

# AIR QUALITY & EMISSIONS

## TECHNICAL PLANNING GUIDANCE

Part of the West Yorkshire Low Emissions Strategy

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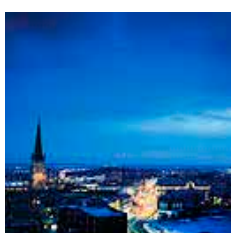
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## Foreword



Local Planning Authorities have to weigh up the economic, social and environmental factors when deciding to grant or refuse planning permission or decide if conditions are required to achieve sustainable development. Air quality is a material consideration that Planners are required to take into account when making their plans and when taking planning decisions. Planners will be guided by specialist advice from air quality officers and consultants when making their decisions, however, in the past, this specialist advice has focussed on the “significance of impact” leading to adversarial debates on the level of impact that a development may, or may not have on air quality. This can be baffling to the lay-person and allows air quality to steadily deteriorate because, although a development when taken in isolation may not have a significant impact on air quality, when taken in the wider context of existing levels of pollution, traffic growth and other developments it can contribute to a very steady decline in air quality.

This Technical Guide aims to reverse the direction of travel from an approach which allows air quality to steadily deteriorate, to a more proactive approach which recognises that most developments, however large or small, can contribute to overall air quality and provides for a proportionate level of mitigation to be put in place to achieve sustainable development. In addition, this Guide simplifies the assessment model which means that, for the vast majority of small and medium developments, developers can simply select from a suite of mitigation options rather than pay for consultancy services. This approach also provides greater certainty to the development management process, so that developers, planners and the public can have greater confidence in the scale and kind of mitigation that will be required to make a development sustainable in air quality terms.

This Technical Guide can be used by Local Planning Authorities to support their Local Policies and Plans and to achieve air quality objectives, but ultimately will help protect public health.



## Acknowledgements

This Guide is has arisen from the West Yorkshire Low Emissions Strategy Group (WYLES), which has membership from each of the five West Yorkshire local authorities, the Combined Authority and Public Health England. Specific acknowledgements go to Stephen Douglas, Scientific Officer from Wakefield Council, who has been responsible for putting the guide together and the technical input from Andrew Whittles of Low Emission Strategies Ltd. We are also grateful for the contributions from Planning Officers and Travel Planners from the West Yorkshire authorities and the air quality consultants who have helped shape the document during its production.

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# 1. Summary

**This technical guidance forms part of the development of an overarching Low Emissions Strategy to reduce road transport emissions in West Yorkshire. It is aimed at helping planning authorities deliver national air quality objectives through cost effective service planning brought about by the joint working and individual policy set out in each authority's Local Plan policies.**

The spatial planning system has an important role to play in improving air quality and reducing exposure to air pollution. 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.

This technical guidance deals primarily with those pollutants regulated under the local air quality management (LAQM) regime and the impact of traffic emissions, although the increasing use of biomass boilers is now becoming an important local planning issue. The assessment and control of dust impacts during demolition and construction is also considered, as dusts contribute to airborne particulate matter, as well as being dust soiling. Greenhouse gas emissions are not addressed explicitly, as they are covered by other initiatives, but synergies exist between measures to minimise climate change and local air quality impacts.

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.

