

# Planning Advisory Note: Air Quality

**DATE: 1<sup>st</sup> July 2018**



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# 1. Why do we need this PAN?

Air quality has a significant impact on public health, both in terms of mortality and quality of life. It is therefore important that action is taken to control these impacts.

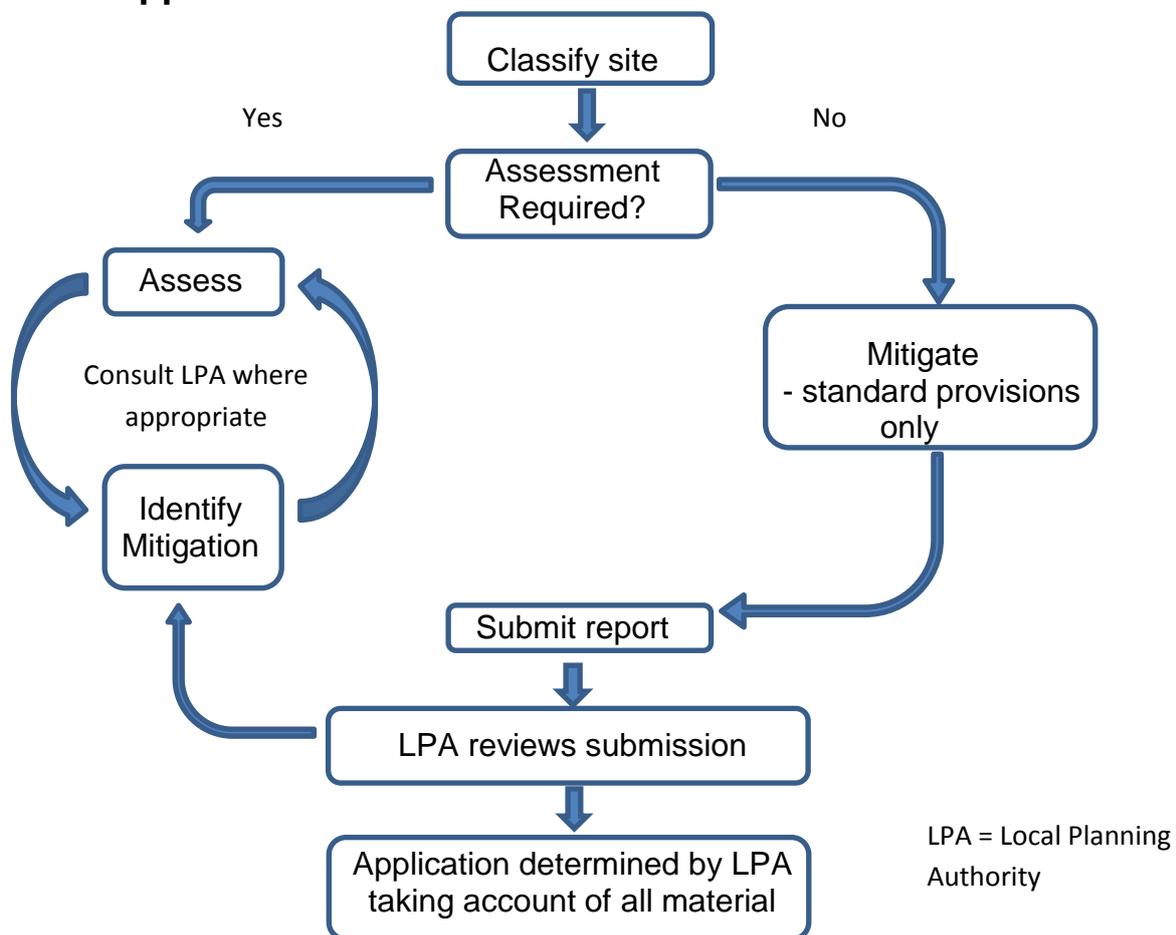
Local Planning decisions have an important role to play as they influence how and where air pollution is emitted, and whether new people are brought into existing areas of poor air quality.

This Planning Advisory Note (PAN) provides guidance which identifies how developers can take action that will reduce the health impact associated with development and transport emissions. Links with national and local planning policy are included in the Appendix A. This note does not apply to the assessment of point source emissions, such as factory chimneys.

