

**WEST YORKSHIRE**

**AIR QUALITY & EMISSIONS  
TECHNICAL PLANNING GUIDANCE**

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## **1. Summary**

This technical guidance forms part of the overarching West Yorkshire Low Emissions Strategy (WYLES) with a vision of *“Delivering Cleaner Air for all in West Yorkshire”*.

This guidance is aimed at helping planning authorities deliver national air quality objectives through cost effective service planning brought about by joint working and individual policies set out in each authority’s Local Plan.

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 future likely scheme impacts are reasonably mitigated and occupiers 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 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 inform air quality action planning.

The assessment process follows a three stage process:

**STAGE 1- Determining the classification of the development proposal;**

**STAGE 2- Assessing and quantifying the impact on local air quality;**

**STAGE 3- Establishing the level of mitigation required by the proposal to meet National Planning Policy, Local Plan requirements and WYLES objectives.**

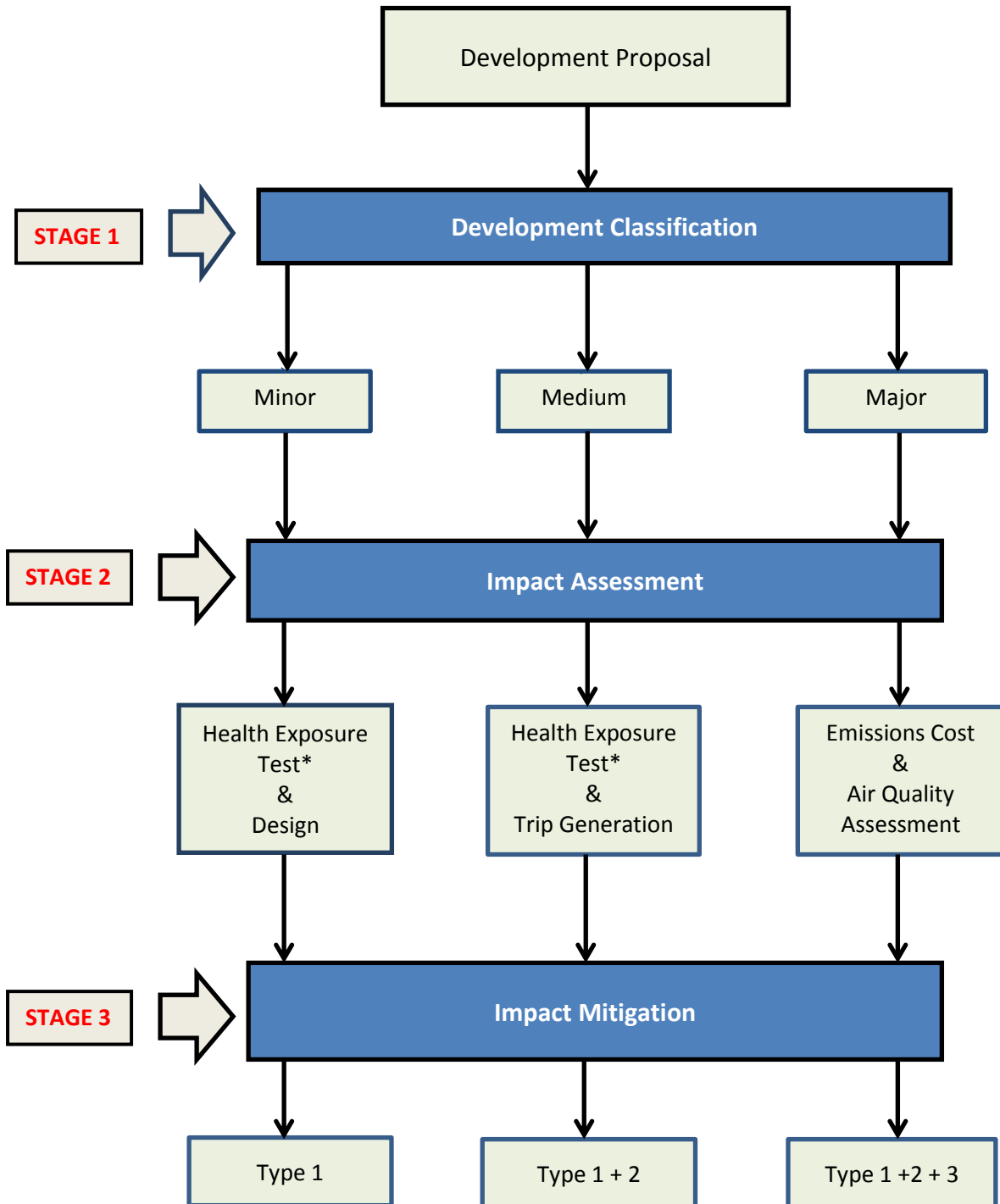
The process is summarised in the flow chart overleaf.