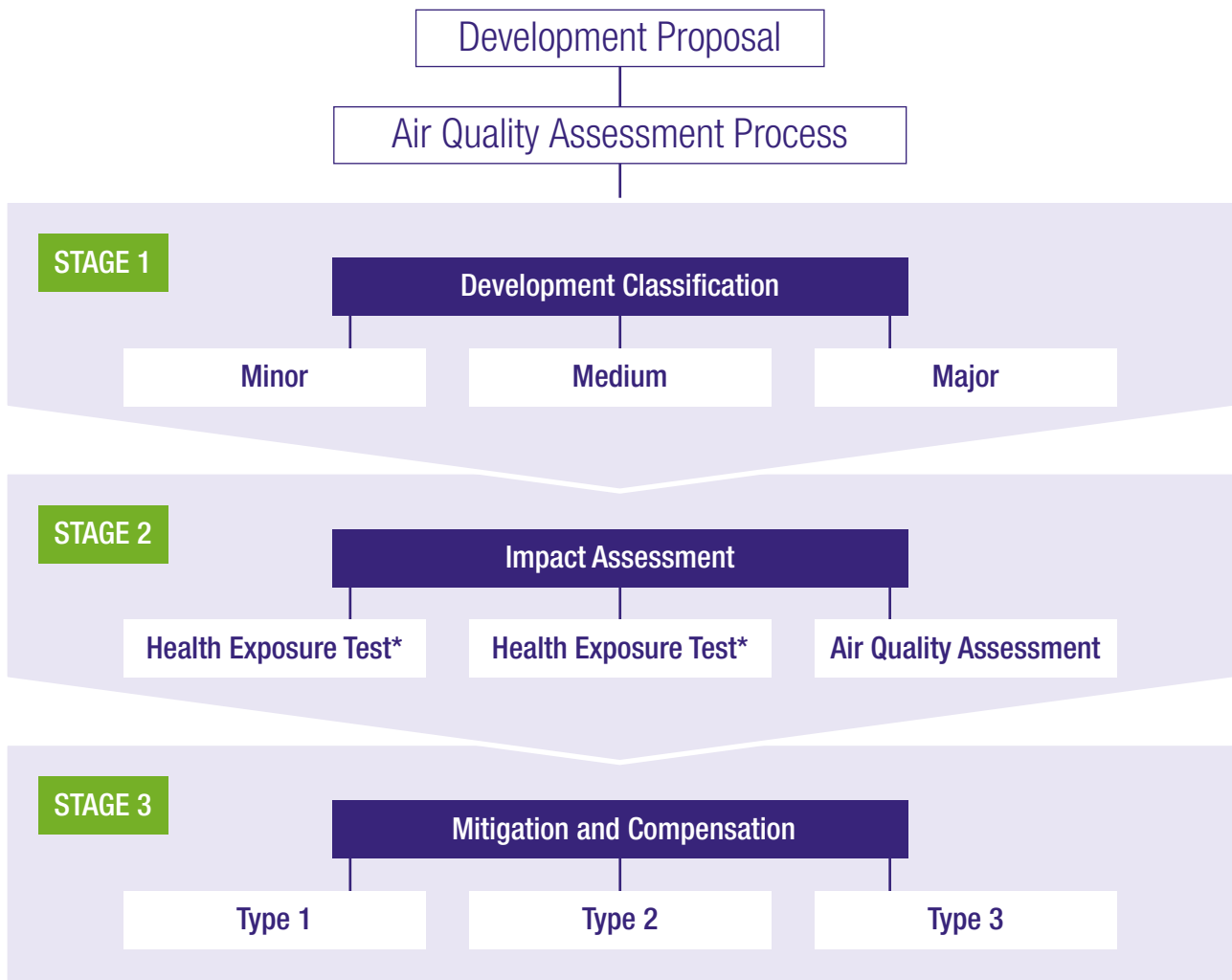
The assessment process is summarised in the flow chart overleaf.

## **Pre-Planning Discussions**

In order to avoid unnecessary delays in the planning process and ensure optimum scheme design and sustainability, it is vital for communication at an early stage in any significant proposal. It is therefore essential that pre-application discussions with the relevant air quality personnel to confirm the scale of development and the assessment requirements are undertaken.

Figure 1

The Air Quality Assessment and Mitigation Flow Chart



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

## 2. Introduction

New developments have the potential to affect air quality. Local planning policy will play a significant role in ensuring that development schemes are designed to be sustainable. This guidance has been developed to:

- Introduce an air quality assessment scheme which includes the quantification of impacts, formulating damage costs and identifying mitigation measures to be implemented to negate the impact.
- Tackle cumulative impact.
- Provide clarity and consistency of the process to developers, planners and local communities.





## 3. Planning Policy Framework

### 3.1 National Policy

**National planning policy is now set by the National Planning Policy Framework (NPPF). The NPPF places a general presumption in favour of sustainable development, stressing the importance of local development plans. One of its 12 Core Planning Principles states that planning should:**

“contribute to conserving and enhancing the natural environment and reducing pollution”, by: (paragraph 109)  
“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”.

It goes on to state (paragraphs 120 and 124) that:

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

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”.

### 3.2 Local Planning Policy

The Planning and Compulsory Purchase Act 2004, amended by the Localism Act 2011 requires planning authorities to prepare Local Plans (previously known as Local Development Frameworks), which may be made up of a single or number of documents such as:

- Core strategy;
- Development Plan Policies;
- Site Specific Proposals;
- Area Action Plans;
- Other documents including supplementary planning documents.

The Local Plan will identify land areas for future development and include a number of strategic and development policies relating to local air quality management that will fulfil the National Planning Policy Framework sustainable development criteria. This Technical Guide supports the implementation of the strategic and development policy framework. An example of current/emerging policy context is included in Appendix 1.

