

# Low Emissions and Air Quality

## Guidance for Development Management

Local planning decisions have important implications for [local air quality](#) and [public health](#). This is because of their effect on the location, design, and intensity of emissions sources and receptors.

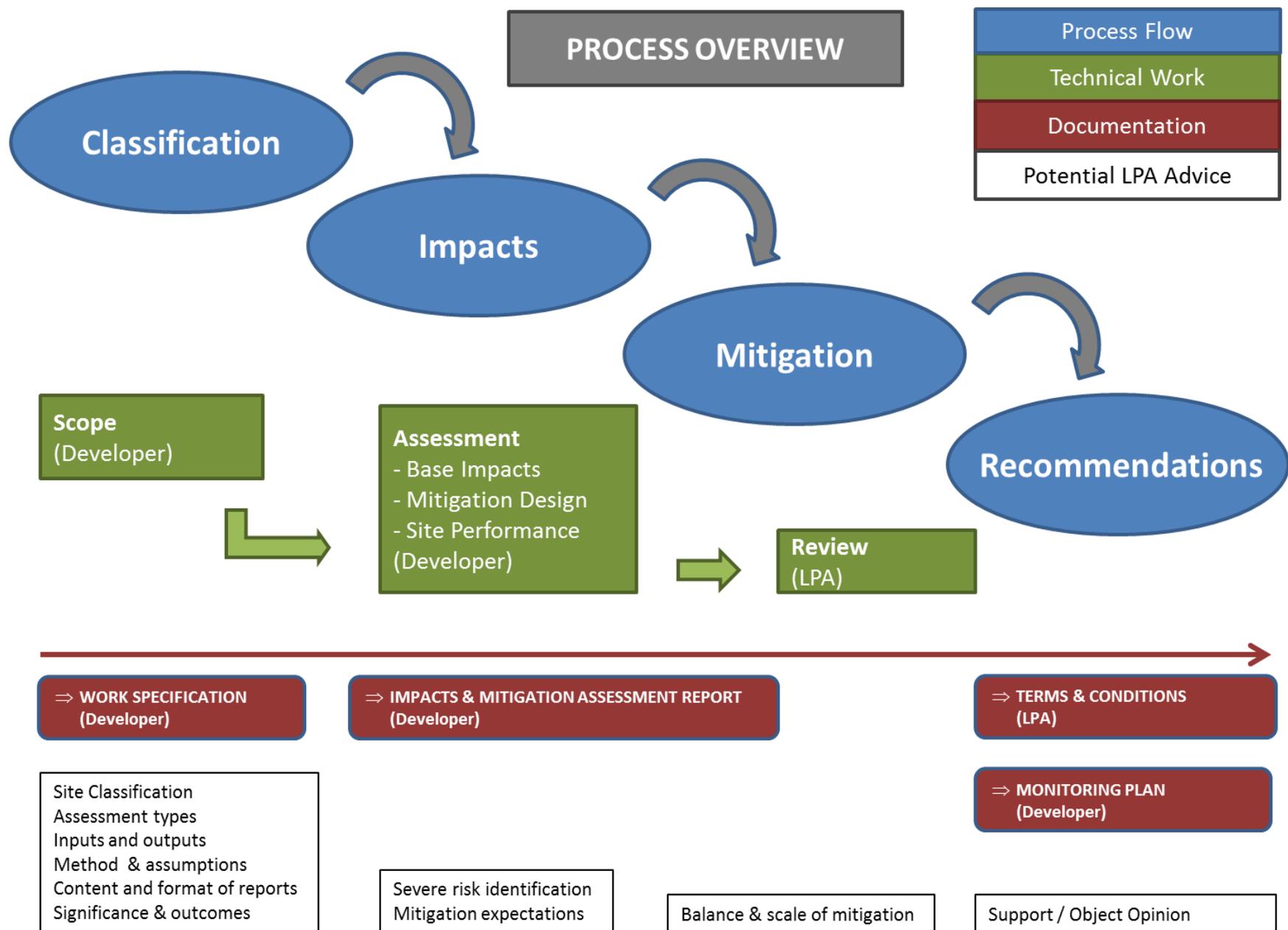
This [Policy Note](#) provides a development control tool to encourage developers and agents to support action through the planning system to help improve air quality and lower [transport emissions](#). Guidance for consideration of stationary emission sources is provided elsewhere.