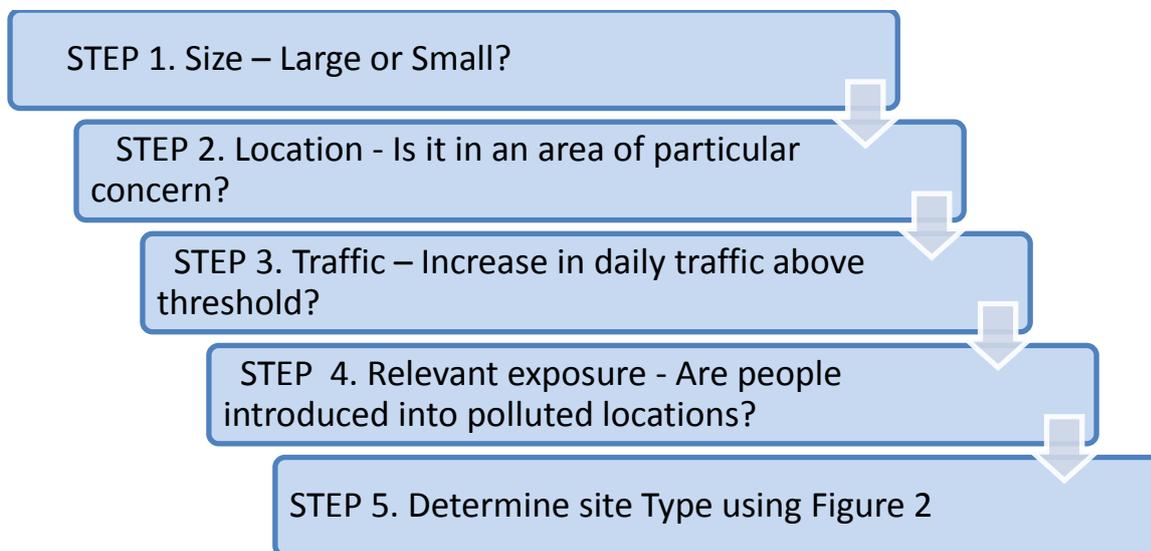
Many development proposals won't need an air quality assessment, and often the only requirement will be to incorporate some simple mitigation. However, in some circumstances specialist input will be required to properly assess the impact of a development and to identify suitable mitigation.

This guidance seeks to apply a proportionate and consistent approach to addressing air quality concerns, identifying when and how to assess air quality, and the appropriate mitigation.

