[Insert Local Authority Logo Here]

Local Authority Name

2022 Air Quality Progress Report

In fulfilment of Environment (Northern Ireland) Order 2002

Local Air Quality Management

Date (Month, Year)

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| **Please update the header and footer information on this page**  These blue instruction boxes are used throughout this template, to provide guidance on completing the Progress Report. Please delete them before submitting the report.  Section 2 (new monitoring data) and Section 3 (new local developments) must be completed by all Local Authorities using this template. Progress Reports **are required** to provide this information.  It is also **recommended**, if these are relevant to your Local Authority, that you include the information covered by Sections 4 to 8 of this template, on:   * Local / Regional air quality strategy * Planning applications that may be relevant to air quality * Air quality planning policies * Local transport plans and strategies * Climate Change Strategies (optional)   If you have an Action Plan, it is **recommended** that you incorporate your Action Plan Progress Report into this Progress Report. Section 9 of the template is provided for this.  Not all Local Authorities will need to complete Sections 4 to 9. Any sections not used should be completely deleted. (The section numbering will of course change accordingly).  **Delete this box when the document is finished** |

# Executive Summary

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| Please summarise the main findings and conclusions of the report here.  Is a Detailed Assessment required for any pollutants?  These blue instruction boxes are used throughout this template, to provide guidance on completing the Progress Report. Please delete them before submitting the report.  **Delete this box when the document is finished** |

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Appendices

Appendix 1 Add titles of any appendices

Appendix 2 Add titles of any appendices

# Introduction

## Description of Local Authority Area

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| Please include a short paragraph describing geography, major sources etc.  These blue instruction boxes are used throughout this template, to provide guidance on completing the Progress Report. Please delete them before submitting the report.  **Each box is a single-cell table, so to delete them, simply highlight the box from the left margin, then Right Click 🡪 Delete Table or ‘Ctrl’+’X’**  Delete this box when the document is finished |

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## Purpose of Progress Report

This report fulfils the requirements of the Local Air Quality Management (LAQM) process as set out in the Environment (Northern Ireland) Order 2002, the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 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 exceedances are considered likely, the local authority must then 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 pursuit of the objectives.

For Local Authorities in Northern Ireland, Progress Reports are required in the intervening years between the three-yearly Updating and Screening Assessment reports. Their purpose is to maintain continuity in the LAQM process.

They are not intended to be as detailed as Updating and Screening Assessment Reports, or to require as much effort. However, if the Progress Report identifies the risk of exceedance of an Air Quality Objective, the Local Authority (LA) should undertake a Detailed Assessment immediately, and not wait until the next round of Review and Assessment.

## Air Quality Objectives

The air quality objectives applicable to LAQM in **Northern Ireland** are set out in the Air Quality Regulations (Northern Ireland) 2003, Statutory Rules of Northern Ireland 2003, no. 342, and are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic metre µg/m3 (milligrammes per cubic metre, mg/m3 for carbon monoxide) with the number of exceedances in each year that are permitted (where applicable).

Table 1.1 – Air Quality Objectives included in Regulations for the purpose of LAQM in Northern Ireland

| **Pollutant** | **Air Quality Objective** | | **Date to be achieved by** |
| --- | --- | --- | --- |
| **Concentration** | **Measured as** |
| **Benzene** | 16.25 µg/m3 | Running annual mean | 31.12.2003 |
| 3.25 µg/m3 | Running annual mean | 31.12.2010 |
| **1,3-butadiene** | 2.25 µg/m3 | Running annual mean | 31.12.2003 |
| **Carbon monoxide** | 10 mg/m3 | Running 8-hour mean | 31.12.2003 |
| **Lead** | 0.50 µg/m3 | Annual mean | 31.12.2004 |
| 0.25 µg/m3 | Annual mean | 31.12.2008 |
| **Nitrogen dioxide** | 200 µg/m3 not to be exceeded more than 18 times a year | 1-hour mean | 31.12.2005 |
| 40 µg/m3 | Annual mean | 31.12.2005 |
| **Particulate matter (PM10) (gravimetric)** | 50 µg/m3, not to be exceeded more than 35 times a year | 24-hour mean | 31.12.2004 |
| 40 µg/m3 | Annual mean | 31.12.2004 |
| **Sulphur dioxide** | 350 µg/m3, not to be exceeded more than 24 times a year | 1-hour mean | 31.12.2004 |
| 125 µg/m3, not to be exceeded more than 3 times a year | 24-hour mean | 31.12.2004 |
| 266 µg/m3, not to be exceeded more than 35 times a year | 15-minute mean | 31.12.2005 |

