



Stratford on Avon District Council

Air Quality & Planning Guidance

December 2018

Aims to assist in reducing air quality impacts of new developments.

This guidance has been developed in co-operation between Coventry City Council, Coventry & Warwickshire Public Health, Nuneaton and Bedworth Borough Council, Rugby Borough Council, Stratford District Council and Warwick District Council.

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Glossary

AADT	Annual average daily traffic flows
Air Quality Assessment (AQA)	An assessment of the impact of a development on the levels of certain pollutants in the local area and the impact of pollution levels on future occupants.
Air Quality Management Areas (AQMAs)	Areas where the air quality objectives are likely to be exceeded. Declared by way of an order issued under the Section 83(1) of the Environment Act 1995.
Air Quality Objectives	Air quality targets to be achieved locally as set out in the Air Quality Regulations 2000 and subsequent Regulations. Objectives are expressed as pollution concentrations over certain exposure periods, which should be achieved by a specific target date. Some objectives are based on long term exposure (e.g. annual averages), with some based on short term objectives. Objectives only apply where a member of the public may be exposed to pollution over the relevant averaging time.
Biomass boiler	System of heating where biomass, usually wood or wooden pellets, are used as the fuel
CEMP	Construction Environmental Management Plan – used to manage and minimize environmental impacts from construction and demolition
Clean Air Zones (CAZ)	Zone implemented by a local authority setting nationally set emission standards for vehicles. Non-charging zones can be implemented through policies covering bus and taxi emissions. Charging zones require non-compliant lorries and possibly vans to pay a charge to enter the zone.
CHP	Combined heat and power
Damage Costs	Damage Costs are a simple way to value changes in air pollution. They estimate the cost to society of a change in emissions of different pollutants
Emission Factor Toolkit	On-line toolkit provided by DEFRA to calculate emissions from road transport vehicles in current and future years
Environmental Impact Assessment (EIA)	Assessment required for projects specified in Environmental Impact Assessment Directive. Governed by the Town & Country Planning (Environmental Impact Assessment) Regulations 2017
EU Limit Value	Legally binding pollutant concentration limit on Governments of EU Countries
Euro Standards	European Emission Standard (progressively tightened emission standards for vehicles. Euro Standards for cars and small vans are stated in Hindu-Arabic numbers and HDVs in Roman numerals)
Exceedence	Concentrations of a specified air pollutant greater than the appropriate Air Quality Objective or EU Limit Value

Exceedence area	Area where concentrations of a specified air pollutant greater than the appropriate Air Quality Objective or EU Limit Value
HDV	Heavy Duty Vehicle (lorry or bus greater than 3.5 tonnes gross vehicle weight)
IGCB	Interdepartmental Group on Costs and Benefits led by the Department for Environment, Food and Rural Affairs (DEFRA)
LAQM.TG(16)	Local Air Quality Management Technical Guidance (2016). This document provides national advice on how local authorities should assess air quality.
LETCP	Low Emission Towns & Cities Programme ¹ – joint programme between all 7 West Midlands Metropolitan Authorities to produce the West Midlands Low Emission Vehicle Strategy (LEVS), including good practice guidance on planning and procurement
Low Emission Strategy (LES)	Overarching strategy to integrate policies and practices to achieve year on year vehicle emission reductions, optimising opportunities for national funding assistance
Low Emission Zone (LEZ)	Council area in which emission standards apply for either road transport vehicles or power generation/industrial emissions. The council can set emission standards that differ in standard and scope from the Government requirements for implementing Clean Air Zones for vehicles
LDV	Light duty vehicle (car or small van less than 3.5 tonnes gross vehicle weight)
Limit Values/EU limit values	The maximum pollutant levels set out in the EU Daughter Directives on Air Quality. In some cases the limit values are the same as the national air quality objective, but may allow a longer period for achieving.
Mitigation	Mitigation measures will minimise, but not necessarily remove, the impact of or effect of poor air quality on a development
National Air Quality Objectives	See Air Quality Objectives
National Air Quality Plan	Government Plan to improve roadside concentrations of nitrogen dioxide (July 2017)
Non-road mobile machinery (NRMM)	Diggers, cranes, bulldozers, plant etc used on construction sites
NO ₂	Nitrogen dioxide
NO _x	NO _x = nitrogen oxides, which includes nitric oxide and nitrogen dioxide. Most pollution sources emit nitrogen oxides primarily as nitric oxide. However, once in the atmosphere nitric oxide can be converted to nitrogen dioxide. Therefore, it is important to know the concentrations of both NO _x and NO ₂
Offsetting	Measures which ‘compensate’ for anticipated increases in

¹ https://go.walsall.gov.uk/low_emissions_towns_and_cities_programme

	pollution in the area but not necessarily at the exact locality. This might be for example by funding more general measures in the air quality action plan.
PM	Particulate matter
PM _{2.5}	Particulate matter with a diameter of 2.5 microns or less
PM ₁₀	Particulate matter with a diameter of 10 microns or less.
Part A1 and A2 Processes	Industrial processes which are regulated under the Pollution Prevention and Control (PPC) Regulations and subsequent Integrated Pollution Prevention and Control (IPPC) for emissions to all media (i.e. atmosphere, land and water).
Part B Processes	Industrial processes which are regulated under the Local Air Pollution Control (LAPC) and Local Air Quality Pollution Prevention and Control (LAPPC) Regulations for emissions to air only.
Point sources	Chimneys
Polluting development	A development which will directly or indirectly increase levels of relevant pollutants. This may include industrial processes but may also include developments which could cause increased traffic emissions.
Road canyon	A road which is flanked by buildings on both sides, creating a canyon like environment that can inhibit the dispersion of pollutants
SCR	Selective Catalytic Reduction – abatement equipment on vehicles to reduce NO _x emissions. Requires the addition of urea (commercially known as Ad Blu)
SCRT	SCR and continuous regeneration technology (soot / particulate filter)
Sensitive development	A development which would allow users of the site to potentially be exposed to pollutants above the objective for the relevant period. For example, the introduction of a new residential development into an area where an air quality objective is already exceeded, would create the potential for the exposure of residents to poor air quality above the objective. Incidentally, this type of development may also generate significant additional traffic flow and also be a polluting development.
Standby generator	Back-up electrical generator that automatically starts up and provides power following a utility outage

1 Purpose of the guidance

Stratford-on-Avon District Council (the Council) has to weigh up economic, social and environmental factors when deciding to grant or refuse planning permission or decide if conditions are required to achieve sustainable development.

Air quality is a material consideration that planners are required to take into account when making their plans and when taking planning decisions.

