

# Public Document Pack



Chairman and Members of the District  
Planning Executive Panel

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Date:

6 October 2016

cc. All other recipients of the District  
Planning Executive Panel agenda

Dear Councillor

## **DISTRICT PLANNING EXECUTIVE PANEL - 13 OCTOBER 2016: SUPPLEMENTARY AGENDA NO 1**

Please find attached the following report which was marked "to follow" on the agenda for the above meeting:

8. Air Quality Planning Guidance, October 2016 (Pages 3 - 54)

*Note – Essential Reference Paper 'B' enclosed.*

Please bring these papers with you to the meeting next Thursday.

Yours faithfully

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**MEETING** : DISTRICT PLANNING EXECUTIVE PANEL  
**VENUE** : COUNCIL CHAMBER, WALLFIELDS, HERTFORD  
**DATE** : THURSDAY 13 OCTOBER 2016  
**TIME** : 7.00 PM

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# Air Quality Planning Guidance

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# Air Quality Planning Guidance <sup>1</sup>

## 1 Air Quality Planning Guidance

### 1.1 Purpose of the Planning Guidance

**1.1.1** This Planning Guidance Document has been prepared to support East Herts Council's Air Quality Development Management Policy within its District Plan. The aim is to facilitate sustainable development by helping to achieve the best possible public health protection outcomes, in relation to air quality.

**1.1.2** The objectives defined to help achieve this aim are to:

- Identify the District specific air pollution issues
- Identify the tools to control air pollution that are available to this local authority under the planning regime
- Provide clarity and consistency to developers, planners and local communities by confirming:
  - how the Council will assess planning applications in relation to air quality
  - the mitigation and monitoring of air quality impacts via planning conditions and the use of tools such as Section 106 agreements
  - the circumstances where an air quality assessment will be required for a proposed development
  - the requirements of an air quality assessment
- Contribute to the improvement of air quality in the District in particular in Air Quality Management Areas
- Be compatible with existing East Herts Council policies
- Compliment and add important local context to the National Planning Practice Guidance published at <http://planningguidance.planningportal.gov.uk/blog/guidance/air-quality/>

**1.1.3 Acknowledgement:** This Guidance Document has relied heavily on the North Herts Air Quality Planning Guidance Document.

## 1.2 Introduction to Air Quality

**1.2.1** East Herts covers 475 square kilometres, with a population of approximately 125,000. It is characterised by attractive rolling countryside. The small towns and villages stand in an area of great natural beauty, with winding country lanes and shallow valleys through which flow the many rivers and streams that cross the district.

**1.2.2** East Herts is the most rural district in the County and has a great deal of natural and built heritage in the combination of villages and market towns in a predominantly rural setting. Although the district's rural character means it has an important agricultural base, the local economy is dominated by the service sector with the majority of the firms being small and medium sized enterprises.

**1.2.3** There is a significant manufacturing base in the District, with an equally significant number of warehousing, distribution and real estate businesses; these are often located in small industrial estates. The industrial activities which operate within East Herts are controlled under the Environmental Permitting Regulations 2010, such that industrial and commercial emissions do not cause, or significantly contribute to, an air pollution problem in the District.

**1.2.4** The recent growth of Stansted Airport has also led to the creation of many new employment and business opportunities. This includes airport related service industries such as food preparation.

**1.2.5** To date the main source of air pollution in East Herts is from road traffic. The significance of the impact of motor vehicle emissions is influenced by numerous factors. These include:

- the District's population;
- the distribution of that population, commercial, community and residential centres;
- the road network and its capacity,
- neighbouring population centres and notable destinations.

**1.2.6** East Herts Council has a statutory duty to review air quality in its area and it focuses its resources on those areas where busy roads pass through residential areas as required by Department for the Environment Food and Rural Affairs (Defra).

**1.2.7** The main pollutants of concern associated with motor vehicle emissions are nitrogen oxides (NO<sub>x</sub>), in particular nitrogen dioxide (NO<sub>2</sub>), and particulate matter (PM<sub>10</sub> & PM<sub>2.5</sub>), which are particles with a diameter of less than one hundredth of a millimetre (<10µm) and <2.5µm respectively. They are generated by the combustion of diesel and petrol fuels within vehicle engines and are released to the atmosphere from vehicle exhausts. Particulates are also released from brake pads and tyre friction.



**1.2.8** There are three areas within East Herts where the pollution exceeds the air quality objective for Nitrogen Dioxide; these are known as Air Quality Management Areas or AQMAs. They are located in areas where there is heavy congestion predominantly during rush hour and in the case of Bishop's Stortford the pollution is exacerbated by the presence of tall buildings close to the road. Maps illustrating the locations of the AQMAs can be found in **Appendix 1**.

**1.2.9** Predicting trends in air pollution is difficult, whether nationally, regionally, or locally because there are many variables, some with the potential to influence a decline in pollution and others with the potential to increase pollution. The need for housing growth in the South East of England, with the anticipated need for East Herts to accommodate a considerable number of new homes, is likely to be the most significant cause of increased pollution. However, improvements in vehicle technology, sustainable modes of transport and improved building standards will assist in reducing pollution.

**1.2.10** Therefore, being able to influence planning decisions and have a positive impact on the nature of permitted developments represents a key opportunity and one of the few that are available. The intention of this planning guidance document is to advance air quality issues and minimise a development's contribution to air pollution.

**1.2.11** This document enables East Herts to be more prescriptive as to the nature (type, scale, location) of developments that need to consider air quality and:

- how to measure/estimate the level of pollution
- how to assess the significance of the change predicted
- to provide advice regarding available mitigation measures.

**1.2.12** The following sections of this document cover these subject areas and are intended to be used to aid decision making at the pre-application stage and in support of subsequent applications.

## 1.3 Impacts of Air Pollution

**1.3.1** Air pollution can give rise to significant adverse human health effects. The most recent estimate, agreed by the Committee on the Medical Effects of Air Pollution (COMEAP), is that annually as many as 29,000 deaths are caused by air pollution with life expectancy of every person in the UK reduced by an average of 7-8 months. Furthermore the recent Environmental Audit Committee (EAC) Report puts the financial burden of air pollution at between £8.5 and £20 billion per year (EAC 2010).

**1.3.2** Research also indicates that long term exposure could have an even greater impact, although this has been difficult to quantify (COMEAP 1998 ).