## Summary of Previous Review and Assessments

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| Please outline the conclusions of previous rounds of Review and Assessment.  To include –   * All stages completed * Exceedances identified/predicted * Areas affected * AQMAs declared (together with maps) or amended, clearly stating for which pollutant(s) and objective(s) * Any locations where exceedances of objective concentrations have previously been identified but reports have judged that no AQMA is necessary * AQMAs that have been revoked * Any on-going assessments that have not yet been reported * Any impacts due to the COVID-19 pandemic if applicable   It may be helpful to include a table of previous reports, dates they were produced, and brief outcomes e.g. “Detailed Assessment Required for NO2”  **Delete this box when the document is finished** |

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Figure 1.1 – Map(s) of AQMA Boundaries (if applicable)

# New Monitoring Data

## Summary of Monitoring Undertaken

### Automatic Monitoring Sites

|  |
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| Please provide details of automatic monitoring carried out in the year covered by this report. Table 2.1 below provides the recommended format for a table of site details. Include in this section:   * A map showing the location of your monitoring sites. **If applicable, AQMAs should also be included** * Details of any sites that started up, or closed down, since the previous report, with reasons   Please provide, for each monitoring site, a unique identifier (Site ID), which should be used in all relevant tables and maps. For example, CM1, CM2… could be used for continuous monitoring sites, and DT1, DT2… for diffusion tube sites. Alternatively, the following IDs could also be used:   * AN1, AN2… for Automatic NO2 * PN1, PN2… for Passive NO2 * APM1, APM2… for Automatic PM10 * AS1, AS2… for Automatic SO2 * …   Descriptions of monitoring site classifications can be found inTable 7.7 of LAQM.TG16. The term ‘worst-case’ exposure is used to represent those places where concentrations are expected to be the highest, and where the public may be exposed over the relevant averaging period of the objectives.  Also include in this section or as a separate appendix, details of QA/QC:   * Frequency of routine calibrations and periodic site audits * Who carries these out? (LA or contractor) * Data validation and ratification procedures * Monitoring period, if not full calendar year * Clearly labelled maps of all monitoring locations (monitoring site labels should match those in tables)   In the case of PM10 monitoring, provide the equipment type and details of any adjustments applied to the data, e.g. correction factors applied to BAM data or use of VCM to correct TEOM data. (You can find out more the [**VCM model here**](https://laqm.defra.gov.uk/air-quality/air-quality-assessment/volatile-correction-model/))  **Delete this box when the document is finished** |

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Figure 2.1 – Map(s) of Automatic Monitoring Sites (if applicable)

Table 2.1 – Details of Automatic Monitoring Sites

| **Site ID** | **Site Name** | **Site Type** | **X OS Grid Reference** | **Y OS Grid Reference** | **Inlet Height (m)** | **Pollutants Monitored** | **In AQMA?** | **Monitoring Technique** | **Relevant Exposure?** (Y/N with distance (m) from monitoring site to relevant exposure) | **Distance to Kerb of Nearest Road (m)** (N/A if not applicable) | **Does this Location Represent Worst-Case Exposure?** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| CM1 | Site Name 1 | Urban background | 332395 | 433175 | 2.0 | PM10 | Y | FDMS | Y (1m) | 3.5 | Y |
|  |  |  |  |  |  |  |  |  |  |  |  |
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### Non-Automatic Monitoring Sites

