Air quality and emissions mitigation guidance for Sussex (2019)

Sussex-air partnership 2019

Participating members of the Sussex-air partnership:

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Glossary

AADT	Annual Average Daily Traffic flow
AQ	Air Quality
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQO	Air Quality Objectives
Candidate AQMA	An area where a pollutant is within 10% of the AQO
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
EIA	Environmental Impact Assessment
EV	Electric Vehicle
EVCP	Electric Vehicle Charge Point
LPA	Local Planning Authority
SSSI	Site of Special Scientific Interest
ULEV	Ultra Low Emission Vehicle

Quick reference guide

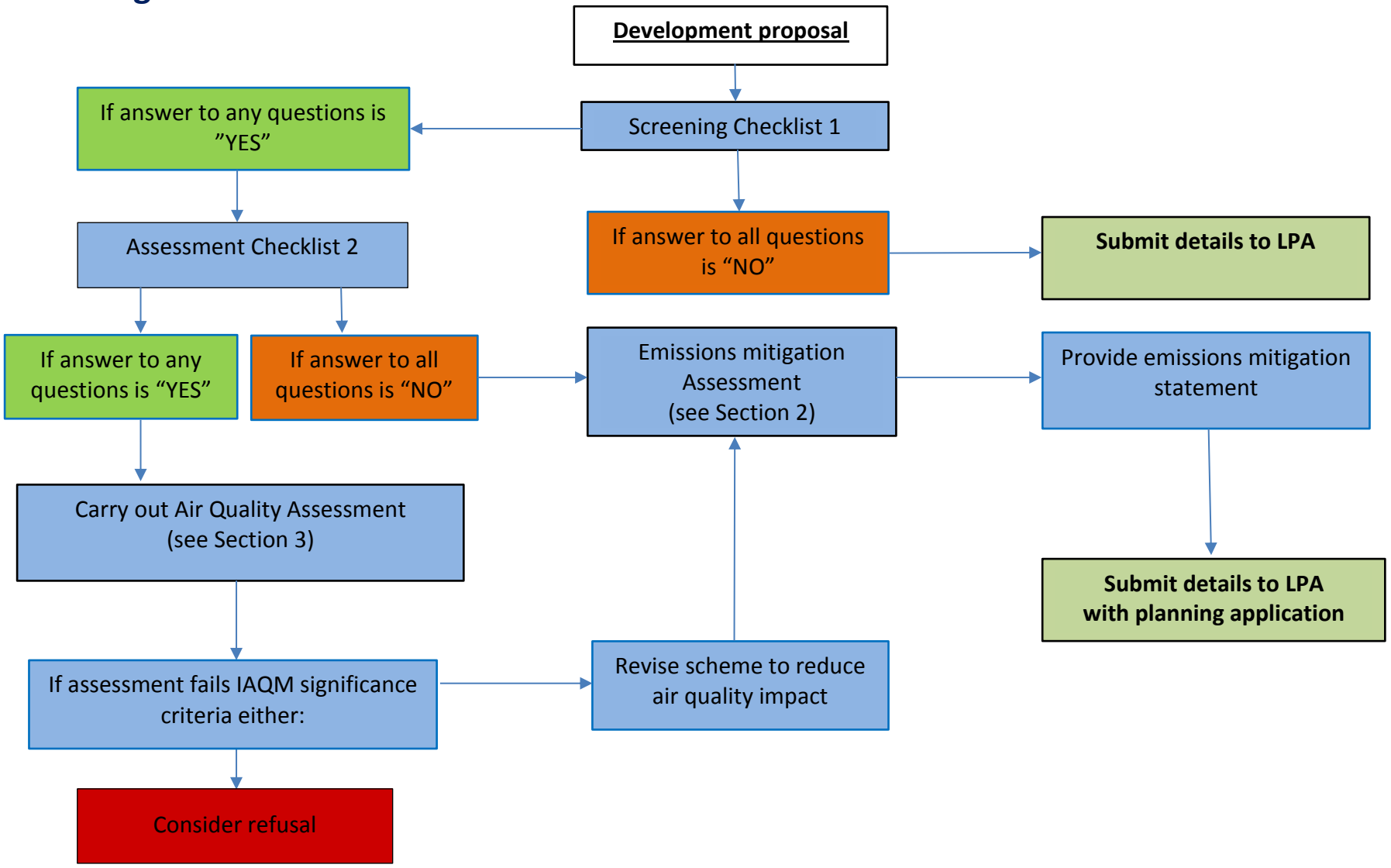

Figure 1.