# 3. The approach



### 3. 1 Classify the site – a five step process

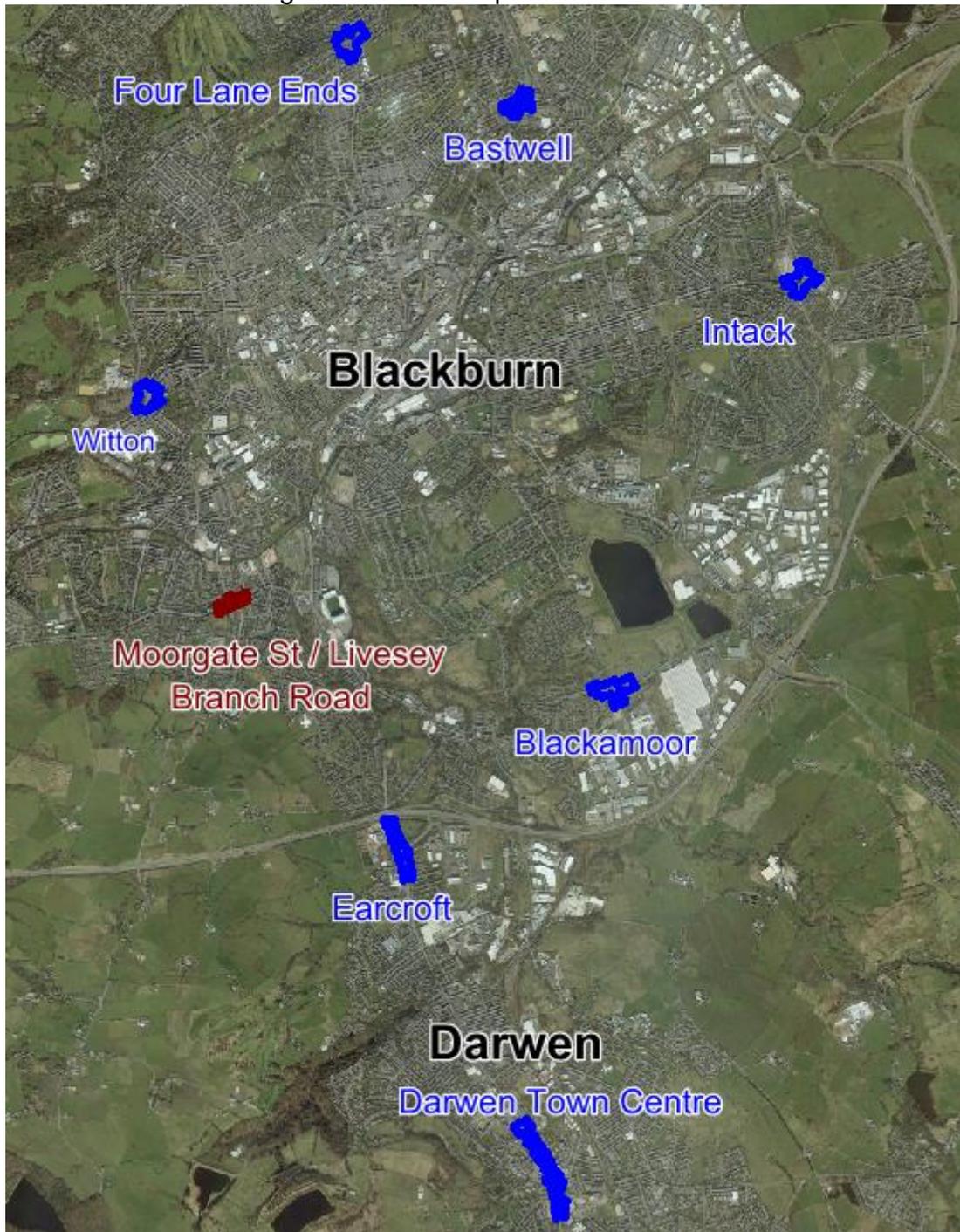


#### Step 1. Size – Large or Small

Developments are classified as large if they fall into the Table 1 thresholds below. These thresholds are also used to trigger Transport Assessments and Transport Statements. Developments below those thresholds are considered to be small. Mixed use developments will be regarded as large if any single use exceeds the Table 1 thresholds. The areas of particular concern are shown in Figure 1.

Table 1 – Thresholds for large developments				
Use Class	Land Use	Unit Measurement	Large - in areas of particular concern	Large – outside areas of particular concern
A1	Convenience (Food) Retail	Gross Floor Area	>500sqm	>1,000sqm
A1	Comparison (Non Food) Retail	Gross Floor Area	>500sqm	>1,000sqm
A2	Financial & Professional Services	Gross Floor Area	>500sqm	>1,000sqm
A3	Restaurants & Cafes	Gross Floor Area	>500sqm	>1,000sqm
A4	Drinking Establishments	Gross Floor Area	>500sqm	>1,000sqm
A5	Hot-Food Takeaway	Gross Floor Area	>500sqm	>1,000sqm
B1	Office Employment	Gross Floor Area	>1,250sqm	>2,500sqm
B2	General Industry	Gross Floor Area	>500sqm	>1,000sqm
B8	Storage & Distribution	Gross Floor Area	>500sqm	>1,000sqm
C1	Hotels	Per Bedroom	>50 bedrooms	>100 bedrooms
C2	Hospices and Nursing Homes	Per Bed	>50 Beds	>100 Beds
C2	Residential Education	Per Student	>50 students	>100 Students
C2	Institutional Needs	Per Resident	>50 residents	>100 Residents
C3	Dwelling Houses	Per Housing Unit	>10 units	>100 units
D1	Non Residential Institutions	Gross Floor Area	>1,250sqm	>2,500sqm
D2	Assembly & Leisure	Gross Floor Area	>500sqm	>1,000sqm
Other	Other	Discuss with LPA		

Figure 1 –Areas of particular concern



**Step 2. Location – Is it in an area of particular concern?**

See Figure 1 above.

The areas of particular concern include Air Quality Management Areas (shown in blue) and an additional location at the junction of Moorgate Street and Livesey Branch Road, which is currently under investigation and may soon become an Air Quality Management Area.

### Step 3. Traffic – Increase in daily traffic above thresholds?

This step only applies to **large** sites.

Will the proposed development generate extra traffic which exceeds either of the thresholds set out in Table 2?

Table 2 – Traffic Thresholds		
AADT flow increase in an area of particular concern (figure 1)	>100 LDVs	>25 HDVs
AADT flow increase elsewhere	>1000 Vehicles of any type	>30 HDVs

AADT - Annual Average Daily Traffic Flow

LDVs - cars and small vans <3.5t gross vehicle weight

HDVs - goods vehicles, coaches and buses >3.5t gross vehicle weight

Relevant information may be available in a transport statement/assessment.

### Step 4. Relevant exposure - Are people introduced into polluted locations?

Will the development introduce new people to an existing area of poor air quality?

The answer will be “yes” if the development is within a Figure 1 area of particular concern and there is relevant exposure<sup>1</sup>. Relevant exposure will typically occur where either:

- Members of the public will spend an hour or more at the site, e.g. a park, café.
- There a risk of long term exposure, e.g. at dwellings, educational establishments, a care facility, or hospital (Excluding offices or other places of work where members of the public/residents do not have regular access).