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# 1 Introduction

## Purpose

- 1.1 Air quality has a significant impact on public health, with an estimated 29,000 excess deaths each year attributed to poor air quality. Local authorities have a statutory duty to work towards compliance with the health based objectives set for seven key pollutants in [the National Air Quality Strategy](#) (NAQS). They also have duties relating to air quality under [the Public health Outcomes Framework](#) (PHOF).
- 1.2 Local planning decisions can significantly affect local air quality because of their effect on the design and location of emissions sources and receptors. Any air quality consideration that relates to land use and its development is capable of being a [material planning consideration](#). The weight it is given relative to other considerations is context specific.
- 1.3 This Policy Note is intended to assist developers and Local Authority Officers in assessing the air quality impacts of a development and in reducing and mitigating any impacts that cannot be avoided as cost effectively as possible. It is a Development Control tool that seeks to encourage developers and agents to support action through the planning system to help improve air quality and lower transport emissions thereby improving health.

## National Policy

- 1.4 The [National Planning Policy Framework](#) (NPPF) provides [practice guidance](#) on how planning can take account of the impact of new development on air quality. This replaces the guidance provided via the old system of National Planning and Policy statements.
- 1.5 The principles listed below are drawn out from the NPPF (see Appendix C1 for further detail):
  - Prevention of and protection from air pollution
  - Recognising and addressing cumulative and direct impacts
  - Importance of Air Quality Objectives, Management Areas and Action Plans
  - Sensitive to and supportive of Sustainable transport (including low emission fuels/technology)
  - Specific guidance on the use of parking standards

## Pollutants of Concern

- 1.7 The main pollutants of concern are nitrogen oxides and particles. Exceedance of nitrogen dioxide concentration objectives is a major national concern, as are efforts to reduce overall concentrations and the associated severe health implications of particle pollution.
- 1.8 Carbon dioxide is a third important atmospheric pollutant. Although, it is currently managed *via* alternative mechanisms within the planning process, linkages should be identified and utilised where this is possible.
- 1.9 Transport is a major source of pollutant emissions and forms the focus for this guidance. Other sources, including biomass boilers are dealt with in separate guidance.

### Air Quality Risks

1.11 This guidance works to address three distinct **risks** relating to air quality:

Pollutant Emissions	bulk emissions, arising from development occupation and/or use of a development site, cumulatively loading and polluting the atmosphere.
Local Concentrations	<i>detectable</i> changes to ambient concentrations of air pollutants <i>directly</i> attributable to development occupation and/or use of a site.
Human Exposure	harm to individuals arising as a result of exposure to air pollutants through the occupation or use of the site.

### Geography

- 1.12 Acute areas of poor air quality, where objectives are exceeded, are identified through the declaration of Air Quality Management Areas. See map in appendix D2 for details.
- 1.13 Polluting activity located within, or in close proximity to, an AQMA will be given particular attention within planning appraisal, as will any proposal which brings new population into an existing AQMA.
- 1.14 The guidance also sets out to reduce pollutant emissions across the entire LPA area, targeting background concentrations both within and beyond AQMAs helping to safe guard compliance with objectives and reduce particle levels, for which there is no known safe limit.

### This Document

- 1.15 Figure 1 provides an outline of the overall process, comprising four parts: Classification, Assessment, Mitigation and Recommendations. Context and guiding principles are laid out in section 1. Section 2 provides a brief process description, supported by Figures 2 and 3, while more detailed notes are contained in section 3. Section 4 provides a summary of assessment and mitigation expectations by site type. Appendices provide detailed standards, guidelines and references on mitigation design, assessment methods and underpinning policy.

