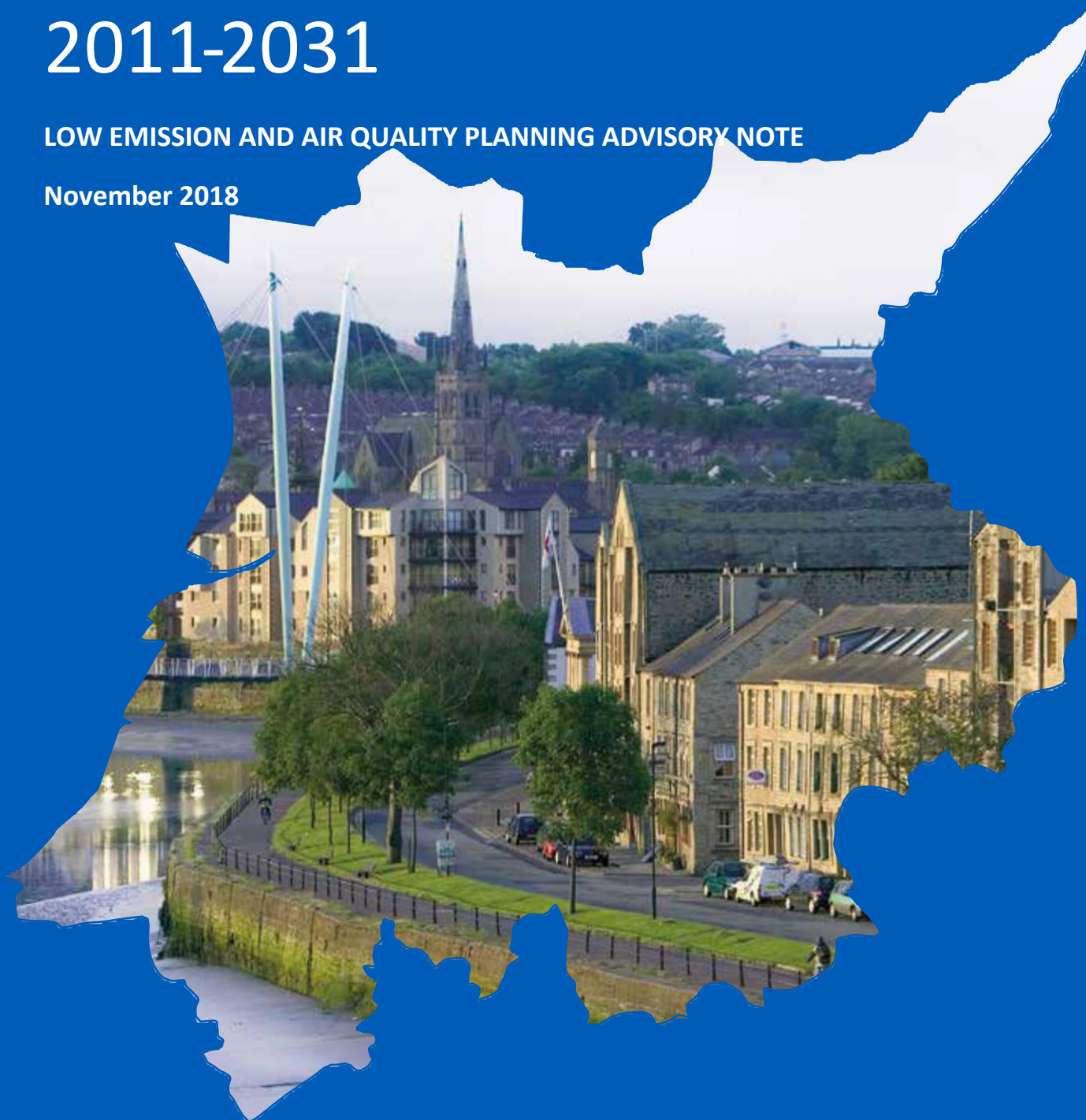


A Local Plan for Lancaster District 2011-2031

LOW EMISSION AND AIR QUALITY PLANNING ADVISORY NOTE

November 2018



LANCASTER
CITY COUNCIL

Promoting City, Coast & Countryside

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EXECUTIVE SUMMARY

- I. Air quality has a significant impact on public health, both in terms of mortality and on people's quality of life. It is therefore important that action is taken to minimise the impacts of air quality.
- II. Local Planning Decisions have an important role to play, since they can significantly affect local air quality through their design, location and management of emissions whether this be through the sources of emissions or their receptors.
- III. This Planning Advisory Note (PAN) provides guidance and encourage to developers to support action through the planning system to improve air quality and lower transport emissions. It provides guidelines for the treatment of development sites through a planning appraisal. It is anticipated that this PAN will in time be formalised into a Supplementary Planning Document (SPD) via the emerging Local Plan.
- IV. The approach set out within this advice note seeks to minimise harmful pollutant emissions, avoid significant impact on local concentrations and protect the wider public from unacceptable exposure to pollution. In achieving this it seeks to tailor assessment and mitigation requirements according to specific site characteristics which relate to both the nature and scale of the associated impacts and risk. In particular the guidance seeks to explain:
 - a. How to classify a development site in order to streamline its passage through the planning system
 - b. What assessment and mitigation should be considered for specific type of site; and
 - c. The submissions a developer should make as part of the planning application and how these will be considered by the Local Planning Authority.

1. INTRODUCTION

Air Pollution

- 1.1 Air quality has a significant impact on public health, both on mortality and on people's quality of life. It is estimated that each year 61 deaths in the Lancaster district are attributable to air pollution. In Lancashire as a whole this figure rises to 540^{1a}. The direct impact of air pollution on health is the greatest environment risk we are exposed to. It is therefore important that measures are taken to address the situation.
- 1.2 The main pollutants of concern are nitrogen dioxide and particles. The exceedance of nitrogen dioxide air quality objectives and elevated levels of particulate pollution in areas of Lancaster are a major health concern. We therefore need to reduce concentrations of these pollutants and minimise their associated health impacts.
- 1.3 Once emitted into the atmosphere, pollutants are carried and dispersed with air movement and may be subject to chemical change. Controlling concentrations either within pollution hotspots or across a wider area must take such processes into account. This means that action is needed not only in the specific locations where the most harm occurs, but also more widely across the wider district.
- 1.4 Transport is a major source of pollutant emissions and forms the focus of this PAN. Other development related sources include gas and biomass boilers which are dealt with in paragraph XX of this document. Further information on the state, sources, trends and impacts of air pollution in Lancaster district are available from the Council website¹.