**1.3.3** The specific health impacts of air pollution depend upon the pollutant type. Examples of the impacts of those pollutants include:

- Sulphur dioxide (SO<sub>2</sub>) – coughing, tightening of chest, irritation of lungs
- Nitrogen dioxide (NO<sub>2</sub>) – direct adverse effects on respiratory health including irritation and inflammation of lungs
- Particulates (PM<sub>10</sub> and PM<sub>2.5</sub>) – inflammation of lungs and linkage of long-term exposure to coronary heart disease and cancer.
- Volatile Organic Compounds (VOCs) – cause of cancer

**1.3.4** The elderly and young people and those with respiratory diseases such as asthma and bronchitis are affected most by those pollutants that impact on the lungs. Such impacts will also worsen the symptoms suffered by people with heart conditions.

## 1.4 Local Air Quality Management

**1.4.1** The Environment Act 1995 established a local air quality management regime. It requires local authorities to review and assess ambient air quality in their areas against health based standards for a number of specific pollutants, prescribed in the Air Quality Regulations 2000 and Air Quality (Amendments) Regulations 2002 (**Appendix 2**). If there is a risk that levels of air pollution in any part of the authority's area will be higher than the prescribed objectives, the authority is required to designate an Air Quality Management Area (AQMA). It is then required to produce an Action Plan which sets out the measure it intends to take in pursuit of the objectives. Due to traffic representing the main source of local air pollutants across the majority of Hertfordshire, any Action Plan cannot operate in isolation from other regimes, whether planning, transport, or public health.

**1.4.2** It is not necessarily the case that a proposed development in an area of poor air quality will have a negative impact. However, it is important to recognise when such development might introduce additional people into an area of poor air quality.

**1.4.3** The declaration of an AQMA does not necessarily mean that there will be no new development within that area. Rather, it means that greater weight must be given to the consideration of air quality impacts and their mitigation.

**1.4.4** An AQMA can only be declared where an area is found to be failing the objective and also members of the public are regularly present. This is referred to as public exposure. What is considered as public exposure depends on the objective that has been exceeded. Examples of what should be considered as public exposure is summarised in Table 1 below.

**1.4.5** It is possible that the air quality objective has been exceeded over an area larger than the AQMA but if there is no public exposure there then it would not be possible to include it in the AQMA. If a developer were to introduce public exposure, such as build a house, then the AQMA will have to be extended.

**1.4.6** Similarly by introducing public exposure to an area where none has been present before could mean a new AQMA would have to be declared. For example if a developer builds houses next to a busy road.

**Table 1 Air Quality Exposure Objectives**

Averaging Period	Objectives should apply at:	Objectives should generally not apply:
Annual mean	All locations where members of the public might be regularly exposed. Building façades of residential properties, schools, hospitals, care homes etc.	<p>Building façades of offices or other places of work where members of the public do not have regular access.</p> <p>Hotels, unless people live there as their permanent residence.</p> <p>Gardens of residential properties.</p> <p>Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.</p>
24-hour mean and 8-hour mean	<p>All locations where the annual mean objective would apply, together with hotels.</p> <p>Gardens of residential properties.</p>	<p>Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.</p>
1-hour mean	<p>All locations where the annual mean and:</p> <p>24 and 8-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets).</p> <p>Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more.</p>	<p>Kerbside sites where the public would not be expected to have regular access.</p>

Averaging Period	Objectives should apply at:	Objectives should generally not apply:
	Any outdoor locations where members of the public might reasonably expected to spend one hour or longer.	
15-minute mean	All locations where members of the public might reasonably be exposed for a period of 15 minutes.	

**1.4.7** The significance of the role that local authorities have been given under this legislation was reflected by the Environmental Audit Commission reports of 2010 and 2014. They identified:

- local authorities as ‘key to improving air quality’
- that ‘the profile of air quality should be raised with all local authorities ...’
- that it is given sufficient attention across all areas of local authority responsibility, not just within environmental departments’
- planning guidance should be adjusted to protect air quality in local planning and development (EAC 2010 and EAC 2014).

## 1.5 Air Pollution and the Planning Regime

**1.5.1** New developments have the potential to affect air quality because road traffic, recognised as a significant source of air pollution, is inextricably linked to the economic and population growth that drives the demand for development. Therefore, the land use planning regime is an important tool available to local authorities to influence air quality.

**1.5.2** The importance of the role of the planning regime in controlling air pollution was recognised in the March 2012 National Planning Policy Framework (NPPF), by the identification of air pollution as a material planning consideration (DCLG 2012). Paragraph 109 of the NPPF refers to the generality of its role:

*The planning system should contribute to and enhance the natural and local environment by:*

- *preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability (DCLG 2012).*

**1.5.3** More specifically it exemplifies the inter-relationship between planning and air pollution in the following paragraphs:

*Paragraph 120: To prevent unacceptable risks from pollution and land instability, planning policies and decisions should ensure that new development is appropriate for its location. The effects (including cumulative effects) of pollution on health, the natural environment or general amenity and the potential sensitivity of the area or proposed development to adverse effects from pollution, should be taken into account.*

*Paragraph 124: Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local Air Quality Action Plan (DCLG 2012).*

**1.5.4** Additionally, Section 4 of the NPPF, ‘Promoting sustainable development’, acknowledges the relationship between planning and transport issues and by consequence, air quality. It includes among other things, reference to protecting and exploiting opportunities for the use of sustainable transport modes for the movement of goods or people (DCLG 2012) which includes prioritising pedestrian and cycle movements, having access to high quality public transport facilities and incorporating facilities for charging plug-in and other ultra-low emission vehicles.

**1.5.5** The recognition of air pollution as a material planning consideration means that the planning regime provides local authorities with practical tools for contributing to improving air quality and reducing exposure to air pollution. It is intended that this document in support of the East Herts District Plan, will act as such a tool by:

- defining the District specific air pollution issues;
- defining tools available under the planning regime to control air pollution;
- defining the expectations that this local authority has of developers working within East Herts and helping to ensure a consistency in approach;
- supporting East Herts Council’s recommendations for the inclusion of conditions to address air quality issues on any permissions, or to justify objections to applications in instances where air quality issues have not been addressed. And in some circumstances to support a refusal of an application where it becomes apparent that the application is unsustainable for air pollution reasons;
- identifying the principle of the use of Section 106 provisions or the Community Infrastructure Levy (CIL) to offset the air pollution potential of development (**Appendix 3**).

**1.5.6** It is intended to support a number of Development Management Policies including Policy TRA1: Sustainable Transport and Policy EQ4: Air Quality.

