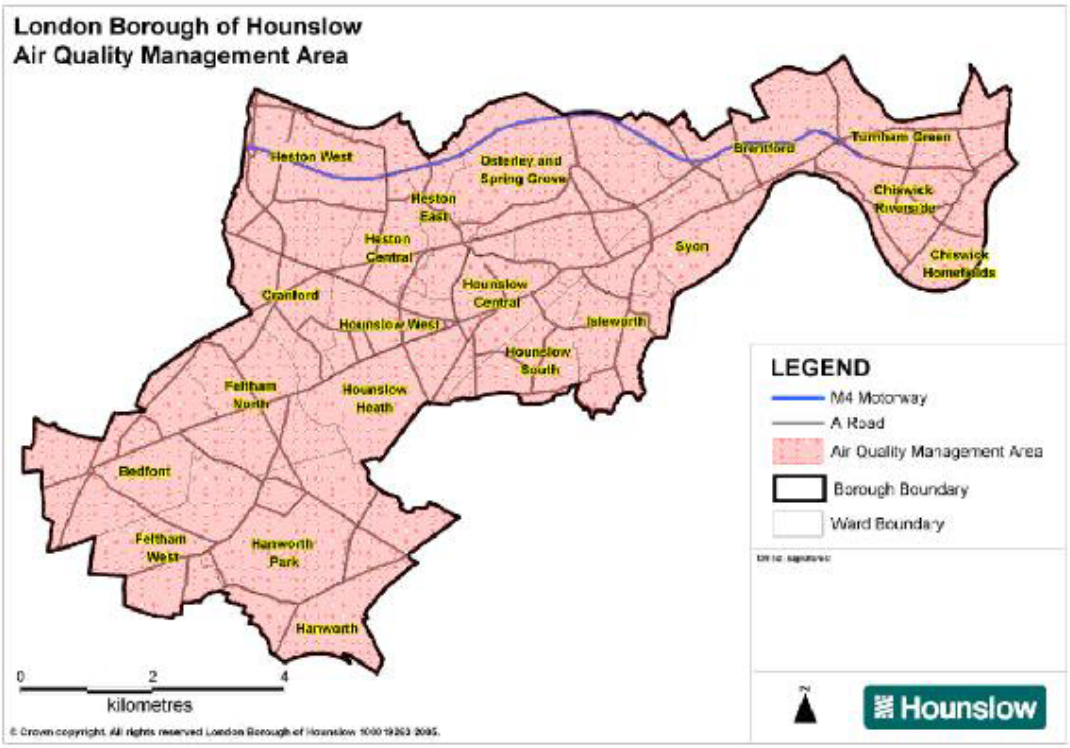
1.3.3 By 2006, all but one borough had declared AQMA(s) for nitrogen dioxide (NO_2) and/or fine particles (PM_{10}). The major cause of air pollution in London is road traffic, although, around Heathrow, emissions from aircraft and associated on-airport traffic are an additional source. Other notable contributions come from industrial plant and premises, domestic energy production and construction activity. It should be remembered that background pollutant concentrations in London and the South East are heavily influenced by weather systems that also affect northern Europe.

1.3.4 An air quality update was presented to the Executive of Hounslow Council in 2004 where it was shown that more of the borough was predicted to exceed the prescribed standard for Nitrogen Dioxide. **Figure 1** below shows the modelling that supported this prediction. The decision was taken to declare the whole Borough an Air Quality Management Area and this decision was ratified in 2005.

Figure 1 – Projected annual mean NO_2 concentrations in and around London Borough of Hounslow in 2005 (source: CERC 2002)



A map showing the boundary of the AQMA is presented in **Figure 2** below.



1.3.5 It is clear that the road network in the AQMA carries a very high volume of traffic and associated congestion. Emissions from road traffic are recognised to be a major contributor to poor air quality within the Borough. Heathrow airport is also a major source of emissions. The result of these activities is that the area is subjected to levels of air pollution more severe than many other UK towns and cities.

1.3.6 Where developments take place in an AQMA, mitigation measures should be considered as standard practice, particularly in cases where the development is new and does not replace an existing use. This is especially important where provision has been made for a large number of parking spaces and/or heating plant or will generate a significant number of trips.

1.3.7 The consultation on the latest review of the national AQS was issued in April 2006. The government is proposing an exposure reduction approach in line with the proposed EU thematic strategy. This approach supplements air quality objectives (which are focused at hot-spots) and is designed to achieve a general reduction in pollution concentrations in urban areas across the whole country. Any changes in the AQS will be reflected in future borough review and assessment and policy work.

1.3.8 A key principle of LAQM is for local authorities to integrate air quality considerations with other policy areas, including planning. Planning Policy Statement (PPS23) on Planning and Pollution Control clearly states that air quality can be a material planning consideration. Indeed, PPS23 goes on to state that the planning system should not just seek to maintain the 'environmental *status quo*', rather "planning should become a more strategic, proactive force for economic, social and environmental well-being"[2]. It goes on to say, "The planning system plays a key role in protecting and improving the natural environment, public health and safety, and amenity"[3]. It is therefore very important for all local authorities to think about how they can best bring air quality considerations into the planning process at the earliest possible stage and it is no longer satisfactory simply to demonstrate that a development is no worse than the existing or previous land use on a particular site.

1.3.9 This supplementary planning document takes into account new planning policies including PPS23, The London Plan and saved UDP policies and aims to help reduce exposure to air pollution across the whole of Hounslow. This approach should bring health benefits to everyone - not just those living in localised areas (i.e. hotspots) where the objectives are exceeded. This is particularly important for PM_{10}, as this pollutant has a significant impact on health and has no safe threshold. In order to reduce overall exposure, background pollution will need to be reduced, so it makes sense that every development that has the potential to emit pollution should require mitigation or off-setting to help achieve an overall reduction in Hounslow's air pollution.

1.3.10 This technical guidance has incorporated work produced by the APPLE (Air Pollution Planning and the Local Environment) working group. The group produced a revised version of the Air Quality and Planning Guidance in January 2007 for London Councils (Formerly the ALG) which has been incorporated as well.[4]

1.3.11 Planning Policy Statement Note 12 (Local Development Frameworks) states that:

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[2] PPS23 Planning and Pollution Control, ODPM 2004, para. 3

[3] ibid, para. 9

[4] Air Quality and Planning Guidance Revised version- January 2007. Written by: The London Air Pollution Planning and the Local Environment (APPLE) working group.

- SPDs may be taken into account as a material consideration in the determination of planning applications. The Secretary of State will give substantial weight to an SPD, which has evolved from the development plan, and has been prepared in the proper manner.
- A public consultation should form part of the SPD preparation and include interested parties. These views should be taken into account before the SPD is finalised.

1.3.12 All references to the UDP are to the London Borough of Hounslow's Adopted Unitary Development Plan, 12th December 2003.

1.3.13 This Supplementary Planning Document appends to UDP Policy ENV-P.1.6 Air Pollution. This policy states that "*The Council will give detailed consideration to air pollution matters when considering development proposals, will continue to monitor air quality and will seek reductions in the levels of specific airborne pollutants, particularly pollution caused by road and air transport where possible in line with the EC guidelines, directives, and the air quality standards and objectives as stated in the most current air quality regulations and the Council's Air Quality Review and Assessment and Air Quality Action Plan*." It goes on to say that "*All developments, which are potentially polluting will require a detailed air quality assessment*"

2. The Planning Context

Guidance relevant to local planning authorities air quality responsibilities is set out in the following planning policy guidance:

2.1 National and London Planning Guidance

2.1.1 Policy Guidance LAQM.PG(03), Defra (Department for Environment, Food and Rural Affairs)

This guidance has a chapter on Air Quality and Land Use Planning that states, “Any air quality consideration is capable of being a material planning consideration, in so far as it affects land use”. The guidance also states “ All planning applications should be supported by such information as is necessary to allow a full consideration of the impact of the proposal on the air quality of the area”

2.1.2 NSCA guidance Development Control: Planning for Air Quality

This national guidance initially published in 2004 provides a framework for air quality considerations that need to be taken into account in the development control process. The guidance provided a new approach to addressing air quality impacts and helped provide some consistency in decision making processes. In light of experience using the NSCA guidance, an updated version was published in 2006 which has been extensively revised. The 2006 version contains a wider range of case studies; describes how local authorities have dealt with mitigation in practice; provides examples of how cumulative impacts may be tackled; and provides revised guidance on assessing significance. It takes into account the experience of local authorities and consultants who had used the previous guidance over the intervening years, as well as other relevant recently published documents (such as PPS 23, the London Code of Construction Practice (2005) and the London Councils guidance on air quality and planning (2007)).

