www.oxford.gov.uk

OXFORD CITY COUNCIL

Planning Application Guidance

Air Quality

Building a world-class city for everyone


www.oxford.gov.uk
OXFORD
CITY
COUNCIL

www.oxford.gov.uk

OXFORD CITY COUNCIL

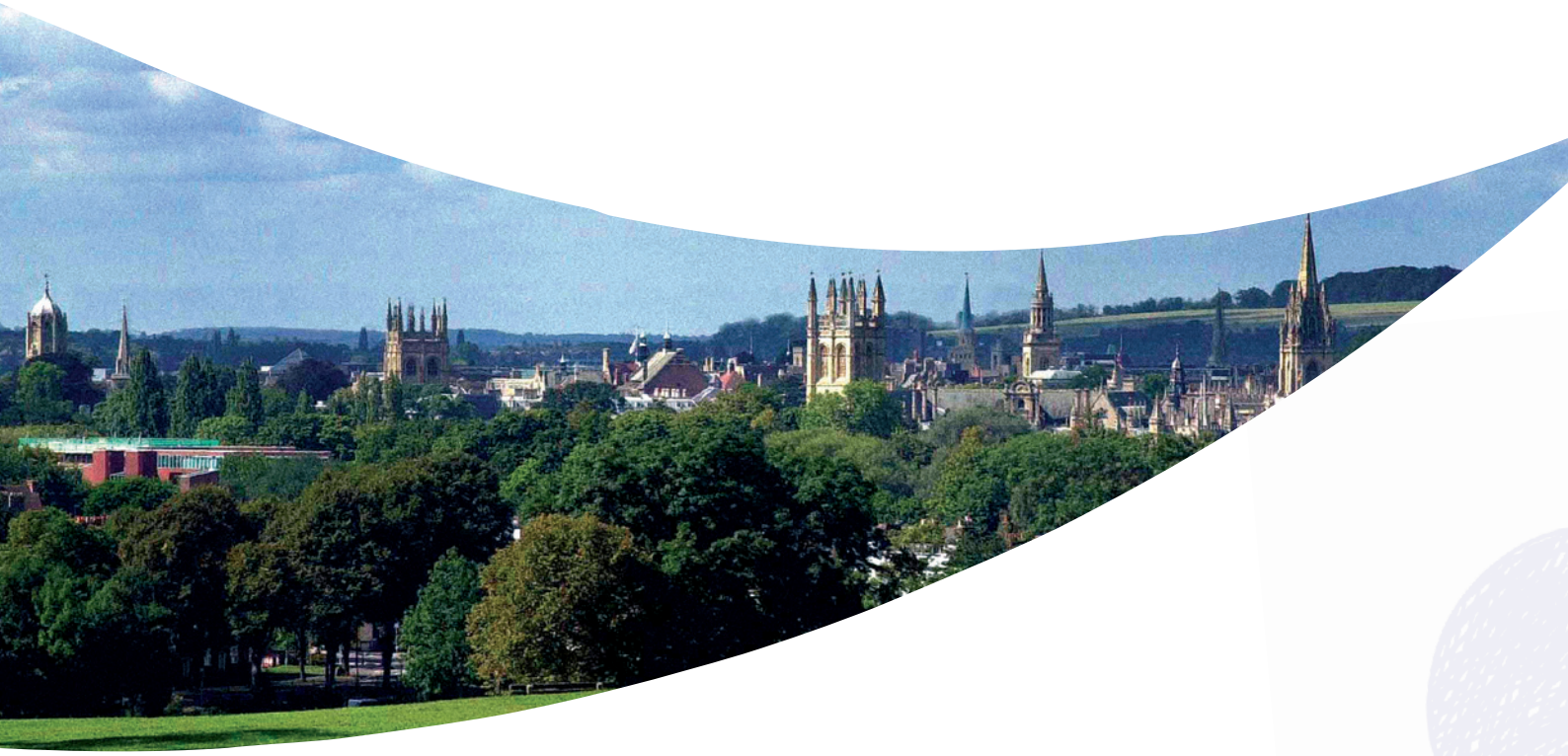
Planning Application Guidance

Air Quality

Contents

Section 1

Introduction



Sustainable Urban Development

Half of the world's population today lives in cities, and it is expected that this number will increase in the future. The trend of fast growing urbanisation brings a lot of challenges for the modern world: quality of life of the population, the demand for an increase in connectivity and mobility efficiency between places, and at the same time the management of natural resources, protection of the environment, and successful responses to climate change.

Oxford shares those challenges and it is important to consider the adoption of measures that promote sustainability and promote development models that are able to address the needs of Oxford's inhabitants today, without compromising the capacity of next generations to meet their own needs in the future.

