



# Air quality and land use planning

**A Belfast specific guidance note for developers  
and air quality consultants**



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## List of abbreviations

**AADT:** Annual Average Daily Traffic

**AQA:** Air Quality Assessment

**AQAP:** Air Quality Action Plan

**AQMA:** Air Quality Management Area. Belfast City Council is required under the Environment (NI) Order 2002 to declare AQMAs where it believes UK air quality objectives prescribed in the Regulations (see Appendix 4) will be exceeded.

**EPU:** The Environmental Protection Unit, within the Health and Environmental Services Department of Belfast City Council.

**DMRB:** Design Manual for Roads and Bridges

**LAQM TG(09):** Technical Guidance Local Air Quality Management

**NSCA:** National Society for Clean Air, now called Environmental Protection UK

**PM<sub>2.5</sub>:** Particulate matter with an average aerodynamic diameter of up to 2.5 µm, referred to as the fine particle fraction (which per definition includes the ultrafine particles)

**PM<sub>10</sub>:** An air pollutant consisting of small particles with an aerodynamic diameter less than or equal to a nominal 10 µm. Their small size allows them to make their way to the air passages deep within the lungs where they may be deposited and result in adverse health effects. PM<sub>10</sub> also causes visibility reduction.

**PPS:** Planning Policy Statement

**TA:** Transport Assessment

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## Belfast specific guidance note for developers and air quality consultants

### Preface

The land use planning system can positively contribute to the improvement of air quality and help secure the National Air Quality Strategy Objectives which fulfil the UK's responsibility under the European Union Air Quality Framework and Daughter Directives.

The aim of this guidance document is to support developers and consultants involved in developments in Belfast, to give due consideration to air quality matters and to submit appropriate supporting information with their planning applications. In producing this guidance note, we have consulted with a wide range of organisations including the Planning Service, developers and consultants. Their support and contribution towards this document are welcomed and help to clarify what is required in the submission and consideration of an Air Quality Assessment.

## Foreword

Everyone has a right to live, work and relax in a healthy environment. Good air quality is an important factor in protecting people's health. We are working with others to improve the quality of the air we breathe by reducing the levels of pollution the city creates.



Many of us will remember the smogs of the 1960s which so badly affected our health. Each winter, large numbers of people had to be treated in hospital for respiratory problems

caused by poor air quality. Thankfully, we have come a long way since those days. Through implementing clean-air legislation, we have played our role in improving the quality of our air and consequently the health of our people. However, challenges still remain. Our modern lifestyles mean that pollutants can be produced depending on how we travel, consume resources and heat our homes. It is important that we do everything we can to reduce our emissions and to prevent people being exposed to unacceptable levels of air pollution.

We are not only committed to protecting the health and wellbeing of people in the city but are also working to promote the development of the city. Over recent years, our skyline with its numerous cranes has been testimony to the vibrancy and development of Belfast. While promoting development and its economic benefits, we must continue to protect our environment. That is what this document is all about – getting the balance right - promoting development while at the same time protecting our environment.

The aim of this guidance document is to support developers and consultants involved in developments in Belfast. It provides help on how to properly consider the impact on air quality at the earliest planning stage. It details the kind of supporting information which may be needed to accompany certain planning applications for developments that could have a significant adverse impact on air quality. It is intended this advice will assist in speeding up the planning process.

In producing this guidance note, we have consulted with a wide range of organisations including the Planning Service, developers and consultants. Their general support and contribution towards this document is very much appreciated.

I very much welcome this document and look forward to seeing our city continue to develop while at the same time ensuring our environment is protected.

A handwritten signature in black ink that reads "C. Mullaghan". The signature is fluid and cursive, with a long horizontal stroke at the end.

Cllr Cathal Mullaghan  
Chair  
Health and Environmental Services Committee  
Belfast City Council

# Environmental protection UK foreword



Environmental Protection UK (formally the National Society for Clean Air - NSCA) is the environmental protection charity supported by pollution control professionals. We have been working for a cleaner, quieter, healthier world since 1898.

Environmental Protection UK are very happy to endorse the efforts taken by Belfast City Council in the production of its Air Quality Planning Guidance Document and support its attempts to improve air quality in the Belfast area.

A handwritten signature in black ink that reads "Philip Mulligan". The signature is written in a cursive, flowing style.

Philip Mulligan  
Chief Executive



[www.environmental-protection.org.uk](http://www.environmental-protection.org.uk)

# 1. Introduction

Good air quality is an important consideration in protecting people's health. Improving air quality in Belfast has been high on our agenda for over 30 years. Belfast has experienced significant improvements with the introduction of the Clean Air Order and Smoke Control in the late 1960s. Gone are the days of visibly poor air when the city was under a haze of smog and smoke. Air quality in Belfast today is generally considered to be of good quality although there are still some areas where certain pollutants remain a concern.

