



Warwick District Council

Air Quality Action Plan (Addendum)

Low Emission Strategy Guidance for Developers

April 2014

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Rationale

In compliance with Part IV of The Environment Act 1995, Warwick District Council's ongoing assessment of air quality in its District has identified air quality exceedences of Nitrogen Dioxide (NO₂) above the EU Limit Value due to road traffic emissions. These areas of poor air quality are particularly focused within congested town centre locations within Warwick, Leamington Spa and Kenilworth.

While concentrations of PM₁₀ in the District are below the EU Limit threshold, ongoing research into ultra-fine particulates shows that reductions in concentrations below EU Limit Value levels will still bring significant health benefits to the District population. In 2012, the World Health Organisation (WHO/IARC) classified diesel emissions as carcinogenic, providing a 40% increased risk of lung cancer in at risk populations, including truck drivers¹.

In view of the air quality issues identified within the District, and the withdrawal of general planning guidance on air quality (Planning Policy Statement 23: Planning and Pollution Control) as part of the new National Planning Policy Framework (NPPF), there is a need for local planning guidance on air quality. The Environmental Health department has developed this guidance to assist developers. The guidance document establishes the principle of Warwick District as an 'Emission Reduction Area' and requires developers to use 'reasonable endeavours' to minimise emissions and, where necessary, offset the impact of development on the environment. The guidance sets out a range of locally specific measures to be used to minimise and/or offset the emissions from new development, and requires the cumulative impact of developments to be considered as part of the planning application process.

Introduction

This air quality planning policy guidance forms part of Warwick District Council's Air Quality Action Plan and is based on the principles of the DEFRA good practice guidance – 'Low Emission Strategies: Using the Planning System to Reduce Transport Emissions'. The document was published in January 2010 as part of the Local Air Quality Management (LAQM) Technical Series. The Low Emission Strategy approach can be summarised as follows:

- Integrated, evidence based approach to residual, road transport emission reduction via the simultaneous assessment and mitigation of both regulated air quality pollutants and Greenhouse Gases (GHG);
- Improve residual road transport emissions via the accelerated uptake of cleaner fuels and technologies;
- Recognition of road transport emissions creep, due to the aggregated impact of development schemes, and the need to improve assessment methods for establishing impact and options for mitigation;
- Recognition of the incremental benefits of individual development schemes and residual road transport emissions improvement, aggregated across an area;

¹ <http://www.bmj.com/content/344/bmj.e4174.full>

- Pro-active, integrated approach to land-use planning with other key, local authority low emission strategies to reduce road transport emissions i.e. transport plans, community/social fleet emission improvement strategies, economic development and procurement strategies;
- Achieve development scheme acceptability through the implementation of reasonably practicable on and off-site low emission mitigation measures, including the consideration of compensatory damage costs, required by a combination of planning conditions and obligations;
- Consideration of the use of Community Infrastructure Levy, where adopted, or in situations where it is likely to be triggered, for the implementation of low emission, road transport infrastructure.