2.1.3 Mayor of London. The London Plan: Spatial Development Strategy for Greater London (2004) and Air Quality Strategy (2002)

The Mayor of London is responsible for strategic planning in London, and his London Plan replaces strategic guidance RPG3. Borough’s development plans must conform to the plan. Policy 4A.6 on Improving Air Quality sets out that the Mayor and boroughs should implement the Mayor’s Air Quality Strategy to achieve reductions in pollution emissions in the new developments. For example:

- Improving the integration of land use and transport policy by reducing the need for car travel

- Setting out criteria for different pollutants, against which plans and policies can be assessed
- Ensuring that air quality is taken into account as a material consideration at the planning application stage

2.1.4 Draft Further Alterations to the London Plan (Spatial Development Strategy for Greater London) A review of the London Plan initiated by the Mayor of London. The further alterations endorses the intent to improve the quality of the environment in West London including air quality. There are a number of significant changes in the Further Alterations with relevance to air quality. New draft policies reflect how action can be taken to help mitigate and abate the effects of climate change.

2.1.5 PPS1 Planning Policy Statement 1 sets out the Government's overarching planning policies on the delivery of sustainable development through the planning system. It states that development plan policies should take account of environmental issues such as mitigation of the effects of, and adaptation to, climate change through the reduction of greenhouse gas emissions and the use of renewable energy; air quality and pollution. The Government has also consulted on a draft PPS which sets out how planning, in providing for the new homes, jobs and infrastructure needed by communities, should help shape places with lower carbon emissions and resilient to the climate change now accepted as inevitable.

2.1.6 PPS23 Planning and Pollution Control (2004)

The previous PPG23 was revised to include requirements under the Environment Act 1995 and states that pollution issues must be taken into account as appropriate within planning decisions. The document emphasises the importance of national air quality objectives and AQMAs in relation to planning decisions. In terms of air quality, Annex 1 paragraphs 1.48-1.50 set out how planning conditions or obligations can be used to address the impact of the proposed development on air quality. Appendix 1G gives examples of cases where air quality may be important in planning.

2.1.7 PPS6 Planning for Town Centres (2005), PPS12 Local Development Frameworks (2004) and PPG13 Transport (2001)

PPS6 and PPS12 deal with air quality indirectly by promoting sustainable forms of development i.e. development in locations such as town centres that are well served by public transport in order to reduce traffic generation and emissions. Draft revised PPG13 emphasises the importance of local air quality as an “important consideration

in the integration of planning and transport" (para 9). It also states the importance of well-designed traffic management as a measure to reduce local air pollution.

2.1.8 Planning Obligations Circular 05/05

The purpose of this Circular is to provide guidance on the use of planning obligations in England under section 106 of the Town and Country Planning Act 1990 as substituted by the Planning and Compensation Act 1991. 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, and intended to make acceptable development which would otherwise be unacceptable in planning terms. Obligations can also be secured through unilateral undertakings by developers. This Circular replaces Department of the Environment Circular 01/97.

2.1.9 Planning Conditions Circular 11/95

This circular sets out guidance on the use of planning conditions for situations that can enhance the quality of the development. Conditions need to be fair, reasonable and practical and meet the tests set out in this document.

2.1.10 Requiring rather than encouraging action to be taken, for example through energy efficiency, renewable energy and energy assessments, increases the importance given to the over arching aim of tackling climate change. Greater emphasis is given to sustainable design and construction, reducing carbon dioxide (CO2) emissions through appropriate heating cooling and power systems, renewable energy and the efficient use of water. One of the main aims of policy is to reduce CO2 emissions by 60% up to 2050. 'Sustainability' in terms of new land use and development is seen as a main mechanism to help respond to climate change.

2.1.11 The Government is proposing that the Mayor should also produce two additional statutory strategies for Climate Change Adaptation and for Climate Change and Energy.

2.2 Local Planning Policy

2.2.1 In Hounslow, the major cause of air pollution is road traffic. Although many measures to solve this problem are outside the scope of planning, such as stricter controls on vehicle emissions, there is much Hounslow local planning authority can

do. The planning policy response should concentrate on policies to reduce the need to travel and policies to encourage the use of public transport, walking and cycling. There should be close co-operation between Planners, Traffic engineers and Air Quality Officers to integrate land use and transport policies to achieve air quality improvements.

2.2.2 Unitary Development Plan (UDP), Local Development Framework (LDF) and Local Implementation Plan (LIP).

2.2.3 The Unitary Development Plan (2003) together with the London Plan (2004) are the development plans for assessing planning applications. In addition to Policy ENV-P.1.6 (Air Pollution) which is referred to earlier, the saved policies in the UDP with particular reference to air quality include Policy T.5.1 (Air Quality implications of traffic)

2.2.4 Policies in the Core Strategy and other Local Development Documents will eventually replace the UDP saved policies. Relevant policies in these documents will need to consider the integration of transport and air quality, for example reducing travel with reference to local air quality management and introducing low emission or clear zones that limit vehicles entering areas unless they comply with specified emissions limits.

2.2.5 Air Quality Policies

Consideration will also be given in emerging local development documents to policies on Air Quality Management Areas, a requirement that any development being proposed that is potentially polluting e.g. will significantly increase the number of vehicle trips, involve polluting industrial activities, energy generation projects etc. will need a detailed air quality assessment and the consideration of effects from the introduction of new exposure (usually equating to residential development) into an already polluted area (for example, near a busy road). These considerations will inform preparation of emerging planning policies. However, the preparation of new local development documents will be subject to consultation and a sustainability appraisal.

2.2.6 Maximum Parking Policies

Policies that impose maximum parking standards in areas where development is likely to impact on air quality and lead to exceedences within the AQMA, particularly promoting car free or car ‘capped’ housing developments in the most sustainable locations could be adopted. Converting existing off-street car parking spaces and car

parks to other uses should also be encouraged.

2.2.7 Supplementary Planning Documents

For each Air Quality Management Area (AQMA), Supplementary Planning Document notes should be adopted requiring any specific local matters relevant to the development of land. This is particularly applicable if Hounslow declares other AQMA's in addition to the whole Borough AQMA for Nitrogen Dioxide (for example PM10). The Mayor of London has a specific Sustainable Design and Construction SPG (Published May 2006), which will be relevant to this document.

3. Air quality assessments for planning applications

3.1 Introduction

3.1.1 Where an air quality assessment is required as part of a planning application, guidance is often sought by the applicant as how best to undertake this to the satisfaction of the local authority. This document sets out situations when an assessment may be required and suggests methods of undertaking such an assessment within the Hounslow area. It is based on situations unique to Hounslow and on the experience of other London local authorities.

3.1.2 Pre Application Discussions

Pre-application discussions is recognised as a legitimate way to obtain informal views as to the merits of a development proposal. And enables a developer to acquire clear, impartial professional advice, at an early stage, regarding any key issues that should be addressed prior to submitting a formal development proposal. This advice can help to prevent unacceptable schemes from entering the formal planning process and as a result can assist in speeding up the determination of your planning application and improve the quality of the development proposal.

