DISTRICT OF HARBOROUGH

# 2025 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995 Local Air Quality Management, as amended by the Environment Act 2021

Date: June, 2025

| Information | Harborough District Council Details |
|---|---|
| **Local Authority Officer** | Gareth Rees |
| **Department** | Regulatory Services |
| **Address** | Council Offices<br>The Symington Building<br>Adam and Eve Street<br>Market Harborough<br>Leicestershire<br>LE16 7AG |
| **Telephone** | 01858 828282 |
| **E-mail** | airquality@harborough.gov.uk |
| **Report Reference Number** | ASR_HDC_2025 |
| **Date** | June 2025 |

## Local Responsibilities and Commitment

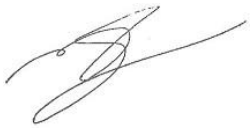
This ASR was prepared by the Regulatory Services Department of Harborough District Council with the support and agreement of the following officers and departments:

- Gareth Rees
  Environmental Protection Officer (air quality and contaminated land)
- Ian Bartlett
  Environmental Health Team Leader

This ASR has been approved by:

- 
  Cat Hartley
  Director of Communities and Wellbeing
  Date: 30 June 2025

This ASR has been signed off by a Director of Public Health.

- 

  Mike Sandys, Director of Public Health, Leicestershire County Council

  Date: 18/06/2025

If you have any comments on this ASR please send them to Regulatory Services at:


| | |
|---|---|
| Address | Harborough District Council<br>The Symington Building<br>Adam and Eve Street<br>Market Harborough<br>Leicestershire<br>LE16 7AG |
| Telephone | 01858 828282 |
| E-mail | airquality@harborough.gov.uk |

# Executive Summary: Air Quality in Our Area

## Air Quality in Harborough District

Breathing in polluted air affects our health and costs the NHS and our society billions of pounds each year. Air pollution is recognised as a contributing factor in the onset of heart disease and cancer and can cause a range of health impacts, including effects on lung function, exacerbation of asthma, increases in hospital admissions and mortality.

Air pollution particularly affects the most vulnerable in society, children, the elderly, and those with existing heart and lung conditions. Low-income communities are also disproportionately impacted by poor air quality, exacerbating health and social inequalities.

Table ES 1 provides a brief explanation of the key pollutants relevant to Local Air Quality Management and the kind of activities they might arise from.

**Table ES 1 - Description of Key Pollutants**

| Pollutant | Description |
|---|---|
| Nitrogen Dioxide ($NO_2$) | Nitrogen dioxide is a gas which is generally emitted from high-temperature combustion processes such as road transport or energy generation. |
| Sulphur Dioxide ($SO_2$) | Sulphur dioxide ($SO_2$) is a corrosive gas which is predominantly produced from the combustion of coal or crude oil. |
| Particulate Matter ($PM_{10}$ and $PM_{2.5}$) | Particulate matter is everything in the air that is not a gas. Particles can come from natural sources such as pollen, as well as human made sources such as smoke from fires, emissions from industry and dust from tyres and brakes. $PM_{10}$ refers to particles under 10 micrometres. Fine particulate matter or $PM_{2.5}$ are particles under 2.5 micrometres. |

## Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades, there are some areas where local action is needed to protect people and the environment from the effects of air pollution.

## Conclusions and Priorities

The ASR concludes that:

- There are no new areas likely to be exceeding air quality objectives.
- The Kibworth AQMA has been compliant with the annual mean air quality standard for an extended period of time however one location has been above 36µg·m$^{-3.}$ This location is very close to the automatic monitor so may be complaint therefore the Kibworth AQMA may be suitable for revocation in the near future.

In 2025 the council plans to:

- Continue to monitor in Kibworth AQMA and relocate additional diffusion tubes to be collocated with the automatic monitor so a local bias adjustment factor can be calculated to determine if the AQMA can be revoked.
- Participate in Clean Air Day 2025.

## How to get Involved

The main contributions that our community can make to improving air quality are around minimising emissions from traffic and other sources and limiting exposure at times of poor air quality. Specifically, that means avoiding unnecessary car use for short journeys, utilising public transport where possible, buying and maintaining low emissions vehicles and being linked into the national alert system for predicted episodes of poor air quality.

The public can get further information on Air Quality from the following websites:-

- Harborough District Council Air Quality website http://www.harborough.gov.uk/info/20025/environmental_health/101/air_pollution
- DEFRAs UK-AIR: Air Information Resource website https://uk-air.defra.gov.uk/
- DEFRAs Local Air Quality Management (LAQM) Support website http://laqm.defra.gov.uk/
- Environmental Protection UK Air Pollution website http://www.environmental-protection.org.uk/policy-areas/air-quality/about-air-pollution/

- Choose How You Move
  https://www.choosehowyoumove.co.uk/

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## Figures



## Tables

# 1 Local Air Quality Management

This report provides an overview of air quality in Harborough District during 2024. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in order to achieve and maintain the objectives and the dates by which each measure will be carried out. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Harborough District Council to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England are presented in Table E.1.

# 2 Actions to Improve Air Quality

## 2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority should prepare an Air Quality Action Plan (AQAP) within 18 months. The AQAP should specify how air quality targets will be achieved and maintained and provide dates by which measures will be carried out.

A summary of AQMAs declared by Harborough District Council can be found in Table 2.1. The table presents a description of the AQMA that is currently designated within Harborough District. Appendix D: Map(s) of Monitoring Locations and AQMAs provides maps of AQMA and also the air quality monitoring locations in relation to the AQMA. The air quality objectives pertinent to the current AQMA designation are as follows:

- $NO_2$ annual mean;

**Table 2.1 – Declared Air Quality Management Areas**

| AQMA Name | Date of Declaration | Pollutants and Air Quality Objectives | One Line Description | Is air quality in the AQMA influenced by roads controlled by Highways England? | Level of Exceedance: Declaration | Level of Exceedance: Current Year | Number of Years Compliant with Air Quality Objective | Name and Date of AQAP Publication | Web Link to AQAP |
|---|---|---|---|---|---|---|---|---|---|
| Kibworth | Declared 28/11/2017 | $NO_2$ Annual Mean | Area encompassing dwelling with close proximity to the kerb line along the A6 between the roundabout with Wistow Road south to the junction with Church Road | NO | 55 | 32 | 4 (however 3 have exceeded 36µg·m$^{-3}$) | Feb-19 | http://www.harborough.gov.uk/download/downloads/id/5104/2019_kibworth_air_quality_action_plan.pdf |

☒ Harborough District Council confirm the information on UK-Air regarding their AQMA(s) is up to date.

☒ Harborough District Council confirm that all current AQAPs have been submitted to Defra.

## 2.2 Progress and Impact of Measures to address Air Quality in Harborough District

Defra's appraisal of last year's ASR conclude:

1. Trends of annual mean $NO_2$ concentrations are presented in detail and discussed and a robust comparison with air quality objectives is provided. The clarity of the trend graphs could be improved to enhance the readability. There are currently inconsistencies across the trend graphs in formatting and clarity of the images. Additionally, axis titles have not been included. It is recommended that trend graphs are reviewed and amended, where appropriate, before submission of this year's ASR.
    - Understood
2. Maps of the diffusion tube network have not been provided within the ASR. It is recommended the relevant maps are included before submission of this year's ASR.
    - They were attached as appendix D
3. The level of exceedance during 2023 and number of years compliant within the Air Quality Objective in Table 2.1 should be updated to reflect concentrations at Site NAS14.
    - Understood
4. Measures to address $PM_{2.5}$ are detailed within the ASR. Links are provided and discussed in regard to the Public Health Outcomes Framework and fraction of mortality attributable to PM2.5 emissions. This is welcomed and is encouraged to be included in all future reports. Inclusion of comparisons to the national average, as well as a trend analysis over time, are also encouraged to be included in future ASRs.
5. It is noted the council has started engaging with Leicestershire County Council Highways on a new Kibworth Air Quality Action Plan (AQAP). This should be prioritised as the current AQAP for Kibworth AQMA is now out of date.
    - Progress with this has been slow however recent readings suggest that the AQMA may be subject to revocation and an extension has been granted for 1 year as a result

6. Minimal funding information is included within Table 2.2 and a number of columns are incomplete. Please add more information in future ASRs, where possible.
    - All information available is included where possible
7. Valid Data Capture for 2023 and the monitoring period in Table A.4 do not align. Where there is no change in the monitoring periods, for example a site being added or removed partway through the year then the “Valid Data Capture for Monitoring Period” and “Valid Data Capture 2023” should be the same. This should be updated in future reports. Should the council require any assistance with using the template, please contact the LAQM Helpdesk.
8. All table values should be provided to one decimal place in future ASRs, where applicable and in accordance with the ASR Template.
9. The diffusion tube IDs utilised throughout the ASR are not consistent making it difficult to compare the inputs in Table B.1 to Tables A.2 and A.4. This should be reviewed and amended before submission of this year’s ASR.
10. Comments on last year’s appraisal have been responded to, which is welcomed.

Harborough District Council has taken forward a number of direct measures during the current reporting year of 2024 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. Six measures are included within Table 2.2, with the type of measure and the progress Harborough District Council have made during the reporting year of 2024 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

More detail on these measures can be found in their respective Action Plans.

Harborough District Council worked to implement these measures in partnership with the following stakeholders during 2024:

- Leicestershire County Council
- Harborough District Council Development Control

Harborough District Council anticipates that the measures stated above and in Table 2.2 will achieve compliance in The Kibworths.

**Table 2.2 – Progress on Measures to Improve Air Quality**

| Measure No. | Measure Title | Category | Classification | Year Measure Introduced in AQAP | Estimated / Actual Completion Date | Organisations Involved | Funding Source | Funding Status | Estimated Cost of Measure | Measure Status | Reduction in Pollutant / Emission from Measure | Key Performance Indicator | Progress to Date | Comments / Barriers to Implementation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kibworth 1 | Impact assessment of local traffic management options. | Transport Planning and Infrastructure | Other | 2018 | 2018 | Harborough District Council, Leicestershire County Council Highways | Harborough District Council | NO | | Completed | Cannot be quantified as work is to identify works and the potential benefit | To publish findings | Complete | The modelling has been completed and found that implementing the proposed junction improvements will improve air quality within the AQMA by approximately 4 µg.m$^{-3}$ |
| | 1. Detailed traffic surveys. | | | | | | | | | Completed | | | | |
| | 2. Undertake traffic simulation of proposed junction improvements. | | | | | | | | | Completed | | | | |
| | 3. Undertake air quality impact assessment of junction improvements. | | | | | | | | | Completed | | | | |
| Kibworth 2 | Continue consultation between Regulatory Services and Development Management. Establish mechanism for consultation between the two parties to ensure Regulatory Services are consulted on all relevant planning applications and policy documents | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | 2018 | | Harborough District Council | Harborough District Council | NO | | Implementation | Unlikely to provide improvements to air quality but will limit potential negative impacts | | ongoing | |

| Measure No. | Measure Title | Category | Classification | Year Measure Introduced in AQAP | Estimated / Actual Completion Date | Organisations Involved | Funding Source | Funding Status | Estimated Cost of Measure | Measure Status | Reduction in Pollutant / Emission from Measure | Key Performance Indicator | Progress to Date | Comments / Barriers to Implementation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kibworth 3 | Provide Guidance and Training to members. Provide guidance and training to the members on assessing air quality impacts and their significance when considering planning applications. | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | 2018 | | Harborough District Council | Harborough District Council | NO | | Implementation | | | ongoing | Local plan adopted April 2019 |
| Kibworth 4 | Ensure air quality policies in Local Plan documents and evidence base. Provide information on air quality to residents in an accessible format. | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | 2018 | | Harborough District Council | Harborough District Council | NO | | Implementation | | | ongoing | Local plan adopted April 2019 |
| Kibworth 5 | Provide information about the AQMA to local residents. Provide information on air quality to residents in an accessible format. | Public Information | Via the Internet | 2018 | | Harborough District Council | Harborough District Council | NO | | Implementation | | | ongoing | |
| Kibworth 6 | Development of local air quality monitoring. Retain monitoring at relevant locations within and adjacent to the AQMA and to install real time monitoring within the AQMA. | Public Information | Via the Internet | 2017 | | Harborough District Council | Harborough District Council | NO | | Implementation | | | ongoing | |

## 2.3 $PM_{2.5}$ – Local Authority Approach to Reducing Emissions and/or Concentrations

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy[1], local authorities are expected to work towards reducing emissions and/or concentrations of fine particulate matter ($PM_{2.5}$)). There is clear evidence that $PM_{2.5}$ (particulate matter smaller 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

The Public Health Outcomes Framework (PHOF) (https://www.gov.uk/government/collections/public-health-outcomes-framework ) is an Office of Health Improvement and Disparities data tool for England, intended to focus public health action on increasing healthy life expectancy and reducing differences in life expectancy between communities. The tool uses indicators to assess improvements. Recognising the significant impact that poor air quality can have on health, the PHOF includes an indicator relating to fine particulate matter ($PM_{2.5}$).