### **Pre-Planning Discussions**

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 plays 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 implementing mitigation measures 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)<sup>1</sup>. 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 including:

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

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<sup>1</sup> <http://planningguidance.planningportal.gov.uk/>

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 guidance supports the implementation of the strategic and development policy framework.

Part 2 of the Localism Act 2011, gives a discretionary power whereby a UK Government Minister could require responsible local and public authorities to pay all, or part of, an EU infringement financial sanction, for failure by the UK to remedy a breach of EU law. The European Commission has formally launched infringement proceedings against the UK for breach of nitrogen dioxide limit values under the EU Air Quality Directive and therefore it is vital that local development ensures the implementation of sufficient measures to meet the requirements of the Act.

#### **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 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.

#### **5. Air Quality and Emissions Mitigation Assessment Process**

The process shown in Figure 1 involves a three stage process:

##### **5.1 Stage 1: Development Type Classification:**

Three levels of development classification are determined using adapted criteria from the Department for Transport<sup>2</sup>.

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

**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 m <sup>2</sup> (GFA)
Non-Food Retail (A1)	Retail sale of non-food goods to the public; but includes sandwich bars or other cold food purchased and consumed off site	>1500 m <sup>2</sup> (GFA)
Financial and professional services (A2)	Banks, building societies and bureaux de change, professional services, estate agents, employment agencies, betting shops.	>2500 m <sup>2</sup> (GFA)
Restaurants and Cafes (A3)	Use for the sale of food for consumption on the premises.	>2500 m <sup>2</sup> (GFA)
Drinking Establishments (A4)	Use as a public house, wine-bar for consumption on or off the premises.	>600 m <sup>2</sup> (GFA)
Hot Food Takeaway (A5)	Use for the sale of hot food for consumption on or off the premises.	>500 m <sup>2</sup> (GFA)
Business (B1)	(a) Offices other than in use within Class A2 (financial & professional). (b) Research & development – laboratories, studios. (c) Light industry	>2500 m <sup>2</sup> (GFA)
General industrial (B2)	General industry (other than B1).	>4000 m <sup>2</sup> (GFA)
Storage or Distribution (B8)	Storage or distribution centres – wholesale warehouses, distribution centres & repositories.	>5000 m <sup>2</sup> (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 m <sup>2</sup> (GFA)
Assembly and Leisure (D2)	Cinemas, dance & concert halls, sports halls, swimming, skating, gym, bingo, and other facilities not involving motorised vehicles or firearms.	>1500 m <sup>2</sup> (GFA)
Other Criteria		
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 proposal in a location where the local transport infrastructure is inadequate		
5. Any relevant proposal in a location adjacent to an Air Quality Management Area (AQMA) or area of concern (monitoring results are within 90% of the relevant objective value).		
6. Where a Transport Statement or Assessment is provided.		

1. **MINOR** Development: Proposals that fall below Table 1 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.

**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(as amended) and includes air quality and/or transport as a specific likely impact.
Proposals located within an Air Quality Management Area (AQMA).
Proposals located in an area of concern.
Proposals that could increase the existing traffic flow on roads of > 10,000 AADT by 5% or more.
Proposals that are likely to increase traffic 5% on road canyons with >5000AADT.
Proposals that could introduce or significantly alter congestion and includes the introduction of substantial road infrastructure changes.
Proposals that could result in reducing average speeds by more than 10kph
Proposals that include additional HGV movements by more than 10% of total trips.
Where a centralised combustion unit of thermal input >300kWh is proposed

The final decision as to the development proposal classification will be made by the relevant local authority officer.