3.1.3 The submission of complete and accurate applications can greatly assist in providing third parties with a clear and concise development proposal on which to make comments. This can help to streamline the consultation and notification process, to the benefit of both applicant and third parties alike. Applications submitted without pre-application discussions or without regard to advice given at pre-application stage will normally be determined as submitted, as officers are unable to entertain significant discussion and negotiation during the consideration of a formal application.

3.1.4 When assessing a planning application, Hounslow is committed to demonstrating that the correct consultation procedures, which are set out in the Statement of Community Involvement (SCI, September 2006[5]), have taken place.

3.1.5 Once an air quality assessment has been completed, Hounslow will make a judgement on whether the proposed development is likely to significantly affect air quality or if it is located in an area of poor air quality. If a development is determined

[5] Hounslow's Statement of Community Involvement (SCI) Adopted 26th September 2006 http://www.hounslow.gov.uk/index/environment_and_planning/planning/planning_policy/local_development_framework/statement_community_involvement_.htm

to result in a deterioration of air quality, Hounslow will aim to work with the developer to reduce this impact by securing mitigation or off-setting measures that will allow the development to progress. Similarly if a development introduces sensitive receptors[6] into an area of poor air quality, Hounslow will work with the developer to ensure all measures are taken to secure acceptable air quality for new receptors.

3.1.6 London authorities have typically used similar assessment methods to each other to fulfil the requirements of the detailed review and assessment process that led to the AQMA designation. For consistency, air quality impact assessments for developments within London should, where possible, follow similar methodologies. Applicants intending to undertake an air quality assessment should always seek the latest information available on air quality and pollutants of concern from the Hounslow Air Quality Officer. Guidance on tools suitable for use within AQ assessments is available in the Department for the Environmental, Food and Rural Affairs (Defra) Technical Guidance note LAQM.TG(03). This guidance is periodically updated as answers to Frequently Asked Questions (FAQs) on the Review and Assessment Helpdesk website (www.uwe.ac.uk/aqm/review).

3.2 Developments that require an air quality assessment

3.2.1 The overall aim of an air quality assessment is to determine whether the development will have a significant impact on air quality or whether the existing air quality environment is unacceptable for the proposed development.

3.2.2 The three main ways a development may have a significant impact are:

1. If the development is likely to cause a significant deterioration in local air quality (i.e. once completed it will significantly increase pollutant concentrations)
2. If the development is located in an area of poor air quality (i.e. it will expose future occupiers to unacceptable pollutant concentrations)
3. If the demolition/construction phase will have a significant impact on the local environment (e.g. through fugitive dust and exhaust emissions). Note the recent London wide Best Practice Guidance[7] should help reduce emissions from this stage of a development.

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[6] For air quality objectives with long averaging periods (for example, over a year), sensitive receptors are locations where members of the public are regularly exposed consisting largely of building facades of residential properties, schools, hospitals, libraries etc.

[7] http://www.londoncouncils.gov.uk/upload/public/attachments/897/Item_16_Air_Quality_Best_Practice_Guidance_17_Oct_06.doc

3.2.3 The Environmental Impact Assessment (EIA) process is likely to require a detailed study of the effects of a development on air quality, particularly where a development is to take place in the urban environment or in an AQMA. In such cases, the approach set out in this guidance note should be followed. Most proposals for commercial or industrial installations that have the potential to emit pollution (e.g. Part A installations) will also normally require an air quality assessment under the EIA regulations[8]. Small industries, such as Part B installations, may still require an assessment as part of a permit application under the Pollution Prevention and Control (PPC) regime[9], as too would waste handling activities[10], and the same assessment can often be used to help determine the impact of the development in terms of air quality for a planning application. If for whatever reason, planning permission is being sought in the absence of an assessment having been carried out for a permit application or similar, then the London Borough of Hounslow will require an assessment to be submitted.

3.2.4 There are likely to be many other situations where developments that do not require a full EIA will never the less warrant an air quality assessment as part of the planning application. Developers should always check with the local authority to determine whether an air quality assessment is required before submitting a planning application.

3.2.5 For developments which are only likely to have a minimal impact on air quality, an air quality assessment may still be required where sensitive receptors are likely to be introduced into an area of poor air quality. As Hounslow has declared the whole Borough an AQMA for nitrogen dioxide, developers may wish to consider identifying suitable air quality mitigation measures as part of the development, instead of undertaking a full air quality assessment. This course of action is at the discretion of the local authority air quality officer, therefore it is important that communication between developers, or their consultants, and the local authority takes place at an early stage of the decision making process.

3.2.6 When considering issues of relevant exposure it is advisable to refer to the ongoing borough Review and Assessment, carried out as part of the Local Air Quality

[8] The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999, SI 293/1999

[9] The Pollution Prevention and Control (England and Wales) Regulations 2000, SI 1973/2000

[10] Waste Management Licensing (England and Wales) Regulations 1994 (as amended).

Management duties, specified by the Environment Act 1995. Also, wherever possible, air quality assessments should be carried out so as to allow comparison with the Hounslow Review and Assessment process.

3.2.7 Key Points

Hounslow will consider the following issues when determining whether an air quality assessment should normally be undertaken:

- Locality of development – including relevant exposure
- Length of time and scale of demolition/construction phase
- Likely increase in traffic levels from existing base (either through servicing or parking requirements). In particular, proposals that will result in an increase in vehicle trip generation in the local area, which result in increases in annual average daily traffic (AADT) of 5% or more on individual road links with more than 10,000 vehicles per day, although roads with lower flows but higher percentage increases in flows may still require an assessment. If the transport assessment shows a segment of road reaching capacity and queues forming then an air quality assessment may be required at the discretion of LBH Air Quality Officers
- New industrial/ commercial development (e.g. boiler plant/energy production/permitted installations/authorised processes) with a floor space of more than 2500m^2
- Proposals which may result in increased congestion and lower vehicle speeds than is present on the existing local road network
- Proposals which significantly alter the composition of traffic such that adverse air quality impacts may arise, in particular increases in HGVs or buses.
- Proposals for new developments with 300 parking spaces or more or an increase in existing parking provision of 300 spaces or more
- Proposals for coach and lorry parks or distribution warehouses. Increase in HDV movements (e.g more than 20 per day), such as for lorry parks, depots, bus stations.
- Any major employment generators likely to have an adverse impact on air quality either directly or indirectly, particularly in sensitive areas. These include developments: -
    I. Involving industrial activities with the potential to produce significant air emissions.
    II. With the potential to generate significant traffic. A detailed traffic impact assessment is normally required in these cases.

III. Which are likely to lead to a significant increase in the emissions of one or more of the prescribed pollutants as specified in the Air Quality Regulations.

- Street Canyons or any developments that create street canyons.
- New rail, road building and signalling, bridge, tunnel, port or airport developments
- Waste handling activities

(Source: Based on PPG13, March 2001)

Other developments may also warrant an air quality assessment as part of determining the planning application. Within areas where air quality objectives are unlikely to be met (e.g. in the vicinity of Heathrow Airport) it is likely that for many developments, air quality would be a material consideration and an assessment would be required.

3.2.8. NB This list is not exhaustive and other factors may determine that, in Hounslow's opinion, an air quality assessment is required. It will be a matter of judgement as to when the Council thinks an air quality assessment is required. Developers are therefore encouraged to enter into early dialogue with the Council's Air Quality Officer.

3.3 General principles of air quality assessments

3.3.1 There are two primary factors that impact upon the AQ assessment of a proposed development, they are; site suitability and impact of the development. Site suitability is very important, especially in the urban environment. It should be recognised that a development in an area that is already exceeding AQ limits could have a detrimental impact upon its residents.

