

2.1 Air Pollution Predictions for 2005

- 2.1.1 The predictions for NO₂, SO₂ and PM10 have been based on different years. The choice of year is dependent upon the pollutant and its NAQS objective. Each year represents the 'worst case' scenario for each pollutant in recent times. These scenarios are the result of an analysis of the measurement data of the LAQN and are summarised in the bullet points below. The differences between the different years are given in the following section on current air quality. A complete description of current air quality is given in the next section.
- **Met. Year 1995** represents the 'worst case' for the prediction of the highest 15 minute concentration of SO₂;
 - **Met. Year 1996** represents the 'worst case' for the prediction of both the existing and proposed NAQS objective for PM10;
 - **Met. Year 1997** represents the 'worst case' for the prediction of annual average concentration of NO₂;
 - **December 1991** represents the period where the highest hourly concentration of NO₂ was recorded, in the UK.
- 2.1.2 By way of comparison, the predictions of PM10 for 1997 and NO₂ for 1996 have also been included. They represent more 'typical years' for pollution concentrations and are also summarised in this chapter.
- 2.1.3 A complete description of the modelling methodologies and the assumptions made is given in appendices 1 and 2.
- 2.1.4 The NAQS objectives for the pollutants studied are summarised in Table 2.1 below.

2.2 The Review and Assessment Stage 3 Predictions for PM10

2.2.1 Introduction

- 2.2.2 The EC Daughter Directive Stage 1 Limit value is proposed as the new PM10 objective in the current revision of the NAQS. The existing objective for PM10 has been retained here for indicative purposes only.

Table 2.1 The NAQS Existing and Proposed Objectives

Pollutant	Existing NAQS Objective	Proposed NAQS Objective
	3.1 To be achieved by 2005	
SO ₂	100 ppb, as 99.9 th percentile of 15 minute means	By end 2004 131 ppb, as an hourly objective 46.8 ppb, as a 24 hour objective
NO ₂	21 ppb annual mean 150 ppb, averaged over one hour	By end 2005 21 ppb annual mean 105 ppb, averaged over 1 hour (max. 18 exceedences)
PM10	50 µg/m ³ , as 99 th percentile of maximum 24 hour running means	By end 2004 50 µg/m ³ , as 24 hour means not to be exceeded 35 times/annum ¹

ppb = parts per billion, µg/m³ = micrograms per cubic metre

¹ Gravimetric measurements, to be achieved by the end of 2004

2.2.3 The Daughter Directive for PM10

2.2.4 The Daughter Directive is predicted to be difficult to meet along major roads, but will be met at background locations. For the purposes of this document, exceedence at background locations occurs when the concentration over an entire 1km² area is above the objective. Background locations are defined as areas more than 50m from a major road, and some roads exceed beyond 50m i.e. "at background". In the LB Hammersmith and Fulham the model predictions are that the objective will be exceeded along the main traffic routes in the Borough. These include the following major roads: the A40 Western Avenue, the A4020 Uxbridge Road, the A4, A3218, the M41 Motorway and Shepherds Bush Road.

2.2.5 Map 2.1 shows the location of the areas of exceedence in the Borough. Table 2.3 and Table 2.4 identify each specific road link, which fails to meet the objective. The final column gives the predicted distance from the kerb at which concentrations of PM10 will meet the Daughter Directive objective at the end of 2004. Table 2.5 and Table 2.6 gives the same details based on 1997.

2.2.6 The NAQS PM10 Objective

2.2.7 The current NAQS PM10 objective is being replaced by the Daughter Directive, but has been retained here as an indicator of future particle concentrations. **Error! Reference source not found.** summarises the predicted concentration of the current PM10 objective in 2005. This indicates that all of greater London including the whole of the LB Hammersmith and Fulham will exceed the objective of 50 µg/m³. The range of concentrations of PM10 is between 58 and 68 µg/m³ (99th percentile of max rolling 24 hour means) in 2005.

2.3 The Review and Assessment Stage 3 Predictions for Nitrogen Dioxide (NO₂)

2.3.1 Annual Average NO₂ Objective

2.3.2 The annual average NO₂ objective is predicted to be difficult to meet along major roads, and at some background locations. In LB Hammersmith and Fulham the predictions are that the objective is exceeded along the main traffic routes in the borough. These are the A40 Western Avenue, the A4020 Uxbridge Road, the A4, A3218, the M41 Motorway and Shepherds Bush Road.

2.3.3 Map 2.3 shows the location of the areas of exceedence in the Borough.

2.3.4 Table 2.9 and Table 2.10 identify each road link, which fails to meet the objective based on 1997 Met. Year. The final column gives the distance from the kerb at which concentrations of NO₂ will meet the NAQS objective. Table 2.7 and Table 2.8 gives the same details based on the 1996 Met. Year.

2.3.5 Peak Hour NO₂ Objective

2.3.6 Through an analysis of the December 1991 winter episode it has been shown that at roadside and background sites in central London, the highest hourly concentration of NO₂ is not predicted to exceed the NAQS objective in 2005. However because of the uncertainty in the analysis of this objective and the proximity of the Bridge Place prediction to 150 ppb (seeTable 2.2), it must be considered possible to exceed this objective in central London only. This is therefore considered very unlikely in the LB Hammersmith and Fulham.

Table 2.2 Predicted Highest Hourly NO₂ in London in 1991 and 2005

	Measured Concentration 1991	Predicted Concentration 2005
Bridge Place	418	139
Cromwell Road	334	90
West London	369	117

2.4 The Review and Assessment Stage 3 Predictions for Sulphur Dioxide (SO₂)

2.4.1 15 minute mean objective

2.4.2 A prediction of the areas likely to exceed the 100 ppb limit value in 2005, based on a combination of model predictions and high quality monitoring data, is given in Map 2.4.

2.4.3 The nature of sulphur dioxide emissions is such that large releases arise at height allowing much greater dispersion across administrative areas. Thus there are 22 Boroughs included within the sulphur dioxide exceedence area. The London Borough of Hammersmith and Fulham is included within this area.

N.B. The following maps show pollution concentrations at both background and roadside locations. Some degree of caution must be exercised when interpreting these however, as the highest pollution concentrations are shown to be in the centre of the roads, where exposure to the public will be small.

The tables of results present some information to a higher precision than can be justified from the data and methods used. This has been done for comparison purposes only.

Certain sections of roads cannot be shown on the following maps. This has occurred where complete rotating census data for these road sections is not available and these have therefore been omitted.