Poor air quality, caused by the presence of air pollution, can impact on human health, typically by irritating the lungs and airways or by passing into our blood via our lungs. Those most at risk are children, older people and people with existing heart or lung problems. Asthma has become more common in recent years. Northern Ireland has some of the highest rates of asthma in the world with around 2,000 people admitted to hospital because of their condition each year (Asthma UK Northern Ireland, 2008). Air pollution itself is not thought to be a direct cause of asthma but can trigger an asthma attack.

Belfast City Council take the lead role in encouraging improvements in air quality and improve the health and well-being of the citizens and visitors of Belfast. We are also tasked with reviewing and assessing air quality throughout Belfast (under the Environment (Northern Ireland) Order 2002). Air quality experts compare air quality indicators against national objectives and EU limit values to determine whether the quality of the air represents a risk to human health. Where air pollution levels exceed or are predicted to exceed the relevant objectives taking due account of relevant exposure considerations, an Air Quality

Management Area (AQMA) will be declared. In August 2006, we formally identified and declared four arterial routes as AQMAs. Further information on these areas is provided under the heading 'Areas of poor air quality'.

We developed an action plan for the improvement of air quality in the City with partner organisations. Actions within the plan identify measures that each organisation can take in order to improve air quality and ultimately health, both across the city and within the Air Quality Management Areas. One of these actions was to improve the understanding of the impact of development on sustainable land use planning and transport. This document begins to address this by putting in context why an assessment of air quality at the planning application stage is so important. We are committed to placing air quality high on our agenda and have incorporated targets for achieving air quality improvements.



We also act as a statutory consultee to the Planning Service for developments in the city. In order to ensure that the development of Belfast does not adversely impact upon or worsen air quality in the city, we may request that developers carry out an Air Quality Assessment. This would identify the proposed development's impact on air quality and what can be done to lessen this impact.

**Aims and objectives of this guidance note are:**

- to assist developers in assessing air quality well in advance of submitting a planning application,
- to ensure that air quality is given due consideration during the planning process,
- to ensure that the development of Belfast does not worsen or significantly slow the improvements in air quality, and
- to ensure Belfast residents are not exposed to unacceptable levels of air pollution.

**Sources of air pollutants:**

The predominant sources of air pollution within AQMAs in Belfast are from vehicle exhausts. Our heavy reliance on road transport produces fine particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), and nitrogen dioxide which contributes to the formation of low level ozone. Other pollution sources include domestic heating, bonfires, and industrial processes.

*“Air quality in Belfast today is generally considered to be of good quality although in some areas certain pollutants remain a concern.”*

## Areas of poor air quality:

We have identified and declared four Air Quality Management Areas (AQMAs) within Belfast where the health-based air quality objectives are being exceeded. These AQMAs are described below; the blue lines on each map indicate the boundaries of the AQMAs:

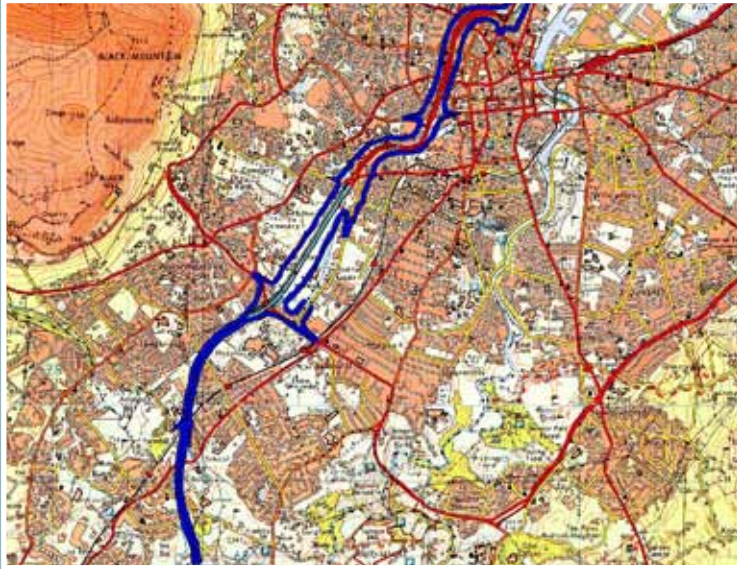


Figure 1. Map showing boundaries of the M1/Westlink AQMA



Figure 2. Map showing boundaries of the Cromac Street AQMA

1. The M1 / Westlink corridor from the Belfast City boundary at Sir Thomas and Lady Dixon Park to the end of the Westlink at the junction with Great George's Street and York Street including Stockman's Lane and Kennedy Way. This area was declared for predicted exceedences of both the nitrogen dioxide and particulate material annual mean air quality strategy objectives as well as exceedences of the particulate matter 24 hour mean objective and the nitrogen dioxide 1 hour mean objective.
2. Cromac Street to the junction with East Bridge Street and then from East Bridge Street to the junction with the Ravenhill and Albertbridge Roads and Short Strand. This area was declared for predicted exceedences of the nitrogen dioxide annual mean air quality strategy objective.