3.3.2 Equally, the impact of the development on the environment needs to be detailed. An air quality impact assessment should clearly indicate the likely change in pollutant concentrations (relevant to the air quality objectives[11]) arising from the proposed development – both during construction and operational phases. It is important that the assessment considers the *difference* in air quality as a result of the

[11] The Air Quality (England) (Amendment) Regulations 2002, SI 3043/2002

proposed development. The assessment of the impact of construction may need to be undertaken qualitatively in many circumstances.

3.3.3 There is no single, definitive method for carrying out a detailed air quality assessment; but the method must be appropriate to both the location and the scale of the development. For some developments, screening models may be acceptable but it should be demonstrated that they work and are suitable for the urban environment. However, many developments will normally require an initial screening followed by detailed dispersion modelling and developers should consult the Council's Air Quality Officer about their chosen modelling technique to ensure it is appropriate for the air quality assessment.

3.3.4 Appendix 2 contains a map of the Borough with the coloured areas indicating where dispersion modelling with verification may be required for sensitive receptors. For other developments and locations the model used will be agreed with an Air Quality Officer

3.3.5 Consistency is important in all air quality assessments and this guidance note is particularly concerned with air quality assessments where dispersion models are to be used. The scope for inconsistency is greater due to the range of different possible model inputs in such situations.

3.3.6 Where practicable, air quality assessments should take into account the cumulative air quality impacts of other developments, both within the authority and neighbouring boroughs. These should include both committed developments (i.e. those proposals that have been granted planning permission at the time the assessment is undertaken.. This will ensure that a realistic scenario of air quality in the AQMA is presented for both the "baseline" and "with development" predictions of the air quality impact of the development.

3.3.7 Key Points

An air quality assessment must demonstrate how a development would affect pollution concentrations in relation to health based statutory and proposed air quality standards and objectives.

This would normally involve dispersion modelling to:

- Assess the current air quality situation in the locality;
- Estimate emissions of local air pollutants from the development;
- Predict statistics relevant to the air quality objectives *without* the development in place relative to the year of opening and air quality objectives (EU Limits year 2010 or relevant EU limit years) - the baseline scenario;
- Predict statistics relevant to the air quality objectives *with* the development in place in the same years
- The cumulative impact of developments should be considered.

3.3.8 Modelled baseline scenarios should also be checked against Hounslow's predicted baseline scenarios, to ensure that they broadly agree If not, the predicted pollutant concentrations, without development, might show an exceedence of air quality objectives where Hounslow's review and assessment did not, or vice-versa; full explanations should be given for differences in modelling approaches and assumptions. The factor of greatest importance would be the *difference* in air quality associated with the proposed development compared to the baseline.

3.4 Choosing a dispersion model

3.4.1 Dispersion models should be used in almost all cases for large developments, or those developments proposed in areas where air quality is approaching or exceeding the relevant standards. Defra guidance LAQM.TG (03) [12] suggests models that can be used for air quality assessments – it will be beneficial to confirm the selection of the model with the Council. The model should be capable of taking into account all relevant emission sources within Hounslow, for example; line (major road) and area (minor road, domestic heating, individual boilers, commercial etc) sources. The application should also be able to include point sources (i.e. chimney stacks) from nearby industrial sources.

[12] LAQM Technical Guidance. LAQM.TG (03), Defra 2003

3.4.2 Where relevant the model should be able to determine the effect of height above the ground on air pollutant concentrations, if relevant for the planning application under consideration.

3.5 Model input data

3.5.1 The assessment should provide a transparent account of the modelling undertaken, all assumptions made and input data used. Hounslow may request an audit of the assessment, in which case the developer must provide any extra appropriate data requested

3.5.2 Emissions data

The Greater London Authority (GLA) has responsibility to compile an atmospheric *emissions inventory* for London. This inventory is annually updated using best available data and is used as the basis for all London local authorities' air quality review and assessment reports.

3.5.3 The most recent version of the London Atmospheric Emissions Inventory (LAEI) should be used for an air quality assessment within Hounslow, unless significantly better data are available. Developers can obtain this inventory directly from the GLA Air Quality Team[13]. Road traffic emission factors are incorporated into the LAEI but can also be obtained from the Emission Factor Toolkit(v2e) [14]. Comparison should be made with monitoring data from Defra's Automatic Urban and Rural Network or the London Air Quality Network where appropriate[15].

3.5.4 If other emission data is needed for specific situations, such as more recent emission factors on idling, slow speeds or cold starts, they should be shown to be consistent with those used in this inventory. The GLA or local authority should be appropriate to obtain more information.

3.5.5 Except for situations where a distant major source has a significant effect on pollution levels in the area of interest, only major roads and stacks in the vicinity of the development need be included explicitly. In the area around Heathrow, emissions from aircraft may also need to be considered in the models. The study should take into account the proposed model output area, which may include nearby sensitive

[13] GLA Air Quality contact: 020 7983 4492

[14] Emission Factor Toolkit (v2e) currently available from http://www.casellastanger.com/modelling_helpdesk/subjects/emission_factors_toolkit.asp

[15] The Mayor's AQ Strategy. September 2002.

receptors and other local hot spots of concern to the Council.

3.5.6 Background air pollution can be accounted for by using urban background data from a nearby monitoring station where the data is sufficiently relevant to the study area. However care should be taken to avoid double counting emissions if the urban background concentrations are used. Richmond 2- Barnes Wetland, Teddington NPL and Ealing 7- Southall are examples of ones that are suitable in our area for urban background.

3.5.7 Distant major sources within London should be included within aggregated grid sources and must be included when using rural background data. Where a model is unable to include all emissions sources across London in this manner, it should be demonstrated that the omission of these sources does not affect the model results. Minor roads in the immediate vicinity, which are congested, or show large increases in traffic and which have been included in the transport assessment should also be modelled.

3.5.8 Further information on emissions and atmospheric emissions inventories, can be found in the Defra's technical guidance document LAQM.TG (03).

3.5.9 Time-varying emissions

Traffic flows and speeds, and hence emissions, vary throughout the day. If appropriate, emissions from vehicles should vary within the model, by time of day and by day of week, Where possible, time-varying traffic movements should be based on local information, for instance a local network of automatic traffic counters (ATCs) This information is most applicable for assessments looking at short-term objectives.

3.5.10 The additional density of emissions that occurs during traffic congestion needs to be properly addressed in the assessment. This is particularly important where the proposed development is likely to result in increased congestion or increased queue length.

3.5.11 For industrial processes, these should be modelled to vary in time as would be expected by the authorisation or permit.

3.5.12 Supplementary traffic data

Where a transport assessment (TA) has been prepared for a proposed development, modelled or predicted development traffic flows in the TA should generally be used

as the basis for the calculation of "with development" emissions and subsequent model runs. Before an air quality assessment based on a TA is undertaken, the TA should be approved by Hounslow's traffic planners, in consultation with our air quality officers. Otherwise, developers risk undertaking an air quality assessment on the basis of traffic proposals, which may subsequently change, risking the assessment becoming obsolete. By liaising with traffic engineers and dispersion model users, it is usually possible to obtain traffic data in a suitable format to perform an emissions calculation.

3.5.13 Where the proposed development is likely to result in additional congested traffic conditions, the TA will need to provide sufficient information to quantify the times when queuing around junctions is likely to occur. Particular care should be taken in selecting appropriate traffic speeds. The diurnal traffic profile must be used.

3.5.14 Weather data

The format required will depend on the model to be used, and should be checked with the supplier of the dispersion model. It is expected that measurements made at Heathrow Airport will be the main source of meteorological data.

3.5.15 Key Points

- Weather data should be taken from an appropriate and representative site with a full dataset;
- At least one year of hourly-sequential data should be used;
- In adopting a precautionary approach, it is currently recommended that suitable 'worst-case' MET year be used, as well as a 'typical' MET year.

3.5.16 Model specific data

Depending on the model used and the area in question, there are other parameters that should be agreed prior to modelling being undertaken.

