

Supplementary Guidance: Air Quality

1. Status of Supplementary Guidance

This Supplementary Guidance (SG) forms part of the Development Plan and is a material consideration in the determination of planning applications.

The SG expands upon the following Aberdeen Local Development Plan policies:

- Policy T4 – Air Quality

2. Introduction to Topic

The Council has declared 3 Air Quality Management Areas (AQMAs) due to exceedances of the nitrogen dioxide (NO₂), and particulate (PM10 and PM2.5) objectives (see Figures 1):

- **City Centre** (including Union Street, Market Street, Virginia Street, Commerce Street, Guild Street and Bridge Street, and parts of Holburn Street, King Street and Victoria Road);
- **Anderson Drive** (incorporating the whole of Anderson Drive, the area around the Haudagain roundabout and the A96 to Howes Road); and
- **Wellington Road** (from the Queen Elizabeth II Bridge to Balnagask Road).

Air quality problems are predominantly a result of emissions from road vehicles and this is reflected in the locations of the AQMAs.

The Aberdeen Air Quality Action Plan (AQAP) was adopted in 2011 and recommends a range of initiatives to address air quality problems. These focus on increasing awareness of air quality issues, promoting sustainable transport, reducing the need to travel, improving traffic management and transport infrastructure, and consideration of the impact of a Low Emission Zone.

Figure 1 – Air Quality Management Areas



3. Air Quality Assessments

An appropriate assessment of air quality must be included with any planning application for development that could adversely affect air quality during construction or demolition, once the development has been completed, or where the development may introduce new exposure in an area of existing poor air quality. The location, size and likely impact of the development will help define when an assessment is required and guidance is given in Table 1.

The following proposals may also trigger the need for an assessment:

- Proposals that may generate or result in increased congestion;
- Proposals that are likely to result in an increase in daily traffic flow or peak traffic flow of 10% or more (5% within an AQMA) on a road with more than 10,000 Annual Daily Traffic Flow (5,000 if the road is narrow and congested);
- Proposals that would significantly alter traffic composition, such as increasing the proportion of Heavy Goods Vehicles by 10%;

- Proposed developments located in, or adjacent to, an AQMA where direct emissions to air occur, for example, from sources other than traffic;
- Any other development proposals within or adjacent to an AQMA and not listed above which may be significant in terms of air quality impact and/or may impact on the working of measures detailed in the AQAP;
- Proposals that will result in new exposure close to existing sources of air pollutants, including road traffic and industrial operations;
- Proposals that could give rise to impacts on nearby residents during construction; and
- Other development that leads to more than 60 vehicle movements an hour.

This list is not exhaustive and there may be additional situations where assessments will be required, for example where:

- The development could result in the designation of a new AQMA;
- The granting of planning permission would conflict with, or render unworkable, elements of the AQAP; and
- The application could lead to a measurable deterioration in air quality as a direct result of the development.

Equally there may be borderline circumstances which will not require a complete assessment.

It is essential that applicants contact the Environmental Protection Service where any of the criteria or thresholds are breached or where there is any doubt about whether an assessment may be required. Failure to include appropriate information on air quality could result in the application being refused or delayed.

When a series of developments are proposed in a particular location, the Council will require a more strategic approach, taking into account the cumulative impacts of development on air quality.

As a minimum, the assessment should consider the following scenarios:

- Existing air quality in the study area (base year);
- Future air quality without the development in place; and,
- Future air quality with the development in place.

A wide range of assessment methods are available. The Local Air Quality Management Technical Guidance (TG09) and the Environmental Protection UK Land Use and Planning for Air Quality May 2015 (v1.1) must be considered when determining the assessment methodology. The applicant should agree the proposed methodology and datasets with the Environmental Protection Service prior to the commencement of the assessment.