## 4. Local Air Quality Management

The Environment Act 1995 established a local air quality management regime. It requires local authorities to review and assess ambient air quality in their areas against health based standards for a number of specific pollutants prescribed in the Air Quality Regulations 2000 and Air Quality (Amendment) Regulations 2002. If there is a risk that levels of air pollution in any part of the authority's area will be higher than the prescribed objectives, the authority is required to designate an Air Quality Management Area (AQMA). It is then required to produce an Action Plan which sets out the measures it intends to take in pursuit of the objectives.

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

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

In addition, the boundary of an AQMA does not necessarily define the limit of the area of poor air quality. The only constraint on the boundary definition is that it should be at least as large as the area of exceedence, where there is relevant exposure.

The fact that a development is within or close to an AQMA does not mean that it is necessarily affecting an area of exceedence of the objective, or that it is being affected by air pollution that exceeds the objective. On the other hand, a development could introduce new exposure into an area of poor air quality, which has not been identified and declared as an AQMA, as previously there was no relevant exposure.

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## 5. Air Quality and Emissions Mitigation Assessment Process

The process shown in Figure 1 involves a staged process:

### 5.1 Stage 1: Development Type Classification:

Three levels of development classification are determined using adapted criteria from the Department for Transport<sup>1</sup>.

**Table 1: Criteria for Development Classification**

Land Use	Description	Criteria
Food Retail (A1)	Retail sale of food goods to the public – supermarkets, superstore, convenience food store	>800 m2 (GFA)
Non-Food Retail (A1)	Retail sale of non-food goods to the public; but includes sandwich bars or other cold food purchased and consumed off site	>1500 m2(GFA)
Financial and professional services (A2)	Banks, building societies and bureaux de change, professional services, estate agents, employment agencies, betting shops.	>2500 m2(GFA)
Restaurants and Cafes (A3)	Use for the sale of food for consumption on the premises.	>2500 m2(GFA)
Drinking Establishments (A4)	Use as a public house, wine-bar for consumption on or off the premises.	>600 m2(GFA)
Hot Food Takeaway (A5)	Use for the sale of hot food for consumption on or off the premises.	>500 m2(GFA)
Business (B1)	(a) Offices other than in use within Class A2 (financial & professional). (b) Research & development – laboratories, studios. (c) Light industry	>2500 m2(GFA)
General industrial (B2)	General industry (other than B1).	>4000 m2(GFA)
Storage or Distribution (B8)	Storage or distribution centres – wholesale warehouses, distribution centres & repositories.	>5000 m2(GFA)
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.	>50 units
Non-Residential Institutions (D1)	Medical & health services, museums, public libraries, art galleries, non-residential education, places of worship and church halls.	>1000 m2(GFA)
Assembly and Leisure (D2)	Cinemas, dance & concert halls, sports halls, swimming, skating, gym, bingo, and other facilities not involving motorised vehicles or firearms.	>1500 m2(GFA)

#### Other

1. Any development generating 30 or more two-way vehicle movements in any hour
2. Any developments generating 100 or more two-way vehicle movements per day
3. Any development proposing 100 or more parking spaces
4. Any relevant development proposed in a location where the local transport infrastructure is inadequate
5. Any relevant development proposed in a location adjacent to an Air Quality Management Area (AQMA)

1. **MINOR:** Development proposals that fall below the above criteria.
2. **MEDIUM:** Development proposals that meet the above requirements.
3. **MAJOR:** Development proposals that meet the above requirements and the additional criteria set out in table 2.

<sup>1</sup> <http://webarchive.nationalarchives.gov.uk/20100409053417/http://www.dft.gov.uk/adobepdf/165237/202657/guidanceontaappendixb>

**Table 2: Additional Trigger Criteria for Major Developments**

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



## 5.2 Stage 2: Air Quality Impact Assessment

### MINOR and MEDIUM Classified Proposals:

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

- The proposal is adjacent to or within an AQMA;
- The proposal is in a location 20m<sup>2</sup> from roads at or above the relevant national objective highlighted on the DEFRA GIS modelled maps (<http://uk-air.defra.gov.uk/data/gis-mapping>).
- The proposal is one of the Land Use types:
  - C1 to C3 in table 1;
  - C4 (Homes of Multiple Occupation);
  - D1 in table 1.

And within 20m of roads with >10,000 AADT (Annual Average Daily Traffic).

The outcome of the exposure assessment will determine the level of mitigation required make the development acceptable. Should there be no acceptable mitigation the recommendation to the planning officer will be to consider refusing the proposal on air quality grounds.