Impacts and Risks Associated with New Development

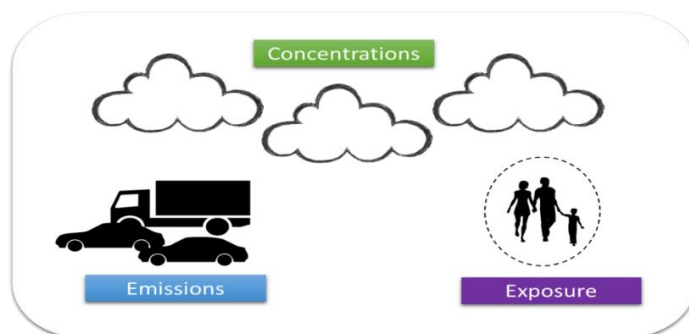
- 1.5 New development poses three related, but distinct, concerns in relation to air quality.

Pollutant Emissions	Emissions which arise from construction and use of a site which adds cumulatively to existing pollution levels across the entire district and beyond.
Local Concentrations	Distinct changes to air pollution levels in and around the development site (during the construction phase and/or when the site is brought into use).
Human Exposure	Harm to individuals arising as a result of introducing new exposure to air pollutants through their occupation phase.

¹ <http://www.lancaster.gov.uk/environmental-health/environmental-protection/air-quality/>

^{1a} Estimating local mortality burdens associated with particulate air pollution
(Public Health England, 2014)

web: www.gov.uk/government/uploads/system/uploads/attachment_data/file/332854/PHE_CRCE_010.pdf



National Policy and Guidance

- 1.6 Local authorities have a statutory duty to work towards compliance with the health based Air Quality Objectives which are set for seven key pollutants in the National Air Quality Regulations². Public health managers also have responsibilities to respond to air quality impacts detailed under the Public Health Outcomes Framework³.
- 1.7 Local planning decisions have an important role to play in achieving these outcomes since they can significantly affect local air quality through the design and location of emissions sources and receptors. The National Planning Policy Framework (NPPF)⁴ provides guidance on how planning can take account of the impact of new development in air quality. Paragraphs 35, 109 and 124 specifically require that development
 - Exploit opportunities for sustainable transport modes;
 - Incorporate facilities for charging plug-in and other ultra-low emission vehicles;
 - Do not cause unacceptable impacts on air quality;
 - Contribute towards compliance with EU limit values and national air quality objectives;
 - Properly consider the impact on Air Quality Management Areas (AQMA) and Air Quality Action Plans (AQAP); and
 - Consider the cumulative impacts of air quality.
- 1.8 Defra and the Low Emission Partnership published national guidance on Local Emission Development in 2010⁵. Since then, there has been a growing body of adopted local policies, guidance and practice which help both to guide and inspire best practice into the future. Useful current examples of the local level approach are those employed by Bradford Council and York Council.
- 1.9 Environmental Protection UK (EPUK) guidance on air quality provides a useful technical context particularly in relation to the detailed undertaking of concentration assessment⁶. However, the guidance provided in this PAN provides more updated approaches to this issue.

² <https://uk-air.defra.gov.uk/air-pollution/uk-eu-policy-context>

³ <http://www.phoutcomes.info/>

⁴ <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

⁵ <http://lowemissionstrategies.org/index.html>

⁶ <http://www.environmental-protection.org.uk/policy-areas/air-quality/>

Local Policy

- 1.10 Policy DM37 of the Lancaster District Development Management DPD⁷ establishes local planning policy in relation to the management of air quality and pollution. This recognises the need to ensure that new development does not have an unacceptable negative impact on air quality and avoids the further exacerbation of existing air quality problems. The need to reduce emissions and plan sustainably is addressed further in the same document under Policies DM35 and DM36 relating to design.
- 1.11 The Council are currently in the process of reviewing the Development Management DPD with a draft document published for consultation in early 2017⁸. This revised document seeks to update the position on air quality management and this Planning Advisory Note seeks to elaborate on guidance provided in Policy DM28 of this document.
- 1.12 Policy DM28 states that:

All development proposals must seek to minimise the associated emission of harmful air pollutants during both the construction and operational phases. They must also avoid causing or worsening a breach of air quality objective level or limit value, or exposing those who use and occupy the site to unacceptable adverse exposure.

The developer must take these aims into account with regards choice of location and general site / building design and transport arrangements. They are also likely to need to apply additional on-site mitigation and where the latter is not sufficient to meet the policy aim, a further financial contribution toward local air quality management off-site emission reduction measures may then be required and considered as part of mitigation / offsetting proposals. This contribution will be based on the calculated associated air pollutant damage costs.

Accompanying guidance provides details on site classification with reference to impact on existing Air Quality Management Areas (AQMA), standard mitigation requirements and assessment requirements to demonstrate impact and mitigation performance levels. This latter includes the appropriate use of both mass emissions and pollutant concentration assessment methods.

For development proposals in urban areas the inclusion of solid fuel combustion appliances is discouraged.

- 1.13 Further reference to the air quality issues are highlighted within the Development Management DPD, Lancaster City Council Corporate Plan, the Lancaster District Highways and Transport Masterplan and the Air Quality Action Plan. The Lancaster District Highways and Transport Masterplan⁹ incorporates the production of a new Air Quality Action Plan for the district which will cover all AQMA areas.

⁷ <http://www.lancaster.gov.uk/planning/planning-policy/development-management-dpd>

⁸ <http://www.lancaster.gov.uk/planning/planning-policy/planning-policy-consultations>

⁹ <http://www.lancashire.gov.uk/council/strategies-policies-plans/roads-parking-and-travel/highways-and-transport-masterplans/lancaster-district-highways-and-transport-masterplan.aspx>

The Purpose of this Planning Advisory Note

- 1.14 This PAN encourages developers to support action through the planning system to improve air quality and lower transport emissions by providing guidelines for treatment of development sites through a planning appraisal.
- 1.15 The note supports the implementation and preparation of draft Local Plan policy DM28 by laying out the processes for assessing and mitigating air quality impacts of new development, including provisions for ensuring that users are not significantly adversely affected by air pollution.
- 1.16 The approach seeks to minimise harmful air pollutants, avoid significant impact on local concentrations and protect the public from unacceptable exposure. In doing so it tailors assessment and mitigation requirements according to the specific characteristics of a site which relates to both the nature and scale of the associated impacts and risk.
- 1.17 This PAN explains the following:
- How to classify a development site in order to streamline its passage through the planning system.
 - What assessment and mitigation needs to be considered for a given type of site;
 - What submissions a developer needs to make and how these will be considered by the local planning authority.
- 1.18 There are a range of worked examples for a typical range of development types and sites available at http://www.lowemissionstrategies.org/les_planning_guidance.html.
- 1.19 Sites which fall under other regulatory regimes, including Integrated Pollution Prevention and Control (IPPC), Local Authority Pollution Prevention and Control (LAPPC), waste management licensing and EIA regulations may require alternative or additional assessments relating to air quality. Requirements for such should be discussed with the local planning authority.
- 1.20 Assessment of other sources of air pollution including gas, oil and biomass boilers are not covered by this PAN. Where such sources are present assessment requirements should be discussed with the Local planning authority. Draft Policy DM28 states that proposals that include the provision of solid fuel installations in urban areas will be discouraged.