Table 1 : Consultation with Environmental Protection Service

Development Category	Development within an AQMA	Development within buffer	Development outside both AQMA and buffer
Minor Works, Householder Applications/ Tree Preservation Order	No action required	No action required	No action required
Small residential development (less than 50 dwellings or 2 hectare site area); limited car parking	Inform Environmental Protection Service	Inform Environmental Protection Service	No action required
Medium / large residential development (more than 50 dwellings or 2 hectare site area)	Consult Environmental Protection Service	Consult Environmental Protection Service	Consult Environmental Protection Service
Small industrial development (less than 500 square metres gross floor area) not including biomass or combined heat and power unit	Inform Environmental Protection Service	Inform Environmental Protection Service	No action required
Any biomass or combined heat and power units	Consult Environmental Protection Service	Consult Environmental Protection Service	Consult Environmental Protection Service
Medium / large commercial development (more than 500 square metres gross floor area) (e.g. superstore, food retail, office)	Consult Environmental Protection Service	Consult Environmental Protection Service	Consult Environmental Protection Service
Industrial development requiring PPC Permit*	Consult Environmental Protection Service and SEPA	Consult Environmental Protection Service and SEPA	Consult Environmental Protection Service and SEPA
New development with 50-99 parking spaces	Consult Environmental Protection Service	Consult Environmental Protection Service	No action required
New development with more than 100 parking spaces	Consult Environmental Protection Service	Consult Environmental Protection Service	Consult Environmental Protection Service

* Pollution Prevention and Control (PPC) regulates certain types of business such as those carrying out power generation, manufacturing and other industrial activities, waste management activities, intensive pig and poultry farming, activities involving solvents or the operation of a landfill site. If you carry out an activity covered by the PPC regime, you must have a permit from the Scottish Environment Protection Agency (SEPA).

3.1 Content of Air Quality Assessments

Assessments must contain the information that will allow a full consideration of the impacts of the proposal on air quality. As a minimum this should include:

1. Details of the proposed development:
 - an overview of the development proposal;
 - identification of on-site sources of pollutants;
 - an overview of expected traffic changes or changes in emissions for the site for a specified year, e.g. year of opening; and
 - identification of local receptors, for example residential and other sensitive receptors, noting the presence of any AQMAs or other sources that may affect the site.
2. Details of the relevant air quality standards and objectives (normally the Scottish Air Quality Objectives and/or EU Air Quality Limit Values).
3. Justification of the pollutants that require assessment.
4. The basis for determining significance of impacts. The descriptors used to describe impacts should be set out together with the basis for determining the significance of the air quality impact.
5. Details of the assessment methods, including the following local input data and assumptions:
 - traffic data used in the assessment;
 - emission data;
 - meteorological data, including a description of how representative this is of the conditions in the vicinity of the proposed development;
 - baseline pollutant concentrations;
 - choice of baseline year and whether it is a low, typical or high pollution year;
 - NO_x:NO₂ relationship used; and
 - other relevant input data.

For point sources, the assessment should also include:

- Type of plant;
- Source of emissions data and actual emissions assumed; and
- The stack parameters, height diameter, emission velocity and exit temperature.

For developments that include biomass or CHP (Combined Heat and Power) plant, the assessment should provide specific details of the proposed installation within the Council's Biomass Boiler Information Request Form.

Information contained with the Environmental Protection UK Biomass and Air Quality Guidance for Local Authorities, June 2009 and Combined Heat and Power Air Quality Guidance for Local Authorities, February 2012 may be helpful.

6. Model verification (generally for traffic modelling only), including a comparison of predicted versus measured concentration used to derive adjustment factors to account for systematic errors.
7. Assessment of impacts, clearly showing in tabulated form the differences in concentrations between 'with development' and 'no development' scenarios (see Appendix A).
8. Description of construction phase impacts including likely activities, distance over which impacts are likely to occur and properties likely to be affected, duration and mitigation measures to be implemented.
9. Development mitigation measures.
10. Summary of the results:
 - Impacts during the construction phase of the development (usually dust and PM10);
 - Impacts during operation (usually on concentrations of NO₂, PM10 and PM2.5);

- Any exceedances of air quality objectives or EU air quality limit values arising from the development or any worsening of a current breach (including the geographical extent);
- Whether the development will compromise or render inoperative measures within the AQAP;
- The significance of the impacts identified; and
- Any apparent conflicts with planning policy.