### MAJOR Classified Proposals

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

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

The calculation of pollutant emissions costs from the development.

**A.** The methodology to be used for the determination of pollutant concentration change should meet the requirements of the Department for the Environment, Food and Rural Affairs (DEFRA) Technical Guidance Note LAQM TG. (09)<sup>3</sup>.

Further details of the air quality assessment requirements are shown in Appendix 2.

**B.** The pollutant emissions costs calculation will identify the environmental damage costs associated with the proposal and determine the amount (value) of mitigation that is expected to be spent on measures to mitigate the impacts. The calculation utilises the most recent DEFRA Emissions Factor Toolkit<sup>4</sup> to estimate the additional pollutant emissions from a proposed development and the latest DEFRA IGCB Air Quality Damage Costs for the specific pollutant of interest, to calculate the resultant damage cost<sup>5</sup>.

The calculation process includes:

- Identifying the additional trip rates generated by the proposal (from the Transport Assessment);
- The emissions calculated for the pollutants of concern (NOx and PM10) [from the Emissions Factor Toolkit];
- The air quality damage costs calculation for the specific pollutant emissions (from DEFRA IGCB);
- The result is totalled for a five year period to enable mitigation implementation.

The calculation is summarised below with further details of the process along with an example calculation are shown in Appendix 3.

### Box 1: Road Transport Emission Calculation Summary

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

<sup>2</sup> Air Quality Consultants, 2008 "NO2 Concentrations and Distance from Roads"

<sup>3</sup> <http://laqm.defra.gov.uk/technical-guidance/index.html>

<sup>4</sup> <http://laqm.defra.gov.uk/review-and-assessment/tools/emissions.html#eft>

<sup>5</sup> <https://www.gov.uk/air-quality-economic-analysis>

### 5.3 Stage 3: Mitigation

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

The scale of damage cost will determine the level of appropriate mitigation required for specific proposals.

Measure identification will be assisted by:

- Outcomes from the Transport Statement/Assessment;
- Specific needs identified in site specific spatial policy allocations;
- Travel Awareness/Planning and/or Highway Development where these are required;
- Defra air quality guidance (Defra Measures Guidance)

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

Default mitigation measures are presented for each type of proposal that demonstrate a minimum requirement. This is not an exhaustive list and will be adapted for particular locations and needs identified by relevant officers and the scale of damage costs. The authority would welcome the opportunity to work to devise innovative measures that will lead to improving local air quality.



#### TYPE 1 (Minor) Proposal Mitigation:

If the proposal meets the exposure criteria in Stage 2, further mitigation is required to reduce the level of exposure. This will be in the form of:

- Possible short term screening monitoring or utilising the distance calculation provided by Defra (DEFRA Distance) at the proposed location to identify the level of exposure;
- Redesigning the proposal to reduce the ingress of pollution;
- Including a stand-off distance and/or vegetation boundary from the development.

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 default mitigation listed below.

## Box 2: TYPE 1 (Minor) Proposal Default Mitigation

### **Residential:**

1 charging point per unit (dwelling with dedicated parking) or 1 charging point per 10 spaces (unallocated parking).

### **Commercial/Retail:**

10% of parking spaces which may be phased with 5% initial provision and the remainder at an agreed trigger level.

### **Industrial:**

10% of parking spaces which may be phased with 5% initial provision and the remainder at an agreed trigger level.

### **Demolition/Construction:**

Adherence to the London Best Practice Guidance<sup>6</sup> for all demolition and construction works.

Details of the electric charging specification are shown in appendix 4.

### **TYPE 2 (Medium) Proposals Mitigation:**

Proposals meeting the Type 2 criteria in table 1 will require a detailed Travel Plan. Travel Plan guidance is provided in Appendix 5.

In respect of the Travel Plan it is essential that:

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

The NPPF identifies a Travel Plan as a “key tool” to promoting and delivering sustainable transport and that all transport mitigation measures may be included within the Travel Plan. The default mitigation measures to be incorporated into the scheme design include those listed below. The list is not exhaustive and there may be additional issues that are site-specific and reflect local conditions, as well as other material considerations.