The purpose of this guidance

Air quality is a material consideration in deciding a planning application. As such the purpose of this document is to:

1) provide clarity to how authorities intend interpreting relevant Local Plan policies,
2) provide advice for developers and their consultants on how to assess and mitigate the impact that new developments may have on local air quality;
3) detail a consistent approach by developers and Local Planning Authorities (LPAs) to
   - address impacts on local air quality
   - ensure optimum scheme design[1] and
   - avoid unnecessary delays in the planning process.

This guidance deals with the pollutants regulated under the Local Air Quality Management (LAQM) regime, including biomass boilers, and the assessment and control of dust during demolition and construction.

Developers or their air quality consultants are strongly encouraged to enter into pre-application discussion with their LPA, including the air quality officer, as early as possible to avoid unnecessary delays and to discuss site-specific considerations.

This guidance is available to download from the Sussex Air website at: www.sussex-air.net

The National Planning Policy Framework and air quality

In line with the National Planning Policy Framework (NPPF) February 2019, this guidance seeks to provide a consistent approach to assessing air quality impacts from planning proposals. Key paragraphs in the NPPF that relate to air quality include:

> Paragraph 110:
> Within this context, applications for development should:
> a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;
> ……
> e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.
>
> Paragraph 170.E:
> "Preventing new and existing development from contributing to, being put at

[1] Related to air quality

unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans."

Paragraph 180:
"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development."

Paragraph 181:
''Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.''

Paragraphs 102-111 relating to sustainable transport are also relevant.

Section 1: How to use this guidance

This section explains the steps to assess and mitigate the impact that new developments may have on local air quality (figure 1 on page 6a provides a summary of the steps required.)

Step 1: pre-application

Pre-application discussions with the LPA will highlight where a development is planned in, near to, or will have an impact on an Air Quality Management Area (AQMA) or is a major development or will impact on a 'candidate' AQMA (please see checklist 1, page 10).

Step 2: screening checklists

The purpose of the checklists (page 10) is to identify which new developments require either:

1) No further action to address air quality, because they are considered unlikely to have an impact on local air quality. A statement to this effect should be included in the planning application submission;
2) An emissions mitigation assessment to avoid, minimise or off-set the impact on local air quality;
3) An air quality assessment and an emissions mitigation assessment. The assessment should be carried out by a developer, their agent or consultant.

If you need any help in using the checklists, then please contact the LPA's Air Quality Officer.

Step 3: Emissions mitigation assessment

The purpose of this assessment is to quantify the monetised health damage value associated with transport emissions from the proposed development. Guidance on how to carry out emissions mitigation assessments is at Section 2.

Step 4: Air quality assessment

The purpose of an air quality assessment is to determine the significance of the impact of a development on local air quality and/or the significance of the impact of local air quality on a development. The significance of the impact, in accordance with IAQM Guidance, will enable the air quality officer to make appropriate recommendations to the LPA in relation to the determination of the planning application.

Applicants are expected to complete an air quality assessment in accordance with the IAQM Planning Guidance[2].

The assessment should be carried out by a developer's air quality consultant.

[2] Institute of Air Quality Management , Land-Use Planning & Development Control: Planning For Air Quality (January 2017) http://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf

Screening checklists

Screening checklist 1

Questions to be answered by the developer:	Action required dependant on the answer(s):
Is the proposed development: ▪ a major development[3,5]; or ▪ within an Air Quality Management Area (AQMA[4]); or ▪ in relevant proximity to an Air Quality Management Area (AQMA[5]); or ▪ in an area close to exceeding AQO (candidate AQMA[6]) ▪ B8 storage and distribution use class[7]?	▪ if **YES**, to **ANY**, proceed to Screening checklist 2. ▪ if **NO**, then advise LPA and no further action is required.

Screening checklist 2

Questions to be answered by the developer:	Action required dependant on the answer(s):
Is the proposed development categorised as a major[3] sized development as defined below? ▪ provision of 10+ residential dwellings or ▪ mineral extraction or ▪ waste development or ▪ a site area over 0.5 Hectares or ▪ a floor space of over 1,000sqm / an area of 1 hectare; or ▪ within an Air Quality Management Area (AQMA[8]); or ▪ in relevant proximity to an Air Quality Management Area (AQMA[9]); ▪ in an area close to exceeding AQO (candidate AQMA[10])?	▪ if **YES**, to **ANY**, an air quality impact assessment is required, unless it is agreed in writing with the Air Quality Officer that this is not required; **and** an emissions mitigation assessment are required, see **Sections 2 and 3.** ▪ if **NO,** to **ALL**, an emissions mitigation assessment only is required**, see section 2.**

[3] Major category defined by Town and Country Planning (Development Management Procedure) Order (England) 2015 definitions.
[4] AQMA locations can be found at https://uk-air.defra.gov.uk/aqma/maps
[5] Speak to the relevant Local Authority Air Quality Officer
[6] Within 10% of the National Air Quality Objectives - Speak to the relevant Local Authority Air Quality Officer
[7] B8 is included due to the transport related movements associated with this Use Class
[8] AQMA locations can be found at https://uk-air.defra.gov.uk/aqma/maps
[9] Speak to the relevant Local Authority Air Quality Officer
[10] Within 10% of the National Air Quality Objectives - Speak to the relevant Local Authority Air Quality Officer

Section 2: Emissions mitigation assessments

The purpose of an emissions mitigation assessment is to:

1) calculate the additional transport emissions associated with a development
2) determine the appropriate level of mitigation required to help avoid, minimise and/or off-set the impact on air quality.