The Institute of Air Quality Management (IAQM) has recommended an approach to defining the magnitude of changes and describing the air quality impacts at specific receptors. Further detail on this is included in Appendix B. Appendix C describes the approach that should be adopted to assess the significance of the development on air quality and the process that will be used by the Council.

4. Mitigation Measures

Measures to mitigate poor air quality should be considered in all proposals; but will be required where the development will give rise to an increase in concentrations within or adjacent to an AQMA or other area of poor air quality or will introduce new exposure.

The type of measures proposed will depend on the nature and scale of the development but could include:

- Minimising the need to travel by private car and encouraging mixed used development;
- Encouraging and facilitating active and sustainable modes of transport to and from the site, such as walking, cycling, and public transport;
- Reducing the impact of car use such as limiting parking provision, supporting car sharing and Car Clubs and facilitating the use of cleaner vehicles;
- Reducing the impact of deliveries through the adoption of a policy that only permits low emission delivery vehicles;
- Encouraging urban green infrastructure such as tree and/or vegetation planting to improve air quality; and
- Installing heating and air conditioning systems that minimise energy consumption and emissions.

Measures should take account of and complement actions identified in the AQAP.

Where transport is likely to be a significant source of air quality problems, developers should consult the Transport and Accessibility Supplementary Guidance which contains guidance on accessibility, car parking, Car Clubs and electric vehicle charging. Mitigation above the standards within the Transport and Accessibility SG may be required where the development may impact on an area of existing poor air quality. The Technical Advice Note, Travel Plans: A Guide for Developers will also be useful as it identifies specific measures available to developers to discourage unnecessary car use and to enable and promote access by sustainable transport modes to all sites.

If the Council considers that the proposed measures do not fully mitigate the impact of development, it may seek the provision of infrastructure (perhaps in the form of a transport improvement) or a contribution towards such infrastructure which will more fully mitigate the impact. This may be secured through a planning condition and/or legal agreement such as a Section 75 planning obligation. A recommendation to refuse an application may be considered appropriate where the air quality impacts are unacceptable to the Council and mitigation is not possible.