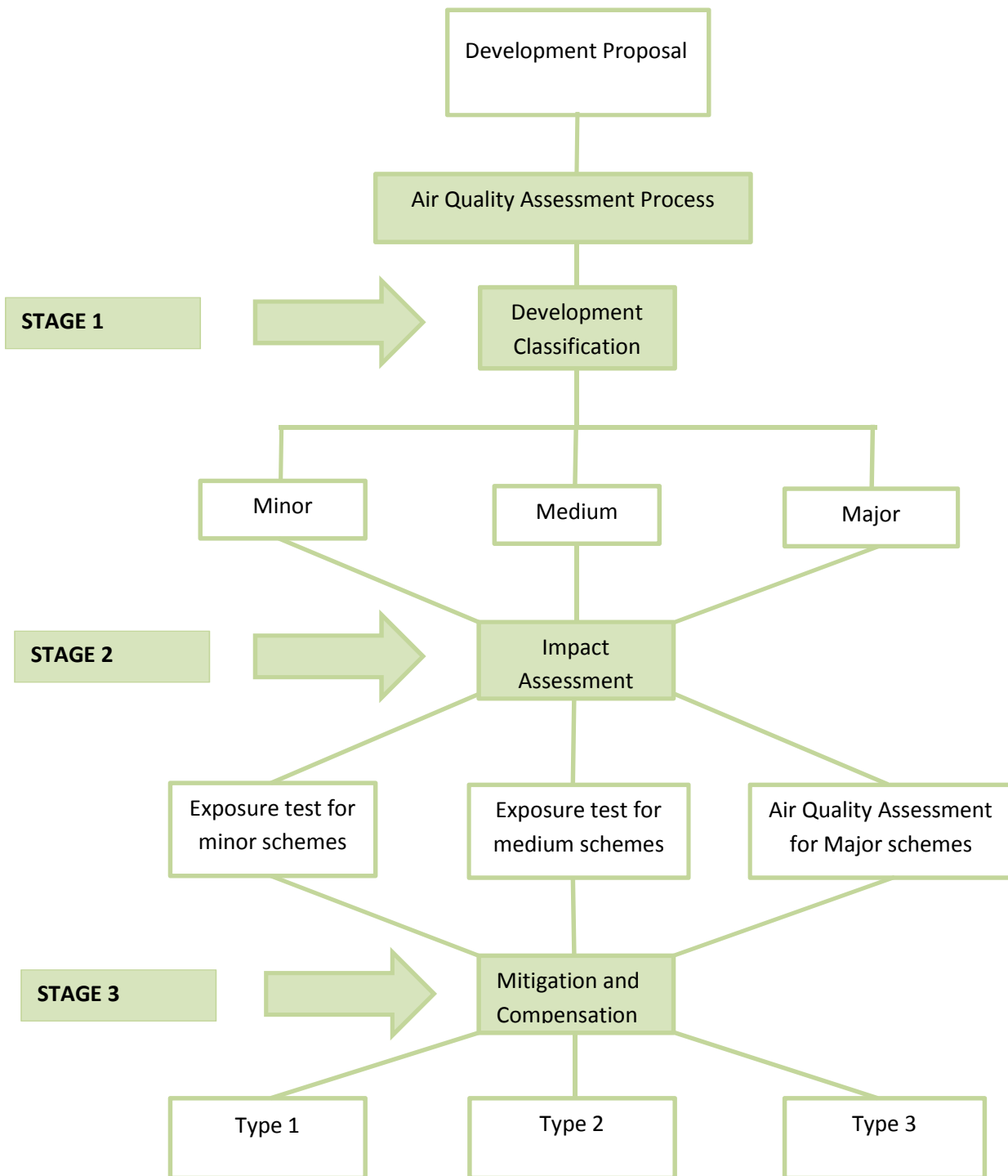
The guidance provides a template for integrating air quality considerations into land-use planning and development management policies that can influence the reduction of road transport emissions and to be used to update air quality action plans.

The air quality assessment process follows a three stage process:

1. Determining the classification of the development proposal;
2. Assessing and quantifying the impact on local air quality;
3. Determining the level of a mitigation required by the proposal to meet Local Development Plan requirements.

The assessment process is summarised in the flow chart below (figure 1).

Air Quality Assessment and Mitigation Flow Chart



National Planning Policy Framework and Air Quality

The National Planning Policy Framework² (NPPF) encourages the development of sustainable transport modes and reducing the need to travel, emphasising the importance of local development plans in achieving this. One of its 12 Core Planning Principles 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 also states in Paragraph 124 that:

“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 local air quality action plans”.

Paragraph 35 states:

Plans should protect and exploit opportunities for the use of sustainable transport modes for the movement of goods or people. Therefore, developments should be located and designed where practical to:

- accommodate the efficient delivery of goods and supplies;
- give priority to pedestrian and cycle movements, and have access to high quality public transport facilities; create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones;
- incorporate facilities for charging plug-in and other ultra-low emission vehicles; and consider the needs of people with disabilities by all modes of transport.

National Planning Guidance

The Government has produced National Planning Practice Guidance to assist planning authorities when implementing NPPF principles and policies³. This 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 <http://www.planningportal.gov.uk/planning/nppf>

³ <http://planningguidance.planningportal.gov.uk/>

WDC Local Plan

Sustainable development is a core principle that runs at the heart of strategic planning in Warwick District, placing an emphasis upon creating sustainable economic growth and locally accessible services and employment. This approach ensures the vitality of the District 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. This guidance seeks to build on the air quality and sustainability policy headings within Local Plans, by providing clarity as to what is required to make schemes sustainable in air quality terms. It should be read in conjunction with relevant planning policies as set out in Annex 6.