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| Please provide details of non-automatic monitoring. This will most commonly be NO2 diffusion tubes but could also include benzene diffusion tubes  Table 2.2 below provides the recommended format for a table of site details.  Maps showing locations of monitoring sites (if applicable) should be included (see Figure 2.2) **with the site ID clearly identified**. In case the maps show many monitoring sites, it may be useful to provide several maps at various zoom levels to allow for clear identification of each monitoring site. If there are AQMAs in place for the relevant pollutants, these should also be included on any maps.  Also include in this section *or in a separate appendix*, details of QA/QC: for diffusion tubes this should include:   * Lab supplying and analysing the tubes * Preparation method used * Confirmation that the lab follows the procedures set out in the Practical Guidance * Results of laboratory precision and AIR-PT (formerly WASP) proficiency testing scheme referenced in Paragraph 7.183 in LAQM.TG16 * Whether the Local Authority has compared the diffusion tubes with the reference method in a co-location study (details of this can be included as a sub-section or appendix) * The bias adjustment factor being applied to the annual means from the diffusion tubes * Where this came from – i.e. local co-location, LAQM Support website   The national bias adjustment factors are available from the [National Bias Adjustment Factors Spreadsheet](https://laqm.defra.gov.uk/air-quality/air-quality-assessment/national-bias/) and the questionnaire for adding your own co-location study to the database is also available via the [LAQM website](https://laqm.defra.gov.uk/air-quality/annual-reporting/co-location-data/).  Local authorities are encouraged to share co-location information with other authorities. Please complete and return the co-location questionnaire to ensure your monitoring data is considered for inclusion in the database of bias adjustment factors provided by the LAQM Helpdesk. **This should be done as soon as possible to ensure the database is updated in advance of report submission.**  Information on QA/QC for diffusion tubes can be found on the [LAQM website](https://laqm.defra.gov.uk/air-quality/air-quality-assessment/qa-qc-framework/).  The term ‘worst-case’ exposure is used to represent those places where concentrations are expected to be the highest, and where the public may be exposed over the relevant averaging period of the objectives.  **Delete this box when the document is finished** |

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Figure 2.2 – Map(s) of Non-Automatic Monitoring Sites (if applicable)

Table 2.2 – Details of Non-Automatic Monitoring Sites

| **Site ID** | **Site Name** | **Site Type** | **X OS Grid Reference** | **Y OS Grid Reference** | **Site Height (m)** | **Pollutants Monitored** | **In AQMA?** | **Is Monitoring Co-located with a Continuous Analyser (Y/N)** | **Relevant Exposure?** (Y/N with distance (m) from monitoring site to relevant exposure) | **Distance to Kerb of Nearest Road (m)** (N/A if not applicable) | **Does this Location Represent Worst-Case Exposure?** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DT1 | Site Name 1 | Urban background | 332395 | 433175 | 2.5 | NO2 | Y | N | Y (1m) | 3.5 | Y |
|  |  |  |  |  |  |  |  |  |  |  |  |
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## Comparison of Monitoring Results with Air Quality Objectives

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| This section can be divided by pollutant. Please include a table of key statistics for each pollutant monitored.  Separate tables should be used for automatic and non-automatic (e.g. diffusion tube) results.  For each monitoring site the key statistics should include:   * Any COVID-19 related impacts if applicable * Data capture as a % of the calendar year * Data capture as a % of the monitoring period, if monitoring was not carried out for the full year. (If monitoring was carried out for less than the full calendar year, the monitoring period should be clearly stated) * Key statistics, e.g. annual mean * All statistics relevant to Air Quality Strategy (AQS) objectives, e.g. number of 1-hour mean NO2 concentrations >200µg/m3, annual mean PM10, etc * Where the period of valid data is less than 85% of a full year, include relevant percentile alternatives (e.g. the 99.8th percentile of hourly means rather than the number of hours >200µg/m3)   Identify any sites where monitoring was not carried out for a full calendar year. In these cases, please state:   * What part of the year was it carried out for? * What was the data capture for the monitoring period? * What was the data capture for the calendar year? (e.g. if full data capture was achieved, but monitoring was only carried out for six months, the data capture for the year would be 50%)   Where data capture is less than 75% of a full calendar year (i.e. less than 9 months for NO2 diffusion tubes), the mean should be **“annualised”** – i.e. adjusted using the methodology demonstrated in Boxes 7.9 and 7.10 of LAQM.TG16 - before being compared to annual mean objectives. **Please make it clear where this has been done, and provide further details in Appendix A if necessary.**  Text should highlight which sites have exceeded the relevant AQS Objective, and which have not. Mention any cases which are borderline (For example, sites above 36µg/m3 for NO2 and PM10 annual mean)  If any exceedances are identified, are they within an existing AQMA or not? And do they represent relevant exposure?  The Local Authority may wish to include any trend data from previous years, showing any increasing or decreasing trends (5 years data is usually considered the minimum necessary to identify a significant trend). Any apparent trends in this data should be discussed.  **Delete this box when the document is finished** |