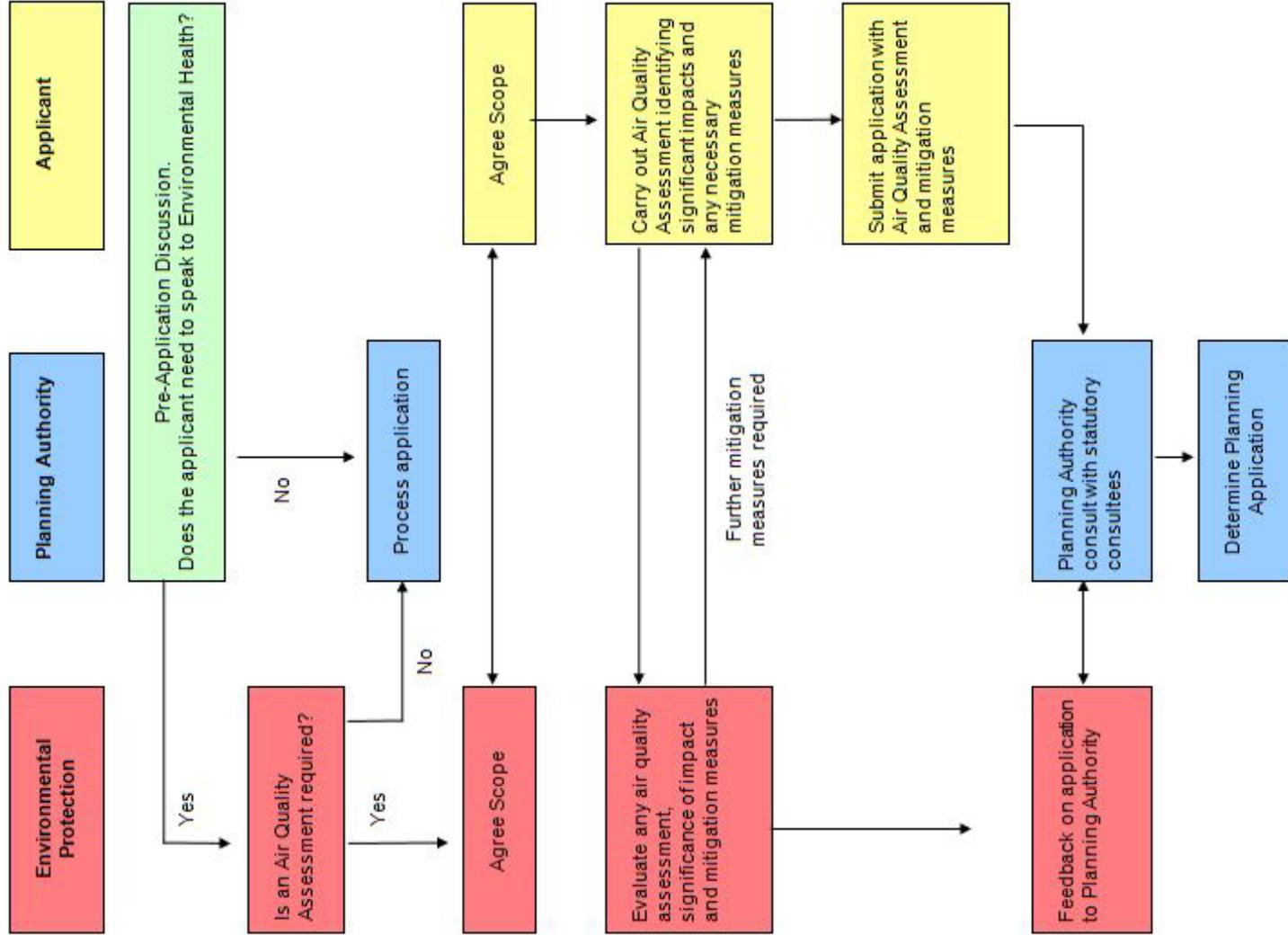
5. Biomass Installations

Concerns have arisen over the potential impacts of particulate emissions associated with the widespread uptake of biomass. The location, design and operation of biomass installations must be carefully managed to ensure that emissions do not impact on health or conflict with the Council's ability to meet air quality objectives or measures within the AQAP.

In accordance with the Council's Biomass Installations Policy (2011):

- All new biomass installations shall include appropriate and effective abatement systems where necessary to control emissions;
- Pollution levels emitted from biomass installations shall not conflict with the requirements of the UK National Air Quality Strategy, the AQAP or statutory duties under the Environmental Act 1995; and
- Biomass installations for sites in or near AQMAs will not be supported unless it can be demonstrated that the change in annual mean NO₂ and PM10 concentrations will be negligible.

Appendix A: Air Quality and Planning Flowchart



Appendix B: Impact and Magnitude Assessment Tables

The magnitude of an impact should be described using the criteria set out in Table 1. These are based on the change in concentration brought about by the scheme as a percentage of the relevant air quality objectives. Tables 2 and 3 translate these criteria into changes in concentration for nitrogen dioxide and PM10 for national objectives. Tables 2 and 3 should be presented in the assessment report rather than the generic values in Table 1.

Table 1: Definition of impact magnitude for changes in pollution concentration as a percentage of the assessment level

Magnitude of Change	Annual Mean
Large	Increase/decrease more than 10%
Medium	Increase/decrease 5-10%
Small	Increase/decrease 1-5%
Imperceptible	Increase/decrease less than 1%

Impact Magnitude and Impact Descriptors in Relation to Specific Objectives

Table 2: Definition of Impact Magnitude for Changes in Annual Mean Nitrogen Dioxide Concentrations

Magnitude of Change	Annual Mean
Large	Increase/decrease >4 ug/m ³
Medium	Increase/decrease 2 – 4 ug/m ³
Small	Increase/decrease 0.4 – 2 ug/m ³
Imperceptible	Increase/decrease <0.4 ug/m ³