Air Quality and the Planning System

Polluted air is estimated to have been directly responsible in 2015 for 6.4 million deaths worldwide[1]. To put this into perspective, tobacco caused 7 million deaths worldwide in the same year. In the UK, outdoor air pollution is estimated to be responsible for between 28,000 and 36,000 premature deaths in the UK every year[2]. Several scientific studies have established links between poor air quality and diseases such as cancer, asthma, stroke, heart disease, diabetes, obesity and dementia.

One of the ways to reduce air pollution effectively is through efficient use of the planning system, which can be achieved by considering air quality at every phase of a new development (from design and construction, to operation).

When air quality is considered in all phases of a new development, we can:

- Ensure that new developments contribute to general sustainable development; by making sure that all potential air quality impacts are identified and minimised, and adequate levels of mitigation are put in place to offset potential increases in transport activities and emissions.

- Provide opportunities to reduce overall emissions by for example helping to create the support infrastructure for the use of zero emission vehicles, or promoting cycling and walking activities, which help reduce reliance on the private car.

- Contribute to the installation of newer, cleaner and more efficient technologies for generation of energy; sustainable energy generation and energy efficiency can help also reduce the total amount of emissions.

Aims and Objectives of this guidance

This guidance has been produced by Oxford City Council to help ensure that air quality is adequately considered in the preparation of development proposals and planning applications for the city of Oxford. This guidance is aimed at creating a better understanding of the air quality requirements that need to be considered and taken into account prior to the submission of a valid planning proposal.

The main intended audience for this guidance are developers and consultants involved in the preparation of development proposals and planning applications. This document may also be of interest to community active groups, the general public and all those who express concerns with any air quality issues associated with proposals for new developments.

The main objectives of this guidance are to:

- **Aid developers and planners in pre-application discussions and application submissions**
- **Determine if an air quality assessment is required**
- **Determine if a more detailed emissions assessment is required**
- **Provide guidance on the required content of the relevant assessment**
- **Provide guidance as to emission mitigation requirements**

The guidance is not intended to repeat existing policy and guidance, but aims to provide clarity on how to provide the correct information in order to comply with national and local policies. Relevant policy and guidance is however mentioned throughout, with a list of useful references in Section 7.

All applicants should refer to this guidance prior to submitting their planning application to ensure they provide the correct information to make their application valid and compliant.

Each development site is different and it is appreciated that not all of the guidance contained in this document may cover all scenarios. Applicants are therefore encouraged to contact us directly should they wish to obtain more detailed pre-application advice.

If you wish to receive detailed pre-application advice please contact us via **airquality@oxford.gov.uk.** Further details about this service are available here: **https://www.oxford.gov.uk/info/20066/planning_applications/331/get_pre-application_planning_advice**

[1] https://www.thelancet.com/journals/lanpub/article/PIIS2468-2667(16)30023-8/fulltext

[2] https://www.gov.uk/government/publications/nitrogen-dioxide-effects-on-mortality

Section 2

How to use this guidance

www.oxford.gov.uk

OXFORD CITY COUNCIL

Use the table below to navigate through this air quality planning application guidance to find the type of information and advice for the aspects that need to be considered in the air quality assessment for your development

Development Phases	Air Quality Assessment	Mitigating Impacts
Design Phase	When to submit one?	Redesign
Construction Phase	What type of AQA?	Mitigate
Operational Phase	Content and Structure	Offset

Assessing Significance	Useful Information
Difference between Impacts and Effects	Policies
Questions that need to be answered	Data Sources
What needs to be taken into account?	Relevant Guidance

Section 3

Development Phases

Air Quality should always be taken into consideration in all the three phases of a development: Design, Construction and Operational Phases.

The Design Phase

The purpose of this section is to demonstrate how air quality impacts of new developments can be mitigated, at the very beginning of a development design phase, through the adoption of best practice good design principles.

Oxford City Council recommends the adoption of the following list of actions, as they will contribute to significant emission reductions, potentially negating the need for further air quality mitigation in more advanced phases of the development:

- **Consider air quality in all the early stages of the development process,** making sure that any air quality consideration is fully integrated with all the various development inputs (planning, transport, housing, etc.)
- **Ensure that new developments are located close to public transport** and access to stations and bus stops can be made via public transport, or other sustainable choices such as cycling and walking
- **Give careful consideration to the location of developments** where particularly sensitive members of the population are likely to be present, such as housing, homes for elderly people, schools and nurseries
- **Avoid exposing city centre residents to poorer air quality on busy roads and congested junctions**
- **New developments should be designed to avoid the creation of "street canyons"** or a building configuration that inhibits effective pollution dispersion
- **Delivering sustainable development should be the key theme of any application**
- **New development should be designed to minimise public exposure to pollution sources** e.g. by locating habitable rooms away from busy roads, or directing combustion generated pollutants through well sited vents or chimney stacks
- **When choosing a location for any new developments, the developer should also take into account the impact of the already existing pollution sources in the area,** and the potential cumulative effect of these in the new development
- **Ventilation provision and the location of opening windows and doors should be used in a way to improve air quality and reduce human exposure to air pollution**
- **The aim of any new development should be that it leads to an overall reduction in emissions in relation to the current land use,** where this is not possible, every effort should be made to ensure the development is as low impact as possible in terms of emissions and environmental impact
- **New developments should aim to minimise energy demand and energy loss**
- **Developers are encouraged to include landscape features such as trees and vegetation** in open spaces or as "green" walls or roofs where this not restrict ventilation
- **Developers are encouraged to discuss any relevant detail of the new development's design with the air quality officer before the application is submitted,** to ensure the correct approach is being taken

