

1. INTRODUCTION:

- 1.1 In October 2001, the London Borough of Waltham Forest declared the whole borough an Air Quality Management Area (AQMA). This was as a result of a comprehensive 3-Stage Air Quality Review and Assessment that identified areas of the borough likely to have pollution levels exceeding the Governments Air Quality Objectives. These areas of exceedences are identified to be adjacent to busy roads in the borough. The pollutants of concern are nitrogen dioxide (NO₂) and respirable particles (PM10). These pollutants are sourced predominantly from road traffic.
- 1.2 Section 84 (2) of the Environment Act 1995 requires local authorities to undertake a further 'Stage 4' review and assessment within their AQMA and to draw up an Air Quality Action Plan. Action plans are essentially a list of proposals, detailing what the local authority is doing or intends to do in their area in their aim to meet the Governments Air Quality objectives.
- 1.3 The Stage 4 review and assessment is essentially an extension of air quality work already completed, including looking at sources of pollution and monitoring results in more detail. In conjunction with the Stage 4 review and assessment, a boroughwide air quality Action Plan is developed. The Action Plan will detail measures that can be implemented in order that the Governments air quality objectives may be achieved.
- 1.4 Identified in this Action plan is a wide range of proposals aimed at improving air quality in Waltham Forest. Apart from providing a framework for developing initiatives to improve air quality in the borough, the Air Quality Action Plan aims to:
- Demonstrate the councils commitment to improving air quality
 - Provide an overview of local key policies with respect to air quality
 - Improve air quality while maintaining economic stability and to explore wider economic opportunities.
 - Involve all relevant council departments and external agencies where appropriate, to ensure a balanced and integrated approach.
 - Engage everyone who lives, works and travels in and through Waltham Forest.

- To improve the quality of life and health of the residents and workforce in Waltham Forest.

1.5 The London Borough of Waltham Forest's air pollutant exceedences of NO_x and PM₁₀, are predominantly due to the impact of road traffic. The Stage 4 Air Quality Review and Assessment confirms the original appraisal from the Stage 3 Air Quality Review and Assessment that the borough of Waltham Forest will exceed the objectives for the annual mean NO₂ and 24 hour mean PM₁₀ and so confirms the designation of the AQMA. The exceedences are identified to be along main traffic routes within the borough. This is further confirmed via the detailed source apportionment modelling of a series of locations across the borough to help understand source contribution of oxides of nitrogen and PM₁₀. Source apportionment determines how much of a particular pollutant contribution there is at a given location from commercial/industrial sources, neighbouring roads, other transport sources such as railways, airports and shipping, secondary contributions such as windblown Saharan dust, buses and domestic sources. Source apportionment was determined for 10 locations across the borough.

The results of the source apportionment predictions determined that, depending on the location, in general between 20 – 50% of reduction in nitrous oxides (NO_x) and respirable particles (PM₁₀) is required in the London Borough of Waltham Forest in order that the objective level set by the Government is met. Based on the median façade result of these 10 locations, approximately 36% of the total contribution is derived from background sources of NO_x and 62% is from road transport. However approximately half of the background contribution is also from roads, including roads outside the borough.

The source apportionment study of 10 locations in the borough of Waltham Forest illustrated that whilst cars and HGV's dominate the NO_x contribution, the PM₁₀ transport contribution is predominantly attributed to HGV's. Thus the ability to reduce the impact of air pollution in and around the borough lies chiefly with the effective management of traffic on the borough's roads.

Whilst the local road network is the responsibility of the Council; Transport for London (TfL) is responsible for the main roads in the borough, for instance, the North Circular Road (A406) and the A12 Hackney to M11 Link Road.

The Council's Transportation Policy section has been monitoring traffic flows in the borough for over 25 years. The statistics show that traffic in Waltham Forest has increased by 33% between 1971 and 1993 at an average rate of between 1% - 1.4% per annum. Traffic levels within the borough increased significantly with the opening of the M11 Motorway in 1977 and the Barking – South Woodford Relief Road in 1988. The M25 initially provided traffic relief on many of the boroughs roads, particularly for heavy goods vehicles. However, this relief was soon eroded by extra vehicular journeys being undertaken when the extra road capacity was provided. Other trunk routes cutting the borough include the A406 North Circular Road and the A12 – M11 Link Road.

A recent *'Before and After'* survey of vehicle flows for the Hackney / M11 Link Road, commissioned by TfL concludes that, in March 2001, this A12 / M11 Link Road was carrying about 85,000 vehicles per day (vpd). The 'Before' survey data used in this report was collected between 1989 and September 1993. The 'After' data was collected in February and March 2001. The 24-hour 'Before' data for Leytonstone High Road totals 23,972 vpd; the 24-hour 'After' data totals 14,026 vpd, a total reduction in traffic of 58.5% of traffic along Leytonstone High Road. Leytonstone High Road is one of the roads of concern for air quality, but the opening of the A12 - M11 Link Road has had a significant impact on the improvement of the air quality along this area.

A reduction in local traffic is also determined along Grove Green Road, for which the 24-hour 'Before' data totals 26,746 vpd and the 24-hour 'After' data totals 12,005 vpd; a total reduction in traffic of 44.9%. However, this contrasts significantly with the survey data for Gainsborough Road. Along Gainsborough road, the 24-hour 'Before' total is 4139 vpd and the 'After' total is 12,210 vpd; a massive increase in traffic of 295%.

Nitrogen dioxide is monitored for by diffusion tube, an indicative method, at a local kerbside site, adjacent to the A12 / M11 Link Road. The results are shown in the table below. The Government has set an annual mean objective level for 2005 of 40 µg/m³.

Year	Diffusion Tube Annual Average
1997	58 $\mu\text{g}/\text{m}^3$
1998	48 $\mu\text{g}/\text{m}^3$
1999	54 $\mu\text{g}/\text{m}^3$
2000	39 $\mu\text{g}/\text{m}^3$
2001	37 $\mu\text{g}/\text{m}^3$
2002	50 $\mu\text{g}/\text{m}^3$