

## Updated NO<sub>x</sub> from NO<sub>2</sub> Calculator

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Version 7.1 uses updated estimated regional concentrations and updated f-NO<sub>2</sub> values from NAEI 2016 projections that are consistent with the 2017 base year LAQM background maps. It also provides the capability to include user defined f-NO<sub>2</sub> values in both the NO<sub>x</sub> to NO<sub>2</sub>, and NO<sub>2</sub> to NO<sub>x</sub> conversion calculations. It covers the years 2017 to 2030.

Values of f-NO<sub>2</sub> have been developed from factors in the EMEP/EEA Emissions Inventory Guidebook (2016) (<https://www.eea.europa.eu/publications/emep-eea-guidebook-2016>) for different vehicle types and Euro standards and recent studies by Carslaw et al (2016) 'Have vehicle emissions of primary NO<sub>2</sub> peaked?' (Faraday Discuss., 2016, 189, 439). All the factors are taken from the Guidebook, except those for Euro V and VI HGVs and buses which are based on Carslaw et al from measurements of NO<sub>2</sub>/NO<sub>x</sub> ratios using roadside remote sensing. The Carslaw et al study suggests lower f-NO<sub>2</sub> factors for Euro V and VI HGVs and buses than previously estimated. The factors for individual vehicle types have been weighted according to the contribution each vehicle type makes to total NO<sub>x</sub> emissions from traffic in each of these area and road types to provide factors for overall UK traffic, urban traffic, non-urban traffic and traffic in London.

The background maps and the NO<sub>x</sub> emission weightings on the f-NO<sub>2</sub> factors are derived from NAEI emission projections, as used in the 2017 baseline projections. Fleet turnover has been estimated using information derived from DfT and London-specific information on the bus and taxi fleet provided by TfL, with the central London Ultra Low Emission Zone included from 2019. The NO<sub>x</sub> emission factors are based on COPERT 5 (<http://emisias.com/products/copert/copert-5>). The baseline NO<sub>x</sub> projections include the introduction of Euro standards up to Euro 6/VI, and include the expected impact of the two-stage introduction for diesel cars and LGVs of the new European Real-Driving Emission (RDE) regulations. Further details on the derivation of f-NO<sub>2</sub> factors in the NAEI are given in [http://naei.beis.gov.uk/resources/Primary\\_NO2\\_Emission\\_Factors\\_for\\_Road\\_Vehicles\\_NAEI\\_Base\\_2018\\_v1.pdf](http://naei.beis.gov.uk/resources/Primary_NO2_Emission_Factors_for_Road_Vehicles_NAEI_Base_2018_v1.pdf).