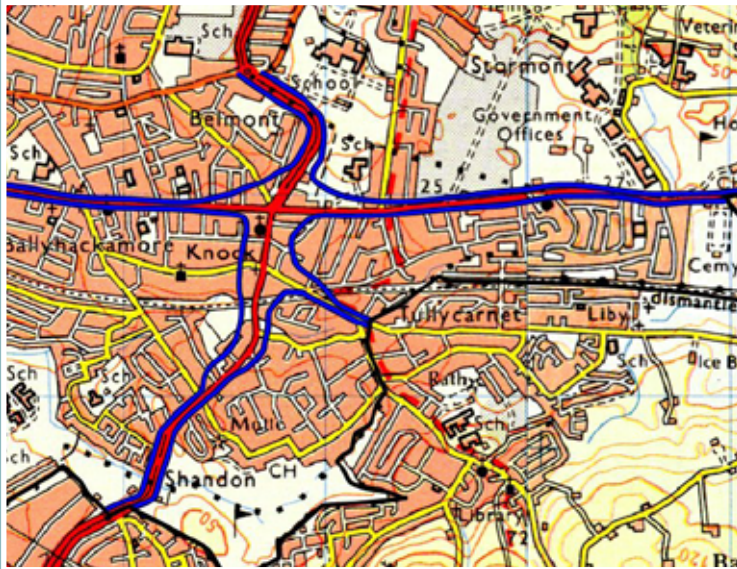


Figure 3. Map showing boundaries of the Upper Newtownards Road AQMA

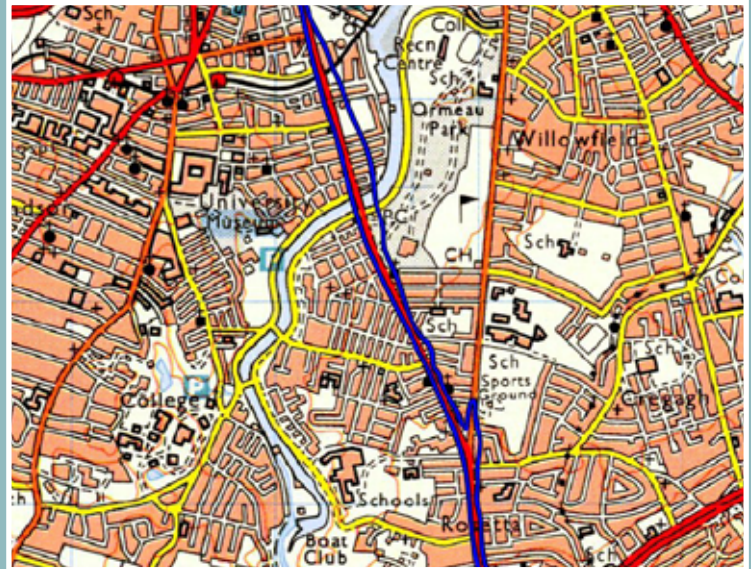


Figure 4. Map showing boundaries of the Ormeau Road AQMA

3. The Upper Newtownards Road from the North Road junction to the Belfast City boundary at the Ulster Hospital incorporating the Knock Road to the City boundary at Laburnum Playing Fields and Hawthornden Way. This area was declared for predicted exceedences of the nitrogen dioxide annual mean air quality strategy objective.

4. The Ormeau Road from the junction with Donegall Pass to the City boundary at Galwally. This area was declared for predicted exceedences of the nitrogen dioxide annual mean air quality strategy objective.

There are potentially other areas across Belfast where air quality may be poor but because there is currently no relevant exposure in these areas, an AQMA has not been declared. As part of the review and assessment process carried out under the provisions of the Environment (Northern Ireland) Order 2002, we have also identified certain areas within the city centre as being close to exceeding the objectives. These areas are now being closely monitored. If it is found that air quality exceeds, or is predicted to exceed the National Air Quality Standards or EU Limits, then further AQMAs may be declared.

In order to specifically address these areas of poor air quality and to improve air quality throughout Belfast, an Air Quality Action Plan has been published by the Council and seven other partner organisations and is available at [www.airqualityni.co.uk](http://www.airqualityni.co.uk).

## 2. Planning context

The Regional Development Strategy 2025 (RDS) was agreed by the Northern Ireland Assembly in September 2001. It sets out an overarching strategic planning framework to help achieve a balanced economy, a healthy environment and an inclusive society.

