



# SOUTH WORCESTERSHIRE AIR QUALITY SUPPLEMENTARY PLANNING DOCUMENT

Draft for Consultation

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# Introduction

- 1.1. The quality of the air we breathe has a huge impact on our health and wellbeing. Poor air quality is damaging to the natural environment and impacts our local ecosystems<sup>1</sup>. Air pollution contributes to climate change as greenhouse gases are often released from the same sources such as road vehicles, heating etc. This contributes to an environmental problem that reaches beyond the boundaries of our local community.
- 1.2. Poor air quality has a detrimental impact on the environment and human health. This Supplementary Planning Document (SPD) looks to support existing policies and objectives in the adopted 2016 South Worcestershire Development Plan (SWDP), in particular, policy SWDP 31: Pollution and Land Instability, with a view to improving air quality in south Worcestershire. It should be noted that air quality is a material consideration<sup>2</sup> to be reflected in plan making and whilst determining planning applications. This Air Quality SPD is designed to help inform those areas of decision and plan making.
- 1.3. This Air Quality SPD covers the local planning authorities of Malvern Hills District Council, Worcester City Council and Wychavon District Council (known collectively as the South Worcestershire Councils (SWC)). It has been prepared in partnership with the Planning and Transport Planning team, the Sustainability Team and the Directorate of Public Health at Worcestershire County Council, Worcestershire Regulatory Services, and representatives from the Planning Policy and Development Management teams at SWC. This SPD provides additional interpretation of SWDP 31, but will be readopted against the equivalent air quality policies in the SWDP Review once this is adopted.

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<sup>1</sup> An ecosystem is all the living things, including, animals, plants and microscopic organisms, that share a defined area.

<sup>2</sup> A material consideration is a matter that should be taken into account in deciding a planning application or on an appeal against a planning decision.

## Background

- 1.4. The UK Health Security Agency (UKHSA) states that air pollution is the biggest environmental threat to health in the UK, with between 28,000 and 36,000 deaths a year attributed to long-term exposure. There is strong evidence that air pollution causes the development of coronary heart disease, strokes, respiratory disease and lung cancer, and exacerbates asthma.<sup>3</sup> Recent evidence also suggests that air pollution interferes with the development of unborn children and stunts the growth of young children's lungs and respiratory function.<sup>4</sup>
- 1.5. In the UK, most air pollution is caused by the combustion of fossil fuels for the purposes of transportation, heating and electricity generation. Pollution from industrial sources have diminished significantly over the last 30 years due to the decline in manufacturing, legislation such as the Clean Air Act 1993<sup>5</sup>, and effective regulation conducted by the Environment Agency and local authorities.
- 1.6. Part IV of the Environment Act 1995 places an obligation upon all local authorities to regularly review and assess air quality in their areas and to determine whether national air quality objectives are likely to be achieved. Where exceedances are considered likely, the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of required air quality improvements.
- 1.7. Changes introduced by the Environment Act 2021 places statutory obligations upon County Councils, Highway Authorities and any other "Air Quality Partner" to actively collaborate with two tier authorities upon delivery of air quality management action plans.
- 1.8. The air quality objectives set out in the Air Quality (England) Regulations 2000, as amended by the Air Quality Standards Regulations 2010, provide

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<sup>3</sup> [Chief Medical Officer's Annual Report 2022 \(publishing.service.gov.uk\)](https://publishing.service.gov.uk)

<sup>4</sup> [Health matters: air pollution - GOV.UK \(www.gov.uk\)](https://www.gov.uk)

<sup>5</sup> [Clean Air Act 1993 \(legislation.gov.uk\)](https://legislation.gov.uk)

the statutory basis for air quality objectives. These apply to 13 key pollutant types, such as:

- Particulate Matter (PM<sub>10</sub> & PM<sub>2.5</sub>). These are fine and ultra-fine dust particles produced by many sources that are man-made and naturally occurring from the combustion of fossil fuels, road vehicles (tyre wear and braking), agriculture, quarrying etc.
  - Nitrogen Dioxide & Oxides of Nitrogen (NO<sub>2</sub> & NO<sub>x</sub>) emitted from the combustion of fossil fuels used to power road vehicles and domestic and industrial heating. NO<sub>2</sub> is a gas associated with various types of combustion and is an indicator pollutant for other contaminants in the atmosphere. It is commonly associated with the combustion of fossil fuels, including wood.
  - Sulphur Dioxide (SO<sub>2</sub>), a product of the burning and processing of coal for domestic heating, electricity generation and iron manufacture.
  - Carbon Monoxide (CO), the product of poor combustion of fossil fuels.
  - Ozone (O<sub>3</sub>), an unstable gas that is formed in the atmosphere through a complex set of chemical reactions involving hydrocarbons, oxides of nitrogen, and sunlight. Diesel vehicles are a significant source of this pollutant.
  - Benzene (C<sub>6</sub>H<sub>6</sub>), an additive in vehicle fuels and a product of burning coal.
  - Heavy Metals (Lead, Arsenic, Cadmium and Nickel) emitted by metal processing, burning of waste and fossil fuels. These tend to be in small quantities and of ultra-fine particulate size (PM<sub>2.5</sub>).
  - PAH (Polycyclic Aromatic Hydrocarbons) – Produced through the incomplete/poor combustion of fossil fuels, wood etc.
- 1.9. Air pollution monitoring in Worcestershire has followed national trends in areas where road traffic emissions of NO<sub>2</sub> present the greatest health concern. Of the 704 air quality management areas (AQMA's) declared in the

UK<sup>6</sup>, 82% relate to road traffic emissions where average annual NO<sub>2</sub> concentrations exceed the Air Quality Standards Regulations 2010. In 2022, there were 7 declared AQMA's in Worcestershire including 2 in south Worcestershire: Worcester City and Wychbold. In terms of compliance with the Air Quality Standards Regulations 2010 (as amended), NO<sub>2</sub> emissions and PM<sub>10</sub> particles have been of greatest concern, and increasingly, focus is moving to PM<sub>2.5</sub> and PM<sub>1</sub> particles due to links to more serious health impacts. All 7 AQMAs declared in Worcestershire were due to exceedances of NO<sub>2</sub> levels. In Worcestershire, historically, NO<sub>2</sub> has been monitored using 'Palmer tube' passive chemistry methods undertaken at approximately 160 roadside locations, many of which have been in situ for 20 years. This data is harvested monthly and ratified annually through the national AIR PT scheme which is co-ordinated by the National Physics Laboratory. This information is then used to provide annual average values for NO<sub>2</sub> which are reported annually to DEFRA.

- 1.10. There are no Automatic Urban and Rural Network (ARUN) sites in Worcestershire. Prior to January 2024, in addition to the Palmer Tubes, two automatic continuous monitoring sites are located in Worcestershire – one in Wychbold and one in Kidderminster. These have now been supplemented by 27 real-time air quality monitoring points across Worcestershire as part of a DEFRA match-funded bid to increase air quality monitoring. Data from the real-time monitors is available in a public website portal managed by Worcestershire Regulatory Services on behalf of the District Councils.
- 1.11. The UK Government declared a climate emergency in 2019 and committed to a legally binding net zero emissions target of 2050 through an amendment to the Climate Change Act 2008. Many of the actions taken to reach net zero will also provide benefits for air quality. For example, the ban of the sale of new petrol and diesel vehicles from 2035 will result in improved air quality

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<sup>6</sup> [Summary AQMA data - Defra, UK](#) Jan, 2024

through reducing tail pipe emissions such as particulate matter and Nitrogen Oxide (NOx).

## Purpose and status

- 1.12. The purpose of this SPD is to provide supplementary guidance on the policies contained within the 2016 SWDP, principally SWDP 31: Pollution and Land Instability. The application of this SPD will ensure that air quality is taken into account during the planning process by aligning the consideration of air quality impacts and mitigation associated with development schemes. Developers and applicants can use this SPD to ensure that if the guidance is applied, they may help to reduce the detrimental impact on air quality.

## Aims and objectives

### 1.13. Aims

- To ensure that any new development or redevelopment does not negatively impact on air quality, this could be achieved through the promotion of good design or other measures (such as mitigation).
- To supplement and support existing policies in the SWDP to improve air quality in south Worcestershire.
- To provide transparency and consistency to developers, landowners and the community on the basis for identifying the air quality impact and mitigation requirements for new developments.

### 1.14. Objectives

- To promote consideration of air quality and associated health and environmental impacts through the planning process and highlight the existing policy framework in south Worcestershire, emphasising the importance of air quality as a material planning consideration.
- To provide a consistent approach to consideration and assessment of air quality across south Worcestershire, by identifying where air quality assessments are required and how they should be undertaken.

- To complement the Worcestershire Regulatory Services Technical Guidance Note for Planning.<sup>7</sup>
- To ensure new developments do not have a detrimental effect on air quality, by providing guidance that will help reduce the impacts of poor air quality.

1.15. In summary this SPD is designed to:

- Explain why air quality is important in south Worcestershire and describe the existing policy framework.
- Provide guidance on incorporating air quality mitigation measures within new developments.
- Present the criteria for identifying development proposals where an air quality assessment will be required, and the processes involved.

1.16. The SPD should benefit all stakeholders wishing to improve air quality outcomes through the planning process of south Worcestershire, such as:

- Planning applicants and their agents
- District and County Council planning teams and other relevant officers
- Elected members
- Neighbourhood Planning teams
- Town and Parish Councils
- Clinical Commissioning Groups
- NHS England Worcestershire Area Team
- Worcestershire Local Enterprise Partnership

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<sup>7</sup> Worcestershire Regulatory Services Technical Guidance Note for Planning, V5.3 (July 2021)  
<https://www.worcsregservices.gov.uk/media/usah02lz/wrs-technical-guidance-document-for-planning-v-5-3-14-07-2021.pdf>

- National Highways
- Environment Agency
- Natural England
- Historic England
- Public Health Worcestershire

## Scope

- 1.17. This SPD does not introduce new policy but rather supports the interpretation and application of existing policies and objectives of the SWDP by providing further guidance. It aims to help applicants submit more informed planning applications that consider air quality considerations where relevant and/or necessary. Whilst the SPD does not have the same status as the SWDP (the SPD does not form part of the Statutory Development Plan) and is not subject to independent examination, it is a material consideration in the determination of planning applications.
- 1.18. It is beyond the scope of the SPD to tackle pollution from all sources and some pollution types are already well regulated and controlled. This document aims to address those emissions that may be reduced via the planning system or the effects of those emissions through good design. For example, the SPD would not be looking to tackle air quality issues arising from agriculture.

# The Policy Context

- 2.1. This Chapter details the policy context from a planning and air quality perspective.

## The National Policy Context

### National Planning Policy Framework (NPPF)

- 2.2. The National Planning Policy Framework (NPPF December 2023)<sup>8</sup> sets out the Government's planning policies and how they are expected to be applied. The purpose of the planning system is to contribute to the achievement of sustainable development. Minimising pollution is highlighted under the environmental objectives in paragraph 8C. The NPPF states that the planning system should actively manage patterns of growth in support of these objectives including the environmental objective dealing with pollution. A significant degree of development focuses on locations which are, or can be made, sustainable through limiting the need to travel, offering a genuine choice of alternative transport modes. This has many benefits such as reducing congestion and emissions and improving air quality and public health.
- 2.3. Paragraph 180 of the NPPF states that planning policies and decisions should contribute to and enhance the natural and local environment. From an air quality perspective, it means preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, pollution. Development, where possible, should improve local environmental conditions, such as air and water quality (para 180 e). Paragraph 191 states that planning policies and decisions should ensure that new developments should be appropriate for its location considering the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential

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<sup>8</sup> National Planning Policy Framework (Dec 2023), accessed at [https://assets.publishing.service.gov.uk/media/65a11af7e8f5ec000f1f8c46/NPPF\\_December\\_2023.pdf](https://assets.publishing.service.gov.uk/media/65a11af7e8f5ec000f1f8c46/NPPF_December_2023.pdf)

sensitivity of the site or the wider area to impacts that could arise from the development.

- 2.4. Paragraph 192 of the NPPF goes onto detail that planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas, whilst identifying opportunities to improve air quality or mitigate impacts. Further detail on how air quality should be addressed through the planning system can be found by reading the full NPPF.

#### National Planning Practice Guidance (NPPG)

- 2.5. National Planning Practice Guidance (NPPG) includes reference to air quality (Reference ID: 32-005-20191101). It states “Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and/or breach legal obligations (including those relating to the conservation of habitats and species). Air quality may also be a material consideration if the proposed development would be particularly sensitive to poor air quality in its vicinity”.

#### 2008 Ambient Air Quality Directive and Air Quality Standards Regulations 2010

- 2.6. The 2008 Ambient Air Quality Directive sets legally binding limits for concentrations of major air pollutants in outdoor air that affect public health, such as Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>) and NO<sub>2</sub>. This was made law in England through the Air Quality Standards Regulations 2010.

#### The Environment Act 2021

- 2.7. The Environment Act 1995, as amended by the Environment Act 2021, delivers key aspects of the Government’s Air Quality Strategy<sup>9</sup> in order to

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<sup>9</sup> August 2023; [Air quality strategy: framework for local authority delivery](https://www.gov.uk/government/consultations/air-quality-strategy-framework-for-local-authority-delivery) - GOV.UK ([www.gov.uk](https://www.gov.uk))

maximise health benefits and tackle wider action on air quality. The Act states that Councils and other relevant public bodies must have regard to the Strategy and, amongst other things should work together to tackle local air quality issues, increasing powers for local authorities to enforce restrictions on smoke emissions from domestic burning.

#### [Air Quality Strategy 2023<sup>10</sup>](#)

- 2.8. The Strategy, to which Local Authorities must have regard, sets out the need to maintain and improve local air quality so as to make air healthier to breathe, protect nature and boost the economy. The strategy sets out numerous and comprehensive actions that are required across all parts of government and society to meet the goals of protecting the nation's health, the environment, securing clean growth and innovation and reducing emissions from transport, homes, farming, and industry.

### **The Local Policy Context**

#### [South Worcestershire Development Plan 2016 \(SWDP\)<sup>11</sup>](#)

- 2.9. Malvern Hills District, Worcester City and Wychavon District Councils combined to produce the South Worcestershire Development Plan (SWDP) adopted in 2016 with the aim of ensuring that future development within South Worcestershire is well planned, effectively managed, and positively impacting the environment. The South Worcestershire Councils (SWC) started a review of the SWDP in 2018. The review will provide an updated plan up to 2041 and will update their vision, objectives, spatial strategy and policies for the future development of the South Worcestershire area. It is the intention that this SPD will be reviewed when the SWDP Review is adopted.

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<sup>11</sup> The SWCs started a review of the SWDP in 2017. The review, will provide an updated plan period to 2041, and will update the existing SWDP and where necessary its vision, objectives, spatial strategy and policies for the future development of the South Worcestershire area. It is the intention that this SPD will be reviewed when the SWDP is adopted.

## Policy SWDP 31: Pollution and Land Instability

2.10. This SPD supplements Policy SWDP 31: Pollution and Land Instability of the South Worcestershire Development Plan 2016. This policy states that development proposals must be designed in order to avoid any significant adverse impacts from pollution, including cumulative ones, on any of the following:

- Human health and wellbeing.
- Biodiversity.
- The water environment.
- The effective operation of neighbouring land uses.
- An Air Quality Management Area (AQMA).

2.11. Development proposals will not be permitted where the land is contaminated or unstable and not capable of appropriate remediation without compromising development viability or the delivery of sustainable development. Their justification is that pollution is a material consideration and that it may have a detrimental impact upon the environment and human health.

## Worcestershire's Local Transport Plan 4 (LTP4)

2.12. Worcestershire's current Local Transport Plan 4<sup>12</sup> (LTP4) covers the period from 2018 to 2030. It sets out the transport schemes that will be prioritised for investment. The aim is to ensure that Worcestershire can 'continue to adapt in response to change, support and sustain planned growth and protect our cherished environment and unique and distinctive cultural assets which make Worcestershire such a great place to live, work, visit and invest'.

2.13. LTP4 recognises that Worcestershire's transport networks have a finite capacity, and that planned development growth brings challenges for air quality. LTP4 includes an environmental objective which aims to 'limit the

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<sup>12</sup> [The Local Transport Plan | The Local Transport Plan | Worcestershire County Council](#)

impacts of transport in Worcestershire on the local environment, by supporting enhancements to the natural environment and biodiversity, investing in transport infrastructure to reduce flood risk and other environmental damage, and reducing transport related emissions of nitrogen dioxide, particulate matter, greenhouse gases and noise pollution. This will support delivery of the desired outcomes of tackling climate change and reducing the impacts of transport on public health'. LTP4 has three key themes of transport technology, travel choice and capacity enhancement. New guidance on the development of LTPs is expected from Government during 2024 and this will inform the new LTP for Worcestershire (LTP5).

#### Air Quality Action Plan for Worcestershire August 2013<sup>13</sup>

- 2.14. The Air Quality Action Plan (AQAP) for Worcestershire (August 2013) was produced by Worcestershire Regulatory Services (WRS). There is a statutory duty for a local authority to develop an AQAP following the declaration of an Air Quality Management Area (AQMA) in response to identified exceedance(s) of one or more air quality strategy objectives. It sets out the local actions that will be implemented to improve air quality and work towards meeting the objectives.
- 2.15. The document details the AQMAs in Worcestershire, with the aim of identifying solutions that can deliver real measurable contributions towards improving air quality in the County. An updated AQAP for Worcester City is currently in the process of being drafted for publication and consultation in July 2024. An AQAP for Wychavon will follow in 2024-25 following review and status of air quality in the district at the time.

#### Worcestershire Regulatory Services Technical Guidance<sup>14</sup> 2021

- 2.16. Worcestershire Regulatory Services (WRS) have produced technical guidance which sets out the relevant legislation and guidance for environmental protection matters. The technical guidance is regularly updated and is available free online at

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<sup>13</sup> [Worcestershire Air Quality Action Plan \(worcsregservices.gov.uk\)](https://www.worcsregservices.gov.uk)

<sup>14</sup> [Microsoft Word - WRS technical guidance document for Planning V.5.3 final \(worcsregservices.gov.uk\)](https://www.worcsregservices.gov.uk)

<https://www.worcsregservices.gov.uk/all-services/pollution/planning-and-pollution/>

- 2.17. The document is in 3 parts and includes a "Toolkit" identifying when additional information relating to air quality and guidance on the application of planning policy may be needed to support a planning application. The application of relevant technical standards used when considering technical reports and the standards of reporting expected by applicants and their representatives is also explained in the document. Further detail is provided on standard advice provided to Worcestershire local authorities and an indication of the planning advice that may be recommended for inclusion on any planning permission granted, for example, post completion conditions and requirements.

# Air pollution

- 3.1. This chapter provides an overview of the air quality issues in south Worcestershire and how they are impact upon or interact with other important elements.

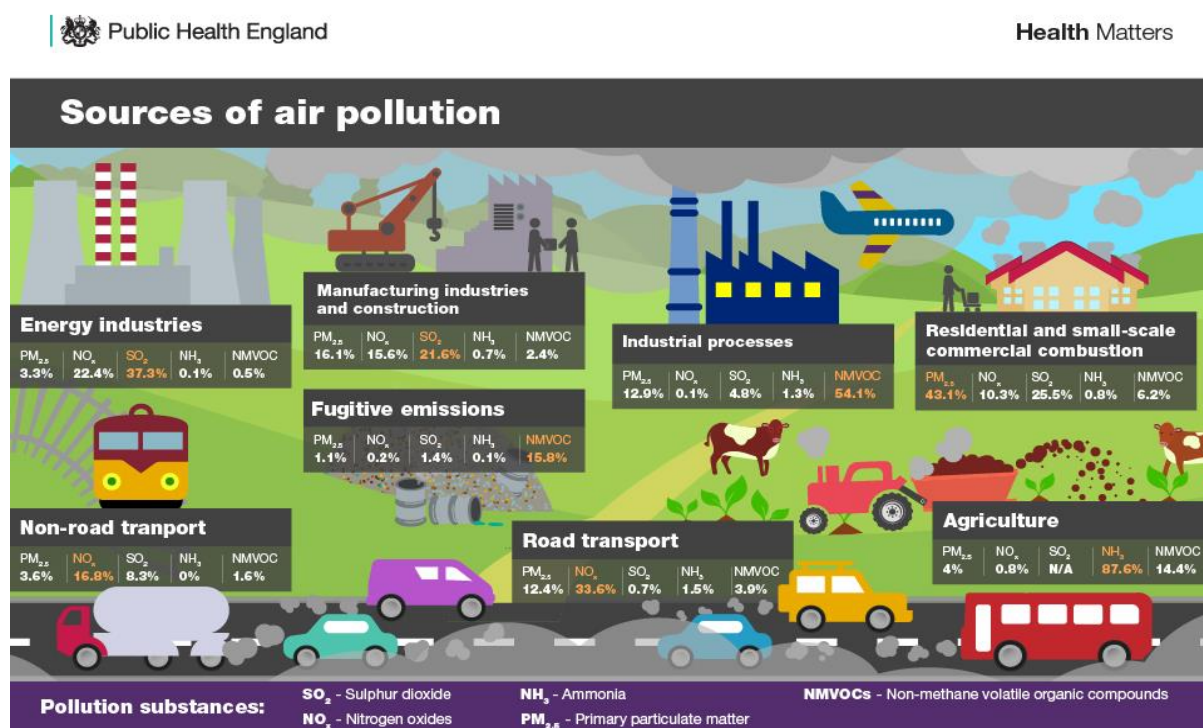
## Sources of Air Pollution

- 3.2. Particulate matter (PM) and NO<sub>2</sub> are both major components of urban air pollution and are of a health concern<sup>15</sup>. Figure 1:0 illustrates the sources of these pollutants and their effects. The largest source of NO<sub>2</sub> emissions is from road transport. PM has more varied sources - domestic and commercial burning, industry, roads etc. Petrol and diesel-engine motor vehicles emit a wide variety of pollutants, principally carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>, NO<sub>2</sub>), volatile organic compounds (VOCs) and PM<sub>10</sub>. These have an increasing impact on urban air quality. In addition, pollutants from these sources can be transported long distances.
- 3.3. Photochemical reactions resulting from the action of sunlight on NO<sub>2</sub> and VOCs, typically emitted from road vehicles, lead to the formation of ozone. Ozone is a secondary pollutant, which impacts rural areas remote from the original emission site due to long-range transport. Agriculture is the main source of ammino pollution as noted in figure 1:0, however, agricultural practices fall out of the remit of this SPD.

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<sup>15</sup> [Chief Medical Officer's Annual Report 2022 \(publishing.service.gov.uk\)](https://publishing.service.gov.uk)

Figure 1:0 The sources of air pollutants and their effects



Source: Health matters: air pollution - GOV.UK ([www.gov.uk](http://www.gov.uk))

## Current air quality issues in Worcestershire

- 3.4. Worcestershire currently has seven Air Quality Management Areas (AQMAs). These locations were declared following studies that demonstrate long term exceedances of National Air Quality Objectives. All exceedances in Worcestershire relate to road vehicle generated NO<sub>2</sub> concentrations. Details of Air Quality Management Areas (AQMAs) declared within the Worcester City and Wychavon Districts can be found on the WRS website<sup>16</sup>. No AQMAs have been declared within Malvern Hills District to date.
- 3.5. Air pollution caused by road traffic in England is improving with measured levels of road pollution decreasing over time<sup>17</sup>. This is largely due to a change in the road fleet, technological advances in engine efficiency and abatement technologies i.e. catalytic converters<sup>18</sup> (NO<sub>2</sub> reduction), Selective

<sup>16</sup> [Interactive Air Quality Maps & Current Status | Worcestershire Regulatory Services \(worsregservices.gov.uk\)](http://worsregservices.gov.uk)

<sup>17</sup>

<https://www.ons.gov.uk/economy/environmentalaccounts/articles/roadtransportandairemissions/2019-09-16>

<sup>18</sup> [What Is a Catalytic Converter and What Does It Do? \(uti.edu\)](http://uti.edu)

Catalytic Reduction<sup>19</sup> ('Ad-Blue'<sup>20</sup> systems high performance reduction of NO<sub>2</sub>), Diesel Particulate Filters (DPF)<sup>21</sup>) and use of alternative technologies such as hybrid, full electric vehicles and other fuel sources. Consequently, emissions of NO<sub>2</sub> have declined since the 1990s.

- 3.6. Across the County, where air dispersal is good, NO<sub>2</sub> pollution is generally good and has improved. The presence of narrow streets and taller buildings based on a medieval street pattern in Worcester City prevents pollution dispersal and, in general, is where higher pollution levels are measured. Additionally, the rise in popularity of solid fuel burning and wood burning stoves, despite the introduction of improved national "ecodesign" standards, is known to contribute to urban fine particulate matter air pollution. The effects of both NO<sub>2</sub> and PM air pollution are affected by certain meteorological conditions such as winter low pressure episodes and summer heatwaves.
- 3.7. It is likely that reliance upon petrol and diesel vehicles will continue for the foreseeable future despite the government ban on the sale of such vehicles by 2035 and the growth of Electric Vehicle (EV) sales. However, technological advancements alone are not sufficient in south Worcestershire. The delivery of homes presents an opportunity to develop homes sustainably, in line with SWDP2 (Development Strategy and Settlement Hierarchy) sustainable development and SWDP4 (Moving Around South Worcestershire) sustainable transport. It is widely recognised, most notably in national planning policy that building homes to high standards, developing highly efficient mobility infrastructure, prioritising active travel and implementation of Green Infrastructure would bring benefits in terms of accessibility, economy, environment, air quality, health and overall quality of life for those living and working in south Worcestershire.

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<sup>19</sup> [What is AdBlue® | How does AdBlue® work? | Yara International](#)

<sup>20</sup> AdBlue is a liquid which is sprayed into a diesel car exhaust system to reduce nitrous oxides emissions.

<sup>21</sup> [What is a DPF filter, and how does it work? - Fixter](#)

## Current issues with air quality data

- 3.8. Work undertaken (called Source Apportionment<sup>22</sup>) to classify transport pollution in Worcester city, demonstrated that reductions of up to 37.7% of vehicle emissions are required to achieve compliance with the annual objective levels for NO<sub>2</sub> in locations where acceptable levels of air pollution (as set out in Air Quality Regulations), were exceeded during the study period.
- 3.9. Notwithstanding existing locations that have regularly exceeded the health objectives, there are many other locations which have recorded concentrations within 10% of the exceedance objective (i.e., 36µgm<sup>-3</sup> NO<sub>2</sub> annual average). This is an important threshold because error factors on 'Palmer' tube technology can be +/-10%. Therefore, there is a need to prevent air quality deteriorating further through intensification in the 'at risk' areas through ensuring that development is well designed.

## Air Quality and the Impact of Poor Air Quality

- 3.10. This section highlights air quality and how it is impacted upon or impacts upon other important elements and the measures that could be used to reduce such effects.

## Air quality and planning

- 3.11. New developments have the potential to adversely impact air quality, usually because of increased road traffic and associated emissions and other sources of combustion associated with domestic heating, such as gas central heating. In order to combat the emissions of NO<sub>x</sub> and CO<sub>2</sub> as a result of domestic heating, the Future Home and Building Standard consultation proposed that new homes from 2025 will produce 75-80% less carbon compared with Building Regulation standards 2013<sup>23</sup>. To achieve these

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<sup>22</sup> Source Apportionment (SA) is the practice of gathering information and data about pollution sources and the amount they contribute to ambient air pollution levels.

<sup>23</sup> [The Merged Approved Documents \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/674442/2020-07-27-Future_Home_Building_Standards_Consultation_Document.pdf)

standards, alternatives to gas central heating will be needed such as heat pumps<sup>24</sup>.

- 3.12. Heat pumps are powered by electricity and the electricity grid is decarbonising<sup>25</sup> at a faster rate than the gas network. Currently, the electricity network (0.23112 kg CO<sub>2</sub>e per unit of electricity) has a higher carbon intensity than the gas network (0.18316kg CO<sub>2</sub>e per unit of gas) as reported in the UK Government GHG Conversion Factors for Company Reporting 2021. The carbon intensity of the electricity grid is projected to reduce to 0.04kg/per unit of electricity by 2035.
- 3.13. Planning can play an important role in improving local air quality at the strategic level through spatial planning, improved sustainable transport links, and well-designed places that lessen the exposure to air pollution through good design.
- 3.14. In terms of Development Management, it is evident that the planning process plays a vital role in the short- and long-term management of local air quality. Hence the importance of considering air quality at an early stage in the application process. The NPPG states that *“Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and/or breach legal obligations (including those relating to the conservation of habitats and species). Air quality may also be a material consideration if the proposed development would be particularly sensitive to poor air quality in its vicinity.*
- 3.15. *Where air quality is a relevant consideration the local planning authority may need to establish:*

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<sup>24</sup> Heat pumps capture heat from outside and moves it into a building, to heat it.

<sup>25</sup> Decarbonising or decarbonisation is the is the reduction of carbon dioxide emissions through the use of low carbon power sources, ensuring a lower output of greenhouse gases into the environment.

- *the ‘baseline’ local air quality, including what would happen to air quality in the absence of the development.*
- *whether the proposed development could significantly change air quality during the construction and operational phases (and the consequences of this for public health and biodiversity).*
- *whether occupiers or users of the development could experience poor living conditions or health due to poor air quality” (Reference ID: 32-002-20191101)*

3.16. When considering design and layout of a development from an air quality perspective, it is important to consider the distances from sources of air pollution and human receptors. Increased separation can reduce the pollution exposure of building occupants. This is of particular importance where developments include sensitive uses such as hospitals, schools, nurseries, care facilities and children’s playgrounds.

3.17. Positive measures can include:

- Considering the impact of air pollution on new developments at the earliest stages of building design.
- Locating buildings away from sources of pollution such as busy roads.
- Avoid creation of new street canyons by placement of buildings away from the roadside.
- Fitting ventilation inlets and opening windows should be on higher floors where practical, away from ground level air pollution, if applicable.
- Locating outside space is also an important consideration, positioning of gardens and roof terraces should be screened to minimise exposure through appropriate positioning and orientation.

## Air quality and health

3.18. In September 2020, CBI Economics produced 'Breathing Life into the UK Economy'<sup>26</sup>, a report that quantifies the economic benefit to the UK of meeting WHO Air Quality guidelines. The report commissioned by the Clean Air Fund states:

'Air pollution impacts human health and the productivity of the UK workforce, which in turn impacts the economy. Analysis conducted by CBI Economics in 2020 estimated that clean air in line with the World Health Organisation's (WHO) guidelines could deliver a £1.6bn boost to the UK economy each year. This would be on top of savings to NHS and social care budgets from treating fewer patients with health conditions associated with pollution.'

3.19. In 2018 Public Health England estimated that 'between 2017 and 2025 the total cost to the NHS and social care of air pollution for where there is robust evidence for an association, is estimated to be £1.60 billion for PM2.5 and NO2 combined increasing to £5.56 billion if other diseases for which there is currently less robust evidence for an association are included.'<sup>27</sup>

3.20. '

3.21. Although air pollution can be harmful to everyone, some people are more affected than others. The Chief Medical Officer's Annual report states "The mortality burden of air pollution in England is estimated to be between 26,000 and 38,000 a year, but in addition many people suffer avoidable chronic ill health as a result of it."<sup>28</sup> They may live, work or otherwise be exposed to higher levels of air pollution or they may be more susceptible to health problems caused by air pollution. The most vulnerable may face all these disadvantages<sup>29</sup>.

Figure 1.1 Health effects of air pollution short and long term

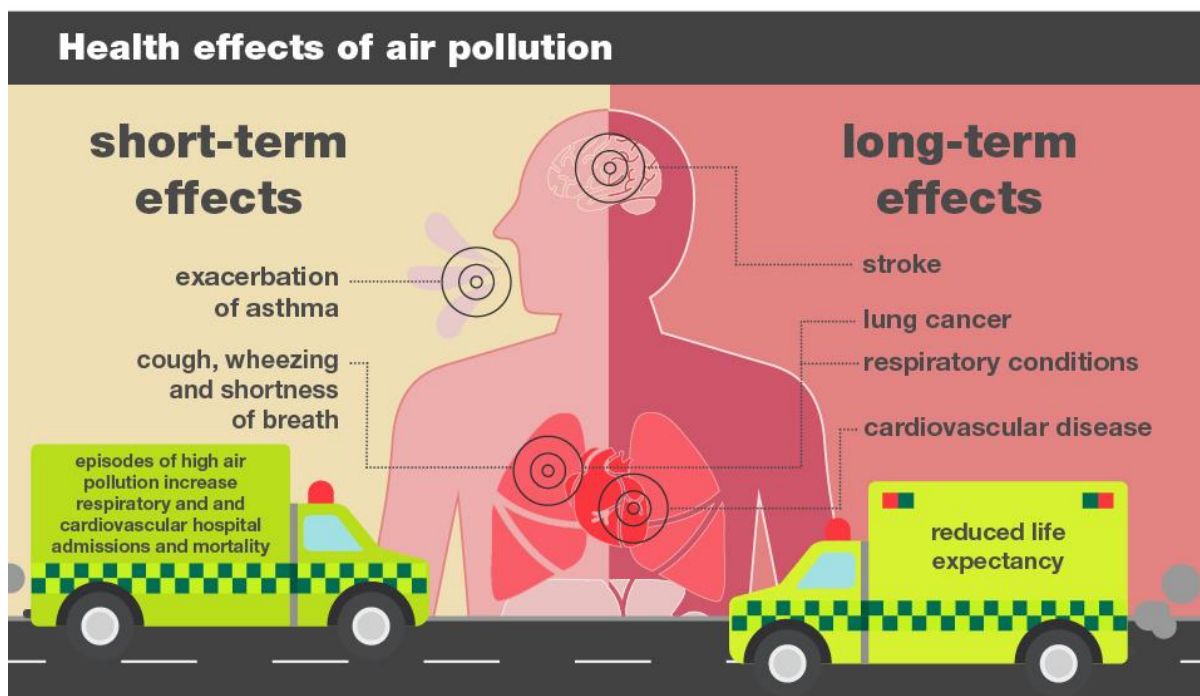
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<sup>26</sup> [Breathing life into the UK economy - CBI Economics Report Series - Clean Air Fund](#)

<sup>27</sup> [Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report \(publishing.service.gov.uk\)](#)

<sup>28</sup> [Chief Medical Officer's Annual Report 2022 \(publishing.service.gov.uk\)](#)

<sup>29</sup> [Government/publications/health-matters-air-pollution](#)



Source: Health matters: air pollution - GOV.UK ([www.gov.uk](http://www.gov.uk))

- 3.22. Long-term exposure to air pollution will reduce life expectancy, largely as a result of cardiovascular and respiratory diseases and lung cancer. As detailed in Figure 1.1, even short-term exposure (over hours or days) to elevated levels of air pollution has the potential to cause a range of health impacts, such as exacerbation of asthma, increases in respiratory and cardiovascular illnesses, hospital admissions and mortality<sup>30</sup>.
- 3.23. Figure 1.1 shows the effect(s) poor air quality may have upon people through their lifetime. There is emerging evidence that significant exposure to poor air quality has causative links with dementia, low birth weight and Type 2 diabetes<sup>31</sup> amongst other conditions.
- 3.24. While some improvements in health are likely to be seen quite quickly following improvements in air quality, it is unlikely that the full health benefits would be realised immediately. Modelling estimates suggest that a reduction of one  $\mu\text{g}/\text{m}^3$  of PM<sub>2.5</sub> in 2017 in England could prevent 50,900 cases of

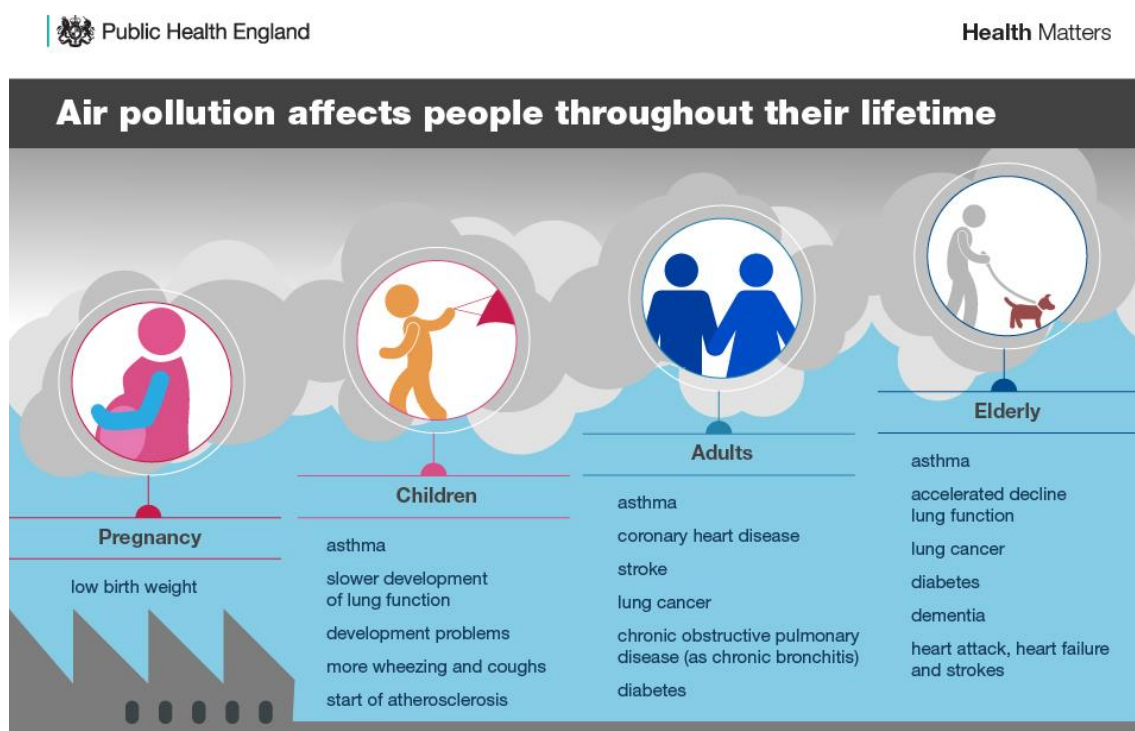
<sup>30</sup> [Government/publications/health-matters-air-pollution](http://Government/publications/health-matters-air-pollution)

<sup>31</sup> [Government/publications/health-matters-air-pollution](http://Government/publications/health-matters-air-pollution)

coronary heart disease, 16,500 strokes, 4,200 lung cancers and 9,300 cases of asthma in people aged over 18 years by 2035.

- 3.25. When estimating the benefits of reducing air pollution, **Committee on the Medical Effects of Air Pollutants (COMEAP)** has assumed that: 30% of the reduction in risk of mortality occurs in the first year after pollution reduction; 50% occurs across years 2 to 5; and the remaining 20% of the risk reduction is distributed across years 6 to 20. These 3 components of the distribution reflect short-term, cardiovascular and lung cancer effects, respectively<sup>32</sup>.

Figure 1.2 Air pollution effects people throughout their lifetime



Source: Health matters: air pollution - GOV.UK ([www.gov.uk](http://www.gov.uk))

- 3.26. Positive measures can include:

- Undertaking a Health Impact Assessment (HIA) and acting upon the findings. Guidance can be found in south Worcestershire's Planning for Health SPD

<sup>32</sup> [Government/publications/comeap-mortality-effects-of-long-term-exposure-to-particulate-air-pollution-in-the-uk](http://www.gov.uk/government/publications/comeap-mortality-effects-of-long-term-exposure-to-particulate-air-pollution-in-the-uk)

at: <https://www.swdevelopmentplan.org/publications/supplementary-planning-documents/planning-for-health-spd>.

- Minimising the exposure of vulnerable groups to air pollution by not siting buildings (such as schools, nurseries and care homes) in areas where pollution levels will be high.
- Adding landscape features such as trees and vegetation in open spaces or as 'green' walls or roofs where this does not restrict ventilation and air dispersal.
- Promoting active forms of travel including walking, cycling and increased use of public transport.
- Planning for built and natural environments that provide suitable living conditions, encourage good physical and mental wellbeing; and
- Providing charge points for electric vehicles in workplaces, commercial developments, and residential developments.

3.27. Further guidance on positive measures for planners can be found in the NICE guidelines at <https://www.nice.org.uk/guidance/ng70>

### Air Quality and Climate Change

3.28. The UK Government has committed to a legally binding target to achieve net zero carbon emission by 2050 (78% reduction in carbon emissions by 2035 compared with 1990 emissions) as part of the Nationally Determined Contributions under the Paris Climate Agreement. The commitments made by all the signatory countries to the Paris Climate Agreement aim to keep global temperature increase well below 2°C, ideally to 1.5°C. Activity to reduce greenhouse gas emissions such as moving towards electrically powered vehicles that do not produce tailpipe emissions and decarbonising our energy production will have dual benefits in supporting net zero carbon ambitions and reducing air pollutants such as particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>).

3.29. Our weather influences the movement and dispersal of air pollutants. Wet and windy conditions tend to allow for the dispersal of pollutants whilst still conditions, such as those experienced under high pressure systems, result in a build-up of pollutants at ground level. The increase in hotter summers projected by the UK Climate Impact Programme may lead to increased incidents of poor air quality<sup>33</sup>.

3.30. Positive measures can include:

- Design and connectivity to support active travel.
- Design to support the provision of electric vehicle charging.
- Low carbon and affordable heating provision. While this may not influence immediate air quality in the community, it will influence overall emissions and air quality. An unaffordable heating solution may mean households switch to alternative heating.
- Opportunities for public transport and other means of shared travel including car clubs having the potential to reduce the need to own individual vehicles.

### Air quality and transport

3.31. Due to the proximity of the highway network to many homes, the negative impact from pollutants on human health can be particularly high, especially for those with existing health conditions. Furthermore, it is acknowledged that increased reliance on car travel not only adds to traffic delays and congestion but is a contributor to physical inactivity which is linked to poor health outcomes. LTP4 recognises that Worcestershire's transport networks have a finite capacity, and that planned development growth brings challenges for air quality. A particular challenge is ensuring that new developments which may be away from existing urban areas are adequately served by the bus network and rail (as appropriate). This requires that bus and rail provision to be considered at the early stages in the planning and

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<sup>33</sup> Research found that during heatwaves in Birmingham the level of all pollutants also increased [https://eprints.lancs.ac.uk/id/eprint/127503/1/Pure\\_ID\\_244951877\\_Temperature\\_and\\_air\\_pollution\\_relationship\\_during\\_heatwaves\\_in\\_Birmingham\\_UK.pdf](https://eprints.lancs.ac.uk/id/eprint/127503/1/Pure_ID_244951877_Temperature_and_air_pollution_relationship_during_heatwaves_in_Birmingham_UK.pdf)

design of the development. A further challenge is to reduce the impact of new development on the freight system for carbon emissions, congestion and air quality while ensuring the flow of goods along supply chains remains reliable and efficient.

3.32. In July 2021 the government published the Transport Decarbonisation Plan<sup>34</sup> (TDP) which sets out a roadmap for the UK to deliver a net zero transport system by 2050. The TDP acknowledges that the planning system has an important role to play in encouraging development that promotes a shift towards sustainable transport networks and the achievement of net zero transport systems. This plan followed the announcement that the sale of new petrol and diesel cars and vans will be phased out by 2035. In addition, during 2021 the government published the UK's first Hydrogen Strategy<sup>35</sup> as part of its target to provide 5GW hydrogen capacity by 2030. These plans illustrate that transport provision will look different in the future so in order to meet the air quality challenges, these changes will need to be reflected when planning developments.

3.33. To meet the wider net zero targets as well as improving the air quality in Worcestershire, planning for developments that maximise sustainable transport opportunities is vitally important. Furthermore, the improvement in air quality by the promotion of sustainable transport options provides more wide-ranging benefits, including making Worcestershire a more attractive place to live, work and invest.

3.34. Positive measures can include:

- Considering transport issues from the earliest stages of development proposals to address the impacts of the development on transport networks.
- Focusing development at locations which are or can be made sustainable, through limiting the need to travel, and offering a genuine

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<sup>34</sup> [Transport decarbonisation plan - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/transport-decarbonisation-plan)

<sup>35</sup> [UK hydrogen strategy - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/uk-hydrogen-strategy)

choice of sustainable transport modes (including public transport, safe walking and cycling, and newer forms of personal mobility).

- Proposing transport and access measures so that the development promotes safe and sustainable transport opportunities, including access to the rail network.
- Making the promotion of active travel and public transport an integral part of the development design process (including the public realm and transport interchanges).
- Considering the infrastructure for electric vehicles (including buses) and newer forms of personal mobility.
- Considering shared mobility options such as mobility hubs and car clubs.
- Considering measures to reduce the impact of freight movements e.g., promoting cleaner vehicle fleets, consolidation hubs and local parcel hubs.

### Air quality and environmental impact

3.35. Air pollution directly impacts on the natural environment, being a core contributor to climate change, decreasing crop yields and polluting our watercourses. Maintaining good air quality is important for the protection of ecosystems. Air pollution and its deposition onto vegetation, soil and water can damage vegetation directly or indirectly through the addition of nutrients or changes in acidity levels within a habitat. These can cause a shift in the competitive balance between species, changes in plant species composition or subtle changes in vegetation structure. This can affect the use of a habitat by an animal species.

### Air quality and the natural and historic environment

3.36. Poor air quality can impact on the natural, historic environment, and heritage assets with corrosive elements caused by poor air quality affecting limestone, copper and bronze, which covers a wide range of heritage assets. Urban parks, historic gardens and townscape soft landscaping can also be

affected by poor air quality air including an impact on the health of ancient and historic trees. The degradation to the urban forest or other landscaping through poor air quality can result in a change to the historic townscape character. Air quality is even an issue for museums and archives where collections can be damaged by poor air quality in the locality.

# Approach to Assessing Planning Proposals

4.1. Worcestershire Regulatory Services (WRS) have developed a series of tools (detailed below) to streamline the process of determining likely air quality impacts associated with development:

- WRS Planning Officers Check List
- WRS Planning Technical Guidance Note for Planning ([wrs-technical-guidance-document-for-planning-v-5-6-final.pdf](https://www.worcsregservices.gov.uk/all-services/pollution/planning-and-pollution/) ([worcsregservices.gov.uk](https://www.worcsregservices.gov.uk)))
- WRS Code of Best Practice for Demolition and Construction Sites. (<https://www.worcsregservices.gov.uk/all-services/pollution/planning-and-pollution/>)

## Planning Officers Check List

4.2. The Planning Officers checklist is a tool that can be used by planning officers to determine whether a proposal has real potential to impact air quality and decide whether they need to engage WRS officers for more detailed advice. Officers also have at their disposal WRS air consultation zone maps. These maps identify areas that are sensitive to air quality changes due to collective impacts, having poor or borderline air quality levels or within the periphery of existing areas subject to AQMA control. All these matters need consideration in terms of air quality.

## Planning Technical Guidance Document

4.3. This document covers air quality impact evaluation in two parts. The first part is the developer's toolkit. This provides the applicant with a method of gauging whether they need to consider detailed air quality impact assessment prior to engagement with the planning officer in the pre-application stage. This is designed to save the applicant time because production of air quality assessments can take time depending on the complexity of the development and the requirement for supporting monitoring program.

- 4.4. The second part of the guide provides technical detail as to the methods of assessments and the expected standards of reporting of any submissions made in support of a future planning application.

## WRS Code of Best Practice for Demolition and Construction Sites

- 4.5. The guidance given in this document is intended to provide contractors with a set of tools that allow them to plan, assess and manage the disruption associated with demolition and construction work. The guide also provides for a method of working responsibly outside of standard working hours, to facilitate complex and challenging projects with minimal impact<sup>36</sup>.

## Pre-application discussions

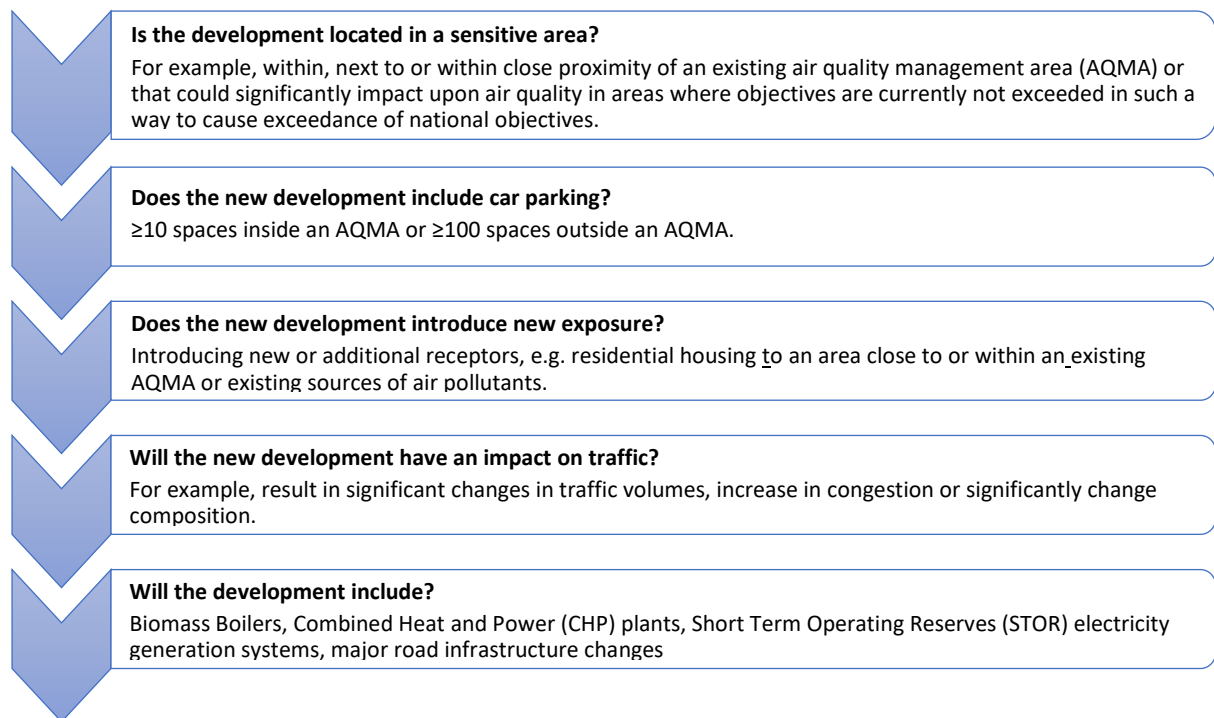
- 4.6. Pre-application discussions, in confidence, are useful tools to discuss major or core complex forms of development where there is probable impact on existing areas of air quality concern. Pre-application discussions provide an excellent opportunity to positively shape the development from the beginning. The SWC's promote their use to provide advice on a proposal prior to a formal submission.

## Considerations for Air Quality and Planning

- 4.7. Air quality represents an important material planning consideration as there is the potential for significant impacts to human health as well as the wider environment due to exposure to poor air quality.
- 4.8. Proposed developments that have the potential to impact on local air quality, or that introduce new receptors to areas of poor air quality, need to be considered as part of the planning process. It is important that a consistent approach is adopted across the region when dealing with air quality concerns as part of planning.
- 4.9. The following diagram presents some examples of proposals that would need to be considered in further detail in respect of air quality.

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<sup>36</sup> [Planning and Pollution | Worcestershire Regulatory Services \(worcsregservices.gov.uk\)](https://www.worcsregservices.gov.uk/)



4.10. New developments can have an adverse influence on existing areas of poor air quality. Likewise, large developments in areas of previously acceptable air quality can create deterioration in air quality to potentially unacceptable levels.

4.11. It is therefore important that the impact of any development on air quality is fully understood. This may require that a detailed air quality assessment is undertaken to quantify the impacts the development will have on local air quality. Where detrimental impacts are anticipated a mitigation options appraisal should be carried out to identify measures to negate those impacts. Where possible all development should have a neutral air quality impact.

4.12. It is recognised that pollution impacts associated with traffic generated by new developments is not restricted to the area of development. Even developments located in areas of good air quality could lead to additional journeys through areas of poor air quality such as AQMAs. Similarly, air pollutants generated by domestic and commercial heating plant are not confined to the development site itself and will add to existing background levels across the area.

- 4.13. Whilst it may be easier to quantify impacts from a single large development it is also important to understand the impacts associated from multiple developments in an area i.e. the cumulative impact of local development. The cumulative impact of all locally committed developments (small scale and large-scale major sites i.e. >10 properties) should be included within any detailed air quality assessment undertaken.
- 4.14. Where an air quality assessment indicates that a development will cause a significant detrimental impact or result in exposure to pollutant concentrations that exceed the national objective, adequate and satisfactory mitigation measures should be secured before the granting of planning permission.
- 4.15. In addition, general mitigation measures (such as Electrical Vehicle Charging Points, Low Emission Boilers, Secure Cycle Parking) should be applied to all new development to help offset the incremental creep in pollutant emissions.

### Minimising Air Quality Impacts through Good Design

- 4.16. The design and layout of development to increase separation distances from sources of air pollution and human receptors can reduce the pollution exposure of building occupants. This is particularly relevant where developments include sensitive uses such as hospitals, schools, nurseries, care facilities and children's playgrounds. New residential and other sensitive developments should be located in areas where air quality objectives are being met.
- 4.17. The impact of air pollution on new developments should be taken into account at the earliest stages of building design. Consideration should be given to location of buildings away from sources of pollution such as busy roads. The creation of new street canyons should be avoided with the placement of buildings away from the roadside. Ventilation inlets and the location of opening windows should be on higher floors away from air pollution at ground level where applicable.

4.18. The location of outside space is also an important consideration, and any exposure of gardens and roof terraces should be screened and minimised through appropriate positioning and orientation.

4.19. Examples of mitigation include:

- the design and layout of development to increase separation distances from sources of air pollution;
- provision of infrastructure to support low and zero emission travel;
- using green infrastructure to act as a barrier to pollutants (NB this may not be appropriate within existing street canyon environments or where there is potential to create such circumstances);
- means of ventilation;
- controlling dust and emissions from construction, operation and demolition; and
- 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.'

### When are assessments required?

4.20. Air quality needs to be considered where development is proposed in or near to an AQMA or other areas of concern (potential or emerging areas of poor air quality). Air quality must also be considered where development is proposed outside of Air Quality Management Areas (AQMAs) or other areas of concern if the proposed development is likely to result in an increase in emissions arising from road traffic and/or relevant point sources.

4.21. Given the wide variety of possible developments and site-specific conditions dependant on location it is not possible to provide prescriptive criteria as to when an air quality assessment will be required. Each development is unique, and conditions will be site specific. Developers and consultants are

advised to liaise with the planning authority at pre-application stage to determine whether an assessment is needed.

4.22. Below is a table showing types of development where an air quality assessment and/or additional mitigation may be appropriate. The LPA should consult WRS for advice in these situations:

<b>Classification</b>	<b>Examples of Development</b>
<b>Agricultural Development</b>	<ul style="list-style-type: none"> <li>• Large poultry farm,</li> <li>• Large pig farm,</li> <li>• Other large intensive agricultural processes.</li> </ul>
<b>Commercial Development</b>	<p>Any development likely to significantly increase vehicle traffic, for example:</p> <ul style="list-style-type: none"> <li>• Supermarket or convenience store,</li> <li>• Drive through restaurant</li> <li>• Leisure centre.</li> </ul>
<b>Major Infrastructure</b>	<ul style="list-style-type: none"> <li>• Motorways (including modifications),</li> <li>• Trunk roads (including modifications),</li> <li>• Aircraft / airports,</li> <li>• Energy generation</li> <li>• Railways,</li> <li>• Changes to road junction or road layout within an AQMA or other areas of concern</li> </ul>
<b>Public Services</b>	<ul style="list-style-type: none"> <li>• Waste management,</li> <li>• Mineral extraction and quarrying,</li> <li>• Energy generation from waste,</li> <li>• Peak power generator plants (STOR systems),</li> <li>• Biomass boilers and other large heating / combustion plants,</li> <li>• Other substantial combustion process where there are relevant receptors.</li> </ul>
<b>Residential Development</b>	<ul style="list-style-type: none"> <li>• 100 dwellings or more outside of existing AQMAs or other areas of concern</li> <li>• Potentially smaller developments will require an air quality assessment within an AQMA or other area of poor air quality (indicative criteria of 10 dwellings or more).</li> </ul>
<b>Retail, Leisure, Commercial,</b>	<ul style="list-style-type: none"> <li>• Developments with 100 parking spaces or more outside of existing AQMA or area of poor air quality.</li> </ul>

<b>Industrial Development</b>	<ul style="list-style-type: none"> <li>Smaller developments will require an air quality assessment within an AQMA or other areas of concern (indicative criteria of 10 spaces or more).</li> </ul>
<b>Large Vehicular Depots</b>	<ul style="list-style-type: none"> <li>Bus station,</li> <li>Lorry park,</li> <li>Park and ride,</li> <li>Business receiving large number of HGVs.</li> </ul>
<b>Any New Buildings</b>	Introducing new exposure within an AQMA or other areas of concern
<b>Change of Use</b>	Existing buildings and outside space within an AQMA or other area of poor air quality changed to become: - <ul style="list-style-type: none"> <li>Amenity space</li> <li>Nursery play areas</li> <li>Playgrounds</li> <li>Outside seating areas</li> <li>Residential dwelling or other sensitive use</li> </ul>
<b>Miscellaneous</b>	<ul style="list-style-type: none"> <li>Underground car park with extraction system.</li> <li>Any new development which substantially increases vehicle traffic or emissions outside of AQMA or area of poor air quality.</li> <li>Any new development which increases vehicle traffic or emissions within an AQMA or other areas of concern. Any development where new receptors are introduced to existing AQMAs or other areas of concern</li> </ul>

4.23. EPUK/IAQM have produced guidance 'Land-Use Planning & Development Control: Planning For Air Quality' (2017) which includes the following additional criteria for requiring an air quality assessment:

<b>The development will:</b>	<b>Indicative Criteria to Proceed to an Air Quality Assessment</b>
<b>Cause a significant change in Light Duty Vehicle (LDV) traffic flows on local roads with relevant receptors.</b>	A change of LDV flows of: <ul style="list-style-type: none"> <li>more than 100 AADT<sup>37</sup> within or adjacent to an AQMA</li> <li>more than 500 AADT elsewhere.</li> </ul>
<b>Cause a significant change in Heavy Duty Vehicle (HDV) flows on local roads with relevant receptors.</b>	A change of HDV flows of: <ul style="list-style-type: none"> <li>more than 25 AADT within or adjacent to an AQMA</li> <li>more than 100 AADT elsewhere.</li> </ul>

<sup>37</sup> Annual Average Daily Traffic

## Air Quality Assessment Content

4.24. Reporting should be undertaken with regard to WRS's Technical Guidance Note for Planning (TGNP) and should contain the following:

- An overview of the full development.
- A fully verified air quality assessment.
- Outcome scenarios post development.
- Mitigation for the development.

4.25. Full details are available in Chapter 3.5 of Worcestershire Regulatory Service Technical Guidance Note for Planning (TGNP<sup>38</sup>).

4.26. All development should adhere to WRS Code of Best Practice for Demolition and Construction Sites, which have specific requirements particularly in relation to the control of airborne particulate matter.

## Assessment

4.27. Reports will primarily consist of technical reviews which may implement several information sources and assessment techniques, such as:

- Local and national Government supplied air quality data.
- Traffic data - Counts & Predictions.
- Point source pollution data (industrial such as chimney stacks/agricultural).
- Verified computer generated air quality impact models.
- Model scenarios and different outcomes.

4.28. All assessments implement computer generated air quality models which provide a range of scenarios dependant on 'best case/worst case' scenarios. Reports may also contain proposals for mitigation, however these are

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<sup>38</sup> <https://www.worcsregservices.gov.uk/all-services/pollution/planning-and-pollution>

usually integrated into the wider development scheme as they will relate to a number of cross cutting design features e.g. sustainable transport links, building efficiency measures, low impact heating and charging.

#### Determining suitable mitigation measures

4.29. Where an assessment identifies that a development will have a detrimental impact on local air quality, details should be provided on appropriate mitigation measures that would avoid, reduce, or offset the impact of development. These proposals should be assessed to determine what impacts they may have and should be accompanied with supporting evidence. Innovative solutions to air quality mitigation are encouraged.

4.30. The type of mitigation required on a development will be informed by:

- Outcomes from the Air Quality Assessment / Transport Statement / Emission profiling.
- Specific needs identified in site specific spatial policy allocations.
- Travel Awareness / Planning and Highway Development requirements.
- Latest DEFRA air quality guidance (DEFRA Measures Guidance).
- Relevant technical guidance and acknowledged best practice.
- The Air Quality SPD.

4.31. When development has a direct impact on an AQMA, relevant action plans for those areas must be considered as part of any wider proposal because they have been identified as being the most appropriate method of addressing air quality impact.

4.32. Consideration of the location of sensitive development should include the proximity of AQMA and the areas at risk. Certain types of development can be particularly sensitive to air pollution because of the people who make use of them. For example, schools, children's play areas and homes should be situated away from those roads which have poor air quality. Consideration should be given to the suitable design, layout and orientation of these

sensitive developments to avoid exposure to poor air quality whilst considering energy demand and loss.

- 4.33. Even where the impact on air quality is judged to be insignificant, consideration should always be given to the application of good design and good practice measures to minimise the impact on air quality.

#### Minimising Unacceptable Air Quality Impacts through Mitigation

- 4.34. Consideration can be given to mitigating unacceptable air quality impacts through the design and construction phases of a development, as well as ensuring development and buildings are designed to be flexible to accommodate future changes. The NPPF gives no specific detail on mitigation, despite a national agenda to minimise unacceptable air quality impacts. The NPPG outlines some high-level general advice on air quality mitigation but provides no guidance on how the most appropriate mitigation options should be chosen, or on the efficacy of the different mitigation options.
- 4.35. Paragraph 192 of the NPPF states that opportunities to improve air quality (or to mitigate impacts) should be identified through traffic and travel management and green infrastructure provision and enhancement. The NPPG sets out that 'Mitigation options where necessary, will depend on the proposed development and should be proportionate to the likely impact' (Reference ID: 32-008-20191101). Planning conditions and obligations can be used to secure mitigation.
- 4.36. Mitigation options will need to be locationally specific, relevant to the proposed development, and need to be proportionate to the likely impact. It is important that local planning authorities work with applicants to consider appropriate mitigation to ensure that new development is appropriate for its location and that unacceptable risks are prevented.
- 4.37. The below mitigation hierarchy is a good starting point when choosing an appropriate mitigation solution for an adverse air quality impact.

## Prevention or Avoiding Exposure/Impacts of Pollutants

4.38. Preference should be given to preventing and/or avoiding exposure/impact to the pollutant in the first instance by eliminating or isolating potential sources or by replacing sources/activities with alternatives. This is best achieved through taking air quality considerations into account at the development scheme design stage.

## Reduction and minimisation of Exposure/Impacts

4.39. Reduction and minimisation of exposure/impacts should be considered once the options for prevention/avoidance have been implemented, so far as is reasonably practicable (both technically and economically). The points below are examples of how this reduction/minimisation may be achieved.

4.40. Detailed below are ways the air quality issues could be mitigated against:

- Mitigation through design
- Green infrastructure
- Sustainable transport and reduced need to travel
- Offsetting
- Minimising unacceptable air quality impacts during construction
- Alternative sources of heating and energy for homes
- Sustainable building design
- AQMAs and Action Plans

## Mitigation through Design

4.41. This could be enforced through planning conditions and/or design codes and masterplans. This includes:

- Maintaining adequate separation distances between sources of air pollution and receptors, using green infrastructure (in particular, trees),

where this can create a barrier or maintain separation between sources of pollution and receptors.

- New developments should not have a building configuration that inhibits effective pollution dispersion.
- New development should be designed to minimise public exposure to pollution sources, for example, by locating habitable rooms away from busy roads, or directing combustion generated pollutants through well sited vents or chimney stacks.
- Ensuring appropriate means of filtration and ventilation.
- Including infrastructure to promote modes of transport with a low impact on air quality (such as electric vehicle charging points).
- The promotion of active travel and public transport as an integral part of the development design, process (including public realm and transport interchanges).

### Green Infrastructure

4.42. The planting of trees and shrubs onsite is a requirement for some developments (SWDP5 Green Infrastructure). Green infrastructure (GI) provision and enhancements can have an impact on improving local air quality by providing a barrier between air pollution and sensitive receptors. However, careful consideration needs to be given to the location of GI and species used because poor locational and planting choices can potentially exacerbate local air pollution issues and physically impact on existing built, historic and natural features<sup>39</sup>.

### Sustainable Transport and reducing the need to travel

4.43. It is important that the sites help to minimise unnecessary car travel, initially through sensible location and good design, and subsequently, through effective mitigation. Paragraph 109 of the NPPF states that significant

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<sup>39</sup> [Report: Impacts of Vegetation on Urban Air Pollution - Defra, UK](#) and [Trees and Urban Air Quality: a briefing note – WM-Air](#)

development should be focused on locations which are, or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas and this should be considered in both plan-making and decision-making.

## Offsetting

- 4.44. Offsetting a new development's air quality impact by proportionately contributing to air quality improvements elsewhere (including those identified in air quality action plans and low emission strategies) should only be considered after the solution for preventing/avoiding and reducing/minimising the development specific impacts have been exhausted. Further, offsetting should be limited to measures that are likely to have a beneficial impact on air quality in the vicinity of the development site. It is not appropriate to attempt to offset local air quality impacts by measures that may have some effect which is remote from the vicinity of the development site.

## Minimising unacceptable air quality impacts during construction

- 4.45. The dust and emissions that can be created as part of the construction (and/or demolition) phase of building can have a significant impact on local air quality. The measures outlined in the bullet points below are examples of the ways the issues associated with construction and demolition could be addressed using conditions:

- Restricting certain types of vehicles.
- Setting emissions standards for vehicles used on site.
- Alternative fuels for onsite generators to replace diesel, for example, hydrogen fuel cell generators.

- 4.46. Further information concerning the need to consider the control of construction emissions, please refer to the WRS Code of Best Practice for Demolition and Construction Sites at <https://www.worcsregservices.gov.uk/all-services/pollution/planning-and-pollution/> .

## Alternative sources of heating and energy for homes

- 4.47. The delivery of sustainable development is a core aim of the planning system and as detailed in the NPPF, the purpose of the planning system is to contribute to the achievement of sustainable development. Well-designed energy efficient buildings will help achieve sustainable development with high levels of energy efficiency having a positive impact on air quality.
- 4.48. As detailed in the SDWP (2016) policy SWDP 27: Renewable and Low Carbon Energy requires that all new developments (over 100 square metres gross, or one or more dwellings) should incorporate the generation of energy from renewable or low carbon sources, equivalent to at least 10% of predicted energy requirements. Large scale development proposals i.e. residential developments of 100 or more dwellings or non-residential property exceeding 10,000 square metres are required to examine the potential for a decentralised energy and heating network. Proposals for stand-alone renewable and other low carbon energy schemes (excluding wind turbines) are welcomed and will be considered favourably having regard to the provisions of other relevant policies in the Plan. Further details are set out in the Renewable and Low Carbon Energy Supplementary Planning Document.  
<https://www.swdevelopmentplan.org/publications/supplementary-planning-documents/renewable-and-low-carbon-energy-spd>
- 4.49. It is the Government's intention that from 2025 the installation of fossil fuel heating systems will not achieve the required carbon emission reductions for new builds. The Government are steering household heating to air source and ground source heat pumps. Heat pumps are powered by electricity which is decarbonising at a faster rate than gas.

## AQMAs and Action Plans

- 4.50. As stated, at Paragraph 192 of the NPPF, planning decisions should ensure that any new development in an Air Quality Management Area is consistent with the local air quality action plan.



# Monitoring

- 5.1. Monitoring and review are important elements of the planning system, to ensure planning policy and guidance is effective and to inform any need to review. Monitoring of the SPD will need to consider if the SPD is helping to achieve the aims set out in Chapter 1. The starting point for this is to monitor if air quality is considered during the planning applications process.
- 5.2. Table 1, below, shows how each of the aims of the SPD will be monitored and reported on. This SPD will be monitored to see if it contributes to diminish air quality impacts through the inclusion of better design and suitable mitigation and to aid, improve or prevent further decline in air quality resulting from new developments and their surrounding areas.
- 5.3. Monitoring of Air Quality in general has previously been limited due reliance on non-automatic diffusion tubes for testing of Nitrogen Dioxide levels. These tubes have been situated in main urban centres and around transport networks. Following a successful bid by Worcestershire County Council to DEFRA, a grant for installing enhanced real-time air quality monitors has been approved. This will allow access to near real-time data and analysis. These new monitors will monitor pollution from a range of sources including:
- Transport;
  - Industry;
  - Domestic solid fuel burning;
  - Agriculture; and
  - Background levels of pollution.
- 5.4. This will greatly enhance the ability of the Councils to monitor trends in air pollution.
- 5.5. Monitoring will be used to ensure that the guidance in this SPD is applied (as applicable) to ensure that development will not be having a detrimental

impact on air quality. This SPD will be monitored in line with the requirements of the SWDP policy monitoring framework. This will also include monitoring of progress made in the application of SWDP 31: Pollution and Land Instability, in terms of the frequency of the policy being cited in determining planning applications and planning appeals.

- 5.6. It is recognised that this is a difficult matter to monitor, and almost impossible to separate out where the gasses that impact upon air quality come from. Therefore, the indicators included in this monitoring framework are the best available. The local planning authorities along with Worcestershire County Council Regulatory Services will keep available indicators under review and update the monitoring framework as appropriate as part of a wider review of the SPD.

<b>Aim/ Objective</b>	<b>Indicator</b>	<b>Reporting Method</b>	<b>Responsible Body</b>
To ensure that any new development or redevelopment does not negatively impact on air quality, this could be achieved through the promotion of good design or other measures (such as mitigation).	Looking for trends in the data produced by the real time air quality monitors, historic data and any additional future data produced. Supplemented by reference to the relevant local authorities Air Quality Annual Status Report and the WRS Annual Air Quality Report.	Reported annually in the South Worcestershire Councils Authority Monitoring Report. The AMR will identify case studies (if applicable) to demonstrate where improvements have been achieved in air quality.	Worcestershire Regulatory Services and South Worcestershire Councils
To supplement and support existing policies in the SWDP to improve air quality in south Worcestershire.	Monitor the number of applications which site Policy SWDP31 and/or the SPD in the determination of planning applications and appeals	Reported annually in the South Worcestershire Councils Authority Monitoring Report	South Worcestershire Councils
To provide transparency and consistency to developers, landowners and the community on the basis for identifying	Not possible to effectively monitor this aim  Ensure Planning Officers are sign	Not possible to effectively monitor this aim	Not possible to effectively monitor this aim  Provide training to Planning Officers upon adoption of

the air quality impact and mitigation requirements for new developments.	posting where relevant to the SPD.		the SPD to ensure awareness and understanding.
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