## 2 Overview

- 2.1 The guidance seeks to **minimise** pollutant emissions, **avoid** significant impacts on local concentrations and **protect** inhabitants from unacceptable exposure. In doing so, it tailors assessment and mitigation requirements according to the nature and scale of risk.
- 2.2 The process comprises four parts: Classification, Impacts, Mitigation and Recommendations:
- Classification:** an initial risk assessment enables broad classification of each development site, thereby tailoring and streamlining the assessment and mitigation requirements.
- Impacts:** depending on the site classification up to three types of impact assessment may be required: **Emissions Assessment**, **Exposure Assessment** and **Concentration Assessment**.
- Mitigation:** the type of site and the results of associated impact assessment determine the nature and scale of mitigation required to address and manage air quality risks.
- Recommendations:** findings and proposals generated by the preceding stages inform determination of the acceptability of a planning application *with regards to air quality and emissions*. In broad terms recommendations will be either: **Support** or **Object** (further details section 4.4) with support generally subject to certain **terms** and **conditions**.
- 2.3 Mitigation is no substitute for **good environmental design**, giving thought to location, layout, general features and site detail. This guidance assumes good design as the starting point and seeks to address the *remaining* impacts with *additional* interventions. Logically, features of base design are not normally considered part of site mitigation, so careful definition of the **base site scenario** is important both to ensure that it reflects positive design features and also to provide a firm reference point for identifying and responding to additional mitigation requirements.
- 2.4 For most sites, mitigation requirements are driven primarily by the need to minimise polluting emissions. This is called **base mitigation**. However, where concentration assessment indicates that a development is likely to directly cause or worsen an exceedance of a National Air Quality Strategy Objective or exposure screening indicates the possibility of new or additional public exposure to unacceptable levels of air pollution then base mitigation may require further **adjustment or extension** to ensure that it most appropriately addresses all relevant risk.
- 2.5 For a small number of proposals, the risks associated with the direct impact on local concentrations may be so severe as to make them unmanageable using standard mitigation options. Developers are encouraged to take steps to identify such '**potentially unmanageable risks**', and discuss them and their implications with the LPA at the earliest opportunity. This helps establish site and situation specific expectations and avoids wasted effort on misdirected mitigation design and appraisal.
- 2.6 Base mitigation is intended to provide '*a balanced and proportionate level of emission reduction compared to the emission harm generated by the site.*' This mitigation is grouped into five broad types (**ev infrastructure**, **construction practice**, **trip reduction**, **on-site technology measures** and **off-site contribution**). Note however that a standard provision of EV infrastructure is expected as part of base design.
- 2.7 Selection of **on-site mitigation** should adhere to the established sustainable transport hierarchy:
- **Reduce** the number and distance of trips
  - **Shift** journeys to more sustainable modes
  - **Improve** the technology and efficiency of vehicles
- 2.8 Once the opportunity for on-site measures have been fully investigated, further credit may be gained (or required) by providing a **contribution towards off-site measures** (the responsibility for achieving and demonstrating associated good value emission reduction and management for which, then passes to the local authority).