## **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 polluting emissions if not mitigated and potentially expose new occupants to existing levels of poor air quality. An assessment of the likelihood of introducing additional exposure is required using the following exposure criteria:

The proposal is within an area of concern or within an AQMA; The proposal is in a location 20m <sup>(2,3)</sup> from roads at or above the relevant national objective highlighted on the DEFRA GIS modelled maps (DEFRA Maps) <sup>4</sup> The proposal is one of the land use types: C1 to C3 in table 1; Homes of Multiple Occupations (C4); D1 in table1. And within 20m of roads with >10,000 AADT (Annual Average Daily Traffic). Where a Transport Statement or Assessment is provided, the calculated increase in trip generation associated with the proposal should inform the Travel Plan as to the required reduction in trips necessary to achieve compliance with NPPF and Local Plan policies.
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The outcome of the exposure assessment and trip generation will determine the level of mitigation required to 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 may be required to determine the impact on public health and the local environment. The assessment requires:

- A. The identification of the level of exposure through the change in pollutant concentrations including cumulative impacts arising from the proposal, during both demolition/construction processes and operational phases.

<sup>3</sup> <http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html>

<sup>4</sup> <https://uk-air.defra.gov.uk/data/gis-mapping>



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. (16)<sup>5</sup> and IAQM/EPUK guidance<sup>6</sup>.

- B. The calculation of the additional pollutant emissions costs from the transport element of the development.

The pollutant emissions costs calculation will identify the increase in emissions and thereby the scale of environmental damage costs associated with the proposal. This determines the level of mitigation that is expected to be implemented to negate the air quality impacts. The calculation utilises the most recent DEFRA Emissions Factor Toolkit<sup>7</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>8</sup>. The calculation process includes:

- Identifying the additional trip rates or numbers generated by the proposal (from the Transport or Air Quality Assessment);
- The emissions calculated for the pollutants of concern (NO<sub>x</sub>, PM<sub>10</sub>) [from the Emissions Factor Toolkit];
- The air quality damage costs calculation for the specific pollutant emissions (from DEFRA IGCB);
- The result is totalled for a five year period to enable mitigation implementation and impact. Mitigation is estimated to have an 80% impact in the first 5 years of implementation<sup>9</sup>.

The calculation is summarised below with further details of the process and an example calculation shown in Appendix 1.

Road Transport Emission Increase and damage cost =  
The sum of [Estimated trip rate/numbers X Emission rate per 13km per vehicle type X Damage Costs x 5 years]

### **5.3 Stage 3: Mitigation**

The outcome of Stage 2 (Impact Assessment) identifies the level of air quality impact that is then used, following the principles above, 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) states that “where adequate mitigation measures are not possible, compensatory measures may be appropriate”.

<sup>5</sup> <http://laqm.defra.gov.uk/technical-guidance/index.html>

<sup>6</sup> <http://iaqm.co.uk/guidance/>

<sup>7</sup> <http://laqm.defra.gov.uk/review-and-assessment/tools/emissions.html#eft>

<sup>8</sup> <https://www.gov.uk/air-quality-economic-analysis>

<sup>9</sup> COMEAP (2010)

National Planning Practice Guidance states:

*“Mitigation options where necessary will be locationally specific, will depend on the proposed development and should be proportionate to the likely impact. It is important therefore that local planning authorities work with applicants to consider appropriate mitigation so as to ensure the new development is appropriate for its location and unacceptable risks are prevented”.*

It then includes examples of mitigation:

*“.. contributing funding to measures, including those identified in air quality action plans and low emission strategies, designed to offset the impact on air quality arising from new development”.*

Default mitigation measures are presented for each type of proposal that demonstrate 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.

#### 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:

- Short term screening monitoring or utilising the distance calculation provided by Defra<sup>10</sup> at the proposed location to identify the level of exposure;
- Redesigning the proposal to reduce the ingress of pollution;
- Utilising green infrastructure to ameliorate the level of pollution<sup>11</sup>;
- Including a stand-off distance and/or vegetation boundary from the development.

Construction and demolition activities can have a significant impact on local air quality without appropriate and effective mitigation. There is often no clear mitigation provided in proposals which inevitably delays approval and operation of development. In order to provide a clear understanding of what is required, dust management and mitigation guidance is available with this guidance<sup>12</sup>.

A key theme of the NPPF is that developments should enable future occupiers to make “green” vehicle choices and “incorporate facilities for charging plug-in and other ultra-low emission vehicles” (paragraph 35). The Government has an ambition “By 2050, we want virtually every car and van on the road to be zero emission”. 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. Further details of the electric charging specification are shown in appendix 2.

The increasing use of centralised heating systems and biomass fuel within urban areas has the potential for a significant increase in polluting emissions and thus minimum default standards are included in the list below. This includes a requirement for low nitrogen oxides domestic boilers.

