

Harborough Air Quality Data Ratification 2023 and the LAQM Statistics

The 2023 data ratification for the AQDM Management air quality monitoring site has been completed to the LAQM TG22 standards using the AURN methodology. This report summarises the individual Statistical Report, includes network comparison plots and spreadsheets. The ratified concentrations, comparisons between stations, pollutants and across years have passed the quality control checks. The instruments continued to work well so high data captures can be expected during 2024.

QAQC Procedures

Attached is a summary of our QAQC procedures which can be added to the QAQC annex of the ASR.

Site Environment and Description

Station	Site Environment and Description
Kibworth A6	Leicester Road, Kibworth Harcourt ROADSIDE MAP PHOTO DASHBOARD

Spreadsheets

The spreadsheets contain the full monthly, daily, hourly and 15-minute mean datasets for 2023. These spreadsheets can act as a historical record of the measurements. The monthly means may be useful for any annualisation but not NO₂ diffusion tube bias corrections. These spreadsheets, not the website, must be used if the consultants writing the ASR want to calculate the LAQM statistics from scratch.

LAQM Statistics

Here are the LAQM statistics for the ASR.

Nitrogen Dioxide NO₂

The NO₂ annual mean and hourly mean Objectives were not exceeded.

The NO₂ annual means and annual data captures are shown below. The AQS annual mean Objective is 40 µg m⁻³ and the annual data capture target is 85%.

Station	Annual Data Capture %	Annual Mean µg m ⁻³	Objective Exceeded
Kibworth A6	99.9	29.0	No

The NO₂ hourly mean AQS Objective is 200 µg m⁻³. The number of exceedances are shown below. There is an annual allowance of 18 hours.

Station	Number of Hourly Mean > 200 µg m ⁻³	Objective Exceeded	Maximum Hourly Mean µg m ⁻³	Annual Data Capture %	99.8 th Percentile µg m ⁻³
Kibworth A6	0	No	167.0	99.9	-