Table 3: Definition of Impact Magnitude for Changes in Annual Mean PM10 Concentrations

Magnitude of Change	Annual Mean
Large	Increase/decrease more than 1.8 ug/m ³
Medium	Increase/decrease 0.9 – 1.8 ug/m ³
Small	Increase/decrease 0.2 – 0.9 ug/m ³
Imperceptible	Increase/decrease less than 0.2 ug/m ³

Impact Description

When describing an air quality impact at a specific receptor, the actual concentration at the receptor should be taken into account in combination with the magnitude of change. Tables 2 and 3 are specifically for the assessment of the annual mean nitrogen dioxide concentration and PM10 concentration.

Table 4: Air quality impact descriptors for changes to annual mean nitrogen dioxide concentrations at a receptor

Absolute Concentration in Relation to Objective/Limit Value	Change in Concentration ^{a b}		
	Small	Medium	Large
Increase with Scheme			
Above Objective/Limit Value <i>With Scheme</i> (>40ugm ³)	Slight Adverse	Moderate Adverse	Substantial Adverse
Just Below Objective/Limit Value <i>With Scheme</i> (36-40ugm ³)	Slight Adverse	Moderate Adverse	Moderate Adverse
Below Objective/Limit Value <i>With Scheme</i> (30-36ugm ³)	Negligible	Slight Adverse	Slight Adverse
Well Below Objective/Limit Value <i>With Scheme</i> (<30ugm ³)	Negligible	Negligible	Slight Adverse
Decrease with Scheme			
Above Objective/Limit Value <i>Without Scheme</i> (>40ugm ³)	Slight Beneficial	Moderate Beneficial	Substantial Beneficial
Just Below Objective/Limit Value	Slight Beneficial	Moderate Beneficial	Moderate Beneficial

<i>Without Scheme</i> (36-40ugm ³)			
Below Objective/Limit Value <i>Without Scheme</i> (30-36ugm ³)	Negligible	Slight Beneficial	Slight Beneficial
Well Below Objective/Limit Value <i>Without Scheme</i> (<30ugm ³)	Negligible	Negligible	Slight Beneficial

^a See Table 2 above for description of changes for annual mean nitrogen dioxide

^b An imperceptible change (Tables 2 and 3 above) would be described as 'negligible'

Table 5: Air quality impact descriptors for changes to annual mean PM10 concentrations at a receptor

Absolute Concentration in Relation to Objective/Limit Value	Change in Concentration ^{a b}		
	Small	Medium	Large
Increase with Scheme			
Above Objective/Limit Value <i>With Scheme</i> (>18ugm ³)	Slight Adverse	Moderate Adverse	Substantial Adverse
Just Below Objective/Limit Value <i>With Scheme</i> (16-18ugm ³)	Slight Adverse	Moderate Adverse	Moderate Adverse

Below Objective/Limit Value <i>With</i> Scheme (14-16ugm ³)	Negligible	Slight Adverse	Slight Adverse
Well Below Objective/Limit Value <i>With</i> Scheme (<14ugm ³)	Negligible	Negligible	Slight Adverse
Decrease with Scheme			
Above Objective/Limit Value <i>Without</i> Scheme (>18ugm ³)	Slight Beneficial	Moderate Beneficial	Substantial Beneficial
Just Below Objective/Limit Value <i>Without</i> Scheme (16-18ugm ³)	Slight Beneficial	Moderate Beneficial	Moderate Beneficial
Below Objective/Limit Value <i>Without</i> Scheme (14-16ugm ³)	Negligible	Slight Beneficial	Slight Beneficial
Well Below Objective/Limit Value <i>Without</i> Scheme (<14ugm ³)	Negligible	Negligible	Slight Beneficial

Tables 4 and 5 should be used for describing the impact at each **specific receptor** to enable the evaluation of the overall significance of the development.