This guidance aims to simplify the consideration of air quality impacts associated with development schemes and focus on incorporation of mitigation at design stage, countering the cumulative impacts of aggregated developments, providing clarity to developers and defining of *sustainability* in air quality terms.

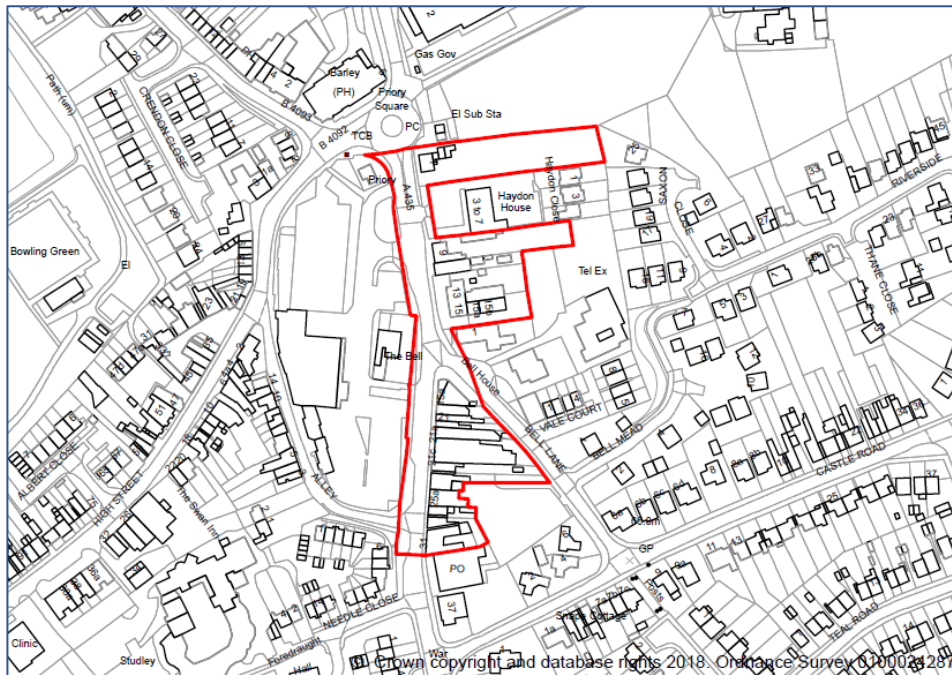
The objectives of this supplementary planning document (SPD) are:

- Improve the consideration of air quality & health impacts in the planning process, in line with national / local policy and practice
- to help ensure consistency in the approach to dealing with air quality and planning in the district;
- to highlight the existing policy framework and emphasise the importance of air quality as a material planning consideration;
- to identify the circumstances where detailed assessments and/or low emission strategies will be required as part of planning applications;
- to provide guidance on measures that can be implemented to mitigate the potentially harmful impacts of new developments on air quality;
- to promote the identification of suitable mitigation on major schemes through pre-application discussions;
- to provide guidance on the use of planning conditions and Section 106 obligations to improve air quality; and
- to encourage co-benefits of reducing Carbon and noise emissions

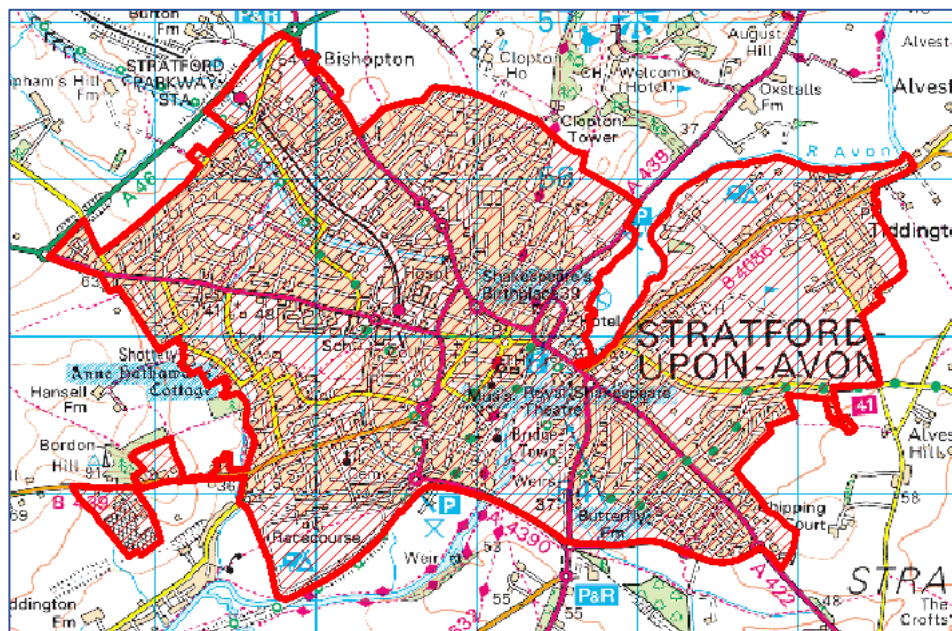
2 Local Air Quality

The Council designated the centre of Studley as an air quality management area (AQMA) in 2006 and designated the urban area of Stratford upon Avon as an AQMA in 2010 due to annual average concentrations of nitrogen dioxide (NO₂). The Studley and Stratford upon Avon AQMA are shown in maps 1 and 2 respectively.

Map 1 – Studley Air Quality Management Area (AQMA)



Map 2 – Stratford upon Avon Air Quality Management Area (AQMA)



Whilst levels of particulate matter (PM₁₀) in Stratford do not breach Air Quality Objectives it is acknowledged that fine particulate matter (PM_{2.5}) levels have a significant impact on health across the District. It is estimated that around 1 in 20 deaths can be attributed to

PM_{2.5} concentrations accounting for 60 deaths (over 25s) and 588 associated life-years lost in 2010².

For the purpose of improving air quality and health impacts in Stratford this guidance is concerned with achieving and maintaining compliance with Air Quality Objectives and with improving air quality further, particularly with respect to particulate concentrations.

3 National Policy & Practice

3.1 National Planning Policy Framework

National planning policy is set by the National Planning Policy Framework (NPPF)³. The NPPF places a general presumption in favour of sustainable development, stressing the importance of local development plans. Achieving sustainable development means the planning system has three interdependent, overarching objectives: economic, social and environmental. The environmental objective is:-

‘to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy. ‘

It goes on to state (paragraphs 170 and 181)that:

170 Planning policies and decisions should contribute to and enhance the natural and local environment by:

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;

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

²https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/332854/PHE_CRCE_010.pdf

³https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/740441/National_Planning_Policy_Framework_web_accessible_version.pdf

should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.