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### Nitrogen Dioxide (NO2)

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| Recommended formats for results tables, for both automatic and non-automatic sites are given below. These should answer the following questions:   * **Are there any remaining COVID-19 related impacts?** * **Is the measured annual mean concentration at any site greater than 40µg/m3?** Exceedances of the 40µg/m3 annual mean NO2 objective should be highlighted in **bold**. * **Have any sites recorded more than 18 1-hour means above 200µg/m3, or (if the period of valid data is less than 85% of a full year) does the 99.8th percentile of 1-hour mean concentrations exceed 200µg/m3?** Cases where there are more than the permitted 18 exceedances of the 200μg/m3 1-hour mean NO2 objective, or where the 99.8th percentile exceeds 200µg/m3 should be highlighted in **bold**.   Automatic Monitoring:   * Where the period of valid data is less than 85% of a full year, please include the 99.8th percentile in brackets after the number of exceedances.   Diffusion Tube Data:   * For diffusion tubes, the annual means should be bias-adjusted, with the bias adjustment factors used for each year included, e.g. as a footnote. * Please indicate where a result is the mean of multiple tube exposure (e.g. triplicate tubes). * Please include the full dataset (monthly mean values) as an appendix. * Exceedances of 60µg/m3 should be highlighted, as these indicate a risk that the 1-hour objective may also be exceeded.   In both cases, where data capture is less than 75% of a full calendar year, the mean should be **“annualised”** – i.e. adjusted using the methodology demonstrated in Boxes 7.9 and 7.10 of LAQM.TG16 - before being compared to annual mean objectives. **Please make it clear where this has been done, and provide further details in Appendix A if necessary.**  In both cases,comment on whether there are exceedances of the air quality objectives for NO2 and whether they occur within or outside AQMAs.  In both cases, discuss whether the monitoring site locations are representative of relevant public exposure. If a concentration is above or within 10% of the annual mean air quality objective for NO2 but was measured at a monitoring site which is not representative of public exposure, please use the procedure specified in Chapter 7 of the [Technical Guidance LAQM.TG16](https://laqm.defra.gov.uk/guidance/)LAQM.TG16 to estimate the concentration at the nearest receptor, and discuss these results.  To help with consistency of approach to processing diffusion tube monitoring data a specific [Diffusion Tube Data Processing Tool](https://laqm.defra.gov.uk/air-quality/air-quality-assessment/diffusion-tube-data-processing-tool/) has been developed which should be used to process all diffusion tube data. The tool has been developed to calculate annual mean concentrations for the diffusion tube monthly data entered and amalgamates the following individual LAQM processing tools:   * Annualisation tool; * Precision and accuracy tool – calculation of local bias; and * NO2 fall off with distance calculator.   Where possible, previous year’s statistics should be included for comparison, although this is not a requirement. If you have at least 5 years’ valid data, you may wish to include a **graph** to illustrate trends.  **Delete this box when the document is finished** |

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**Automatic Monitoring Data**

