Stage 4 Review and Assessment for the London Borough of Richmond upon Thames

King's College London

University of London

Executive Summary

This is the Stage 4 report for the London Borough of Richmond upon Thames ("LBRuT"), which fulfils the next step of the Local Air Quality Management (LAQM) process. Section 84(1) of the Environment Act 1995 requires the LBRuT to undertake the Stage 4 assessment following the designation of its air quality management area (AQMA). The earlier Stage 3 report produced by LBRuT identified areas within the Borough where the annual mean nitrogen dioxide and daily mean PM10 concentrations were predicted to exceed government objectives.

The report follows the guidance produced by the Department of Environment, Food and Rural Affairs (DEFRA) and this allows the LBRuT to:

- confirm the original assessment of air quality against the prescribed objectives and thus to ensure that they were right to designate the AQMA in the first place;

- calculate more accurately how much of an improvement in air quality would be needed to deliver air quality objectives within the AQMA;

- refine the knowledge of the sources of pollution so that air quality action plans can be properly targeted;

- take account of any new national policy developments, which have come to light since the AQMA declaration and the Stage 3 report, were prepared;

- take account as far as possible of any new local policy developments which are likely to affect air quality by the relevant date, and which were not fully factored into the stage 3 report;

- respond to comments from statutory consultees in respect of the Stage 3 report;

- check the other assumptions previously made on which the designation of the AQMA has been based and to check that the designation is still correct;

- carry out further monitoring in problem areas to check earlier findings.

New modelling predictions have been made for the Stage 4, and these incorporate a series of improvements over and above that undertaken in Stage 3. These improvements include both improved modelling methods and treatment of emissions.

The Stage 4 modelling predictions confirm the Stage 3 findings that the AQS objective will be exceeded within LBRuT's AQMA. The area where the 24-hour PM10 AQS objective is predicted to exceed however is smaller than the area where the annual mean

NO_2 objective is predicted to exceed. Thus the modelling confirms that the annual mean NO_2 is the more stringent of the objectives that need to be met.

A series of locations have been chosen across the borough to help understand the source contribution of oxides of nitrogen, (NO_x) and PM10. This assessment is for NO_x rather than nitrogen dioxide because the latter is mostly a secondary pollutant formed as a result of complicated atmospheric chemistry from the oxides of nitrogen. Based on the median façade result, approximately 41% of the total contribution is derived from background sources of NO_x and 59% from local road transport. The range of contributions related to background however varies greatly, and is between 28 and 54%, dependant on location. A significant proportion (i.e. approximately half) of the background contribution also arises from roads including roads outside the borough.

A possible intervention measure agreed by the LBRuT and GLA was also tested using the same modelling techniques. The scenario is based on a low emission zone to reduce traffic emissions (for different categories of vehicle). The result of this for NO_2 at the identified locations was that fewer sites were predicted to exceed the AQS objective, than the base case scenario.