The following paragraph outlines the relationship between the planning process and the environmental permitting system

183 The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.

The following paragraphs recognise the impact of traffic on air quality and health and the benefits of sustainable transport modes.

102 Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:

- d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for mitigating any adverse effects and for net environmental gains;

103 The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making.

105 If setting local parking standards for residential and non-residential development, policies should take into account:

- a) the accessibility of the development;
- b) the type, mix and use of development;
- c) the availability of and opportunities for public transport;
- d) local car ownership levels; and
- e) the need to ensure an adequate provision of spaces for charging plug-in and other ultra-low emission vehicles.

3.2 National Planning Practice Guidance

National Planning Practice Guidance (NPPG)⁴ provides advice to planning authorities on implementing the NPPF, including guidance on how air quality can be considered as part of the planning process, stating that, “Local Plans may need to consider:

- the potential cumulative impact of a number of smaller developments on air quality as well as the effect of more substantial developments;
- the impact of point sources of air pollution (pollution that originates from one place); and,
- ways in which new development would be appropriate in locations where air quality is or likely to be a concern and not give rise to unacceptable risks from pollution. This could be through, for example, identifying measures for offsetting the impact on air quality arising from new development including supporting measures in an air quality action plan or low emissions strategy where applicable.

When deciding whether air quality is relevant to a planning application, considerations may include whether the development would:

- Significantly affect traffic in the immediate vicinity of the proposed development site or further afield. This could be by generating or increasing traffic congestion; significantly changing traffic volumes, vehicle speed or both; or significantly altering the traffic composition on local roads. Other matters to consider include whether the proposal involves the development of a bus station, coach or lorry park; adds to turnover in a large car park; or result in construction sites that would generate large Heavy Goods Vehicle flows over a period of a year or more.
- Introduce new point sources of air pollution. This could include furnaces which require prior notification to local authorities; or extraction systems (including chimneys) which require approval under pollution control legislation or biomass boilers or biomass-fuelled CHP plant; centralised boilers or CHP plant burning other fuels within or close to an air quality management area;
- Expose people to existing sources of air pollutants. This could be by building new homes, workplaces or other development in places with poor air quality.
- Give rise to potentially unacceptable impact (such as dust) during construction for nearby sensitive locations.”

⁴ <https://www.gov.uk/government/collections/planning-practice-guidance>

4 Local Plan

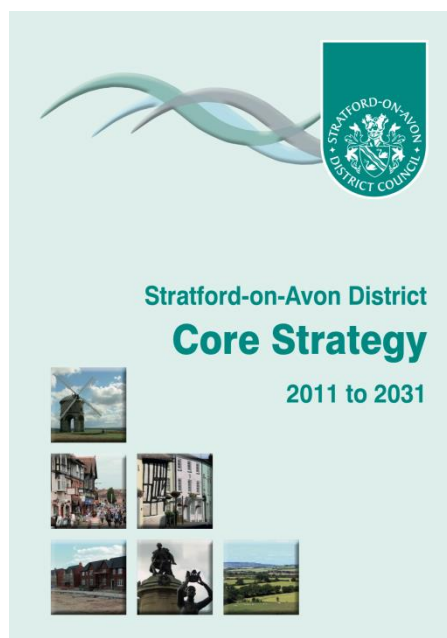
The Planning and Compulsory Purchase Act 2004, amended by the Localism Act 2011 requires planning authorities to prepare Local Plans. The Stratford on Avon District Council Core Strategy 2011 to 2031 includes the following policy:

Policy CS.26

Transport and Communications

A. Transport Strategy

Development proposals should be consistent with and contribute to the implementation of the transport strategies and priorities set out in the Warwickshire Local Transport Plan (LTP), including its area strategies. Stratford-on-Avon District Council, Warwickshire County Council and, where appropriate, Highways England, will work together to achieve the objectives and implement the proposals in the LTP, with particular emphasis on encouraging modal shift with greater use of more sustainable forms of transport and improving the safety of all road users.



B. Transport and New Development

Development will only be permitted if the necessary mitigation is provided against any unacceptable transport impacts which arise directly from that development. This will be achieved, as appropriate, through:

1. the submission of a Transport Statement or Assessment and the implementation of measures arising from it;
2. ensuring that the scale of traffic generated by the proposal is appropriate for the function and standard of the roads serving the area;
3. the implementation of necessary works to the highway;
4. contributions towards local public transport services and support for community transport initiatives;
5. the provision of new, and the improvement of existing, pedestrian and cycle routes;
6. the provision of a Travel Plan to promote sustainable travel patterns for work and education related trips;
7. entering into freight or bus quality partnerships; and
8. providing access to the rail network and the use of existing or potential railway sidings.

In addition, contributions towards strategic transport improvements and measures which mitigate the cumulative impacts of development will be sought through the Community Infrastructure Levy (see also Policy CS.27 Developer Contributions).

The Council will encourage the provision of electric charging points for low emission vehicles in new development as part of the transition to a low carbon economy (see also Policy CS.3 Sustainable Energy).

C. Parking Standards

Parking provision will reflect local circumstances and have regard to the need to promote sustainable transport outcomes. Development should not have excessive on-site parking but provision will need to be sufficient in relation to an individual scheme to avoid unacceptable impact on the amenity of the local area or highway safety.

The Council will publish guidance on parking standards to influence the levels of parking provided in new developments. This will be provided in a Development Requirements Supplementary Planning Document.

D. Transport Schemes

The Council will support the strategic transport schemes set out in the Infrastructure Delivery Plan, subject to the outcome of detailed assessment where appropriate.

Land will be safeguarded for these schemes as necessary and also for the possible reinstatement of the railway line southwards from Stratford railway station to Long Marston. There is a presumption against development that would prejudice the implementation of any individual scheme that is safeguarded to the extent to which it is shown on the Policies Map.

Schemes and initiatives that address local issues, such as community transport, road safety, parking, congestion and air quality, will be supported subject to assessment.

This guidance should be read in conjunction with the Council's emerging Development Requirements SPD⁵

5 Development Classification, Assessment and Mitigation

The assessment of air quality for relevant planning applications should follow a three-stage process:

1. Determining the classification of the development proposal;
2. Assessing and quantifying the impact on local air quality;
3. Determining the level of a mitigation required by the proposal to make the scheme acceptable.