## Policy TRA1 Sustainable Transport

I. To achieve accessibility improvements and promotion of sustainable transport in the district, development proposals should:

(a) Primarily be located in places which enable sustainable journeys to be made to key services and facilities to help aid carbon emission reduction;

(b) Comply with the provisions of the Local Transport Plan and/or Hertfordshire 2050 Transport Vision;

(c) Ensure that a range of sustainable transport options are available to occupants or users, which may involve the improvement of pedestrian links, cycle paths, passenger transport network (including bus and/or rail facilities) and community transport initiatives. These improvements could include the creation of new routes, services and facilities or extensions to existing infrastructure and which may incorporate off-site mitigation, as appropriate. In suitable cases the provision of footways and cycle paths alongside navigable waterways may be sought, along with new moorings, where appropriate. The implementation of car sharing schemes should also be considered;

(d) Ensure that site layouts prioritise the provision of modes of transport other than the car (particularly walking, cycling and, where appropriate, passenger transport) which, where feasible, should provide easy and direct access to key services and facilities;

(e) In the construction of major schemes, allow for the early implementation of sustainable travel infrastructure or initiatives that influence behaviour to enable green travel patterns to become established from the outset of occupation;

(f) Protect existing rights of way, cycling and equestrian routes (including both designated and non-designated routes and, where there is evidence of regular public usage, informal provision) and, should diversion prove unavoidable, provide suitable, appealing replacement routes to equal or enhanced standards; and

(g) Ensure that provision for the long-term maintenance of any of the above measures (c) (d) and (f) that are implemented is assured.

II. Where appropriate, contributions may be required towards the facilitation of strategic transportation schemes identified in the Local Transport Plan and/or Hertfordshire 2050 Transport Vision and other related strategies.

## Policy EQ4 Air Quality

I. Development and land uses should minimise potential impacts on local air quality both during construction and operation including the operation of heating, cooling and extraction units. Applications should be supported by Air Pollution Assessment in line with the Council's Air Quality Planning Guidance Document.

II. Development within designated Air Quality Management Areas (AQMAs), or development which may have an impact on these areas, must have regard to the Council's latest strategy and action plan for the reduction of pollutants in the defined catchment, maintaining acceptable levels of air quality. Evidence of mitigation measures will be required.

III. New developments should make provision for electric vehicle charging points in safe and accessible locations in accordance with Policy DES3 Design of Development.

IV. In order to minimise the impact of travel on local air quality, where major developments involve the introduction of new bus routes or significant changes to existing routes, service providers will be required, in agreement with Hertfordshire County Council's Transport, Access and Safety Unit, to ensure that the vehicles serving these locations will either be of 'hybrid' type or meet the latest 'Euro' emissions regulations.

**1.5.7** The above Development Management Policies and therefore this document are necessary and relevant to East Herts for the following key reasons:

- Nitrogen dioxide levels have been determined to be elevated, in relation to the air quality objectives (AQO) set by the Air Quality (England) Regulations 2000, as a result of road traffic emissions in certain areas of the District.
- There is no safe level for exposure to particulate matter pollution, a significant local source of which is road traffic.

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## When is an Air Pollution Assessment Required?



## 2 When is an Air Pollution Assessment Required?

### 2.1 Introduction

**2.1.1** Any air quality issue that relates to land use and its development is capable of being a material planning consideration. However, the significance given to air quality in making a planning application decision will depend on factors including:

- the severity of the impacts on air quality;
- the air quality in the area surrounding the proposed development;
- the likely development use, i.e. length of time people are likely to be exposed at the location.

**2.1.2** The following flow chart (Figure 1) aims to provide a clear, consistent approach for stakeholders to follow when assessing potential air quality implications of a development. It is based on 3 stages:

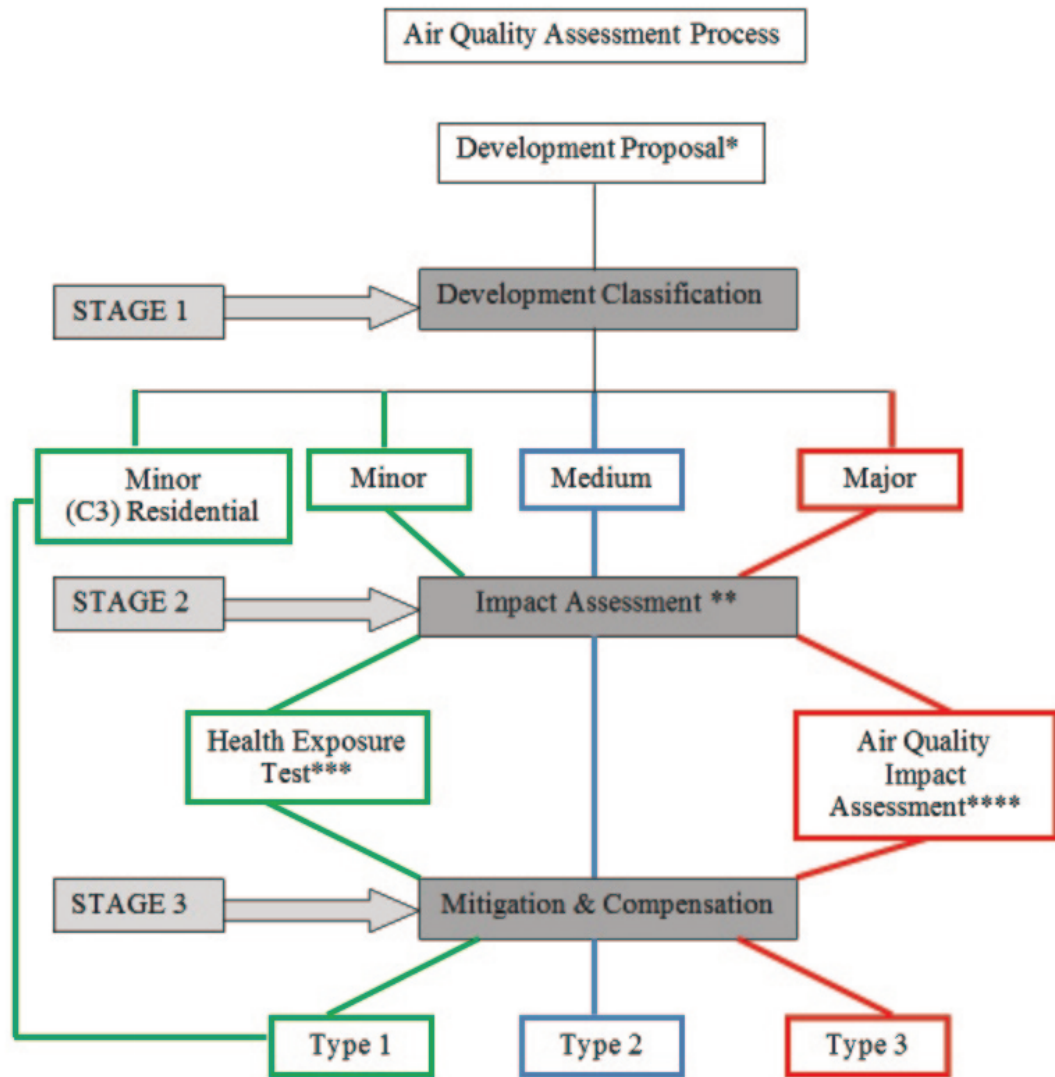
- Determining the classification of the proposed development;
- Assessing and quantifying the impact on local air quality;
- Determining the level of mitigation required by the proposal to meet local planning requirements.