### Step 5. Determine the site Type

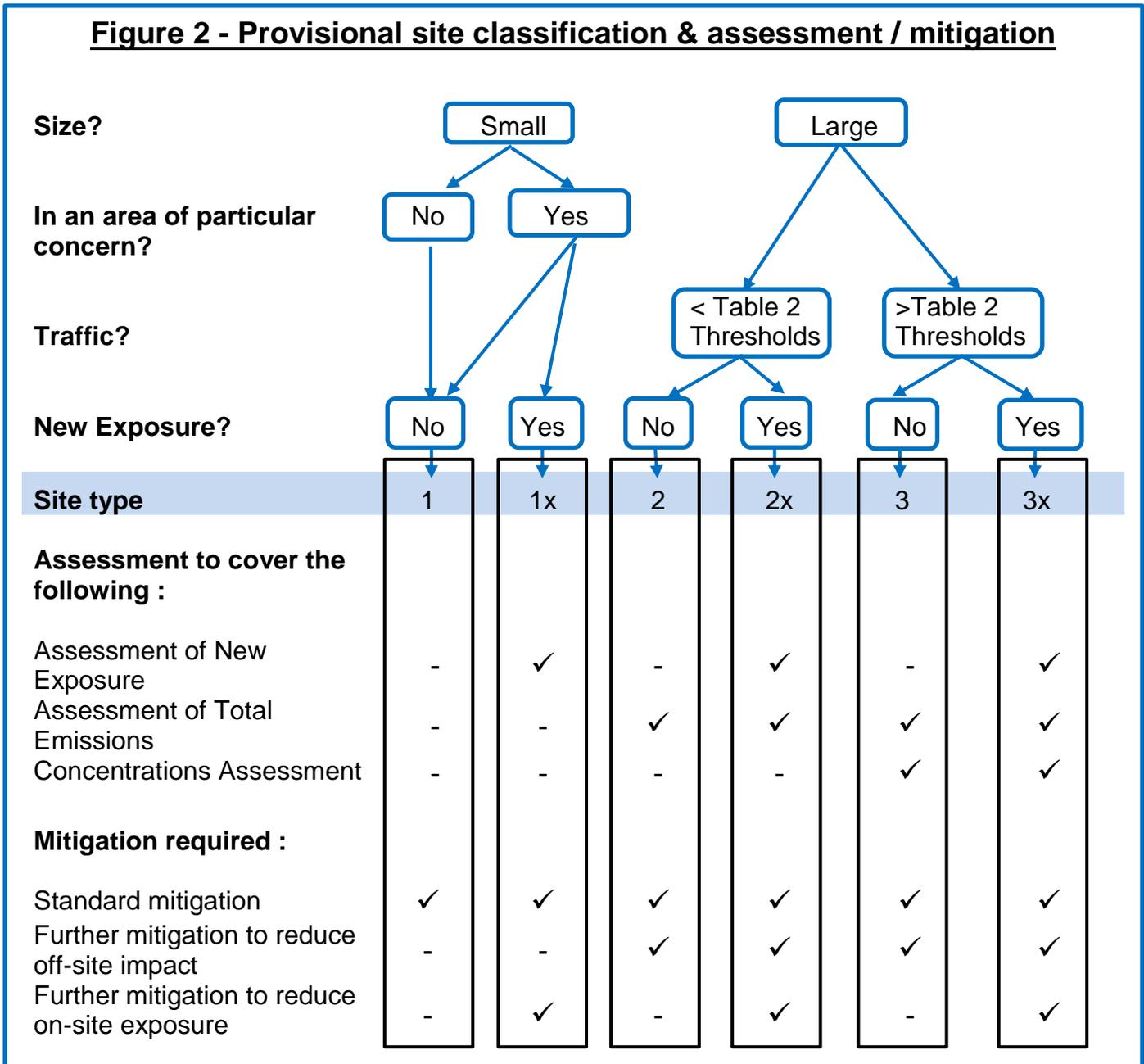
The site type can is determined by working through steps 1 to 4 and then applying the flow diagram in Figure 2.

Applications for certain site types need to be accompanied by some form of air quality assessment, others don't. Figure 2 identifies whether an assessment is required for each site type, and if so, the elements that need to be considered in the assessment.

Figure 2 also distinguishes between site types that only require the standard mitigation provisions, and the site types that require standard mitigation provisions and further mitigation.

<sup>1</sup> See Box 1.1 of <https://laqm.defra.gov.uk/documents/LAQM-TG16-April-16-v1.pdf>

**Figure 2 - Provisional site classification & assessment / mitigation**



### 3.2 Air quality assessments

It is important that impact assessments and mitigation proposals are considered together. Assessments will identify the net impact, taking account of mitigation measures.

Where an assessment is required, the issues to be considered will vary according to site type. See Figure 2. Some, or very occasionally all of the following elements may need to be considered:

1. **Will people using the development be in an existing area of particular concern? (Assessment of New Exposure)** – Development sites may be located in known pollution hotspots, potentially putting the occupants of the new

development at risk. The risk is determined in a New Exposure Assessment. See Appendix B

2. **How much air pollution will be created by the development? (Assessment of Total Emissions)** – See Appendix C. The estimate of pollution generated by a development will have implications for the mitigation required.
3. **Will the development help to create a pollution hotspot? (Concentration Assessment)** – Larger developments may have the potential to create a pollution hotspot, or worsen the situation at a known pollution hotspot. A concentration assessment quantifying the increase in pollution levels will be required for this type of site. See Appendix D.

Assessments will usually require input from specialists. Developers are strongly advised to confirm the scope of any assessment with the Planning Authority before undertaking the assessment. Failure to agree the scope on an assessment may result in delay and unnecessary expense.

### 3.3 Mitigation

Figure 2 also outlines the type of mitigation required for each of the site types.