2. SITE CLASSIFICATION

- 2.1 Classification is used to simplify the passage of development through the appraisal process. It is based on the general characteristics of the site and results in the assignment of the site to one of six possible typologies – Type 1, Type 2, Type 3, Type 1X, Type 2X or Type 3X.
- 2.2 Once assigned, this site type is used to establish requirements for impact assessment. It also has bearing on the likely scope of mitigation which will be necessary to meet planning objectives in relation to air quality. These differences are summarised in the table below:

Type 1	Smaller sites which require standard safeguards to minimise emissions.
Type 2	Larger sites which have a potential to generate higher levels of traffic and pollution. These are likely to require further emissions mitigation beyond standard safeguards.
Type 3	As Type 2 but generating even higher levels of traffic, which pose a specific risk of more directly impacting existing areas of particular poor air quality.
X Suffix	Any site which has the potential to introduce significant new public exposure to existing levels of poor air quality (i.e. Types 1X, 2X or 3X accordingly).

How to Classify a Site

- 2.3 Classification is initiated by the developer, who establishes a provisional type based on the guidelines laid out over the page (steps 1 to 5). The developer then confirms this assignment with the local planning authority at the earliest opportunity.
- 2.4 If determined correctly according to the guidelines, the authority is likely to simply confirm the provisional classification as proposed. However, *due to the specific nature of air quality problems, it may in some cases be necessary to adjust this assignment*. In such an event clear explanation would be provided to the developer.
- 2.5 Sites are classified through the following steps which are set out below.

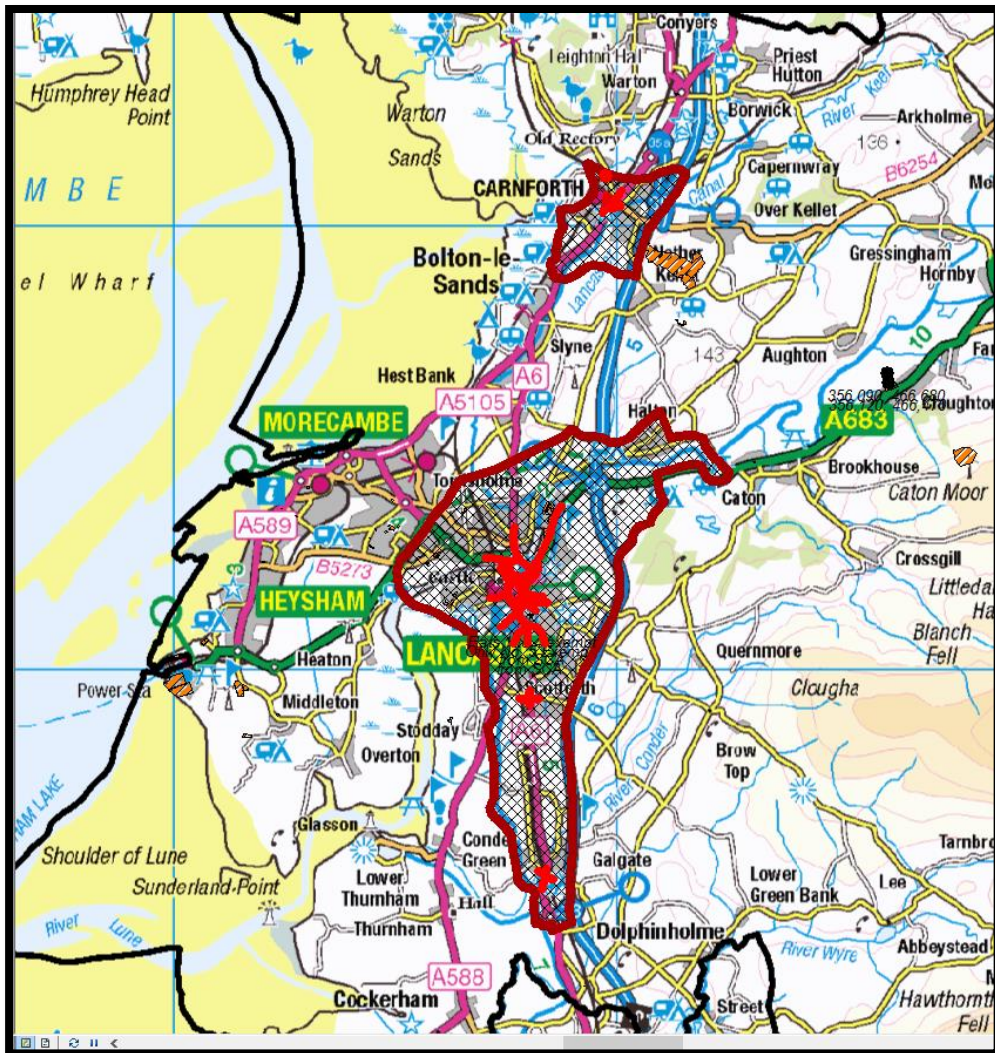
Step 1	Identify within which zoned area the development sits (in relation to air quality)
Step 2	Establish the size of development as 'small' or 'large'
Step 3	Estimate the trip rate for the development site and determine whether thresholds are exceeded.
Step 4	Consider whether the development has potential to introduce significant new exposure to poor air pollution.
Step 5	Determine the provisional classification as Type 1, Type 2, Type 3, Type 1X, Type 2X or Type 3X.
Step 6	Confirm the final classification through discussion with the local planning authority at the earliest opportunity.

Note: There are short cuts for some proposals. For example small sites which are located outside of areas of poorer air quality do not require steps 3 or 4. Small sites which are located within areas of poorer air quality do not require step 3 (although trip data may often be required for subsequent assessment purposes).

Step 1: Assessing the Location of the Development Site

- 2.6 The development site should be considered in terms of its location, in terms of its positioning within a defined Air Quality Management Area, or within an area which would have in direct impacts on Air Quality Management Areas. These are highlighted in the plan over page highlighting the areas which

are hatched to either have direct or indirect impacts on air quality. The areas outside of these hatched areas are not usually considered to have impacts on areas of existing poorer air quality. A more detailed map is available at:



Step 2: Assessing the Size of the Development Site

- 2.7 All sites are categorised as 'large' or 'small' according to the thresholds for large sites set out in the table below. It should be noted that developments which propose a mix of uses, the entire site is considered to be 'large' if any single use exceeds the thresholds indicated below or if the total site has a gross floorspace area of over 1,500sqm (1000sqm and/or >10 car parking spaces inside hatched area).