⁵ <https://www.stratford.gov.uk/planning-regeneration/development-requirements-spd.cfm>

5.1 Stage 1 - Development Type Classification

The classification of developments is shown in tables 1 and 2. The assessment and mitigation of development proposals is shown in figure 1.

Table 1 – Air quality classification of developments

Scheme Type	Minor	Medium	Major
Threshold	Below threshold criteria for a Transport Assessment ⁶ or Travel Plan	Meets threshold criteria for a Transport Assessment or Travel Plan	Medium type developments which also trigger any of the following criteria: i) Where development is within or adjacent to an AQMA ⁷ ii) Where development requires an EIA ⁸ and air quality is to be considered iii) Where any of the criteria in table 2 are triggered
Assessment	None (other than for exposure)	None (other than for exposure)	Air Quality Assessment required including an evaluation of changes in emissions⁹
Mitigation	Type 1	Types 1 and 2	Types 1,2 and 3

The Department for Transport (DfT) threshold criteria for Transport Assessments (TA) can be found in **appendix 1**.

Table 2 – Additional Trigger Criteria for Major Developments

- Proposals in or near areas where sustained compliance with EU Limit Values may be at risk¹⁰
- Any development proposing a net increase of 100 or more parking spaces
- Any development that could increase the existing traffic flows on roads of > 10,000 AADT by 5% or more
- Any development that causes a change in LDV (cars and small vans) flows of:
 - more than 100 AADT within or adjacent to an AQMA or exceedance area
 - more than 500 AADT elsewhere
- Any developments that could increase traffic flows by 5% or more in road canyons (or creates a canyon) with > 5,000 AADT

⁶ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/263054/guidance-transport-assessment.pdf

⁷ EPUK and IAQM Guidance: Planning for Air Quality

⁸ <https://www.gov.uk/guidance/environmental-impact-assessment>

⁹ Assessment includes monetisation of the impacts arising from emission changes in line with Defra IGCB Damage Costs

¹⁰ Where current monitoring data shows NO₂ annual average concentrations of 36 µg/m³ or more

- Any development that causes a change in HDV flows (lorries, large vans and buses) of:
 - more than 25 AADT within or adjacent to an AQMA or exceedance area
 - more than 100 AADT elsewhere
- Proposals that could introduce or significantly alter congestion and includes the introduction of substantial road infrastructure changes
- Proposals that reduce average speeds by more than 10 km per hour
- Proposals that include additional HGV movements by more than 10% of total trips
- The construction, widening or repositioning of a road in the vicinity of sensitive receptors¹¹
- Where significant demolition and construction works are proposed¹²
- Where a centralised combustion unit of thermal input >300kWh is proposed
- All biomass boiler applications
- All stand-by/short-term power generation units regulated by the Environment Agency

5.2 Stage 2 - Air Quality Impact Assessment

MINOR and MEDIUM Classified Proposals

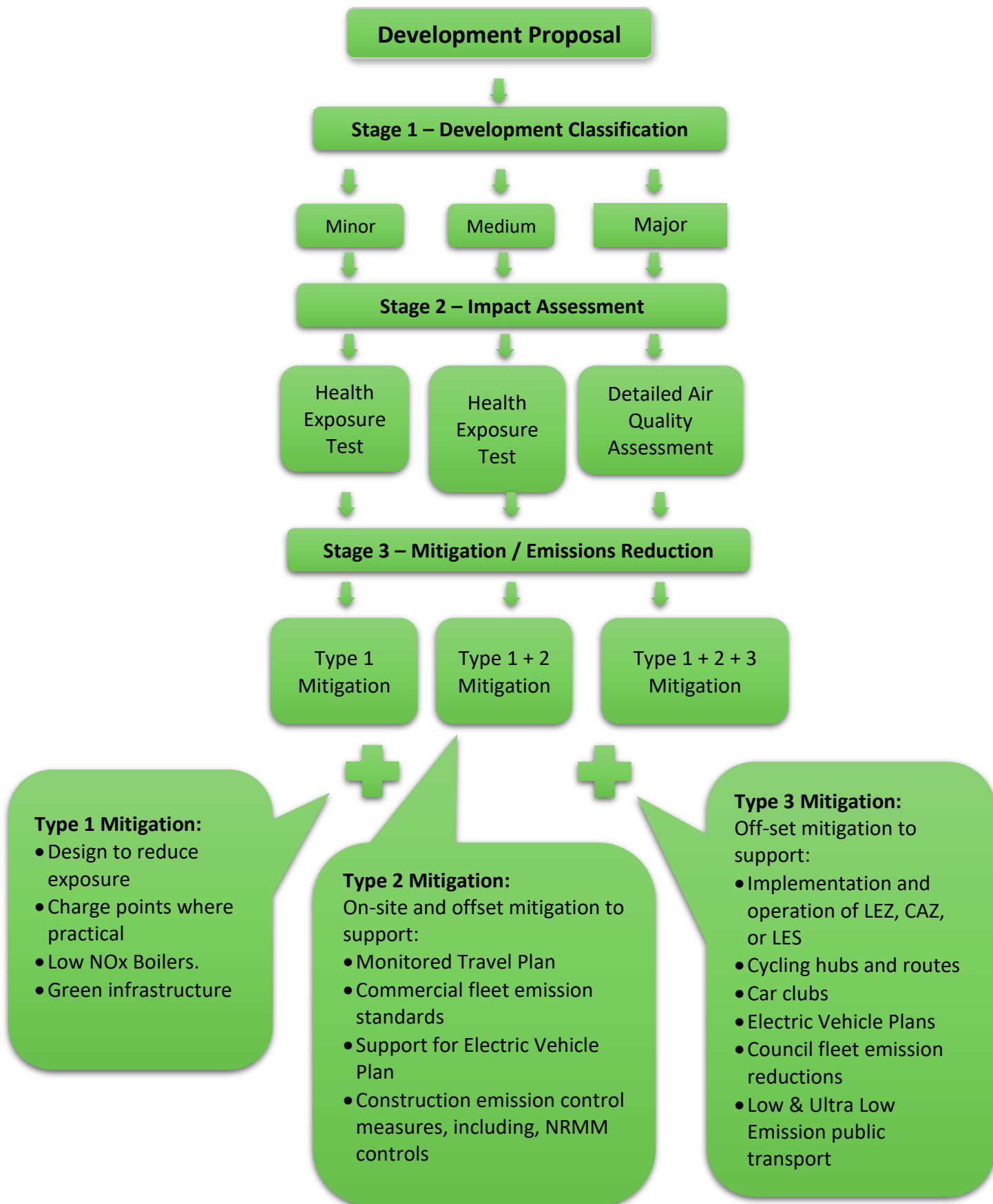
Smaller development proposals may not in themselves create an additional air quality problem but will add to local air pollution and potentially introduce more people likely to be exposed to existing levels of poor air quality. An assessment of the likelihood of introducing additional exposure will be determined using the following criteria:

- The proposal is adjacent to or within an AQMA;
- The proposal is sited less than 20m from roads at or above the relevant national objective highlighted on the DEFRA GIS modelled maps - <http://uk-air.defra.gov.uk/data/gis-mapping>
- The proposal is one of the Land Use types:
 - C1 to C3;
 - C4 (Homes of Multiple Occupation);
 - D1
 - and within 20m a of road with >10,000 AADT movements

¹¹ See section 5.2

¹² Significance determined by professional judgement based on scale of works and proximity of sensitive receptors

Figure 1 – Classification, assessment & mitigation of new developments



MAJOR Classified Proposals

It is important that all major schemes should identify suitable assessment requirements and potential mitigation through pre-application discussions.