The strategy contains a number of Strategic Planning Guidelines (SPG) which provide long term policy direction from a spatial perspective. SPG ENV 6 “To create healthier living environments and to support healthy lifestyles” contains an accompanying measure (ENV 6.1) to improve air quality through the following:

- ensure a level of ambient air quality in public places, which poses no significant risk to health or quality of life, through implementation of the National Air Quality Strategy;
- identify and address air pollution problems through the introduction of a new system of Local Air Quality Management (LAQM);
- ensure that industrial emissions are minimised and effectively controlled, and promote more sustainable energy sources and a diversification of fuel supplies;
- change travel patterns to reduce the growth of traffic with potential benefits for air quality.

There are many and varied material considerations that may be considered in the determination of planning applications. Air quality can be one such material consideration. However, the degree of weight this carries will depend on the details of an individual case and whether there are any specific policies relating to this issue.

Advice on the role of land use planning in contributing to the improvement of air quality in Northern Ireland is contained in the Local Air Quality Management (LAQM) Policy Guidance PGNI03, published by the Department of the Environment (DOE) in June 2003 (an updated version of this document will be available in 2009). The document outlines issues relevant to air quality which may be considered in the preparation of Planning Policy Statements and Development Plans. It also indicates that air quality is capable of being a material consideration in the determination of planning applications.

### 3. Developments that may require an air quality assessment



Proposed developments may have the potential to have an adverse impact on air quality. Where it is deemed feasible that this impact will be significant we, through the Planning Service process, will request that an Air Quality Assessment (AQA) is submitted in support of a planning application. AQAs may be requested depending on:

- the location of the development,
- the potential changes in traffic flows due to the development,
- the size of development,
- the nature of development, and
- any operating licence requirements associated with the development.

In determining whether a development requires an AQA, we will follow published best practice guidance such as the National Society for Clean Air Development Control: Planning for Air Quality and the recently published Government Technical Guidance (LAQM TG(09)). We will also take into account local knowledge and will consider each application on an individual basis. **We strongly advise you seek our advice if you believe that your proposed development may result in air quality issues.** We encourage early consideration of air quality in planning applications and encourage pre-application discussions where appropriate.

A list of potential developments that may require an AQA are included in Appendix 1.

## 4. What is required in an AQA?

There are two main methods by which a development's impact on air quality can be determined:

- Air quality screening assessments
- Atmospheric dispersion assessments

It is vital that the applicant adequately considers air quality; failure to do so may result in us advising the Planning Service to withhold planning approval on the grounds of air quality. We will only be able to reach a decision on the appropriateness of an application when we are satisfied that sufficient information has been provided. The quality of the information received is important; outlined below are the basic steps that an air quality assessment should contain. This document should assist in outlining the standard and detail required on which we will base our response to the Planning Service.

### **Level of detail required in an AQA:**

In areas where air quality is not currently of particular concern, we may only request a screening assessment of the proposed impact of the development (using for example DMRB, AERSCREEN, etc). If this screening process identifies that the development may have a significant impact on air quality, a more detailed atmospheric dispersion modelling assessment may be required (using for example ADMS, Breeze Roads, AERMOD, etc).

Where air quality is a concern (within a declared AQMA or in an area of poor air quality) or where the development has the potential to impact on an area of poor air quality, then a detailed atmospheric dispersion model will be required.

For both methods, the minimum requirements for a satisfactory assessment are:

- a prediction of the **current** air quality within the vicinity of the proposed development,
- a prediction of the air quality within the vicinity of the proposed development for the year that the development is due to be operational **without** the development in place, and
- a prediction of the air quality within the vicinity of the proposed development for the year that the development is due to be operational **with** the development in place.

On receipt of an acceptable AQA, we will respond to the Planning Service within 10 working days with our comments. The Planning Service will then determine the suitability of the development based on all consultee responses and having considered the planning policy.

Further details of what is expected in an AQA can be found in Appendix 2.

We operate a number of air quality monitoring stations throughout the city.

## 5. Air quality information available for developers



This data can be used to demonstrate the accuracy of AQAs. This data is freely available at [www.airqualityni.co.uk](http://www.airqualityni.co.uk). In addition, we operate a network of nitrogen dioxide diffusion tubes. If your development is close to one of these diffusion tubes, it may be possible to use this data for model verification. This data is available on request; we would recommend contacting us to establish what air quality data is available in the proximity of your development.

In addition to monitoring data, estimated background air pollution data is available at [www.airquality.co.uk](http://www.airquality.co.uk)

Reports published under the requirements of the Environment (NI) Order 2002 are available at [www.airqualityni.co.uk](http://www.airqualityni.co.uk)

## 6. When a development is considered to have a significant adverse impact on air quality

A proposed development may be considered to have a significant adverse impact on air quality when it:

- generates air pollution in excess of the National Air Quality Strategy Objectives or EU Limit Values (Appendix 4),
  - causes a significant increase in ambient concentrations,
  - results in the designation of new AQMA, or expansion of an existing AQMA,
  - interferes with the implementation of the Air Quality Action Plan (AQAP), or
  - exposes people to poor air quality.
- .....

