

Low Emissions and Air Quality Guidance for Development Management

APPENDICES

The notes laid out in these appendices provide current working standards and guidance as of December 2014. The planning authority may review and update this information overtime. It is therefore important to ensure that the most up to date version is used when undertaking assessment and designing mitigation for a given development.

A Base Mitigation

A1 EV Charging Requirements

A1.1 A standard level of provision is expected as part of site design and therefore is not considered part of additional base mitigation. The table below sets out standard provision levels.

| Minimum Provision of Parking Bays and charging points for Electric Vehicles in new developments (including conversions) | |
|---|--|
| Houses ¹ | One charging point per house with garage or driveway |
| Flats (<50 units) ² | At least one parking bay must be marked out for use by electric vehicles only, together with charging infrastructure and cabling. |
| Flats (>50 units) ² | Further dedicated bays totalling 2% of the total provision. |
| Other Development (<50 bays) ² | At least one parking bay must be marked out for use by electric vehicles only, together with charging infrastructure and cabling. |
| Other Development (>50 bays) ² | Further dedicated bays totalling 2% of the total provision. |
| Phasing | Subject to agreement with the planning authority, standard provision may also requires installation of groundwork/passive wiring at the outset, in order to enable further installation to match demand. |

(1) standard 3 pin

(2) dedicated free standing weatherproof chargers

A1.2 Investment beyond the standard provision may be considered as part of base mitigation, though must be well targeted and in balance with the overall mitigation package.

A2 Construction PracticeGeneral Approach

- A2.1 Where required a construction environmental management plan must be submitted to and approved by the planning authority. 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 (or demolition) phase.
- A2.2 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).
 - Restriction of stockpile size, also covering or spraying them to reduce possible dust.
 - 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)
- A2.2 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

- A2.5 Prior to any works commencing on site, a construction environmental management plan (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

- A2.6 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/>
- A2.7 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: http://static.london.gov.uk/mayor/environment/air_quality/docs/construction-dust-bpg.pdf

A3 On-Site Technology Measures

- A3.1 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.
- A3.2 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/taxi)
- A3.3 Non exhaustive examples¹ of individual measures include:
- **Travel plan** measures discouraging high emission vehicles
 - Travel plan measures encouraging low and ultra low emission vehicles.
 - 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**²
 - Use of **ultra low emission service vehicles**
- A3.5 The developer⁴ 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.⁵
- A3.6 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 %TBD⁵
 - 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
- [3] Example wording: *'Fleet operations should provide a plan for reducing emissions and encouraging the take up of low emissions technologies and alternative fuels.'*
- [4] 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 highly recommended.
- [5] See appendix B2 for further information on the emission assessment approach and site performance benchmarks.

A4 Off Site Contribution

- A4.1 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 social harm.
- A4.3 On payment of the agreed contribution, the responsibility for achieving and demonstrating associated good value emission reduction passes to the local authority.
- A4.2 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.
 - 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.

B Technical Assessment

B1 Appraisal Tests

Procedure & Practice

B1.1 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.

| Process Management | Effective Reporting | Assurance of Mitigation Outcomes |
|---|--|---|
| <ul style="list-style-type: none"> - adherence to process guidelines - effective, timely communication - pro-active issue management | <ul style="list-style-type: none"> - clear 'impact headlines' and 'mitigation proposal' - transparent inputs, assumptions and method - simple, concise documents - meets required structure, format, content | <ul style="list-style-type: none"> - explicit implementation timescales - robust implementation protocols - provisions for monitoring and review |
| Professional Practice | | |
| <ul style="list-style-type: none"> - realistic and well justified assumptions, taking risks and uncertainty into account - accurate data handling, robust methodology and error free calculations - broad evaluation of options, which consider the full mitigation hierarchy alongside relevant site specifics - pro-active development of concrete proposals, which reflect the AQ aims and take the appraisal tests into account | | |