The scale and nature of this type of proposal is such that a detailed air quality assessment will be required to determine the impact on public health and the local environment. The assessment requires:

- The identification of the level of exposure through the change in pollutant concentrations including cumulative impacts arising from the proposal, during both demolition/construction operations and operational phases. Mitigation measures should be identified and modelled where practicable.
- The calculation of pollutant emissions costs from the development.

A. The methodology to be used for the determination of pollutant concentration change should meet the requirements of the Department for the Environment, Food and Rural Affairs (DEFRA) Technical Guidance Note LAQM TG. (16)¹³. Further details of the air quality assessment requirements can be found in **appendix 2** and through the SDC Environmental Health Officers.

All Air Quality Assessments received will be assessed by the Council against the requirements of this Technical Guidance Note. If the requirements are not met, the Council may request that the applicant carries out the assessment again.

B. The pollutant emissions costs calculation will identify the damage costs associated with the proposal and will assist the Council in assessing the overall impacts on air quality arising from major developments. We **may** use the damage costs in considering the appropriate scale and kind of mitigation that is required to make certain major schemes acceptable in terms of air quality. The overall benefit of the scheme will be taken into account in taking decisions about whether proposals are acceptable. The calculation should utilise the most recent DEFRA Emissions Factor Toolkit¹⁴ to estimate the additional pollutant emissions from a proposed development and the latest DEFRA IGCB Air Quality Damage Costs for the specific pollutant of interest, to calculate the resultant damage cost¹⁵. The calculation process includes:

- Identifying the additional trips generated by the proposal (from the Transport Assessment);
- The emissions calculated for the pollutants of concern (NO_x and PM₁₀) [from the Emissions Factor Toolkit];
- The air quality damage costs calculation for the specific pollutant emissions (from DEFRA IGCB);
- The result is totalled for a five-year period to enable mitigation implementation. Where there are long development build out programmes, we may require the developer to consider a longer period than 5 years where construction activity is likely to be intensive.

¹³ <https://laqm.defra.gov.uk/technical-guidance/>

¹⁴ <https://laqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html>

¹⁵ <https://www.gov.uk/guidance/air-quality-economic-analysis>

The calculation is summarised below. Further information can be obtained from the SDC Environmental Health Officers. **Should there be no net increase in trips arising from a development scheme then the damage costs are zero.** Further information on damage costs can be found in **appendix 3**.

Road Transport Emission Increase = Σ[Estimated trip increase for 5 years X Emission rate per 10 km per vehicle type X Damage Costs]
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5.3 Stage 3 - Mitigation

Where mitigation is not integrated into a proposal, we will require this through planning conditions. The NPPF (paragraph 152) states that “where adequate mitigation measures are not possible, compensatory measures may be appropriate”. If on-site mitigation is not possible then SDC will seek compensation for the identified air quality impacts through a section 106 agreement or similar agreement.

Default mitigation measures are presented for each type of proposal that demonstrate a minimum requirement. This is not an exhaustive list but a suggested suite of measures and will be adapted for particular locations and needs identified by the Council. We welcome the opportunity to work with developers to devise innovative measures that will lead to improving local air quality.

Type 1 mitigation is listed in table 3 and Types 2 and 3 are listed in tables 4 and 5 respectively.

Due to elevated concentrations of particulate matter in the district, Medium and Major developments will be required to implement suitable abatement controls for the use of non-road mobile machinery (NRMM) – see table 6.

Type 1 Mitigation

Table 3 – Type 1 Mitigation

Plug-in Vehicle Re-Charging:

Residential:

1 charging point per unit (dwelling with dedicated parking) or 1 charging point per 10 spaces (unallocated parking) and ensure appropriate cabling is provided to enable increase in future provision

Commercial/Retail:

10% of parking spaces (32 amp or 7kW) which may be phased with 5% initial provision and the remainder at an agreed trigger level, plus additional cabling for future provision. At least 1 charging unit should be provided for every 10 disabled parking spaces. Where 50 parking spaces or more are provided then 1 rapid charging unit (43kW/50kW) per 50 spaces shall also be considered and parking time limited to a maximum of 1 hour for public access car parks.

Industrial:

10% of parking spaces which may be phased with 5% initial provision and the remainder at an agreed trigger level. At least 1 charging unit should be provided for every 10 disabled parking spaces. Where 50 parking spaces or more are provided then 1 rapid charging unit (43kW/50kW) per 50 spaces shall also be considered

All charging unit shall be installed where practical. Developers installing public charging points shall ensure that the National Charge Point Registry is updated

Low NOx heating and boilers (see section 5.5)

Code of Construction Practice

Construction Environmental Management Plan (CEMP) to be incorporated into MEDIUM and MAJOR developments and agreed with Council Officers, usually via the Discharge of Planning Conditions. This shall include NRMM controls (see table 6)

Green Infrastructure

Where it can be shown that such infrastructure will reduce exposure from air pollution

Type 2 Mitigation

The following tables provide a suite of measures to be considered where appropriate.