**2.1.3** This flow chart approach originated from the West Yorkshire Low Emission Group and has been successfully used by local authorities in West Yorkshire. It has also been adopted by North Hertfordshire District Council.

**2.1.4** Each of the three stages of the process is described in more detail in the following sections.

## 2 . When is an Air Pollution Assessment Required?

Figure 1 Air Quality Assessment Process



\* in order to avoid unnecessary delays in the planning process and ensure optimum scheme design and sustainability, it is vital for communication at an early stage in any significant proposal. It is therefore important to undertake pre-application discussions with the local planning authority to confirm the scale of development and the assessment requirements.

\*\* there is no safe level for exposure to particulate pollution. Additionally all applications must ensure as a minimum that a proposal does not expose existing or future residents to levels of pollutants above the Air Quality Objectives.

\*\*\* health exposure test will be carried out by the Local Planning Authority

\*\*\*\* air quality impact assessment to be carried out by the developer

## 2 . When is an Air Pollution Assessment Required?

### 2.2 Stage 1: Development Classification

**2.2.1** Three levels of development classification are determined using adapted criteria from the Department for Transport publication, Guidance on Transport Assessments (DfT 2007).

**2.2.2** Table 2 lists the criteria for development classification that is used to identify the three levels.

- A MINOR Proposal is deemed to be a development proposal that falls below the criteria within Table 2.
- A MEDIUM Proposal is deemed to be a development proposal that meets any criteria within Table 2, or a MINOR Proposal which includes a biomass boiler.
- A MAJOR Proposal is deemed to be a development proposal that meets any criteria within Table 2 **and** any of the additional criteria set out in Table 3 below. Or any development within an AQMA.

**Table 2 Criteria for Development Classification**

Land Use	Description	TA Required
Food Retail (A1)	Retail sale of food goods to the public - supermarkets, superstore, convenience food store	>800m <sup>2</sup> (GFA)
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	>1,500m <sup>2</sup> (GFA)
Financial and professional services (A2)	Banks, building societies and bureaux de change, professional services, estate agents, employment agencies, betting shops	>2,500m <sup>2</sup> (GFA)
Restaurants and cafes (A3)	Use for the sale of food for consumption on or off the premises	>2,500m <sup>2</sup> (GFA)
Drinking Establishments (A4)	Use as a public house, wine-bar for consumption on or off the premises	>600m <sup>2</sup> (GFA)
Hot Food Takeaway (A5)	Use for the sale of hot food for consumption on or off the premises	>500m <sup>2</sup> (GFA)
Business (B1)	(a) Offices other than in use within Class A2 (financial & professional),  (b) Research & development - laboratories, studios,	>2,500m <sup>2</sup> (GFA)

## 2 . When is an Air Pollution Assessment Required?

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Land Use	Description	TA Required
	(c) Light industry	
General industrial (B2)	General industry (other than B1)	>4,000m <sup>2</sup> (GFA)
Storage or Distribution (B8)	Storage or distribution centres - wholesale warehouses, distribution centres and repositories	>5,000m <sup>2</sup> (GFA)
Hotels (C1)	Hotels, boarding houses and 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	>50 units
Non-Residential Institutions (D1)	Medical & health services, museums, public libraries, art galleries, non-residential education, places of worship and church halls	>1,000m <sup>2</sup> (GFA)
Assembly and Leisure (D2)	Cinemas, dance & concert halls, sports halls, swimming, skating, gym, bingo and other facilities not involving motorised vehicles or firearms	>1,500m <sup>2</sup> (GFA)
<b>Other</b>		
1. Any development generating 30 or more two-way vehicle movements in any hour		
2. Any development generating 100 or more two-way vehicle movements per day		
3. Any development proposing 100 or more parking spaces		
4. Any relevant development proposed in a location where the local transport infrastructure is inadequate		
5. Any relevant development proposed in a location adjacent to an Air Quality Management Area (AQMA)		

**Table 3 Additional Trigger Criteria for Major Developments**

Where the proposed development falls within the Town and Country Planning (EIA) (England and Wales) Regulations 2011 and includes air quality and/or transport as a specific likely impact.
Proposals located within or adjacent to an Air Quality Management Area (AQMA).
Proposals that will create an AQMA
Proposals that could increase the existing traffic flow on roads of >10,000 AADT by 5% or more.
Proposals that increase traffic 5% on road canyons with >5000 AADT.
Proposals that could introduce or significantly alter congestion (DfT Congestion) and includes the introduction of substantial road infrastructure changes.
Proposals that reduce average speeds by more than 10kph.
Proposals that include additional HGV movements by more than 10% of total trips.
Where significant demolition and construction works are proposed.

### 2.3 Stage 2: Air Quality Impact Assessment

**2.3.1** Smaller development proposals (MINOR and MEDIUM Classified Proposals) may not in themselves create an additional air quality problem but have the potential to add to local air pollution or introduce more people to an area where they may be exposed to existing levels of poor air quality.

**2.3.2** An assessment of the likelihood of introducing additional exposure will be determined using the following criteria:

#### MINOR Development Health Exposure Test

- If the proposal is adjacent to, or within an AQMA,
- Where MINOR scale developments meet the above Health Exposure Test, then TYPE 1 mitigation will be required.

**2.3.3** Where MINOR scale developments do not meet the Health Exposure Test there will be no air quality mitigation required, unless the development is residential (C3 or C4 land use type) in which case TYPE 1 mitigation will be required.

#### MEDIUM Developments

**2.3.4** Medium scale developments will require air quality mitigation to make the development acceptable without the need for a health exposure test.

## 2 . When is an Air Pollution Assessment Required?

**2.3.5** It should be recognised that where any development is proposed within an AQMA, or would result in the need to extend, or designate a new AQMA, it may be judged that there is no acceptable mitigation and the recommendation to the planning officer will be to consider refusing the proposal on air quality grounds.