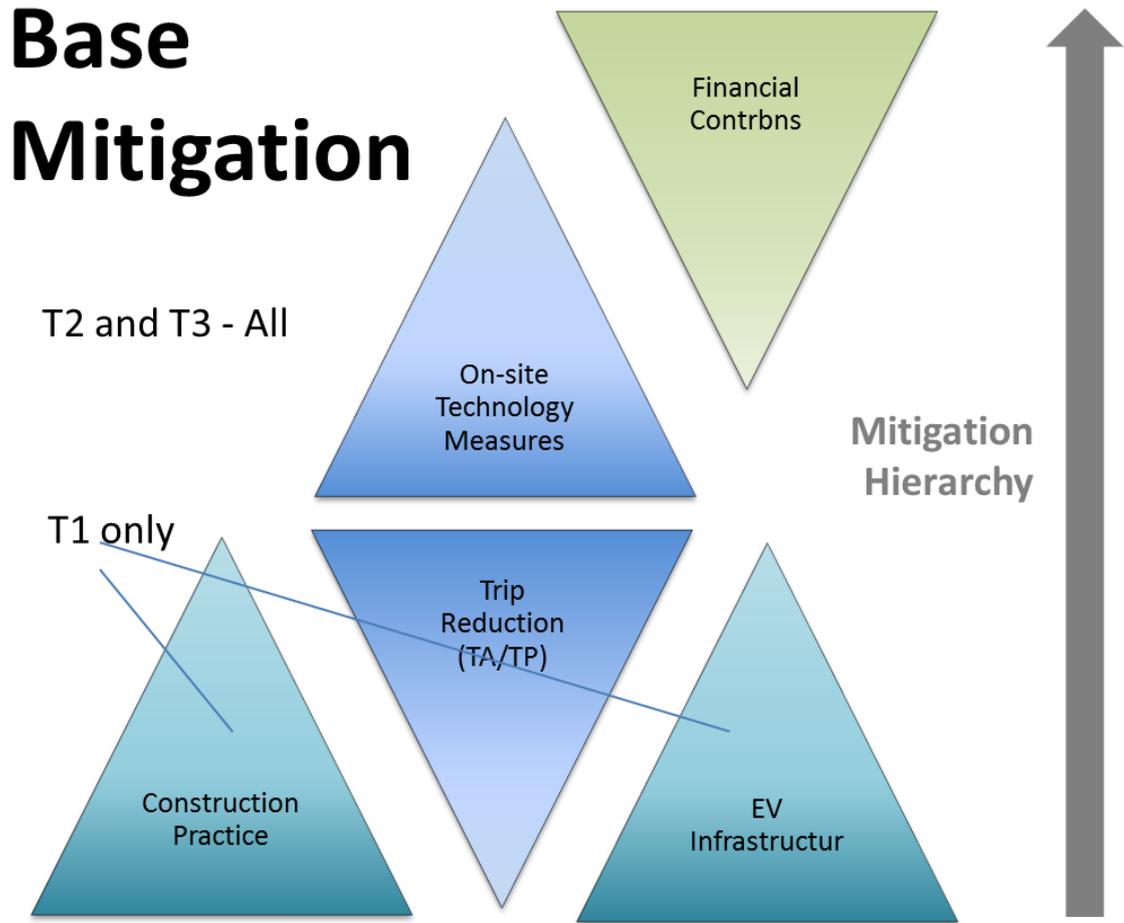


Figure 3: Broad Types of Base Mitigation

**Notes**

- [1] In practice some physical measures may span both trip reduction and technology categories (eg low emission car club). The emission assessment method accommodates for this.
- [2] A standard provision of EV infrastructure is considered as part of base design, so only considered as mitigation if provision extends beyond this.

## 3 Process

### 3.1 Classification

Site Classification <sup>1</sup>	The highest qualifying classification applies
Type 1	<b>All sites</b> located within LPA territory Criteria: site located within boundary marked on Map (App C2) <sup>2</sup>
Type 2	Development with potential to generate significant <b>traffic and pollution</b> Criteria: T2 traffic generation thresholds based on site land use and size (App C4)
Type 3	Development with potential to show significant direct impact on <b>local concentrations</b> Criteria: Type 2 site in a pollution zone (App C2) meeting T3 traffic thresholds (App C5) <sup>3</sup>
Type X	Development with potential to lead to a significant <b>increase in exposure</b> <sup>4</sup> Criteria: Exposure sensitive site (App C3) <sup>5</sup> located in a pollution zone (App C2)
LPA	The classification principles laid out above provide a guide for typical assessment requirements. Due to the site specific nature of air quality, the LPA retains discretion to classify a given site differently if it decides this is more appropriate.

