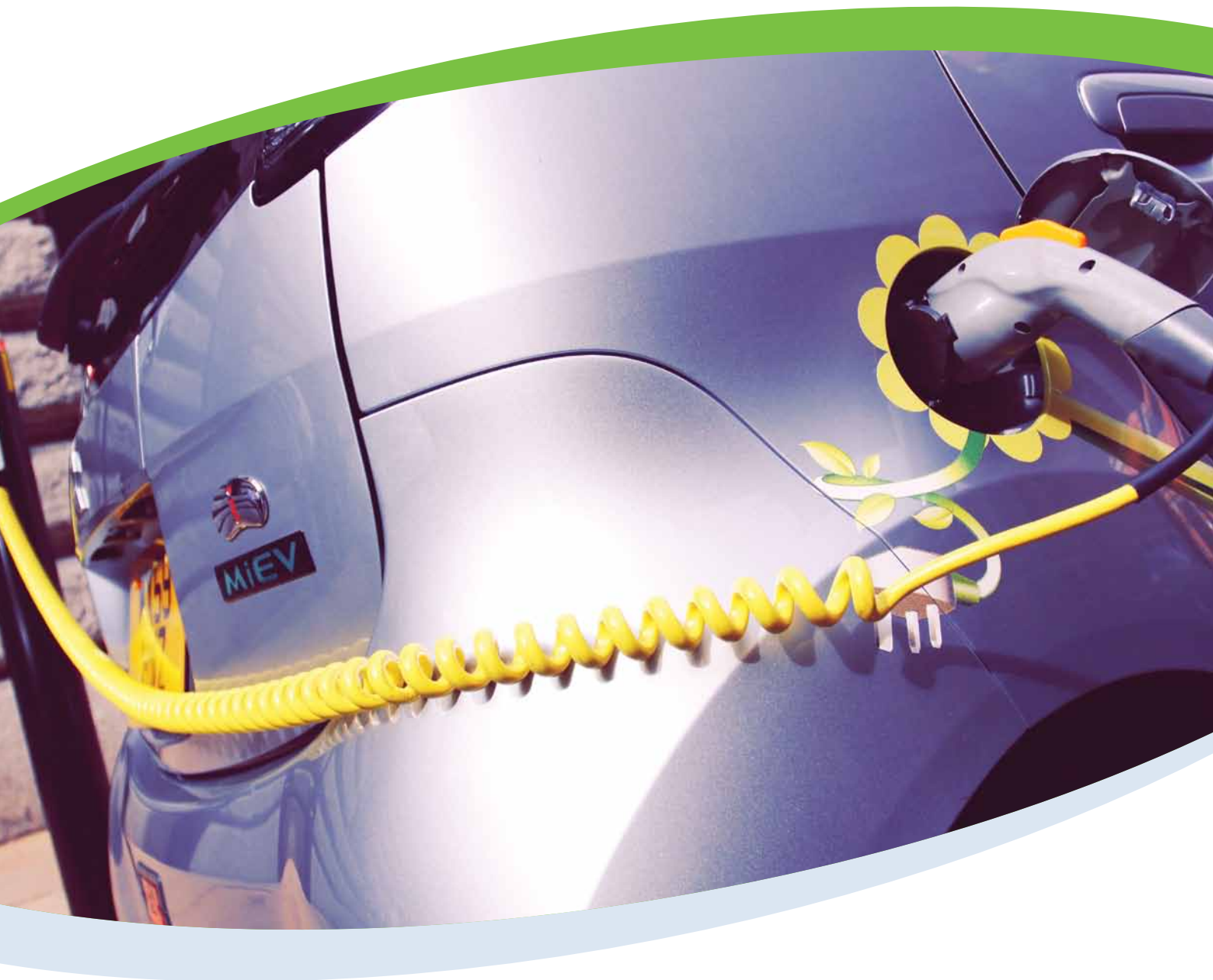


# West Midlands Low Emissions Towns & Cities Programme



## Good Practice Air Quality Planning Guidance

Final  
May 2014

# Foreword

Road transport is responsible for approximately 40% of all NO<sub>x</sub> emissions (oxides of nitrogen –precursors for Nitrogen Dioxide) and 25% of particulate emissions in urban areas, forming the major contributing factor to poor air quality.

This guidance forms part of the development of an overarching Low Emission Strategy for the West Midlands and is aimed at helping regional authorities achieve UK Air Quality Objectives and EU Air Quality Limit Values through a simplified approach to dealing with air quality within the planning system. It outlines how local authorities in the West Midlands can work with the public and the private sectors, and other stakeholders, to implement measures which reduce the impact of emissions from traffic and development on public health and air quality, whilst simultaneously contributing to the regeneration of our economy.

Copies of the Low Emissions Town and Cities Programme documents can be viewed on the LETCP website: [www.walsall.gov.uk/low\\_emissions\\_towns\\_and\\_cities\\_programme](http://www.walsall.gov.uk/low_emissions_towns_and_cities_programme)

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# Executive Summary

This guidance has been produced as part of the Defra funded Low Emissions Towns and Cities Programme (LETCP). Dudley Metropolitan Borough Council is the lead authority for the planning guidance work stream. The LETCP seeks to promote joint working to reduce road transport emissions, including Oxides of Nitrogen (NO<sub>x</sub>) and fine particulates (PM<sub>10</sub> and PM<sub>2.5</sub>), whilst simultaneously seeking reductions in greenhouse gases. Building on policies and measures to avoid and reduce vehicle use and encourage the shift to sustainable transport modes, the LETCP also targets emission improvements of vehicle fleets through the accelerated take-up of cleaner fuels and technologies and the discouragement of high emission vehicles.

Road transport emissions are a major source of Nitrogen Dioxide (NO<sub>2</sub>) and fine particles (PM<sub>10</sub> and PM<sub>2.5</sub>). Reductions in fine particulate emissions are known to significantly reduce mortality and morbidity in exposed populations<sup>1</sup>. The World Health Organisation (WHO) published evidence to show that exposure to diesel exhaust fumes can significantly increase the risk of lung cancer in key sectors<sup>2</sup>. Levels of NO<sub>2</sub> at a range of road side locations in 6 out of the 7 West Midlands authorities are in breach of the health-based EU Air Quality Directive Limit Value, as are the majority of the major conurbations in Europe. The EU has initiated legal proceedings against the UK for extensive breaches of the EU Limit Value for NO<sub>2</sub> with the West Midlands Zone considered the most extensive, in terms of exceedance outside Greater London<sup>3</sup>.

This guidance provides a model approach for integrating air quality considerations into land-use planning policies that can influence the reduction of road transport emissions and to update individual authority Air Quality Action Plans. This approach may be used by air quality officers, planning and development management officers and professionals working in the field of sustainability, climate change and other environmental fields to promote a greater understanding of the inter-relationships between

disciplines. This can result in further integrated activity and the design and delivery of co-ordinated and optimised policies and measures. The guidance should be read in conjunction with Local Authority planning policies.