3.5.17 ***Key Points***

These might include:

- Site surface roughness length (typically 1m to 2m in London)
- Minimum Monin-Obukhov length (certain models only)
- The number and dimensions of any street canyons (streets where pollutant dispersal is adversely affected by surrounding buildings)
- Release height of aggregated sources (grid or volume sources)

3.5.18 Background pollution data

Pollution can be carried into London or into the modelled area from non-local sources, if this is smaller than the whole of the London area, it must be taken into account. Validated and ratified monitoring data should be taken from an appropriate background site or from the National Air Quality Archive[16], background emissions data can also be gathered from the National Atmospheric Emissions Inventory database[17], in most cases the same year as the weather data will be used; however, there maybe occasions when data from different years maybe appropriate. The developer should agree in advance with Hounslow's Air Quality Officers which background data should be used.

3.6 Pollutant-specific concerns

3.6.1 If a development is expected to alter traffic flows, PM_{10} and NO_2 would normally be modelled, since exceedences of these pollutants are predicted across much of London, and motor vehicles are a significant source of each. The whole of London Borough of Hounslow has been declared an AQMA for NO_2 and exceedences are currently expected within large areas of the Borough, but especially close to busy roads.

3.6.2 If the development is itself a significant emitter, pollutants relevant to the type of development need to be taken into account (for instance, SO_2 and NO_2 should be considered for an oil-burning process or benzene from a petrol station or refinery).

[16] http://www.airquality.co.uk/archive/laqm/laqm.php

[17] http://www.airquality.co.uk/archive/laqm/laqm.php

3.6.3 The results for local air pollutants should be compared against air quality objectives. Any likely exceedences or worsening of air quality as a result of the development must be highlighted. For carbon dioxide, total emissions from the development per area should be calculated.

3.7 Local Concerns

3.7.1 Nitrogen dioxide (NO_2)

NO_2 is derived from NOx via a series of complex chemical reactions. An empirical method or a chemistry scheme may be used to derive NO_2 from NOx.

Key Issues

- All inputs relevant to the chosen chemistry scheme or a NOx:NO_2 conversion scheme should be used (see LAQM.TG(03)) and detailed in the report.
- The model's NOx outputs should be shown. A full table of outputs should be shown in the appendix, identifying road contributions, adjusted road contributions and total concentrations. The details of the verification process should also be included.

3.7.2 Fine particles (PM_{10})

The objective for PM_{10} is based on a gravimetric measurement. Any PM_{10} modelling study should present results as a *gravimetric equivalent.*

Projection of PM_{10} for future years should follow the Defra guidance LAQM.TG (03).

Key Issues

- PM_{10} should be calculated as a gravimetric equivalent. 90^{th} percentile is useful as as the objective "No more than 35 days where daily mean >50ug/m3 (gravimetric equivalent)" is most likely to fail in Hounslow based on recent trends. Hounslow may be in a position to declare AQMA (s) for PM10. This is being investigated.

- Secondary and coarse PM_{10} components should be included

3.7.3 Sulphur Dioxide (SO_2)

The objective for SO_2 that is likely to be hardest to meet is the 15-minute objective.

Key Issues

- The assessment should demonstrate that the modelling methodology provides a reasonable assessment against the 15-minute and 1 hour objectives.

3..7.4 Other pollutants

There are other local air pollutants (including those not in the Air Quality Regulations) that may also be relevant to specific developments. The developer should check with the local authority to determine whether they need to consider the implications of other pollutants or take into account any new air quality objectives. Other pollutants could include:

- Carbon monoxide (CO)
- PAH (poly aromatic hydrocarbons)
- $PM_{2.5}$
- Heavy metals
- Benzene
- Industrial pollutants, e.g. dioxins, halides
- Ozone
- Odours
- Dust

3.8 Global concerns

3.8.1 Carbon dioxide (CO_2) and other climate change gases (eg. Methane (CH_4))

Although these pollutants are not included in the Air Quality Regulations for Local Air Quality Management, they are of global importance for their contribution to climate change. Many policies that reduce traffic flow will tend to bring about reductions in both CO_2 and local air pollutants. However, although these pollutants are closely linked, it cannot be assumed that this will be the case for all measures[18]. Therefore, it is also important to consider total CO_2 emissions in any air quality assessment (both

[18] AQEG. Air quality and climate change: A UK perspective (draft)

local and remote emissions). CO_2 emissions from sources such as traffic and buildings can be estimated from the London Atmospheric Emission Inventory. Such data may be useful to a borough when considering off-setting the impact of development. A planning application should give details, in its air quality assessment, where the design, construction and operation of the development have accounted for reductions in Climate Change emissions. Any potential *'trade-off'* issues between local air quality and climate change emissions should be acknowledged within the assessment.

3.8.2 The integration of climate change policies with the planning process is a progressive move, however it must be recognised that local authorities are at different stages in integrating climate change policies into their general practices. The development of the Local Implementation Plan and taking into account the Air Quality Action Plan will assist this process, and will typically include those developments which lead to an increased generation of traffic.

3.9 Model output area

3.9.1 The output results should cover the area likely to be affected by the proposed development. For a development that affects traffic movements, the output should cover the area where traffic movement is significantly affected, i.e. as a minimum all the roads included in the transport assessment.

3.9.2 The results produced would normally be in the form of a detailed contour plot of predicted pollutant concentrations and scale of air quality change. A map showing predicted concentrations with the development in place and a map of the *difference* in concentration with and without the development should both be produced. Ideally the grid spacing for any contour plots should not be more than 5 metres, to ensure robust definition.

3.9.3 In certain cases it may be acceptable for the assessment to predict concentrations at a number of carefully selected receptors. The developer should agree the output area, location and number of receptors in advance with the local authority. All receptors should be presented on an appropriately scaled Ordnance Survey map.

3.9.4 In the case of tall buildings, developers may need to consider the vertical as well as the horizontal dispersion of pollutants in terms of model outputs. Developers should consider the surrounding environment of the development; any high level point sources, such as chimney stacks or ventilation outlets, should be identified to

ensure that the proposed development does not encroach upon the plume dispersion. This is vital in areas of Hounslow with high-rise developments. Developers should therefore take into account any research, emerging studies or guidance on this matter[19]. For example, the Building Research Establishment (BRE) has produced reports concerning the dispersion of pollutants over a building envelope. Developers should consider such knowledge.

3.9.5 Authorities may require source apportionment data in order to evaluate mitigation and off-set strategies.

3.9.8 ***Key Issues***

- The area affected by the development should be adequately covered by the model output
- The output should be on an Ordnance Survey map or similar and in a table.
- Maps of the difference with and without the development should be provided .Locations and height of receptors should be clearly indicated (on the map)
- The assessment should consider whether the development will create new areas of exposure or increase existing exposure
- The difference in concentration should be given in $\mu g/m^3$ *as well as percentage change*
- The cumulative impact of developments should be considered where possible.

3.10 Model Verification

3.10.1 Because of the number of uncertainties associated with dispersion modelling, the performance of the model being used in relation to measured pollution concentrations in a similar environment should be demonstrated. For air quality assessments in Hounslow it should be demonstrated as a minimum that the model can adequately predict pollution concentrations in a similar urban environment, preferably within the Borough where the development is proposed, since model performance may vary from location to location.

3.10.2 Where the model is used to predict statistics relevant to the air quality objectives (such as percentiles), the evidence of model performance should also

[19] Also see DAPPLE research project http://www.dapple.org.uk/

address this. Evidence of this should either be incorporated into the report, or submitted with it.

3.10.3 Wherever possible, it is preferable to verify the model against measured pollution concentrations using the same input parameters as for the air quality assessment. Model verification as described in TG(03) is required. Within London, there are many continuous monitoring sites that may be used to verify a modelling exercise. The transport assessment study area may need to be extended to include these verification sites. Sites within London are normally associated with the Automatic Urban Network (AUN)[20] or the London Air Quality Network (LAQN)[21] but Hounslow may collect its own data from a nearby air pollution monitoring station. This can also be used for any necessary verification work. Review and Assessment reports, and communication with the air quality officer directly, can be used to identify relevant nearby monitoring sites.