Evidence, Outcomes & Endeavour

- B1.2 The air quality aims are to minimise pollutant emissions, avoid significant impacts on local concentrations and protect inhabitants from unacceptable exposure. In forming AQ recommendations, the authority considers each air quality risk independently, applying three tests for evidence, outcomes and endeavour. 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.
- B1.3 The first step, good evidence, is largely addressed by the provisions laid out above under procedure and practice (B1.1). Once in hand, this enables a view to be formed on outcomes:
- For pollutant emissions the LPA forms an overall view as to whether the base mitigation provides a *'balanced and proportionate level of emission mitigation compared to the emission harm generated by the site,'* using the indicators/criteria in the table below plus any other relevant information.
 - For local concentrations the aim is to avoid *severe impacts* (which are likely to lead to an objection) and also to identify any *warning lights* (which if present require particular emphasis to be given to on-site measures within the mitigation plan).
 - For public exposure, the main test is simply whether *relevant exposure* at or above the indicated pollution level is likely to occur. If so, this generates a warning light, indicating that suitable exposure measures are required (without these the impact is considered severe and objection is likely).
- B1.4 The final step considers whether the applicant has demonstrated reasonable endeavour in working towards the AQ aims, using the second row of indicators/criteria to inform this judgement.

| Pollutant Emissions | Local Concentrations | Public Exposure |
|---|---|---|
| <p>Emissions Performance Indicators</p> <ul style="list-style-type: none"> - NOx reduction (%Base Kg) - Total on-site measures (%Base £DC) - On-site Tech measures (%Base £DC) - Total Mitigation Credit (%Base £DC) <p>Further Considerations</p> <ul style="list-style-type: none"> - Good environmental design - Other features of merit | <p>Warning Light - on-site measures critical</p> <ul style="list-style-type: none"> - without development NO₂ level: 36-38 ug^m⁻³ <i>and</i> - with development increase of 5% or more <p>Severe Impact - objection likely</p> <ul style="list-style-type: none"> - without development NO₂ level: >38 ug^m⁻³ <i>and</i> - with development increase of 5% or more | <p>Warning Light – exposure measures critical</p> <ul style="list-style-type: none"> - Development creates or increases relevant exposure to NO₂ which exceed 38 ug^m⁻³ - Suitable exposure measures are agreed <p>Severe Impact - objection likely</p> <ul style="list-style-type: none"> - Development creates or increases relevant exposure to NO₂ which exceed 38 ug^m⁻³ - Suitable exposure measures not agreed |
| <p>Reasonable Endeavour (emissions)</p> <ul style="list-style-type: none"> - Total on-site measures (£cost) - On-site tech measures (£cost) - Total mitigation (£cost) - Other considerations | <p>Reasonable Endeavour (concentrations)</p> <ul style="list-style-type: none"> - Risk of concentration impacts have been reduced as far as reasonably possible | <p>Reasonable Endeavour (exposure)</p> <ul style="list-style-type: none"> - Risk of exposure impacts have been reduced as far as reasonably possible |

B2 Exposure Assessment

Assessment

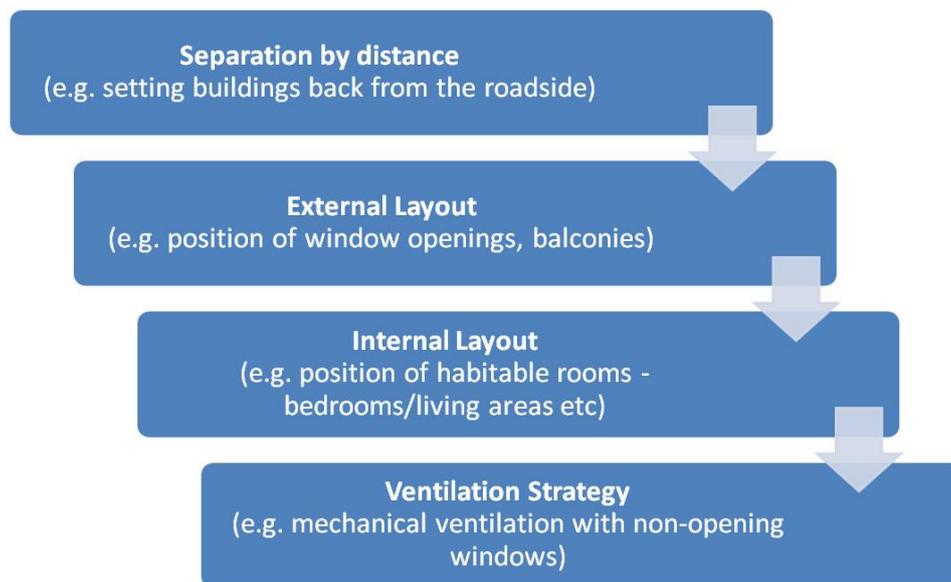
Assessment will usually comprise a simple screen involving review of local monitoring data, AQMA designations and, potentially, discussion with the local air quality officer.

