

Air quality and emissions mitigation guidance for Sussex (2020)



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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	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
IAQM	Institute of Air Quality Management
LPA	Local Planning Authority
NPPF	National Planning Policy Framework
NPPG	National Planning Practice Guidance
SSSI	Site of Special Scientific Interest
ULEV	Ultra Low Emission Vehicle

Purpose of this guidance

This guidance deals with the pollutants from transport which are regulated under the Local Air Quality Management (LAQM) regime, and the assessment and control of dust during demolition and construction.

Air quality is a material consideration in deciding a planning application. 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 to reduce emissions and/or exposure and
 - avoid unnecessary delays in the planning process.

For help on how to assess the air quality impacts on designated nature conservation sites please see guidance from the Institute of Air Quality Management (IAQM) at:

<https://iaqm.co.uk/guidance/>

For help on how to assess the air quality impacts from biomass boilers please see guidance from Environmental Protection UK at: https://www.environmental-protection.org.uk/wp-content/uploads/2013/07/Biomass_and_Air_Quality_Guidance.pdf

For help on how to assess odour please see guidance from the Institute of Air Quality Management at: <https://iaqm.co.uk/guidance/>

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.

The National Planning Policy Framework and air quality

In line with the National Planning Policy Framework (NPPF) published in June 2019 and the National Planning Practice Guidance (NPPG) published in November 2019, this guidance seeks to provide a consistent approach to assessing air quality impacts from planning proposals.

See Appendix 1: National Planning Policy Framework for more information (page 17).

Section 1: How to use this guidance

This section explains the steps required to assess and mitigate the impact that new developments may have on local air quality.

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 screening checklist, page 6).

Step 2: screening checklist

The screening checklist on page 6 identifies which proposed 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;
- 2) An emissions mitigation assessment to avoid, minimise and 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 checklist, 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 contained in Section 2.

Step 4: air quality assessment

Where indicated by the screening checklist (page 6), applicants are expected to complete an air quality assessment in accordance with the IAQM Planning Guidance see:

<http://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>. The purpose of this 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.

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

Screening checklist

Questions to be answered by the developer:	Action required dependant on the answer(s):
<p>Is the proposed development:</p> <ul style="list-style-type: none"> ▪ a MAJOR development, as defined by Town and Country Planning (Development Management Procedure) Order (England) 2015 ¹. ▪ within an Air Quality Management Area. Look this up at: https://uk-air.defra.gov.uk/aqma/maps or contact the relevant Local Authority Air Quality Officer; ▪ in relevant proximity to an Air Quality Management Area. Contact the relevant Local Authority Air Quality Officer; ▪ in an area close to exceeding the Air Quality Objectives. Contact the relevant Local Authority Air Quality Officer; ▪ B8 storage and distribution use class with a floorspace of 500m² or more. This is included due to the transport-related movements usually associated with this Use Class. 	<ul style="list-style-type: none"> ▪ if NO to all, then advise LPA. No further action is required. ▪ if YES to ANY, then the following are required, <u>unless agreed in writing with the Air Quality Officer:</u> <ol style="list-style-type: none"> 1) an air quality assessment and 2) an emissions mitigation assessment. <p>See Sections 2 and 3 for guidance.</p>

¹ <http://www.legislation.gov.uk/ukxi/2015/595/article/2/made>

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;
- 3) enable an evidence-based and proportionate approach.

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 on page 8 provides a method for determining the estimated monetary value of damage from a proposed development caused by the pollutants PM and NO_x (example on page 11). 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 NO_x and PM_{2.5} (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. This can be found here: <https://www.gov.uk/guidance/air-quality-economic-analysis#damage-costs-approach> ;
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 PM_{2.5} costs to provide a total health damage value.

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 NO_x and PM_{2.5} (in tonnes per annum) for 5 years of scheme operation:

EFT* input

10 Household (urban not London) (2021-2025) (NO_x 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
NO _x	0.0260	0.0238	0.0219	0.0201	0.0185
PM _{2.5}	0.0017	0.0017	0.0017	0.0017	0.0017

STEP 2: Calculate damage costs for NO_x 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 NO _x	321	289	263	239	216
Central Value PM _{2.5}	408	403	375	369	364

Total Cost (Central Present Value) NO_x = £1,329

Total Cost (Central Present Value) PM_{2.5} = £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 must be agreed with the local authority in the form of a mitigation statement. Mitigation of emissions should be designed in to new development from the outset (see Good Design section below).

Table 2: Mitigation measures (page 14) 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. As a minimum, the total cost of mitigation measures should be equal to the health damage cost.

Where possible, the likely emission reduction(s) resulting from the mitigation proposed should also be quantified; for example, the reduction in emissions from the fleet (bus, taxi, haulage, etc.).

The mitigation options selected should be relevant and appropriate to:

- Local policies²
- 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.

It is important to note that the costs associated with Travel Plans and the provision of EV charging points recommended by existing parking standards are in addition to the mitigation options identified and costed in an air quality mitigation statement.

Good Design

In terms of air quality impacts a good basic design will reduce the level of additional mitigation. A basic design is expected to deliver:

1. No additional exposure to increased air pollution for existing or future occupants
2. A location that maximises the use of sustainable transport, that:
 - reduces the number and distance of trips;
 - shifts the journeys to alternative, less polluting modes, and;
 - provides for improved technology and efficiencies.
3. Greenspace and people priority wherever practicable.

To reduce potential exposure of new occupiers to poor air quality, mitigation included in the

² For example, planning policies, Highway Authority policies

design should consider:

- moving occupied buildings back from the roadside
- reducing opening windows/doors facing the roadside
- re-organising main habitable rooms away from facing the roadside.