## 7. How developers can mitigate against adverse air quality impacts and protect residents from poor air quality

Where an AQA demonstrates that poor air quality is an issue for a proposed development, then mitigation measures may be required. These measures should serve to reduce the impact on air quality and protect residents from being exposed to air pollution. A number of possible mitigation measures are listed in Appendix 3. While we recognise the ultimate decision falls to the Planning Service on whether specific mitigation measures are acceptable, we encourage design measures that protect people's health and contribute to the improvement of air quality.

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## 8. Further reading

NSCA (2006). *Development Control: Planning for Air Quality, Updated guidance from NSCA on dealing with air quality concerns within the development process*. Published by Environmental Protection UK (formerly known as National Society for Clean Air) and available at [www.environmental-protection.org.uk](http://www.environmental-protection.org.uk)

Department for Environment Food and Rural Affairs (2008). *Part IV of the Environment Act 1995, Environment (Northern Ireland) Order 2002 Part III Local Air Quality Management, Technical Guidance, LAQM.TG(09)*. Available at [www.defra.gov.uk](http://www.defra.gov.uk)

Environment (Northern Ireland) Order 2002 – Part 3. Office of public sector information (OPSI) Available at: [www.opsi.gov.uk](http://www.opsi.gov.uk)

Department for Regional Development (2005). *Planning Policy Statement 13 (PPS 13). Transportation and Land Use*. Available at [www.drdni.gov.uk](http://www.drdni.gov.uk)

Greater London Authority (2006). *The Control of Dust and Emissions from Construction and Demolition, Best Practice Guidance*. Available at: [www.london.gov.uk](http://www.london.gov.uk)

Office of the Deputy Prime Minister (2004). *Planning Policy Statement 23: Planning and Pollution Control. Annex 1: Pollution Control, Air and Water Quality*. Available at [www.communities.gov.uk](http://www.communities.gov.uk)

Scottish Executive (2004). *Air Quality and Land Use Planning*. Available at [www.scotland.gov.uk/Publications](http://www.scotland.gov.uk/Publications)

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## 9. Website sources

[www.airqualityni.co.uk](http://www.airqualityni.co.uk)  
[www.airquality.co.uk](http://www.airquality.co.uk)  
[www.ni-environment.gov.uk](http://www.ni-environment.gov.uk)  
[www.defra.gov.uk/environment/airquality](http://www.defra.gov.uk/environment/airquality)  
[www.laqmsupport.org.uk](http://www.laqmsupport.org.uk)  
[www.roadsni.gov.uk](http://www.roadsni.gov.uk)  
[www.planningni.gov.uk](http://www.planningni.gov.uk)  
[www.asthma.org.uk/news](http://www.asthma.org.uk/news)

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## 10. Contact details:

Air Quality Officer  
Environmental Protection Unit  
Belfast City Council  
The Cecil Ward Building  
4-10 Linenhall Street  
Belfast  
BT2 8BP

Telephone: 028 9027 0428  
Fax: 028 9027 0422  
Email: [environmentalhealthservice@belfastcity.gov.uk](mailto:environmentalhealthservice@belfastcity.gov.uk)  
Web: [www.belfastcity.gov.uk/airquality](http://www.belfastcity.gov.uk/airquality)

# Appendix 1. Developments that may require an air quality assessment.

Below is a list of developments that may require an AQA. Each proposed development will be assessed on an individual basis. The following list indicates the types of development that we consider will potentially have an impact on air quality. This list is neither exhaustive nor prescriptive. Where doubt remains over whether your development requires an AQA, we recommend that you contact us for further advice.

AQAs may be required depending on:

1. the location of the development
2. the potential changes in traffic flows due to the development
3. the size of development
4. the nature of development
5. operating licence requirements associated with the development.

## 1. The location of the development

### **Developments located in, or which may have an affect on, sensitive areas.**

Sensitive areas are considered to be those that already experience poor air quality. Some of these areas have already been declared as AQMAs (See figures 1-4, pages 6 and 7). There are other areas being closely considered as AQMAs but they have not been declared because they currently have no relevant exposure or have air pollutant concentrations close to the National Air Quality Strategy Objectives or the EU limit values.

### **Developments located in, or that may generate, street canyons and effect the dispersion of air pollutants.**

A street canyon is defined as a relatively narrow street where the height of the buildings on both sides is greater than

the width of the road. Examples of street canyons in Belfast include Great Victoria Street, Chichester Street and May Street.

### **Developments that introduce new exposure close to existing sources.**

These can be defined as areas where residents of a proposed development could be exposed to air quality in excess of National or European standards. These areas may not always be defined as AQMAs.