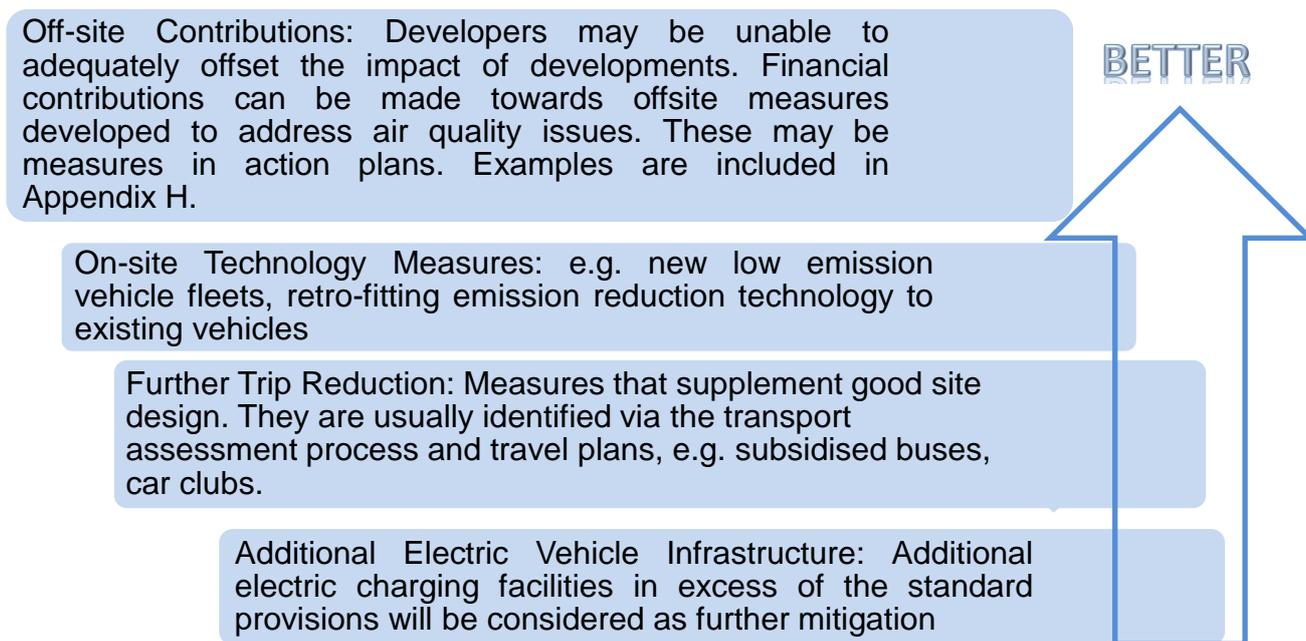
Virtually all development has an associated air quality impact, so standard mitigation will be required for all developments. This will include the control of construction emissions, electric vehicle charging facilities and less polluting gas boilers where appropriate. These measures are relatively easy to implement and use widely available technology. They reflect good practice. See Appendix E and F

Further mitigation may be required to reduce an adverse impact off-site, or where it is necessary to reduce on-site exposure where a development will be in an existing area of poor air quality. The further mitigation hierarchy is summarised in Table 2. Additional information relating to further on-site and off-site mitigation is provided in Appendix G and H respectively.

It is important to note that mitigation is no substitute for good environmental design. This guidance assumes good design as the starting point, and seeks to address the remaining impacts with additional interventions. Features of base design are therefore not normally considered as part of site mitigation. However, good design which makes best use of location and site layout can play a role in reducing trip demand and total emissions generated by a development, therefore reducing the scale of mitigation required.

There is a further mitigation hierarchy - see Figure 3.

Figure 3: Further Mitigation Hierarchy



### 3.4 Review and Interpretation of assessments outcomes and mitigation

Tables 3 to 5 provide guidance on how to interpret the outcome of the three potential elements of an assessment and the relevance of the mitigation identified.

Table 3 - TOTAL EMISSIONS ASSESSMENT\* - Type 2, 2X, 3 and 3X sites only

**Aim:** To estimate the additional emissions from the development before and after mitigation has been taken into account. This information can be used to demonstrate that proposals have adopted a balanced and proportionate approach to safeguarding air quality and may be used to identify contributions to off-site mitigation. See Appendix C.

The assessment will include:

- a. Un-mitigated emissions (Tonnes/yr) and associated health damage cost (£)
- b. Mitigated emissions (Tonnes/yr) and reduction in health damage cost (£)
- c. % reduction in emissions and damage cost achieved via mitigation

The following mitigation will be considered:

- Design Credit - Credit awarded in recognition of design features, which go beyond the standard practice and contribute to air quality and emission goals, but the benefits of which are not adequately reflected by the emissions assessment calculations
- On-site mitigation - Benefit-based valuation of proposed on-site mitigation calculated as emission damage costs avoided over the benefits period (usually 5 years).
- Contribution - Monetary value of any proposed supplementary contribution for off-site compensatory measures.