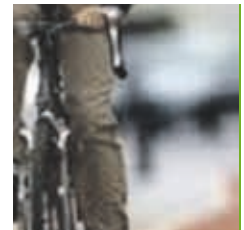
<sup>6</sup>[http://legacy.london.gov.uk/mayor/environment/air\\_quality/docs/construction-dust-bpg.pdf](http://legacy.london.gov.uk/mayor/environment/air_quality/docs/construction-dust-bpg.pdf)

### Box 3: TYPE 2 (Medium) Proposal Default Mitigation

- MINOR proposal mitigation.
- Travel Plan including agreed mechanisms for discouraging high emission vehicle use and encouraging modal shift (i.e. public transport, cycling and walking) as well as the uptake of low emission fuels and technologies.
- Improved pedestrian links to public transport stops.
- Provision of new bus stops infrastructure including shelters, raised kerbing, information displays.
- Provision of subsidised or free ticketing (Corporate and residential Metrocards, Student Metrocards).
- Site layout to include improved pedestrian pathways to encourage walking.
- Improved convenient and segregated cycle paths to link to local cycle network.

#### Commercial Specific:

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





### **TYPE 3 (Major) Proposal Mitigation:**

The pollution damage costs attributed to the proposal emission changes will determine the level of mitigation compensation required to negate the impact. A suite of default compensation measures beyond the proposal scheme design are listed below. This is not an exhaustive list and will be adapted for particular locations and needs identified by relevant officers. The type, scale and specificity of measures will be agreed with the planning authority.

#### **Box 4: TYPE 3 (Major) Proposal Default Mitigation**

##### **Support measures to reduce the need to travel:**

- Alternative working practices – flexitime, teleworking, homeworking, videoconferencing, compressed work periods.
- Local sourcing of staff, products and raw materials.
- Development and use of hub distribution centres employing low emission deliveries.
- Provision of discounted on-site shopping, eating, child-care, banking facilities.

##### **Support measures to reduce polluting motorised vehicle use:**

- Development of car clubs and car sharing with financial incentives and promotion.
- Use of pooled low emission vehicles – cars, vans, taxis, bicycles.
- Support smart driving training schemes.
- Provision of dedicated low emission shuttle bus including managed pick-up and drop-off.
- Contribution to the emerging low emission vehicle refuelling infrastructure.
- Contribution to site low emission waste collection services.
- Incentives for the take-up of low emission vehicle technologies and fuels.

##### **Measures to support improved public transport:**

- Provision of new or enhanced public transport services to the site.
- Shuttle services to public transport interchange, rail station or park and ride facilities.
- Support improving information systems for public transport.
- Supporting city free bus expansion schemes.
- Promoting low emission bus service provision.
- Support air quality monitoring programmes.

##### **Further measures to promote walking and cycling:**

- Improvements to district walking and cycling networks including lighting, shelters, and information points and timetables.
- Support cycle training and awareness schemes.
- Bike/e-bike hiring schemes.
- Guaranteed ride home in emergencies.
- Support secure and safe cycle parking facilities.

##### **Measures to promote sustainable travel plans:**

- Support local travel to school and school travel plans initiatives.
- Marketing aimed at persuading a switch to sustainable modes with incentives;
- Promotion of subsidised/sponsored travel plan measures through social and other media.
- Supporting community/ local organisation groups to promote sustainable travel.

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

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



Damage costs		
Chart A.1: Air quality damage costs		
Year, 2010 prices		
Level	High	Low
£744	£1,068	£167
£1,520	£1,668	£735
	£2,241	

### Proposal mitigation statement

Each development will require a brief mitigation statement which must include:

- The calculated damage cost (Major proposals).
- Proposed mitigation/compensation measures.
- Estimated mitigation cost (Major proposals) that is equivalent to the value of the emissions calculation (appropriate to the type and size of development and local policy requirements);
- A proposed demolition/construction management plan that includes:
  - A brief project description and likely sources of dust emissions;
  - Measures to be adopted to minimise dust emissions;
  - Emergency measures to be adopted in the event of unforeseen circumstances;
  - Incident logging and reporting procedures.

### Validation checklist

A completed checklist is required for each of the proposals. Further details are provided in Appendix 6.

## 6. Planning Recommendation

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

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## Appendix 1

### An Example of the West Yorkshire Planning Policy Context

#### Wakefield MDC

The Council's Core Strategy and Development Policy documents were adopted in April 2009 with the Site Specifics Policies Local Plan being adopted in September 2012. The Core Strategy policy CS 10 Design, Safety and Environmental Quality states:

"In all parts of the district, new development will: minimise the risk from all forms of pollution and contamination for existing and future occupants, the wider community and the environment, particularly within the defined Air Quality Management Areas along the M1, M62 and A1 corridors and in the urban areas in the western and northern parts of the district".