The indicator in the PHOF reports the estimates fraction of all-cause adult mortality attributable to anthropogenic particulate air pollution (measured as fine particulate matter).

Based on the latest available figures the position in Harborough District has the joint lowest fraction of attributable deaths to particulate air pollution in Leicestershire. ( https://fingertips.phe.org.uk/profile/wider-determinants/data#page/0/gid/1938133043/pat/502/par/E10000018/ati/501/are/E07000131/iid/93867/age/-1/sex/-1/cat/-1/ctp/-1/yrr/1/cid/4/tbm/1/page-options/tre-ao-1_tre-so-1 )

Harborough District Council is taking the following measures to address $PM_{2.5}$:

- Ongoing work in collaboration with Public health on implementing a shared Action Plan based on identified air quality issues. Harborough District Council takes an active role in the Air Quality and Health Partnership, which

[1] Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

is led by Leicestershire County Council's Public Health team. The Action Plan was developed as part of the Leicestershire Health Needs Assessment: Air Quality and Health 2024, which sets priorities for collaborative efforts to improve air quality and health throughout the County. This Partnership is made up of District, Borough, and Leicestershire County Council officers working together on implementing a shared the Action Plan to improve air quality and health across the County

- the Council controls dust and combustion emissions from permitted processes within the district
- Promoting the use of green waste collection and Leicestershire County Council run waste bring sites over bonfires to dispose of garden waste
- Robust planning process

# 3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance

This section sets out the monitoring undertaken within 2024 by Harborough District Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2020 and 2024 to allow monitoring trends to be identified and discussed.

## 3.1 Summary of Monitoring Undertaken

### 3.1.1 Automatic Monitoring Sites

Harborough District Council undertook automatic (continuous) monitoring at 1 site during 2024 using a reference monitor.

Harborough District Council undertook automatic (continuous) monitoring at 2 sites during 2024 using low-cost Zephyr indicative monitors.

Table A.1 in Appendix A shows the details of the automatic monitoring sites.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

### 3.1.2 Non-Automatic Monitoring Sites

Harborough District Council undertook non- automatic (i.e. passive) monitoring of $NO_2$ at 34 sites during 2024. Table A.2 in Appendix A presents the details of the non-automatic sites.

Maps showing the location of the monitoring sites are provided in Appendix D Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustments and any other adjustments applied (e.g. annualisation and/or distance correction), are included in Appendix C.

## 3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, annualisation (where the annual mean data capture is below 75% and greater than 25%), and distance correction. Further details on adjustments are provided in Appendix C.

### 3.2.1 Nitrogen Dioxide ($NO_2$)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored $NO_2$ annual mean concentrations for the past five years with the air quality objective of 40µg·m$^{-3}$. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2024 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

Table A.5 in Appendix A compares the ratified continuous monitored $NO_2$ hourly mean concentrations for the past five years with the air quality objective of 200µg·m$^{-3}$, not to be exceeded more than 18 times per year.

#### 3.2.1.1A5

There are two long term diffusion tube monitoring locations along the A5, both were below the annual mean air quality standard for $NO_2$. As the concentrations have continually been significantly lower than the AQS, monitoring in these locations was ceased during 2024.

#### 3.2.1.2Broughton Astley

There are two long term diffusion tube monitoring locations within Broughton Astley, both locations were below the annual mean air quality standard for $NO_2$.

#### 3.2.1.3Bushby and Fleckney

2 tubes have been located in fleckney and Bushby all locations recorded concentrations below the Annual mean air quality objective for $NO_2$.

As the concentrations have continually been significantly lower than the AQS monitoring in these locations was ceased during 2024.

#### 3.2.1.4Kibworth

There are 10 long term diffusion tube monitoring locations within the Kibworths. During 2024 all locations were below the Annual mean Air quality Standard for $NO_2$, Location 34n also was below 36µg.m$^{-3}$ for the first year, this location is close to the automatic monitor (~30m away which has always been below 36µg.m$^{-3}$) as such additional diffusion tubes have been collocated with the monitor during 2025 in order to calculate a local bias adjustment figure

The automatic monitor and the Zephyr low-cost monitor did not detect any exceedances of either the hourly or annual mean air quality objectives for $NO_2$.

#### 3.2.1.5Lutterworth

There are 10 long term diffusion tube monitoring locations in Lutterworth. All locations were significantly below the annual mean air quality standard for $NO_2$.

#### 3.2.1.6Market Harborough

There are 5 long term diffusion tube monitoring locations within Market Harborough, all locations were below the annual mean air quality standard for $NO_2$.

#### 3.2.1.7Theddingworth and Walcote

There are two long term diffusion tube monitoring locations in Theddingworth and one in Walcote; all were below the annual mean air quality standard for $NO_2$

#### 3.2.1.8Other locations

The zephyr (Z3) located in North Kilworth did not detect an exceedence of the annual mean air quality standard for $NO_2$.

### 3.2.2 Particulate Matter ($PM_{10}$)

Table A.6 in Appendix A: Monitoring Results compares the ratified and adjusted monitored $PM_{10}$ annual mean concentrations for the past five years with the air quality objective of 40µg·m$^{-3}$.

Table A.7 in Appendix A compares the ratified continuous monitored $PM_{10}$ daily mean concentrations for the past five years with the air quality objective of $50\mu g \cdot m^{-3}$, not to be exceeded more than 35 times per year.

#### 3.2.2.1 Kibworth

The zephyr low-cost analyser located in Kibworth did not detect an exceedance of the Annual mean air quality objective for $PM_{10}$ and no exceedances of the daily mean air quality objective for $PM_{10}$ were detected.

#### 3.2.2.2 North Kilworth

A zephyr low-cost analyser located in North Kilworth and did not detect an exceedance of the Annual mean air quality objective for PM10 and no exceedances of the daily mean air quality objective for PM10 were detected.

### 3.2.3 Particulate Matter ($PM_{2.5}$)

Table A.8 in Appendix A presents the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past five years.

#### 3.2.3.1 Kibworth

The zephyr low-cost analyser located in Kibworth did not detect an exceedance of the Annual mean air quality objective for $PM_{2.5}$

#### 3.2.3.2 North Kilworth

A zephyr low-cost analyser located in North Kilworth did not detect an exceedance of the Annual mean air quality objective for PM2.5

# Appendix A: Monitoring Results

**Table A.1 – Details of Automatic Monitoring Sites**

| Site ID | Site Name | Site Type | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Pollutants Monitored | In AQMA? | Which AQMA? (1) | Monitoring Technique | Distance to Relevant Exposure (m) (2) | Distance to kerb of nearest road (m) (1) | Inlet Height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | Kibworth | Roadside | 468114 | 294353 | $NO_2$ | yes | Kibworth | chemiluminesence | 9 | 2.5 | 1.8 |
| Z2 | Kibworth | Roadside | 468309 | 294352 | $NO_2$ $PM_{2.5}$ $PM_{10}$ | yes | Kibworth | Zephyr | 0 | 1.4 | 2.5 |
| Z3 | North Kilworth | Rural | 461675 | 283303 | $NO_2$ $PM_{2.5}$ $PM_{10}$ | No | N/A | Zephyr | N/A | N/A | 2 |

**Notes:**

(1) N/A if not applicable

(2) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

**Table A.2 – Details of Non-Automatic Monitoring Sites**

| Diffusion Tube | Site Name | Site Type | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Pollutants Monitored | In AQMA? Which AQMA? | Distance to Relevant Exposure (m) (1) | Distance to kerb of nearest road (m) (2) | Tube Co-located with a Continuous Analyser? | Tube Height (m) |
|---|---|---|---|---|---|---|---|---|---|---|
| 01n | Lut. Service Shop | Roadside | 454475 | 284560 | NO2 | | 0.0 | 4.2 | No | 1.8 |
| 11n | Day Nursery | Roadside | 454539 | 284932 | NO2 | | 9.0 | 1.3 | No | 1.8 |
| 12n | A6 Kibworth | Roadside | 468425 | 294314 | NO2 | Kibworth | 10.7 | 1.3 | No | 1.8 |
| 18n | Jazz Hair | Roadside | 454443 | 284348 | NO2 | | 0.0 | 3.0 | No | 1.8 |
| 22n | 77 Leicester Road | Roadside | 454533 | 284872 | NO2 | | 0.0 | 13.5 | No | 1.8 |
| 23n | 6 The Terrace Rugby Road | Roadside | 454428 | 284274 | NO2 | | 0.0 | 2.5 | No | 1.8 |
| 24n | Regent Court | Roadside | 454410 | 284326 | NO2 | | 2.0 | 1.0 | No | 1.8 |
| 25n | 26 Market Street Lutterworth | Roadside | 454497 | 284618 | NO2 | | 1.6 | 4.8 | No | 1.8 |
| 26n | 24 Rugby Road Lutterworth | Roadside | 454432 | 284229 | NO2 | | 0.0 | 2.0 | No | 1.8 |
| 27n | 17 Rugby Road Lutterworth | Roadside | 454476 | 284178 | NO2 | | 3.7 | 5.2 | No | 1.8 |
| 28n | Spencerdene Main Street Theddingworth | Roadside | 466535 | 285545 | NO2 | | 1.2 | 0.2 | No | 1.8 |
| 29n | Homeside Main Street Theddingworth | Roadside | 466651 | 285607 | NO2 | | 0.2 | 1.4 | No | 1.8 |
| 30n | 40 Regent Street Lutterworth | Roadside | 466651 | 285607 | NO2 | | 0.2 | 1.4 | No | 1.8 |
| 31n | 69 Leicester Road Kibworth | Roadside | 467933 | 294660 | NO2 | Kibworth | 3.5 | 4.0 | No | 1.8 |
| 32n | Alma House, Watling Street Claybrooke Parva | Roadside | 448065 | 287719 | NO2 | | 0.0 | 7.0 | No | 1.8 |