The Construction Phase

Construction sites can generate and emit many different forms of pollution, the most obvious being material waste, visible dust, noise and vibration. However construction and demolition sites also often produce Nitrogen Dioxide (NO_2) and Particulate Matter (PM) which are of serious concern for human health and impact on the environment.

It is therefore vital that emissions from the construction and demolition phases are fully considered and included in the air quality assessment of every new development.

The main air quality impacts that may arise during these activities are essentially:

- Dust deposition
- Visible dust plumes, which are evidence of dust emissions
- Elevated Particulate Matter (PM) concentrations, as a result of dust generating site activities
- An increase in PM and NO_2 concentrations due to exhaust emissions from diesel powered vehicles and equipment used on site

The potential negative impacts of these particular types of emissions will depend on several factors, which will be inherent to the nature of the development, such as:

- the type of activities being undertaken (demolition, earthworks, track out, number of vehicles and plant etc.);
- the duration of these activities;
- the size of the site;
- the meteorological conditions (wind speed, direction and rainfall);
- the proximity of receptors to those activities;
- the adequacy of the mitigation measures applied to reduce or eliminate dust; and
- the sensitivity of the receptors to dust.

Oxford City Council therefore requires that a dust assessment is conducted for all major developments, following specific methodology outlined by **IAQM EPUK guidance** on the assessment of dust from demolition and construction. It is also very important that:

- **The location of residential areas, schools and other dust-sensitive land uses are identified** in the assessment, in relation to the site, as well as proposed or likely sources of dust emission from within the site.

- **The dust assessment explains how topography and climate may affect the emission and dispersal of site dust,** by analysing data from the UK Meteorological Office or other recognised agencies on wind conditions, local rainfall and ground moisture conditions. Topography assumes special relevance, particularly in areas of woodland, downwind or adjacent to the site boundary, and of valley or hill formations as those may alter local wind patterns.

- **The outcomes of the dust assessment, (which will allow the identification of site specific dust mitigation measures) are incorporated in the site's Construction Environmental Management Plan (CEMP**) as those have been specially developed for the site – taking into account site specific construction work and distance to significant receptors

The Operational Phase

The table below shows the list of principles that Oxford City Council recommends for all major developments. Evidence of their inclusion should be presented within the air quality assessment that is submitted with the planning application:

- **All gas-fired boilers to meet a minimum standard of <40 mgNOx/kWh**
- **All gas-fired CHP plant to meet a minimum emissions standard of:**
  - **Spark ignition engine of 250mgNOx/Nm³**
    (At reference conditions of 273K, 101.3kPa, 5%O_2 and 0% H_2O)
  - **Compression ignition engine of 400mgNOx/Nm³**
    (At reference conditions of 273K, 101.3kPa, 5%O_2 and 0% H_2O)
  - **Gas turbine of 50 mgNOx/Nm³**
    (At reference conditions of 273K, 101.3kPa, 15%O_2 and 0% H_2O)
- **Where biomass is proposed within an urban area it is to meet minimum emissions standards of: Solid biomass boiler of 275mgNOx/Nm³ and 25 mgPM/Nm³** (At reference conditions of 273K, 101.3kPa, 6%O_2 and 0% H_2O)
- **Provision is made for adequate electric vehicle charging points for each residential unit with an allocated parking space**
- **Non-allocated spaces are provided with at least 25% (with a minimum of 2) having adequate electric vehicle charging points installed**
- **Provision of adequate ducting is required to allow for future installation of electric vehicle charging infrastructure on all parking spaces**
- **Where development generates significant additional traffic, we expect the provision of a detailed travel plan (with provision to measure its implementation and effect)** which sets out measures to encourage sustainable means of transport (public transport, cycling and walking) for example: subsidised or free-ticketing, improved links to bus stops, improved infra-structure and layouts to improve accessibility and safety.
- **The cumulative effects of local developments should always be taken into consideration** when considering the potential air quality impacts of a new development
- **Every development should provide sustainable travel packs for its residents/businesses**
- **All developments should encourage sustainable travel and promote the use of zero emission transport** - considering the launch of a Zero Emission Zone in the city centre in 2020
- **All new development must provide safe and convenient access and appropriate facilities for pedestrians and cyclists.**
- **New developments should not contravene the Council's Air Quality Action Plan** or render any of the measures unworkable
- **Developments should be compliant with this air quality planning guidance.**

Section 4

Air Quality Assessment

An Air Quality Assessment is a document produced to assess the likely changes in air quality or exposure to air pollution, as a result of a proposed development, in a certain area. It should demonstrate that the location is suitable for the proposed development and that the proposed development will not have an unacceptable impact on existing air quality.

