

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 standards^a and their objectives have been enacted through the Air Quality Regulations in 1997, 2000 and 2002. The Environment Act 1995 requires Local Authorities to undertake air quality reviews. In areas where an air quality objective is not anticipated to be met, Local Authorities are required to establish Air Quality Management Areas and implement action plans to improve air quality.

The Borough Council of King's Lynn and West Norfolk has completed the second round of air quality review and assessments. The Council are now required to proceed to the third round of review and assessment, in which sources of emissions to air are reassessed to identify whether the situation has changed since the second round, and if so, what impact this may have on predicted exceedences of the air quality objectives.

The third round of review and assessment is to be undertaken in two steps, essentially following the format of the second round. The first step is an Updating and Screening Assessment, which updates the findings of the previous Review and Assessment cycle, undertaken for all pollutants identified in the Air Quality Regulations. Where a significant risk of exceedence is identified for a pollutant it will be necessary for the local authority to proceed to a Detailed Assessment the following year. Where a local authority does not need to undertake a Detailed Assessment, a progress report is required instead. This report is an Updating and Screening Assessment for the Borough Council of King's Lynn and West Norfolk, as outlined in the Government's published guidance.

Previous Rounds of Review and Assessment for King's Lynn and West Norfolk

As a summary, previous rounds of review and assessment have predicted NO₂ and PM₁₀ exceedences at some locations in the town of King's Lynn. As a result, AQMAs for NO₂ at Railway Road and PM₁₀ at South Quay were declared. Recent monitoring data has suggested that the South Quay AQMA could now be revoked, and was indeed revoked in June 2006. Conversely, the Detailed Assessment undertaken in 2005 recommended that the Railway Road AQMA should be extended to include all residential properties along Railway Road, Blackfriars Road, and London Road as a minimum. Extended Railway Road AQMA boundaries have since been proposed.

General approach taken to this Updating and Screening Assessment

- Identify the conclusions of the last round of review and assessment for each of the seven pollutants included in the air quality regulations
- Identify significant sources of emissions to air for the seven pollutants included in the air quality regulations, including major roads and industrial plant
- Identify new sources not previously considered in the first round of review and assessment
- Identify any sources for which emissions have changed significantly since the last round of review and assessment
- Identify and interpret the significance of air quality monitoring data made available since the last round of review and assessment
- Assess the risk of exceedences of the air quality objectives in locations where relative public exposure may exist using screening models and nomograms
- Where necessary, identify locations and pollutants for which further detailed assessment of air quality will be required.

^a 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.

What are the conclusions of this report for King's Lynn and West Norfolk Borough Council?

Carbon Monoxide

Estimated background concentrations indicate that the objective for carbon monoxide is being achieved across the Borough of King's Lynn and West Norfolk. There are no roads in the Borough with relevant exposure that can be classified as 'very busy' according to the criteria in the guidance. Consequently, the Borough Council of King's Lynn and West Norfolk is not required to carry out a Detailed Assessment for carbon monoxide.

Benzene

No monitoring of benzene has been carried out in King's Lynn and West Norfolk since the last round of Review and Assessment, but the background maps indicate low concentrations. Benzene exceedences have been discounted in previous rounds of Review and Assessment following a previous diffusion tube survey at the Pace Petroleum fuel storage depot. However, the PPC permit now requires benzene monitoring at the Pace Petroleum fuel storage depot by way of a diffusion tube, which should be considered in the next progress report. There are no roads that can be classified as 'very busy' in the Borough or any petrol stations with a throughput greater than 2 million litres and with relevant exposure within 10 m of the pumps. A Detailed Assessment is not required for benzene in King's Lynn and West Norfolk.

1,3-butadiene

Estimated background concentrations and data from national monitoring stations indicate that the objective for 1,3-butadiene was likely to have been achieved by the end of 2003. There are no industrial processes, current or proposed, in King's Lynn and West Norfolk Borough Council that have the potential to emit significant quantities of 1,3-butadiene. The Borough Council is not required to carry out a Detailed Review and Assessment for 1,3-butadiene.

Lead

Emissions of lead from industrial processes in King's Lynn and West Norfolk are not likely to exceed the 2004 or 2008 objectives. There are no new or proposed industrial sources of lead in the borough, or in any neighbouring authority. The Borough Council is therefore not required to carry out a Detailed Assessment for lead.

Nitrogen Dioxide

There are no significant industrial sources of nitrogen dioxide in the Borough of King's Lynn and West Norfolk. The previous round of Review and Assessment recommended an extension to the existing Railway Road AQMA, which is being implemented as suggested. Diffusion tubes indicate exceedences of the annual average nitrogen dioxide objective at locations within the proposed, extended AQMA, but no exceedences with relevant exposure were seen elsewhere in the borough.

A neighbouring local authority (Fenland District Council) has modelled a potential exceedence of the NO₂ objective in Wisbech, a town that lies just within the Fenland local authority boundaries. Part of the exceedence is predicted in the borough of King's Lynn and West Norfolk. Both local authorities have deployed additional NO₂ diffusion tubes along the length of Elm High Road, including the roundabout with the A47 and all relevant receptors in the vicinity.

It is therefore recommended that the Borough Council ensure that all diffusion tubes are located on the façades of the relevant nearest receptors rather than at kerbside locations. All diffusion tube results from this area should be monitored and reviewed over the coming months and presented in the next Progress Report. A decision should then be taken as to whether a Detailed Assessment of this area is required.

Sulphur Dioxide

There are no significant industrial or domestic sources of sulphur dioxide in King's Lynn and West Norfolk. The Borough Council is not required to carry out a Detailed Review and Assessment for sulphur dioxide.

PM₁₀

The DMRB screening model indicates that the annual mean objective of $40 \mu\text{g m}^{-3}$ for PM_{10} was met at all relevant receptors adjacent to roads and junctions in 2005. Automatic monitoring data recorded no exceedences of the annual mean objective or the fixed 24-hr mean objective for PM_{10} . The Borough Council is not required to carry out a Detailed Review and Assessment for PM_{10} .

Which objectives are being taken to a Detailed Assessment?

No objectives are being taken to a Detailed Assessment at this stage.

A potential exceedence of the NO_2 objective has recently been modelled by Fenland District Council, in an area of Wisbech that lies in the borough of King's Lynn and West Norfolk. Both local authorities have deployed additional NO_2 diffusion tubes in the affected area – along the length of Elm High Road, including the roundabout with the A47 and all relevant receptors in the vicinity. It is therefore recommended that the Borough Council of King's Lynn and West Norfolk monitor and review the diffusion tube results from this area over the coming months and present them in the next Progress Report. A decision should then be taken as to whether a Detailed Assessment of this area is required.

It is also recommended that monitoring of NO_2 be continued in the Borough to validate the extension of the Railway Road AQMA in King's Lynn.

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