### MAJOR Developments Air Quality Impact Assessment

**2.3.6** The scale and nature of MAJOR developments is such that a detailed air quality assessment is required to determine the impact on public health and the local environment. The assessment will require:

- 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 methodology to be used for the determination of pollutant concentration change should meet the requirements of the Defra Technical Guidance Note (TG. 16) (Defra 2016). Further details of the air quality assessment requirements are included in **Appendix 2**.

- The calculation of pollutant emission costs from the development.

The pollutant emission costs calculation will identify the environmental damage costs associated with the proposal and determine the amount (value) of mitigation that is expected to be spent on measures to reduce the impacts. The calculation utilises the most recent Defra Emissions Factor Toolkit (<http://laqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html>) to estimate the additional pollutant emissions from a proposed development and the latest Defra IGCB (Inter-Governmental Department on Costs and Benefits) Air Quality Damage Costs for the specific pollutant of interest, to calculate the resultant damage cost (<https://www.gov.uk/air-quality-economic-analysis>). The calculation process includes:

- Identifying the additional trip rates 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 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.

**2.3.7** The calculation is summarised below with further details of the process along with an example calculation are shown in **Appendix 4**.

Road Transport Emission Increase =

Estimated trip rate for 5 years x Emission rate per 10km per vehicle type x  
Damage costs

**2.3.8** It should be recognised that where development is proposed within an AQMA, or would result in the need to extend or designate a new AQMA, it may be judged there is no acceptable mitigation and the recommendation to the planning officer will be to refuse the proposal on air quality grounds.

### 2.4 Stage 3: Mitigation

**2.4.1** The outcome of Stage 2 (Assessment) identifies the likely scale of air quality impact and is used to determine the level of mitigation required to mitigate the potential effects upon health and the local environment.

**2.4.2** Measure identification will be assisted by, among other things:

- Outcomes from the Transport Statement/Assessment;
- Travel Awareness/Planning and Highway Development requirements;
- Defra air quality guidance (Defra Measures Guidance: <http://laqm.defra.gov.uk/action-planning/measures/measures.htm>)
- Measures identified in any local AQMA Action Plan(s)

**2.4.3** Where the necessary mitigation is not integrated into a proposal, the Local Planning Authority will require it through planning conditions. The NPPF (paragraph 152) suggests that 'where adequate mitigation measures are not possible, compensatory measures may be appropriate'. If on-site mitigation is not possible, or insufficient, then the Local Planning Authority will seek compensation for the identified air quality impacts through a planning obligation such as a Section 106 agreement or through a Community Infrastructure Levy (CIL).

**2.4.4** Default mitigation measures are presented for each scale of development proposal. **These are not exhaustive lists and may be adapted for particular locations and needs and the scale of damage costs.**

#### MINOR Developments

**2.4.5** For **TYPE 1 (MINOR)** developments that meet the health exposure test criteria in Stage 2, mitigation will be required to reduce the level of exposure. This may be in the form of:

- Possible short term screening monitoring (e.g. diffusion tubes) or utilisation of the distance calculation provided by Defra (<http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html>) at the proposed location to identify the level of relevant exposure.

## 2 . When is an Air Pollution Assessment Required?

- Redesigning the proposal to reduce exposure to pollution, including a stand-off distance and/or vegetation boundary from the development
- For developments incorporating combined heat power, or biomass boilers the EPUK publications (EPUK 2012 and EPUK 2009) should be utilised to demonstrate that emissions can and will be appropriately managed so as to minimise impact on air quality

**2.4.6** A key theme of the NPPF is that developments should enable future occupiers to make “green” vehicle choices and (paragraph 35) ‘incorporate facilities for charging plug-in and other ultra-low emission vehicles’, therefore, an electric vehicle recharging provision rate is also expected. The default mitigation for a MINOR scale development is summarised in Table 4.

**2.4.7** Details of the electric charging specification are shown in **Appendix 4**.

**Table 4 Default Mitigation<sup>(1)</sup> for a TYPE 1 (MINOR) Development**

Development Type	Default Mitigation
Residential	1 charging point per unit per dwelling (dwelling with dedicated parking) or 1 charging point per 10 spaces (unallocated parking).
Commercial / Retail	10% of parking spaces designated for EV charging, which may be phased with 5% initial provision and remainder at an agreed trigger level (usage).
Industrial	10% of parking spaces designated for EV charging, which may be phased with 5% initial provision and remainder at an agreed trigger level (usage).
Demolition and Construction	Adherence to the London Best Practice Guidance (GLA & LC 2009) for all demolition and construction works.

### **MEDIUM Developments**

**2.4.8** For **TYPE 2 (MEDIUM)** developments that meet the criteria in Table 2 a detailed travel plan will be required, in addition to the default mitigation for TYPE 1 (MINOR) developments (in Table 4). Travel Plan guidance can be found by searching for ‘Travel Plan Guidance’ at [www.hertsdirect.org](http://www.hertsdirect.org).

**2.4.9** In respect of the Travel Plan it is essential that:

- The content of the travel plan is fully assessed prior to its approval in conjunction with local authority officers. Pre-application advice will be important.



## 2 . When is an Air Pollution Assessment Required?

- The agreed targets and objectives included in the travel plan are secured for implementation by mutual agreement of the local authority and the developer/applicant (normally by means of a Section 106 agreement).
- The outputs of the travel plan (typically trip levels and mode split) are annually monitored against the agreed targets and objectives.
- Should the travel plan not deliver the anticipated outputs or meet the targets and objectives further mitigation/alternative/compensation measures need to be identified and implemented.
- A named co-ordinator is essential to the success of the travel plan. For larger schemes a commitment in terms of staff resource allocation will be expected.

**2.4.10** It is likely that there will be additional Travel Plan measures required outside the air quality requirements. Air quality measures should not be seen as the complete number of measures.

**2.4.11** Such agreed measures will be taken forward by condition, or through the use of Section 106 agreements.

**2.4.12** The NPPF identifies a Travel Plan as a ‘key tool’ to promoting and delivering sustainable transport and that all transport mitigation measures may be included within the Travel Plan. The default mitigation measures to be incorporated into the scheme design, in addition to those in Table 4, include those listed in Table 5. The list is not exhaustive and there may be additional issues that are site specific and reflect local conditions as well as other material considerations.