	Use Class	Land Use	Unit Measurement	Large Site Definition (Inside Hatched Area)	Large Site Definition (Outside Hatched Area)
1	A1	Convenience (Food) Retail	Gross Floor Area	>500sqm	>1,000sqm
2	A1	Comparison (Non-Food) Retail	Gross Floor Area	>500sqm	>1,000sqm
3	A2	Financial & Professional Services	Gross Floor Area	>500sqm	>1,000sqm
4	A3	Restaurants & Cafes	Gross Floor Area	>500sqm	>1,000sqm
5	A4	Drinking Establishments	Gross Floor Area	>500sqm	>1,000sqm
6	A5	Hot-Food Takeaway	Gross Floor Area	>500sqm	>1,000sqm
7	B1	Office Employment	Gross Floor Area	>1,250sqm	>2,500sqm
8	B2	General Industry	Gross Floor Area	>500sqm	>1,000sqm
9	B8	Storage & Distribution	Gross Floor Area	>500sqm	>1,000sqm
10	C1	Hotels	Per Bedroom	>50 bedrooms	>100 bedrooms
11	C2	Hospices and Nursing Homes	Per Bed	>50 Beds	>100 Beds
12	C2	Residential Education	Per Student	>50 students	>100 Students
13	C2	Institutional Needs	Per Resident	>50 residents	>100 Residents
14	C3	Dwelling Houses	Per Housing Unit	>10 units	>100 units
15	D1	Non-Residential Institutions	Gross Floor Area	>1,250sqm	>2,500sqm
16	D2	Assembly & Leisure	Gross Floor Area	>500sqm	>1,000sqm
17	-	Other	Discuss LPA	Discuss LPA	Discuss LPA

Step 3: Assessment of the Traffic Generated

- 2.8 Large sites are categorised directly in relation to the traffic they are likely to generate. This requires an estimate of the associated traffic flows for all vehicles and also just for heavy goods vehicles (HGVs), buses and coaches. These need to be expressed as annual average daily trips (AADT) and then assessed against the following thresholds:

Estimated Increase in Traffic Flow

AADT Increase in Hatched Zone

All Vehicles (>1,000)

And/or HGV, buses and coaches (>30)

Note: Estimation of increased traffic flow is likely to require specialist input – for example from a transport consultant and/or advice and input from the local planning authority. Relevant data may be available from a transport assessment where this is available.

Step 4: Exposure to Poor Air Quality

- 2.9 Step 4 considers whether the use or occupation of the site introduces the new occupants to poorer air quality.
- 2.10 The consideration of whether new exposure is being created requires an opinion as to whether the site meets the exposure sensitive 'Type X' site definition in the table over the page. Specialist knowledge is likely to be required to interpret this definition which would be normally provided by the developer's air quality consultant or potentially through discussion with the local authority.

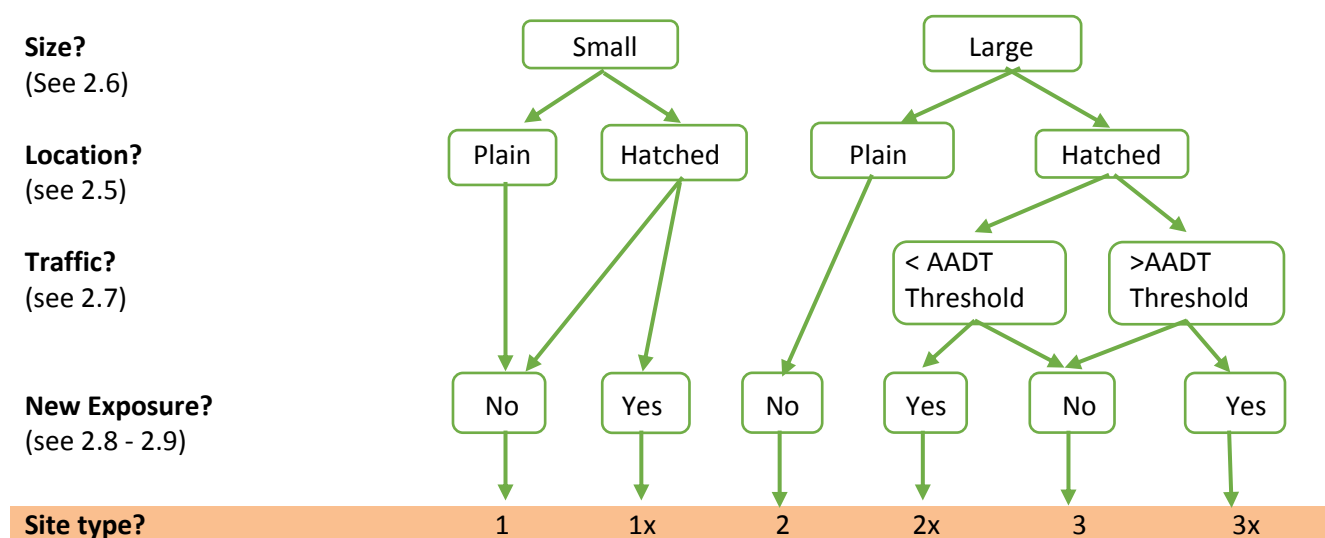
In simple terms, Exposure Sensitive Sites comprise locations where air quality is a concern (usually AQMA's) and members of the public have access and are likely to stay there for a period of time. In some locations (the Lancaster AQMA) the time period may be as little as an hour e.g. a café. More common is the possibility of longer term exposure introduced by developments such as houses, flats, student accommodation, schools and hospitals.

Note: Occupational exposure is covered by other legislation and so is not relevant here. Exposure sensitive sites may include those which would fall under the above criteria through exercising permitted development rights, for example the permitted conversion of office space to residential.

Step 5: Coming to a Provisional Classification

- 2.11 The chart provided below shows how the combination of results from steps 1 to 4 allow for a provisional classification of the site type and arising assessment and mitigation requirements:

Provisional site classification and assessment / mitigation



Assessment to cover the following :

Exposure of people using the proposed development (see 3.13 -3.14)	-	✓	-	✓	-	✓
Emissions generated by the development (see 3.6 –3.10)	-	-	✓	✓	✓	✓
Resulting increase in off-site exposure (see 3.11 -3.12)	-	-	-	-	✓	✓

Mitigation required (see 3.5):

Standard mitigation	✓	✓	✓	✓	✓	✓
Further mitigation to reduce off-site impact (see 3.6-3.10)	-	-	✓	✓	✓	✓
Mitigation to reduce on-site exposure	-	✓	-	✓	-	✓

Step 6: Final Classification of Site Type

- 2.12 The provisional classification is confirmed through discussion with the local planning authority. This should occur at the earliest opportunity possible. If determined correctly according to the proceeding steps, the authority is likely to simply confirm the provision classification. However, due to the site specific nature of air quality problems, it may be that in some cases it is necessary for the assignment to be adjusted to reflect site specific factors or other concerns. Such cases are likely to be rare and in such cases a clear explanation will be provided to justify such adjustments.
- 2.13 Once finalised, the site type is used to establish requirements for impact assessment. It is likely to have a bearing on the likely scope of mitigation which will be necessary to meet planning objectives. These aspects and implications are explained fully in Section 3 of this PAN.