As a last resort, including non-opening windows and/or mechanical ventilation (with heat recovery) into the building, with the air intake away from the road.

Standard mitigation

The following mitigation is required for all developments that answer 'yes' to the Screening Checklist (page 6):

1. Commercial/Retail/Industrial

- Meet the following relevant guidance on electric vehicle charging points and travel plans:

In Brighton and Hove:

- <https://www.brighton-hove.gov.uk/content/planning/planning-policy/spd14-parking-standards>
- <https://www.brighton-hove.gov.uk/content/parking-and-travel/travel-transport-and-road-safety/workplace-sustainable-travel>

In East Sussex:

- <https://www.eastsussex.gov.uk/search/search.aspx?q=parking+standards>
- https://www.eastsussex.gov.uk/media/1764/travel_plan_guidance.pdf

In West Sussex:

- https://www.westsussex.gov.uk/media/1847/guidance_parking_res_dev.pdf
- <https://www.westsussex.gov.uk/roads-and-travel/travel-and-public-transport/travelwise-sustainable-transport/travel-plans/travel-plan-resources/>

2. Residential

- all gas-fired boilers to meet a minimum standard of <40mgNO_x/kWh. Consideration should be given to renewable sources of energy, e.g. air source heat pumps.
- meet the electric vehicle charging point guidance set out above under 'commercial/retail/industrial'.

3. Demolition/Construction

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

Table 2: Mitigation measures (page 14) lists additional mitigation measures to be considered in the emissions mitigation assessment and statement.

Table 2: Mitigation measures

The following measures are not an exhaustive list nor in order of preference.

RESIDENTIAL
Invest in EV charging infrastructure within the development over and above the current recommended standards
Provide vouchers for alternatives to private car use
Set up a car club within the development or contribute to the cost of a local car club
Set up or join an existing car sharing scheme for residents
Designate parking spaces for car club/car sharing vehicles
Designate parking spaces for low emission vehicles
Provide electric bikes
Improve cycle paths to link to the existing local cycle network
Provide secure cycle storage
Invest in additional evergreen infrastructure to reduce particulates and other pollutants
COMMERCIAL/INDUSTRIAL (as above – plus)
Set up differential parking charges to favour cleaner vehicles
Provide public transport subsidy for employees
Ensure all new commercial vehicles comply with the latest European Emission Standards
Implement a fleet strategy that reduces emissions
Use ultra-low emission service vehicles
Invest in local walking and cycling initiatives
Contribute to the cost of on-street EV recharging
Contribute to unfunded measures identified in air quality action plans
Implement a low emission strategy
ADDITIONAL MITIGATION
Contribute to local low or zero emission vehicle refuelling/recharging infrastructure
Contribute to low emission bus service provision or waste collection services
Contribute to local bike/e-bike hire schemes
Contribute to renewable fuel and energy generation projects
Fund incentives for the take-up of low emission technologies and fuels

Emissions mitigation statement

The statement must include:

- i. The development traffic input data used in the mitigation calculation and quote 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:

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 assessment

Major developments identified from the screening checklist, 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.

Appendix 1: National Planning Policy Framework

Key paragraphs in the NPPF (see link in References, page 20) that relate to air quality include:

Page 32. Paragraph 110:

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.

Page 49. Paragraph 170):

- e) “Preventing new and existing development from contributing to, being put at 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.”

Page 52. 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.”

Page 52. 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.

Appendix 2: List of main changes made for version 1 of 2020 Guidance

- P3 Glossary updates
- P6a Previous version Quick Reference Guide removed
- P4 Links added on air quality assessments on designated nature conservation sites and biomass boilers
- P4 Reference to NPPG added
- P4 NPPF text removed and added as an Appendix with updates
- P6 Screening Checklist simplified – checklist one removed and consolidated into a single checklist; Addition of a B8 floorspace threshold of 500m²
- P11 Good Design section added
- P11 Addition of a sentence requesting the chosen mitigation options also include an attempt to quantify the expected likely emission reduction
- P12 Addition of consideration of renewable energy sources after the sentence on low NOx boilers
- P12 Links to relevant EV parking standards and Travel Plan guidance added to section on Standard mitigation
- P14 Minor changes to existing wording, addition of reference to car clubs
- P20 Updated reference for Town and Country Planning (Development Management Procedure) (England) Order 2015 added.

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

COMEAP Nitrogen dioxide: effects on mortality (2018)
www.gov.uk/government/publications/nitrogen-dioxide-effects-on-mortality

DEFRA Air quality damage cost guidance (2019)
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770576/air-quality-damage-cost-guidance.pdf

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

DEFRA Emissions Factor Toolkit
<https://laqm.defra.gov.uk/review-and-assessment/tools/emissions.html>

DEFRA Local Air Quality Management Technical Guidance (TG 16) (2018)
<https://laqm.defra.gov.uk/technical-guidance/>

Department for Transport, National Travel Survey
<https://www.gov.uk/transport-statistics-notes-and-guidance-national-travel-survey>

EU (European Union) Air Quality Standards (2008)
<http://ec.europa.eu/environment/air/quality/standards.htm>

EU (European Union) Environmental Impact Assessment Directive (1985)
<http://ec.europa.eu/environment/eia/eia-legalcontext.htm>

Institute of Air Quality Management, Guidance on the assessment of dust from demolition and construction (2014) <https://iaqm.co.uk/text/guidance/construction-dust-2014.pdf>

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Town and Country Planning (Development Management Procedure) (England) Order 2015

http://www.legislation.gov.uk/uksi/2015/595/pdfs/uksi_20150595_en.pdf