

Nuneaton and Bedworth Borough Council

# Supplementary Planning

## Document:

# Air Quality

2020



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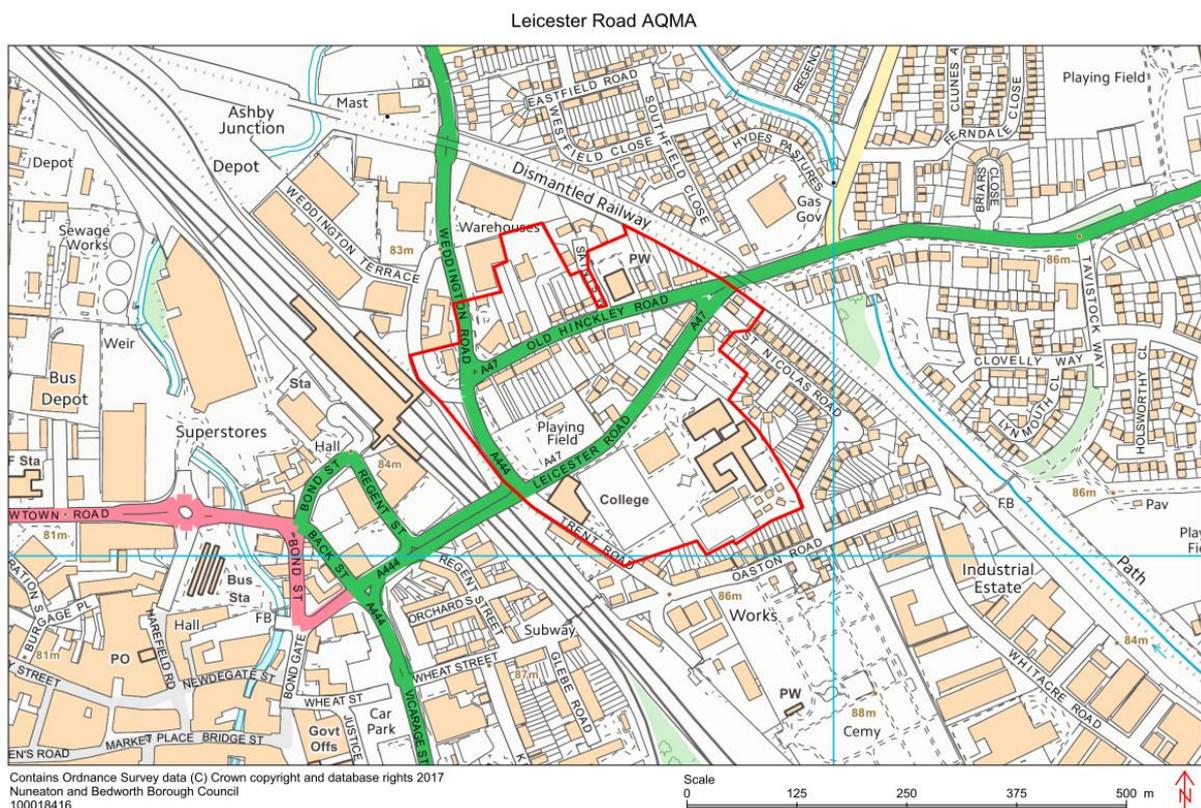
# 1 Purpose of the guidance

- 1.1 Nuneaton and Bedworth Borough 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. This guidance is designed to support measures to mitigate against and improve air quality impacts on new developments. It has been developed in co-operation between Coventry City Council, Coventry & Warwickshire Public Health, Nuneaton and Bedworth Borough Council, North Warwickshire Borough Council, Rugby Borough Council, Stratford District Council and Warwick District Council.
- 1.2 Air quality is a material consideration that planners are required to take into account when making plans and when making planning decisions. This guidance aims to simplify the consideration of air quality impacts associated with development schemes and focus on incorporation of mitigation at the design stage, countering the cumulative impacts of aggregated developments, providing clarity to developers and defining 'sustainability' in air quality terms.
- 1.3 The objectives of this guidance document are:
- to improve the consideration of air quality and 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 Borough;
  - 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

- 2.1 The Council has designated two air quality management areas (AQMA), the Leicester Road Gyratory, Nuneaton (AQMA 1) and Midland Road to Corporation Street, Nuneaton (AQMA 2), due to annual average concentrations of nitrogen dioxide (NO<sub>2</sub>). The AQMAs are shown in Figure 1 – Leicester Road Gyratory Air Quality Management Area (AQMA 1) and Figure 2 – Midlands Road to Corporation Street Air Quality Management Area (AQMA 2). There is a Coventry city-wide AQMA adjoining the Borough Boundary which was also designated due to levels of nitrogen dioxide.
- 2.2 The Council adopted an Air Quality Action Plan (AQAP) in 2011 that can be found on the Council website<sup>1</sup>. As part of the evidence base to the Borough Plan, an Air Quality Assessment was undertaken and published in 2017 and is also available on the website<sup>2</sup>.

