Summary

Within this study the reason for the exceedance of the Austrian air quality limit value of 0,20 mg/m^3 (as half hour mean value) at the monitoring site Hietzinger Kai, Vienna, on 10. May 2000 was analysed. The site is located near a busy road; the **predominant source of NOx emissions** is traffic, and **heavy duty vehicles** contribute a major part to these emissions.

Detailed analysis of the situation on 10. May 2000 and previous exceedances of the limit value since 1995 revealed that the following conditions are typical for such instances:

- Low wind speeds in Vienna, often in combination with nocturnal inversions
- High, but not extreme NOx levels
- The occurrence of conditions favourable for strong photochemical ozone formation.

At the location of the monitoring site, high NOx levels are quite frequent. The **intrusion of air with high ozone levels in the intermediate environment** can be regarded as the seldom, 'limiting' event which **is primarily responsible for the exceedances of the limit value**, especially during summer.

In relation to the establishment of air quality management plans it was found that

- currently, around two exceedances per year of the limit value can be expected at the site Hietzinger Kai
- emission reductions of NOx in an order of 40 % or more are needed to limit the availability of NOx to prevent future exceedances of the limit value for NO_2
- ozone reductions to avoid oxidation of NO to NO_2 effectively would require the halving of emissions of ozone precursors (mainly NMVOC and NOx) in the whole region of north-east Austria
- More than 200 km of the Viennese roads have higher specific NOx emissions than the street at which the measurement site Hietzinger Kai is located. In combination with unfavourable dispersion conditions like street canyons, similar NOx levels can be expected at these roads. Therefore, a potential air quality management area has to include the whole major road network, even though exceedances of the NO_2-limit value can be expected only within a distance of less than 100 m from the kerb site.