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
- broad conclusions regarding the exposure risk presented by the development

Mitigation

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

Suitable measures will ensure that:

- Pollution levels at 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 that the acceptance criteria will be achieved.

B3 Emissions Assessment

General Method

Guidelines for undertaking emission assessment are provided by the Low Emission Partnership. The most recent update should be followed (as of January 2015, version reference EMA-TG-1.1).

Local Conventions

The following local conventions should be used to tailor the general approach for use within York territory. **Add any adjustments, refinements or additional references (or simply delete this paragraph).**

B4 Concentration 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 check list 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

- 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

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
 - + use of individual receptors or contour modelling
 - + location of receptors (or area for contour modelling)
 - + model validation

Report

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

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](#).

C Site Classification Tables and References

Overview

Grey box in Section 3.1 of the main document provides a summary of the [classification approach](#).

Appendix C1 provides a detailed [site classification table](#)

Map in Appendix C2 identifies [LPA territory](#), [local pollution zones](#) and [traffic levels](#).

Appendix C3 provides a definition of [exposure sensitive sites](#)

Appendix C4 provides [T2 traffic generation thresholds](#) based on site land use and size

Appendix C5 provides [T3 traffic generation thresholds](#) based on estimated increase in daily trips.

C1 Site Classification Table

| Site Type | Existing Pollution ¹ | New Traffic ² | | New Receptors ³ | Assessments Req'd |
|-----------|---------------------------------|--------------------------|----------|--------------------------------|-------------------|
| 1 | White Red or Orange | Below T2 | n/a | All Sites Non-Exposure Site | None |
| 1X | Red or Orange | Below T2 | n/a | Exposure Site | XPA |
| 2 | White Red or Orange | Above T2 | Below T3 | All Sites Non-Exposure Site | EMA |
| 2X | Red or Orange | Above T2 | Below T3 | Exposure Site | EMA / XPA |
| 3 | White Red or Orange | Above T2 | Above T3 | All Sites Non-Exposure Site | EMA / CNA |
| 3X | Red or Orange | Above T2 | Above T3 | Exposure Site | EMA / CAN / XPA |

Reference Map, definitions and thresholds

- [1] Existing pollution: White (exceedence unlikely), Orange (approaching exceedence), Red (AQMA Declared) [See map section C2]
 [2] New Traffic: T2 threshold (land use and size), T3 threshold (AADT traffic increase) [See sections C4-5]
 [3] New Receptors Definitions for exposure and non-exposure sensitive sites [See section C3]

Note: The classification table provides 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.

C2 Classification Map - Pollution Zones & Traffic Levels

Add map to show:

- LPA boundary
- Existing Pollution (zones): White (exceedence unlikely), Orange (approaching exceedence), Red (AQMA Declared))
- Existing Traffic (road links): <10k AADT (green), > 10k AADT (blue)
- AQMA's?

C3 Exposure Sensitive Site Definition

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 NO₂ 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.