**Figure 1 – Leicester Road Gyratory Air Quality Management Area (AQMA 1)**

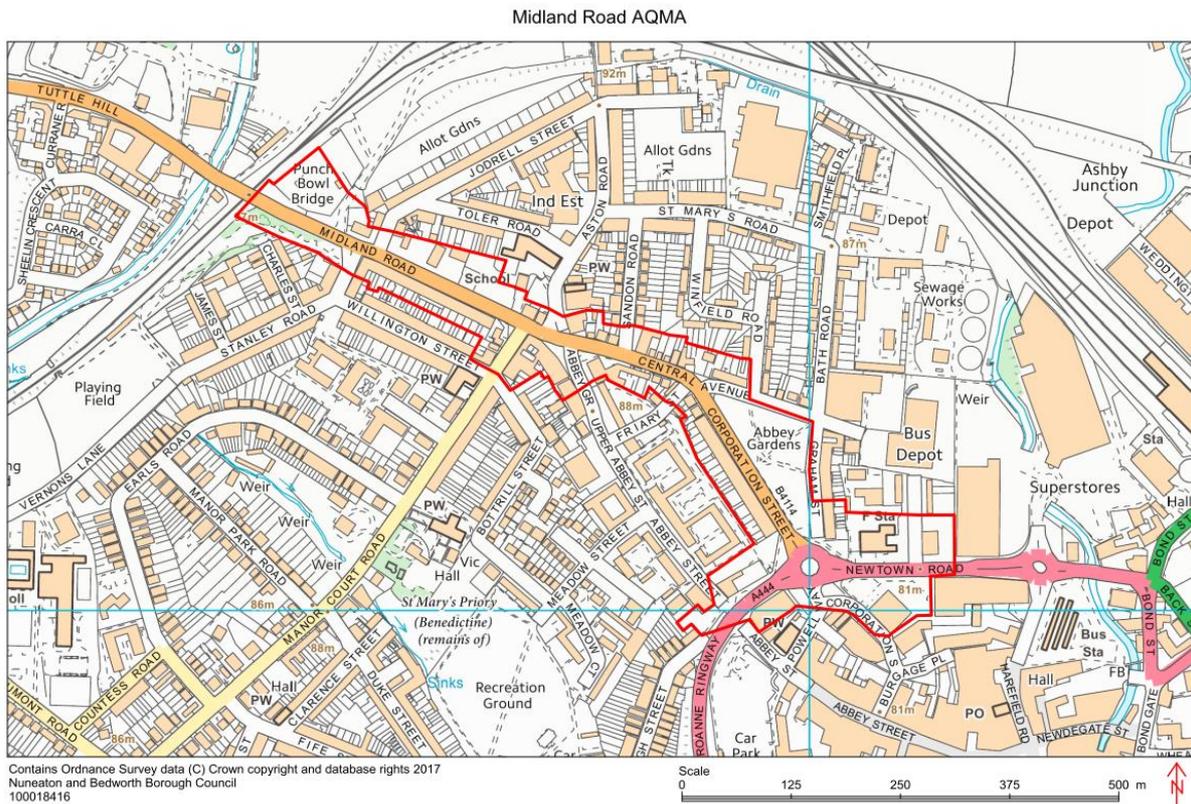


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[www.nuneatonandbedworth.gov.uk/downloads/file/2521/nuneaton-and-bedworth-air-quality-action-plan](http://www.nuneatonandbedworth.gov.uk/downloads/file/2521/nuneaton-and-bedworth-air-quality-action-plan)

2 [www.nuneatonandbedworth.gov.uk/downloads/file/1412/g5-air-quality-assessment-updated-2016](http://www.nuneatonandbedworth.gov.uk/downloads/file/1412/g5-air-quality-assessment-updated-2016)

**Figure 2 – Midlands Road to Corporation Street Air Quality Management Area (AQMA 2)**



2.3 While levels of particulate matter (PM<sub>10</sub>) in Nuneaton and Bedworth do not breach Air Quality Objectives, it is acknowledged that fine particulate matter (PM<sub>2.5</sub>) may have a significant impact on health across the Borough. It is estimated that approximately 1 in 20 deaths can be attributed to the long-term exposure of PM<sub>2.5</sub> concentrations, accounting for 64 deaths<sup>3</sup> (over 25s) and 676 associated life-years lost in 2010<sup>4</sup>.

<sup>3</sup> Long term exposure to anthropogenic particulate air pollution is estimated to have an effect on mortality risks equivalent to the number of attributable deaths. Air pollution is likely to contribute a small amount to the deaths of a larger number of exposed individuals rather than being solely responsible for the number of deaths equivalent to the calculated figure of attributable deaths.

<sup>4</sup> Estimating local mortality burdens associated with particulate air pollution, (Gowers, Miller and Stedman, 2014) [www.gov.uk/government/publications/estimating-local-mortality-burdens-associated-with-particulate-air-pollution](http://www.gov.uk/government/publications/estimating-local-mortality-burdens-associated-with-particulate-air-pollution)

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

## 3 National Policy & Practice

### National Planning Policy Framework

- 3.1 National planning policy is set by the National Planning Policy Framework (NPPF) (2019)<sup>5</sup>. The NPPF places a general presumption in favour of sustainable development (paragraph 11).

- 3.2 Chapter 15 focuses on conserving and enhancing the natural environment. Air quality is a material consideration in the planning process. The paragraphs corresponding to pollution are listed below:

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, taking into account relevant information such as river basin management plans;

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.

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[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/6077/2116950.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf)

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.

- 3.3 There are also references to air quality within chapter 9 ‘promoting sustainable transport’ that recognises the impact of traffic on air quality and health and the benefits of sustainable transport modes. These are identified in the following paragraphs:

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 avoiding and 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.

## Planning Practice Guidance

- 3.4 The Planning Practice Guidance (PPG)<sup>6</sup> provides advice to planning authorities on implementing the NPPF, including guidance on how air

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<sup>6</sup> [www.gov.uk/government/collections/planning-practice-guidance](http://www.gov.uk/government/collections/planning-practice-guidance)

quality can be considered as part of the planning process, from reference ID 32-001-20140306 to 32-009-20140306<sup>7</sup>.

3.5 At PPG paragraph 2<sup>8</sup> it states “Local Plans can affect air quality in a number of ways, including through what development is proposed and where, and the encouragement given to sustainable transport. Therefore in plan making, it is important to take into account air quality management areas and other areas where there could be specific requirements or limitations on new development because of air quality...”

3.6 Further to the above it also states that, “the Local Plan 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.”

3.7 At PPG paragraph 5<sup>9</sup> it states, “When deciding whether air quality is relevant to a planning application, considerations could 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.

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<sup>7</sup> [www.gov.uk/guidance/air-quality--3](http://www.gov.uk/guidance/air-quality--3)

<sup>8</sup> Reference ID: 32-002-20140306

<sup>9</sup> Reference ID: 32-005-20140306

- 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 combined heat and power (CHP) plant; centralised boilers or CHP plant burning other fuels within or close to an air quality management area or introduce relevant combustion within a Smoke Control 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.
- Affect biodiversity. In particular, is it likely to result in deposition or concentration of pollutants that significantly affect a European-designated wildlife site, and is not directly connected with or necessary to the management of the site, or does it otherwise affect biodiversity, particularly designated wildlife sites."