Table 4 – Type 2 Mitigation

- Monitored Travel Plan¹⁶
- Measures to support public transport infrastructure and promote use

¹⁶ Where the developer funds the monitoring of a travel plan

- Measures to support cycling and walking infrastructure, including segregated cycleways
- Measures to support an Electric Vehicle Plan(Emerging plan)
- Designated parking spaces and differentiated parking charges for low emission vehicles
- Non-road mobile machinery (NRMM) controls for built up areas (see table 6)

Commercial development specific:

- Use reasonable endeavors to use/require vehicle use complying with the latest European Emission Standard
- Provide a fleet emission reduction strategy/Low Emission Strategy, including low emission fuels and technologies, including ultra-low emission service vehicles

Type 3 Mitigation

Table 5 – Type 3 Mitigation

Off-set mitigation to support:

- Implementation and operation of Air Quality Action Plans (AQMA)emerging Low Emission Strategies (LES) or electric vehicle strategies(EVS)
- Growth in low and ultra-low emission public transport, including buses
- Electric Vehicle Plans
- Car clubs (including electric) and car sharing schemes
- Cycling Hubs and corridors, including bike and e-bike hire
- Secure cycle storage both on and off site
- Plugged-in development and demonstration schemes eg new occupants given demonstration use of plug-in vehicles
- Low emission waste collection services
- Infrastructure for low emission, alternative fuels eg. refuse collection and community transport services
- Electricity sub-station capable of supporting electric vehicle provision(future proofing)

Further information on the suitability of mitigation for developments can be obtained from the Council Environmental Health Team and through pre-application discussions.

Table 6 – Non-Road Mobile Machinery (NRMM) Controls

NRMM of net power between 37kW and 560kW will be required to meet the standards based upon the engine emissions standards in EU Directive 97/68/EC and its subsequent amendments. This will apply to both variable and constant speed engines for both NOx and PM. These standards are:

- NRMM used on the site of any MEDIUM classified development in the built-up areas will be required to meet Stage IIIA of the Directive as a minimum.
- NRMM used on any MAJOR classified development in the built-up areas will be required to meet Stage IIIB of the Directive as a minimum.

From 1 September 2020 the following changes will apply:

- (a) NRMM used on any construction or demolition site within the built-up areas will be required to meet Stage IIIB of the Directive as a minimum.
- (b) NRMM used on any MEDIUM or MAJOR classified development in the built-up areas will be required to meet Stage IV of the Directive as a minimum.

The requirements may be met using the following techniques;

(a) Reorganisation of NRMM fleet (b) Replacing equipment (with new or second-hand equipment which meets the policy) (c) Retrofit abatement technologies (d) Re-engineing.

All eligible NRMM should meet the standards above unless it can be demonstrated that the machinery is not available or that a comprehensive retrofit to meet both PM and NOx emission standards is not feasible.

5.4 Assessing the acceptability of a scheme

We will determine the acceptability of a scheme and its location based on the outcome of the air quality assessment and the provision of on-site and/or off-set mitigation.

While applicants may present evidence as to the significance of scheme impacts or the impact of air quality on a scheme, we reserve the right to determine the acceptability of an application based on local air quality knowledge and the cumulative impacts of schemes.

Failure to meet the requirements in this guidance may result in the application being delayed as Stratford District Council may request extra information, amendments or conditions to the application. If the issues remain, planning permission will not normally be granted

5.5 Specific Issues

5.51 Heating & Power

Minimum emission standards that are outlined below should be applied where relevant.

Heating plant on developments outside of the built-up areas:-

- Individual gas fired boiler <40mgNO_x/kWh
- Spark ignition engine 250mgNO_x/Nm³
- Compression ignition engine 400mgNO_x/Nm³
- Gas turbine 50mgNO_x/Nm³

Heating plant on developments in the built-up areas:-

- Individual gas fired boiler <40mgNO_x/kWh
- Spark ignition engine 95mgNO_x/Nm³
- Compression ignition engine 400mgNO_x/Nm³
- Gas turbine 20mgNO_x/Nm³

It should be noted that all plant permitted under the Pollution Prevention and Control Act 1999 and the Environmental Permitting Regulations 2016 (as amended), including CHP plant 20 MW_{th} input or above, will need to comply with the emission standards set through the permitting process and the planning system cannot set alternative standards. This means that, based on the permitted emissions of such plant, the Council will need to decide whether such schemes are an acceptable use of the application site depending on their impact on air quality.

5.52 Biomass boilers

Biomass boiler provision has increased over recent years, supported by the financial benefits of the Government's Renewal Heat Incentive (RHI)¹⁷. However, the emissions from biomass plant can lead to significant emissions of NO_x and PM, even from relatively small plant.

All biomass boiler plant applications will require a full air quality assessment to be submitted and will be resisted in our built-up areas unless mitigation is provided so that emissions of NO_x and PM that are capable of achieving the following standards:

Solid biomass boiler (< 1 MW thermal input) NO_x 180mgNm³ / PM 5mgNm³

Solid biomass boiler (>=> 1 MW thermal input) NO_x 125 mgNm³ / PM 5mgNm³

[Note – these standards are provided in the Mayor for London's Sustainable Design and Construction SPG 2014 – they are for Band B areas ie exceedance areas – in Band A areas it states NO_x 275 mgNm³ & PM 25 mg/Nm³. It should be remembered that our knowledge of biomass boilers / CHP emissions has increased quite a lot since 2014. The Band B figures are marginally tighter than the Dutch BEMS emission limits for CHP which came into force for new plant in 2010 and existing plant in 2017]

These standards can be achieved through the use of fabric or ceramic filters.

5.53 Standby / back-up power generation

All standby/back-up power generation applications, including schemes regulated by the Environment Agency, will require a full air quality assessment to assess the acceptability of the site for such a scheme.

We expect all such assessments to include reasoning as to whether gas powered generation can be utilised in the first instance eg. identify the provision of suitable gas mains in the vicinity.

¹⁷ http://www.energysavingtrust.org.uk/scotland/grants-loans/renewables/renewable-heat-incentive?gclid=EAlaIqobChMI_ZiY2Z7Q2gIVgbHtCh0dwxgCEAAAYASABEgKGgvD_BwE

Any diesel-powered generators will be required to incorporate abatement equipment such as selective catalytic reduction and particulate trap (SCRT) and demonstrate that they don't add to the problem.

5.54 Permitting under the Pollution Prevention and Control Act 1999 and the Environmental Permitting Regulations 2016 (as amended)

Industrial processes which may range from large industrial plant to dry cleaners and paint spraying workshops, are regulated by the Environment Agency (Part A1 processes) and the District Council (Part A2 and Part B processes). The planning regime must assume that the permitting regime will ensure the processes comply with their permits and the Act. The planning regime can, however consider whether a land use is appropriate and it must consider the exposure to pollutants.

All Part A and B Process developments requiring planning applications and where NO_x and PM emissions are relevant will be required to carry out a detailed air quality assessment

5.55 Mechanical Ventilation

Air quality concentrations may affect the suitability of certain locations for sensitive developments and this should be assessed in line with section 5.2.