C4 New Traffic - T2 thresholds (based on land use and development size)

The table below provide size based thresholds for type 2 site classification based different land use types. (note: Data are derived from previous DfT transport assessment guidelines, which were withdrawn in 2014)

| | | Land Use | Unit | T2 Threshold |
|----|----|-------------------------------------|---------------|--------------|
| 1 | A1 | Food retail | GFA | >800 |
| 2 | A1 | Non-food retail | GFA | >1500 |
| 3 | A2 | Financial and professional services | GFA | >2500 |
| 4 | A3 | Restaurants and cafes | GFA | >2500 |
| 5 | A4 | Drinking establishments | GFA | >600 |
| 6 | A5 | Hot food takeaway | GFA | >500 |
| 7 | B1 | Business | GFA | >2500 |
| 8 | B2 | General industry | GFA | All Sites |
| 9 | B8 | Storage or distribution | GFA | All Sites |
| 10 | C1 | Hotels | Bedroom | >100 |
| 11 | C2 | Hospitals and nursing homes | beds | >50 |
| 12 | C2 | Residential education | Student | >150 |
| 13 | C2 | Institutional hostels | Resident | >400 |
| 14 | C3 | Dwelling houses | Dwelling Unit | >80 |
| 15 | D1 | Non residential institutions | GFA | >1000 |
| 16 | D2 | Assembly and leisure | GFA | >1500 |
| 17 | - | Others | Discuss | Discuss |

Notes and Clarifications

- A1 Non-food retail includes sandwich bars or other cold food purchased and consumed off the premises, also includes internet cafés.
- A2 banks, building societies and bureaux de change, professional services (other than health or medical services) – estate agents and employment agencies, other services – betting shops, principally where services are provided to visiting members of the public.
- A3 Restaurants and cafés – excludes internet cafés(now A1).
- A5 hot food for consumption on or off the premises
- B1 Offices other than A2 (financial and professional services), research and development – laboratories, studios, light industry
- B2 General industry other than B1 (note that the former ‘special industrial’ use classes, B3 – B7, are now all encompassed in the B2).
- C3 Dwellings for individuals, families or not more than six people living together as a single household.
- D1 Relating to health, education, training, cultural and religious services.
- D2 Cinemas, dance and concert halls, sports halls, swimming baths, skating rinks, gyms, bingo halls and casinos.
Also other indoor and outdoor sports and leisure uses not involving motorised vehicles or firearms.
- Others For example - stadium, retail warehouse clubs, amusement arcades, launderettes, petrol filling stations, taxi businesses, car/vehicle hire businesses and the selling and displaying of motor vehicles, nightclubs, theatres, hostels, builders’ yards, garden centres, POs, travel and ticket agencies, hairdressers, funeral directors, hire shops, dry cleaners.

C5 New Traffic T3 Thresholds (based on estimated level of traffic increase)

| | | | |
|------------------------------|----------------------|--------|------------|
| AADT increase in Red Zone | All vehicles (>500) | and/or | HGV (>200) |
| AADT increase in Orange Zone | All vehicles (>1000) | and/or | HGV (>200) |

D Policy and Policy Guidance

D1 National Policy

D1.1 The NPPF identifies air quality as a material consideration in planning decisions, providing principles and direction in relation to:

Prevention of and protection from pollution

“The planning system should prevent both new and existing development from contributing to or being put at risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability” [Para 109]

Recognising and addressing both cumulative and gross impacts and also recognising the statutory importance of Air Quality Objectives, Management Areas and Action Plans

“Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan” [para 124].

Sensitive to and supportive of Sustainable transport

“Plans should protect and exploit opportunities for the use of sustainable transport modes for the movement of goods or people. Therefore, developments should be located and designed where practical to

- Accommodate the efficient delivery of goods and supplies;
- Give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;
- Create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones;
- Incorporate facilities for charging plug-in and other ultra-low emission vehicles; and
- Consider the needs of people with disabilities by all modes of transport.” (para 35).

Specific guidance on the use of parking standards

“If setting local parking standards for residential and non-residential development, local planning authorities should take into account:

- The accessibility of the development;
- The type, mix and use of development;
- The availability of and opportunities for public transport;
- Local car ownership levels; and
- An overall need to reduce the use of high-emission vehicles.” (para 39)