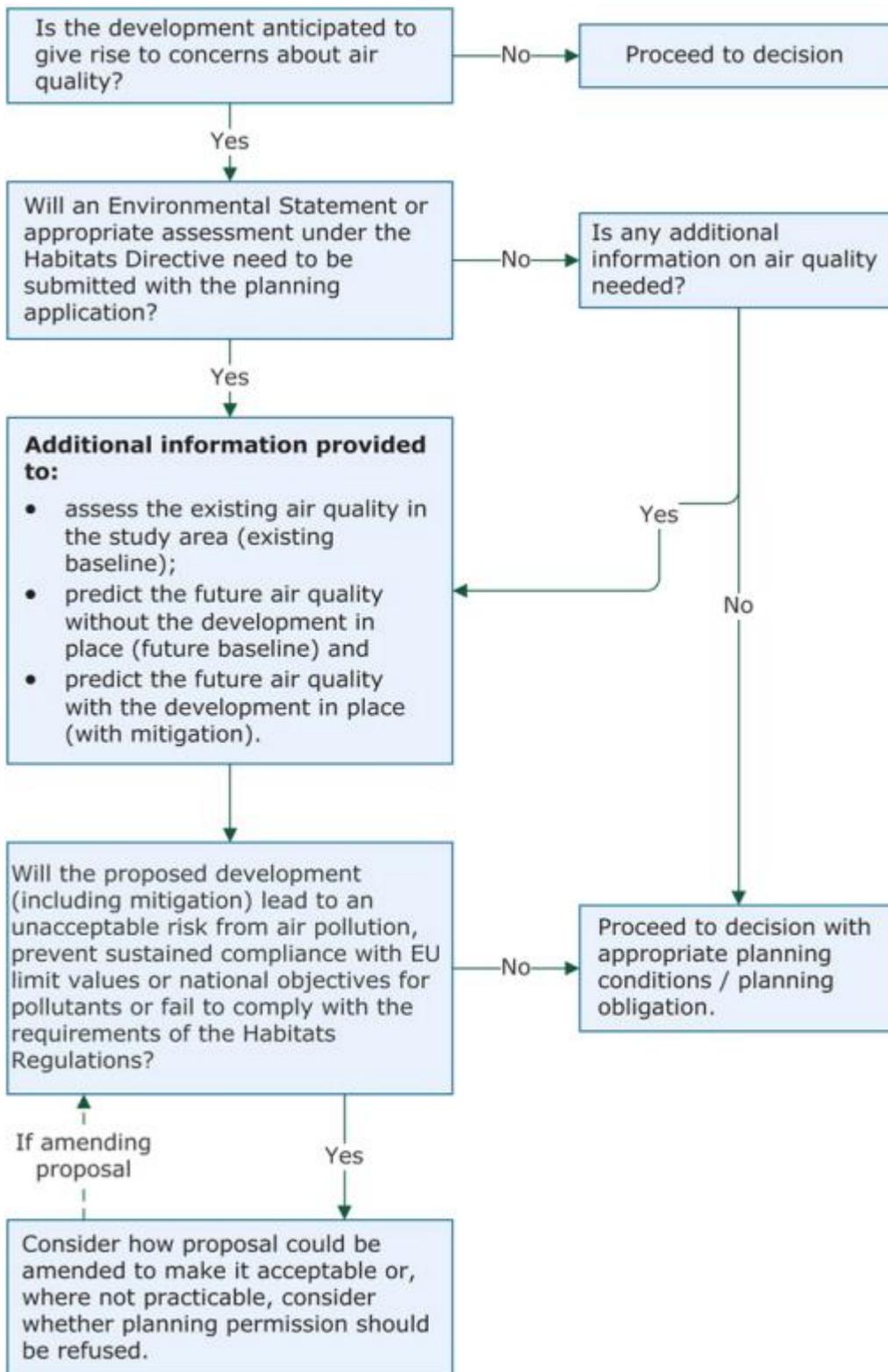
3.8 The steps a local planning authority might take in considering air quality are set out in the flow diagram in Figure 3 - Air quality in the development management process flowchart overleaf (PPG paragraph 9<sup>10</sup>).

3.9 The PPG states that where a planning proposal, including mitigation, prevents sustained compliance with EU Limit Values or National Objectives for air quality and cannot be made acceptable then refusal of planning permission should be considered.

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<sup>10</sup> Reference ID: 32-009-20140306

Figure 3 - Air quality in the development management process flowchart



## 4 Local Plan

- 4.1 The Planning and Compulsory Purchase Act 2004, amended by the Localism Act 2011, requires planning authorities to prepare Local Plans. The Nuneaton and Bedworth Borough Plan 2011- 2031 includes policies that relate to sustainable transport and air quality:

### Policy HS2 – Strategic Accessibility and Sustainable Transport

Transport proposals in line with those identified in the Coventry and Warwickshire Local Enterprise Partnership Strategic Economic Plan and Warwickshire County Council Local Transport Plan (2011-2026) will be approved.

Where a development is likely to have transport implications, planning applications are required to clearly demonstrate how the following issues are addressed:

- a) How the development ensures adequate accessibility in relation to all principal modes of transport.
- b) Whether the development identifies suitable demand management measures.
- c) The impact on Air Quality and measures proposed to ensure impact is not exacerbated.
- d) The connectivity of the development to strategic facilities.
- e) How the development delivers sustainable transport options in a safe way that link to the wider transport network.
- f) Whether the proposal will meet acceptable levels of impact on existing highways networks and the mitigation measures required to meet this acceptable level.

Proposals should target a 15% modal shift to non-car based uses by including provisions which promote more sustainable transport options.

The council supports the provision and integration of emerging and future intelligent mobility infrastructure that may help to deal with the issue of air quality, such as including electric vehicle charging points. Proposals must consider how they accord with the Supplementary Planning Documents Transport Demand Management Matters and Air Quality.

## Policy BE3 – Sustainable Design and Construction

Development proposals must be:

- a) Designed to a high standard.
- b) Able to accommodate the changing needs of occupants.
- c) Adaptable to, and minimise the impact of climate change.