3.10.4 Key Points

- Evidence of model performance must be provided (e.g. with the release of the version of the model used) or where possible from a new site-specific verification exercise
- The accuracy in terms of margin of error or uncertainty of the results must be stated explicitly
- Any scaling factor applied to model outputs (e.g. to adjust results according to observed data) must be clearly stated
- The model's effectiveness at predicting statistics relevant to the air quality objectives must be demonstrated

3.11 Determining significant impacts on air quality

3.11.1 One of the key concerns with regard to assessing the air quality impact of a development in Hounslow is its impact on human health. It is important that an air quality assessment evaluates modelled air quality in terms of changes in pollution concentrations where there is relevant public exposure. The current Air Quality

[20] http://www.airquality.co.uk

[21] http://www.londonair.org.uk

Regulations are concerned with areas that exceed air quality objectives but this may be revised to favour overall exposure reduction. This guidance takes this approach into account, which means that any development that may lead to additional air pollution problems, even if it is outside an AQMA, could be significant. Local Authority Officers in the Air Quality team will make a judgement on the likely impact of each development, based on the results of the air quality assessment and their professional experience. Hounslow may also consider the impact of the development on air quality in neighbouring authorities.

3.11.2 The following diagram, **figure 2** should help developers determine whether their application is significant in terms of air quality. In line with PPS23, air quality can be a material consideration in the planning process. Only examples of true zero-emission developments are unlikely to have at least some impact on local or global air quality and therefore mitigation should be a consideration for **all** developments. Please refer to section 4 on Mitigation.

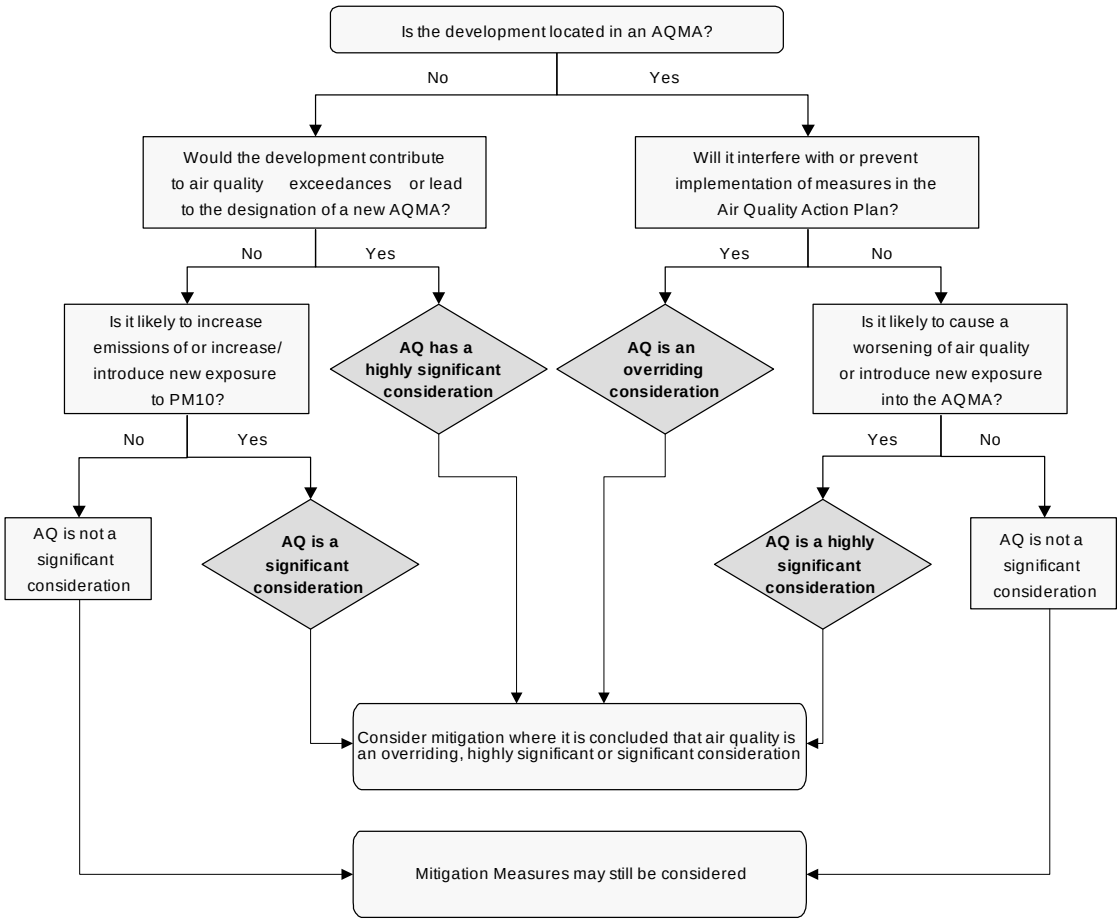

Figure 2 – Air Quality Significance of Exposure and Mitigation

22

[22] *Note:* Where **significant** is used, it will be based on the professional judgement of the Local Authority officer.

3.11.3 In determining the significance of exposure to air pollution consideration should be given to the following criteria:

	Applicable Range Nitrogen Dioxide Annual Mean	**Applicable Range PM10**	**Recommendation**
APEC – A	> 5% below national objective	**Annual Mean:** > 5% below national objective **24 hr:** > 1-day less than national objective	No air quality grounds for refusal; however mitigation of any emissions should be considered.
APEC – B	Between 5% below or above national objective	**Annual Mean:** Between 5% above or below national objective **24 hr:** Between 1-day above or below national objective.	May not be sufficient air quality grounds for refusal, however appropriate mitigation must be considered e.g., Maximise distance from pollutant source, proven ventilation systems, parking considerations, winter gardens, internal layout considered and internal pollutant emissions minimised.
APEC – C	> 5% above national objective	**Annual Mean:** > 5% above national objective **24 hr:** > 1-day more than national objective.	Refusal on air quality grounds should be anticipated, unless the Local Authority has a specific policy enabling such land use and ensure best endeavours to reduce exposure are incorporated. Worker

			exposure in commercial/industrial land uses should be considered further. Mitigation measures must be presented with air quality assessment, detailing anticipated outcomes of mitigation measures.

Note – Applicable ranges assume concentrations have been projected forward to 2010..

3.12 Reporting the Assessment

3.12.1 The content of an air quality assessment report should be proportionate to the likely significance of any air quality impact and the amount of available information. Generally the report should assess current air quality in the locality, predict future air quality without the development in place and predict future air quality with the development in place. The factor of greatest importance will be the difference in air quality as a result of the proposed development. As a minimum, the report should contain the following information:

- **A description of the methodology used**
- **Evidence of model performance or verification results**
- **Details of any extra emissions calculations**
- **Results of the modelling exercise with and without the development in place**
- **Input data: sources included, input parameters specific to the model and site, meteorology etc**
- **Years modelled**
- **Assessment against relevant air quality objectives**
- **Model output data, on maps where appropriate**
- **A suitably scaled map showing predicted pollutant concentrations**
- **Discussion of results**
- **Conclusions**

3.13 Audit trail

3.13.1 The assessment should provide a transparent account of the modelling undertaken and all assumptions made. Should an audit of the assessment be required, Hounslow may request extra data.

4. Mitigation of air quality impacts

4.01 This guidance has been designed to help Hounslow to identify those developments that are likely to have significant air quality impacts. Hounslow will make recommendations based on the flow chart of **Figure 2**, but it is not the case that all those instances where air quality is an overriding or highly significant consideration are necessarily refused. Instead, Hounslow will work with developers to explore mechanisms to ensure that a development has a beneficial impact on the environment. In terms of air quality, this may be through careful design of the development or by securing mitigation or off-setting measures through planning obligations or conditions that will allow the development to go ahead.