Air Quality Action Plans & Travel Plans

Warwickshire County Council provides extensive guidance on when a Travel Plan is needed and what it should include⁴. Travel Plans can be effective in reducing trips and encouraging modal shift, particularly where the implementation of the Travel Plan is monitored. Mitigation 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.

⁴[http://www.warwickshire.gov.uk/Web/corporate/wccweb.nsf/Links/637AF374332C345880257840003DA62A/\\$file/PractiseNoteforDevelopers_April09.pdf](http://www.warwickshire.gov.uk/Web/corporate/wccweb.nsf/Links/637AF374332C345880257840003DA62A/$file/PractiseNoteforDevelopers_April09.pdf)

Protocol for Development Scheme Assessment, Mitigation & Compensation

It is recognised that development will typically increase road transport emissions, both during the construction and operational phases. However, it is also recognised 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 arising from the aggregation of incremental emissions arising from each development scheme.

Stage 1: Development Type Classification:

Three levels of development classification are determined using the Department for Transport Criteria for Transport Assessments and Travel Plans⁵ (Table 1 below).

Stage No.	Scheme Type	Minor	Medium	Major
1	Threshold	Below DfT Threshold Criteria for Transport Assessment and Travel Plan (TA/TP) ⁶	Meets DfT Threshold Criteria for Transport Assessment and Travel Plan (TA/TP) Or where the development is for any B2 or B8 use falling below the major classification	Medium type development which also trigger any of the following criteria: i) Where the development requires an EIA ii) Where development is likely to increase traffic flows by more than 5% on roads with >10,000 AADT or change average vehicle speeds by >10kph or likely to cause increased congestion iii) Where a development requires a transport assessment and HGV movements are =/> 10% of total trips

Table 1 - DfT Criteria for Transport Assessments

⁵

<http://webarchive.nationalarchives.gov.uk/20100409053417/http://www.dft.gov.uk/adobepdf/165237/202657/guidanceontaappe/ndixb>

⁶ DfT Criteria for Travel Plans and Transport Assessments is provided in Annex 1

Stage 2: Air Quality Impact Assessment

By incorporating mitigation measures into scheme design as standard, it is envisaged that this approach will help counteract the incremental emission creep, inherent with most development schemes.

Once the development has been classified as minor, medium or major, Table 2 determines when an Air Quality Assessment is required and the associated mitigation type:

Development Classification	Assessment Required	Mitigation	Compensation
Minor	None (other than exposure test)	Type 1	-
Medium	None (other than exposure test)	Type 1 and 2	-
Major	Full AQ Assessment in line with Council Guidance, including evaluation of emission and concentration changes	Type 1 and 2	Type 3

Table 2 - Criteria for Air Quality Assessment requirement

It can be seen from the table above that no assessment is required for minor and medium impact schemes except for the need to consider whether the development will expose future occupiers to unacceptable levels of NO₂ and Particulate Matter. Advice is provided below where exposure is likely to be an issue and possible ways in which this may be mitigated. An air quality assessment is required for all major developments and an air quality assessment protocol is provided in Annex 5.

Assessment where Exposure may arise

Exposure may be identified where residential accommodation is proposed and there is likely to be exposure to concentrations above EU Limit Values, as identified by Warwick District Council's Air Quality Management Areas. The determination of AQMA exposure should be ascertained through reference to Warwick District Council's latest review and assessment of air quality (the position of residential units may be crosschecked against local authority AQMA exceedence maps).

Where no modelling data exists and relevant accommodation is proposed next to roads with an AADT (annual average daily traffic flow) of greater than 10,000, 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 Maps⁷.

Where relevant exposure has been identified then refusal of an application should be expected unless WDC has a specific and justifiable policy for placing residential accommodation within an AQMA or effective mitigation measures can be agreed. It is important that wherever appropriate,

⁷ <http://uk-air.defra.gov.uk/data/gis-mapping>

noise aspects are integrated into air quality considerations. For example, where road transport emissions are concerned it is common for developers to suggest noise mitigation in the form of suitable acoustic 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. Warwick District Council, in considering policies on exposure, may give weight to the following mitigation measures:

- Can the residential building envelope be pushed back beyond the pollutant exceedence 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? (While several reports^{8,9} have highlighted some potential for certain vegetation species to reduce particulate concentrations, they also indicate a limited effectiveness in reducing exposure 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.