| Diffusion Tube | Site Name | Site Type | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Pollutants Monitored | In AQMA? Which AQMA? | Distance to Relevant Exposure (m) (1) | Distance to kerb of nearest road (m) (2) | Tube Co-located with a Continuous Analyser? | Tube Height (m) |
|---|---|---|---|---|---|---|---|---|---|---|
| 33n | Sign post outside White House Farm Watling Street | Roadside | 448948 | 286554 | NO2 | | 14.0 | 1.0 | No | 1.8 |
| 34n | Sign outside 64 Leicester Road Kibworth | Roadside | 468143 | 294351 | NO2 | Kibworth | 0.5 | 2.3 | No | 1.8 |
| 35n | Lamppost outside 78 Leicester Road Kibworth | Roadside | 468022 | 294450 | NO2 | Kibworth | 3.1 | 6.4 | No | 1.8 |
| 36n | Signpost just north of 11 Leicester Road Kibworth | Roadside | 468309 | 294352 | NO2 | Kibworth | 0.0 | 1.4 | No | 1.8 |
| 37n | Pizza Express st Marys Road | Roadside | 473749 | 287214 | NO2 | | 0.0 | 1.4 | No | 1.8 |
| 38n | Coach and Horses Kibworth | Roadside | 468403 | 294298 | NO2 | Kibworth | 2.2 | 2.5 | No | 1.8 |
| 39n | Lamppost 29 church Road Kibworth | Roadside | 468412 | 294218 | NO2 | | 10.2 | 2.0 | No | 1.8 |
| 40n | 106 Main Street Kibworth | Roadside | 468027 | 294570 | NO2 | | 0.0 | 1.7 | No | 1.8 |
| 41n | Lamppost outside 52 Leicester Road | Roadside | 468982 | 293824 | NO2 | | 9.0 | 2.2 | No | 1.8 |
| 42n | Road sign on Leicester Road, rear of 9 Milestone Close | Roadside | 469037 | 293796 | NO2 | | 12.0 | 2.0 | No | 1.8 |
| 43n | 3 Dunton Road BA | Roadside | 453583 | 292002 | NO2 | | 2.9 | 1.5 | No | 1.8 |
| 45n | 16 Main Street, BA (on wooden pole outside the shop) | Roadside | 453625 | 291935 | NO2 | | 2.0 | 0.2 | No | 1.8 |
| 46n | Lampost est of 5 Lutterworth Road Walcote | Roadside | 456575 | 283605 | NO2 | | 3.0 | 0.2 | No | 1.8 |

| Diffusion Tube | Site Name | Site Type | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Pollutants Monitored | In AQMA? Which AQMA? | Distance to Relevant Exposure (m) (1) | Distance to kerb of nearest road (m) (2) | Tube Co-located with a Continuous Analyser? | Tube Height (m) |
|---|---|---|---|---|---|---|---|---|---|---|
| 47n | SW junction welland park road and Northamton Road MH | Roadside | 473596 | 286821 | NO2 | | 14.0 | 2.3 | No | 1.8 |
| 48n | 53 Northamton Road MH | Roadside | 473598 | 286851 | NO2 | | 9.0 | 1.0 | No | 1.8 |
| 49n | 7 Leicester Road MH | Roadside | 473172 | 287534 | NO2 | | 2.6 | 2.9 | No | 1.8 |
| 50n | Lamppost outside 12 Springfield Street MH | Roadside | 473678 | 286931 | NO2 | | 2.1 | 1.9 | No | 1.8 |
| 51n | Lamppost carpark adj. Fleckney Fish Bar, High Street | Roadside | 464971 | 293501 | NO2 | | 0.1 | 2.0 | No | 1.8 |
| 52n | Lamppost outside Thurnby Memorial Hall, Main Street, Bushby | Roadside | 464773 | 303914 | NO2 | | 1.6 | 3.8 | No | 1.8 |

**Notes:**

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

(2) N/A if not applicable.

**Table A.3 – Annual Mean $NO_2$ Monitoring Results: Automatic Monitoring (µg·m$^{-3}$)**

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) (1) | Valid Data Capture 2024 (%) (2) | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| A1 | 468114 | 294353 | Roadside | 99.8 | 99.8 | 30.64 | 32.22 | 31 | 29 | 28.1 |
| Z2 | 468309 | 294352 | Roadside | 95.7 | 95.7 | 34.47 | 35.01 | 17.5 | 16.1 | 16.0 |
| Z3 | 461675 | 283303 | Rural | 69.6 | 69.6 | | | 4.2 | 3.23 | 3.6 |

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22**

☒ **Reported concentrations are those at the location of the monitoring site (annualised, as required), i.e. prior to any fall-off with distance correction.**

☒ **Where exceedances of the $NO_2$ annual mean objective occur at locations not representative of relevant exposure, the fall-off with distance concentration has been calculated and reported concentration provided in brackets for 2024.**

**Notes:**

The annual mean concentrations are presented as µg·m$^{-3}$.

Exceedances of the $NO_2$ annual mean objective of 40µg·m$^{-3}$ are shown in **bold**.

All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

**Table A.4 – Annual Mean $NO_2$ Monitoring Results: Non-Automatic Monitoring (µg·m$^{-3}$)**

| Diffusion Tube ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) (1) | Valid Data Capture 2024 (%) (2) | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| 01n | 454475 | 284560 | Roadside | 100.0 | 100.0 | 29.2 | 31.7 | 31.9 | 30.7 | 28.3 |
| 11n | 454539 | 284932 | Roadside | 100.0 | 100.0 | 21.6 | 22.9 | 17.9 | 17.2 | 18.8 |
| 12n | 468425 | 294314 | Roadside | 100.0 | 100.0 | 20.7 | 22.7 | 22.7 | 21.2 | 18.9 |
| 18n | 454443 | 284348 | Roadside | 82.6 | 82.6 | 26.1 | 28.4 | 29.8 | 28.2 | 22.9 |
| 22n | 454533 | 284872 | Roadside | 58.2 | 58.2 | 14.3 | 14.6 | 13.8 | 13.2 | 12.1 |
| 23n | 454428 | 284274 | Roadside | 92.0 | 92.0 | 19.9 | 23.3 | 22.8 | 21.7 | 17.2 |
| 24n | 454410 | 284326 | Roadside | 90.3 | 90.3 | 26.7 | 28.8 | 27.5 | 26.7 | 24.0 |
| 25n | 454497 | 284618 | Roadside | 100.0 | 100.0 | 23.6 | 24.3 | 24.5 | 23.0 | 21.0 |
| 26n | 454432 | 284229 | Roadside | 100.0 | 100.0 | 25.2 | 26.2 | 24.4 | 24.3 | 20.8 |
| 27n | 454476 | 284178 | Roadside | 94.1 | 94.1 | 21.0 | 23.8 | 22.9 | 23.0 | 20.9 |
| 28n | 466535 | 285545 | Roadside | 100.0 | 100.0 | 14.5 | 12.2 | 12.8 | 13.0 | 15.5 |
| 29n | 466651 | 285607 | Roadside | 100.0 | 100.0 | 14.6 | 17.7 | 17.3 | 15.5 | 11.2 |
| 30n | 466651 | 285607 | Roadside | 92.5 | 92.5 | 12.7 | 14.1 | 16.7 | 15.4 | 13.1 |
| 31n | 467933 | 294660 | Roadside | 100.0 | 100.0 | 23.6 | 25.2 | 23.1 | 23.9 | 24.0 |
| 32n | 448065 | 287719 | Roadside | 24.7 | 24.7 | 18.8 | 20.6 | 17.3 | 19.1 | 19.7 |
| 33n | 448948 | 286554 | Roadside | 24.7 | 24.7 | 16.4 | 17.8 | 18.0 | 17.1 | 21.1 |
| 34n | 468143 | 294351 | Roadside | 100.0 | 100.0 | 37.6 | 38.0 | 39.6 | 37.0 | 33.0 |
| 35n | 468022 | 294450 | Roadside | 100.0 | 100.0 | 26.2 | 30.7 | 29.6 | 28.3 | 26.8 |
| 36n | 468309 | 294352 | Roadside | 100.0 | 100.0 | 24.8 | 26.8 | 27.9 | 27.7 | 22.9 |
| 37n | 473749 | 287214 | Roadside | 100.0 | 100.0 | 20.3 | 20.7 | 20.9 | 20.1 | 18.1 |
| 38n | 468403 | 294298 | Roadside | 100.0 | 100.0 | 15.0 | 15.3 | 16.7 | 14.3 | 15.4 |
| 39n | 468412 | 294218 | Roadside | 83.1 | 83.1 | 13.9 | 14.9 | 14.3 | 13.9 | 14.8 |
| 40n | 468027 | 294570 | Roadside | 100.0 | 100.0 | 16.1 | 16.3 | 15.8 | 16.4 | 17.3 |
| 41n | 468982 | 293824 | Roadside | 100.0 | 100.0 | 13.4 | 14.9 | 15.4 | 13.8 | 11.7 |
| 42n | 469037 | 293796 | Roadside | 100.0 | 100.0 | 15.3 | 16.8 | 16.1 | 17.4 | 15.4 |
| 43n | 453583 | 292002 | Roadside | 100.0 | 100.0 | 15.4 | 18.4 | 18.0 | 17.5 | 14.9 |
| 45n | 453625 | 291935 | Roadside | 100.0 | 100.0 | 13.0 | 13.3 | 12.5 | 16.3 | 12.0 |
| 46n | 456575 | 283605 | Roadside | 77.2 | 77.2 | 22.0 | 24.1 | 26.5 | 12.6 | 11.8 |
| 47n | 473596 | 286821 | Roadside | 34.0 | 34.0 | 21.9 | 25.9 | 24.6 | 25.1 | 19.9 |
| 48n | 473598 | 286851 | Roadside | 58.4 | 58.4 | 18.5 | 22.4 | 21.3 | 23.0 | 21.3 |
| 49n | 473172 | 287534 | Roadside | 66.5 | 66.5 | 17.9 | 22.8 | 20.9 | 20.9 | 18.8 |

| Diffusion Tube ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) (1) | Valid Data Capture 2024 (%) (2) | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| 50n | 473678 | 286931 | Roadside | 24.7 | 24.7 | 12.8 | 14.9 | 13.8 | 18.8 | 14.6 |
| 51n | 464971 | 293501 | Roadside | 24.7 | 24.7 | 10.3 | 11.8 | 13.1 | 12.8 | 13.7 |
| 52n | 464773 | 303914 | Roadside | 24.7 | 24.7 | | 17.7 | 15.2 | 12.2 | 12.4 |

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22**

☒ **Diffusion tube data has been bias adjusted.**

☒ **Reported concentrations are those at the location of the monitoring site (bias adjusted and annualised, as required), i.e. prior to any fall-off with distance correction.**

**Notes:**

The annual mean concentrations are presented as $\mu g \cdot m^{-3}$.

Exceedances of the $NO_2$ annual mean objective of 40$\mu g \cdot m^{-3}$ are shown in **bold**.

$NO_2$ annual means exceeding 60$\mu g \cdot m^{-3}$, indicating a potential exceedance of the $NO_2$ 1-hour mean objective are shown in **bold and underlined**.

Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

**Figure A.1 – A5 Trends in Annual Mean $NO_2$ Concentrations**

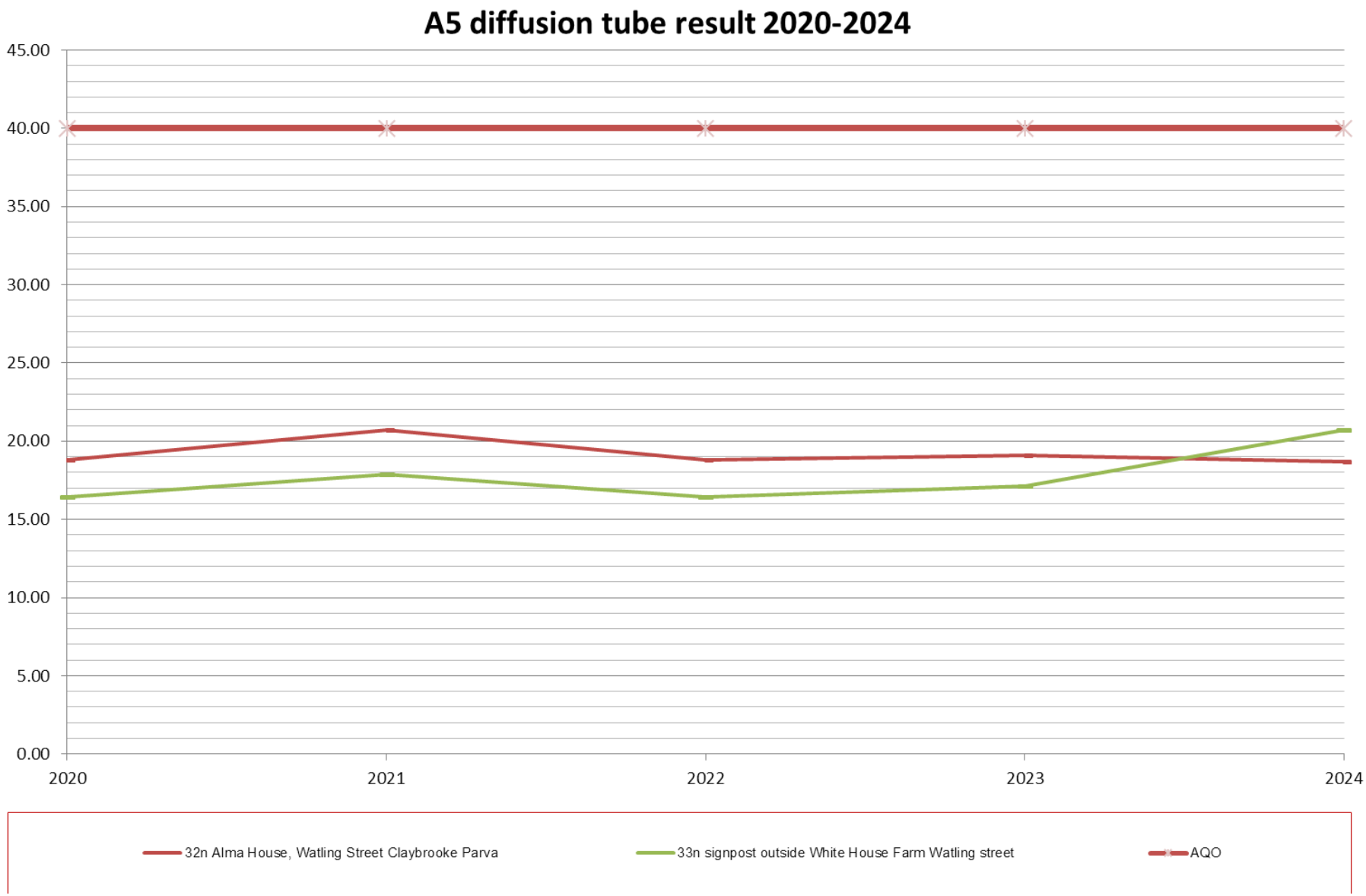


**Figure A.2 – Broughton Astley Trends in Annual Mean $NO_2$ Concentrations**

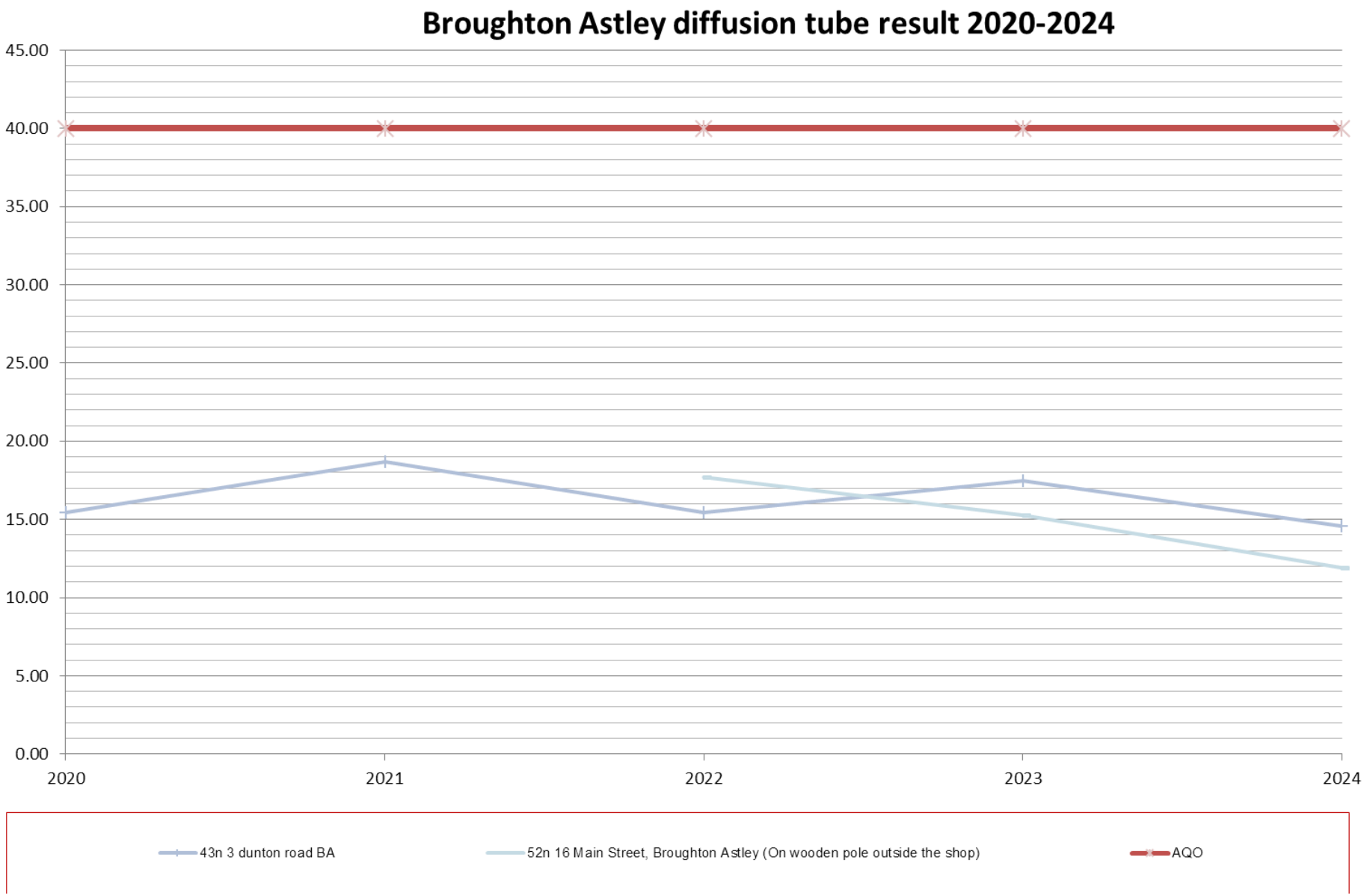


**Figure A.3 – Bushby and Fleckney Trends in Annual Mean $NO_2$ Concentrations**

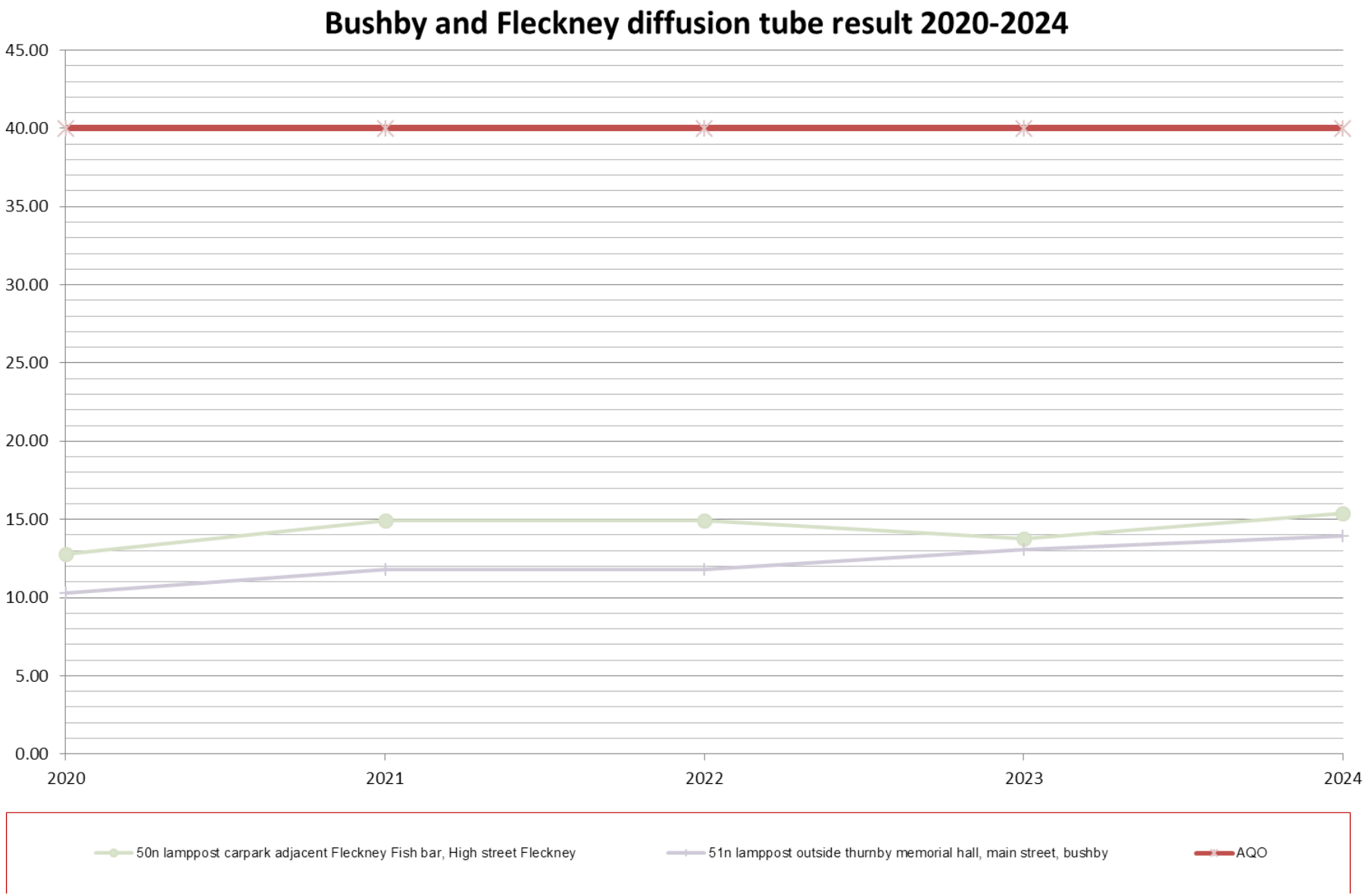


**Figure A.4 – Kibworth Trends in Annual Mean $NO_2$ Concentrations**

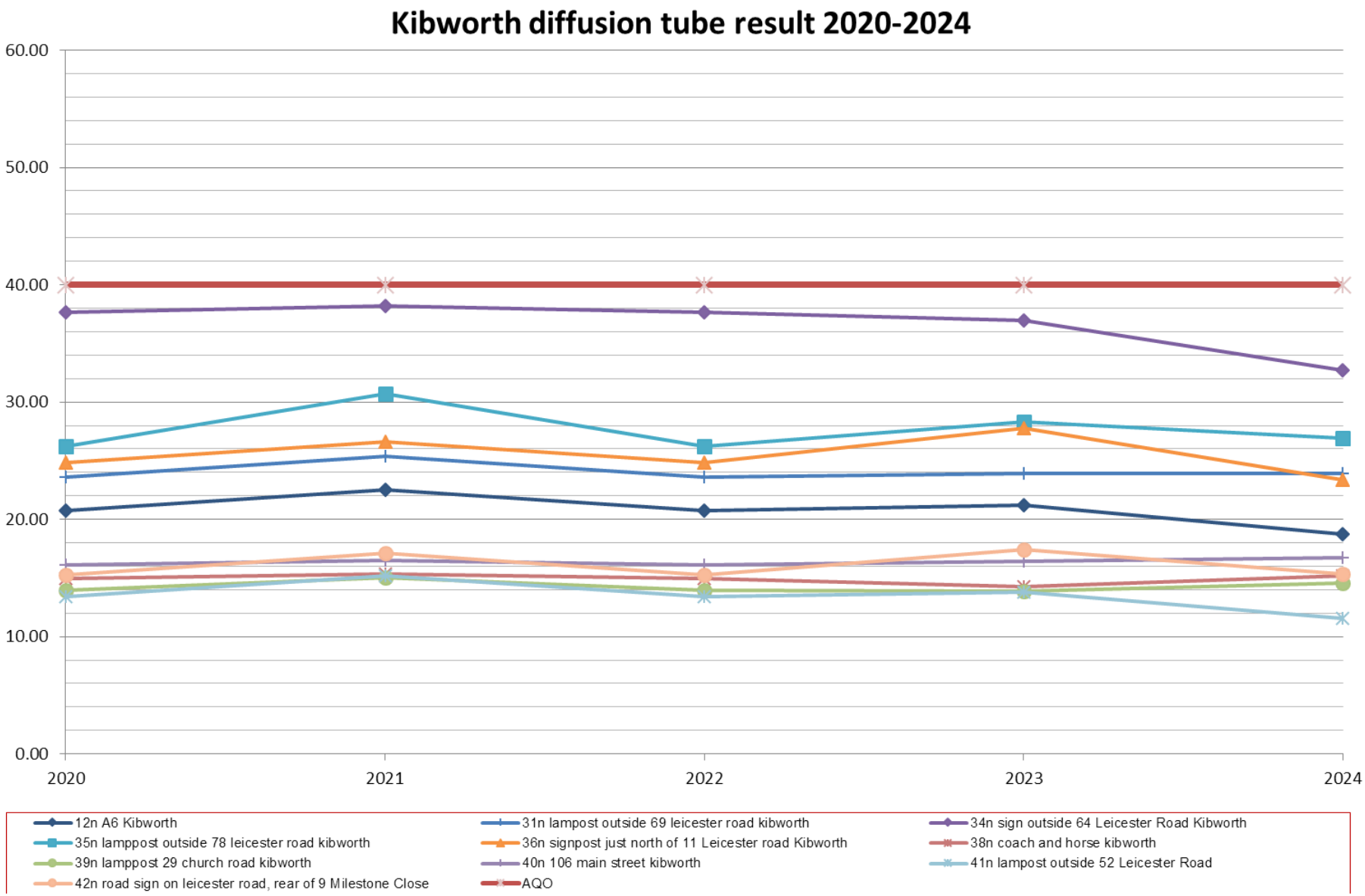


**Figure A.5 – Lutterworth Trends in Annual Mean $NO_2$ Concentrations**

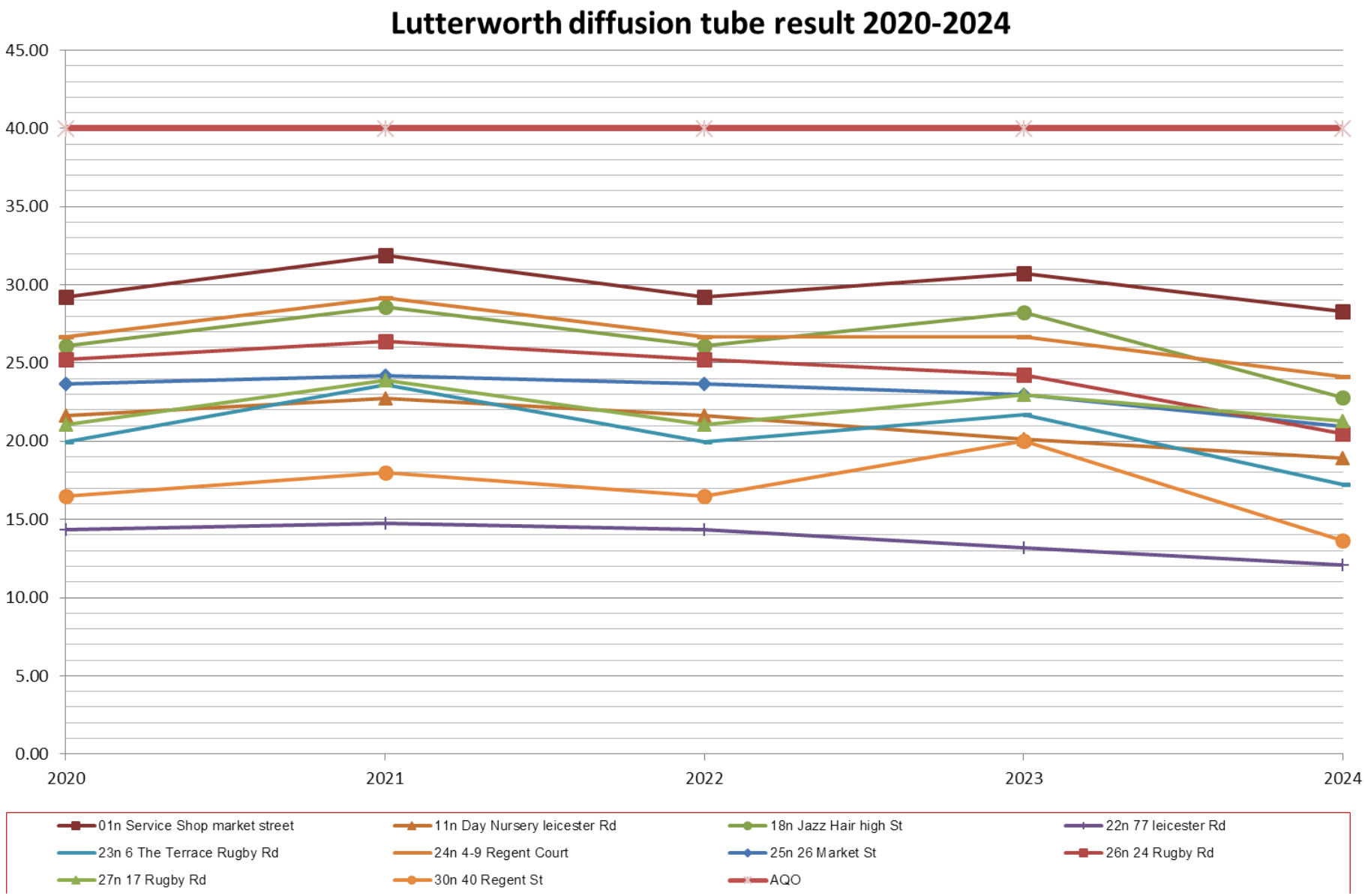


**Figure A.6 – Market Harborough Trends in Annual Mean $NO_2$ Concentrations**

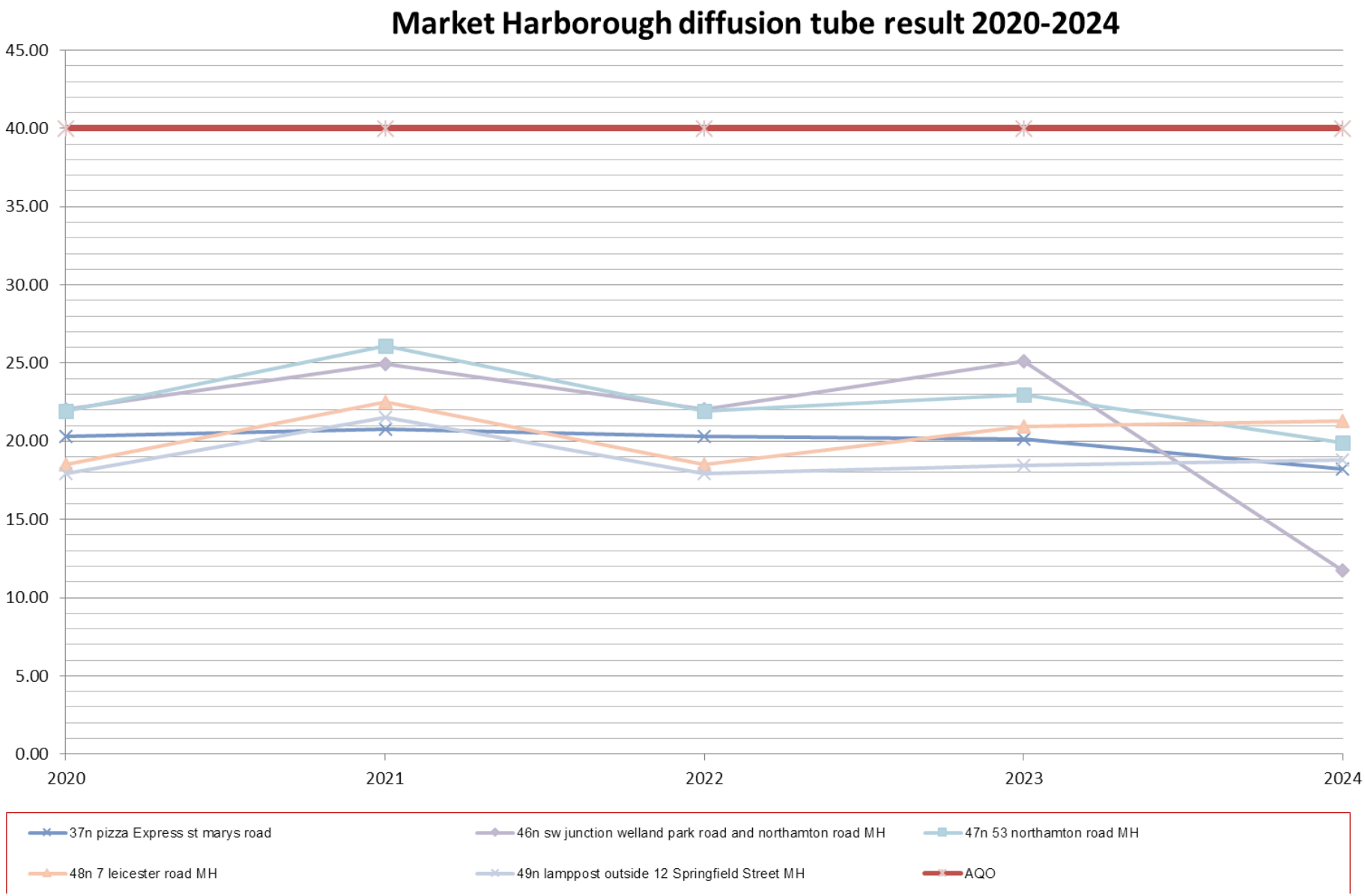


**Figure A.7 – Theddingworth and Walcote Trends in Annual Mean $NO_2$ Concentrations**

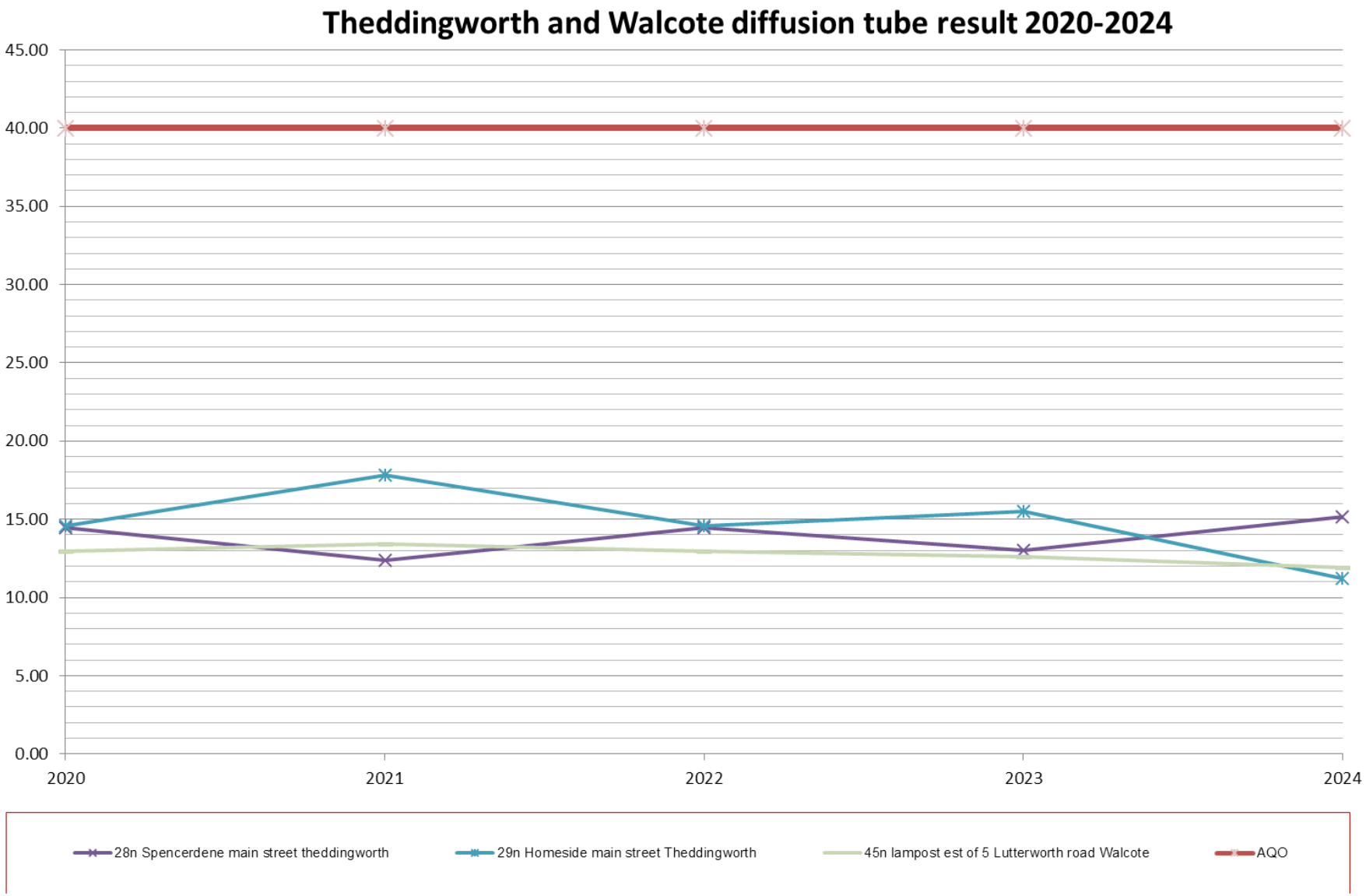


Table A.5 – 1-Hour Mean $NO_2$ Monitoring Results, Number of 1-Hour Means > 200µg·m$^{-3}$