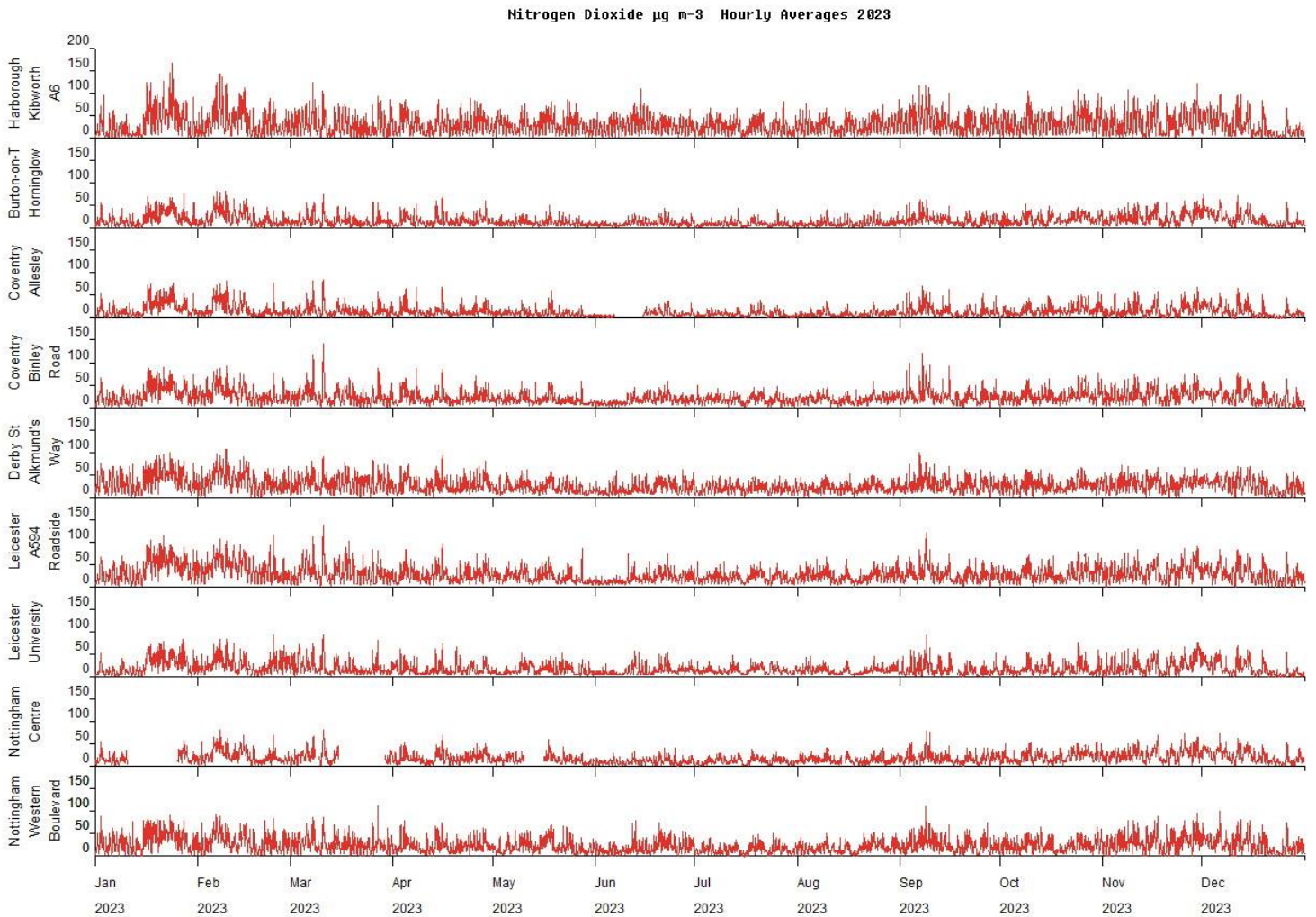
Daily Air Quality Index

The Daily Air Quality Index (DAQI) was introduced by Defra in January 2012 and revised April 2013. The number of occasions within each band is summarised as follows.