Table 4 - CONCENTRATION ASSESSMENT - Type 3 and 3X sites only

Planning proposals with substantial adverse air quality impacts, determined in accordance with IAQM impact assessment criteria<sup>2</sup>, are likely to be refused. It is therefore important that the developer identifies the potential air quality impacts at an early stage. If mitigation is considered as an afterthought the options will be limited and less likely to be successful. Particular emphasis should be given to the design and optimisation of on-site mitigation.

It isn't easy to attribute concentration changes to individual development sites. It is a specialist task. The developer is responsible for ensuring that data used in the assessment and reporting process is transparent and representative, and that all assumptions are clearly stated. Failure to do so may result in delays and additional cost.

The authority may form an independent view as to the uncertainty associated with the assessment methodology and information or assumptions underpinning the report conclusions. A precautionary approach may be applied when taking these uncertainties into account.

Table 5 - NEW EXPOSURE ASSESSMENT - Type 1X, 2X and 3X sites only

This aspect of an assessment will determine whether future occupants of a development are likely to be exposed to unacceptable levels of air pollution. This is usually a simple screening exercise undertaken by reviewing local monitoring data, considering location of Air Quality Management Areas and discussing the circumstances with local air quality officers (further details are provided in Appendix B).

It is likely that more mitigation, in addition to the standard provision, will be required if occupants of a proposed development are likely to experience unacceptable air quality. Mitigation through good design is generally preferable to options relying on technology.

Planning permission may not be granted if adequate mitigation hasn't been identified.

### 3.5 Information to be submitted by the Developer

The developer shall:

- a. Submit information establishing the site type
- b. Identify the appropriate mitigation
- c. Provide a written assessment, where appropriate, which includes an evaluation of mitigation measures

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<sup>2</sup> <http://www.iaqm.co.uk/text/guidance/airquality-planning-guidance.pdf>

It is unlikely that substantial submissions will be needed for small developments (Type 1 and 1X sites). Suitable reports are likely to include information establishing the site type and information relating to the standard mitigation provisions only.

Large sites will require assessment and further mitigation

#### 4. Decisions

The information submitted will be reviewed by the Local Planning Authority. The suitability of the proposal in terms of air quality will be determined by the following tests:

Test	Detail	Site Types	Comments
1	Meets standard provisions for mitigating emissions	All Sites	The proposal incorporates the standard mitigation provisions? See Appendix E and F
2	Provides balanced and proportionate emissions mitigation	2 2X 3 3X	The proposed mitigation adequately offsets the extra emissions produced by the development. See Appendix C
3	Avoids unacceptable direct impact on local concentrations	3 3X	There isn't a significant increase in the likelihood of an air quality objective exceedance at an off-site location, and there's no conflict with air quality action plans. See Appendix D
4	Avoids the introduction of new unacceptable exposure	1X 2X 3X	There isn't a significant increase in the likelihood of an air quality objective exceedance at an on-site location, and there's no conflict with air quality action plans. See Appendix B

## Appendix

### A. Planning Policy

The National Planning Policy Framework (NPPF) provides guidance on how planning can take account of the impact of new development on air quality. Paragraphs 35, 109 and 124 require that development:

- Exploits opportunities for sustainable transport modes;
- Incorporates facilities for charging plug-in and other ultra-low emission vehicles;
- Doesn't cause unacceptable impacts on air quality;
- Contributes towards compliance with EU limit values and national air quality objectives;
- Properly considers the impact on Air Quality Management Areas and Air Quality Action Plans; and
- Considers the cumulative impacts of air quality

Local Policy includes the following:

- Development that would, in isolation or in combination with other committed or planned development, lead to an unacceptable deterioration in air quality will not be acceptable (CS13)
- New development will only be permitted where there is no unacceptable adverse impact on Green Infrastructure network which provides air quality improvements (CS19).
- Development will not give rise to a deterioration of air quality in an Air Quality Management Area or result in the declaration of a new Air Quality Management Area, unless the harm caused is significantly and demonstrably outweighed by other planning considerations and a comprehensive mitigation strategy can be secured (Local Plan Part 2 Policy 8)