Development Policies document policy D20 Pollution Control states that: "...Air pollution from road traffic is also an increasing problem. In order to protect public health and the environment, and to encourage regeneration, the Council will require that:

1. Development proposals which are likely to cause pollution or are likely to be exposed to potential sources of pollution will only be permitted if it can be demonstrated that measures can be implemented to minimise emissions to a satisfactory level that protects health, environmental quality and amenity. In determining proposals particular consideration will be given to:

The likelihood of emissions which may have an unacceptable effect on the amenity of the local area;  
Where there is an identified risk that public health may be affected;  
Where there is a possibility that any proposed development will lead to a breach of national air quality objectives or lead to a deterioration of local air quality;  
Approved mitigation measures are carried out prior to occupation or operation of the development commencing.

2. Where the Council considers that an Air Quality Management Area may be affected by development, it will require the proposal to be consistent with the aims and objectives of the Council's Air Quality Action Plan".

In the Policy D20 justification it states that: Paragraph

6.120 "...Development within these Air Quality Management Areas will be controlled to ensure that the air quality is not made worse. Paragraph 6.121: The Council is concerned to ensure that all new development, particularly commercial, industrial and traffic generating uses, does not result in an unacceptable level of air pollution to the detriment of public health and other land uses. Developers will be expected to take proper account of air quality issues when drawing up their proposals. Within Air Quality Management Areas an air quality assessment will be required to be submitted with proposals for development. In addition, proposals for new development will be required to contribute to air quality improvement measures. Paragraph 6.122: Development outside Air Quality Management Areas may also require an air quality assessment. The Council has produced an Air Quality Action Plan, and developers will be expected to take this into account when proposing development which could have an impact on air quality. Where proposals are acceptable mitigation measures may be secured through planning conditions and/or legal agreements"

The Sites Specific Policies Local Plan identifies and describes the Council's development proposals for the district and allocates sites above 0.4 hectares. The allocated sites fall under a number of categories: Housing, Employment, and Special Policy Areas with each with the potential for air quality impacts. Two forms of statement are made regarding the impact on air quality from allocated sites that are located within an AQMA: "The site lies within an Air Quality Management Area and will require an air quality assessment. Proposals will be required to contribute to air quality improvement measures", and "Mitigation will need to satisfy the Air Quality Action Plan and a planning obligation will need to address offsetting increased vehicular trips".

Further guidance on Transport Assessments and Travel Plans is provided by Highways Development Control <http://www.wakefield.gov.uk/Planning/HighwayDevelopment/guidancenotes.htm>

## Appendix 2

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

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

#### Key Components of an Air Quality Assessment

1. The assessment will require dispersion modelling utilising agreed monitoring data, traffic data and meteorological data. The modelling should be undertaken using recognised, verified local scale models by technically competent personnel and in accordance with LAQM TG.09. The study will comprise of:
  2. The assessment of the existing air quality in the study area for the baseline year with agreed receptor points and validation of any dispersion model;
  3. The prediction of future air quality without the development in place (future baseline or do-nothing);
  4. The prediction of future road transport emissions and air quality with the development in place (with development or do-something).
  5. The prediction of future road transport emissions and air quality with the development (with development or do-something) and with identified mitigation measures in place.

The assessment report should include the following details:

- A. A detailed description of the proposed development, including:
  - Identify any on-site sources of pollutants;
  - Overview of the expected traffic changes;
  - The sensitivity of the area in terms of objective concentrations;
  - Local receptors likely to be exposed;
  - Pollutants to be considered and those scoped out of the process.

- B. The relevant planning and other policy context for the assessment.
- C. Description of the relevant air quality standards and objectives.
- D. The assessment method details including model, input data and assumptions:

For traffic assessment:

- Traffic data used for the assessment;
- Emission data source;
- Meteorological data source and representation of area;
- Baseline pollutant concentration including any monitoring undertaken;
- Background pollutant concentration;
- Choice of base year;
- Basis for NO<sub>x</sub>:NO<sub>2</sub> calculations;
- A modelling sensitivity test for future emissions with and without reductions;

For point source assessments:

- Type of plant;
- Source of emission data and emission assumptions;
- Stack parameters – height, diameter, emission velocity and exit temperature;
- Meteorological data source and representation of area;
- Baseline pollutant concentrations;
- Background pollutant concentrations;
- Choice of baseline year;
- Basis for deriving NO<sub>2</sub> from NO<sub>x</sub>.