Development may result in negative impacts on air quality, and therefore will require proper quantification and evaluation in the context of the UK's air quality objectives. The significance of the effects arising from a development will depend on a number of factors and will always need to be considered alongside the social, economic, and also other environmental benefits that the development in question may bring.

When is it a requirement to submit an Air Quality Assessment?

The entire city of Oxford has been designated and Air Quality Management Area (AQMA) for NO2 since 2010. The criteria below can be used to screen out all the smaller developments and/or developments where impacts can be considered to have insignificant effects on air quality.

Oxford City Council currently requires an Air Quality Assessment to be submitted with all the applications for developments inside the city, that fall into the criteria below:

- **The development comprises 10 or more residential units or a site area of more than 0.5 ha**
- **The development comprises more than 1000m² of floor space for all other uses or a site area greater than 1 ha**
- **The development has been considered for the winning and working of minerals or the use of land considered for mineral-working deposits**
- **The development will provide more than 10 parking spaces inside an AQMA**
- **The development will have a centralised energy facility or other centralised combustion process** (this includes combustion plant associated with standby emergency generators - typically associated with centralised energy centres)
- **Waste development**
- **The development will introduce significant sensitive receptors in to an AQMA** (Sensitive receptors are all the human receptors that are located in areas of long term exposure which are more susceptible to the impacts of air pollution such as residential dwellings, hospitals and healthcare facilities, schools, care homes)
- **The development is likely to create a street canyon or reduce dispersion of pollutants** (A street canyon is defined as an urban street lined on both sides by buildings of 3 or more floors, with a height/width ratio greater than 1)
- **The development goes directly against Oxford City Council's Air Quality Action Plan**
- **The development will cause a change in Light Duty Vehicle (LDV) traffic flows of more than 100 AADT within or adjacent to an AQMA** or more than 500 AADT elsewhere (LDV cars and small vans <3.5t gross vehicle weight)
- **The development will cause a change in Heavy Duty Vehicle (HDV) traffic flows of more than 25 AADT within or adjacent to an AQMA** or more than 100 AADT elsewhere (HDV = goods vehicles + buses >3.5t gross vehicle weight)
- **The development will be responsible for the realignment of roads,** i.e. changing the proximity of receptors to traffic lanes – where the change is 5m or more and the road is within an AQMA
- **The development introduces a new junction or removes an existing one, near to relevant receptors** (criteria applied to junctions that cause traffic to significantly change vehicle acceleration/deceleration, e.g. traffic lights, or roundabouts)
- **The development introduces or changes a bus station,** where bus flows will change by more than 25 AADT within or adjacent to an AQMA, or more than 100 AADT elsewhere
- **The development will comprise an underground car park with extraction system,** and where the ventilation extract for the car park will be within 20 m of a relevant receptor, or the car park having more than 100 movements per day (total in and out)
- **Whether the proposed development could significantly change air quality during the construction and operational phases;** and/or
- **Whether there is likely to be a significant increase in the number of people exposed to a problem with air quality**

What level of air quality assessment is required?

Where an air quality assessment is identified as being required, this may be either a Simple or a Detailed Assessment. A Simple Assessment (or Screening Assessment) is one relying on already published information and without quantification of impacts, in contrast to a Detailed Assessment that is completed with the aid of a predictive technique, such as a dispersion model.

One or the other may be appropriate, dependent upon individual circumstances such as the nature, the extent and location of the development.

Screening Assessment

This type of assessment will involve use of screening methods such as those set out in the Design Manual for Roads and Bridges (DMRB)[3] for the assessment of traffic related sources. However, the shortcomings of such methods should be noted. This may be appropriate as:

- **A first step to identify whether more detailed assessment is required**
- **For smaller scale developments generating limited traffic emissions**
- **Where complex factors don't exist and therefore do not need to be modelled** (e.g. street canyons, receptor/road heights, etc.)