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) (1) | Valid Data Capture 2024 (%) (2) | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| A1 | 468114 | 294353 | Roadside | 99.8 | 99.8 | 0 | 0 | 0 | 0 | 0 |
| Z2 | 468309 | 294352 | Roadside | 95.7 | 95.7 | **3 (153)** | 0 | 0 | 0 | 0 |
| Z3 | 461675 | 283303 | Rural | 69.6 | 69.6 | | | 0 | 0 | 0 |

**Notes:**

Results are presented as the number of 1-hour periods where concentrations greater than 200µg·m$^{-3}$ have been recorded.

Exceedances of the $NO_2$ 1-hour mean objective (200µg·m$^{-3}$ not to be exceeded more than 18 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 99.8th percentile of 1-hour means is provided in brackets.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

**Table A.6 – Annual Mean $PM_{10}$ Monitoring Results ($\mu g \cdot m^{-3}$)**

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) (1) | Valid Data Capture 2024 (%) (2) | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| Z2 | 468309 | 294352 | Roadside | 96.86 | 96.86 | 16.2 | 9.18 | 12.4 | 11.36 | 11.2 |
| Z3 | 461675 | 283303 | Rural | 92.44 | 92.44 | | | 11.7 | 10.26 | 9.3 |

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.**

**Notes:**

The annual mean concentrations are presented as $\mu g \cdot m^{-3}$.

Exceedances of the $PM_{10}$ annual mean objective of 40$\mu g \cdot m^{-3}$ are shown in **bold**.

All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

**Figure A.8 – Trends in Annual Mean $PM_{10}$ Concentrations**

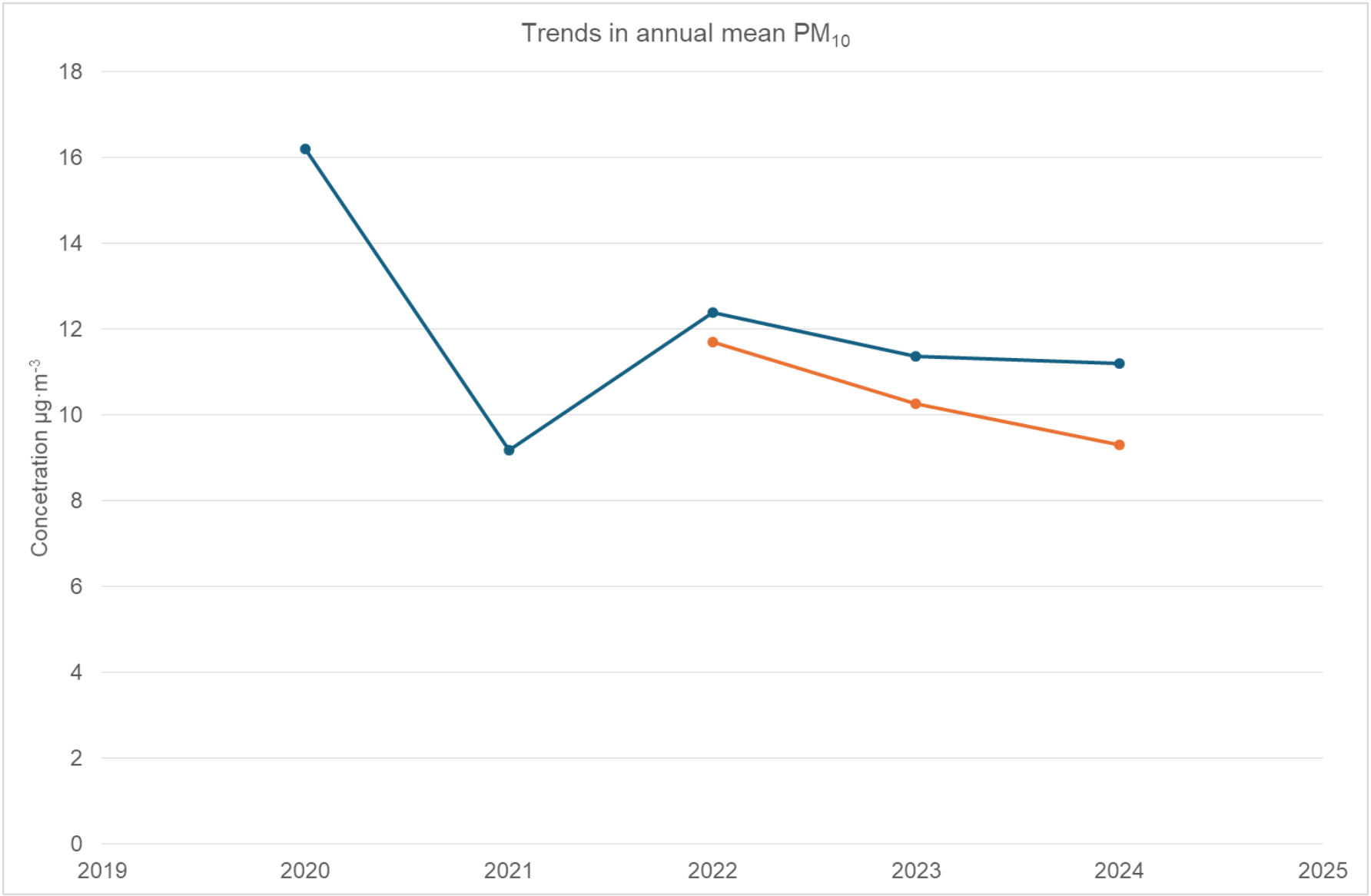


**Table A.7 – 24-Hour Mean $PM_{10}$ Monitoring Results, Number of $PM_{10}$ 24-Hour Means > 50µg·m$^{-3}$**

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) (1) | Valid Data Capture 2024 (%) (2) | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| Z2 | 468309 | 294352 | Roadside | 98.9 | 98.9 | **0 (20.63)** | 0 | **0 (20.5)** | 0 | 0 |
| Z3 | 461675 | 283303 | Rural | 99.5 | 99.5 | | | **0 (23.2)** | 0 | 0 |

**Notes:**

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg·m$^{-3}$ have been recorded.