- E. Model verification for all traffic modelling following DEFRA guidance LAQM.TG (09):
- F. Identification of sensitive locations:
- G. Description of baseline conditions:
- H. Description of demolition/construction phase impacts:
- I. Summary of the assessment results:
  - Impacts during the demolition/construction phase;
  - Impacts during the operation phase;
  - The estimated emissions change of local air pollutants;
  - Identified breach or worsening of exceedences of objectives (geographical extent)
  - Whether Air Quality Action Plan is compromised;
  - Apparent conflicts with planning policy and how they will be mitigated.
- J. Mitigation measures.

### **Air Quality Monitoring**

In some case it will be appropriate to carry out a short period of air quality monitoring as part of the assessment work. This will help where new exposure is proposed in a location with complex road layout and/or topography, which will be difficult to model or where no data is available to verify the model. Monitoring should be undertaken for a minimum of six months using agreed techniques and locations with any adjustments made following Defra technical guidance LAQM.TG (09).

### **Assessing Demolition/Construction Impacts**

The demolition and construction phases of development proposals can lead to both nuisance dust and elevated fine particulate (PM10 and PM2.5) concentrations. Modelling is not appropriate for this type of assessment, as emission rates vary depending on a combination of the construction activity and meteorological conditions, which cannot be reliably predicted. The assessment should focus on the distance and duration over which there is a risk that impacts may occur. The Institute of Air Quality Management (IAQM)<sup>7</sup> has produced a number of definitive guidance documents to which this guidance refers. The document 'Guidance on the Assessment of the Impacts of Construction on Air Quality and the Determination of their Significance' should be the reference for reporting the construction assessment.

### **Cumulative Impacts**

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

This will occur where:

A single large site is divided up into a series of units, such as an industrial estate or retail park;

A major development is broken down into a series of smaller planning applications for administrative ease; and

There are cumulative air quality impacts from a series of unrelated developments in the same area.

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

<sup>7</sup> IAQM [www.iaqm.co.uk](http://www.iaqm.co.uk)

## Appendix 3

### Emissions Assessment Calculator

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

The screenshot shows the 'Emissions calc' spreadsheet in Microsoft Excel. The interface is organized into several functional areas:

- Select Pollutants (Light Blue):** Includes checkboxes for NOx, PM10, and PM2.5. There are also checkboxes for NOx(TRL), Carbon Dioxide, and Hydrocarbons.
- Select Outputs (Light Green):** Includes checkboxes for Air Quality Modelling (g/km's), Emissions Rates (g/km), and Annual Link Emissions.
- Additional Outputs (Light Green):** Includes checkboxes for Breakdown by Vehicle, Source Apportionment, and PM by Source.
- Advanced Options (Pink):** Includes checkboxes for Euro Compositions, Alternative Technologies, and Output % Contributions from Euro Classes.
- Control Area (Light Blue):** Contains two buttons: 'Run EFT' and 'Clear Input Data'.
- Please Select from the Following Options (Orange):** A dropdown menu for 'Area' (set to 'England (not London)'), a dropdown for 'Year' (set to '2012'), and a dropdown for 'Traffic Format' (set to 'Basic Split').
- Export Outputs (Green):** Includes a radio button for 'Save Output to New Workbook' and a text field for 'File Name' (set to 'Emissions calc').
- Data Table:** A table with columns: SourceID, Road Type, Traffic Flow, %HDV, Speed(kph), No of Hours, and Link Length (km). The first row contains: Emissions calc, Urban (not London), 2.7, 0, 50, 24, 10.

## Output Screen

The screenshot shows an Excel spreadsheet with 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))
Emissions calc	NOx	3.255		3.255
Emissions calc	PM10	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 properties<sup>8</sup>.

### EFT Input:

- 10 household (urban not London) (NOx and PM10)
- X 27 (trip/traffic ratio for 10 houses)
- X cars only (0% HGV)
- X 50kph (avg. speed)
- X 10km (NTS UK avg.)

### EFT Output = 32.55kg/annum (NOX) & 3.795kg/annum (PM10)

- = 0.0325tonnes/annum (NOX) & 0.003795tonnes/annum (PM10)
- X £955/tonne (NOx) + £48,517/tonne (PM10)
- = £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 Survey<sup>9</sup> - (UK average = 10km).
3. The IGCB damage costs are the central estimates (currently NOx = £955/tonne & PM10 transport average £48,517).

<sup>8</sup> Sussex Air Quality Partnership "Air Quality and Emission Mitigation Guidance for Sussex Authorities 2013"

<sup>9</sup> <https://www.gov.uk/transport-statistics-notes-and-guidance-national-travel-survey>



## Appendix 4

### 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.
- 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. Three 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.