## 2. The potential changes in traffic flows due to the development

### **Developments that have the potential to increase traffic flows or congestion in an area.**

A 5% increase in traffic flows in an area where traffic flows are in excess of 10,000 annual average daily traffic (AADT) would be considered significant.

Other traffic related factors that may impact air quality include:

### **Developments that have the potential to change the average traffic speed in an area.**

A significant change in average traffic flows would be considered to be a reduction of more than 6 mph (or 10 km/h).

**Proposals that include large car parks or where a significant increase in the existing car parking provision is proposed.**

A large car park is defined as having 300 spaces or more. A significant increase in car parking spaces would be defined as a 25% increase in car park spaces in excess of 300 spaces.

**Proposals that would significantly alter the traffic composition of an area.**

Developments such as bus stations, HGV parks, distribution centres and ferry terminals have the potential to significantly alter the traffic composition of an area.

### 3. The size of the development

Where large developments are proposed, they may attract significant vehicle movements. This has the potential to have an impact on air quality. Table 1 is a series of size thresholds that we use as a guide when determining whether a proposed development is of significant size. These figures are based on those used by the DRD Road Service to determine whether a Transport Assessment is required and thresholds quoted in the NSCA document.

**Table 1.** Size thresholds used to determine when an Air Quality Assessment may be required.

Intended Use	Size Thresholds
Food retail	1,000m <sup>2</sup> Gross Floor Area or >0.2ha site area
Non-food retail	1,000m <sup>2</sup> Gross Floor Area
Cinemas and conference facilities	1,000m <sup>2</sup> Gross Floor Area
Leisure facilities	1,000m <sup>2</sup> Gross Floor Area
Business or office development (NSCA guidance)	2,500m <sup>2</sup> Gross Floor Area or >0.8ha site area
Industry	5,000m <sup>2</sup> Gross Floor Area
Distribution and warehousing	10,000m <sup>2</sup> Gross Floor Area
Hospitals	2,500m <sup>2</sup> Gross Floor Area
Higher and further education	2,500m <sup>2</sup> Gross Floor Area
Stadia	1,500 Seats
Housing (NSCA Guidance)	>80 Dwellings or >1.0ha site area
Developments that lead to an increase in vehicle movements	>60 vehicle movements in an hour

#### 4. The nature of the development

##### **Developments that have a particularly sensitive end use.**

Sensitive end uses such as crèches, hospitals and care centres are particularly vulnerable to poor air quality. These types of developments in some parts of the city may require an AQA.

##### **Developments where the construction work has the potential to impact upon nearby residents.**

This is particularly relevant in areas where particulate matter is already considered a problem and where large demolition schemes are proposed.

##### **Developments that may impact upon the Air Quality Action Plan (AQAP) or the implementation of the plan.**

Under the Environment (NI) Order 2002, we have published an action plan to improve air quality throughout the city with our partner organisations. Any development that has the potential to adversely impact upon this plan or its implementation will require close attention in an AQA.

##### **Developments which propose to use a biomass facility as the predominant source of energy.**

Consideration needs to be given to biomass combustion installations to determine if there is the potential for UK objectives or EU limit values to be exceeded. Where a biomass is proposed we would recommend that you contact us for further advice.

#### 5. Operating licence requirements associated with the development

##### **Developments that require operating licences.**

Where the proposed development requires an operating licence under Pollution Prevention and Control Regulations (NI) 2003 and has emissions to atmosphere associated with that development, it may require an AQA.

##### **Types of AQAs.**

We will request detailed atmospheric dispersion modelled assessments for proposed developments that meet the above criteria and are located in areas where poor air quality already exists or is predicted to exist. Some of these areas have already been declared AQMAs. However, in areas of poor air quality, where no relevant exposure currently exists or in areas where the UK objectives or EU limit values are close to being exceeded, we will request a detailed atmospheric dispersion modelled assessment (using for example ADMS, Breeze Roads, AERMOD). Reference should be made to the review and assessment documents produced by us in order to determine where these areas are.

In areas where there are currently no air quality concerns, we will request an air quality screening assessment (using for example DMRB, AERSCREEN).

Where doubt remains as to the type of assessment required, developers should contact us directly.

## Appendix 2. What is required in an AQA?

A successful AQA will clearly demonstrate:

- the predicted increases in air pollutant concentrations as a result of the proposed development, and
- the predicted concentrations of air pollutants at the nearest relevant receptor with a comparison against relevant air quality objectives and EU limit values.

The minimum requirements for a satisfactory assessment are:

- a prediction of the **current** air quality within the vicinity of the proposed development,
- a prediction of the air quality within the vicinity of the proposed development for the year that the development is due to be operational **without** the development in place, and
- a prediction of the air quality within the vicinity of the proposed development for the year that the development is due to be operational **with** the development in place.