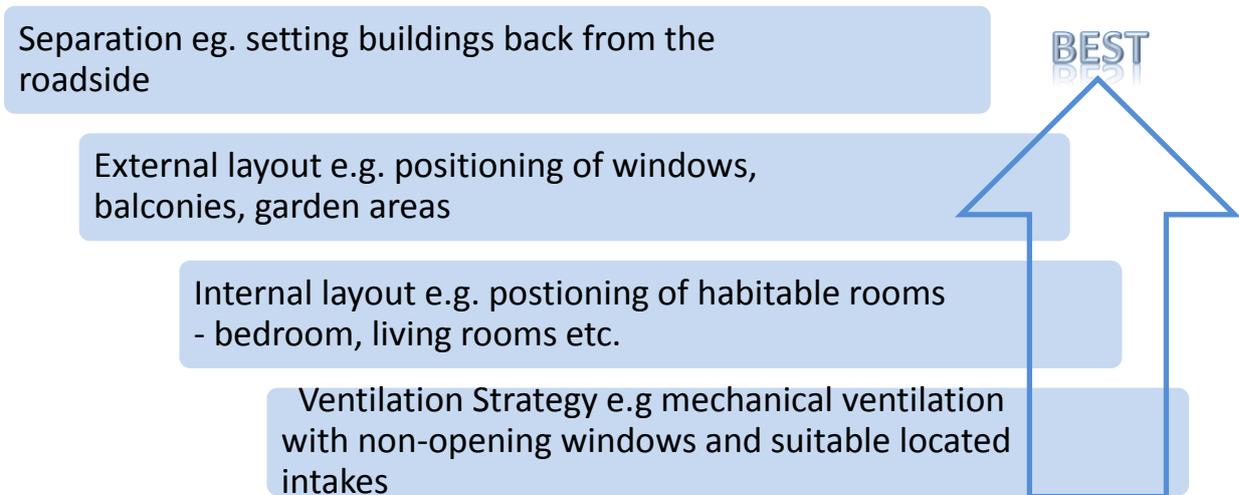
### B. New Exposure Assessment

This should be a relatively simple process. It is a screening process which will take account of local monitoring data, the locations of Air Quality Management areas that could be affected by the development, and, potentially, a discussion with the Local Planning Authority. Broadly speaking, the outcome of the screening process should identify:

- The approximate number of people at an increased risk of exposure to poor air quality.
- Conclusions regarding the exposure risk presented by the new development. Expressing exposure as percentage of national air quality objectives is a helpful way of quantifying risk.

Measures can be implemented to reduce potential on-site exposure. A hierarchy of potential measures is shown in Figure 4.

Figure 4 – Hierarchy of measures for reducing on-site exposure



Measures will be considered acceptable if:

- Pollution levels at facades with opening windows won't exceed a national air quality objective
- Effective ventilation and thermal comfort is maintained within habitable rooms (Minimum ventilation rates specified in the Building Regulation Approved Document F do not relate to thermal comfort).

### C. Total Emissions Assessments

$$\text{Road Transport Damage Cost } \pounds = \sum \left( \text{Estimated trip rate for 5 years} \times \text{Emission rate per 10km per vehicle type} \times \text{Damage costs per tonne} \right)$$

Where:

- Trip rates are sourced from Transport Assessments
- A trip length of 10km should be used, which is an average derived from the DfT National Travel Surveys estimation of trip length
- The road transport emission increases should be annualised and totalled for a period of five years.
- The emission total for the scheme can then monetised by using the damage costs provided by Defra using central cost estimates. High/low costs should also be quoted.

The calculation of total emissions can be undertaken using the latest version of the Defra Emissions Factor Toolkit (EFT).

The assessment should include the information specified in Table 3 (a, b and c) and the following:

- Mass emissions by pollutant and the contribution by each transport source (by fleet, journey or vehicle type as appropriate – this will help to identify appropriate mitigation).

- Damage costs – High, central and low costs should be quoted.
- A brief description of each mitigation measure, the associated cost, and anticipated reduction in air pollution for that measure.

## D. Concentrations Assessment

The purpose of concentration assessment is to examine likely changes in local pollutant concentrations as a result of a proposed development. The following provides a checklist for undertaking such an assessment.

This checklist is intended as a guide. It is not exhaustive and other elements may be required. Before the assessment is undertaken the **methodology, datasets and assumptions should be agreed with the Local Authority**<sup>3</sup>. Failure to agree the scope of an assessment may result in delay and additional cost.

A Concentration Assessment will:

- Quantify the existing air quality in the study area.
- Predict the future air quality without the development.
- Predict the future air quality with the development (without mitigation).
- Predict the future air quality with the development (with mitigation).

When submitting a development:

- Pollutants to be modelled and the standards which apply.
- Data: meteorological, background, traffic and emission data.
- Committed developments (cumulative effects) – this information can be obtained from the Local Planning Authority
- Model to be used
- Location of relevant receptors
- Criteria for assessing significance

The Developer is advised to have regard for guidance produced by the Institute of Air Quality Management. This guidance can be downloaded from:

<http://www.iaqm.co.uk/text/guidance/airquality-planning-guidance.pdf>

## E. Construction Emissions and Related mitigation

The Institute of Air Quality Management (IAQM) provides guidance on the assessment of dust from demolition and construction. The assessment methodology contained in this guidance should be followed for large developments. The guidance also provides useful examples of dust control measures. IAQM guidance notes are available for download at <http://iaqm.co.uk/guidance/>

A Construction Environmental Management Plan (CEMP) will identify the steps and procedures to be implemented in order to minimise environmental impacts from construction related activity. The plan will set out measures for the control of dust

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<sup>3</sup> Details of the Council's pre-application advisory service can be found at <http://www.blackburn.gov.uk/Pages/Planning-advice.aspx>

from the site preparation, demolition, groundwork and construction phases of a development. They may also seek to control other environmental issues, such as noise.