**Table 5 Default Mitigation for TYPE 2 (MEDIUM) Development**

Development Type	Default Mitigation
Any Development	Travel Plan including agreed mechanisms for discouraging high emission vehicle use and encouraging modal shift (i.e. public transport, cycling and walking) as well as the uptake of low emission fuels and technologies
	Improved pedestrian links to public transport stops
	Provision of new bus stops infrastructure including shelters, raised kerbing, information displays
	Provision of subsidised or free access to public transport
	Site layout to include improved pedestrian pathways to encourage walking
	Improved convenient and segregated cycle paths to link to any existing local cycle network

## 2 . When is an Air Pollution Assessment Required?

Development Type	Default Mitigation
Commercial Development	Commercial vehicles should comply with current or most recent European Emission Standards from scheme opening, to be progressively maintained for the lifetime of the development.
	Fleet operations should provide a strategy to be implemented for reducing emissions, including the uptake of low emission fuels and technologies such as ultra-low emission service vehicles.

### MAJOR Developments

**2.4.13** For **TYPE 3 (MAJOR)** developments that meet the criteria in Table 2 and Table 3 the pollution damage costs attributed to their emission change will determine the level of compensation required to mitigate the impact. A suite of default compensation measures beyond the proposal scheme design, and the mitigation within Table 4 and Table 5, are listed in Table 6. This is not an exhaustive list and may be adapted for particular locations and needs identified by relevant officers. The type, scale and specificity of measures will be agreed with the planning authority.

**Table 6 Default Mitigation for TYPE 3 (MAJOR) Development**

Any Development Type	Default Mitigation
Support measures to reduce the need to travel:	Alternative working practices – flexi-time, teleworking, homeworking, video-conferencing
	Local sourcing of staff, products and raw materials
	Development and use of hub distribution centres employing low emission deliveries
	Provision of discounted on-site shopping, eating, child-care, banking facilities
Support measures to reduce polluting motorised vehicle use:	Development of car clubs and car sharing with financial incentives and promotion
	Use of pooled low emission vehicles – cars, vans, taxis, bicycles
	Support smart driving training schemes
	Provision of dedicated low emission shuttle bus including managed pick-up and drop-off
	Contribution to low emission vehicle refuelling infrastructure

## 2 . When is an Air Pollution Assessment Required?

Any Development Type	Default Mitigation
	Contribution to site low emission waste collection services
	Incentives for the take-up of low emission vehicle technologies and fuels
Measures to support improved public transport:	Provision of new or enhanced public transport services to the site
	Shuttle services to public transport interchange, rail station or park and ride facilities
	Support improving information systems for public transport
	Promoting low emission bus service provision
Further measures to promote walking and cycling:	Improve district walking & cycling networks including lighting, shelters, info points & timetables
	Support cycle training and awareness schemes & bike hiring schemes
	Support secure and safe cycle parking facilities
Measure to promote sustainable travel plans:	Support local travel to school and school travel plans initiatives
	Marketing aimed at persuading a switch to sustainable modes with incentives
	Promotion of subsidised/sponsored travel plan measures through social and other media
	Supporting community/local organisation groups to promote sustainable travel
Support air quality monitoring programmes	

**2.4.14** A completed checklist for any proposed development is included as **Appendix 5** and is recommended as a means of documenting and checking that the correct approach has been taken.

# 3 Planning Recommendation

### 3 Planning Recommendation

#### 3.1 Planning Recommendation

**3.1.1** The impact of developments on air quality is a material planning consideration in the determination of a planning application. Each decision must be a balance of all material considerations depending upon the individual merits and circumstances. The weight to be given to the impact on air quality in the consideration of a planning application and the acceptability of proposed mitigation measures lies with the relevant local planning authority. Any agreed measures will be taken forward by condition, or through the use of Section 106 agreements or an equivalent method.

**3.1.2** It should also be recognised that it may be judged that there is no acceptable mitigation and in such cases the recommendation to the planning officer will be to refuse the proposal on air quality grounds.

Appendix 1  
Air Quality Objectives included in  
Regulations for the purpose of LAQM in  
England

Appendix 1 Air Quality Objectives included in Regulations  
for the purpose of LAQM in England

Table 7 Air Quality Objectives included in Regulations for the  
purpose of LAQM in England

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 µg/m <sup>3</sup>	Running annual mean	31.12.2003
	5.00 µg/m <sup>3</sup>	Running annual mean	31.12.2010
1,3-Butadiene	2.25 µg/m <sup>3</sup>	Running annual mean	31.12.2003
Carbon monoxide	10.0 µg/m <sup>3</sup>	Running 8-hour mean	31.12.2003
Lead	0.5 µg/m <sup>3</sup>	Annual mean	31.12.2004
	0.25 µg/m <sup>3</sup>	Annual mean	31.12.2008
Nitrogen Dioxide	200 µg/m <sup>3</sup> not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m <sup>3</sup>	Annual mean	31.12.2005
Particles (PM <sub>10</sub> ) (gravimetric)	50 µg/m <sup>3</sup> not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 µg/m <sup>3</sup>	Annual mean	31.12.2004
Sulphur dioxide	350 µg/m <sup>3</sup> not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m <sup>3</sup> not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/m <sup>3</sup> not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

Appendix 2  
Air Quality Assessment Protocol to  
Determine the Impact of Vehicle Emissions  
from Development



## Appendix 2 Air Quality Assessment Protocol to Determine the Impact of Vehicle Emissions from Development

**2.1** 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).

### Key Components on an Air Quality Assessment

**2.2** 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 (09). 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 road transport emissions and air quality with the development in place (with development or do-something);
4. The prediction of future road transport emissions and air quality with the development in place (with development or do-something) and with identified mitigation measures in place.

**2.3** 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 the traffic assessment:**

- Traffic data used for the assessment;

- Emission data source;
- Meteorological data source and representation of area;
- Baseline 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 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 (09);

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.

J. Mitigation measures.

### Air Quality Monitoring

**2.4** 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 six months using agreed techniques and locations with any adjustments made following Defra technical guidance LAQM.TG (09).

### Assessing Demolition / Construction Impacts

**2.5** 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>(2)</sup>) has produced a number of definitive guidance documents to which this guidance refers. The document 'Guidance on the Assessment of the Impacts on Construction on Air Quality and the Determination of Their Significance' should be the reference for reporting the construction assessment.

### Cumulative Impacts

**2.6** 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.

**2.7** In 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 applications, the use of a 'Master or Parameter Plan' that includes an air quality assessment will address the cumulative impact.