The guidance addresses the following:

- **Background to the policy context supporting the consideration of key pollutants relevant to air quality review and assessment within the planning system;**
- **An outline of the policies and measures within the National Planning Policy Framework and National Planning Guidance relating to air quality considerations;**
- **A model for local authorities to use when updating their Air Quality Action Plans, outlining a clear and consistent approach to assessment of planning applications, mitigation and compensation, thus defining what is meant by “sustainable” in air quality terms;**
- **Provision of a simplified approach, reducing the requirements for Air Quality assessments while promoting the integration of mitigation into scheme design; and**
- **Examples of existing West Midlands development schemes incorporating low emission initiatives.**

This guidance forms part of the development of an overarching Low Emission Strategy for the West Midlands, aimed at assisting local authorities in the West Midlands to achieve the EU Air Quality Directive Limit Values.

**Note: Throughout the document all references to sustainable development refer to sustainable development in terms of air quality.**

1 <http://comeap.org.uk>

2 [http://www.iarc.fr/en/media-centre/pr/2012/pdfs/pr213\\_E.pdf](http://www.iarc.fr/en/media-centre/pr/2012/pdfs/pr213_E.pdf)

3 <http://ec.europa.eu/environment/air/quality/legislation/directive.htm>

# Introduction

## 1.1 Purpose of the guidance

The West Midlands LETCP is a partnership comprising the seven<sup>4</sup> West Midlands local authorities, working together to improve air quality and reduce carbon emissions from road transport by building on Air Quality Action Plan measures and the third Local Transport Plan (LTP3)<sup>5</sup>. The intention is to do this by developing a Low Emission Strategy (LES), which will complement Long Term Theme 10 set out in LTP3 by delivering policies and measures that can reduce emissions of air pollutants. The strategy will discourage the use of high emission vehicles and promote the uptake of low emission fuels and technologies, whilst establishing and sharing best practice policies and developing various tools and resources. The LES has several work streams, including the development of good practice guidance in using planning and public sector procurement with a view to reducing road transport emissions and meeting national air quality objectives, thereby promoting compliance with EU emission limits.

Across the West Midlands the spatial planning process has a significant role to play in helping to better integrate land-use and transport to encourage more sustainable development, and to secure future improvements to air quality and greenhouse gas emissions. It is recognised that, whilst development will usually have an incremental impact on atmospheric emissions, sustainable schemes can also be a positive force for change, catalysing benefits for the wider community through the introduction of incremental benefits secured on each scheme. This guidance aims to define what “sustainable” means in air quality terms and attempts to simplify the approach to dealing with air quality within the planning system by

outlining a model that each local authority can adopt when updating Air Quality Action Plans, ensuring a clear and consistent approach across the region. The wider policy context is set out in the over-arching LES document.

## 1.2 Background

Outside of London the West Midlands suffers from the most extensive exceedences of the EU health based Limit Value for Nitrogen Dioxide (NO<sub>2</sub>) in the UK. Although EU Limit Values for particulates (as PM<sub>10</sub>) are being met, it is acknowledged that there is no safe level, with exposure reduction below the EU Limit Value producing corresponding reductions in the incidence of mortality and morbidity. Local Authority research in the West Midlands shows that emissions from road transport are the principal source of elevated concentrations of NO<sub>2</sub> and PM<sub>10</sub> and it is estimated that road transport emissions account for 630 premature deaths each year in the West Midlands<sup>6</sup>. Exposure to poor air quality can trigger and exacerbate asthma, increase risk of low birth weight<sup>7</sup> and can cause acute and chronic cardiovascular and pulmonary illness.

Areas where regulated pollutant concentrations exceed EU Limit Values are designated as Air Quality Management Areas (AQMAs). Six of the seven local authorities in the West Midlands have AQMAs which are due to elevated levels of NO<sub>2</sub>. Each West Midlands Authority with one or more AQMA has published an Air Quality Action Plan (AQAP)<sup>8</sup> to demonstrate how they will pursue the achievement of better air quality. AQAPs detail measures that can be implemented to improve air quality, including mitigation measures that may be delivered through land-use planning.

4 Birmingham City Council, Coventry City Council, Dudley Metropolitan Borough Council, Sandwell Metropolitan Borough Council, Solihull Metropolitan Borough Council, Walsall Metropolitan Borough Council, Wolverhampton City Council

5 <http://centro.org.uk/about-us/corporate-publications/local-transport-plan/>

6 Traffic Pollution Kills 5,000 a year in the UK, says study <http://www.bbc.co.uk/news/science-environment-17704116>

7 <http://www.nhs.uk/news/2013/10October/Pages/Air-pollution-associated-with-low-birth-weight.aspx>

8 Birmingham City Council, Coventry City Council, Dudley MBC, Sandwell MBC, Walsall Council, Wolverhampton City Council

To improve clarity for developers and planners, AQAPs should provide clear guidance as to when an air quality assessment is required and what this should cover in relation to a given development scheme. Measures that can mitigate air quality impacts should be detailed within AQAPs and Low Emission Strategies, including situations where the mitigation should be incorporated into scheme design as standard.

On this basis it is recommended that AQAPs are updated to reflect this guidance.



Photograph by kind permission of Elektromotive Ltd

# National and Local Policy Context

## 2.1 The National Planning Policy Framework (NPPF)

The NPPF<sup>9</sup> is a key part of the Government's reform of the planning system in England. At the heart of the policy framework is a presumption in favour of sustainable development. The NPPF acknowledges that air quality considerations are relevant in the planning process and states that developers need to take into account local authority AQMAs, AQAPs and Low Emission Strategies. The NPPF recognises the role that positive planning can play in improving air quality and public health and stresses the importance of Local Plans.

One of the 12 Core Planning Principles of the NPPF states that planning should:

*“contribute to conserving and enhancing the natural environment and reducing pollution” 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”.* (Paragraph 109)

The NPPF goes on to say:

*“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.”* (Paragraph 124).

The NPPF recommends that neighbouring authorities work together (a Duty to Co-operate), recognising cross-boundary issues such as air pollution in order to ensure consistency of approach. It is evident that the low emissions strategy approach to planning

is consistent with, and is supported by, the requirements of the NPPF. The West Midlands Authorities will provide clear and consistent guidance on how air quality should be considered in context of the planning system by updating their AQAP. Section 3 sets out a framework model for authorities to use for this process.

## 2.2 National Planning Guidance

The Government has produced National Planning Practice Guidance to assist planning authorities when implementing NPPF principles and policies<sup>10</sup>. The West Midlands Guidance is in line with National Guidance and incorporates key issues, including the requirement that damage costs are assessed as part of scheme determination and necessary mitigation for scheme acceptability should be in line with local authority AQAP and Low Emission Strategies. The Guidance also suggests that where mitigation is not feasible, consideration should be given to off-setting the scheme's impact by funding measures identified within an AQAP or Low Emission Strategy.