Detailed Assessment

This type of assessment usually relies on the use of dispersion models such as ADMS-Roads, ADMS-Urban or AEROMOD. These models predict a pollution concentration associated with a development which is then added to a background pollutant baseline, to estimate the total predicted pollutant concentration at certain locations. These models always need to be verified against local measured data. This may be appropriate where:

- **A screening assessment has identified potential problems and more detailed modelling or monitoring is required**
- **For large scale developments generating significant traffic**
- **Where air quality constrains have already been identified** e.g. likely to impact Oxford city's AQMA
- **Where complex factors need to be modelled** (e.g. street canyons, stack emissions, receptor/road heights, etc.)
- **Where the preliminary analysis of the surrounding area identifies the need to account for potential cumulative impacts from other individual sites**

[3] http://www.standardsforhighways.co.uk/ha/standards/dmrb/

Main considerations and structure of an AQA

The air quality assessment should present an approach that is robust and appropriate to the scale of the likely impacts. The assessment should also be transparent, allowing air quality officers to duplicate/replicate it if needed, and thus, where reasonable, all data input used, assumptions made and methods applied should be detailed in the report or appendices.

The following chapters/relevant information presented below should be included (but not necessarily in this order):

- **Relevant details of the proposed development** (location, nature and scale of the development, identification of on-site sources of pollution, overview of expected traffic changes, sensitivity of the area, location of any sensitive receptor, etc.)
- **The Policy context for the assessment** (summarising all current air quality national and local policies that should be taken into account in the assessment)
- **Description of the relevant air quality standards and objectives**
- **The basis for determining significance of effects arising from impacts** (together with the descriptors used for describing the severity of impacts)
- **Details of the assessment methods** (type of assessment, model and version number used (if detailed), and any local input data and assumptions made during the assessment- traffic, weather and background data, etc.)
- **Model Verification** (normally to be expected for modelling of road traffic emissions - involving a comparison of the predicted versus measured concentrations, and allows an adjustment to be made to account for systematic errors)
- **Identification of sensitive locations and receptors** (close to and within the proposed development, as well as along roads significantly affected by the development)
- **Description of baseline conditions** (The findings of any site visit and/or desktop investigations, description of available monitoring data - locations, monitoring method, sampling period, data capture, any adjustments applied to the data, and DEFRA background maps
- **Assessment of Impacts** Descriptions of the impacts at the individual receptors should be provided, taking into account the absolute concentrations in relation to the air quality objectives. A comment on the sensitivity of the results to input choices is desirable, so that a view make be taken of the uncertainties
- **Description of construction phase impacts** (following the guidance set out by the IAQM Guidance on the assessment of dust from demolition and construction)
- **Cumulative impacts and effects** (address the potentially cumulative impact of the development with other significant developments in the area)
- **Mitigation Measures** (where a significant effect is identified then the measures to be employed to avoid, reduce and, where appropriate, offset this effect should be set out)
- **Summary of the assessment results, Including:**
  - Air Quality Impacts during construction and operational phases of the development;
  - Impacts of existing sources on new receptors, particularly where new receptors are being introduced into an area of high pollution;
  - Any exceedances of air quality objectives arising as a result of the development, or any worsening of a current breach (including the geographical extent);
  - Whether the development will compromise or render inoperative the measures within an Air Quality Action Plan, where the development affects an AQMA or LEZ;
  - The significance of the effect of any impacts identified; and any apparent conflicts with planning policy.

Section 5

Assessing Significance

When assessing significance of the outcomes of an AQA, the assessment needs to clearly make the distinction between the meaning of "air quality impact" and "air quality effect".

When assessing significance of the outcomes of an AQA, the assessment needs to clearly make the distinction between the meaning of **"air quality impact"** and **"air quality effect".**

An air quality impact is the change in the concentration of an air pollutant, as experienced by a receptor. This impact may, or may not result on an effect on the health of a human receptor, depending on the severity of the impact and other factors that may need to be taken into account.

Impacts on air quality, whether adverse or beneficial, will have an effect on human health that can be judged as **"significant"** or **"not significant".** This constitutes the primary requirement of the EIA regulations, but is also relevant to other air quality assessments.

The significance of the effect that any proposed development might have will also be judged at two separate stages of the development control process, as follows:

- The first is within the air quality report accompanying the planning application, while
- The second is when the local authority's air quality specialist makes his/her recommendations to the planning officer

The EPUK guidance assesses significance on the basis of the level of predicted change in air quality and also the actual pollutant concentrations – where pollutant concentrations are near to, or above the air quality objective, a much higher level of significance is attributed to changes in pollutant concentrations.

Significance is assessed in the guidance through the establishment of the so called **Impact descriptors for individual receptors**. Although this approach can be used as a starting point to make the judgement on significance of effect, it doesn't provide on its own a clear and unambiguous guide to reaching a conclusion on significance, as whilst it may be that there are "slight", "moderate" or "substantial" impacts at one or more receptors, the overall effect may not necessarily be judged as being significant in some circumstances.

The problem of significance is therefore the difficulty to which this variable can be defined. With the exception of the guidelines of Design Manual for Roads and Bridges (DMRB), which has an arithmetic definition for significance, all the other guidelines (with LAQM TG(16) included) refer to **"professional judgement",** which can be in many cases problematic.