### Urban Character

All development proposals must contribute to local distinctiveness and character by reflecting the positive attributes of the neighbouring area, respecting the sensitivity to change of the generic character types within each urban character area. Key characteristics to review include:

- Current use of buildings.
- Ownership/tenure.
- Street layout.
- Patterns of development.
- Residential amenity.
- Plot size and arrangement.
- Built form.

### Residential

Major development proposals must provide a statement with their application showing how their proposal will:

- Meet all the questions set out in the Buildings for Life 12 standard. Where it is not possible to positively meet all 12 questions a statement of justification must be provided to explain why it is not possible and what mitigation measures will take place to offset this.
- Meet the optional Building Regulations requirement M4(2) for 'accessible and adaptable dwellings' for 35% of the development proposal.
- Install rain water harvesting systems in the curtilage of all new buildings.
- Integrate the principles of Passive Solar Design.
- Contribute to reducing crime and fear of crime by meeting the principles of Secured By Design.
- Minimise the potential for pollution of air, soil, noise and light, and in particular must not contribute to unacceptable levels of air pollution.

Where a developer considers meeting any of the above requirements is unviable or can demonstrate that they are not suited to local circumstances, an independent viability assessment must be submitted with the application.

### Commercial

Major non-domestic development proposals must meet the BREEAM very good standard for new construction projects using the most up to date New Construction version of BREEAM, where technically and financially

feasible. Where assessment methods are changed or superseded, the appropriate replacement standards will be used.

### **Sustainable Construction**

Development must minimise or reuse waste generated during the construction phase. This should be done by using materials and construction techniques that generate the least waste and minimise emissions. Waste should be treated as a resource to be re-used, recycled or recovered and should only be disposed of when all other options have been explored.

On-site management of waste will be preferred unless the activities would result in unacceptable harm through impacts on the environment, transport or on neighbouring uses or that management elsewhere would have wider sustainability benefits.

### **Supplementary Planning Documents**

Detailed information to help developers comply with this policy will be set out in the Sustainable Design and Construction SPD.

- 4.2 This SPD should be read in conjunction with other Council SPDs and wider policies that are available on the Council's website<sup>11</sup>.

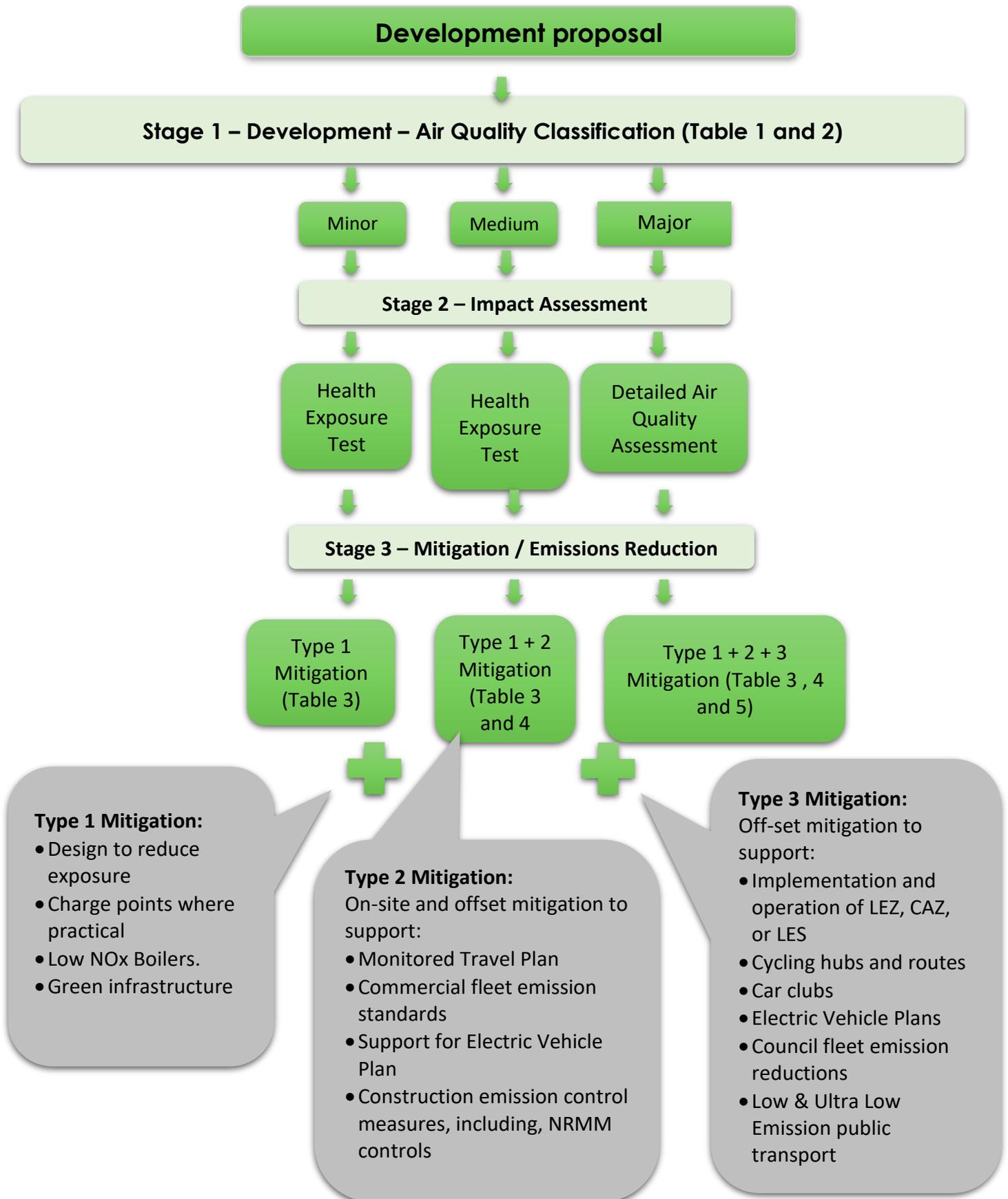
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<sup>11</sup> [www.nuneatonandbedworth.gov.uk/boroughplan](http://www.nuneatonandbedworth.gov.uk/boroughplan)

## 5 Development Classification, Assessment and Mitigation

- 5.1 The assessment of air quality for relevant planning applications should follow a three-stage process:
1. **Stage 1** - Development Classification - Determining the classification of the development proposal;
  2. **Stage 2** - Air Quality Impact Assessment - Assessing and quantifying the impact on local air quality;
  3. **Stage 3** - Mitigation - Determining the level of a mitigation required by the proposal to make the scheme acceptable.
- 5.2 The stages for classification, assessment and mitigation of development proposals are shown in **Figure 4 – Classification, assessment and mitigation of new developments**.
- 5.3 Not all development may fit into this classification model and further guidance on specific developments has been provided in the **Specific Issues** section.