3. MITIGATION AND ASSESSMENT

- 3.1 Most sites will generate some levels of impact and risk in relation to air quality. Consequently most sites will require some level of mitigation. Standard provisions apply to all sites, providing a relatively simple range of measures which are applicable to helping to reduce emissions. Some sites will require further emissions mitigation on top of this, while some may need to make other specific provisions relating to concentration or exposure effects.
- 3.2 Depending on the nature of the development site, different types of impact assessment are required. These correspond to the three air quality concerns identified in Section 1 of this PAN.

Emissions Assessment – Associated with overall level of pollutant emissions.

Concentration Assessment – Associated with direct impacts on pollutant concentrations.

Exposure Assessment – Associated with risk of human exposure to air pollution.

- 3.3 The site type, established in Section 2 of this PAN, is used to set requirements for impact assessment. It also has a bearing on the likely scope of subsequent mitigation which will be necessary to meet planning objectives relating to air quality. These stipulations are summarised in below with a further explanation provided in the corresponding paragraphs (colour coded and indicated on the right-hand side).

Type 1 Site

Standard Provisions

No Assessment Required

M: para. 3.5

Type 2 Site

Standard Provisions

Emissions Assessment

para. 3.6-3.10

Further Emissions Mitigation

Type 3 Site

Standard Provisions

Emissions Assessment

Further Emissions Mitigation

Concentration Assessment

para. 3.11-3.12

Taking concentrations into account

Type X Sites

Exposure Measures

Exposure Screen

para. 3.13-3.14

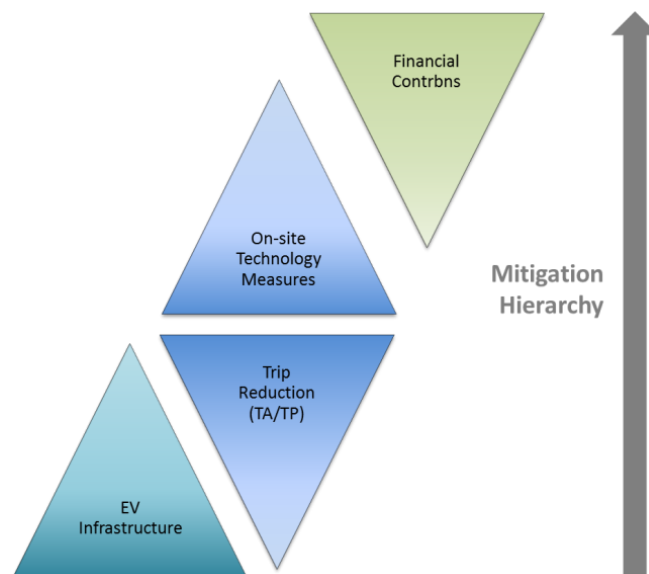
- 3.4 It is important that the impact assessment and mitigation proposals are considered together, since the former needs to include evidence of the efficiency of the latter. Such close linkages are enabled through a requirement for combined reporting by the development in the form of an 'Assessment and Mitigation Report'. This reporting requirement applies for all large sites (i.e. 2, 2X, 3 and 3X). Section 4 covers the associated developer submissions and LPA decision making.

Standard Provision

- 3.5 Standard provision may be applicable to any site, subject its scale, nature and location and will ensuring simple and universal precautions:
- Control of Construction Emissions: Typically will require adoption of a 'Construction Environmental Management Plan' where development is considered to have the potential to affect a site's biodiversity interest.
 - Electric Vehicle Infrastructure: Aimed at encouraging the uptake of electric vehicles. Generally requires ground work for and / or installation of recharging infrastructure for electric vehicles (inside / outside, single / multiple users). Further detail is provided in Appendix B of this PAN.

Further Mitigation (Applies to Type 2, 2X, 3 and 3X sites)

- 3.6 In addition to standard provision, larger sites (Type 2, 2X, 3 and 3X) are required to design and implement a package of measures termed 'Further Emissions Mitigation', the broad scope of which is described in the diagram and text below.



- Further Electrical Vehicle Infrastructure: Although a standard level of EV infrastructure is expected as part of the standard provision. Well targeted investment beyond this may be considered as part of further mitigation.
- Trip Reduction: It is important that the sites minimise trip initially through sensible location and good design; and then through effective mitigation. Requirement are usually established via the separate transport assessment process and packaged in the form of a site specific travel plan.
- On-Site Technology Measures: are aimed at reducing emissions from individual vehicle trips that remain following a trip reduction. Measures typically encourage fitting of emission reduction technologies for existing vehicles or by enabling and promoting the uptake of newer alternatively fuelled ones.
- Off-Site Contribution: Where the emission impact can't be fully mitigated by measures on or in close proximity to a development, a financial contribution may be requested towards wider

compensatory measures, typically including investment in local fleets, road networks or low emission infrastructure (via the Lancaster District Highways and Transport Masterplan).

- 3.7 The selection and design of further mitigation measures is informed by the use of an Emissions Assessment to quantify associated bulk emissions. This is used to determine whether the mitigation proposals represent a *balanced and proportionate level of mitigation compared to the harm that would be otherwise caused by site emissions*.
- 3.8 Appendix F provides detail on how to undertake emissions assessment and present the findings (specialist knowledge will be required to understand and respond effectively to these requirements, which would normally be provided by the developer's air quality and transport consultant(s).
- 3.9 The box below identifies the headline indices, which the LPA will use to review and interpret the results, by forming a view as to the balance and proportionality of the proposed mitigation. It should be noted however that these indices, whilst important, do not limit the authority's freedom to take other aspects or weights of evidence into account.

REVIEW AND INTERPRETATION OF EMISSION ASSESSMENT RESULTS	
<p>The Local Planning Authority will consider whether:</p> <ul style="list-style-type: none"> • The Assessment requirements are met and where estimates/assumptions are made there are highlighted and explained or referenced • The balance and extent of mitigation is commensurate to emissions harm. <p>In considering the balance and extent of mitigation, the authority will give weight to the following indices (expressed as tonnes of emission/associated damage costs reduced and also as a % of unmitigated emissions/damage costs):</p>	
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.
Total Mitigation Credit	The simple sum of design credit, on-site mitigation credit and contribution.

Worked examples can be found at: http://www.lowemissionstrategies.org/les_planning_guidance.html

- 3.10 For the present time, the LPA will consider the merit of mitigation proposals on a site-by-site basis, while seeking to maintain a balanced and consistent approach overall. At the same time, quantitative performance benchmarking will be undertaken, with a view to establishing associated performance thresholds, which subsequently form part of the appraisal process.