It is therefore important that the developer/consultant, when assessing the level of significance manages to find answer to the following questions:

- **Who is impacted by an increase in ambient or short term pollution?**
- **What is the frequency/persistence of their exposure?**
- **How much work would be required to undo the impact?**

Any judgement on the overall significance of effect of a development will need to take into account factors as:

- **The existing and future air quality baseline in the absence of the development**
- **The extent and severity of current and future population exposure to the impacts, and**
- **The influence and validity of any assumptions adopted when undertaking the prediction of impacts**

It is therefore important to underline that the reasons for reaching **the main conclusions after the significance assessment, should be presented in a transparent way, and set out logically.**

The degrees of impact pointed out in the so called **Impact descriptors for individual receptors** should not be seen as the only factor for consideration, because the outcome of this assessment procedure applies only to a single receptor and not the overall impact.

Section 6

Mitigating Impacts

There will be circumstances where (due to the nature and scale of the development, etc.) the AQA concludes that the resultant air quality impacts will produce a significant effect on the health of human receptors.

In those cases, there is a requirement to mitigate these impacts. Developments that already have adopted best practice measures (see section 3) will need to implement (and quantify the impacts of) further measures to improve of air quality, either through redesign, mitigation or offset the emissions through some form of compensating pollution control measures in the local area.

The principle that should be adopted is: **Redesign – Mitigate – Offset**

Important points to consider in this situation include:

- **Is the methodology that is being proposed aimed at reducing the emissions or the exposure?**
- **Has the mitigation measure already been included in the assessment?** (e.g. enhanced cycle infrastructure may already be in the travel plan and accounted for in the traffic Assessment that informs the model)

Redesign Options

Examples of potential adjustments to the design of a proposed development that may result in a reduced impact on air quality are summarised below:

- **Car free development**
- **Reduced car parking provision**
- **Remove populated spaces away from busy roads**
- **Adapt site layout to separate polluting and sensitive uses**
- **Design to ensure that cars are not the dominant mode of travel**
- **Design in walking and cycling routes** and/or upgrade existing routes and provision of facilities for walkers and cyclists
- **Provide and maintain mechanical ventilation** to reduce the impact of the external environment on occupants in the building - ensuring inlet location from non-roadside location
- **Avoid installing balconies** (particularly at ground and first floor levels)
- **Consider the use of non-opening front windows in worst affected locations**
- **Inclusion of landscape features such as trees and vegetation** in open spaces or as "green" walls or roofs where this not restrict ventilation
- **Consider placing habitable rooms away from the façade fronting the pollution source*** e.g. in flats place corridors, stairwells, bathrooms etc. in these locations
- **There is often considerable scope for optimising flue locations and height** (such that dispersion is enhanced)

* Subject to compliance with current planning policies

Attention also needs to be made to the potential implications/impacts that a redesign option might have in other documents that have previously been approved (Energy and transport statements, travel plan, etc.) - as those will have to be re-assessed.

Mitigation Options

When redesign is not possible or sufficient, then further mitigation may be required. Examples of potential recommended mitigation options can be found below:

- **Develop a travel plan for the development and provide on-going personal travel plan support**
- **Develop and provide welcome packs containing public transport information**
- **Restrict vehicle speeds within the development**
- **Implementation of other measures minimising the need to travel**
- **Effective onsite traffic management**
- **Limiting the number of parking spaces associated with the development**
- **Provision of secure cycle parking and associated facilities**
- **Introduce emission based charging for car parking/permits**
- **Provide car share/car pool scheme and/or bicycle pool scheme**
- **Provide electric charging points for vehicles**
- **Provide public transport infrastructure support**
- **The use of, or promoting the use of, cleaner fuels for fleets of vehicles associated with the new development**
- **Vehicle maintenance, driver training and emission testing regimes for fleets of cars, lorries or buses associated with a development**
- **Use of lower emission vehicles**
- **Introduce emissions standards for delivery vehicles**
- **Use of energy efficiency and renewable energy measures**
- **Contribution to wider air quality measures included in the air quality action plan or low emissions strategy**

Offset Options

If satisfactory mitigation has not been agreed in line with this guidance then offsetting through financial means may be an option, and these contributions can be sought through Section 106 agreements. This will be at the discretion of the Council.

