

Appendix AQT3: ADMS-Roads Chemistry Module Methodology

- 1.1.15 A more detailed dispersion modelling exercise was required to determine exceedances of the short term-1 hour Objective for NO₂ at receptor locations at locations where the annual mean concentrations were predicted to be above 60µg.m⁻³. The ADMS-Roads Chemistry Module was utilised to predict if there were exceedances of the short term 1-hour Objective for NO₂. The assessment used a primary NO₂ percentage of 22.5% in accordance with CERC guidance. This was consistent with the approach provided in the ADMS-Roads user guide.

Background Concentrations

- 1.1.16 2014 background concentrations of NO_x, NO₂, PM₁₀ were obtained from the air pollutant concentration maps provided by Defra for the grid squares covering the area. In addition, 2014 background concentrations of O₃ were obtained from the London Bloomsbury recording station. Background concentrations used in the Chemistry Module of ADMS-Roads are provided in **Table AQT3-1**.

Table AQT3-1: 2014 Background Pollutant Concentrations (60µg.m⁻³) Obtained for use in the ADMS-Roads Chemistry Module

Grid Square	Pollutant	2014 Background Concentration (µg.m ⁻³)*
529500, 181500	NO _x	87.96
	NO ₂	47.25
	PM ₁₀	23.09
	O ₃	28.17
530500, 181500	NO _x	87.07
	NO ₂	46.85
	PM ₁₀	23.07
	O ₃	28.17

Model Verification

- 1.1.17 Model verification of the model outputs from the ADMS-Roads Chemistry Module was undertaken. Adjustment of the NO₂ model outputs from the model were adjusted using 2014 monitoring data obtained from LBCC for the following two monitoring locations:
- CD3 Shaftesbury Avenue;
 - CA21 Bloomsbury Street Diffusion Tube.
- 1.1.18 Details of the model verification process for the ADMS-Roads Chemistry Module are provided in **Table AQT3-2**.

Table AQT3-2: ADMS-Roads Chemistry Module Verification Process

Model Verification Procedure	NO ₂ Monitoring Locations	
	CD3	CA21
2014 Monitored NO ₂	69.0	80.8
2014 Modelled Total NO ₂	66.4	78.7
Ratio of Monitored Total NO ₂ / Modelled	1.04	1.03

Model Verification Procedure	NO ₂ Monitoring Locations	
	CD3	CA21
Total NO ₂		
Adjustment Factor for ADMS-Roads Model		1.0320
Adjusted Modelled Total NO ₂	68.5	80.8