## Appendix 3 Emissions Assessment Calculator

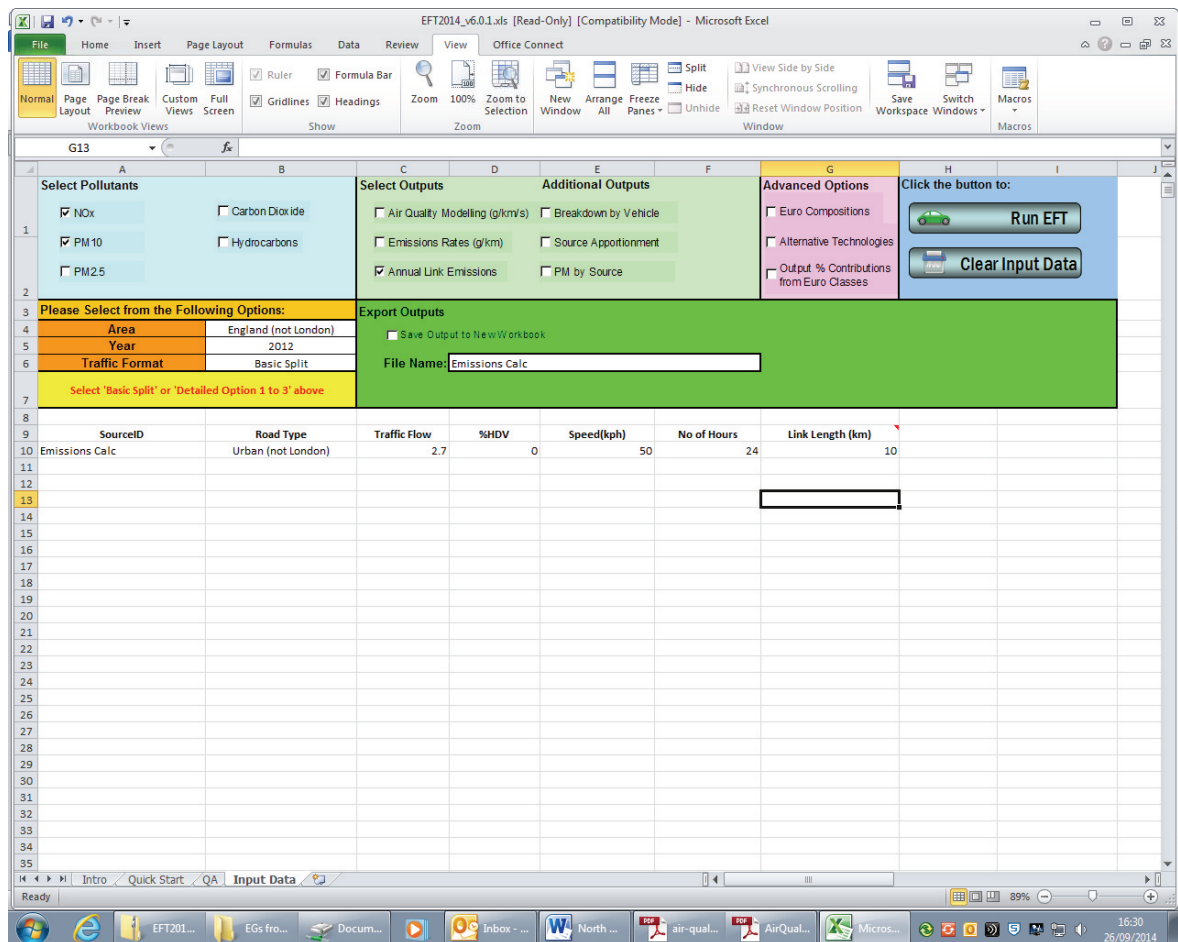
## Appendix 3 Emissions Assessment Calculator

**3.1** The calculator utilises the current Emissions Factor Toolkit (EFT) (<http://laqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html>) to determine the transport related emission from a development proposal. If the proposal is to include alternative fuels or technology i.e. LPG, EV etc, then there are advanced options within the EFT to accommodate this.

**3.2** A screenshot of the input and output pages are shown below:

**3.3** The output is in kg of specified pollutant per year and requires converting to tonnes per year. This is then multiplied by the IGCB damage costs for the specified pollutant.

**Figure 2 Emissions Assessment Calculator Input Screen**



**Figure 3 Emissions Assessment Calculator Output Screen**

Source Name	Pollutant Name	All Vehicle (Annual Emissions (kg/yr except CO2 tonnes/yr))	All LDV (Annual Emissions (kg/yr except CO2 tonnes/yr))	All HDV (Annual Emissions (kg/yr except CO2 tonnes/yr))
Emissions Calc	NOx	3.553176	3.553176	
Emissions Calc	PM10	0.369082	0.369082	

**3.4** The following example demonstrates the calculation based on a development with 10 domestic properties and is taken from the Sussex Air Quality Partnership “Air Quality and Emission Mitigation Guidance for Sussex Authorities 2013”

## Example Emissions Calculation

EFT Input:

10 Household (urban not London)(2012)(NOx and PM<sub>10</sub>)

X 27 (trip/traffic ratio for 10 houses)

X cars only (0% HGV)

X 50kph (avg. speed)

X 10km (NTS UK avg.)

EFT Output = 32.55 kg/annum (NOx) & 3.795 kg/annum (PM)

= 0.0325 tonnes/annum (NOx) & 0.003795 tonnes/annum (PM<sub>10</sub>)

X \*£955/tonne (NOx) + \*£48,517/tonne (PM<sub>10</sub>)

= £31.08 + £184.15

X 5 (years)

= £155.42 + £920.76

**Total = £1,076**

*Note: The IGCB damage cost used for Sussex are the IGCB Air Quality Damage Costs per Tonne, 2010 prices (cCentral estimate: NOx = £955/tonne and PM<sub>10</sub> Transport Average £48,517).*

Trip rates from Transport Assessments

Trip Length uses National Travel Survey (UK ave = 10km) – (<https://www.gov.uk/transport-statistics-notes-and-guidance-national-travel-survey>)



Appendix 4  
Electric Vehicle Charging Point  
Specification

## Appendix 4 Electric Vehicle Charging Point Specification

### 4.1 EV Ready Domestic Installations

**4.2** Cable and circuitry ratings should be of an adequate size to ensure a minimum continuous current demand for the vehicle of 16A and a maximum demand of 32A (which is recommended for Eco Developments).

- A separate dedicated circuit protected by an RCBO should be provided from the main distribution board, to a suitably enclosed termination point within a garage, or an accessible enclosed termination point future connection to an external charging point.
- The electrical circuit shall comply with the Electrical requirements of BS7671:2008 as well as conform to the IET code of practice on Electric Vehicle Charging Equipment Installation 2012 ISBN 978-1-84919-515-7 (PDF)

### 4.3 EV Ready Commercial Installations

**4.4** Commercial and industrial installations may have private 11,000/400V substations where a TN-S supply may be available, simplifying the vehicle charging installation design and risk analysis. It is therefore essential for developers to determine a building's earthing arrangements before installation.