#### Notes

- [1] Grey box provides a summary of the classification approach. Appendix C1 provides a more detailed tabular description, which is supported by maps, tables and definitions in appendices C2-5
- [2] Map in Appendix C2 identifies LPA territory, relevant pollution zones and grading of existing traffic levels on individual road links.
- [3] Appendix C5 provides T3 traffic generation thresholds based on estimated increase in daily trips.
- [4] Such sites are denoted Type 1X, 2X or 3X accordingly.
- [5] Exposure sensitive sites comprise outdoor, non-occupational locations where members of the public are regularly present and are likely to be exposed for a period of time appropriate to the averaging time of the relevant AQ objective.
- Averaging times for NO<sub>2</sub> are annual (long term) and hourly (short term), corresponding sites reflect:
- short and long term exposure (e.g. housing, apartments, flats, schools, care homes, hospitals) or
  - short term only (e.g. hotels, restaurants and cafes).
- Exposure sensitive sites also include those, which would fall under the above criteria through exercising permitted development rights, for example: the permitted conversion of office space to residential.

### 3.2 Impacts

#### Site Impacts (and assessment requirements)

Site classification identified the types of risk that are of most concern and therefore the type(s) of assessment that are required.

Site Type	Main Risks	Assessment Requirements
Type 1	Low Risk Site	No Assessment Required
Type 2	Pollutant Emissions	Emissions Assessment <sup>1</sup>
Type 3	Pollutant Emissions Local Concentrations	Emissions Assessment <sup>1</sup> Concentration Assessment <sup>2</sup>
Type X	Human Exposure	Exposure Assessment <sup>3</sup>

#### Additional Assessment Requirements

Sites falling under other regulatory regimes, including IPPC, LAPPC, waste management licensing and EIA regulations may require alternative or additional assessments relating to air quality.

#### Discrete Assessment of Emissions, Concentrations and Exposure

Traditionally, the term 'Air Quality Impact Assessment' has referred to an assessment focusing primarily on concentrations, albeit potentially with elements of exposure and emission assessment included. The alternative terminology used here is intended to add clarity and precision in terms of expectations and requirements for assessment and reporting.

- [1] Emissions Assessment: Used to quantify changes in bulk emissions as a result of the development and associated mitigation. Results are reported as tonnes of individual pollutants, and are also monetised as social damage (further details [Appendix B3](#)).
- [2] Concentration Assessment: Concerned with assessing the change in ambient pollutant concentrations arising from development and the implications this has for meeting air quality objectives and managing additional human exposure to poor air quality (further details [Appendix B4](#)).
- [3] Exposure Assessment: Used to determine if future occupants of a development are likely to be exposed to unacceptable levels of air pollutants. It is a simple screening exercise undertaken by reviewing local monitoring data, considering location of AQMAs and discussion with local air quality officer (further details [Appendix B2](#)).

#### Combined Assessment of Impacts and Mitigation

Appendices B1-4 provide supporting information on technical assessment. All comprise three stages:

- (i) Estimation of site impacts without mitigation
- (ii) Design of mitigation and estimation of the associated benefits/credit (see also section 3.3)
- (iii) Optimisation of site performance, including mitigation, using iteration of (i)-(ii) as require

#### Combined Reporting

Results are best presented in a combined [impacts and mitigation report](#).

### 3.3 Mitigation

#### Pollutant Emissions

**Base mitigation** is required to address the bulk impact of emissions from development sites through construction, occupation and use. The broad nature of this mitigation is informed by site type as laid out below.

Site Type 1	<a href="#">Construction Management Plan</a> <sup>1</sup> Provision of <a href="#">Electric Vehicle Infrastructure</a> <sup>2</sup> (standard provision)
Site Types 2 and 3	<a href="#">Construction Management Plan</a> <sup>1</sup> Provision of <a href="#">Electric Vehicle Infrastructure</a> <sup>2</sup> <a href="#">Trip Reduction Plan</a> <sup>3</sup> , <a href="#">On Site Technology Measures</a> <sup>4</sup> Financial <a href="#">Contribution</a> for off-site measures <sup>4</sup>

Further Guidance on these measures is provided in [Appendix A](#)