Some applications in areas of poor air quality have proposed mechanical ventilation as a solution to overcoming potential exposure to poor air quality. This may involve sealed windows / triple glazing with trickle vents and a forced ventilation system, incorporating filters to remove pollutants.

Not only do such schemes increase the energy requirements of developments but also provide a questionable living space in what is essentially a 'hermetically sealed unit' and should not normally be seen as an accepted solution to mitigating against exposure, particularly where mechanical failure would make the situation even worse.

Any sensitive development in an area of pollutant exceedance should incorporate the following considerations:

- The sensitive development should be at least 20m from the curb, with the alignment of living space to afford further separation from a pollutant source
- Take account of the height separation of living accommodation from a road source eg can residential dwellings be provided from floors 2 / 3 upwards with commercial premises at lower levels
- The use of green infrastructure to provide a barrier to an adjacent pollution source (see 5.56)
- The projected length of time that the sensitive dwelling will be exposed to elevated pollution levels from scheme completion
- Reduce the potential for internal pollution, for example by replacing gas cooking with electric cooking provision

- Provision of monitoring data to support applications for sensitive developments. This requirement should be agreed with the Council Air Quality Team prior to commencement of monitoring

Where the above considerations cannot achieve acceptable exposure for a sensitive development then consideration should be given to the refusal of the scheme.

5.56 Green Infrastructure

Plants and trees may provide an aesthetically pleasing aspect to a scheme and may also be used to provide a barrier from a pollutant source such as a trafficked road.

While there is conflicting evidence as to whether green infrastructure can help reduce concentrations of NO₂, it is acknowledged that certain types of shrubs and trees are effective at removing particulates from the atmosphere.

For example, a living wall or a framework for climbing plants may offer some protection between a pollution source such as a road and a dwelling. Additionally, certain types of trees such as varieties of pine, planted between a road and residential accommodation may help reduce exposure to particulates.

Careful consideration is needed as to the type of green infrastructure to be used as certain tree species can produce their own emissions which may exacerbate air pollution.

5.57 Section 106 Agreements and the Community Infrastructure Levy (CIL)

Stratford-on-Avon Council has adopted the Community Infrastructure Levy (CIL) and our CIL User Guide¹⁸ can be found on the Council website.

Subject to the rules on pooling, we will seek Section 106 Agreements (Town and Country Planning Act 1990) and other relevant obligations with developers to secure mitigation, including off-set, on larger schemes (Medium and Major), where appropriate, to make the scheme acceptable.

We will not seek Section 106 Agreements for mitigation that is included in our Regulation 123 list. The Council's Development Requirements SPD will assist with both developers and stakeholders to understand what types of infrastructure will still require planning obligations and how these obligations will be sought.

Section 106 Agreements will only be sought where the following legal tests are satisfied:

- necessary to make the development acceptable in planning terms
- directly related to the development; and
- fairly and reasonably related in scale and kind to the development.

Additionally, Section 106 Agreements must also satisfy the policy tests in the NPPF, paragraph 203.

Appendix 1

Department for Transport Criteria for Transport Assessments (now archived¹⁹)

Land Use	Description	TA Required
Food Retail (A1)	Retail sale of food goods to the public – supermarkets, superstore, convenience food store	>800 m ²
Non-Food Retail (A1)	Retail sale of non-food goods to the public; but includes sandwich bars or other cold food purchased and consumed off site	>1500 m ²
Financial and professional services (A2)	Banks, building societies and bureaux de change, professional services, estate agents, employment agencies, betting shops.	>2500 m ²
Restaurants and Cafes (A3)	Use for the sale of food for consumption on the premises.	>2500 m ²
Drinking Establishments (A4)	Use as a public house, wine-bar for consumption on or off the premises.	>600 m ²
Hot Food Takeaway (A5)	Use for the sale of hot food for consumption on or off the premises.	>500 m ²
Business (B1)	(a) Offices other than in use within Class A2 (financial & professional). (b) Research & development – laboratories, studios. (c) Light industry	>2500 m ²
General industrial (B2)	General industry (other than B1).	>4000 m ²
Storage or Distribution (B8)	Storage or distribution centres – wholesale warehouses, distribution centres & repositories.	>5000 m ²
Hotels (C1)	Hotels, boarding houses & guest houses	>100 bedrooms
Residential Institutions (C2)	Hospitals, nursing homes used for residential accommodation and care.	>50 beds
Residential Institutions (C2)	Boarding schools and training centres	>150 students
Residential institutions (C2)	Institutional hostels, homeless centres.	>400 residents
Dwelling Houses (C3)	Dwellings for individuals, families or not more than six people in a single household.	>80 units
Non-Residential Institutions (D1)	Medical & health services, museums, public libraries, art galleries, non-residential education, places of worship and church halls.	>1000 m ²
Assembly and Leisure (D2)	Cinemas, dance & concert halls, sports halls, swimming, skating, gym, bingo, and other facilities not involving motorised vehicles or firearms.	>1500 m ²
Other		
1. Any development generating 30 or more two-way vehicle movements in any hour		
2. Any developments generating 100 or more two-way vehicle movements per day		
3. Any development proposing 100 or more parking spaces		
4. Any development generating significant freight or HGV movements per day, or significant abnormal loads per day		
5. Any development proposed in a location where the local transport infrastructure is inadequate		
6. Any development proposed in a location within or adjacent to an Air Quality Management Area (AQMA)		

Appendix 2

Air Quality Assessment Protocol to Determine the Impact of Vehicle Emissions from Development Proposals

An air quality assessment should clearly establish the likely change in pollutant concentrations at relevant receptors resulting from the proposed development during both the construction and operational phases. It must take into account the cumulative air quality impacts of committed developments (i.e. those with planning permission).

An air quality assessment should consider NO_x and PM emissions and NO₂ and PM concentrations

Key Components of an Air Quality Assessment

The assessment will require dispersion modelling utilising agreed monitoring data, traffic data and meteorological data. The modelling should be undertaken using recognised, verified local scale models by technically competent personnel and in accordance with LAQM TG.16. The study will comprise of:

1. The assessment of the existing air quality in the study area for the baseline year with agreed receptor points and validation of any dispersion model;
2. The prediction of future air quality without the development in place (future baseline or do-nothing);
3. The prediction of future emissions and air quality with the development in place (with development or do-something).
4. The prediction of future emissions and air quality with the development (with development or do-something) and with identified mitigation measures in place.