Additional guidance on the control of dust and emissions from construction and demolition has been produced in partnership by London Councils and the Greater London Authority (with assistance from the Building Research Establishment and the PRECIS Working Group). This can be downloaded at:

<https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/supplementary-planning-guidance/control-dust-and>

## F. Electric Vehicle Infrastructure

PROVISION OF PARKING BAYS AND CHARGING POINTS FOR ELECTRIC VEHICLES IN NEW DEVELOPMENTS (INCLUDING CONVERSIONS)		
Premises	Number of charging points / wiring requirements	Additional requirements
Houses	One electric vehicle dedicated charging point per house with a garage or driveway. External points will be weatherproof and provided with an internal switch to disconnect electrical power.	Type 2 connector, minimum rating of 3.7kW 16A. External points will be weatherproof and have an internal switch to disconnect electrical power.
Flats	Dedicated electric vehicle charging points for at least 10% of parking bays. Weatherproof external point with an internal switch to disconnect electrical power. All other parking spaces will be provided with passive wiring to allow future charging point connection with a minimum rating of 3.7kW 16A.	
Other Development (<50 Bays)	At least two parking bays should be marked out for use by electric vehicles only, together with charging infrastructure and cabling.	Type 2 connectors, minimum rating of 7.4kW 32A
Other Development (>50 Bays)	Further dedicated bays totalling 4% of the total provision	
Phasing	Subject to agreement with the local planning authority, standard provision may also require installation of passive wiring prior to commencement of the approved use. This will enable the addition of extra connection points in future years to match demand. Passive wiring to allow future charging point connection with a minimum rating of 3.7kW 16A for domestic development, and 7.4kW 32A for other development	

High Turnover Parking: Where the proposed parking is likely to include relatively short duration high turnover use, such as at a supermarket or hospital, it would be appropriate to install 'rapid' electric vehicle charging points with a charging rate of at least 43 kW/63A. This type of charger will typically achieve an 80% charge in 30-60 minutes.

An electric vehicle charging scheme submitted in support of a planning application will need to be supported by the following information:

- Choice of model
- Layout - The developer is advised to include a layout indicating the position of the electric vehicle charging points
- Access for users – The scheme should include information which identifies how users of the proposed development will be allowed access to these charging points, e.g. who can use the charging points, payment arrangements, who will maintain the equipment.

## **G. Further On-Site Mitigation**

Figure 2 identifies circumstances where further mitigation will be required to reduce adverse impact off-site. This will supplement the standard mitigation provision required for all site types

This further mitigation will encourage and incentivise the use of low emission fuels and transport technology.

Measures may tackle one or a combination of the following site sub-fleets:

- Private cars (residential and/or visiting the site)
- Captive fleet(s) (site based – light and/or heavy)
- Service vehicles (goods) (visiting site: light/heavy for collection/delivery of goods)
- Service Vehicles (people) (visiting site: light/heavy for personal transport, e.g. school buses/taxis)

A non-exhaustive list of examples includes:

- Travel plan measures discouraging high emission vehicles.
- Travel plan measures encouraging low and ultra-low emission vehicles.
- Travel plan measures including the introduction of a car club (particularly one using ultra low emission vehicles).
- Designation of parking spaces for low emissions vehicles.
- Differential parking charges depending on vehicle emissions.
- Commercial vehicles Euro based standard
- On-site fleet low emission operations plan
- Use of ultra-low emission service vehicles

The developer will consider a range of options and identify preferred measures that deliver mitigation commensurate with the scale and impact of the proposed development.

Selected measures should be presented in the form of an on-site mitigation plan comprising of:

- A list of preferred measures
- An estimate of total mitigation expressed as mass of pollutant and cost (See Appendix C)
- An estimate of additional cost to the developer for each measure and overall

- An implementation/evaluation schedule

## **H. Off-site Mitigation**

Where required, the financial contribution will usually be agreed at a level which reflects residual net emissions, after on-site mitigation, usually for a five year period from commencement of the approved use / occupation of the approved development.

The developer will make a payment to a third party responsible for implementing the agreed measure and determining the effectiveness of the measure. In most cases the third party will be the Local Authority, and the measures will form part of an Air Quality Action Plan.

A non-exhaustive example of possible uses of secured funds includes:

- On street electric vehicle charging points.
- Low emissions bus service provision – new or retro fitted.
- Low emissions waste collection services.
- Cycle hire schemes and cycling infrastructure.
- Walking routes
- Incentivising for the take up of low emissions fuels and technologies.
- Public transport improvements - subsidised bus/train routes, extra services.
- Contributions to renewable energy generation projects.
- Supporting low emission car clubs.
- Network improvements (e.g. signal improvements and traffic management) – that can be shown to benefit air quality
- Air Quality Management Area relief road.

## **I. Contacting the Local Authority for Advice**

Details of the Council's pre-application advisory service can be found at:  
<http://www.blackburn.gov.uk/Pages/Planning-advice.aspx>

Requests for advice should be directed to the planning case officer if a planning application has already been submitted.

————— END OF NOTE —————