DAQI Pollutant	Moderate	High	Very High
Nitrogen Dioxide	0 hours	0	0

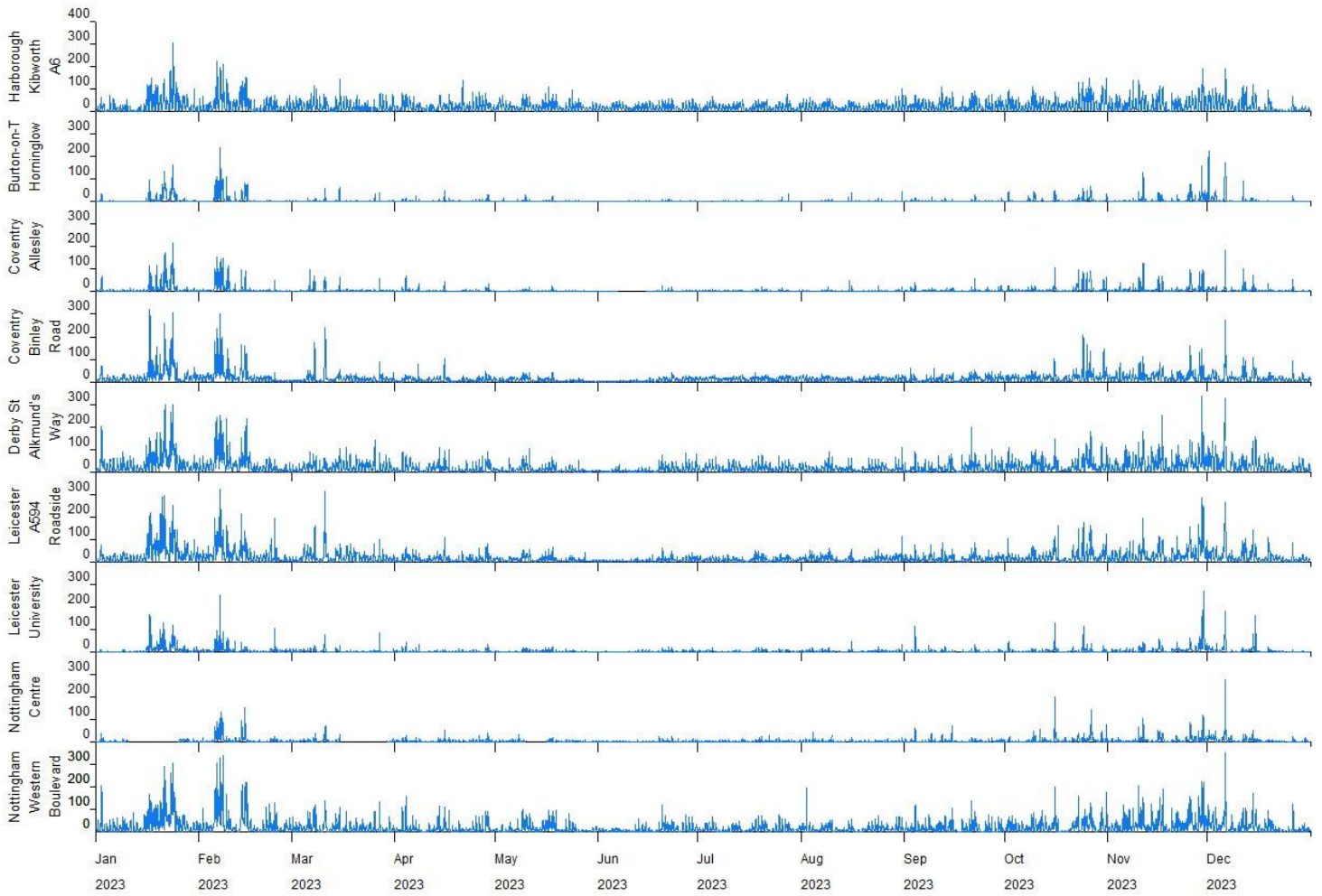
Timeseries Comparison Plots

These timeseries plots compare the measurements with the provisional data from nearby AURN sites. Measurements from individual stations should never viewed in isolation.