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<sup>10</sup> <http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html>

<sup>11</sup> <http://www.woodlandtrust.org.uk/>

<sup>12</sup> <http://www.wakefield.gov.uk/Documents/bins-environment/environmental-health/pollution/dust-management-assessment-guidance.pdf>

**Table 3: TYPE 1 (MINOR) Proposal Mitigation**

<b>Residential</b>
Charging infrastructure to facilitate 1 charging point per unit (dwelling with dedicated parking) or 1 charging point per 10 spaces (unallocated parking)
<b>Commercial/Retail/Industrial</b>
Charging infrastructure to facilitate 10% of parking spaces (which may be phased with 5% initial provision and the remainder at an agreed trigger level)
<b>Demolition/Construction</b>
Adherence to dust management guidance and best practice for all demolition and construction works
<b>Heating</b>
All gas-fired boilers to meet a minimum standard of <40mgNO <sub>x</sub> /kWh
All gas-fired CHP plant to meet minimum emission standard of: Spark ignition engine 250mgNO <sub>x</sub> /Nm <sup>3</sup> Compression ignition engine 400mgNO <sub>x</sub> /Nm <sup>3</sup> Biomass boiler 275mgNO <sub>x</sub> /Nm <sup>3</sup> & 25mgPM/Nm <sup>3</sup>

TYPE 2 (Medium) Proposals Mitigation

Proposals falling into the MEDIUM criteria in table 1 in addition to Type 1(MINOR) will require a detailed Travel Plan. Travel Plan guidance is provided in Appendix 3.

In respect of the Travel Plan it is essential that:

- The content of the travel plan is fully assessed and agreed 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 to reduce trips 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 (trip levels and mode split) are annually monitored against the agreed targets and objectives.
- A bond is required in the event that the travel plan does not deliver the anticipated outputs or meet the targets and objectives.
- A named co-ordinator is essential to the success of the travel plan. For larger schemes a commitment in terms of local authority 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. Measures are required to negate the increased emissions in order to be compliant with the NPPF, the Local Plan, the WYLES, and local transport strategies. They should be incorporated into the scheme design and 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.

**Table 4: TYPE 2 (Medium) Proposal Mitigation**

MINOR classified default mitigation measures (Table 3).
<b>Residential</b>
Support for free or reduced membership of the West Yorkshire car club and travel network
Improved pedestrian links to public transport stops.
Provision of bus infrastructure including stands, shelters, bus gates, information displays.
Provision of free ticketing (Corporate and residential Metrocards, Student Metrocards) with time limited uptake targets.
Provision of resident LEV purchase support as an alternative to Metrocard with time limited uptake.
Supporting the extended provision of sustainable school travel into the development.
Site layout to include improved pedestrian pathways to encourage walking.
Improved convenient and segregated cycle paths to link to local cycle networks.
Provision of storage and support for cycle purchase or hire.
<b>Commercial</b>
All commercial vehicles should comply with current 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.
Provision of bus infrastructure including stands, shelters, bus gates, information displays.
Incentives for using sustainable transport alternatives
Provision of free bus ticketing (Corporate Metrocards).
Provision of cycle storage, changing facilities together with support for cycle purchase or hire.
Provision of low emission pool vehicles.
Membership of the West Yorkshire Eco-Stars Fleet Recognition Scheme or other suitable scheme is required.

**TYPE 3 (Major) Proposal Mitigation**

The scale of damage cost will determine the level of appropriate mitigation required for specific proposals. Measure identification will be further 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<sup>13</sup>
- Defra Air Quality ToolBox<sup>14</sup>.

Type 1 and 2 measures forms the initial level of mitigation and further compensation for the damage cost in the form of supporting both on and off-site mitigation will be required. Default compensation measures are linked to the adopted WYLES and Local Transport Plan objectives and listed below.

**Table 5: Type 3 MAJOR Proposal Mitigation**

Ref:	Objective
002	Accelerate investment in new and upgrade buses.
003	Accelerate the provision of public electric vehicle charging infrastructure.
005	Support the development of alternative fuel delivery infrastructure.
006	Supporting the taxi industry to transition to low emissions vehicles.
007	Support the delivery of the West Yorkshire Transport Strategy environment objectives.
009	Support local authority procurement of low emission waste, highway and social care vehicles.
010	Sponsor public information and monitoring campaigns.