Figure 4 – Classification, assessment and mitigation of new developments



## Stage 1 - Development Classification

- 5.4 The classification of developments for air quality purposes will be assessed against the criteria shown in **Table 1 – Air quality classification of developments** and **Table 2 – Additional trigger criteria for major air quality classification developments**.

**Table 1 – Air quality classification of developments**

Air Quality Classification	Minor	Medium	Major
<b>Threshold</b>	Proposal is below the threshold criteria for a Transport Assessment or Travel Plan <sup>12</sup>	Proposal meets threshold criteria for a Transport Assessment or Travel Plan	Medium developments which trigger any of the following criteria:  <b>i)</b> Where development is within or adjacent <sup>13</sup> to an Air Quality Management Area (AQMA) or Clean Air Zone (CAZ)  <b>ii)</b> Where development requires an Environmental Impact Assessment (EIA) <sup>14</sup> and air quality is to be considered  <b>iii)</b> Where any of the criteria in <b>Table 2 – Additional trigger criteria for major air quality classification developments</b> are triggered
<b>Assessment</b>	Exposure Assessment where applicable (stage 2)	Exposure Assessment where applicable (stage 2)	Air Quality Assessment required including an evaluation of changes in emissions <sup>15</sup> Exposure Assessment where applicable (stage 2)
<b>Mitigation</b>	Type 1	Types 1 and 2	Types 1, 2 and 3

- 5.5 Paragraph 111 of the NPPF (2019) sets out that all developments that generate significant amounts of transport movement should be supported by a Transport Statement or Transport Assessment. Local planning authorities must make a judgement as to whether a development proposal would generate significant amounts of

<sup>12</sup> [www.gov.uk/guidance/travel-plans-transport-assessments-and-statements](http://www.gov.uk/guidance/travel-plans-transport-assessments-and-statements)

<sup>13</sup> Where development has potential to impact on concentrations in AQMA or CAZ

<sup>14</sup> [www.gov.uk/guidance/environmental-impact-assessment](http://www.gov.uk/guidance/environmental-impact-assessment)

<sup>15</sup> Assessment includes monetisation of the impacts arising from emission changes in line with Defra IGCB Damage Costs

movement on a case by case basis (i.e. significance may be a lower threshold where road capacity is already stretched or a higher threshold for a development in an area of high public transport accessibility). However, the Department for Transport (DfT) previously set out threshold criteria for Transport Assessments (TA), although now archived, they provide a useful starting point. The threshold criteria can be found in **Appendix A**. For further clarification, please contact Warwickshire County Council's Highway Development Management Team.

**Table 2 – Additional trigger criteria for major air quality classification developments**

- Proposals in areas where sustained compliance with EU Limit Values may be at risk<sup>16</sup>
- 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 **Annual Average Daily Traffic** (AADT) by 5% or more
- Any development that causes a change in Light Duty Vehicles (cars and small vans) flows of:
  - more than 100 AADT within or adjacent to an AQMA, CAZ 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
- Any development that causes a change in Heavy Duty Vehicle (HDV) flows (lorries, large vans and buses) of:
  - more than 25 AADT within or adjacent to an AQMA, CAZ 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 receptors<sup>17</sup>
- Where significant demolition and construction works are proposed<sup>18</sup>
- Where a centralised combustion unit of thermal input >300kWh is proposed
- All biomass boiler applications

<sup>16</sup> Where current monitoring data shows NO<sub>2</sub> annual average concentrations of 36 ug/m<sup>3</sup> or more

<sup>17</sup> See section Stage 2 - Air Quality Impact Assessment

<sup>18</sup> Significance determined by professional judgement based on scale of works and proximity of sensitive receptors

- All stand-by/short-term power generation units regulated by the Environment Agency

## Stage 2 - Air Quality Impact Assessment

### Exposure Assessment

- 5.6 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. **Table 1** states that no assessment is required for 'minor' and 'medium' impact schemes, except for the need to consider whether the development will expose future occupiers to unacceptable levels of NO<sub>2</sub> and/ or particular matter.
- 5.7 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 of roads with >10,000 AADT movements
- 5.8 Where it is unclear whether levels of NO<sub>2</sub> may pose an unacceptable exposure risk to the inhabitants of proposed dwellings, it may be appropriate to undertake a period of monitoring at the site as part of the air quality assessment. The requirements of such programmes are to be agreed with the Environmental Health Team prior to monitoring taking place (see **Appendix B**).
- 5.9 The outcome of the exposure assessment will determine the level of mitigation required to make the development acceptable. Should there be no acceptable or insufficient mitigation, the recommendation may be to consider refusing the proposal on air quality grounds.