## 2.3 Local Plans

Whilst planning policy cannot solve immediate air quality issues, it has a role to play so that any likely scheme impacts are reasonably mitigated and future scheme occupants are able to make green vehicle choices. Sustainable development is the core principle that runs at the heart of strategic planning across the West Midlands, placing an emphasis upon creating sustainable economic growth and locally accessible services and employment. This approach ensures the vitality of town centres to support healthy and vibrant communities and promotes more sustainable transport modes by reducing the need to travel and enabling people to make low emission transport choices. This framework is central to the economic, environmental and social prospects of the region.

<sup>9</sup> <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

<sup>10</sup> <http://planningguidance.planningportal.gov.uk/>

This guidance seeks to build on the air quality and sustainability policy headings within local plans and policies (including transport and health related plans) by providing clarity as to what is required to make schemes sustainable in air quality terms. A summary of the current West Midlands policy context is set out in Annex 3.

## 2.4 Air Quality Action Plans & Travel Plans

Air Quality Actions Plans (AQAPs) have been produced by 6 out of the 7 West Midlands authorities for the purpose of redressing transport related NO<sub>2</sub>. AQAPs are a statutory requirement, developed following declaration of AQMAs.

West Midlands Local Authorities require developments to provide a Travel Plan, in accordance with the Department of Transport (DfT) criteria<sup>11</sup>. Sandwell MBC provides extensive guidance on when a Travel Plan is needed and what it should include<sup>12</sup>. Travel Plans can be effective in reducing trips and encouraging modal shift, particularly where the implementation of the Travel Plan is monitored. Measures to discourage the use of high emission vehicles or encourage the use of low emission vehicles, including the provision of infrastructure, may be included in Travel Plans.

11 The DfT Threshold criteria for Transport Assessments are provided in Annex 4

12 [http://www.sandwell.gov.uk/downloads/file/3409/supplementary\\_planning\\_document-the\\_preparation\\_of\\_transportation\\_assessments\\_and\\_travel\\_plans](http://www.sandwell.gov.uk/downloads/file/3409/supplementary_planning_document-the_preparation_of_transportation_assessments_and_travel_plans)

# Local Authority Air Quality and Planning

## 3.1 Introduction

It is recognised that development will in the main inherently increase road transport emissions, both during the construction and operational phases. It is however also accepted that sustainable development can be a positive force for change. The approach in this guidance seeks to minimise road transport emissions wherever practicable to sustainable levels, while also seeking to counter the cumulative impacts from the aggregation of incremental emissions arising from each development scheme.

Although the focus of this guidance concerns issues arising from road transport emissions it is also relevant to consider the synergistic benefits of tackling both greenhouse gases and noise from road transport sources. Separate guidance would need to be considered for other sources of emissions, including point sources.

The model outlined below provides an indicative step by step approach to dealing with planning applications that have the potential to create relevant exposure to road transport emissions (NO<sub>2</sub> and PM<sub>10/2.5</sub>) for future occupants of a development, or where the proposed development scheme has the potential to increase concentrations of pollutants arising from road transport emissions (see flow chart – Figure 1).

## 3.2 Step 1 – Pre-Application Discussion

It is important that planning authority requirements regarding scheme sustainability and the planning application validation process are identified at the earliest stage possible. For this reason pre-application discussion involving planning management and air quality professionals should take place at the outset to ensure optimum scheme design and avoid unnecessary delays in the planning process. This is particularly pertinent in relation to major schemes.

## 3.3 Step 2 – Classification of the Development

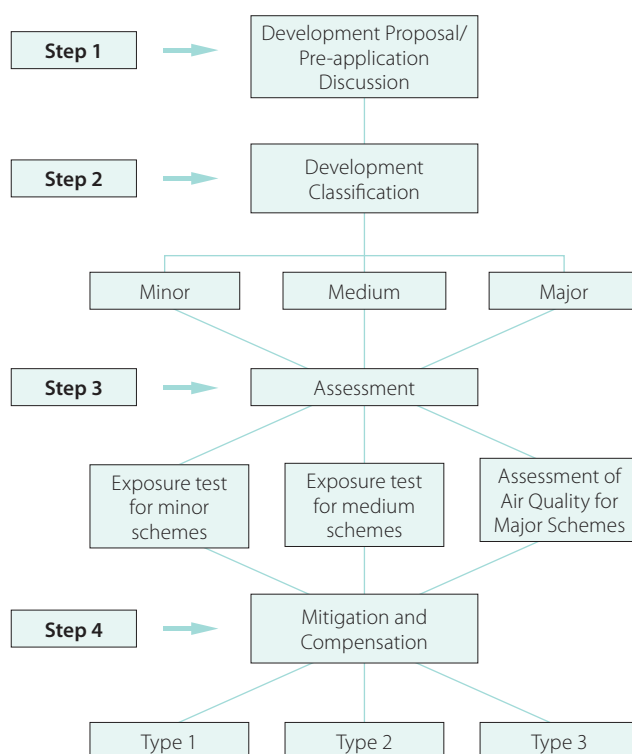
The likely air quality impact of developments have been categorised using the Df T Threshold Criteria for Transport Assessments (adapted for Air Quality Purposes) and Defra Technical Guidance [TG (09)] into minor, medium and major classifications (See Table 1)<sup>13</sup>.

For reference the Df T criteria for Transport Assessments is set out in Annex 4. In line with paragraph 32 of the NPPF, local authorities are required to develop their own criteria for Transport Assessments based on local knowledge.<sup>13</sup> Where local criteria are available, these thresholds should be used. In the absence of local criteria, the DfT Criteria should be referred to by default.

Local authorities should reflect the development classification in their validation requirements for planning applications so that they can obtain the necessary information, assessments and provisions for mitigation measures as appropriate.

A sample air quality validation checklist is set out in Annex 6.

**Figure 1 – Low Emission Strategies Assessment and Mitigation Flow Chart**



<sup>13</sup> <http://planningguidance.planningportal.gov.uk/blog/guidance/travel-plans-transport-assessments-and-statements-in-decision-taking/>



**Table 1: Development Classification**

Scheme Type	Minor	Medium	Major
Threshold	Below threshold criteria for Transport Assessment	Meets threshold criteria for Transport Assessment  Where development meets Df T threshold criteria for a Transport Assessment based on considerations other than size or scale of land use  Or where the development is for any B2 or B8 use falling below the major classification <sup>14</sup>	Developments classified as medium which also trigger any of the following criteria:  i) Where development requires an EIA <sup>15</sup>  ii) Where development is likely to increase traffic flows by more than 5% on roads with >10,000 AADT <sup>16</sup> or change average vehicle speeds by > 10 kph/likely to cause increased congestion (DfT Congestion)  iii) Where a proposal is likely to increase traffic by more than 5% on road canyons with > 5,000 AADT  iv) Where a development requires a Transport Assessment and HGV movements are $\geq$ 10% of total trips  v) Where significant demolition and construction works are proposed
Assessment	None (other than for exposure)	None (other than for exposure)	Air Quality Assessment required including an evaluation of changes in vehicle related emissions <sup>17</sup>

### 3.4 Step 3 – Assessment Where Exposure May Arise

For all scheme classifications relevant exposure may be identified<sup>18</sup> where there is, or is likely to be, exposure to concentrations above EU Limit Values. The determination of relevant exposure should be ascertained through reference to the local authority's latest review and assessments of air quality and future air quality forecasts (the position of relevant receptors may be crosschecked against local authority exceedance maps if available).