This approach is in line with the NPPF, which suggests that local planning authorities should consider whether otherwise unacceptable development could be made acceptable through the use of conditions or planning obligations. Planning obligations should only be used where it is not possible to address unacceptable impacts through a planning condition. (Paragraph 54)

However, it is important to refer the following:

- **Any attempt to consider and submit to the City Council any Air Quality Offset option as part of a Section 106 agreement will only be considered after all Re-design and/ or Mitigation options have been properly explored and considered not to be viable**
- **Oxford City Council considers Offset Options only as a last resource, and should be avoided whenever possible**
- **The City Council will always have final say on the evaluation and decision of such agreements, which will always have to be evaluated against other factors, at the Council's own discretion**
- **The mere submission of an air quality offset option for a development, does not, in itself, provide a reason for granting planning permission**

The recommended method for assessing mitigation costs uses the 'Interdepartmental Group on Costs and Benefits' (IGCB) damage cost guidance to determine the levels of compensation that should be provided, in line with the following DEFRA guidance documents: **"Impact pathway guidance for valuing changes in air quality (2013)" and "Valuing impacts on air quality supplementary green book guidance (2013)".**

The approach that has been widely used to quantify the costs associated with pollutant emissions from transport. The process requires the following steps to be undertaken:

- **Identify the additional trip rates (as trips/annum) generated by the proposed development** (this information will normally be provided in the Transport Assessment)
- **Assume an average distance travelled of 10km/trip**
- **Calculate the additional emissions of NOx and PM10 (kg/ annum),** based on emissions factors in the Emissions Factor Toolkit, and an assumption of an average speed of 50 km/h
- **Multiply the calculated emissions by 5, to assume emissions over a 5 year time frame**
- **Use the HM Treasury and Defra IGCB damage cost approach to provide a valuation of the excess emissions,** using the currently applicable values for each pollutant (currently NOx =£995/tonne & PM_{10} transport average £48,517)
- **Sum the NOx and PM_{10} costs.**

Section 7

Relevant Policies, Data and Guidance

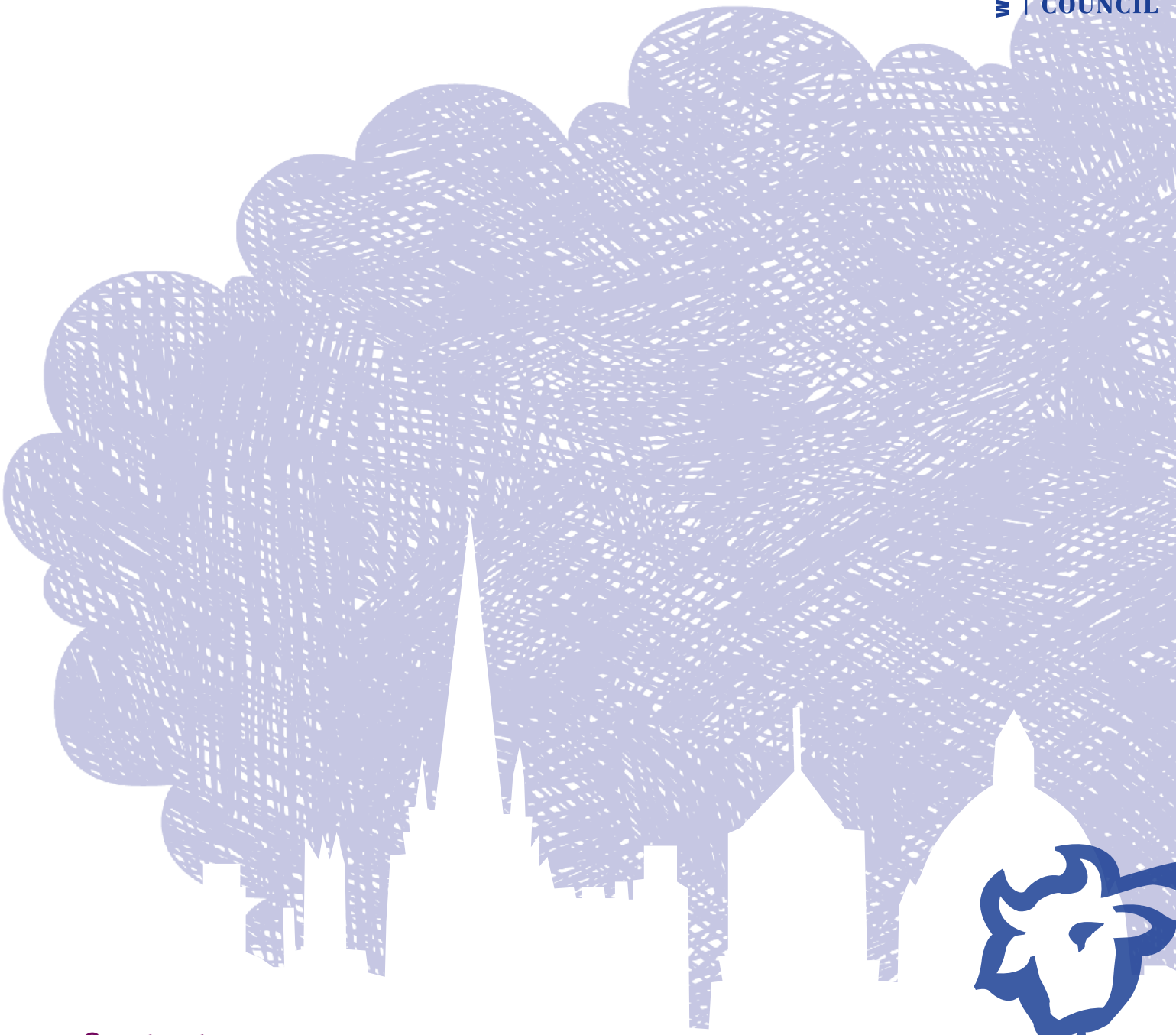
Reference	Web link
NPPF	**Conserving and enhancing the natural environment**
NPPG	**National Guidance on Air Quality**
AQE	**Air Quality Strategy for England, Scotland, Wales and N. Ireland**
CSRG	**Citizen Science Research Group – Air Quality Garden Toolkit**
DBEIS	**UK CHP Development Map**
EA	**Environment Agency: What's on your backyard?**
OCC LP	**Oxford City Council Local Plan (2001-2016 and 2016-2036)**
OCC AP	**Oxford City Council Air Quality Action Plan (2013-2020)**
OCC	**Neighbourhood Plans**
OCC	**Oxford City Air Quality Annual Status Reports**
OCC	**Oxford City Low Emission Strategy (2013-2020)**
OCC	**Oxford City Sustainable Strategy (2011-2020)**
OCC	**Oxfordshire County Council – Cycling Design Standards**
EPUK IAQM	**Significance in Air Quality**
EPUK IAQM	**Biomass and Air Quality Guidance**
EPUK IAQM	**Combined Heat and Power: Air Quality Guidance**
EPUK IAQM	**Land Use Planning and Development Control: Planning for Air Quality**
EPUK IAQM	**Guidance on the assessment of dust from demolition and construction**
EPUK IAQM	**How to monitor in the Vicinity of Demolition/Construction Sites**
DEFRA	**Local Air Quality Management - Technical Guidance (TG 16)**
DEFRA	**Diffusion Tubes for Ambient NO_2 Monitoring: Practical Guidance**
DEFRA	**National Air Quality Plans for NO_2 in the UK (2017)**
DEFRA	**Clean Air Strategy 2019**
DEFRA	**Review of the Clean Air act provisions for dispersion from small boilers**
DEFRA	**UK-Air: Air Information Resource**
DEFRA	**UK Pollutant Release and Transfer Register (PRTR) Datasets**
DfT	**Road to Zero - transition to zero emission vehicles**
DMRB	**Design Manual for Roads and Bridges: Volume 11 – Air Quality**
DMRB	**Guidance on Running the DMRB Screening Model**
HE	**Air Quality Model Verification Good Practice guidance**
HE	**Air Quality Strategy**
Ricardo EE	**AQ England: Air Quality Data and Information for Local Authorities**
Oxfordshire	**Oxfordshire Air Quality Data**