Taking Concentrations into Account (Applies to Type 3 and 3X sites)

- 3.11 Type 3 sites require a concentration assessment to estimate changes in ambient pollutant levels arising from the development and to consider the implications for meeting air quality objectives. Concentration assessment complements emissions assessment, by providing a safeguard to ensure that a single development does not *cause unacceptable localised impacts to ambient concentrations of air pollutants*.

- 3.12 Appendix G provides detail on how to undertake a concentrations assessment and report on the findings. The table over page explains how the authority will review and interpret these results. Specialist knowledge is required to understand and respond effectively to these requirements, which would normally be provided by the developer's air quality consultant.

REVIEW AND INTERPRETATION OF CONCENTRATION RESULTS
<p>The test metric is a percentage increase in <i>pollutant concentration</i> (usually NO₂), arising from construction, occupation and use of the site. An increase of 5% or more of the corresponding air quality objective or limit value is cause for concern.</p> <p>The level of concern is influenced by the location where impacts occur. If the impact occurs within the AQMA or would of itself lead to the potential creation of a new or extended AQMA, this indicates a 'severe impact' on local concentrations. Where impacts are unlikely to lead to the worsening, creation or extension of an AQMA, they are nonetheless a significant concern and so would trigger a 'warning light'.</p> <p>'Severe impacts' could lead to the refusal of planning permission. It is therefore important for the developer to identify the potential for such impacts at the earliest opportunity and to consider associated design and mitigation options. A warning light remains a major concern and should be avoided at all possible, including giving particular emphasis to the design and optimisation of <u>on-site</u> mitigation.</p> <p>Attributing concentration changes to individual development sites, is a challenging task and requires a careful approach. It is the developer's responsibility to ensure that assessment is made using reasonable and transparent assumptions. <i>Failure to do so is likely to incur delays or additional cost.</i></p> <p>The authority reserves the right both to form an independent view as to the uncertainty associated with inputs or outputs, presented by the developer; and also to adopt a precautionary approach when taking these uncertainties into account.</p>

Managing Exposure (Applies to Type 1X, 2X and 3X sites)

- 3.13 Type 1X, 2X and 3X sites require an exposure assessment to determine if 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 AQMAs and discussion with a local air quality officers (further details are provided in Appendix B).
- 3.14 Where new exposure is introduced by the development, this triggers a warning light, indicating that suitable exposure measures are required (further details are provided in Appendix E). Failure to proposed suitable measures will be considered as a severe impact and could result in a refusal of planning permission.

4. REPORTS AND DECISIONS

- 4.1 It is the developer's responsibility to establish the air quality assessment and mitigation expectations for their site at an early stage in the planning process, using the guidelines laid out in this PAN. Early discussion with the local planning authority is necessary to confirm site classification (Section 2) and is recommended in relation to any other aspects of the process about which they are uncertain or unclear.
- 4.2 Smaller sites (Type 1 and 1X sites) do not require substantial submissions by the developer, providing that the relevant standard provisions and exposure screening measures are appropriately addressed and documented. Large sites (Type 2, 2X, 3 and 3X sites) require formal 'impact assessment and mitigation report'.

- 4.3 Developer submissions are reviewed by the Council’s Air Quality team, who form an opinion as to the acceptability of the proposal in relation to air quality. This opinion will be based, according to the type of site, on the following tests:

Test		Detail	Applicable Sites
1	Meets standard provisions for mitigating emissions	Paragraph 3.5	All Sites
2	Provides balanced and proportionate emissions mitigation	Paragraph 3.7	Type 2, 2X, 3 & 3X
3	Avoids unacceptable direct impact on local concentrations	Paragraph 3.10	Type 3 & 3X
4	Avoids the introduction of new unacceptable exposure	Paragraph 3.12	Type 1X, 2X & 3X

- 4.4 Development meeting the relevant tests will be considered acceptable with regards air quality (transport). Those failing any single test will be considered unacceptable and the Air Quality team are likely to recommend refusal.
- 4.5 These tests are applied first and foremost on the basis of outcomes, reflecting *the net air quality impacts and risk associated with the site taking proposed mitigation into account*. In situations where outcomes are not clear cut, perhaps due to quality of the best available data, uncertainties in an assessment or limited mitigation options, the authority may also take into account the extent to which the developer has taken all reasonable steps to identify and address relevant impacts and risk (i.e. their endeavour). Any such consideration however will not necessarily override the primary consideration of outcomes.
- 4.6 Final recommendations will be made by the Air Quality team which will then be considered as part of the wider planning balance through the determination process.

5. FURTHER INFORMATION

- 5.1 For further information and advice on the content and application of this this Planning Advisory Note please contact the Air Quality Team on 01524 582935.

6. KEY TERMS AND GLOSSARY

- 6.1 Terms within this section are those defined and used in a specific way within this document (the subsequent glossary includes wider technical and policy terms which are useful for a broader understanding of the approaches set out in this document).

Key Terms

SITE CLASSIFICATION	Classification is used to simplify passage of a development through the appraisal process. It is based on the general characteristics of the site.
STANDARD PROVISIONS	Standard provisions apply to all sites, ensuring simple and universal precautions.
FURTHER MITIGATION	In addition to standard provision, larger sites should also provide a package of emissions measures termed ‘further mitigation’.
BALANCED & PROPORTIONATE MITIGATION	The intended level of emissions mitigation for all sites.

EMISSIONS ASSESSMENT	Assessment of overall impact of pollutant emissions (EMA).
CONCENTRATION ASSESSMENT	Assessment of direct impacts on pollutant concentrations (CAN).
EXPOSURE ASSESSMENT	Assessment of site occupant's exposure to air pollution (XPA).
IMPACT ASSESSMENT AND MITIGATION REPORT	A single report prepared by the developer which lays out site impacts and proposed mitigation.
WARNING LIGHT	A level of impact that is a cause for concern though, if managed appropriately, is unlikely to lead to planning refusal.
SEVERE IMPACT	A level of impact that is likely to lead to planning refusal.

Glossary

AIR QUALITY ACTION PLAN (AQAP)	An Action Plan is prepared by the local authority in order to lay out the action to be undertaken in relation to designated Air Quality Management Areas (AQMAs) in order to meet Air Quality Objectives.
AIR QUALITY MANAGEMENT AREA (AQMA)	If an authority identifies where Air Quality Objectives are not met or are unlikely to be met then they have a duty to declare an Air Quality Management Area and take action to improve the situation.
AIR QUALITY OBJECTIVE (AQO)	Air Quality Objectives are targets set by national government which local authorities have a duty to work towards. <i>Compliance with AQ objectives is important to protect health, however it does not represent safe levels of pollution since consideration harm occurs below these levels.</i>
ANNUAL AVERAGE DAILY TRAFFIC (AADT)	Total volume of traffic on a highway or road for a year divided by 365 days.
LOCAL AIR QUALITY MANAGEMENT (LAQM)	Duties assigned under Part IV of the Environment Act 1995, which requires local authorities to monitor and assess air quality and take action to protect it.
LOCAL PLANNING AUTHORITY (LPA)	The local authority or council that is empowered by law to exercise statutory town planning functions for a particular areas of the United Kingdom
NITROGEN DIOXIDE (NO₂)	Nitrogen dioxide (NO ₂) is a gaseous air pollutant from combustion processes. In urban outdoor air its presence is mainly due to traffic.
PARTICLES (PM)	A mixture of solid particles and liquid droplets found in the air. Some particles such as dust, dirt, soot or smoke are large and dark enough to be seen. Others are very small making them invisible to the naked eye.
REVIEW AND ASSESSMENT (R&A)	Local authorities have a duty under Local Air Quality Management to review and assess the air quality across their area.