The assessment should consider the likely effectiveness of any mitigation or compensating measures to minimise air quality impacts. In many cases it will be difficult to quantify the benefits of mitigating measures; however the application should explore likely benefits in qualitative terms.

^a See Table 3 above for description of changes for annual mean PM10 concentrations

^b An imperceptible change (Tables 2 and 3 above) would be described as 'negligible'

Appendix C: Assessing Significance

Significance is typically assessed at two stages in the overall process of examining air quality as a material consideration:

- within the air quality report accompanying the planning application using the professional judgement of the assessment authors; and
- when the Council's air quality specialist makes his/her recommendation to the planning officer.

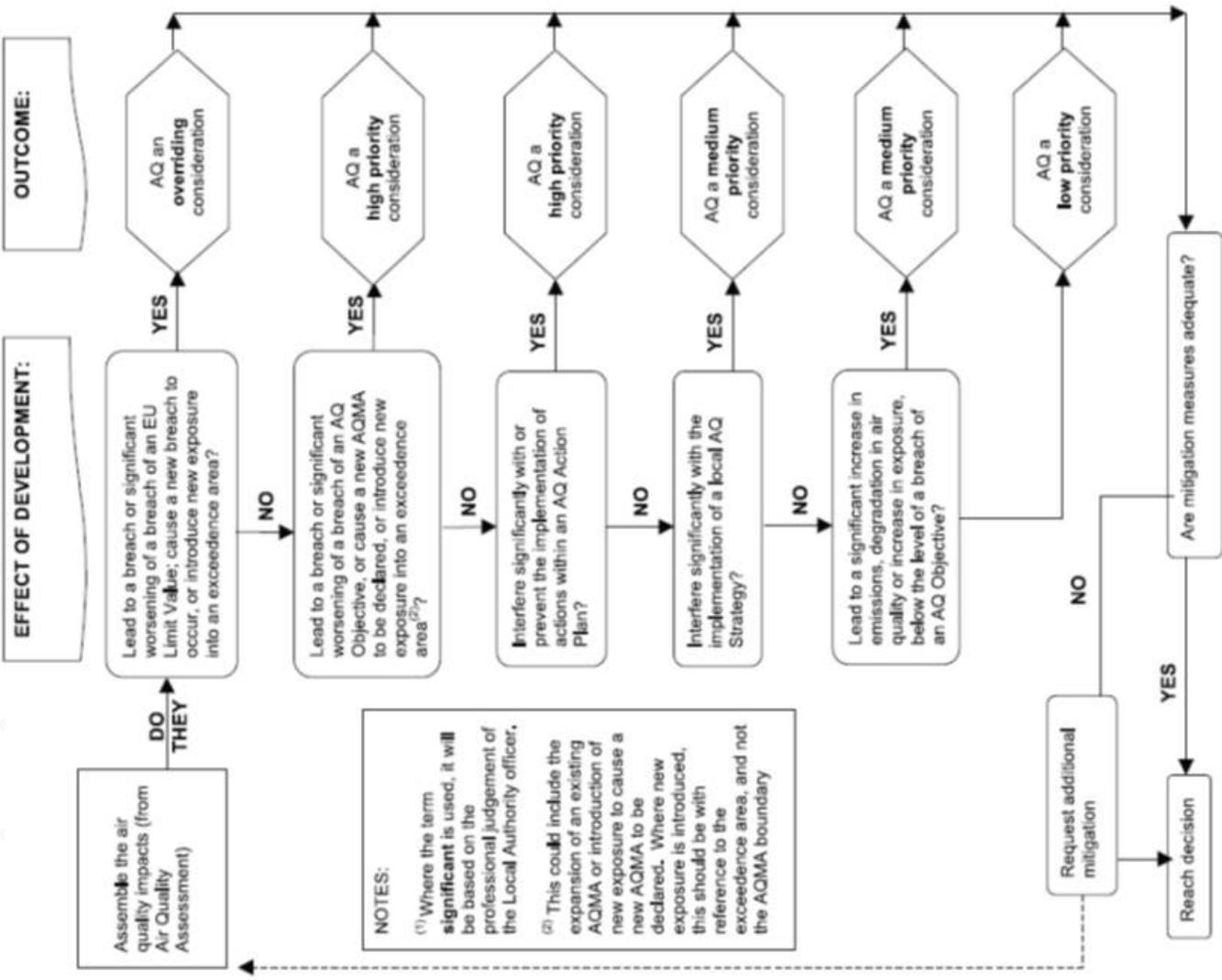
Developers are advised to adopt the approach recommended by the IAQM to describe and then assess the significance of air quality of a new development. This will ensure the developer provides all the necessary information to enable the Council to determine the application.