In order to demonstrate that an air quality assessment has been adequately carried out, we request that each assessment contains:

1. A site location map and layout plan. If necessary, this should include the location of any processes associated with the development. Key data relating to the AQA's assumptions or input values should also be presented on this plan (for example the location of relevant current and future receptors, and the distance from the receptors to the source)
2. Details of the expected emissions associated with the development. Where these emissions are associated with road traffic, then a traffic flow assessment will also be required. This will need to determine:
  - the **current** traffic flows in the vicinity of the proposed development (AADT, peak hourly flows, vehicle type, composition and speeds),
  - the predicted traffic flows in the vicinity of the proposed development for the year that the development is due to be operational **without** the development in place, and
  - the predicted traffic flows in the vicinity of the proposed development for the year that the development is due to be operational **with** the development in place.

The assessment could employ traffic count data, recognised traffic flow prediction models and defensible assumptions of generated or existing flows. In some locations, traffic count

data may already exist and we would recommend that you contact the DRD Roads Service for this information (see contact details). In most circumstances deriving the AADT would be adequate, however in more sensitive areas or for sensitive developments it may be necessary to derive hourly traffic flow data.

3. All input parameters and the results for each modelled scenario must be presented. In the case of a DMRB screening assessment, this entails presenting all input and output sheets. In the case of more detailed dispersion models, all input parameters and assumptions made must be presented. This must include details of the traffic and emissions data, meteorological data and background concentrations. Outputs in the form of maps and or tables are required.
4. Where dispersion modelling has been conducted, it will be necessary to determine the accuracy of the baseline prediction (the prediction of the current air quality within the vicinity of the proposed development) against monitored data. The location and the means by which this monitored data was derived must be clearly stated. We operate a number of monitoring locations that could potentially be appropriate for this purpose and we would recommend contacting us to determine these locations and to get data from these points. In areas where we have no suitable monitoring data, developers will be responsible for conducting their own monitoring to enable model verification. This monitoring should be conducted in accordance with current government

technical guidance on air quality monitoring. A statement as to the model's output in comparison with the monitored data will be required and any significant discrepancy between the two data sets should be explained.

5. Where background data has been derived, the source of this data must be clearly stated.
6. A clear statement of the predicted concentrations of air quality at the identified receptors with a comparison against the current UK air quality objectives and EU Limit values must be presented.
7. A clear statement of the predicted impact on air quality as a result of the development must be presented.

## Appendix 3. Mitigation measures

There are a number of mitigation measures that can be used to manage quality and exposure to poor air quality. The following list is by no means exhaustive but highlights a number of examples that could be adopted. We welcome all initiatives proven to improve air quality in consultation with the Planning Service.

### Initiatives during construction

Best practice on dust mitigation measures and construction related emissions should be followed. The Greater London Authority and London Councils have produced best practice guidance entitled “*London Code of Practice: the control of dust and emissions from construction and demolition (LCCP)*.”

This document is available at: [www.london.gov.uk/mayor/environment/air\\_quality](http://www.london.gov.uk/mayor/environment/air_quality)

Further details are provided in a Building Research Establishment publication “*Controlling particles, vapour and noise pollution from construction sites*.” (BRE, London, 2003).

**We would also remind developers that it is illegal to dispose of on-site demolition waste through the use of bonfires. Under the Clean Air (N.I.) Order 1981, it is an offence to emit dark smoke from premises or sites (industrial or trade premises).**

### Measures to reduce a development’s impact on air quality

By adopting the general principles of PPS13, a development’s detrimental impact on air quality can be significantly reduced. Examples of measures include:

- providing high levels of access to public transport provision,
- initiatives that promote the modal shift to walking, cycling and the use of public transport,
- producing travel plans,
- incorporating initiatives that support and build upon those already stated in the Belfast City Air Quality Action Plan,
- initiatives that limit the use of private vehicles, and
- vehicle fleet management initiatives and fuel use initiatives

## **Measures to protect human health from poor air quality**

Examples of protecting residents from poor air quality may include:

- building design can help mitigate against areas of poor air quality; for example balconies overlooking busy roads in poor air quality areas should be avoided. Similarly, avoiding the formation of street canyons or areas where air dispersion would be impeded is encouraged,
- ventilation systems where clean air is drawn into a building combined with non-opening windows. Where this approach is taken the developer must provide full specifications of the chosen system including all maintenance and service schedules,
- buffer zones between busy roads and residential dwellings may be proven as being an adequate remedial measure, and
- establishing monitoring programmes can help determine the precise air quality concentrations in areas where poor air quality is suspected.

Further examples of mitigation measures are given in chapter 7 of the NSCA guidance. All proposed mitigation measures must be proven to be appropriate, capable and realistic. A good quality AQA will assist in this process.

## Appendix 4. National Air Quality Strategy Objectives and European Union limit values

**Table 2.** The National Air Quality Strategy Objectives are summarised in the following table together with the date by which each is to be achieved.