Integrating emissions mitigation into a development

The intention of this guidance is to enable the integration of appropriate mitigation into development proposals, at the design stage.

Where mitigation is not integrated into a proposed development, the LPA may require this through relevant planning conditions or Section 106 agreement.

Calculating the required mitigation for developments

The emissions calculator, in table 1 below, provides a method for determining the estimated monetary value of damage from a proposed development caused by the pollutants PM and NOx. This is the minimum sum of money that must be spent on practical mitigation measures. The developer will implement the measures following agreement with the LPA.

Please contact the local authority air quality officer for further advice.

Emissions calculator

The calculation uses the DEFRA Emissions Factor Toolkit to estimate the transport emissions from a proposed development, which is then used to estimate the associated health damage cost.

The emissions assessment and corresponding mitigation calculation follows this process:

1. identify the trips/annum generated by the proposed development (this information will be available in the Transport Assessment, Transport Statement or TRICS database);
2. assume an average distance travelled of 10km/trip;
3. calculate the emissions of NOx and PM2.5 (tonnes/annum) using the Emissions Factor Toolkit, and an assumption of an average speed of 50Km/h (Ref: DEFRA Emissions Factor Toolkit: http://laqm.defra.gov.uk/review-and-assessment/tools/emissions.html);
4. look-up the latest HM Treasury and Defra IGCB damage costs and multiply the outputs from 3. above to provide a value of the emissions health damage, for each pollutant[11];
5. multiply the calculated emissions health damage values by 5, to quantify emissions over a five year period; and
6. sum the NO_x and PM2.5 costs to provide a total health damage value.

[11] DEFRA, Air quality damage cost guidance (January 2019) https://www.gov.uk/guidance/air-quality-economic-analysis#damage-costs-approach

Table 1: Example emissions calculation

The following simple example for road transport emissions demonstrates the calculation based on a development with 10 domestic properties.

STEP 1 Quantify change in emissions for NOx and $PM_{2.5}$ (in tonnes per annum) for 5 years of scheme operation:

EFT* input

10 Household (urban not London) (2021-2025) (NOx and $PM_{2.5}$)

X 27 (trip/traffic ratio for 10 houses)

X cars only (0% HGV)

X 50 kph (avg. speed)

X 10km (NTS** UK avg.)

EFT* Output (tonne/annum)

	2021	2022	2023	2024	2025
NOx	0.0260	0.0238	0.0219	0.0201	0.0185
PM2.5	0.0017	0.0017	0.0017	0.0017	0.0017

STEP 2 Calculate damage costs for NOx and $PM_{2.5}$ for 5 years of scheme operation:

Damage Cost Appraisal Toolkit* input**

Start Year: 2021
End Year: 2025
****Price Base Year: 2019
Number of pollutants: 2
Source: Road Transport

Output from Damage Cost Appraisal Toolkit* (£)

	2021	2022	2023	2024	2025
Central Value NOx	321	289	263	239	216
Central Value PM2.5	408	403	375	369	364

Total Cost (Central Present Value) NOx = £1,329
Total Cost (Central Present Value) PM2.5 = £1,919

Total = £3,247

Notes:

- *Trip rates can be sourced from transport assessment or local authority/transport authority.*
- *Trip length uses the National Travel Survey(NTS)** UK average = 6.8miles/10km*
- *The IGCB*** damage costs used for Sussex are the IGCB Air Quality Damage Costs per tonne.*

**DEFRA Emissions Factor Toolkit (See reference section)*
*** Department for Transport National Travel Survey (See reference section)*
****DEFRA IGCB Air Quality Damage Cost Appraisal Toolkit (See reference section)*
****Baseline year for the policy/project appraisal

Requirements for mitigation measures

Mitigation of emissions should be designed in to new development from the outset. Table 2 (on page 16) lists some of the mitigation options to be considered. The list is not exhaustive and further options may be suggested where local authorities feel it is appropriate, depending on the scale of development and air quality issues within an area. Mitigation must be agreed with the local authority prior to submission, in the form of a mitigation statement. As a minimum, the total cost of mitigation measures should be equal to the health damage cost.