**4.5** Commercial vehicles have a range of charge rates and it is appropriate to consider a 3-phase and neutral supply on a dedicated circuit emanating from a distribution board. More than one EV charging station can be derived from a source circuit, but each outlet should be rated for a continuous demand of 63Amps. No diversity should be applied throughout the EV circuitry. 3-phase RCBOs should be installed and the supply terminated in a switched lockable enclosure. If an external application (for example car park or goods yard) is selected, the supply should be terminated in a feeder pillar equipped with a multi-pole isolation switch, typically a 300mA RCD, a sub-distribution board (if more than one outlet is fed from the pillar). If an additional earthing solution is required, the earth stake can be terminated within this pillar. See IET guideline risk assessment.

**4.6** Additional guidance on charge point installation is available from the Office of Low Emission Vehicles ([www.gov.uk](http://www.gov.uk)).

## Appendix 5 Validation Checklist

### Appendix 5 Validation Checklist

#### Validation Checklist

Development Proposal: [ ]

Pre-Planning Discussions: yes [ ] no [ ]

Classification:

Minor [ ]

Medium [ ]

Major [ ]

Based on which trigger criteria? [ ]

Assessment:

Exposure Test [ ]      Details provided? [ ]

Air Quality Assessment [ ]      AQ Methodology followed? [ ]

Damage Cost [ ]      Calculation Details [ ]

Mitigation / Compensation:

Minor [ ]

Medium [ ]

Major [ ]

None [ ]

Mitigation Statement:

Damage Costs [ ]

Mitigation Measures listed? [ ]

Mitigation Measures costed? [ ]

Demolition / Construction Management Plan [ ]

Signature: [ ]      Position Held: [ ]

Print: [ ]      Date: [ ]

Appendix 6  
Planning Obligations and their status in  
East Herts

## Appendix 6 Planning Obligations and their status in East Herts

**6.1** Planning obligations are private agreements made between local authorities and developers and can be attached to a planning permission to make acceptable a development which would otherwise be unacceptable in planning terms. Planning Obligations, which must be directly relevant to the proposed development, are used for three purposes:

- Prescribe the nature of a development
- Compensate for loss or damage created by a development
- Mitigate a development's impact (for example, through increased public transport provision)

**6.2** A Section 106 (s106) agreement is such a planning obligation.

**6.3** In April 2010 a number of measures within the Community Infrastructure Levy Regulations came into force which restricted the use of planning obligations and clarified the relationship between them and the Community Infrastructure Levy (CIL). The CIL is a new local charge that local authorities in England can choose to charge on new developments in their area to fund infrastructure.

**6.4** EHDC is considering whether to implement the CIL and any CIL which may be introduced will be set out in the Council's CIL Charging Schedule and/or Developer Contributions Supplementary Planning Document.

**6.5** Policy DPS4 (Infrastructure Requirements) of the East Herts District Plan 2011-2033 provides further information and context as to the use of planning obligations and CILs in East Herts.

10  
Contacts

## 10 Contacts

### Air Quality Matters / Local Air Quality Management

Environmental Protection Team – 01992 531502 –  
[environmental.health@eastherts.gov.uk](mailto:environmental.health@eastherts.gov.uk)

### Planning and Development Control

Development Management – 01279 655261[CW1] [JP2] –  
[planning@eastherts.gov.uk](mailto:planning@eastherts.gov.uk)



11  
References

## 11 References

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- 6) Department of Environment Food and Rural Affairs. 2009. *Local Air Quality Management Technical Guidance LAQM.TG(09).*
- 7) Greater London Authority and London Councils. 2006. *The control of dust and emissions from construction and demolition best practice guidance.*
- 8) EPUK. 2012. *Combined Heat and Power: Air Quality Guidance for Local Authorities.*
- 9) EPUK. 2009. *Biomass and Air Quality Guidance for Local Authorities*

12  
Glossary

### 12 Glossary

#### **Air Quality Action Plan (AQAP)**

This is a plan detailing how local councils with areas designated as AQMAs intend to improve the air quality in those areas.

#### **Air Quality Management Area (AQMA)**

These are areas where air quality objectives have been exceeded and which are declared by way of an order issued under Section 83(1) of the Environment Act 1995.

#### **Air Quality Objectives (AQOs)**

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 specified target date. Some objectives are based upon long term exposure (e.g. annual averages), with some based on short term exposure (e.g. 24hr average). Objectives only apply where a member of the public may be exposed to pollution over the relevant averaging time.

#### **Annual Average Daily Traffic (AADT)**

The total volume of vehicle traffic of a road for a year divided by 365 days, which is used as a simple measurement of how busy a road is.

#### **EU Limit Value**

The maximum pollutant levels set out in the EU Directives on Air Quality. In some cases the limit values are the same as the national AQOs, but may allow a longer period for achievement.

#### **Heavy Duty Vehicles (HDVs)**

Goods or passenger vehicles with a maximum permissible gross vehicle weight of over 3.5 tonnes.

#### **Local Plan**

Is the document prepared by each local council which sets targets for new homes, employment and retail development and identify areas of land where these developments should be built. It will also consider what infrastructure is needed to support development. The Local Plan's policies will be used for making decisions on planning applications.

#### **Microns**

Microns are measure of distance otherwise known as micro-meters. 1 micro-meter is the same distance as 0.000001m or 0.001mm.

### **National Planning Policy Framework (NPPF)**

It sets out the Government's planning policies for England and how these are expected to be applied. It sets out the Government's requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so. It provides a framework within which local people and their accountable councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.

### **Nitrogen dioxide (NO<sub>2</sub>)**

Exposure to nitrogen dioxide has several health impacts, including irritation of the respiratory system and shortness of breath which may contribute to cardiovascular issues and premature death.

### **Particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>)**

Exposure to particles with a diameter of less than 10 microns in diameter has been widely studied and health effects include asthma, lung cancer, cardiovascular issues and premature death. The size of the particle is the main determinant of where in the respiratory tract the particle will come to rest when inhaled. Particles smaller than about 10 microns (PM<sub>10</sub>) can settle in the bronchi and lungs and cause health problems and particles smaller than 2.5 microns (PM<sub>2.5</sub>) can penetrate deeper. There is clear health advice that there is no recognised safe level for exposure to these air pollutants.

### **Street Canyon**

Is a relatively narrow street with buildings on both sides where the height of the buildings is generally greater than the width of the road.

### **UK Air Quality Strategy**

The Strategy sets out a way forward for work and planning on air quality issues, the air quality standards and objectives to be achieved and identified national policy measures which could give further health benefits and help achieve the Strategy's objectives.

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