For many developments, in particular those involving new residential accommodation, the significance of the following impacts should be described separately:

1. Impacts of emissions related to the development on existing receptors; and
2. Impacts of emissions from surrounding sources on new exposure being introduced within the development.

- The following flow diagram (taken for the Environmental Protection UK guidance: Development Control: Planning for Air Quality (2010 Update)) will be used by the council for assessing significance. When using the flow chart the council will also consider the following:
- Air quality has the potential to be a material consideration in *all* planning applications. Whether it is a material consideration for any individual application will depend on the circumstances of the case, both in terms of the proposed development and its environment or location;
- The *significance* of the impacts depend very much on the *context* of the development;
- The flow chart is equally applicable to a development which increases emissions or one whose main impact is the increase in exposure, such as residential development; and
- The weight given to the EU limit values reflects their status in law. The limit values are binding on the UK as a whole, whereas there is no legal obligation placed on central government or local authorities to meet UK air quality objectives, despite the fact that they are contained in regulation.

Flow Diagram showing how we will assess the significance of Air Quality Impacts of a Development Proposal



The extent to which air quality should influence the proposal will be governed by the degree of significance. Table 6 (also from the Environmental Protection UK guidance) provides recommendations following an assessment of significance by the Council.

Table 6: Recommendations following our assessment of significance

Impact significance from flow chart	Recommendation
Overriding consideration	Requires mitigation measures to remove “overriding” impacts. If the impact is still “overriding”, there should be a strong presumption for a recommendation for refusal on air quality grounds.
High priority consideration	Ensure that measures to minimise “high priority” impacts are appropriate. Consideration may also be given to compensation/offsetting. Depending on the scale of the impacts, taking into account the number of people affected, the absolute levels and the magnitudes of changes, and the suitability of the measures to minimise impacts, it may be appropriate to recommend refusal.

Medium and Low priority consideration	It is unlikely that refusal would be recommended, but mitigation measures should be incorporated into the scheme design to ensure that the development conforms to best practice standards, and is “air quality neutral” as far as reasonably practicable.
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An automatic recommendation to refuse an application on air quality grounds will not always be necessary or appropriate. Similarly, the presence of an AQMA does not mean that a development will not be permitted. Dealing with exceedances of Limit Values is a national obligation. There may be situations where large areas are in exceedance of the Limit Value and a national blanket on new developments would risk sterilising large areas. In these circumstances account will be taken of the contribution of the development to the exceedances. If this is small and strong measures are incorporated in the proposal to minimise the impacts, then it may not be appropriate to recommend refusal on air quality grounds.

The Council does not wish to prescribe exact levels above which development proposals will be refused since each case will be assessed on its own merits and it will be necessary to balance the air quality impacts against other material considerations.

However, the following factors will be considered in the overall judgement of significance:

- Number of people affected by increases and/or decreases in concentrations and a judgement on the overall balance;
- Where new exposure is being introduced into an existing area of poor air quality, then the number of people exposed to levels above the objective value will be relevant;
- The magnitude of changes and impact at receptors;
- Whether or not an exceedance of an objective is predicted to arise in the study area where none existed before or an exceedance is removed or the exceedance area is reduced;
- Uncertainty, including the extent to which worst-case assumptions have been made; and
- The extent to which an objective value is exceeded e.g. an annual mean NO₂ of 41 $\mu\text{g m}^{-3}$ should attract less significance than an annual mean of 51 $\mu\text{g m}^{-3}$.