NO₂ Hourly Mean Concentrations during 2023

Nitric Oxide $\mu\text{g m}^{-3}$ Hourly Averages 2023

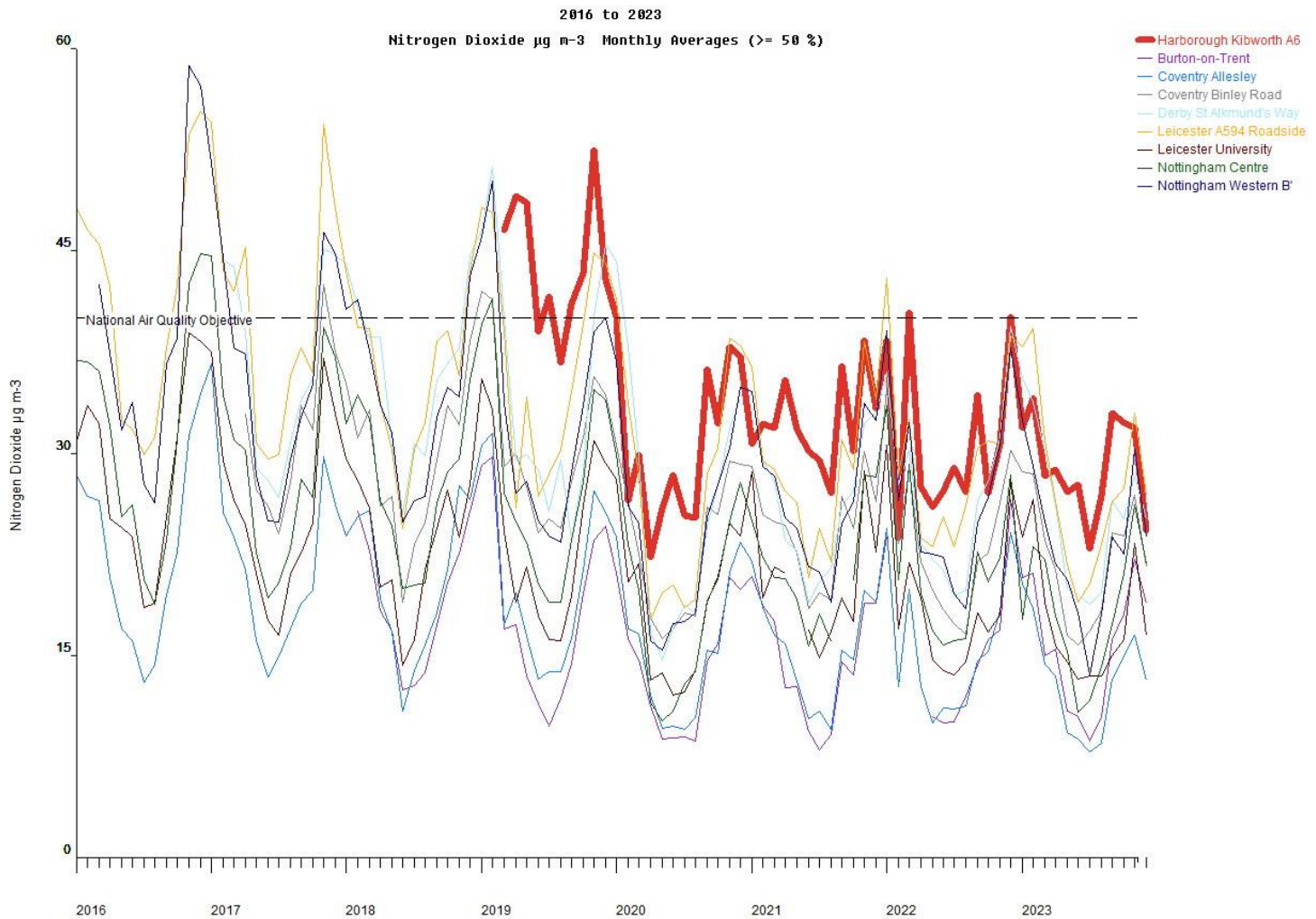


LAQM does not include Nitric Oxide (NO). This pollutant shows how the stations are influenced by traffic.

