APPENDIX C2 – VERIFICATION AND ADJUSTMENT OF MODELLED CONCENTRATIONS

Nitrogen Dioxide (NO_2)

Most nitrogen dioxide (NO_2) is produced in the atmosphere by reaction of nitric oxide (NO) with ozone. It is therefore most appropriate to verify the model in terms of primary pollutant emissions. Verification of concentrations predicted by the ADMS model has followed the methodology presented in LAQM.TG(16).

The model has been run to predict annual mean road-NO_x concentrations at a diffusion tube monitoring site (MRT 1).

The model output of road-NOx (i.e. the component of total NO_x coming from road traffic) has been compared to the 'measured' road-NO_x (Table 6.3.1). The 'measured' road NO_x has been calculated from the measured NO_2 concentrations by using the Defra NO_x to NO_2 calculator available on the UK-AIR website.

Table C.3.1: Comparison of Modelled and Monitored NOx concentrations

Monitoring Location	Total Monitored NO_2	Total Monitored NO_x	Background NO_2	Background NO_x	Monitored Road NO_x	Modelled Road NO_x	Ratio
MRT 1	24	39.2	14.1	19.7	9.9	19.5	1.94

An adjustment factor was determined as the ratio between the measured road-NOx contribution and the modelled road-NOx contribution (1.94). The adjustment factor was applied to the modelled road-NOx contribution prior to conversion to the annual mean NO_2 concentration using the Defra NO_x:NO_2 spread sheet calculation tool.

Particulate Matter (PM_{10} and $PM_{2.5}$)

There was insufficient roadside monitoring data available against which the modelling could be verified. Consequently, the road-PM_{10} and road-$PM_{2.5}$ contributions were adjusted using the factor obtained for NO_x concentrations, consistent with guidance provided in LAQM.TG(16).