4.1 Construction phase

Emissions and dust from the demolition and construction phase of a development can have a significant impact on local air quality, especially from large developments where this phase can take many years. The APPLE working group has produced the *London Best Practice Guide: The Control of Dust and Emissions from Construction and Demolition* that looks at best practical means to control dust and emissions from construction sites. This code has now been adopted[23] and Hounslow will use this as a condition during the planning process to help minimise the impact from fugitive dust emissions and vehicle exhausts.

4.2 Design of the development

4.2.1 Careful consideration should be given to the site and area characteristics of the development, as particular elements of a scheme may be more sensitive to air pollution than others. For example, children's play spaces or housing should be located away from roads with high levels of air pollution. The location and design of buildings can act as a barrier, or mitigate, against the adverse impact of air pollution. Buildings should be constructed to meet "excellent" standards according to the Building Research Establishment Environmental Assessment Method (BREEAM) or Sustainable Homes or EcoHomes[24]. Developers should follow the Mayor's Sustainable Design and Construction Supplementary Planning Guidance, which demonstrates measures to ensure buildings are as low emitting as possible and

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[23] http://www.londoncouncils.gov.uk/upload/public/attachments/897/Item_16_Air_Quality_Best_Practice_Guidance_17_Oct_06.doc

[24] EcoHomes is the home edition of BREEAM, and covers both houses and apartments. Updated in line with new building regulations Part L.

which protects internal air quality. Many of these measures will also improve energy efficiency and therefore reduce carbon dioxide emissions.

4.2.2 Hounslow will also consider issues such as ventilation provision and location of opening windows and doors to improve indoor air quality. In the case of tall buildings, mixed use can help make development acceptable by, for example, placing residential use on higher storeys away from air pollution (and noise) at ground level, allowing for balconies and opening windows, while lower floors can accommodate commercial uses where mechanical ventilation and windows that cannot be opened are more acceptable. The outside space is also important and exposure in gardens and roof terraces need to be considered.

4.2.3 Building emissions

4.2.3.1The Mayor's SPG on Sustainable Design and Construction highlights the following ways to reduce energy use and hence carbon emissions from buildings.

4.2.3.2 Energy efficiency

The energy efficiency of a building can be improved by its design, choice of materials, plant and equipment. The SAP rating of the building provides a measure of the overall efficiency of a domestic building. Developers also need to take into account Part L of the Building Regulations, which provides guidance on conservation of fuel and power.

4.2.3.3 Renewable energy

The Mayor of London requires a proportion of energy demand in new development to be generated by renewables on site and several London local authorities also ask for new builds to have a 10% proportion of electricity supplied by renewables. There are many different types of renewable energy technologies available and developers should select the most feasible technology to bring about the greatest reduction in CO_2 emissions.

4.2.3.4 Supply of energy

Developers should consider supplying energy schemes such as tri-generation combined heat and power (CHP), solar water heating, or district heating from the out-set. These are more efficient than installing gas central heating or condensing boilers in each dwelling and therefore reduce overall emissions.

4.2.3.5 Air conditioning can put additional strains on energy consumption and this should be considered carefully. Solar power should be considered in association with any air conditioning, although passive ventilation should always be preferred where possible.

4.2.3.6 Mitigating Climate Change

4.2.3.6.1 A development may increase local pollutant concentrations whilst also having a positive impact in other areas. For example, a CHP plant serving 1000 dwellings will give rise to increased concentrations from a single point source; however, there are potential trade-offs if this leads to the removal of 1000 less efficient, individual boilers. Consideration of the net balance of emissions may be more appropriate in such a case rather than just considering emissions in isolation.

4.2.3.6.2 It may also be possible to off-set one aspect of a development with another. For example, an increase in CO_2 emissions due to increased vehicle use may be balanced by a reduction in energy consumption or use of renewable energy on-site.

4.3 Planning Conditions

In Planning Policy Statement 23 (PPS23) Annex 1, it is stated that there may be some cases where it is appropriate to use planning conditions to control aspects of a development that are not covered by a pollution permit. Examples include controlling transport modes, hours of operation and reducing air pollutants and dust from certain phases of the development, such as construction. A planning condition has to be necessary and relevant to the development to be valid. Further advice can be found in Circular 11/95.

4.4 Planning obligations

4.4.1 PPS23 Annex 1 also describes how S106 agreements can be used to require developers to provide assistance or support to enable Hounslow to implement any actions in pursuit of the Air Quality Action Plan. The UDP policy on planning obligations is IMP.6.1, which seeks to secure benefits capable of offsetting the negative impacts of a development. Paragraph 2.36 of the UDP lists a range of examples of planning obligations and (xii) is relevant in stating “any other planning benefit for which there is a local need, for example environmental improvements to shopping centres, housing and industrial estates, the production of environmental management schemes for new industrial, commercial and retail development, public art and closed circuit TV (CCTV)”.

4.4.2 Any benefits offered by the developer may be a material planning consideration but this will not make a development to which there is fundamental planning objections acceptable.

4.4.3 Hounslow will secure appropriate contributions through the Planning Obligation process for any reasonable measure that can help improve air quality. The following are examples of measures that London local authorities have successfully secured through S106 agreements. Further advice can be found in Circular 05/2005.

4.4.4 Travel Plans

All new developments should make provisions to encourage cycling and walking and wherever possible seek submission of Travel Plans that encourage staff and visitors to use more sustainable modes of transport rather than rely on car use. Car parking should be discouraged within AQMAs, particularly for developments located near to public transport. Measures in a Travel Plan need to produce quantifiable emission benefits and ideally an element of monitoring should be included in the agreement. Examples of individual measures within a Travel Plan include;

- Secure cycle parking and changing facilities;
- Safe pedestrian routes;
- Facilities for public transport, such as bus stops and lay-bys;
- Management and use of parking spaces, so that priority is given to certain categories of people, e.g. disabled people, people with children, visitors, or cars with more than one occupant, electric or low emission vehicles
- The removal of parking spaces after a specified period, or when access to the site is improved (e.g. new public transport routes, cycle lanes)
- Car free housing developments
- The provision of information on public transport, walking and cycling access to the site
- Details on deliveries to the site, covering specification of vehicles and hours of operation, and specifications for lorry parking and turning spaces; and junction and road layouts.
- Employment of a travel plan co-ordinator for the site with responsibility for monitoring
- Setting targets on the proportion of employee trips to be made by public transport and other alternative modes of transport;
- Setting up or participating in City Car Clubs for residents or employers

4.4.5 Use of clean/alternatively fuelled vehicles

Promoting the provision of refuelling for alternative fuels such as liquid petroleum gas, liquefied/compressed natural gas or biogas at local fuel stations, encouraging suitable locations for new refuelling facilities or installing electric vehicle charging points in car parks can encourage people to use cleaner fuelled vehicles. Site operators or occupiers can be required to use clean fuel fleets or restrictions can be placed on them to use specific classes and types of vehicles. They can also be required to monitor the maintenance and carry out emissions testing of the fleet.

4.4.6 Low Emission Schemes and Strategies

All reasonable means to minimise emissions from a scheme should be adopted. Measures may include using opportunities to regulate vehicle emissions, either in relation to European Emission Standards or CO_2 emissions, in line with Vehicle Excise Duty Bandings. Consideration should be given to both incentives and disincentives to influence vehicle emissions in both commercial and residential usage. A more holistic approach would consider all types of emissions from a development and there may be opportunities to off-set increased vehicle emissions with reduced energy emissions and vice versa.