NO Hourly Mean Concentrations during 2023

Monthly Means Comparison Plots

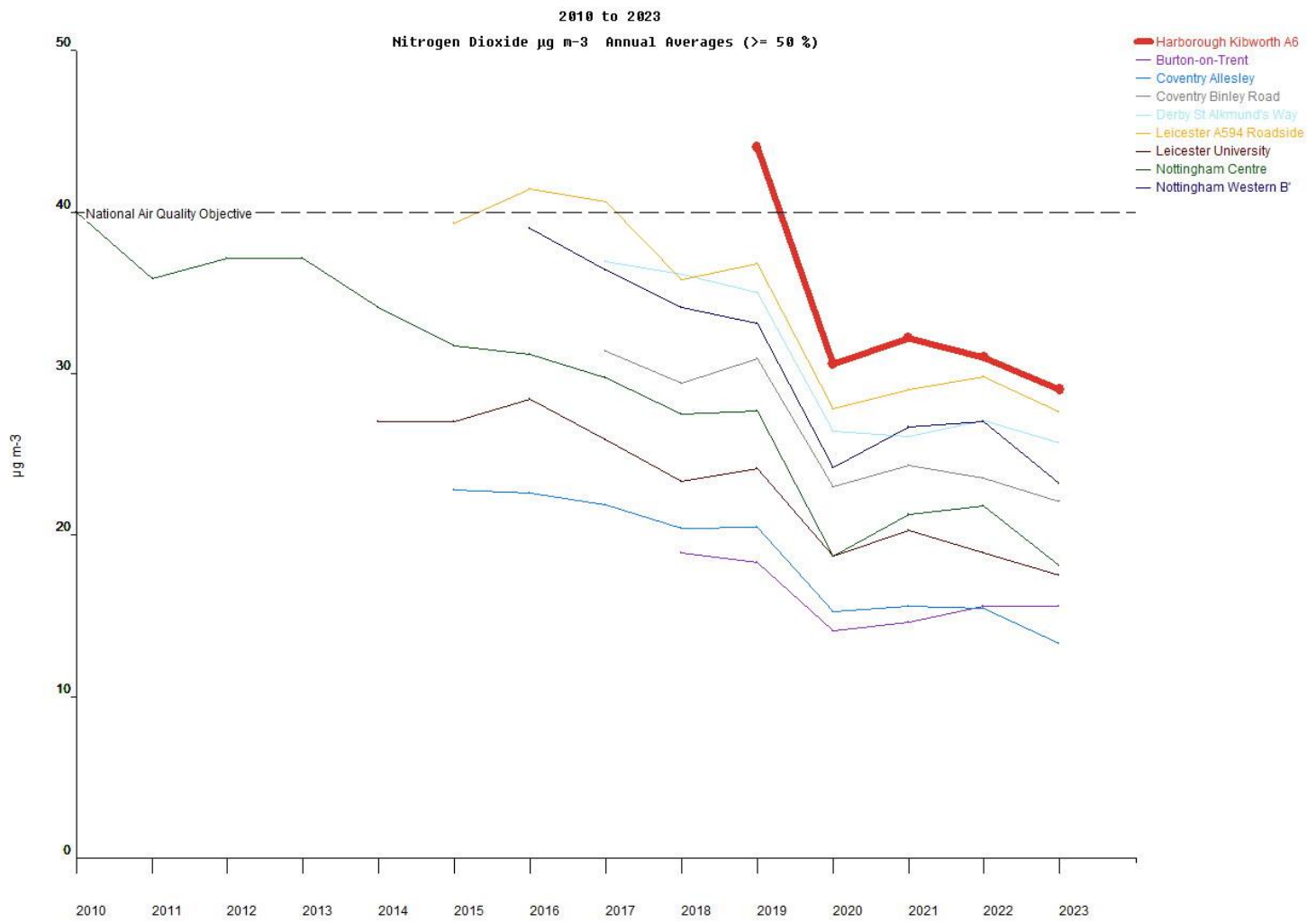
These timeseries plots compare the results with the nearby stations since 2016. These plots show the recent seasonal trends.