The mitigation options selected should be relevant and appropriate to:

- Local policies[12]
- The local authority's Air Quality Action Plan
- The type, size and location of the development.

These will determine the mitigation priorities that the LPA wishes to be incorporated within a particular development proposal.

Standard mitigation

The following mitigation is required for <u>all</u> developments listed in Screening Checklist 2:

1. Residential

- all gas-fired boilers to meet a minimum standard of <40mgNOx/kWh
- 'active' charging points for electric vehicles shall be provided at 20% of all parking spaces with cable-ducting provided at all remaining spaces to provide 'passive' provision for these spaces to receive electric vehicle charge points in the future.

2. Commercial/Retail/Industrial

- 'active' charging points for electric vehicles shall be provided at 20% of all parking spaces with cable-ducting provided at all remaining spaces where appropriate to provide 'passive' provision for these spaces to receive electric vehicle charge points in future.

3. Demolition/Construction

- mitigation in accordance with the Institute of Air Quality Management (IAQM) Guidance on the Assessment of Dust from Demolition and Construction.

[12] For example planning policies, Highway Authority policies

Table 2 Mitigation measures

RESIDENTIAL
Additional EV charging infrastructure within the development (wall mounted or free standing in-garage or off-street points)
Vouchers for alternatives to private car use
Car club provision within development or support given to local car club/eV car clubs
Designation of parking spaces for car club vehicles
Designation of parking spaces for low emission vehicles
Provision of electric bikes
Improved cycle paths to link cycle network
Adequate provision of secure cycle storage
Using green infrastructure, in particular trees to absorb dust and other pollutants
COMMERCIAL/INDUSTRIAL (as above – plus)
Differential parking charges depending on vehicle emissions
Public transport subsidy for employees
All commercial vehicles should comply with current European Emission Standards
Fleet operations should provide a strategy for considering reduced emissions, low emission fuels and technologies
Use of ultra-low emission service vehicles
Support local walking and cycling initiatives
On-street EV recharging
Contributing funding to measures, including those identified in air quality action plans
Low emission strategies, designed to offset the impact on air quality arising from new development
ADDITIONAL MITIGATION
Contribution to low emission vehicle refuelling infrastructure
Low emission bus service provision or waste collection services
Bike/e-bike hire schemes
Contribution to renewable fuel and energy generation projects
Incentives for the take-up of low emission technologies and fuels

Note: The costs associated with Travel Plans and EV charging points recommended by existing parking standards are required <u>in addition to</u> the mitigation options identified and costed in an air quality mitigation statement.

Emissions mitigation statement

The statement must include:

i. The development traffic input data used in the mitigation calculation, and the source of the data.

ii. Emissions calculation and total calculated value of emissions' health damage cost.

iii. Itemised costing for each proposed mitigation option and total value of all proposed emissions' mitigation. This should be equal to the value from ii. above. (appropriate to the type and size of development and local policy requirements) (See table 3 below).

iv. Statement of proposals to minimise dust emissions in accordance with the IAQM Guidance on the Assessment of Dust from Demolition and Construction.

Table 3: Example costs table

Mitigation Type	**Mitigation Target =**		**£ (this is the emissions mitigation assessment value)**
	Mitigation		
	£/unit	**No.**	**Value**
eV Charge points	W	10	Wx10
Car Club spaces	Y	2	Yx2
Low Emission Bus	Z	1	Zx1
Etc			
	Total Value		**SUM of above**

Section 3: Air quality impact assessment

Major developments identified from screening checklist 2, will require an air quality impact assessment. The purpose of an air quality impact assessment is to determine the significance of the predicted impact of a development on local air quality. The assessment should be carried out by a developer's air quality consultant.

For guidance on how to carry out an air quality assessment and the significance criteria to be used, please refer to the Institute of Air Quality Management (IAQM) Guidance available at: http://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf

Key points:

- applicants intending to undertake an air quality assessment should always seek the latest information available on local air quality from the relevant local authority. For more information visit the Sussex-air website: **http://www.sussex-air.net/**
- applicants are advised to contact the local planning authority, to ascertain extant planning permissions in the area, to assist with cumulative impact assessment.

References

Air Quality (England) Regulations 2000 as amended www.legislation.gov.uk

COMEAP (Committee on the Medical Effects of Air Pollutants) www.comeap.org.uk

COMEAP Long-term exposure to air pollution: effect on mortality (updated 2018) www.gov.uk/government/publications/comeap-long-term-exposure-to-air-pollution-effect-on-mortality

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DEFRA Air Quality Strategy (2019) www.gov.uk/government/publications/clean-air-strategy-2019

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