## MAJOR Classified Proposals

- 5.10 It is important that all major schemes should identify suitable assessment requirements and potential mitigation through pre-application discussions<sup>19</sup>.
- 5.11 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.
- 5.12 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 (TG16)<sup>20</sup>. Further details of the air quality assessment requirements can be found in **Appendix B** and through NBBC Environmental Health Officers.
- 5.13 All Air Quality Assessments received will be assessed by the Council against the requirements of this Technical Guidance Note (TG16). If the requirements are not met, the Council may request that the applicant carries out the assessment again. If the assessment does not meet the required standards, the application may be refused.
- 5.14 The pollutant emissions costs calculation will identify the damage costs associated with the proposal and will assist NBBC in assessing the overall impacts on air quality arising from major developments. NBBC 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 Toolkit<sup>21</sup> 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 cost<sup>22</sup>. The calculation process includes:

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<sup>19</sup> [www.nuneatonandbedworth.gov.uk/info/20025/planning\\_and\\_building\\_control/56/pre-application\\_advice/1](http://www.nuneatonandbedworth.gov.uk/info/20025/planning_and_building_control/56/pre-application_advice/1)

<sup>20</sup> <https://laqm.defra.gov.uk/technical-guidance/>

<sup>21</sup> <https://laqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html>

<sup>22</sup> [www.gov.uk/guidance/air-quality-economic-analysis](http://www.gov.uk/guidance/air-quality-economic-analysis)

- Identifying the additional trips generated by the proposal (from the Transport Assessment);
- The emissions calculated for the pollutants of concern (NO<sub>x</sub> and PM<sub>10</sub>) [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 is 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.

5.15 The calculation is summarised below. Further information can be obtained from the NBBC 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 C**.

**Road Transport Emission Increase =**

**Σ [Estimated trip increase for 5 years X Emission rate per 10 km per vehicle type X Damage Costs]**

### Stage 3 - Mitigation

- 5.16 Where mitigation is not integrated into a proposal, we will require this through planning conditions. The NPPF (paragraph 32) states that “Where significant adverse impacts are unavoidable, suitable mitigation measures should be proposed (or, where this is not possible, compensatory measures should be considered).” If on-site mitigation is not possible then NBBC will seek compensation for the identified air quality impacts through a Section 106 agreement or similar agreement.
- 5.17 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.
- 5.18 Type 1 mitigation is listed in **Table 3 – Type 1 Mitigation** and Types 2 and 3 are listed in **Table 4 – Type 2 Mitigation** and **Table 5 – Type 3 Mitigation** respectively.

5.19 Due to elevated concentrations of particulate matter in the Borough, Medium and Major developments will be required to implement suitable abatement controls for the use of non-road mobile machinery (NRMM) – **Table 6 – Non Road Mobile Machinery (NRMM) Controls.**

## Type 1 Mitigation

Table 3 – Type 1 Mitigation

### **Plug-in Vehicle Re-Charging:**

All charging units shall be installed where practical to do so. Developers installing public charging points shall ensure that the National Charge Point Registry<sup>23</sup> is updated. Proposals should be in line with Warwickshire County Council's electric vehicle charging infrastructure strategy 2017-2026<sup>24</sup>.

For further information about EV charging points contact the Nuneaton and Bedworth Borough Council Environmental Health team and Warwickshire County Council Transport team.

### **Residential:**

1 charging point per dwelling with dedicated parking (16amp) or 1 charging point per 10 spaces (unallocated parking) and ensure appropriate cabling is provided to enable increase for future provision.

### **Commercial/Retail:**

10% of parking spaces (32 amp) 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 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 and parking time limited to a maximum of 1 hour.

**Low NOx heating and boilers** (see the **Specific Issues** section)

### **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 – Non Road Mobile Machinery (NRMM) Controls)

### **Green Infrastructure and planting**

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

<sup>23</sup> [www.national-charge-point-registry.uk](http://www.national-charge-point-registry.uk)

<sup>24</sup> <https://apps.warwickshire.gov.uk/api/documents/WCCC-930-349>

## Type 2 Mitigation

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

**Table 4 – Type 2 Mitigation**

### Mitigation measures such as:

- Monitored Travel Plan, including mechanisms for discouraging high emission vehicle use and encouraging the uptake of low emission fuels and technologies<sup>25</sup>
- Measures to support public transport infrastructure and promotion of its use
- Measures to support cycling and walking infrastructure
- Measures to support an Electric Vehicle Plan
- Designated parking spaces and differentiated parking charges for low emission vehicles
- Non-road mobile machinery (NRMM) controls (see **Table 6 – Non Road Mobile Machinery (NRMM) Controls**)
- Measures provided in the NBBC Air Quality Action Plan (AQAP)<sup>26</sup>
- 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 Clean Air Zones (CAZ), Low Emission Zones (LEZ) or Low Emission Strategies (LES)
- Implementation of measures in the NBBC AQAP
- 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
- Plugged-in development and demonstration schemes e.g. new occupants given demonstration use of plug-in vehicles
- Low emission waste collection services
- Infrastructure for low emission, alternative fuels e.g. refuse collection and community transport services

<sup>25</sup> Where the developer funds the monitoring of a travel plan

<sup>26</sup> [www.nuneatonandbedworth.gov.uk/info/20081/pollution/186/pollution/4](http://www.nuneatonandbedworth.gov.uk/info/20081/pollution/186/pollution/4)

- 5.21 Further information on the suitability of mitigation for developments can be obtained from the NBBC 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 NO<sub>x</sub> and PM. These standards are:

- (a) 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.
- (b) 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-engining.

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 NO<sub>x</sub> emission standards is not feasible.

### **Assessing the acceptability of a scheme**

- 5.22 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.
- 5.23 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. A key test is whether the development impact will help sustain and

contribute towards compliance with relevant limit values or national objectives.

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

## Specific Issues

### Heating & Power

- 5.25 The current minimum emission standards as outlined below should be applied where relevant. The standards may be revised downwards in light of any future updated emission standards.

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

- Individual gas fired boiler <40mg NO<sub>x</sub>/kWh
- Spark ignition engine 250mg NO<sub>x</sub>/Nm<sub>3</sub>
- Compression ignition engine 400mg NO<sub>x</sub>/Nm<sub>3</sub>
- Gas turbine 50mg NO<sub>x</sub>/Nm<sub>3</sub>

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

- Individual gas fired boiler <40mg NO<sub>x</sub>/kWh
- Spark ignition engine 95mg NO<sub>x</sub>/Nm<sub>3</sub>
- Compression ignition engine 400mg NO<sub>x</sub>/Nm<sub>3</sub>
- Gas turbine 20mg NO<sub>x</sub>/Nm<sub>3</sub>

- 5.28 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<sub>th</sub> 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.