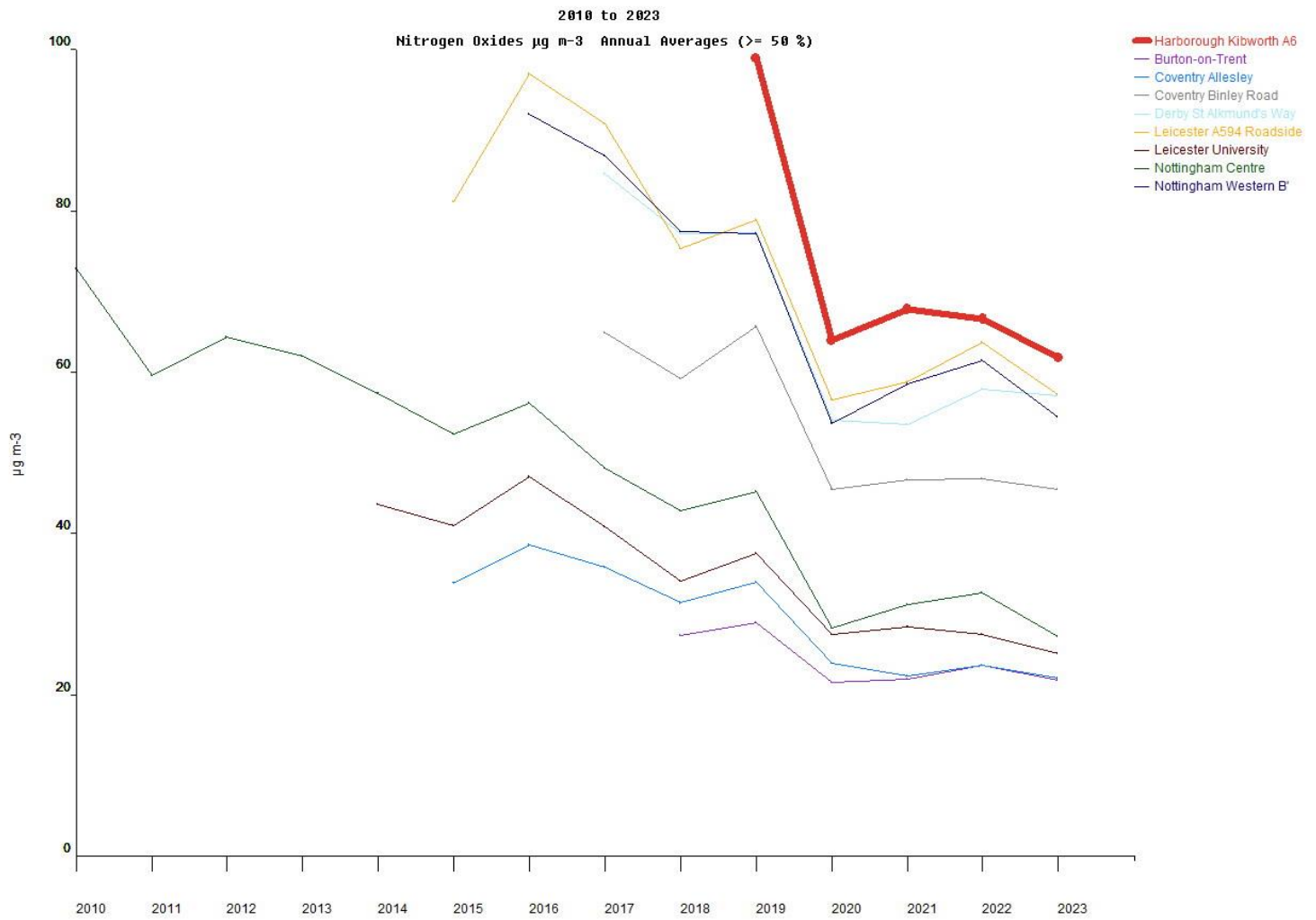
NO₂ Monthly Mean Concentrations from 2016

Annual Means Comparison Plots

These timeseries plots compare the results with the nearby stations since 2010. These plots show the long-term trends. Roadside locations generally have higher concentrations than Background and Rural locations.