<sup>13</sup> <http://laqm.defra.gov.uk/action-planning/measures/measures.html>

<sup>14</sup> <http://laqm.defra.gov.uk/supporting-guidance.html>

Such agreed measures will be taken forward through the use of Section 106 agreements.

#### Proposal mitigation statement

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

- The calculated emission increase and damage cost.
- Proposed mitigation/compensation measures.
- Estimated mitigation emission and damage cost reduction;

#### Validation checklist

A completed checklist is required for each of the proposals. Further details are provided in Appendix 4.

### **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.

## Appendix 1

### Emissions and Damage Cost Calculator

The calculation utilises the current Emissions Factor Toolkit<sup>15</sup> 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.

A screen shot of the input and output pages from a proposal submitted in 2015 for opening in 2017, are shown below:

#### Input Screen

SourceID	Road Type	Traffic Flow	NHDV	Speed(kph)	No of Hours	Link Length (km)
A650 N	Urban (not London)	986	2.6	48	24	13
A650 S	Urban (not London)	802	2.6	48	24	13
A61 Leeds Rd	Urban (not London)	445	1.6	48	24	13
A61 Leeds Rd	Urban (not London)	332	2.4	48	24	13
A650 Bradford Rd	Urban (not London)	112	1.2	48	24	13
A61 Leeds Rd	Urban (not London)	160	1.6	48	24	13
Bar Lane	Urban (not London)	199	0.9	48	24	13

#### 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)
A650 N	NOx	1630.567071	1303.13933	247.289354
A650 N	PM10	167.390289	150.439344	16.950957
A650 S	NOx	1226.262735	1125.086302	201.195548
A650 S	PM10	136.933968	122.414268	13.738893
A61 Leeds Rd	NOx	699.377258	630.6178956	68.693379
A61 Leeds Rd	PM10	73.319631	68.620491	4.693201
A61 Leeds Rd	NOx	543.584290	466.702759	76.881554
A61 Leeds Rd	PM10	56.023217	50.778289	5.245928
A650 Bradford Rd	NOx	172.345627	163.377855	12.967973
A650 Bradford Rd	PM10	18.228571	17.340982	0.887539
A61 Leeds Rd	NOx	251.4619472	226.7620714	24.700899
A61 Leeds Rd	PM10	26.353061	24.672537	1.686724
Bar Lane	NOx	301.320770	294.033795	17.286981
Bar Lane	PM10	32.084812	30.904766	1.180048

<sup>15</sup> <http://laqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html>

The input and output tables are reproduced below:

### Input

Source ID	Road Type	Traffic Flow*	% HDV	Speed (kph)	No. of Hours	Link Length (km)**
A650 N	Urban(not London)	986	2.6	48	24	13
A650 S	Urban(not London)	802	2.6	48	24	13
A61 Leeds Rd	Urban(not London)	445	1.6	48	24	13
A61 Leeds Rd	Urban(not London)	332	2.4	48	24	13
A650 Bradford Rd	Urban(not London)	112	1.2	48	24	13
A61 Leeds Rd	Urban(not London)	160	1.6	48	24	13

\*Trip Rates are sourced from the Transport Assessments.

\*\*Trip Length uses the National Travel Survey<sup>16</sup> - (UK average = 13km).

### Output

Source Name	Pollutant Name	All Vehicle (Annual Emissions (kg/yr except CO2 tonnes/yr))
A650 N	NOx	1630.567017
A650 N	PM10	167.390289
A650 S	NOx	1326.282715
A650 S	PM10	136.153168
A61 Leeds Rd	NOx	699.377258
A61 Leeds Rd	PM10	73.311691
A61 Leeds Rd	NOx	543.584290
A61 Leeds Rd	PM10	56.029217
A650 Bradford Rd	NOx	172.345627
A650 Bradford Rd	PM10	18.226511
A61 Leeds Rd	NOx	251.461472
A61 Leeds Rd	PM10	26.359261
Bar Lane	NOx	301.320770
Bar Lane	PM10	32.084812

### Damage Cost Calculation

The emission output is in kg of specified pollutant per year and requires converting to tonnes per year and then multiplied by the IGCB damage costs for the specified pollutant. The calculation requires a 2% cumulative increase per annum from 2015 to reflect the assumption that willingness to pay for health will rise in line with economic growth. West Yorkshire local authorities currently use the central estimate transport costs (currently NOx = £25,252 and PM<sub>10</sub> = £58,125). The NOx value is reduced to £21,044 if PM<sub>10</sub> is also being valued to accommodate any possible double accounting overestimations of effects associated with PM. The resulting value is then multiplied by five to provide for mitigation implementation and impact.