For major developments, the Air Quality Assessments will include the consideration of potential increased exposure for relevant receptors affected by the development.

Where no modeling data exists and relevant receptors are proposed next to roads with an AADT (annual average daily traffic flow) of greater than 10,000 (or 5,000 in the case of street canyons) the developer may be required to undertake monitoring for a limited period to ascertain pollutant levels. On agreement with the local authority about the relevant parameters, a developer may refer to the Defra

UK Ambient Air Quality Interactive Maps<sup>19</sup>

Where relevant exposure has been identified it is important that careful consideration is given to the mitigation proposed, and wherever appropriate noise aspects are integrated with air quality considerations. For example, where road transport emissions are concerned there is a tendency to suggest noise mitigation in the form of suitable sound insulation (e.g. acoustic glazing, sealed units and ventilation) that may introduce or exacerbate exposure to poor air quality via the introduction of active ventilation. Local authorities, in considering policies on exposure, may give weight to the following mitigation measures:

- **Can the curtilage of a residential building be set back beyond the pollutant exceedance zone?**
- **Can the scheme be designed to place residential units at the rear of the development or on higher floors?**
- **Can vegetative barriers, including appropriate tree species, offer some degree of separation from the road?**

14 B2 and B8 uses can generate significant HGV movements and would normally require mitigation to a Type 2 standard.

15 Required where development is within or likely to create an area of exceedance of EU Limit Values and air quality is within the scope of the EIA

16 Annual Average Daily Traffic flow

17 Assessment includes monetisation of the impacts arising from emission changes in line with Defra IGCB Damage Costs (see Annex 1)

18 [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/69334/pb13081-tech-guidance-laqm-tg-09-090218.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69334/pb13081-tech-guidance-laqm-tg-09-090218.pdf)

19 <http://uk-air.defra.gov.uk/data/gis-mapping>

(While several reports<sup>20,21</sup> have highlighted some potential for certain vegetation species to reduce particulate concentrations, they also indicate a limited effectiveness in reducing exposure to NO<sub>2</sub> in the urban area)

- Can design of built forms avoid the creation of canyons, allowing a greater degree of pollutant dispersal?
- Mechanical ventilation should not automatically be seen as providing effective mitigation against exposure and should be scrutinised carefully, not only in terms of the acceptability of providing living conditions in what could be described as a hermetically sealed unit, but also in terms of the increase in energy requirements and maintenance that is incurred and the attendant secondary noise effects that can arise.

**3.5 Step 3 – Assessment Evaluation for all other circumstances**

For all developments classified as minor and medium, where relevant exposure is not a concern, an air quality assessment is not required and mitigation to make the development sustainable is specified for each classification of development and is termed Type 1 or Type 2 (see Table 2 and paragraph 3.6)

An air quality assessment is required for all major developments, a protocol for which is provided in Annex 1. The protocol includes details of how to undertake an emissions assessment for a development and a calculation of damage costs. Damage costs are used to determine the level of Type 3 mitigation and/or compensation required to

make the scheme acceptable – an explanation and an example of the calculation are provided in Annex 1.

Table 2 below summarises the type of assessment, mitigation and/or compensation required for each of the development classifications.

Certain major schemes may contribute to a worsening of air quality within an AQMA or trigger the designation of an AQMA. This will be ascertained through an air quality assessment. Planning authorities will make a decision as to whether a scheme is an appropriate use of land and this may be influenced by the impact on air quality.

It is advised that determining significance should be policy driven, allowing planning authorities to consider the planned scale and type of developments considered likely in an area and their potential impact on air quality. For example, some large scale schemes that have an impact on air quality in the short term may provide opportunities for catalysing emission improvements over a longer period through either their spatial design, reducing the need to travel or the adoption of low emission vehicle technologies and fuels that may benefit the wider community. It is important that local Air Quality Action Plans and Low Emission Strategies anticipate the scale of local development and include measures that can be positively promoted through the planning process.

In some circumstances it may be necessary to recommend refusal of a scheme due to the adverse effect on air quality and where appropriate mitigation is not feasible or off-setting the impact is not possible.

**Table 2: Summary of Assessment, Mitigation and Compensation Progression**

Development Type	Assessment Required	Mitigation	Compensation
Minor	None (other than for exposure)	Type 1 <sup>22</sup>	-
Medium	None (other than for exposure)	Type 1 and 2 <sup>23</sup>	-
Major	Full AQ Assessment in line with Council Guidance, including evaluation of emission and concentration changes	Type 1, 2 and 3 <sup>24</sup>	Type 3

20 <http://www.es.lancs.ac.uk/people/cnh/docs/UrbanTrees.htm>

21 <http://www.woodlandtrust.org.uk/en/planting-woodland/why-plant-trees/environmental-benefits/Pages/default.aspx>

22 See table 3

23 See table 4

24 See table 5

### 3.6 Step 4 – Mitigation and Compensation

The LETCP approach assumes that minor and medium schemes should not have a significant impact on air quality if the appropriate Type 1 and 2 mitigation as outlined in this guidance, is incorporated into development proposals. Where appropriate mitigation has been incorporated, such schemes can be considered as being sustainable in air quality terms.

In addition to Type 1 and Type 2 mitigation, major schemes may require additional Type 3 mitigation which is determined in scale by the calculation of emission damage costs associated with the scheme.

The required mitigation is summarised as:

**Type 1** – Electric Vehicle Recharging and the adoption of an agreed protocol to control emissions from construction sites<sup>25</sup>

**Type 2** – Practicable mitigation measures supported by the NPPF; and

**Type 3** – Additional measures that may be required by either planning condition or Planning Obligation by a Section 106 Agreement to make the site acceptable, using reasonable endeavours.

The Type 2 & 3 mitigation measures presented in this guidance are not exhaustive lists and should be seen as defaults. Innovative solutions to air quality mitigation are encouraged. The type of mitigation agreed will be informed by:

- **Outcomes from the Transport Statement/ Assessment;**
- **Specific needs identified in site specific spatial policy allocations;**
- **Travel Awareness/Planning and Highway Development requirements;**
- **Defra air quality guidance (Defra Measures Guidance)**
- **Measures supported by the West Midlands Low Emissions Strategy ([www.walsall.gov.uk/index/environment/pollution/air\\_quality/low\\_emissions\\_towns\\_and\\_cities\\_programme.htm](http://www.walsall.gov.uk/index/environment/pollution/air_quality/low_emissions_towns_and_cities_programme.htm))**

Details of the default mitigation and compensation measures by type are provided in the tables below.