The assessment report should include the following details:

- A. A detailed description of the proposed development, including:
 - Identify any on-site sources of pollutants;
 - Overview of the expected traffic changes;
 - The sensitivity of the area in terms of objective concentrations;
 - Local receptors likely to be exposed;
 - Pollutants to be considered and those scoped out of the process.
- B. The relevant planning and other policy context for the assessment.
- C. Description of the relevant air quality standards and objectives.
- D. The assessment method details including model, input data and assumptions:
 - For traffic assessment;
 - Traffic data used for the assessment;
 - Emission data source;
 - Meteorological data source and representation of area;
 - Baseline pollutant concentration including any monitoring undertaken;

- Background pollutant concentration;
- Choice of base year;
- Basis for NO_x:NO₂ calculations;
- A modelling sensitivity test for future emissions with and without reductions;

For point source assessments:

- Type of plant;
- Source of emission data and emission assumptions;
- Stack parameters – height, diameter, emission velocity and exit temperature;
- Meteorological data source and representation of area;
- Baseline pollutant concentrations;
- Background pollutant concentrations;
- Choice of baseline year;
- Basis for deriving NO₂ from NO_x.

E. Model verification for all traffic modelling following DEFRA guidance LAQM.TG (16):

F. Identification of sensitive locations:

G. Description of baseline conditions:

H. Description of demolition/construction phase impacts:

I. Summary of the assessment results:

- Impacts during the demolition/construction phase;
- Impacts during the operation phase;
- The estimated emissions change of local air pollutants;
- Identified breach or worsening of exceedences of objectives (geographical extent)
- Whether Air Quality Action Plan is compromised;
- Apparent conflicts with planning policy and how they will be mitigated.
- Uncertainties, errors and verification

J. Mitigation measures.

Air Quality Monitoring

In some case it will be appropriate to carry out a short period of air quality monitoring as part of the assessment work. This will help where new exposure is proposed in a location with complex road layout and/or topography, which will be difficult to model or where no data is available to verify the model. Monitoring should be undertaken for a minimum of six months using agreed techniques and locations with any adjustments made following Defra technical guidance LAQM.TG (16).

Assessing Demolition/Construction Impacts

The demolition and construction phases of development proposals can lead to both nuisance dust and elevated fine particulate (PM₁₀ and PM_{2.5}) concentrations. Modelling is not appropriate for this type of assessment, as emission rates vary depending on a combination of the construction activity and meteorological conditions, which cannot be reliably predicted. The assessment should focus on the distance and duration over which there is a risk that impacts may occur. The Institute of Air Quality Management (IAQM)²⁰ has produced a number of documents to which this guidance refers. The document `Guidance

on the Assessment of the Impacts of Construction on Air Quality and the Determination of their Significance’ should be the reference for reporting the construction assessment.

²⁰ www.iaqm.co.uk

Cumulative Impacts

The NPPF (paragraph 124) recognises that a number of individual development proposals within close proximity of each other require planning policies and decisions to consider the cumulative impact of them. Difficulties arise when developments are permitted sequentially, with each individually having only a relatively low polluting potential, but which cumulatively result in a significant worsening of air quality. This will occur where:

- A single large site is divided up into a series of units, such as an industrial estate or retail park;
- A major development is broken down into a series of smaller planning applications for administrative ease; and
- There are cumulative air quality impacts from a series of unrelated developments in the same area.

The first two cases the cumulative impact will be addressed by the likelihood that a single developer will bring forward an outline application for the whole site which should include an air quality assessment as part of an Environmental Assessment. For major developments that are broken down into a series of smaller planning applications, the use of a ‘Master or Parameter Plan’ that includes an air quality assessment will address the cumulative impact.

Appendix 3 – Damage Costs: calculations and example

Damage costs are the costs to society (mainly health) per tonne of pollutant emitted. They provide an easy reckoning of the monetised value of changes in pollution. The Government publishes damage costs for NO_x and PM and also provides an Emission Factor Toolkit to allow the calculation of the emissions from schemes over the coming years.

Applicants calculating damage costs should incorporate the following:

- The most recent version of the Emission Factor Toolkit
- Both NO_x and PM to be considered
- Appropriate HGV % traffic split to be used
- Traffic speed of 30km / hour to be used
- The appropriate damage cost category as advised by the Council Air Quality Team

The following example outlines the damage cost calculation process for an urban mixed-use development outside London, to be operational in 2019, including residential development in 2 blocks and a hotel. The trip generation for the residential scheme is low due to less than 50% parking level per dwelling, including 25% provision of electric vehicle charging points (and a further 25% potential) and cycle stores. The hotel scheme includes 100+ space parking provision. Service deliveries to both the residential and hotel scheme are also considered.

The scheme is categorised as ‘outer conurbation (not London)’ for damage costs.

Step 1 – Using the trip increase for each aspect of the scheme calculate the annual emissions of NOx and PM (in tonnes) for each of the 5 years from opening

	Projected yearly emissions (Defra Emission Factor Toolkit v8)				
	2019	2020	2021	2022	2023
Residential NOx	129.73952	120.58516	110.44020	100.85574	92.75155
Residential PM	11.50558	11.31002	11.17497	11.06880	10.98908
Hotel NOx	506.79502	471.03580	431.40703	393.96773	362.31073
Hotel PM	44.94366	44.17977	43.65224	43.23749	42.92610
Deliveries NOx	477.56736	409.78076	347.56394	296.07882	256.18598
Deliveries PM	32.62307	31.71858	30.96677	30.38716	29.94013
Total NOx (kg)	1,114.1019	1,001.4017	889.41117	790.90229	711.24826
Total PM (kg)	98.07231	87.20837	85.79398	84.69345	83.85531
Total NOx (t)	1.1141019	1.0014017	0.8894111	0.7909022	0.7112482
Total PM (t)	0.0980723	0.0872083	0.0857939	0.0846934	0.0838553

Step 2 – Using the selected damage cost category, uplift the 2015 prices provided by the IGCB by 2% per annum to reflect the correct cost in each of the first 5 years from opening

	Price per tonne of pollutant in projected years (Defra IGCB)					
	2015 price/tonne	2019	2020	2021	2022	2023
NOx	£31,776	£34,395	£35,083	£35,784	£36,500	£37,230
PM	£87,770	£95,003	£96,903	£98,841	£100,817	£102,833

Step 3 – Multiply the tonnage of emissions for each pollutant by the damage cost price for each year. Provide a cumulative total for 5 years

	Damage Costs				
	2019 (year 1)	2020	2021	2022	2023 (year 5)
NOx	£38,319	£35,132	£31,826	£28,867	£26,479
PM	£9,317	£8,450	£8,479	£8,538	£8,623
Totals (cumulative)	£47,636	£91,218	£131,523	£168,928	£204,030