

Executive Summary

The UK Government published its strategic policy framework for air quality management in 1995 establishing national strategies and policies on air quality which culminated in the Environment Act, 1995. The Air Quality Strategy provides a framework for air quality control through air quality management and air quality standards. These and other air quality standards¹ and their objectives² have been enacted through the Air Quality Regulations in 1997 and 2000. The Environment Act 1995 requires Local Authorities to undertake an air quality review. In areas where the air quality objective is not anticipated to be met, Local Authorities are required to establish Air Quality Management Areas to improve air quality. London Boroughs such as Hounslow must have regard to the Mayor's Air Quality Strategy and ensure that local development plans are in general conformity with the Mayor's London Plan.

The first step in this process is to undertake a review of current and potential future air quality. A minimum of two air quality reviews are recommended in order to assess compliance with air quality objectives; one to assess air quality at the outset of the Air Quality Strategy and a second to be carried out towards the end of the policy timescale (2005). The number of reviews necessary depends on the likelihood of achieving the objectives. Each of these two reviews is split into components. For the first round of air quality review and assessment, there are four components. The components are: Stages 1 to 3; and Stage 4 and Action Plans. Stage 4 and Action Plans are normally completed in parallel. Not all local authorities have to complete all the components.

This report is equivalent to a Stage 4 air quality review and assessment for Hounslow as outlined in the Government's published guidance.

¹ Refers to standards recommended by the Expert Panel on Air Quality Standards. Recommended standards are set purely with regard to scientific and medical evidence on the effects of the particular pollutants on health, at levels at which risks to public health, including vulnerable groups, are very small or regarded as negligible.

² Refers to objectives in the Strategy for each of the eight pollutants. The objectives provide policy targets by outlining what should be achieved in the light of the air quality standards and other relevant factors and are expressed as a given ambient concentration to be achieved within a given timescale.

The London Borough of Hounslow has completed a Stage 3 Air Quality Review and Assessment. The results of the modelling study carried out indicated that exceedences of the annual mean and hourly objective for nitrogen dioxide (NO₂) are likely in some areas of the borough in 2005. As a result of the Stage 3 Air Quality Review and Assessment, The London Borough of Hounslow declared four Air Quality Management Areas (AQMAs) for nitrogen dioxide at:

- Heston and Cranford
- Brentford and Chiswick
- The Spring Grove / Hounslow Central
- The north Feltham corridor

The general approach taken in this Stage 4 assessment was to:

- Consider the recent nitrogen dioxide modelling that has been carried out by Cambridge Environmental Research consultants (CERC) for the Borough of Hounslow since the Stage 3 Review and Assessment was completed (CERC, 2002).
- Consider recent nitrogen dioxide continuous monitoring and diffusion tube measurements and compare these to the objective in the AQMAs;
- Consider any changes that are needed to the existing Air Quality Management Areas.
- Identify the improvement needed in concentrations of nitrogen dioxide at selected receptors (mostly housing) in the Air Quality Management Area, including the receptors where the greatest improvements were needed;
- Identify the contributions of the relevant sources to the exceedences (local traffic, background sources, and other relevant sources);

The modelling carried out by CERC as part of Hounslow's Stage 4 Review and Assessment identified larger areas of the borough (than in the Stage 3 modelling) as being likely to exceed the nitrogen dioxide annual average objective.

The modelling differed from the Stage 3 report in that it used the latest road transport emission factors, up to date emissions data taken from the GLA Emissions Inventory for London and the modelling was based on a different meteorological year. The modelling results while similar to that shown in the Stage 3 Assessment additionally highlighted the following further areas as being likely to exceed the annual mean nitrogen dioxide air quality objective in 2005:

- A greater length along the A4
- The A315 (London Road)
- Whitton Road (B361)
- Feltham Town Centre
- Twickenham Road (A310)

The diffusion tubes placed adjacent to the A315 (London Road) and the A310 (Twickenham Road) also predict an exceedence of the NO₂ annual mean objective in 2005. There are no diffusion tubes exposed along Whitton Road or in the central section of the A4 where the CERC modelling predicts an exceedence.

A review of the most recent monitoring data available together with the latest modelling results has identified that further areas of the borough outside the current AQMAs are unlikely to meet the annual mean nitrogen dioxide objective. Therefore it is suggested that consideration is given to either:

- Revoking AQMAs three and four and declaring two further large AQMAs (which will include the original AQMAs 3 & 4). If this option is chosen it will mean that the majority of the borough is within an AQMA. .
- Revoking all four current AQMAs and declaring the whole borough as an Air Quality Management Area.

The reductions needed in annual mean NO₂ concentrations to ensure that concentrations at all relevant receptors in the borough do not exceed 40 µg/m³ in 2005 was determined. Due to the modelling results varying substantially from the monitoring data, the results have been presented for both situations. The values ranged from an improvement of 4 µg/m³ needed at London Road (A315) (Determined from the modelling) to 27 µg/m³ at Adelaide Terrace in Brentford (determined from diffusion tube monitoring).

The CERC source apportionment work identified emissions of oxides of nitrogen (NO_x) from traffic on roads in and close to the AQMAs as the important source where emissions might be reduced. At two sites close to the airport boundary, concentrations arising from the airport contributed the majority of the NO_x concentrations. Emissions of NO_x from local industrial sources were trivial and the general background of NO_x cannot be easily reduced except by national measures. Emissions of NO_x from local traffic accounted for between 28% and 78% of total NO_x concentrations.

Of the contribution from road vehicles at all sites assessed, cars contributed approximately 40% of the road vehicle NO_x concentrations and HGVs a similar amount.