#### Type 1 – Recommended Electric Vehicle Recharging Provision

A key theme of the NPPF is that development should enable future occupiers to make “green” vehicle choices and “incorporate facilities for charging plug-in and other ultra-low emissions vehicles” (paragraph 35). Therefore, as a minimum requirement new development schemes should include the provision of electric vehicle recharging provision and any mitigation requirements arising from the exposure assessment where applicable. To prepare for increased demand in future years, appropriate cable provision should be included in the scheme design and development, in agreement with the local authority. It is recommended that Local Authorities should set the EV charging provision rates in accordance with the standard mitigation listed in Table 3.

Paragraph 39 of the NPPF states that if setting local parking standards for residential and non-residential development, local planning authorities should take into account:

- **the accessibility of the development;**
- **the type, mix and use of development;**
- **the availability of and opportunities for public transport;**
- **local car ownership levels; and**
- **an overall need to reduce the use of high-emission vehicles**

Table 3 outlines the minimum recommended EV charging provision for development schemes across the West Midlands. It is preferable that there is consistency in minimum provision across the region. Authorities may however wish to require higher provision on key, strategic schemes. The minimum provision outlined reflects the fact that current rates of EV ownership in the West Midlands, albeit still relatively low, are the highest in the UK outside London.

<sup>25</sup> To be agreed with local authority pollution control section

**Table 3: EV Recharging Standards**

	Residential	Commercial/ Retail	Industrial
<b>Provision Rate</b>	1 charging point per unit (house with dedicated parking)	10% of parking spaces (this may be phased with 5% provision initially and a further 5% trigger)*	10% of parking spaces (this may be phased with 5% provision initially and a further 5% trigger)*
	1 charging point per 10 spaces (unallocated parking, i.e flat development)		
	* To prepare for increased demand in future years, appropriate cable provision for increased provision should be included in scheme design and development in agreement with the local authority.		
	Where Travel Plans are required, recommended EV re-charging provision should be detailed within them, including future proofing through the provision of cabling.		

**NB:** Standards for the specifications of EV Recharging in relation to power and electric cabling requirements should be agreed with the planning authority. A standard specification is provided in Annex 5 in line with the IET Code of Practice



Photo courtesy of Coventry City Council

**Type 2 – Standard Mitigation for Scheme Sustainability**

Table 4 provides a suite of measures that local authorities may wish to incorporate into scheme design where appropriate. The list is not exhaustive and further detail can be provided where authorities feel it is appropriate, depending on the scale of development and air quality issues within an area. Authorities should encourage and welcome innovative mitigation measures that facilitate a step change in road transportation behaviour. Where Travel Plans are required, mitigation measures can be considered within a single document, including monitoring mechanisms.

**Table 4: Type 2 – Standard Mitigation for Scheme Sustainability**

Mitigation	
	<ul style="list-style-type: none"> <li>– Travel Plan (where required), including 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</li> <li>– Designation of parking spaces for low emission vehicles</li> <li>– Differential parking charges depending on vehicle emissions</li> <li>– Public transport subsidy for residents/ employees</li> <li>– Improved convenient and segregated cycle paths to link local cycle network</li> </ul>
	<p>Commercial Specific</p> <ul style="list-style-type: none"> <li>– All commercial vehicles should comply with either current or previous European Emission Standards from the development opening, to be progressively maintained for the lifetime of the development</li> <li>– Fleet operations should provide a strategy for considering and reducing emissions, including possibilities for the take up of low emission fuels and technologies</li> <li>– Use of ultra low emission (i.e. electric/ gas) service vehicles</li> </ul>

### Type 3 – Additional Mitigation and/or Compensation Required for Scheme Acceptability

In most cases it should be possible to mitigate or off-set any adverse impacts of major schemes by evaluating their contribution to emission increases and then translating such additional emissions into damage costs (for calculation see Annex 1). Such a mechanism allows the costing of additional measures, in scale and kind with the development and in line with the AQAP or Low Emission Strategy that may be required to make the scheme acceptable. Additional measures to make a scheme acceptable are outlined in Table 5 and may be delivered as part of a Section 106 Agreement or via planning conditions, where appropriate. These measures are termed Type 3.

For clarity, it is important that pre-application discussions on major schemes include advice on damage costing and appropriate consideration of mitigation and/or compensation.

### 3.7 Planning Obligations and Section 106 Agreements

Planning obligations are agreements made between local authorities and developers to make developments acceptable which would otherwise be unacceptable in planning terms. Where there is a choice between imposing conditions and entering into a planning obligation, the imposition of a condition is preferable<sup>26</sup> and subject to it satisfying the “tests” as set out in Circular 11/95<sup>27</sup> and the NPPF.

It is important to note the legal changes to the use of Planning Obligations as a result of the Community Infrastructure Levy Regulations (2010)<sup>28</sup>. Planning obligations are now required by law to meet the following three statutory tests:

- **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**

<sup>26</sup> Low Emissions Strategies: using the planning system to reduce transport emissions, DEFRA/LESP, January 2010

<sup>27</sup> Circular 11/95: The Use of Conditions in Planning Permissions, July 1995. Communities & Local Government <http://www.communities.gov.uk/publications/planningandbuilding/circularuse>

**Table 5: Type 3 – Additional Mitigation and/or Compensation Required for Scheme Acceptability**

Mitigation/ Compensation	
	– On-street EV recharging
	– Contribution to low emission vehicle refuelling infrastructure
	– Car clubs
	– Low emission bus service provision
	– Low emission waste collection services
	– Bike/e-bike hire schemes
	– Contribution to renewable fuel and energy generation projects
	– Incentives for the take-up of low emission vehicle technologies and fuels
	– Or any other measures within an Air Quality Action Plan or Low Emission Strategy relevant to the scheme
	– Public transport subsidy for residents/ employees

Where mitigation is not integrated into a proposal, the Local Planning Authority can require this 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 then the Local Planning Authority will seek compensation for the identified air quality impacts through a Section 106 agreement. Such agreements are a delivery mechanism for matters that are necessary to make the development acceptable, either through mitigation or compensation. Section 106 Agreements are an appropriate mechanism for mitigating or compensating against the impact of large scale major developments through the requirement to deliver Type 3 measures. Examples of where West Midlands Authorities have included low emission measures to mitigate against scheme impact on air quality by using either planning conditions, including full and outline application stage, and Section 106 agreements can be found in Table 7 of Annex 2.