## **Biomass boilers**

- 5.29 Biomass boiler provision has increased over recent years, supported by the financial benefits of the Government's Renewal Heat Incentive (RHI)<sup>27</sup>. However, the emissions from biomass plant can lead to significant emissions of NO<sub>x</sub> and PM, even from a relatively small plant.
- 5.30 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 to achieve emissions of NO<sub>x</sub> and PM that are capable of achieving the following standards:
- Solid biomass boiler (< 1 MW thermal input) NO<sub>x</sub> 180mg Nm<sub>3</sub> / PM 5mg Nm<sub>3</sub>
  - Solid biomass boiler (>=> 1 MW thermal input) NO<sub>x</sub> 125 mg Nm<sub>3</sub> / PM 5mg Nm<sub>3</sub>
- 5.31 These standards can be achieved through the use of fabric or ceramic filters.

## **Standby / back-up power generation**

- 5.32 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.
- 5.33 We expect all such assessments to include reasoning as to whether gas powered generation can be utilised in the first instance e.g. identify the provision of suitable gas mains in the vicinity.
- 5.34 Any diesel-powered generators will be required to incorporate abatement equipment such as selective catalytic reduction and particulate trap (SCRT) and demonstrate that they do not add to the problem.

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

- 5.35 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 Borough Council (Part

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<sup>27</sup> [www.energysavingtrust.org.uk/scotland/grants-loans/renewables/renewable-heat-incentive?gclid=EAlalQobChMI\\_ZiY2Z7Q2glVgbHtCh0dwgxCEAAYASABEgKGgvD\\_BwE](http://www.energysavingtrust.org.uk/scotland/grants-loans/renewables/renewable-heat-incentive?gclid=EAlalQobChMI_ZiY2Z7Q2glVgbHtCh0dwgxCEAAYASABEgKGgvD_BwE)

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.

- 5.36 All Part A and B Process developments requiring planning applications and where NO<sub>x</sub> and PM emissions are relevant will be required to carry out a detailed air quality assessment.

### **Mechanical Ventilation**

- 5.37 Air quality concentrations may affect the suitability of certain locations for sensitive developments and this should be assessed in line with section **Stage 2 Air Quality Assessment**.

- 5.38 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.

- 5.39 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.

- 5.40 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 e.g. 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 the **Green Infrastructure** section) where it is practical to do so
- 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

Environmental Health Team prior to commencement of monitoring

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

### **Green Infrastructure and Planting**

- 5.42 Plants and trees may provide an aesthetically pleasing aspect to a scheme and can be used to provide a barrier from a pollutant source such as a trafficked road.
- 5.43 While there is conflicting evidence as to whether green infrastructure can help reduce concentrations of NO<sub>2</sub>, it is acknowledged that certain types of shrubs and trees can be effective at removing particulates from the atmosphere. Whilst also increasing pollutant dispersion and providing a barrier to pollutant sources, such as heavily trafficked roads.
- 5.44 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.
- 5.45 Careful consideration is needed as to the type of green infrastructure to be used. Certain tree species can produce their own emissions, which may exacerbate air pollution, such as, isoprenes, which may exacerbate air pollution. Furthermore, the retention of existing green infrastructure such as mature trees, on or around a site should be encouraged where appropriate.
- 5.46 Proposals that incorporate green infrastructure into scheme design should liaise with the Council's Park and Countryside team and Warwickshire County Council's Transport team and provide evidence as to the suitability of the species chosen.

### **Section 106 Agreements and Community Infrastructure Levy (CIL)**

- 5.47 The Council consulted on a preliminary draft charging schedule for the CIL in October 2015 and it is expected that adoption will be in 2020.
- 5.48 NBBC will seek Section 106 Agreements (S106) (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.

5.49 S106 Agreements will only be sought where the following 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.

5.50 Where the Council adopts a CIL schedule that specifies contributions towards air quality infrastructure, this will be considered as part of negotiating wider developer contributions to avoid any issue of double counting.

## Appendix A - Department for Transport Criteria for Transport Assessments

A.1 These thresholds are for guidance purposes and should not be read as absolutes. It should also be noted that this guidance has now been archived<sup>28</sup>

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

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<http://webarchive.nationalarchives.gov.uk/20100409053422/http://www.dft.gov.uk/adobepdf/165237/202657/guidanceontaappendixb>

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

- B.1 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 and those allocated in the Borough Plan).
- B.2 An air quality assessment should consider NO<sub>x</sub> and PM emissions and NO<sub>2</sub> and PM concentrations

### Key Components of an Air Quality Assessment

- B.3 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.
- B.4 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<sub>x</sub>:NO<sub>2</sub> 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 NO<sub>2</sub> from NO<sub>x</sub>.

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 exceedances 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

B.5 In some cases, 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 three months using agreed techniques and locations with any adjustments made following Defra technical guidance LAQM.TG (16).

## Assessing Demolition/Construction Impacts

B.6 The demolition and construction phases of development proposals can lead to both nuisance dust and elevated fine particulate (PM<sub>10</sub> and PM<sub>2.5</sub>) 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)<sup>29</sup> 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'<sup>30</sup> should be the reference for reporting the construction assessment.

## Cumulative Impacts

B.7 The NPPF 2019 (paragraph 181) 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.

B.8 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.

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<sup>29</sup> IAQM [www.iaqm.co.uk](http://www.iaqm.co.uk)

<sup>30</sup> [www.iaqm.co.uk/text/guidance/construction\\_guidance\\_2011.pdf](http://www.iaqm.co.uk/text/guidance/construction_guidance_2011.pdf)

## Appendix C – Damage Costs: calculations and example

C.1 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<sub>x</sub> and PM and also provides an Emission Factor Toolkit to allow the calculation of the emissions from schemes over the coming years.

C.2 Applicants calculating damage costs should incorporate the following:

- The most recent version of the Emission Factor Toolkit
- Both NO<sub>x</sub> 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 Environmental Health Team

C.3 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.

C.4 The scheme is categorised as 'outer conurbation (not London)' for damage costs.