Exceedances of the $PM_{10}$ 24-hour mean objective (50µg·m$^{-3}$ not to be exceeded more than 35 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 90.4th percentile of 24-hour means is provided in brackets.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

**Table A.8 – Annual Mean $PM_{2.5}$ Monitoring Results ($\mu g \cdot m^{-3}$)**

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) (1) | Valid Data Capture 2024 (%) (2) | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| Z2 | 468309 | 294352 | Roadside | 96.87 | 96.87 | 9.21 | 6.82 | 11.5 | 10.36 | 10.22 |
| Z3 | 461675 | 283303 | Rural | 92.46 | 92.46 | | | 10.07 | 9.35 | 8.47 |

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.**

**Notes:**

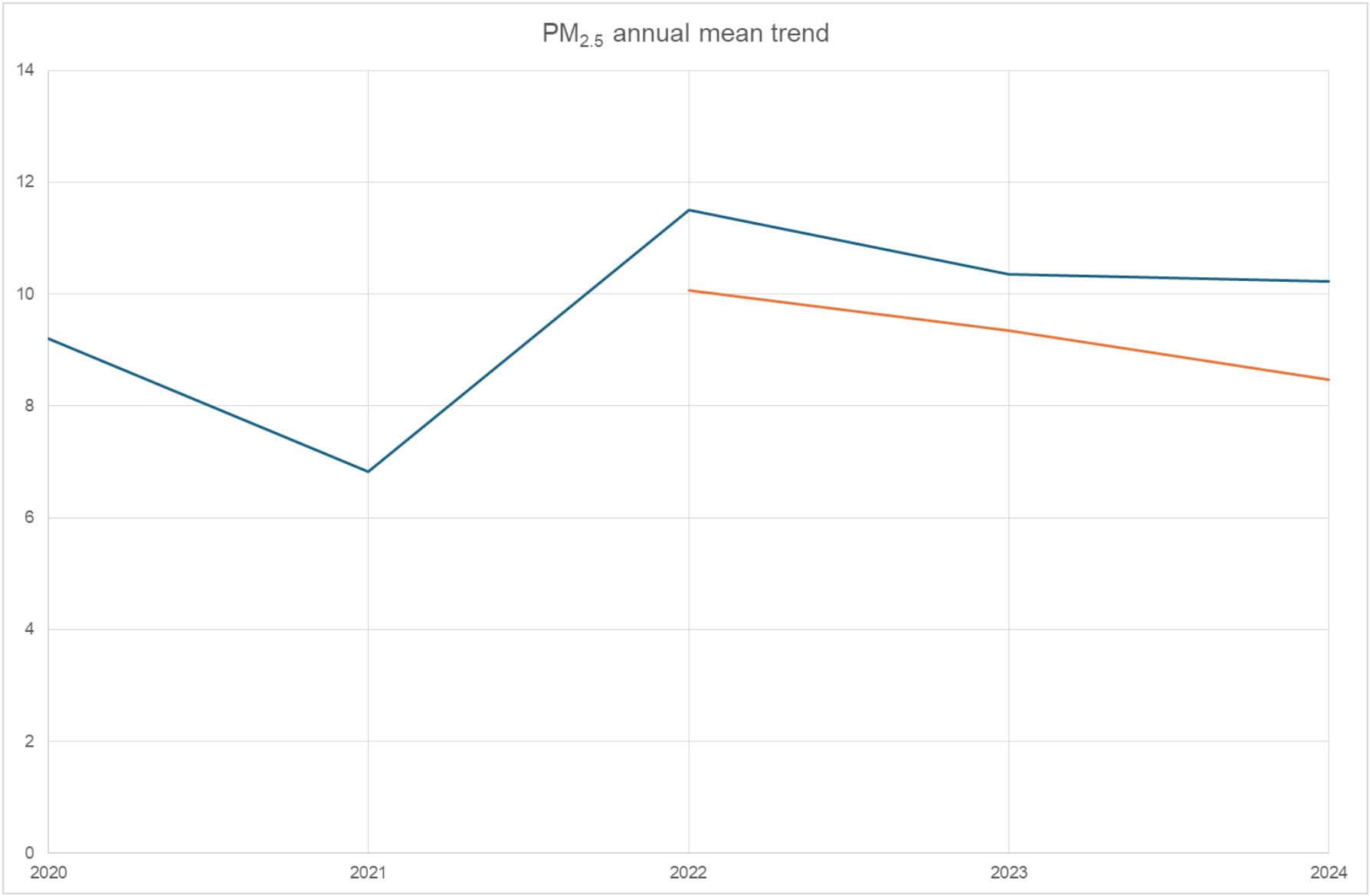
The annual mean concentrations are presented as $\mu g \cdot m^{-3}$.

All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

**Figure A.9 – Trends in Annual Mean $PM_{2.5}$ Concentrations**



## Appendix B: Full Monthly Diffusion Tube Results for 2024

**Table B.1 – $NO_2$ 2024 Diffusion Tube Results (µg·m-$^3$)**

| DT ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual Mean: Raw Data | Annual Mean: Annualised and Bias Adjusted (0.78) | Annual Mean: Distance Corrected to Nearest Exposure | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01n | 454475 | 284560 | 42.3 | 40.2 | 35.4 | 35.3 | 34.5 | 34.9 | 34.9 | 36.3 | 34.9 | 34.9 | 41.6 | 30.0 | 36.2 | 28.3 | | |
| 11n | 454539 | 284932 | 29.9 | 28.7 | 29.7 | 20.0 | 21.3 | 18.5 | 18.5 | 21.4 | 26.5 | 27.3 | 27.6 | 21.9 | 24.1 | 18.8 | | |
| 12n | 468425 | 294314 | 32.2 | 11.6 | 22.2 | 22.6 | 19.5 | 22.5 | 22.5 | 23.9 | 27.5 | 29.5 | 28.9 | 25.8 | 24.3 | 18.9 | | |
| 18n | 454443 | 284348 | 38.2 | | 28.8 | 29.8 | 30.0 | 24.5 | 24.5 | 27.5 | | 36.8 | 26.0 | 25.9 | 29.4 | 22.9 | | |
| 22n | 454533 | 284872 | 18.9 | 18.4 | 14.9 | 13.4 | 13.6 | 10.9 | 10.9 | | | | | | 14.6 | 12.1 | | |
| 23n | 454428 | 284274 | 18.1 | | 21.2 | 23.8 | 24.1 | 18.3 | 18.3 | 22.5 | 31.3 | 14.8 | 27.3 | 23.6 | 22.1 | 17.2 | | |
| 24n | 454410 | 284326 | 31.3 | 34.7 | 28.3 | 29.4 | 30.7 | 32.3 | 32.3 | | 30.5 | 27.7 | 36.8 | 26.1 | 30.8 | 24.0 | | |
| 25n | 454497 | 284618 | 33.3 | 32.2 | 23.2 | 25.6 | 26.1 | 20.5 | 20.5 | 24.0 | 25.8 | 26.6 | 33.4 | 30.9 | 26.9 | 21.0 | | |
| 26n | 454432 | 284229 | 33.2 | 32.6 | 11.1 | 27.9 | 25.5 | 26.4 | 26.4 | 27.9 | 26.1 | 30.1 | 28.1 | 19.8 | 26.7 | 20.8 | | |
| 27n | 454476 | 284178 | 30.4 | 32.5 | | 27.2 | 26.9 | 21.9 | 21.9 | 16.6 | 26.1 | 29.4 | 40.3 | 27.3 | 26.9 | 20.9 | | |
| 28n | 466535 | 285545 | 25.3 | 22.3 | 17.8 | 15.6 | 16.4 | 12.2 | 12.2 | 30.7 | 20.6 | 23.9 | 12.2 | 23.9 | 19.9 | 15.5 | | |
| 29n | 466651 | 285607 | 10.8 | 14.9 | 10.6 | 12.8 | 15.0 | 13.5 | 13.5 | 17.5 | 15.3 | 15.2 | 17.2 | 16.6 | 14.4 | 11.2 | | |
| 30n | 466651 | 285607 | 21.0 | 17.9 | 13.0 | 13.2 | 14.7 | 10.3 | 10.3 | 12.8 | 15.8 | | 48.0 | 15.7 | 16.8 | 13.1 | | |
| 31n | 467933 | 294660 | 33.9 | 26.7 | 24.0 | 26.5 | 28.4 | 29.6 | 29.6 | 27.1 | 30.3 | 35.5 | 37.9 | 38.5 | 30.7 | 24.0 | | |
| 32n | 448065 | 287719 | 29.9 | 25.6 | 16.3 | | | | | | | | | | 25.2 | 19.7 | | |
| 33n | 448948 | 286554 | 32.2 | 20.2 | 27.2 | | | | | | | | | | 27.1 | 21.1 | | |
| 34n | 468143 | 294351 | 55.2 | 49.4 | 45.0 | 42.5 | 38.8 | 46.5 | 46.5 | 34.6 | 33.3 | 38.5 | 30.6 | 42.4 | 42.3 | 33.0 | | |
| 35n | 468022 | 294450 | 36.6 | 38.0 | 32.7 | 26.3 | 35.3 | 34.1 | 34.1 | 33.6 | 37.7 | 33.6 | 39.5 | 32.1 | 34.3 | 26.8 | | |
| 36n | 468309 | 294352 | 12.9 | 33.5 | 28.2 | 28.5 | 30.1 | 30.2 | 30.2 | 31.3 | 34.9 | 37.0 | 39.8 | 23.5 | 29.3 | 22.9 | | |
| 37n | 473749 | 287214 | 26.4 | 29.2 | 28.3 | 17.6 | 19.5 | 19.8 | 19.8 | 19.1 | 25.0 | 23.0 | 27.7 | 25.0 | 23.2 | 18.1 | | |
| 38n | 468403 | 294298 | 36.6 | 20.9 | 17.8 | 15.2 | 16.3 | 13.6 | 13.6 | 13.6 | 19.8 | 20.7 | 23.3 | 22.0 | 19.7 | 15.4 | | |
| 39n | 468412 | 294218 | 33.2 | 19.9 | 15.8 | 14.2 | 13.1 | | | 12.8 | 17.4 | 20.2 | 21.4 | 19.1 | 19.0 | 14.8 | | |
| 40n | 468027 | 294570 | 55.2 | 21.3 | 18.1 | 15.8 | 15.9 | 16.5 | 16.5 | 18.5 | 17.7 | 12.7 | 25.7 | 23.5 | 22.2 | 17.3 | | |
| 41n | 468982 | 293824 | 12.9 | 17.3 | 12.9 | 12.7 | 14.9 | 12.7 | 12.7 | 15.0 | 18.3 | 19.8 | 9.2 | 19.2 | 14.9 | 11.7 | | |
| 42n | 469037 | 293796 | 26.4 | 15.1 | 17.2 | 17.8 | 20.6 | 17.4 | 17.4 | 11.8 | 24.9 | 23.2 | 22.1 | 22.2 | 19.8 | 15.4 | | |
| 43n | 453583 | 292002 | 38.2 | 9.3 | 13.7 | 16.9 | 17.8 | 14.7 | 14.7 | 15.0 | 17.5 | 20.9 | 25.4 | 20.4 | 19.1 | 14.9 | | |
| 45n | 453625 | 291935 | 25.3 | 12.0 | 15.0 | 15.7 | 16.1 | 12.8 | 12.8 | 12.7 | 14.8 | 5.5 | 21.5 | 18.7 | 15.4 | 12.0 | | |
| 46n | 456575 | 283605 | 20.5 | 17.2 | 15.5 | 11.9 | 13.2 | 13.0 | 13.0 | 12.2 | | | | 18.8 | 15.2 | 11.8 | | |
| 47n | 473596 | 286821 | 33.4 | 29.8 | 31.9 | 15.7 | | | | | | | | | 27.4 | 19.9 | | |
| 48n | 473598 | 286851 | 32.0 | | 26.1 | | | 23.9 | 23.9 | 24.6 | | | 34.0 | 27.4 | 27.3 | 21.3 | | |
| 49n | 473172 | 287534 | 26.1 | 25.4 | 23.1 | | | | | 21.8 | 40.5 | 29.2 | 26.2 | 20.9 | 26.8 | 18.8 | | |
| 50n | 473678 | 286931 | 11.0 | 27.7 | 20.4 | | | | | | | | | | 18.7 | 14.6 | | |
| 51n | 464971 | 293501 | 16.0 | 18.7 | 18.9 | | | | | | | | | | 17.6 | 13.7 | | |
| 52n | 464773 | 303914 | 18.7 | 14.5 | 12.7 | | | | | | | | | | 15.9 | 12.4 | | |

☒ **All erroneous data has been removed from the $NO_2$ diffusion tube dataset presented in Table B.1.**

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22 .**

☐ **Local bias adjustment factor used .**

☒ **National bias adjustment factor used .**

☒ **Where applicable, data has been distance corrected for relevant exposure in the final column.**

☒ **Harborough District Council confirm that all 2024 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

**Notes:**

Exceedances of the $NO_2$ annual mean objective of 40µg·m$^{-3}$ are shown in **bold**.