<sup>28</sup> <http://www.legislation.gov.uk/uksi/2011/987/made>

### 3.8 Community Infrastructure Levy (CIL)

Introduced as part of the Community Infrastructure Levy (CIL) Regulations 2010, CIL is a charge that Local Authorities in England and Wales are empowered, but not required, to charge on most types of new development. The proceeds of the CIL will be spent on local infrastructure and, where necessary, sub-regional infrastructure to support the new development of the area.

Planning obligations using Section 106 will remain after the introduction of CIL (April 2014). They will however be scaled back significantly and matters necessary to make development acceptable will remain, with off site contributions secured through CIL. It should be noted that where mitigation/infrastructure measures are being sought through planning obligations, then contributions cannot also be sought through CIL as this would result in 'double charging' the developer.

Planning authorities should consider carefully whether it is appropriate to pursue low emission measures through CIL or through planning obligations using Section 106 agreements. Key considerations include scheme viability within an area, which will determine the level of funding achieved through CIL. If low emission measures are included as part of the published CIL list then they cannot be pursued through a planning obligation. If large scale major planning applications are anticipated to come forward within an area it may be appropriate to consider Section 106 as the most appropriate mechanism to deliver low emission strategy measures that are necessary to make such development schemes acceptable.



Photograph by kind permission of Elektromotive Ltd

# Annex 1

## Air Quality Assessment Protocol for Determining the Impact of Vehicle Emissions Arising From Development

The purpose of any air quality assessment is to quantify changes in pollutant concentrations and/or exposure to poor air quality at relevant receptors resulting from the proposed development. Impacts must be assessed in the context of relevant national and international objectives and targets and any local planning or other policies. The assessment must take into account the cumulative air quality impacts of committed developments and schemes (i.e. proposals that have been granted planning permission at the time the assessment is undertaken). This ensures that 'with development' and 'without development' scenarios are represented as accurately as possible.

The assessment should involve the completion of an air quality modelling study, although from time to time specific pollutant monitoring may also be required. Modelling can be carried out once the information to be used has been agreed with the Local Authority.

Typically, this would include:

- Traffic data used for the assessment including the trip rates associated with the development, the frequency of the trips, the length and route of the trips and the nature and types of vehicles being used;
- 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

Modelling should be carried out using a recognised local scale dispersion model to be agreed with the Local Authority prior to commencement of work. The study normally comprises four simple steps:

1. **Assessment of the existing air quality situation in the study area for the baseline year and agreement of specific receptor points with the Local Authority prior to commencement.**

**The model should be validated against council (or other) monitoring data where available which can usually be supplied on request.**

2. **Prediction of future air quality without the proposed development in place.**
3. **Prediction of future road transport emissions and air quality with the proposed development in place.**
4. **An assessment of the effect(s) the proposed development will have on road transport emissions air quality including the proposed mitigation measures.**

Note: for Stages 2 and 3 above, the future scenario year(s) will need to be agreed in advance with the Local Authority prior to commencement of work.

The assessment will also need to include:

- **The relevant details of the proposed development**
- **Details of the relevant air quality standards and objectives**
- **Details of the agreed assessment method**
- **An assessment where appropriate of construction related air quality impacts**
- **Details of the modelling software and its validation**
- **Results of the modelling exercise including uncertainties, errors, adjustments and verification**
- **A sensitivity test which assumes that there will be no reduction in traffic related emission factors from the baseline year**
- **Summary of the assessment results and air quality impacts arising**
- **Mitigation measures to be taken to protect air quality**

### Damage Costs Calculation for Major Schemes

The impact of the development can be quantified in terms of damage costs by estimating the emissions of NOx and Particulate Matter. The method is summarised as follows:

**Road Transport Emission Increase =**  
 $\Sigma[\text{Estimated trip rate for 5 years} \times \text{Emission rate per 10 km}^{29} \text{ per vehicle type} \times \text{Damage costs}]$

The road transport emission increase should be annualised and totalled for a period of 5 years. A trip length of 10 km should be used which is derived from the DfT National Travel Surveys<sup>30</sup> estimation of average trip length. The emission total for the scheme can then be monetised by using the damage costs provided by the Inter Governmental Department on Costs and Benefits (IGCB, Defra)<sup>31</sup>. A table of the damage costs per tonne of air quality pollutants is provided in Table 6 of Annex 1.

The damage cost calculation can be undertaken using the Defra Emissions Factor Toolkit (EFT), see: <http://laqm.defra.gov.uk/review-and-assessment/tools/emissions.html>

**Notes:**

1. Trip Rates are sourced from the Transport Assessments and local authority where available.
2. Trip Length uses the National Travel Survey- (UK average = 10km).
3. The IGCB damage costs are the central estimates (currently NOx = £955/tonne & PM<sub>10</sub> transport average £48,517).



Ashwoods Hybrid Vehicle.  
 Courtesy of Ashwoods  
 Automotive Limited

29 Extrapolated from The National Travel Survey :2011, Statistical Release, 13th December 2012 [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/35738/nts2011-01.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/35738/nts2011-01.pdf)

30 As 28 above

31 <http://www.defra.gov.uk/environment/quality/air/air-quality/economic/damage/>



A screen shot of the input and output pages are shown further below and the following example demonstrates the calculation based on a development with 10 domestic properties.

### EFT – Input Screen

The screenshot shows the 'Input Screen' of the EFT software. It includes the following sections:

- Select Pollutants:** Checkboxes for NOx, PM10, PM2.5, NOx(TRL), Carbon Dioxide, and Hydrocarbons.
- Select Outputs:** Checkboxes for Air Quality Modelling (g/km/s), Emissions Rates (g/km), and Annual Link Emissions.
- Additional Outputs:** Checkboxes for Breakdown by Vehicle, Source Apportionment, and PM by Source.
- Advanced Options:** Checkboxes for Euro Compositions, Alternative Technologies, and Output % Contributions from Euro Classes.
- Action Buttons:** 'Run EFT' and 'Clear Input Data' buttons.
- Please Select from the Following Options:**
  - Area: England (not London)
  - Year: 2013
  - Traffic Format: Basic Split
- Export Outputs:**
  - Save Output to New Workbook:
  - File Name: Run 1
- Table:**

SourceID	Road Type	Traffic Flow	%HDV	Speed(kph)	No of Hours	Link Length (km)
Emission Calc	Urban (not London)	70	0	50	24	10

### EFT – Output Screen

The screenshot shows the 'Output Screen' of the EFT software. The table displays the following data:

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))
Emission Calc	NOx	80.581	80.581	0.000
Emission Calc	PM10	9.551	9.551	0.000

**EFT Input:**

Using an input year of 2013  
 10 households (urban not London) (NO<sub>x</sub> and PM<sub>10</sub>)  
 X 70 (trip/traffic ratio for 10 houses)  
 X cars only (0% HGV)  
 X 50kph (avg. speed)  
 X 10km (NTS UK avg.)