APPENDIX A: CONSTRUCTION PRACTICE

General Approach

- A.1 Where considered appropriate, a construction environmental management plan (CEMP) must be submitted to and approved by the planning authority. A CEMP will normally be expected where it is concluded that the proposal has the potential to affect a site of biodiversity interest.
- A.2 The plan should include appropriate measures, which will be implemented, to minimise emissions to air and restrict them to within the site boundary during the construction and/or demolition phase to supplement other legislative requirements. Measures may include:
- On site wheel washing
 - Restrictions on use of unmade roads
 - Agreement on the routes to be used by construction traffic with the Council (larger schemes).
 - Targeted sweeping of roads subject to high traffic levels and silt loading
 - Minimisation of evaporative emissions and prompt clean-up of liquid spills.
 - Prohibition of intentional on-site fires and avoidance of accidental ones.
 - Control of construction equipment emissions (incl. use of low emission fuels and technology).
- A.3 In presenting these measures, the plan should also provide detail on the management and control processes, which will ensure that they will be implemented effectively and adhered to.

Typical Wording

- A.4 Prior to any works commencing on site, a CEMP shall be submitted to and approved in writing by the Local Planning Authority. The CEMP shall identify the steps and procedures that will be implemented to minimise the creation and impact of noise, vibration and dust resulting from the site preparation, demolition, groundwork and construction phases of the development. It is recommended that routing of construction traffic is also agreed within this plan, to prevent increased emissions and noise from construction vehicles affecting the wider urban area.

Sources of Guidance

- A.5 Guidance to assist developers with the assessment of dust from construction and demolition activities has been produced by the Institute of Air Quality Management (IAMQ) and should be followed for major developments. Guidance notes are available for download from <http://iaqm.co.uk/guidance/>
- A.6 Further 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). Available for download: <https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/supplementary-planning-guidance/control-dust-and>

APPENDIX B: ELECTRIC VEHICLE CHARGING REQUIREMENTS

B.1 The table below sets out standard provision levels.

PROVISION OF PARKING BAYS AND CHARGING POINTS FOR ELECTRIC VEHICLES IN NEW DEVELOPMENTS (INCLUDING CONVERSIONS)	
Houses*	One electric vehicle dedicated charging point per house with garage or driveway
Flats **	At least 10% of parking bays should be provided with dedicated electric vehicle charging points. All other parking spaces to be provided with passive wiring to allow future charging point connection.
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.
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 groundwork / passive wiring at the outset in order to enable further future installation to match demand.

* Installation of a 3.7 KW 16A or higher Type 2 electric vehicle dedicated charger.

**Dedicated freestanding weatherproof chargers

B.2 Examples of appropriate charging rates are given below:

- Residential Premises: A charging rate of between 3.7kW 16A to 7.4kW 32A is needed to charge pure electric vehicles. A switch inside the property should be provided for external sockets so that the power to the socket can be switched off. Charging on this type of 'slow' charger usually takes 4-8 hours.
- Commercial Premises: e.g. factories, offices. Appropriate electric vehicle charging points for commercial development would have a 'fast' charging rate of at least 7.4 kW (32A). Charging an EV on a fast charger usually takes 2-4 hours
- 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.

B.3 An electric vehicle charging scheme submitted in support of a planning application will also need to include information that identifies how the charging equipment will be managed, e.g. who can use the charging points, payment arrangements, who will maintain the equipment.

B.4 Investment beyond the standard provision may be considered as part of further mitigation though this must be well targeted and in balance with overall mitigation for the site.

APPENDIX C: ON-SITE TECHNOLOGY MEASURES

- C.1 A package of measures, which help to reduce emissions over and above design features and other aspects of mitigation already incorporated into the scheme proposal. The package sets out to encourage and incentivise the use of low emission fuels and transport technology.
- C.2 The package 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)
- C.3 Non exhaustive examples¹ of individual measures include:
- 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 plan²
 - Use of ultra-low emission service vehicles
- C.4 The developer should consider the full raft of possible measures and select an appropriate mix, which delivers mitigation commensurate to the scale and impact of the development.³
- C.5 Selected measures should be presented in the form of an on-site mitigation plan comprising:
- A list of measures, indicating for each measure: target fleet(s), nature and scale of mitigation
 - An estimate of *total* mitigation expressed as mass of pollutant and also %TBD⁴
 - An estimate of *additional* cost to the developer for each measure and overall
 - A timed plan for when and how each measure will be implemented *and* monitored

Notes

- [1] Examples of other actions that could be included in an LES can be found on the Low Emissions Partnership website and on the Low Emissions Hub at http://lowemissionstrategies.org/les_planning_guidance.html
- [2] Example wording: *'Fleet operations should provide a plan for reducing emissions and encouraging the take up of low emissions technologies and alternative fuels.'*
- [3] Early and ongoing liaison with the planning authority on the nature, scale and intensity of proposed mitigation and also the methodology, assumptions, format and presentation of associated data is recommended.
- [4] See Appendix B2 for further information on the emission assessment approach and site performance benchmarks.

APPENDIX D: OFF-SITE CONTRIBUTIONS

- D.1 Where required, the financial contribution will usually be agreed at a level which reflects residual site emissions¹ cumulated over a 5 year period² from first operation, expressed as monetised harm to society.
- D.2 On payment of the agreed contribution, the responsibility for achieving and demonstrating associated good value emission reduction passes to the local authority.
- D.3 A non-exhaustive example of possible uses of secured funds include:
- Low emissions refuelling infrastructure.
 - On street EV charging posts.
 - Low emissions bus service provision.
 - Low emissions waste collection services.
 - Cycle hire schemes and cycling infrastructure.
 - Incentivising for the take up of low emissions fuels and technologies.
 - Public transport improvements.
 - Contributions to renewable energy generation projects.
 - Supporting low emission car clubs.
 - Network improvements (e.g. signal improvements and traffic management).
 - AQMA relief road(s).
 - Air quality monitoring.

Notes

- [1] i.e. after taking all on-site mitigation into account
- [2] Or the anticipated lifetime of the site occupation/operation if < 5 years.