$NO_2$ annual means exceeding 60µg·m$^{-3}$, indicating a potential exceedance of the $NO_2$ 1-hour mean objective are shown in **bold and underlined**.

See Appendix C for details on bias adjustment and annualisation.

# Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC

## New or Changed Sources Identified Within Harborough District Council During 2024

Harborough District Council has not identified any new sources relating to air quality within the reporting year of 2024.

## Additional Air Quality Works Undertaken by Harborough District Council During 2024

Harborough District Council has not undertaken any additional works relating to air quality within the reporting year of 2024.

## QA/QC of Diffusion Tube Monitoring

The supplier used for diffusion tubes within 2023 was Socotec (Didcote) and the method of preparation was 50% TEA in acetone.

Socotec's QA/QC data is attached as appendix C2 $NO_2$ Diffusion Tube Information 2024.

Monitoring has been completed in adherence with the 2023 Diffusion Tube Monitoring Calendar.

The Full Diffusion tube Data processing tool v5.4 is attached at appendix C3.

### Diffusion Tube Annualisation

**Table C.1 – Annualisation Summary (concentrations presented in µg·m$^{-3}$)**

| Site ID | Annualisation Factor Derby St Alkmund's Way | Annualisation Factor Leamington Spa | Annualisation Factor Leicester University | Annualisation Factor Leicester A594 Roadside | Average Annualisation Factor | Raw Data Annual Mean | Annualised Annual Mean |
|---|---|---|---|---|---|---|---|
| 22n | 1.0424 | 1.1008 | 1.0944 | 1.0371 | 1.0687 | 14.6 | 15.6 |
| 47n | 0.8885 | 0.9079 | 0.9903 | 0.9391 | 0.9314 | 27.4 | 25.5 |
| 48n | 1.0250 | 1.0017 | 0.9783 | 1.0003 | 1.0013 | 27.3 | 27.3 |
| 49n | 0.9064 | 0.8561 | 0.9085 | 0.9245 | 0.8989 | 26.8 | 24.1 |

## Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2024 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from $NO_x$/$NO_2$ continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Harborough District Council have applied a national bias adjustment factor of 0.78 to the 2024 monitoring data. A summary of bias adjustment factors used by Harborough District Council over the past five years is presented in Table C.2.

**Table C.2 – Bias Adjustment Factor**

| Monitoring Year | Local or National | If National, Version of National Spreadsheet | Adjustment Factor |
|---|---|---|---|
| 2024 | National | 03/25 | 0.78 |
| **2023** | National | 03/24 | 0.77 |
| **2022** | National | 03/23 | 0.76 |
| **2021** | National | 03/22 | 0.78 |
| **2020** | National | 03/21 | 0.77 |
| **2019** | National | 03/20 | 0.75 |

## $NO_2$ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the $NO_2$ concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/$NO_2$ fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean $NO_2$ concentrations corrected for distance are presented in Table B.1.

No sites required fall off with distance calculations

## QA/QC of Automatic Monitoring

Please see the following attachments for QA/QC of automatic monitoring data

- Appendix C5a Kibworth A6 Air Quality Data Ratification for 2024 and the LAQM Statistics
- Appendix C5b Kibworth A6 2024
- Appendix C5c AQDM QAQC Procedures

## $PM_{10}$ and $PM_{2.5}$ Monitoring Adjustment

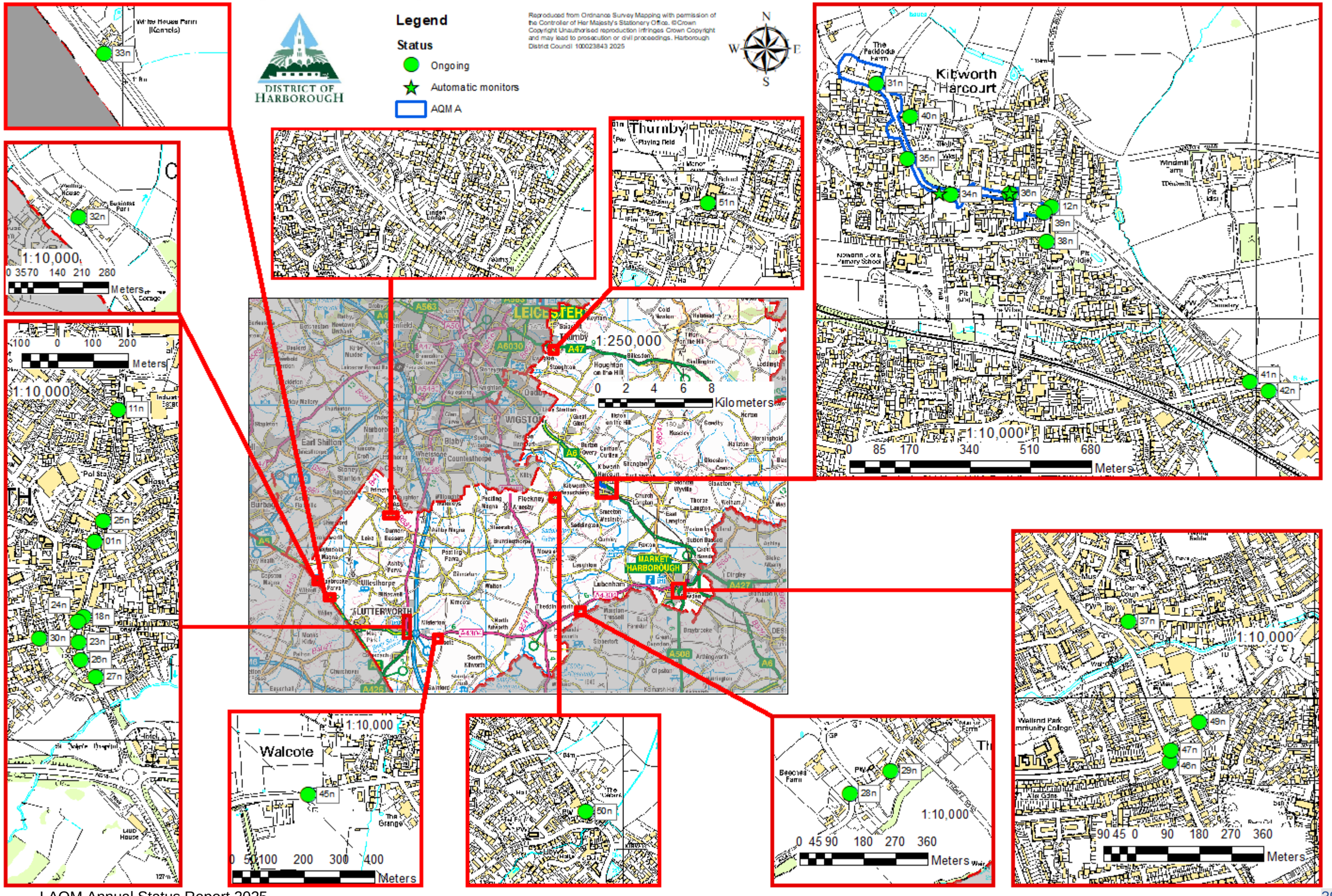
The type of PM10/PM2.5 monitor(s) utilised within Harborough District Council do not require the application of a correction factor

## $NO_2$ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the $NO_2$ concentration at the nearest location relevant for exposure has been estimated using the $NO_2$ fall-off with distance calculator available on the LAQM Support website. Where appropriate, automatic annual mean $NO_2$ concentrations corrected for distance are presented in Table A.3.

No automatic NO2 monitoring locations within Harborough District required distance correction during 2024.

## Appendix D: Map(s) of Monitoring Locations and AQMAs



# Appendix E: Summary of Air Quality Objectives in England

**Table E.1 – Air Quality Objectives in England[2]**

| Pollutant | Air Quality Objective: Concentration | Air Quality Objective: Measured as |
|---|---|---|
| Nitrogen Dioxide ($NO_2$) | 200µg·m$^{-3}$ not to be exceeded more than 18 times a year | 1-hour mean |
| Nitrogen Dioxide ($NO_2$) | 40µg·m$^{-3}$ | Annual mean |
| Particulate Matter ($PM_{10}$) | 50µg·m$^{-3}$, not to be exceeded more than 35 times a year | 24-hour mean |
| Particulate Matter ($PM_{10}$) | 40µg·m$^{-3}$ | Annual mean |
| Sulphur Dioxide ($SO_2$) | 350µg·m$^{-3}$, not to be exceeded more than 24 times a year | 1-hour mean |
| Sulphur Dioxide ($SO_2$) | 125µg·m$^{-3}$, not to be exceeded more than 3 times a year | 24-hour mean |
| Sulphur Dioxide ($SO_2$) | 266µg·m$^{-3}$, not to be exceeded more than 35 times a year | 15-minute mean |

[2] The units are in microgrammes of pollutant per cubic metre of air (µg·m$^{-3}$).

## Glossary of Terms

| Abbreviation | Description |
|---|---|
| AQAP | Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values |
| AQMA | Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives |
| ASR | Annual Status Report |
| Defra | Department for Environment, Food and Rural Affairs |
| DMRB | Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways |
| LAQM | Local Air Quality Management |
| $NO_2$ | Nitrogen Dioxide |
| $NO_x$ | Nitrogen Oxides |
| $PM_{10}$ | Airborne particulate matter with an aerodynamic diameter of 10µm or less |
| $PM_{2.5}$ | Airborne particulate matter with an aerodynamic diameter of 2.5µm or less |
| QA/QC | Quality Assurance and Quality Control |
| $SO_2$ | Sulphur Dioxide |

## References


- Local Air Quality Management Technical Guidance LAQM.TG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Local Air Quality Management Policy Guidance LAQM.PG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Chemical hazards and poisons report: Issue 28. June 2022. Published by UK Health Security Agency
- Air Quality Strategy – Framework for Local Authority Delivery. August 2023. Published by Defra.