⁸ <http://www.es.lancs.ac.uk/people/cnh/docs/UrbanTrees.htm>

⁹ <http://www.woodlandtrust.org.uk/en/planting-woodland/why-plant-trees/environmental-benefits/Pages/default.aspx>

Stage 3: Mitigation and Compensation

The outcome of Stage 2 (Assessment) identifies the level of air quality impact and this is then used to determine the level of mitigation required to negate the potential effects upon health and the local environment.

Where mitigation is not integrated into a proposal, the Local Planning Authority will 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.

TYPE 1 (Minor) Proposal Mitigation:

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 expected in addition to mitigation arising from the exposure assessment. 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 and include the standard mitigation listed below.

	Residential	Commercial/Retail	Industrial
Provision Rate	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>To prepare for increased demand in future years, appropriate cable provision should be included in scheme design and development in agreement with the local authority.</i>		

Table 3 - Provision rate of electric vehicle recharging points

TYPE 2 (Medium) Proposal Mitigation:

The NPPF recommends that where a development scheme requires a **Travel Plan** then all road transport mitigation measures may be included within the Plan. For medium and major development categories, **Type 2 mitigation** should be incorporated into scheme design where appropriate, in addition to Type 1. A list of typical **Type 2 mitigation** measures is provided in the table below:

Type 2 - Mitigation for Scheme Sustainability

Mitigation Suggestions	<ul style="list-style-type: none">• Travel Plan (where required), including mechanisms for discouraging high emission vehicle use and encouraging the uptake of low emission fuels and technologies• Designation of parking spaces for low emission vehicles• Differential parking charges depending on vehicle emissions• All commercial vehicles should comply with either current or previous European Emission Standards from store opening, to be progressively maintained for the lifetime of the development• Fleet operations should provide a strategy for considering and reducing emissions, including possibilities for the take up of low emission fuels and technologies• Use of ultra-low emission service vehicles
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Table 4 - Mitigation suggestions for type 2 proposals

TYPE 3 (Major) Proposal Mitigation

For development schemes that have the potential for major detrimental impact on air quality, an assessment procedure is specified to evaluate the likely change in relevant concentrations and emissions arising from the scheme. As part of the assessment procedure a simple calculation is proposed to allow the quantification of any emission changes – the pollution impact of a scheme can then be monetised using the pollutant **damage costs** (per tonne) specified by the **Defra Inter-Governmental Department on Costs and Benefits (IGCB)**¹⁰. By establishing the damage costs arising from development scheme emission changes it is possible to assess the scale and kind of any additional mitigation or compensation that is required to make the scheme acceptable.

Figure 1 - Road Transport Emission Calculation

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

Note – Trip Length extrapolated from DfT National Travel Surveys

The road transport emission increase should be annualised and totalled for a period of 5 years, as it is understood that pollution levels will remain unacceptably elevated for at least the next 5 years. A trip length of 10 km should be used which is derived from the DfT National Travel Surveys¹¹ estimation of average trip length.

A table of the damage costs per tonne of air quality pollutants is provided in Annex 2 and an example of the Emissions Assessment Calculation is provided in Annex 4.

¹⁰ <http://www.defra.gov.uk/environment/quality/air/air-quality/economic/damage/>

¹¹ 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

A suite of mitigation/compensation measures termed **Type 3 mitigation** is provided in the table below:

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

Mitigation / Compensation Suggestions	<ul style="list-style-type: none"> • On-street EV recharging • Contribution to low emission vehicle refuelling infrastructure • Car clubs • Low emission bus/mini-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 • Contributions to subsidised public transport for staff or residents • Air Quality Monitoring programmes
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Table 5 – Mitigation/compensation suggestions for type 3 proposals

Where **Type 3** mitigation is required, the planning authority and developer will agree measures that are appropriate and in scale and kind to the development. Such measures may be taken forward by condition, where possible, or through the use of a Section 106 Agreement¹². Each development will require a brief mitigation statement which must include those identified mitigation/ compensation measures to be equivalent to the value of emissions calculation.

The planning authority will need to take account of any Type 3 mitigation measures that are included on a Community Infrastructure Levy (CIL)¹³ list.