NO₂ Annual Mean Concentrations from 2010

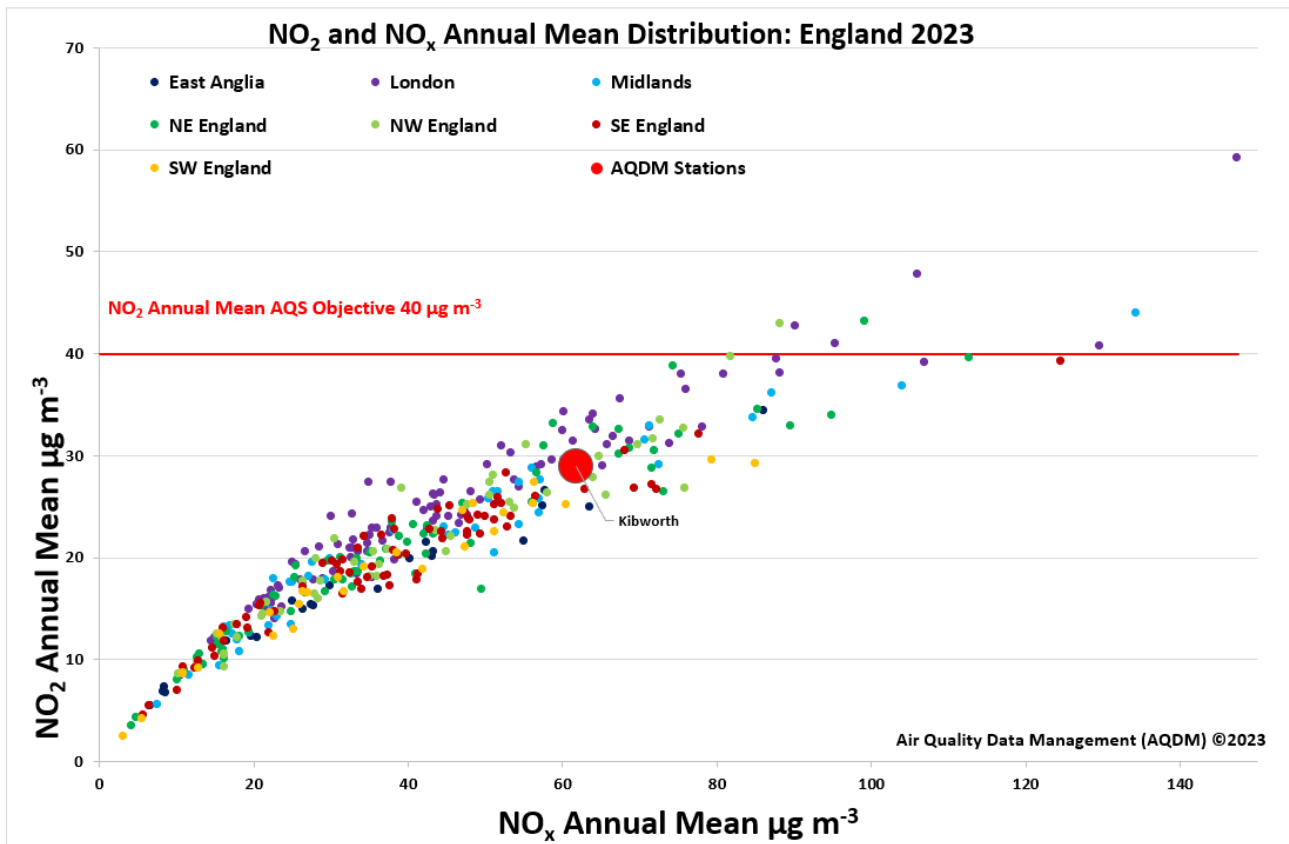


LAQM does not include Oxides of Nitrogen ($\text{NO}_x = \text{NO}_2 + \text{NO}$). This pollutant shows the long term trend in emission reduction. Roadside locations generally have higher concentrations than Background and Rural locations.

NO_x Annual Mean Concentrations from 2010

NO₂ and NO_x Annual Means Comparison Plot

This plot shows the relationship between the NO₂ and NO_x annual means for monitoring stations, including the AURN, during 2023. Most 2023 data are still provisional and subject to change. The distribution begins with low pollution Rural stations near the origin and increases to the Roadside stations with the highest concentrations.



Annual Means Frequency Distribution Plots

These plots show the frequency distribution of the annual means for monitoring stations, including the AURN, during 2023. Most 2023 data are still provisional and subject to change. The distribution begins with low pollution Rural stations near the origin and increases to the Roadside stations with the highest concentrations.