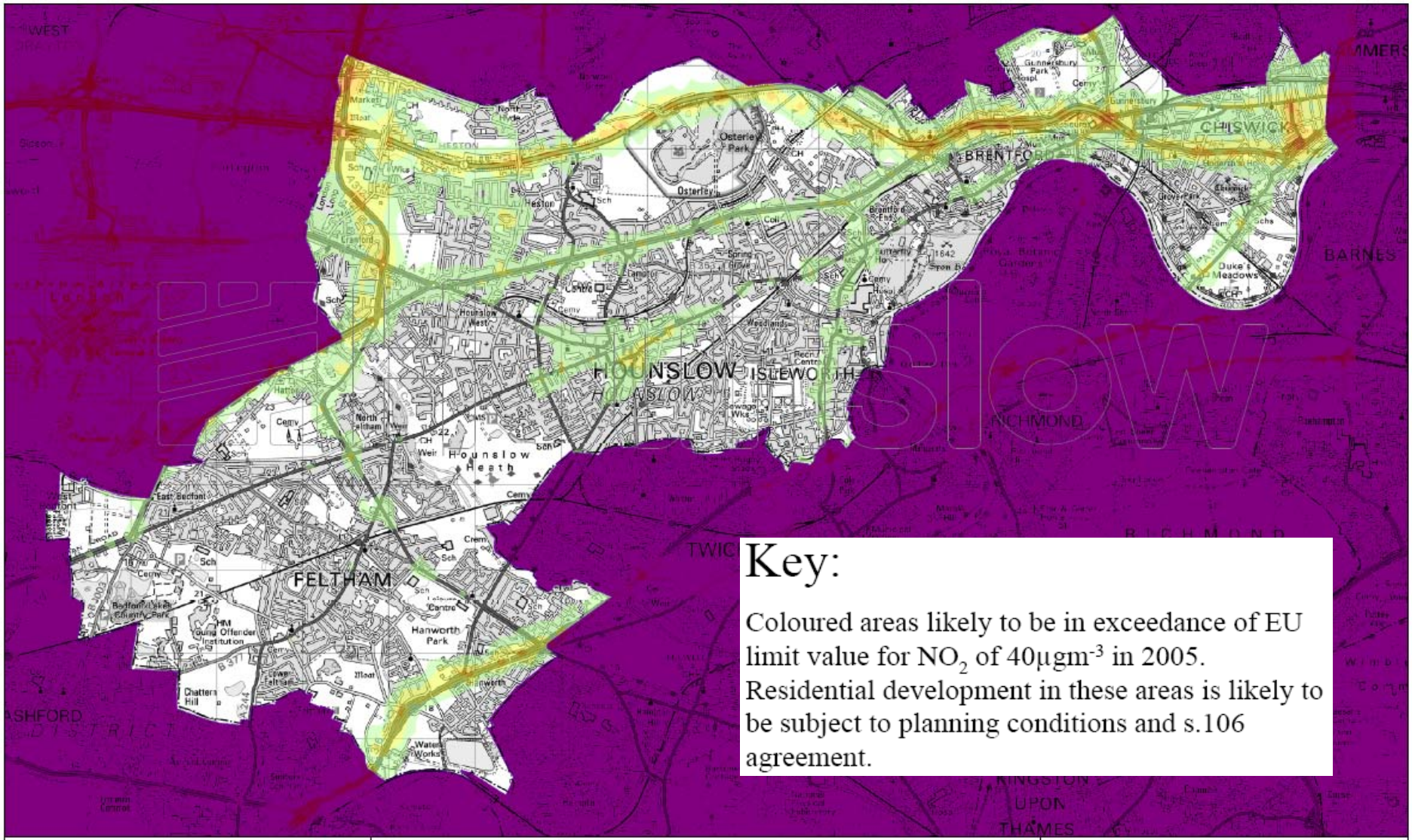
4.4.7 Air quality monitoring

Section 106 agreements can be secured to require the operator or occupier to monitor concentrations of pollutants at off-site locations. London local authorities have also secured S106 agreements to require developers to contribute to their borough wide air quality monitoring programmes. In these cases, capital funding may be sought for the purchase, installation, operation or maintenance of new equipment.

4.4.8 Other

Hounslow will secure appropriate contributions through the Planning Obligation process for any reasonable measure that can help improve air quality. This means there will be opportunities to improve air quality, rather than just put monitoring in place. Planning obligations can significantly increase the quality of development. They can secure benefits capable of offsetting the negative impacts of a development. Hounslow's Air Quality Action Plan contains numerous examples towards which these contributions can be made. Any benefits offered by the developer may be a material planning consideration but this will not make a development, to which there is fundamental planning objections acceptable.

Appendix 1: Areas likely to be in exceedence


Key:
Coloured areas likely to be in exceedance of EU limit value for NO_2 of 40µgm^{-3} in 2005.
Residential development in these areas is likely to be subject to planning conditions and s.106 agreement.
HOUNSLOW
FELTHAM
BRENTFORD
CHISWICK
BARNES
RICHMOND
Hounslow Heath
Hanworth Park
N
© Crown copyright.
All rights reserved.
London Borough of Hounslow
100019263 2006.
Areas likely to be in exceedance of the EU limit value for NO_2
Hounslow

Appendix 2: References

- Development Control: Planning for Air Quality. 2006 Update (Guidance from NSCA on dealing with air quality concerns within the development control process) NSCA 2006. available from www.nsca.org.uk
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- **LAQM.PG (03)** Policy Guidance (code PB7516), Defra 2003. http://www.defra.gov.uk/environment/airquality/local/guidance/pdf/laqm-pg03.pdf
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SOURCES OF FURTHER INFORMATION

Hounslow Council website (http://www.hounslow.gov.uk/)

Links to:

1. Current information on air quality in the City
2. Location of Air Quality Management Areas
3. Location of existing prescribed processes

DEFRA (http://www.defra.gov.uk/)

1. Information on Air Quality and Prescribed Processes

University of West of England (http://www.uwe.ac.uk/aqm/index.html)

Appendix 3: Air Quality Assessment Toolkit

Throughout this Guidance the importance of communication between Local Authority officers and developers, or their consultants, has been shown. It is hoped that this Toolkit will clearly indicate what information is required to satisfactorily complete an Air Quality Assessment and what information needs to be agreed prior to the assessment taking place.

Stage 1 – *What information should initially be provided to the local authority in order to determine if there is a need for an Air Quality Assessment.*

Locality of development	Definition of spatial scope, including identification of all relevant exposure. Is the site located in and Air Quality Management Area, or will it impact upon an Air Quality Management Area?
Traffic Assessment	Hounslow Traffic Planners/Engineers should advise, in consultation with Air Quality officers, what is required for the traffic assessment?
Nature of development	The number of units proposed or commercial floor space.
Parking spaces	The number of parking spaces that are proposed.
Energy usage	The planned source of energy and number of appliances; CHP, individual boilers etc.
Committed developments	Agreement with Hounslow planning authority, regarding further developments that should be taken into account.
Road Access	Will there be any alteration to the access roads, or road layouts as result of the development.

Stage 2 – *If after the information supplied above indicates that an AQ Assessment is required the following information will have to be agreed prior to the AQ assessment taking place.*

What models are to be used	Identify what screening and assessment model is to be used. There may be a need for discussion about why the model was selected and why it is appropriate.
Emissions	Identify appropriate emissions inventory, if not LAEI an explanation of reasons will have to be provided.
Traffic Speeds	What traffic scenarios are to be used for the assessment, identify any changes to traffic flows, speed and composition as a result of the development.
Traffic Congestion	As above, local data can be gathered from local authority traffic assessments
Weather Data	Suitable nearest site should be used for Met data, a worst case scenario and typical Met year should be provided.
Background Source Data	Suitable data should be selected in consultation with the local authority.
Pollutants to be modelled	What pollutants are required to be modelled, taking into account the end use and current pollutant concentrations.
Agreement on model output	Single receptors and/or gridded output? Grid size?
How will the model be verified	Comparison against recent locally collected monitoring data.
Assessment of construction and demolition dust	Identification of risk. Proposed mitigation.