¹² Section 106 of the Town and Country Planning Act 1990 (as amended)

¹³ <http://www.legislation.gov.uk/ukxi/2011/987/made>

Annex 1

Department for Transport Criteria for Transport Assessments (Adapted for this guidance)

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

Thresholds based on other considerations	TA Required
1. Any development generating 30 or more two-way vehicle movements in any hour	
2. Any developments generating 100 or more two-way vehicle movements per day	
3. Any development proposing 100 or more parking spaces	
4. Any development generating significant freight or HGV movements per day, or significant abnormal loads per day	
5. Any development proposed in a location where the local transport infrastructure is inadequate	
6. Any development proposed in a location within or adjacent to an Air Quality Management Area (AQMA)	

Annex 2 - IGCB Air Quality Damage Costs per Tonne, 2010 prices

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

Annex 3 – Vehicle Emission Factors

Light Duty Diesel Vehicle Emission Factors per Euro Standard

Vehicle category	NOx Emission factor, g /veh-km	
	Diesel cars	Diesel LGVs
Euro 1	1.24	1.70
Euro 2	1.28	1.70
Euro 3	1.16	1.43
Euro 4	0.90	1.16
Euro 5	0.65	0.83
Euro 6	0.29	0.37

Heavy Duty Vehicle Emission Factors per Euro Standard (based on 2010 UK fleet)

Vehicle category	NOx Emission factor, g /veh-km		
	Buses and coaches	Rigid HGV	Articulated HGV
Pre Euro	23.3	16.4	26.8
Euro 1	16.6	11.5	19.5
Euro II	18.5	12.7	21.4
Euro III	19.1	11.0	17.9
Euro IV	10.1	6.7	11.1
Euro V EGR	6.1	4.0	6.6
Euro V SCR	15.6	11.8	19.0
Euro VI	2.5	2.3	3.0

Note – emissions at speed of 11 kph

Annex 4

Example Emissions Assessment Calculation

The calculation utilises the current Emissions Factor Toolkit (EFT)* to determine the transport related emissions 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.

*<http://laqm.defra.gov.uk/review-and-assessment/tools/emissions.html#eft>

A screen shot of the input and output pages are shown below:

Input Screen

SourceID	Road Type	Traffic Flow	%HDV	Speed(kph)	No of Hours	Link Length (km)
Emissions calc	Urban (not London)	2.7	0	50	24	10

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	3.255	3.255	3.255
Emissions calc	PM10	0.380	0.380	0.380

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.

The following example demonstrates the calculation based on a development with 10 domestic properties¹⁴.

<u>EFT Input:</u>	
	10 household (urban not London) (NOx and PM ₁₀)
X	27 (trip/traffic ratio for 10 houses)
X	cars only (0% HGV)
X	50kph (avg. speed)
X	10km (NTS UK avg.)
<u>EFT Output = 32.55kg/annum (NOX) & 3.795kg/annum (PM₁₀)</u>	
=	0.0325tonnes/annum (NOX) & 0.003795tonnes/annum (PM ₁₀)
X	£955/tonne (NOx) + £48,517/tonne (PM ₁₀)
=	£31.08 = £184.15
X	5 (years)
=	£155.42 = £920.76
Total	= £1,076

Notes:

1. Trip Rates are sourced from the Transport Assessments and local authority where available.
2. Trip Length uses the National Travel Survey¹⁵ - (UK average = 10km).
3. The IGCB damage costs are the central estimates (currently NOx = £955/tonne & PM₁₀ transport average £48,517).

¹⁴ Sussex Air Quality Partnership "Air Quality and Emission Mitigation Guidance for Sussex Authorities 2013"

¹⁵ <https://www.gov.uk/transport-statistics-notes-and-guidance-national-travel-survey>

Annex 5

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_x: NO₂ 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 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

Annex 6

Warwick District Council Planning Policy – TP2 Traffic Generation

All developments which result in:

- a) the generation of significant traffic movements
- b) negative impacts on air quality within identified Air Quality Management Areas
- c) negative impacts on the health and wellbeing of people in the area as a result of pollution, noise or vibration

should be supported by a Transport Assessment and where necessary an Air Quality Assessment and a Travel Plan, to demonstrate practical and effective measures to be taken to avoid the adverse impacts of traffic.

These measures should take full account of the cumulative impact of all development proposed in this Local Plan (and any other known developments) on traffic generation and air quality.