#### Concentration Impacts & Human Exposure

Where concentration assessment indicates that a development is likely to directly cause or worsen an exceedance of a National Air Quality Strategy Objective; or exposure screening indicates unacceptable public exposure to air pollution, then base mitigation may require further adjustment, (i.e. refinement or extension) to ensure that it fully addresses all relevant risk. Adjustments are termed: **base mitigation adjustment** and **exposure measures** accordingly. [Appendix B1](#) provide guidance on the criteria and tests against which final mitigation is assessed [Appendix B2](#) provides guidance on exposure measures

#### Notes

- [1] **Control of construction emissions:** Typically will require adoption of a 'construction environmental management plan' which covers issues such as construction vehicle emission standards, construction staff travel planning and delivery arrangements and control of fugitive dust emissions.
- [2] **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). Note that a standard level of provision is expected as part of basic site design and therefore is not considered part of base mitigation. Well targeted investment beyond the standard provision may however be considered part of base mitigation.
- [3] **Trip reduction:** is the first element in the emission reduction hierarchy – it is important that sites minimise trips initially through good design and then through effective mitigation. Requirements are usually established *via* the separate transport assessment process and packaged in the form of a site travel plan. All proposed trip reduction measures, including those contained within a site travel plan, should be included under the heading Trip Reduction Plan (above). This is to ensure that the emissions assessment can take the associated emission benefits into account. (Note that in practice some measures may span both trip and tech categories, eg low emission car club, and the assessment method accommodates for this).
- [3] **On Site Technology Measures:** Aimed at reducing emissions from individual vehicle trips that arise even after full trip reduction. Typically include measures to encourage emission reduction technologies for existing vehicles or by enabling and promoting the uptake of newer or alternatively fuelled ones.
- [4] **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 measures, typically including investment in local fleets, road networks or low emission infrastructure.

### 3.4 Recommendations

#### Recommendations

The following principles apply, when making recommendations regarding the acceptability of a planning application, with regards to air quality and emissions, taking all proposed mitigation into account.

- Support** Applications which:
- have taken appropriate steps to identify and minimise pollutant emissions<sup>1</sup>
  - are unlikely to cause significant local concentration impacts<sup>2</sup>
  - do not pose unacceptable risk in terms of human exposure<sup>3</sup>
- Object** Applications for which any one of the following apply:
- fail to adequately identify and address pollutant emissions<sup>1</sup>
  - are likely to cause significant local concentration impacts<sup>2</sup>
  - pose unacceptable risk in terms of public exposure<sup>3</sup>

#### Notes

##### Procedure & Good Practice

Throughout the process, the applicant is responsible for maintaining checks on procedure and practice. Compliance with process guidelines is important both for efficiency and for quality assurance. The best outcomes also rely on professional practice, including a willingness to work to the spirit as well as the letter of policy and guidance. Failure to do so is likely to result in delays and potentially additional cost.

##### Evidence, Outcomes & Endeavour

In forming AQ recommendations, the authority considers each air quality risk independently, applying three tests for evidence, outcomes and endeavour.

- |     |                              |  |
|-----|------------------------------|--|
| [1] | <b>Pollutant Emissions</b>   | Good confidence in the impact assessment and evidence<br>Mitigation is commensurate to the emission impacts<br>Pollutant emissions have been reduced as far as reasonably possible               |
| [2] | <b>Concentration Impacts</b> | Good confidence in the impact assessment and evidence<br>Creation or worsening of AQO exceedance is considered unlikely<br>Concentration impacts have been reduced as far as reasonably possible |
| [3] | <b>Public Exposure</b>       | Good confidence in the impact assessment and evidence<br>Unacceptable public exposure to air pollution is considered unlikely<br>Exposure has been reduced as far as reasonably possible         |