The damage cost calculation table for the above proposal is shown below:

<sup>16</sup> <https://www.gov.uk/transport-statistics-notes-and-guidance-national-travel-survey>

Damage Cost Calculation					
NOX (g/km)	PM10 (g/km)	NOX (tonnes)	PM10 (tonnes)	NOx cost 2017 (£)	PM10 cost 2017 (£)
1630.567017	167.390289	1.630567017	0.167390289	42822.08	10118.74
1326.282715	136.153168	1.326282715	0.136153168	34830.94	8230.46
699.377258	73.311691	0.699377258	0.073311691	18367.10	4431.69
543.584290	56.029217	0.54358429	0.056029217	14275.65	3386.97
172.345627	18.226511	0.172345627	0.018226511	4526.15	1101.79
251.4614716	26.35926056	0.251461472	0.026359261	6603.90	1593.42
301.3207703	32.08481216	0.30132077	0.032084812	7913.31	1939.53
<b>Sub Total</b>		4.37	0.45	129339.15	30802.60
<b>Grand Total</b>		<b>4.82</b>		<b>£160,141.74</b>	
<b>5 year implementation</b>				<b>£800,708.71</b>	

As can be seen, the proposal increase emissions from associated transport by an estimated 4.82 tonnes at an equivalent damage cost of £614,788.15. It therefore is incumbent on the developer to identify and implement mitigation to reduce transport emissions by at least this value (preferably below existing levels to adhere to the West Yorkshire Low Emission Strategy).



## Appendix 2

### Electric Vehicle Charging Point Specification

Two types of charging provision are recognised:

- **Active** - Where fully wired and connected “ready to use” charge points are provided, and;
- **Passive** – where the underlying infrastructure to enable simple installation and activation of a charge point at future date.

Passive charging infrastructure enables future users of development to not only choose whether or not to own an EV, but also provides future choice as to which charging point best suites their requirements.

### Charging capability

Three levels of capability exist:

- Standard charging points – that provide a typical full charge in approximately 5-7 hours;
- Fast – that provide full charge in 2-3 hours, and;
- Rapid – that charge in around 30minutes.

The table below lists typical technical standards:

	Voltage (V)	Current (Amps)	Nominal charge power (kW)	Typical Application
Standard	230 AC	16, single phase	3	Residents’ parking
				Employees parking
Fast	230 AC	32, single phase	7	Retail/ leisure parking
				Residential & employment visitor parking
Rapid	400 AC & 500-600 DC	32-63 three phase and up to 125 DC	20-50	Specialist applications

The minimum current rating recommended for standard EV charging infrastructure is 16 Amps. Three-pin 13 amp domestic sockets are not endorsed for EV charging because they are not designed for continuous full power operation. The additional power capability of a 16Amp supply will ensure a full charge can be delivered in an approximate 6-hour overnight period of low background electricity demand.

Resident parking space charging points should be Standard as it is expected that vehicles would be parked overnight. Standard charging would also suite employee parking spaces where cars would be typically parked for a number of hours. However, visitor parking at residential and employment developments, as well as retail parking would require an element of Fast charge capability due to the shorter parking time period.

It would not generally be expected that Rapid charging points would be required for developments in West Yorkshire other than in specialist circumstances such as a distribution hub where a rapid charge is required whilst loading/unloading.

### Activation of Passive Charging Infrastructure

At private car parking spaces (resident's and employees), the onus of responsibility to activate the passive EV charging infrastructure is expected to sit with those private individuals who own and use the car park. In new developments the option to include a charging point should be discussed early with prospective house purchasers together with other incentives.

At public parking spaces, such as retail developments and visitor parking at employment and residential developments, it is recommended that regular review procedures are put in place to trigger conversion of passive capability as demand requires. This should be included in the Travel Plan.

## **Appendix 3**

### **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 government guidance on Travel Plans<sup>17</sup> 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 mixed 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.

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<sup>17</sup> <http://planningguidance.communities.gov.uk/blog/guidance/travel-plans-transport-assessments-and-statements-in-decision-taking/travel-plans/>

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

**Appendix 4 – To be submitted by the developer or their nominee**

**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: