

14. Pollution

14.1 Background information on the current situation in Leeds

14.2 This chapter concentrates on air pollution. Guidance on other types of pollution are provided elsewhere:

- Land contamination – this SPD does not provide guidance on land contamination and remediation. For advice on this please see the land contamination pages on www.leeds.gov.uk;
- Construction site pollution – see section 16;
- Light pollution – see 9.63;
- Noise pollution – see 15.9;
- Waste – see section 13;
- Water pollution – see 12.19.

14.3 The European Air Quality Framework Directive (Directive 96/62/EC) identifies a number of pollutants for which limit or target values are set in additional Daughter Directives. In the UK the requirements of these directives have been transposed into the National Air Quality Strategy (NAQS), which sets mandatory health based standards for seven air pollutants: nitrogen dioxide



(NO₂); fine particles (PM₁₀); carbon monoxide; lead; and 1,3-butadiene. This strategy specifies mandatory limits and makes the review and assessment of local air quality a requirement for all local authorities. Of these seven pollutants Leeds only has any potential problem with levels of NO₂ and PM₁₀ (particulates), and road traffic is the greatest source of emissions for both of these.

14.4 Failure to meet the standards for any of the above pollutants (non-compliance) requires declaration of an Air Quality Management Area (AQMA)

together with the preparation of an Air Quality Action Plan (AQAP) to help mitigate the most significant problems ie. emission sources. Areas of Concern (AoC) are those locations identified during the review and assessment process as being at risk of exceeding the standards and therefore requiring further investigation. AQAPs are also required for sites deemed to be AoCs.

14.5 Exposure to both NO₂ and PM₁₀ can have adverse effects on human health, affecting the respiratory system. Short-term exposure to NO₂ is associated

Modern buses run on low sulphur diesel

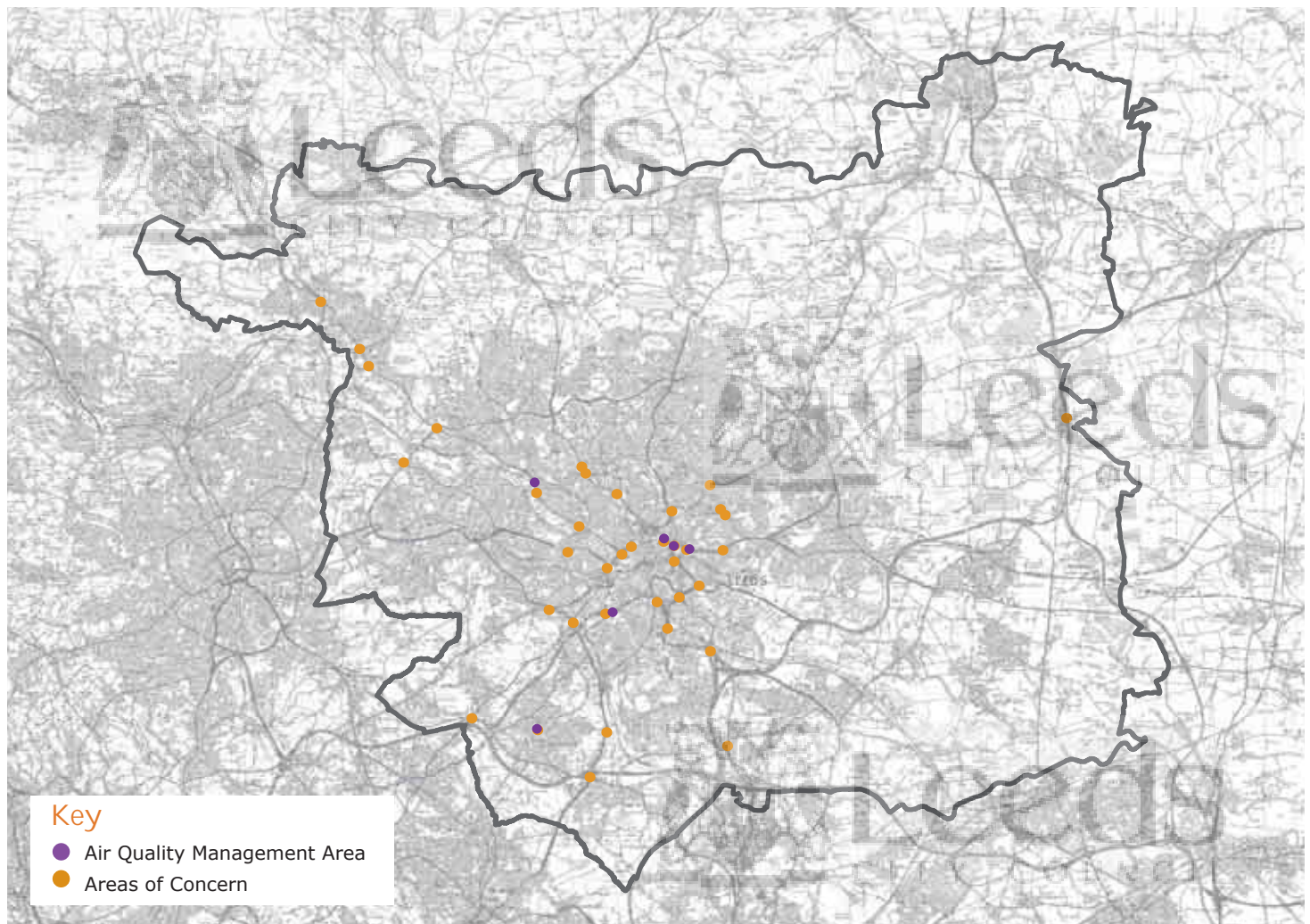


with reduced lung function and airway responsiveness and increased risk of respiratory infection in children. Inhalation of fine particles (PM₁₀) can increase the frequency and severity of respiratory symptoms and the risk of premature death.

14.6 Both of these pollutants also contribute to a range of other environmental issues such as acidification, eutrophication, photochemical smog/ground level ozone and global climate change effects through complex positive/negative radiative, or warming effects.

14.7 The review and assessment process involves a combination of air quality monitoring and modelling against the air quality standards by local authorities. Figure 14.1 shows the location of Leeds AQMAs and AoCs. All are associated with traffic related NO_x emissions.

Figure 14.1: Air Quality Management Areas



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“Sustainability cannot be achieved through bricks and mortar alone. In the UK, carbon emissions from our day-to-day lives are split roughly three ways between our homes, transport, and growing and transporting our food. Therefore, a development cannot be truly sustainable unless travel, food buying and waste are also addressed.”

BedZED

CASE STUDY: BedZED

‘Beddington Zero Energy Development’ (BedZED) is the UK’s largest eco-village and is located in Sutton, London. The development comprises 82 homes and office space, with solar panels embedded in the fabric of the building. It is constructed from second hand materials directly from demolition sites and reconditioned timber and steel wherever possible. Natural materials such as oak and chestnut hardwoods were sourced from a WWF Forest Stewardship Council approved woodland. Bulk materials such as local brick, concrete aggregate and precast floor planks were also sourced within 35 miles of the site to reduce their embodied energy. All of these major environmental savings were made without adding to the net cost of the development.



Sustainable transport reduces pollution and BedZED has seen a 64% reduction in car mileage, which equates to 2,318km/year (compared to national average).

Architect: Bill Dunster, BedZED

14.8 All the traffic related AQMAs are located close to junctions or interchanges between main radial routes and the Inner Ring Road. These areas suffer from a combination of high localised emissions from congested junctions on top of the high general background created by the large volume of traffic concentrated over the relatively small city centre area.

14.9 The AoCs are isolated areas of housing located very close to the strategic motorway network. There is a risk of these areas exceeding the NAQS standards due to the very high traffic flows and HGV content on these roads.

14.10 On-going monitoring throughout Leeds continues to identify road transport emissions as the most

significant source of NO_x and PM₁₀ in West Yorkshire. Road transport emissions of NO₂ and PM₁₀ account for approximately 75% (for NO₂) and 50% (for PM₁₀) of total urban emissions. The most significant levels of exhaust emissions (approximately 55% of weekday emissions) occur during morning and evening peak periods which are exacerbated during congested traffic conditions.

14.11 Leeds City Council is promoting a range of low carbon vehicle

technology within its own fleet (biomethane refuse vehicles, hybrid vehicles and electric vehicles).



Electric scooter



14.12 The analysis of the evidence in the Natural Resources and Waste DPD Resource Flow Analysis (Leeds City Council 2008d) draws the following conclusions:

- On a national level, Leeds performance on air quality issues is generally good. Transport related emissions place the most significant risk to air quality and careful controls should be made in order to maintain air quality in the Leeds area;
- The six AQMAs in the Leeds area have made excellent progress under their air quality management plans and it is predicted that when reassessment occurs, the majority will be abolished.

14.13 The CSH includes two issues in this category whose aims are:

Global warming potential (GWP) of insulants	To reduce global warming from blowing agent emissions that arise from the manufacture, installation, use and disposal of foamed thermal and acoustic insulating materials
NOx emissions	To reduce the emission of nitrogen oxides (NOx) into the atmosphere



This biomethane gas-powered Mercedes Eonic refuse truck is delivering a stunning 60% reduction in carbon emissions, compared to a standard vehicle. And now the council is taking a further step forward in pioneering green methods for collecting rubbish by becoming the first local authority to have its own biomethane fuel station. This could mean many more council vehicles eventually converting to the green fuel and also potentially allow other organisations in the city to share the facilities.

14.14 Insulants

14.15 Measures that can be taken to reduce global warming from blowing agent emissions that arise from the manufacture, installation, use and disposal of foamed thermal and acoustic insulating materials include:

- ☑ Insulation requiring the use of ozone depleting gases should be avoided;
- ☑ Natural insulation material such as sheep's wool or cellulose (recycled paper) should be considered.



14.16 NOx emissions

14.17 Measures that can be taken to reduce the emission of nitrogen oxides (NOx) into the atmosphere include:

- ☑ Specify heating plant with low nitrous oxide emissions. See also advice on biomass heating plants in section 9.51 on renewable technologies;
- ☑ Provide bike spaces, showers and lockers to encourage cycling;
- ☑ Provide charging points for electric vehicles, refuelling infrastructure for gas vehicles;
- ☑ Provide preferential parking arrangements for low carbon fuelled vehicles.

14.18 Further information

- Leeds City Council are responsible for air quality monitoring and modelling in Leeds: www.leeds.gov.uk/airquality
- Streetcar www.streetcar.co.uk
- City Car Club www.citycarclub.co.uk
- Car Plus www.carplus.org.uk