##### Interpretation

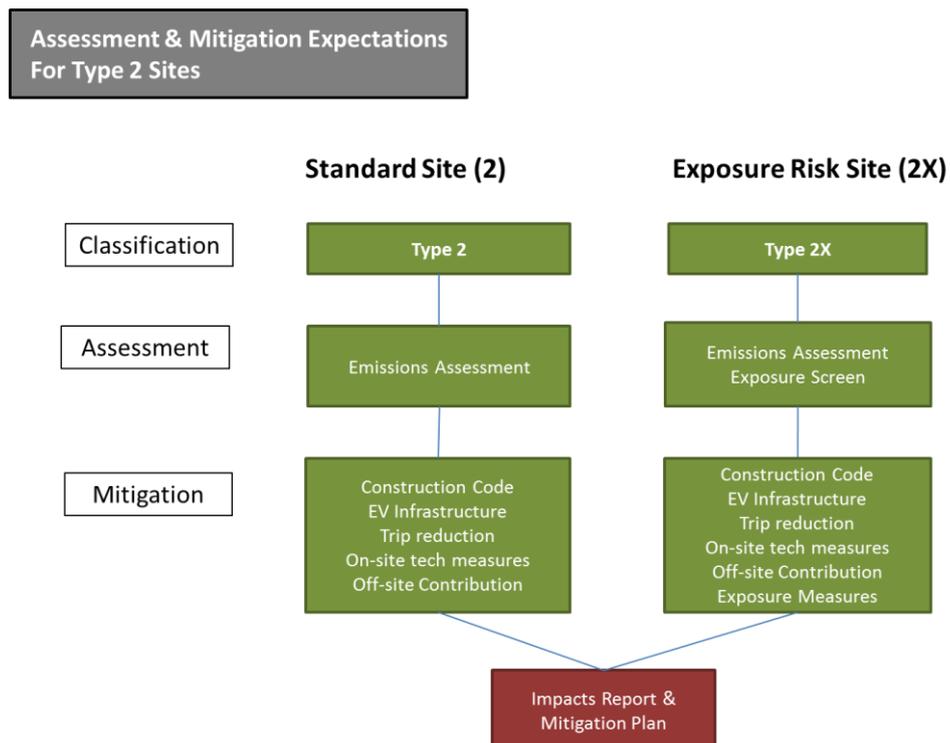
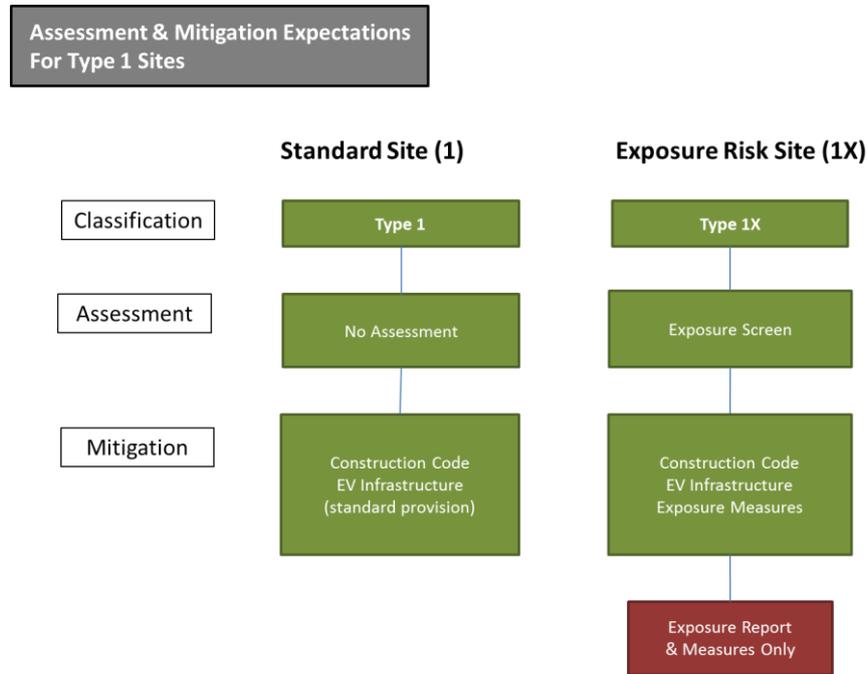
Good confidence in the evidence provided is a pre-requisite for forming any sort of view on outcomes and endeavour. The relative weighting of the latter two may then vary from site to site and by situation. However, in general, appraisal of outcomes is the priority, while the view on endeavour will have most influence where outcomes are not clear cut – though not necessarily in an overriding way.