C.5 **Step 1** – Using the trip increase for each aspect of the scheme calculate the annual emissions of NO<sub>x</sub> 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
<b>Residential NO<sub>x</sub></b>	129.73952	120.58516	110.44020	100.85574	92.75155
<b>Residential PM</b>	11.50558	11.31002	11.17497	11.06880	10.98908
<b>Hotel NO<sub>x</sub></b>	506.79502	471.03580	431.40703	393.96773	362.31073
<b>Hotel PM</b>	44.94366	44.17977	43.65224	43.23749	42.92610
<b>Deliveries NO<sub>x</sub></b>	477.56736	409.78076	347.56394	296.07882	256.18598

<b>Deliveries PM</b>	32.62307	31.71858	30.96677	30.38716	29.94013
Total NO <sub>x</sub> (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
<b>Total NO<sub>x</sub> (t)</b>	<b>1.1141019</b>	<b>1.0014017</b>	<b>0.8894111</b>	<b>0.7909022</b>	<b>0.7112482</b>
<b>Total PM (t)</b>	<b>0.0980723</b>	<b>0.0872083</b>	<b>0.0857939</b>	<b>0.0846934</b>	<b>0.0838553</b>

C.6 **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
<b>NO<sub>x</sub></b>	£31,776	£34,395	£35,083	£35,784	£36,500	£37,230
<b>PM</b>	£87,770	£95,003	£96,903	£98,841	£100,817	£102,833

C.7 **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)
<b>NO<sub>x</sub></b>	£38,319	£35,132	£31,826	£28,867	£26,479
<b>PM</b>	£9,317	£8,450	£8,479	£8,538	£8,623
<b>Totals (cumulative)</b>	<b>£47,636</b>	£91,218	£131,523	£168,928	<b>£204,030</b>

## Glossary

<b>AADT</b>	Annual average daily traffic flows
<b>Air Quality Assessment (AQA)</b>	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.
<b>Air Quality Management Areas (AQMAs)</b> <sup>31</sup>	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.
<b>Air Quality Objectives</b>	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.
<b>Biomass boiler</b>	System of heating where biomass, usually wood or wooden pellets, are used as the fuel
<b>Construction Environmental Management Plan (CEMP)</b>	Construction Environmental Management Plan – used to manage and minimize environmental impacts from construction and demolition.
<b>Clean Air Zones (CAZ)</b>	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.
<b>CHP</b>	Combined heat and power
<b>Damage Costs</b>	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
<b>Emission Factor Toolkit</b>	On-line toolkit provided by DEFRA to calculate emissions from road transport vehicles in current and future years
<b>Environmental Impact Assessment (EIA)</b>	Assessment required for projects specified in Environmental Impact Assessment Directive. Governed by the Town & Country Planning

<sup>31</sup> <https://uk-air.defra.gov.uk/aqma>

	(Environmental Impact Assessment) Regulations 2017
<b>EU Limit Value</b>	Legally binding pollutant concentration limit on Governments of EU Countries
<b>Euro Standards</b>	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)
<b>Exceedance</b>	Concentrations of a specified air pollutant greater than the appropriate Air Quality Objective or EU Limit Value
<b>Exceedance area</b>	Area where concentrations of a specified air pollutant greater than the appropriate Air Quality Objective or EU Limit Value
<b>HDV</b>	Heavy Duty Vehicle (lorry or bus greater than 3.5 tonnes gross vehicle weight)
<b>IGCB</b>	Interdepartmental Group on Costs and Benefits led by the Department for Environment, Food and Rural Affairs (DEFRA)
<b>LAQM.TG(16)</b>	Local Air Quality Management Technical Guidance (2016). This document provides national advice on how local authorities should assess air quality.
<b>LETCP</b>	Low Emission Towns & Cities Programme <sup>32</sup> – 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
<b>Low Emission Strategy (LES)</b>	Overarching strategy to integrate policies and practices to achieve year on year vehicle emission reductions, optimising opportunities for national funding assistance
<b>Low Emission Zone (LEZ)</b>	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
<b>LDV</b>	Light duty vehicle (car or small van less than 3.5 tonnes gross vehicle weight)
<b>Limit Values/EU limit values</b>	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

<sup>32</sup> <https://go.walsall.gov.uk/low-emissions-towns-and-cities-programme>

	quality objective, but may allow a longer period for achieving.
<b>Mitigation</b>	Mitigation measures will minimise, but not necessarily remove, the impact of or effect of poor air quality on a development
<b>National Air Quality Objectives</b>	See Air Quality Objectives
<b>National Air Quality Plan</b>	Government Plan to improve roadside concentrations of nitrogen dioxide (July 2017) <sup>33</sup>
<b>Non-road mobile machinery (NRMM)</b>	Diggers, cranes, bulldozers, plant etc used on construction sites
<b>NO<sub>2</sub></b>	Nitrogen dioxide
<b>NO<sub>x</sub></b>	NO <sub>x</sub> = 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 <sub>x</sub> and NO <sub>2</sub>
<b>Offsetting</b>	Measures which 'compensate' for anticipated increases in 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.
<b>PM</b>	Particulate matter
<b>PM<sub>2.5</sub></b>	Particulate matter with a diameter of 2.5 microns or less
<b>PM<sub>10</sub></b>	Particulate matter with a diameter of 10 microns or less.
<b>Part A1 and A2 Processes</b>	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).
<b>Part B Processes</b>	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.
<b>Point sources</b>	Chimneys
<b>Polluting development</b>	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.

<sup>33</sup> [www.gov.uk/government/publications/air-quality-plan-for-nitrogen-dioxide-no2-in-uk-2017](http://www.gov.uk/government/publications/air-quality-plan-for-nitrogen-dioxide-no2-in-uk-2017)

<b>Road canyon</b>	A road which is flanked by buildings on both sides, creating a canyon like environment that can inhibit the dispersion of pollutants
<b>SCR</b>	Selective Catalytic Reduction – abatement equipment on vehicles to reduce NO <sub>x</sub> emissions. Requires the addition of urea (commercially known as Ad Blu)
<b>SCRT</b>	SCR and continuous regeneration technology (soot / particulate filter)
<b>Sensitive development</b>	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.
<b>Standby generator</b>	Back-up electrical generator that automatically starts up and provides power following a utility outage