## Appendix 5

### Travel Planning Guidance

#### Introduction

This document outlines how the planning process can be used to secure Travel Plans to improve and promote sustainable travel and to reduce the need to travel. Travel Plans are an integral part of Government policy on sustainability. Their aim is to improve the quality of life for everyone by facilitating development that is socially and economically beneficial and also environmentally sustainable. As such they are one of the most important tools in reducing the unnecessary use of vehicles and in turn the emission of harmful Nitrogen Dioxide and Particulate Matter.

This guidance has been produced to help ensure that Travel Plans contain both the necessary detailed measures for encouraging sustainable travel and that these measures are seen through to delivery and implementation.

#### What is a Travel Plan?

According to recent government guidance on Travel Plans (NPPF) they are, “long-term management strategies for integrating proposals for sustainable travel into the planning process. They are based on evidence of the anticipated transport impacts of development and set measures to promote and encourage sustainable travel” They are long term management tools particularly aimed at reducing the need to travel, gaining economic efficiencies, reducing the impact of car travel and encouraging greater use of public transport, cycling and walking.

#### When is a Travel Plan required?

The need for a Travel Plan is influenced by the scale of development. The decision as to the requirement for a travel plan lies with the relevant district planning authority. In the case of Leeds and Kirklees districts guidance already exists which should be considered as the principle guidance in both this and on the types and content of Travel Plans appropriate with each development type.

The requirement for a Travel Plan would generally be in association with proposals for sites which require Type 2 mitigation measures and above, however Travel Plans may be required for developments below this threshold. Travel Plans apply to the whole of sites and the thresholds can be triggered by extensions to sites.

#### Travel Plan Procedure

There are six stages in the Travel Plan process:

**Stage A – Scoping** - Early consultation with the Council is recommended to discuss Travel Plan requirements and agree with the Council, which type of Travel Plan is most appropriate. If a Full Travel Plan is required (some districts will, in the earliest stages of an application accept Interim Travel Plans or, in the case of large missed use sites, Framework Travel Plans) this stage will also involve discussing the key issues to be addressed, the process and timetable to be followed, the scope and content of the Travel Plan and the outcomes sought.

**Stage B - Pre-Application Discussions** – Where a Full Travel Plan is required it should be submitted at this stage in draft form, so the detail may be discussed and agreed with the Council prior to submission.

**Stage C – Submission** - The Travel Plan (Full, Interim or Framework) should be submitted with the planning application which will not be validated until this document is received. The respective council will assess the Travel Plan, conduct any required statutory consultation and provide the applicant with written comments.

**Stage D – Post-determination and Pre-occupation** – Implementation of the Travel Plan should commence prior to the completion or opening of the development. This is to ensure that the measures are in place to positively influence and affect travel choices by all site users before their travel behaviour becomes fixed. The developer is responsible ensuring the Travel Plan is delivered.



**Stage E** – Post-opening - Many elements of the Full Travel Plan will be implemented once the development has opened and is occupied. The success in achieving identified targets is measured through appropriate surveys. Baseline monitoring should occur within three months of occupation.

**Stage F** – On-going Monitoring - All Travel Plans need to be monitored and annual reports submitted to the relevant Council. The Council will ensure Travel Plans are monitored and reported annually.

### **Securing a Travel Plan**

The implementation and enforcement of Travel Plans is an essential part of the planning process. Legal Agreements (section 106 of the Town & Planning Act 1990) will be used to secure Travel Plans for larger and more complex developments; others will be secured by planning conditions.

### **Monitoring Travel Plans**

A robust monitoring strategy must be incorporated into every Full Travel Plan and agreed with the Local Authority. The Travel Plan must be regularly reviewed by the travel plan co-ordinator and the local authority to assess performance against the targets specified in the Travel Plan, and to decide if alternative measures or approaches are to be pursued.

### **Enforcement and Sanctions**

Where Travel Plan measures have not met the agreed targets and some remedy is necessary, the default mechanisms specified in the Travel Plan will be deployed. Enforcement action may be required where non-compliance with a Section 106 agreement or planning condition occurs and this causes harm. The relevant Council will take a proportionate approach, based on evidence.

### **Charges**

Councils may require developers to contribute to the cost of monitoring Travel Plan progress. Charges would usually take the form of an annual fee for five years for this service, with rates based on the size of the development.

## Appendix 6

### 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:..... Print: .....

Position Held: ..... Date: .....

# AIR QUALITY & EMISSIONS

TECHNICAL PLANNING GUIDANCE

Part of the West Yorkshire Low Emissions Strategy

City of Bradford MDC  
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