Glossary of Terms

Terms and Abbreviations	Description
AADT	Annual Average Daily Traffic
AQA	Air Quality Assessment
AQMA	Air Quality Management Area
Biomass	Fuel that is developed from organic materials, a renewable and sustainable source of energy used to create electricity or other forms of power
CEMP	Construction Environmental Management Plan
DEFRA	Department of Environment, Food and Rural Affairs
DMRB	Design Manual and Bridges
EIA	Environment Impact Assessment
EV	Electric Vehicle
HDV	Heavy Duty Vehicle
H_2O	Water
IAQM EPUK	Institute of Air Quality Management Environmental Protection United Kingdom
IGCB	Interdepartmental Group on Costs and Benefits
K	Kelvin temperature scale
kPa	Unit of pressure
kWh	Measure of energy that equates to 1,000 watts – or 1 kilowatt (kW) of energy being used for one hour.
LAQM TG (16)	Local Air Quality Management Technical Guidance 16
LDV	Light Duty Vehicles
LEZ	Low Emission Zone
mg	Milligram
Nm3	Common unit used in industry to refer to gas emissions or exchange. It stands for Normal cubic meter.
NO2	Nitrogen Dioxide
NOx	Nitrogen Oxides
NPPF	National Planning Policy Framework
O2	Oxygen
PM	Particulate Matter
Section 106 agreement	Legal agreement between Local Authorities and developers drafted when it is considered that a development will have significant impacts on the local area, which cannot be moderated by means of conditions attached to a planning decision.
Street Canyon effect	Urban layout where a narrow street is flanked by tall buildings on both sides, potentiating accumulation and poor dispersion of air pollutants
UK	United Kingdom
ZEZ	Zero Emission Zone

www.oxford.gov.uk

OXFORD CITY COUNCIL



Contact us:

Department: Environmental Sustainability

Address: St Aldate's Chambers, 109 St Aldate's, Oxford, OX1 1DS

Telephone: 01865 249811

Email: AirQuality@oxford.gov.uk

Building a world-class city for everyone