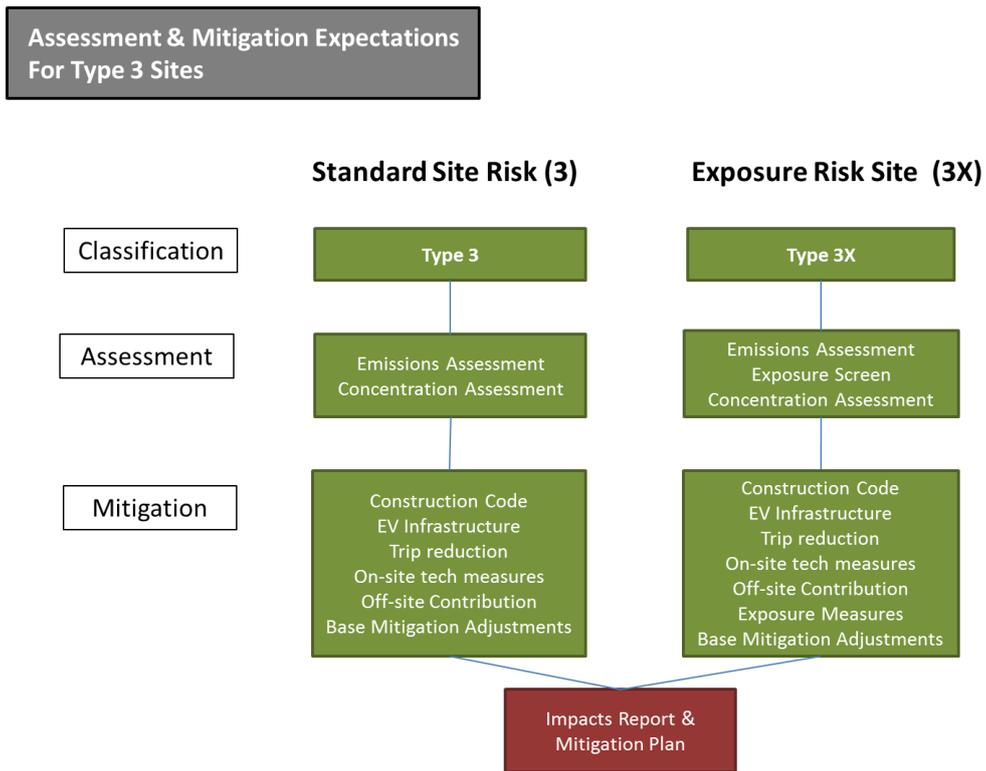
##### Further Guidance

Appendix B1 provides information as to how these tests and checks are applied by the LPA. Appendices B2-4 provide information on the unpinning impact assessments.

## 4 Assessment, Mitigation & Reporting Expectations by Site Type

The diagrams and table in this section summarise expectations for the scope of assessment, mitigation and reporting by classified site type. (Note that where associated assessments are undertaken, the mitigation expectation is for 'due consideration of the indicated mitigation in light of the assessment results').





Assessment, Mitigation & Reporting Expectations by Site Type		1	1X	2	2X	3	3X
<b>Assessment</b>	Emissions Assessment			x	x	x	x
	Concentration Assessment					x	x
	Exposure Assessment		x		x		x
<b>Base Mitigation</b>	Construction Code	x	x	x	x	x	x
	EV Infrastructure	x	x	x	x	x	x
	Trip Reduction			x	x	x	x
	On-site tech measures			x	x	x	x
	Off-site contributions			x	x	x	x
<b>Mitigation Adjustment</b>	Exposure Measures		x		x		x
	Base Mitigation Adjustments					x	x
<b>Documentation</b>	Exposure Report (only)		x				
	Impacts & Mitigation Report			x	x	x	x
	Monitoring Plan			x	x	x	x