<b>UK Air Quality Objectives for protection of human health, July 2007</b> New objectives highlighted in shading			
<b>Pollutant</b>	<b>Air Quality Objective</b>		<b>To be achieved by</b>
	<b>Concentration</b>	<b>Measured as</b>	
<b>Benzene</b>			
All authorities	16.25 µg m <sup>-3</sup>	Running annual mean	31 December 2003
England and Wales Only	5.00 µg m <sup>-3</sup>	Annual mean	31 December 2010
Scotland and N. Ireland	3.25 µg m <sup>-3</sup>	Running annual mean	31 December 2010
<b>1,3-Butadiene</b>	2.25 µg m <sup>-3</sup>	Running annual mean	31 December 2003
<b>Carbon Monoxide</b>			
England, Wales and N. Ireland	10.0 mg m <sup>-3</sup>	Maximum daily running 8-hour mean	31 December 2003
Scotland Only	10.0 mg m <sup>-3</sup>	Running 8-hour mean	31 December 2003
<b>Lead</b>	0.5 µg m <sup>-3</sup>	Annual mean	31 December 2004
	0.25 µg m <sup>-3</sup>	Annual mean	31 December 2008
<b>Nitrogen Dioxide</b>	200 µg m <sup>-3</sup> not to be exceeded more than 18 times a year	1-hour mean	31 December 2005
	40 µg m <sup>-3</sup>	Annual mean	31 December 2005
<b>Particles (PM<sub>10</sub>) (gravimetric)</b>			
All authorities	50 µg m <sup>-3</sup> , not to be exceeded more than 35 times a year	24 hour running mean	31 December 2004
	40 µg m <sup>-3</sup>	Annual mean	31 December 2004
Scotland Only	50 µg m <sup>-3</sup> , not to be exceeded more than 7 times a year	24 hour running mean	31 December 2010
	18 µg m <sup>-3</sup>	Annual mean	31 December 2010
<b>Particles (PM<sub>2.5</sub>) (gravimetric) *</b>	25 µg m <sup>-3</sup> (target)	Annual mean	2020
All authorities	15% cut in urban background exposure	Annual mean	2010 - 2020
Scotland Only	12 µg m <sup>-3</sup> (limit)	Annual mean	2010
<b>Sulphur dioxide</b>	350 µg m <sup>-3</sup> , not to be exceeded more than 24 times a year	1-hour mean	31 December 2004
	125 µg m <sup>-3</sup> , not to be exceeded more than 3 times a year	24-hour mean	31 December 2004
	266 µg m <sup>-3</sup> , not to be exceeded more than 35 times a year	15-minute mean	31 December 2005
<b>PAH *</b>	0.25 ng m <sup>-3</sup>	Annual mean	31 December 2010

\* not included in regulations at present. Shaded data shows new objectives

**Table 3.** The European Union limit values are summarised in the following table together with the date by which each must be achieved.

European Union Limit Values			
Pollutant	Air Quality Objective		To be achieved by
	Concentration	Measured as	
Benzene (C <sub>6</sub> H <sub>6</sub> )	5 µgm <sup>-3</sup>	Annual mean	1 January 2010
Carbon monoxide (CO)	10 mgm <sup>-3</sup>	Maximum daily 8 hour mean	1 January 2005
Lead (Pb)	0.5 µgm <sup>-3</sup>	Annual Mean	1 January 2005
Nitrogen Dioxide (NO <sub>2</sub> )	200 µgm <sup>-3</sup> Not to be exceeded more than 18 times per annum.	1 hour mean	1 January 2010
	40 µgm <sup>-3</sup>	Annual mean	1 January 2010
Particulate Material (PM <sub>10</sub> )	50 µgm <sup>-3</sup> Not to be exceeded more than 35 times per annum.	24 hour mean	1 January 2005
	40 µgm <sup>-3</sup>	Annual mean	1 January 2005
	50 µgm <sup>-3</sup> Not to be exceeded more than 7 times per annum.	24 hour mean	1 January 2010
	20 µgm <sup>-3</sup>	Annual mean	1 January 2010
Sulphur Dioxide (SO <sub>2</sub> )	350 µgm <sup>-3</sup> Not to be exceeded more than 24 times per annum.	1 hour mean	1 January 2005
	125 µgm <sup>-3</sup> Not to be exceeded more than 3 times per annum.	24 hour mean	1 January 2005
Ozone* (O <sub>3</sub> )	120 µgm <sup>-3</sup> Not to be exceeded more than 25 times per annum averaged over 3 years	Maximum daily 8 hour mean	2010
	120 µgm <sup>-3</sup>	Maximum daily 8 hour mean within a calendar year	2020 Long Term Objective

\*Concentrations are target values, which should be met as far as possible by the specified date.



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