**EFT Output = kg/annum (NO<sub>x</sub>) kg/annum (PM<sub>10</sub>)**

0.080581 tonnes/annum (NO<sub>x</sub>) & 0.009551 tonnes/annum (PM<sub>10</sub>)  
 To determine the Air Quality damage costs refer to table 6 below,  
 X tones per annum by costs per tonne  
 £955/tonne (NO<sub>x</sub>) + £48517/tonne (PM<sub>10</sub>)  
 = £76.95 + £463.39 X 5 (years)  
 = £384.77 + £2316.93  
 Total = £2701.70

**Table 6: IGCB Air Quality Damage Costs per Tonne, 2010 prices<sup>32</sup>**

	Sensitivities		
	Central Estimate (1)	Low Central Range (2)	High Central Range (2)
NO <sub>x</sub>	<b>£955</b>	£744	£1,085
SO <sub>x</sub>	<b>£1,633</b>	£1,320	£1,856
Ammonia	<b>£1,972</b>	£1,538	£2,241
PM Domestic	<b>£28,140</b>	£22,033	£31,978
PM Agriculture	<b>£9,703</b>	£7,598	£11,027
PM Waste	<b>£20,862</b>	£16,335	£23,708
PM Industry	<b>£25,229</b>	£19,753	£28,669
PM ESI	<b>£2,426</b>	£1,900	£2,757
PM Transport Average	<b>£48,517</b>	£37,987	£55,133
PM Transport Central London	<b>£221,726</b>	£173,601	£251,961
PM Transport Inner London	<b>£228,033</b>	£178,540	£259,129
PM Transport Outer London	<b>£148,949</b>	£116,621	£169,261
PM Transport Inner Conurbation	<b>£117,899</b>	£92,309	£133,975
PM Transport Outer Conurbation	<b>£73,261</b>	£57,362	£83,252
PM Transport Urban Big	<b>£87,332</b>	£68,377	£99,241
PM Transport Urban Large	<b>£70,351</b>	£55,081	£79,944
PM Transport Urban Medium	<b>£55,310</b>	£43,305	£62,853
PM Transport Urban Small	<b>£34,932</b>	£27,351	£39,696
PM Rural	<b>£15,041</b>	£11,776	£17,091

© Defra 2012

## Notes:

(1) This estimate is intended for use only where a single point estimate is necessary and should always be accompanied by the central range.

(2) Variation between the central values reflects uncertainty about the lag between exposure and the associated health impact.

32 <http://www.defra.gov.uk/environment/quality/air/air-quality/economic/damage/>

## Annex 2

### Examples of Low Emission Planning Conditions & Planning Obligations in the West Midlands

Table 7 below lists examples of low emissions strategies and mitigations measures which have been secured through Section 106 agreements and Planning Conditions in the West Midlands.

**Table 7: Low Emission based Planning Obligations & Conditions**

Development	Authority	Agreed	Operational Phase Measures	CP <sup>33</sup>
Tesco Burnt Tree. supermarket redevelopment	Dudley MBC	2009 as a Section 106 Agreement	<ul style="list-style-type: none"> <li>– Fleet emission standards and use and sale of alternative fuels.</li> <li>– A financial contribution of £67,000 towards air Quality Monitoring</li> <li>– A Green Travel Plan</li> </ul>	Yes
Tesco Stourbridge A supermarket redevelopment	Dudley MBC	2011 as a planning condition	The provision of 8 electric vehicle charging points for the use of customers.	No
Coseley Eco Park Employment, residential, retail, community hall, football pitch, car showroom, trade wholesale, with associated access, roads and car parking.	Dudley MBC	2012 as planning conditions	Approved with conditions to include submission of Low Emission Strategy, provision of cycle paths & storage facilities, electric vehicle charging points for all dwellings & 5% commercial parking spaces. Additional road network improvements will improve a number of junctions which create queuing traffic and hinder traffic flow.	Yes
Factory warehouse	Dudley MBC	2012 Planning conditions	The installation of cycle storage facilities and one external electric vehicle charging point	No
Waterfront South	Walsall	2007/ Amended 2009	Charging points and car sharing pool for development	No
Gigaport	Walsall	2008 and updated in 2011	The Reserved Matters submission for each phase or parcel identified under condition A1(c) under this permission will include: Design principles for the entire area of the application in relation to: - <b>v) a low emission strategy for air quality;</b> Reason: To ensure that the development is delivered in a comprehensive manner to a high quality, <b>minimising use of the car, and promoting other modes of transport</b> while meeting the needs of the potential occupiers of the development.	No
Sandwell College & BT plc	Sandwell		Travel Plans. The key measures at Sandwell College and BT plc include: <ul style="list-style-type: none"> <li>– employing someone whose duties include travel plan coordination</li> <li>– needing to set up a particular area within carsharesandwell.com</li> <li>– offering interest free loans for public transport travel cards to staff with the TravelWise 5% discount setting up a website with travel information carrying out annual Travel Plan monitoring surveys.</li> </ul>	No

33 CP: Agreement also includes construction phase measures

Development	Authority	Agreed	Operational Phase Measures	CP <sup>33</sup>
Outline permission for a large supermarket	Dudley MBC	2012 Planning condition	Development shall not commence until a low emissions strategy for mitigating the air quality impacts of the development including demolition and construction at the application site and vehicle movements around the Borough shall be submitted to and approved in writing by the local planning authority. All works which form part of the approved scheme shall be completed before occupation of the proposed development unless otherwise agreed in writing by the local planning authority. The measures in the agreed scheme shall be maintained throughout the life of the development. The Low Emission Strategy shall have targets for emission reduction and timescales, with pollution savings quantified. At the end of each calendar year an implementation plan shall be submitted for approval in writing by the local planning authority, which on approval shall be fully implemented in accordance with the details and measures so approved. The Low Emission Strategy shall take into account future changing standards and available technologies and be updated accordingly in agreement with the local planning authority.	Yes
Waste to Energy Gasification (Pyrolysis) Plant	Sandwell	2011-2012	Stack emissions from the operational phase of the facility would exacerbate existing nitrogen dioxide annual mean exceedances. The developer agreed to pay a commuted sum of £20,000 via a Section 106 Agreement to offset the impact of the development on air quality.  The contribution would enable the Local Authority to create a post for a Project Consultant to assist with the implementation of the Council's Air Quality Action Plan and the West Midland's Low Emission Strategy.	No