APPENDIX E: EXPOSURE ASSESSMENT AND MEASURES

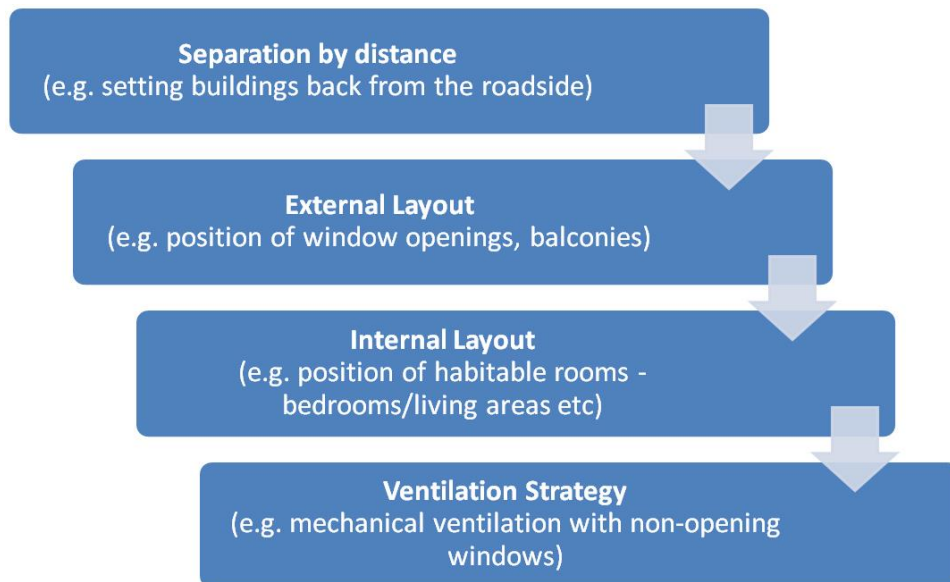
Assessment

E.1 Assessment will usually comprise a simple screen involving review of local monitoring data, AQMA designations and, potentially, discussion with the local air quality officer. The screen should identify, in broad terms:

- Approximate number of people at an increased risk of exposure to poor air quality;
- The location, age and relative health of these individuals; and
- Broad conclusions regarding the exposure risk presented by the development.

Mitigation

E.2 Any increase in exposure to poor air quality is a concern and relevant provisions must be taken to prevent it, or to reduce its extent as far as practically possible. The best approach is indicated by the design hierarchy laid out below:



Acceptance

E.3 Suitable measures will ensure that:

- Pollution levels in facades with openings to habitable rooms do not exceed the AQO*.
- Effective room ventilation is maintained within habitable rooms

* Where the proposed design leaves uncertainty regarding the pollution levels at facades with openings to habitable rooms, the developer is likely to be required to demonstrate *via* appropriate monitoring/modelling that the acceptance criteria will be achieved.

APPENDIX F: EMISSIONS ASSESSMENT

Aims

- F.1 To assess the transport emission impacts of the development, propose corresponding mitigation and demonstrate that the latter is both balanced and proportionate.

Work

- F.2 The study comprises the following tasks (although presented as a linear sequence, they actually best approached as an iterative process of optimisation):

- Identify and describe relevant characteristics and features of the development and its design.
- Estimate the type and levels of traffic generated by the site through its occupation and use.
- Estimate the associated emissions and health damage caused by this traffic.
- Select and specify on-site mitigation and estimate associated cost and emission benefits.
- Consider and, if justified, propose a financial contribution for further compensatory measures.
- Present findings in a summary report, supplemented by detailed tables and technical notes (results should include the headline indices, identified in para. 3.9 of the main text).

Assurance

- F.3 The report should contain a statement to the effect that in undertaking the work, efforts have been made to ensure that:

- The work reflects relevant guidance and reporting is concise, transparent and of good quality.
- Base design is well described and reflects good environmental design principles.
- Estimated fleet activity and impacts are based on reasonable and realistic assumptions.
- Appropriate effort has been made to identify, assess and propose mitigation.
- Balance of mitigation reflects the mitigation hierarchy and also local site characteristics.
- Scale of mitigation is commensurate to the emissions harm.

Further Guidance

- F.4 Detailed Guidelines for undertaking emission assessment are provided by the Low Emission Partnership. The most recent update should be followed (In Nov 2016, this was EMA-TG-2.0 available at: http://www.lowemissionstrategies.org/les_planning_guidance.html).

- F.5 Emission changes presented in assessments must be based on current or very recent site use impacts. Impacts associated with historic land uses or potentially conferred through previous planning approvals should not be used discount impacts. In all cases a possible 'worst case' scenario impact should be included in the assessment and this should be based on similarly selected traffic data. The recommended approach for emission assessment (with examples) is provided at the above link but in summary the assessment should ideally include:

- A calculation showing the developments mass emissions impact by pollutant and also by each identified transport source (by fleet, journey or vehicles type as appropriate). This should then be used to calculate the associated pollutant damage cost over a 5 year period (see <https://www.gov.uk/guidance/air-quality-economic-analysis>). Splitting transport impacts into vehicle, fleet or journey groupings can be important in identifying appropriate mitigation measures.
- An estimation of the cost of providing any proposed pollution reducing mitigation.
- A calculation of the predicted reduction in polluting emissions and associated reduction in air pollution damage costs after mitigation.

APPENDIX G: CONCENTRATION ASSESSMENT

- G.1 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 an assessment is undertaken the methodology, datasets and assumptions; and also the reporting/evaluation requirements should be agreed with the Local Authority.

Aims

- G.2 The aims of a Concentration Assessment include:

- Assess 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).

Methodology

- G.3 This will include:

- Pollutants to be modelled and the standards which apply.
- Data: meteorological, background, traffic and emissions.
- Also, inclusion of the effects of local committed developments (cumulative effects)
- Output parameters
- The model to be used, including whether screening or local scale dispersion, the use of individual receptors or contour modelling, the location of receptors (or area for contour modelling) and the model validation.

Report

- G.4 Should present *all relevant detail* on the following:

- The development
- The study area (including receptors or the area for contour modelling and any sensitive sites)
- Air quality standards and objectives
- Methodology (see above)
- Modelling results (presented with a clear summary alongside all supporting data).
- Model validation
- Evaluation of results (see below)

Evaluation

- G.5 Should include, *as a minimum*:

- Changes in emissions to air as a result of the development, by source, pollutant and time.
- The impact that these emissions will have on ambient air quality (pollutant concentrations).
- The likely changes in population exposure over time.
- Any exceedances of the NAQS air quality objectives, or EU limit values brought about by the development, or any worsening of a current breach, including the geographical area affected.
- If the development will compromise any aspects of the local authority's Air Quality Strategy, Corporate Plan, Transport plans or Air Quality Action plans.

Further Guidance

- G.6 EPUK guidance on Planning for Air Quality (available at: <http://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>) provides useful technical context particularly in relation to concentration assessment. However, it must be emphasised that guidance contained within the Lancaster District guidance takes precedence.