33 CP: Agreement also includes construction phase measures

# Annex 3

## West Midlands Planning Policy Context

Local Authority Policy Context	
<b>Black Country</b>	The Black Country Core Strategy was adopted on 3rd February 2011 and forms the basis of the Black Country Authorities' Local Development Frameworks. Relevant JCS policies include ENV8 which is specific to air quality objectives and requires new development to identify, assess and address impacts on air quality. JCS policies CSP5 (Transport Strategy) and TRAN1 - TRAN5 (Transport and Accessibility) seek to address the traffic management implications of development and include encouragement of walking, cycling and other less polluting/more active transport choices. Policy DEL1 (Infrastructure Provision) requires new developments to be supported by necessary on and off site infrastructure to serve the development, mitigate impacts and ensure development is sustainable. Where appropriate this would include the provision of air quality mitigation measures. <a href="http://blackcountrycorestrategy.dudley.gov.uk/">http://blackcountrycorestrategy.dudley.gov.uk/</a>
<b>Dudley MBC</b>	Dudley has adopted Planning Obligations SPD which recognises air quality improvements as planning obligations that may be sought, with a preference for developers providing off-setting measures as part of the development. <a href="http://www.dudley.gov.uk/environment-planning/planning/planning-policy/local-development-framework/planning-obs-spd/">http://www.dudley.gov.uk/environment-planning/planning/planning-policy/local-development-framework/planning-obs-spd/</a> The Council has produced a revised Car Parking SPD which contains a section on the "Provision of Infrastructure to support Electric Vehicle Technology". <a href="http://www.dudley.gov.uk/environment-planning/planning/planning-policy/local-development-framework/parkstands-spd/">http://www.dudley.gov.uk/environment-planning/planning/planning-policy/local-development-framework/parkstands-spd/</a>
<b>Sandwell MBC</b>	Sandwell has produced an SPD on the Preparation of Transport Assessments and Travel Plans <a href="http://cms.walsall.gov.uk/index/environment/pollution/air_quality/low-emissions-strategy.htm">http://cms.walsall.gov.uk/index/environment/pollution/air_quality/low-emissions-strategy.htm</a> The Council has a web based survey facility to help with Travel Plan monitoring which is a useful tool to adopt when producing a LES document in sandwell <a href="http://www.sandwell.gov.uk/travelwise">http://www.sandwell.gov.uk/travelwise</a>
<b>Solihull MBC</b>	Solihull's Draft Local Plan Submission Document "Shaping a Sustainable Future" requires developers to have regard to air quality objectives in considering the location and design of new development.
<b>Birmingham City Council</b>	Birmingham's Development Plan sets out the Council's commitment to improve air quality and sets out a requirement that all new developments will need to minimize adverse impacts on air quality. <a href="http://www.birmingham.gov.uk/plan2031">http://www.birmingham.gov.uk/plan2031</a> Birmingham has produced a Places for Future SDP <a href="http://www.birmingham.gov.uk/placesforthefuture">http://www.birmingham.gov.uk/placesforthefuture</a> which promotes the take-up of low emissions vehicles by setting out a requirements for on-site/off-site infrastructure provision, which will form part of a wider network electric charging point strategy
<b>Coventry City Council</b>	Coventry City Council's Development Plan 2001 requires that developments are assessed in terms of air quality and impacts on local air quality mitigated.

# Annex 4

## Department for Transport Criteria for Transport Assessments (adapted for air quality purposes)

These thresholds are for guidance purposes only. Local authorities may interpret them in light of their own circumstances

Land use	Description	Transport Assessment/Travel Plan required
Food retail (A1)	Retail sale of food goods to the public – food superstores, supermarkets, convenience food stores	>800sq.m.
Non-food retail (A1)	Retail sale of non-food goods to the public; but includes sandwich bars- sandwiches or other cold food purchased and consumed off the premises	>1500 sq.m
A2 Financial and professional services	Financial Services – banks, building societies and bureau de change, professional services (other than medical) – estate	>2500 sq.m
A3 restaurants and cafes	Restaurants and cafes – use of food for consumption on the premises, excludes internet cafes (now A1)	>2500 sq.m
A4 Drinking establishments	Use as a public house, wine-bar or other drinking establishment	>600 sq.m
A5 Hot food takeaway	Use for the sale of hot food for the consumption on or off the premises	>500 sq.m
B1 Business	(a) Offices other than in use within Class A2 (financial and professional services) (b) Research and development – laboratories, studios (c) Light industry	>2,500 sq.m
B2 General industrial	General industry (other than classified as in B1)	>4000sq.m
B8 Storage and distribution	Storage or distribution centres – wholesale warehouse, distribution centre and repositories	>5000 sq.m
C1 Hotels	Hotels, boarding houses and guests houses.	>100 bedrooms
C2 Residential institutions – hospitals, nursing homes	Used for the provision of residential accommodation and care to people in need of care.	>50 beds
C2 Residential institutions – residential educations	Boarding schools and training centres	>150 students
C2 Residential institutions – institutional hostels	Institutional hostels and homeless shelters, accommodation for people with learning difficulties and people on probation	>400 residents
C3 Dwelling houses	Dwellings for individuals, families or not more than six people living together as a single household.	>80 units
D1 Non residential institutions	Medical and health services – clinics and health centres, crèches, day nurseries, day centres and consulting rooms (not attached to the consultant's or doctor's house), museums, public libraries, art galleries exhibitions halls, non-residential education and training centres, places of worship, religious instruction and church halls.	>1000sq.m
D2 Assembly and leisure	Cinemas, dance and concert halls, sports halls, swimming baths, skating rinks, gymnasiums, bingo halls and casinos, other indoor and outdoor sports and leisure uses not involving motorised vehicles or firearms.	>1500 sq.m
<b>Other considerations</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 development generating significant freight or HGV movements per day or significant abnormal loads per year.	
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).	

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

# Annex 5

## Electric Vehicle Charging Point Specification

### EV ready domestic installations

Cable and circuitry ratings should be of 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 for future connection to an external charge 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)
- If installed in a garage all conductive surfaces should be protected by supplementary protective equipotential bonding. For vehicle connecting points installed such that the vehicle can only be charged within the building, e.g. in a garage with a (non-extended) tethered lead, the PME earth may be used. For external installations the risk assessment outlined in the IET code of practice must be adopted, and may require an additional earth stake or mat for the EV charging circuit. This should be installed as part of the EV ready installation to avoid significant on cost later.

### EV ready commercial installations

Commercial and industrial installations may have private 11,000/400 V 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.

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.

**EV Charging Point Specifications may alter. We would recommend that all electric vehicle charging point installations should comply with the Institute of Engineering and Technology (IET) Code of Practice for Electric Vehicle Charging Equipment Installation<sup>34</sup>**

34 <http://www.theiet.org/resources/standards/ev-charging-cop.cfm>

# Annex 6

## Air Quality Validation Checklist

**Development Proposal:**

**Pre-Planning Discussions:**

**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

**Mitigation Statement**

Damage Costs

Mitigation Measures listed

Mitigation Measures Costed

Demolition/Construction Management Plan

Signature:	Position Held:
Print:	Date:



**For further information please contact:**

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Dudley Metropolitan Borough Council

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All LETCP documents can be viewed on the LETCP website:  
[www.walsall.gov.uk/low\\_emissions\\_towns\\_and\\_cities\\_programme](http://www.walsall.gov.uk/low_emissions_towns_and_cities_programme)



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