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Table 2.3 – Results of Automatic Monitoring for NO2: Comparison with Annual Mean Objective

| **Site ID** | **Site Type** | **Within AQMA?** | **Valid Data Capture for Monitoring Period % a** | **Valid Data Capture 2019 % b** | **Annual Mean Concentration (µg/m3)** | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **2017\* c** | **2018\* c** | **2019\* c** | **2020\* c** | **2021 c** |
| CM1 | Roadside | Y | 95 | 95 | 27.1 | **42.5** | 26.2 | **48.1** | 26.3 |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |

**In bold**, exceedance of the NO2 annual mean AQS objective of 40µg/m3

a i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

b i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

c Means should be “annualised” as in Boxes 7.9 and 7.10 of LAQM.TG16, if valid data capture is less than 75%

\* Annual mean concentrations for previous years are optional

Figure 2.3 – Trends in Annual Mean NO2 Concentrations Measured at Automatic Monitoring Sites

A trend chart providing NO2 annual mean results over the past 5 years (or more if available) may be inserted here. Please discuss any trends shown.

Table 2.4 – Results of Automatic Monitoring for NO2: Comparison with 1-hour Mean Objective

| **Site ID** | **Site Type** | **Within AQMA?** | **Valid Data Capture for Monitoring Period % a** | **Valid Data Capture 2019 % b** | **Number of Hourly Means > 200µg/m3** | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **2017\* c** | **2018\* c** | **2019\* c** | **2020\* c** | **2021 c** |
| CM1 | Roadside | Y | 95 | 95 | 2 | 5 | **19** | 17 | 3 |
| CM2 | Roadside | Y | 100 | 80 | 3 | 0 | 3 | 11 | 15 **(210.2)** |
|  |  |  |  |  |  |  |  |  |  |

**In bold**, exceedance of the NO2 hourly mean AQS objective (200µg/m3 – not to be exceeded more than 18 times per year)

a i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

b i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

c If the data capture for full calendar year is less than 85%, include the 99.8th percentile of hourly means in brackets

\* Number of exceedances for previous years is optional

**Diffusion Tube Monitoring Data**

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| Table 2.5 below gives a suggested format for reporting a summary of NO2 diffusion tube data. The results should be bias adjusted (as detailed in section 2.1.2)  Please include the full dataset (monthly mean values) as an appendix.  Please include any COVID-19 related impacts  Annual means in excess of the 40μg/m3 annual mean NO2 objective should be highlighted in **bold**.  NO2 annual means in excess of 60μg/m3, indicating a potential exceedance of the NO2 hourly mean AQS objective, should be highlighted in **bold and underlined**.  The following should also be indicated:   * Bias adjustment factor used * Results which are based on the mean of multiple tube exposure (e.g. triplicate tubes) * Data capture * Results that have been annualised as per Boxes 7.9 and 7.10 of LAQM.TG16 * Results that have been distance adjusted for relevant exposure   If a concentration is above the air quality objectives for NO2 but was measured at a monitoring site which is not representative of public exposure which is not representative of public exposure, **please use the procedure described in paragraphs 7.77 to 7.79 of LAQM.TG16 or the calculator available** [**here**](https://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html) to estimate the concentration at the nearest receptor and discuss the results in a specific section.  Where data capture is less than 75% of a full calendar year (less than 9 months), the mean should be **“annualised”** – i.e. adjusted using the methodology demonstrated in Boxes 7.9 and 7.10 of LAQM.TG16 - before being compared to annual mean objectives.  Details of annualisation and/or distance adjustment should be detailed in this section and further details provided in Appendix A if necessary.  If a concentration is above or within 10% of the annual mean air quality objective for NO2 but was measured at a monitoring site which is not representative of public exposure, please use the procedure specified in Chapter 7 of the [Technical Guidance LAQM.TG16](https://laqm.defra.gov.uk/guidance/)LAQM.TG16 to estimate the concentration at the nearest receptor, and discuss these results.  To help with consistency of approach to processing diffusion tube monitoring data a specific [Diffusion Tube Data Processing Tool](https://laqm.defra.gov.uk/air-quality/air-quality-assessment/diffusion-tube-data-processing-tool/) has been developed which should be used to process all diffusion tube data. The tool has been developed to calculate annual mean concentrations for the diffusion tube monthly data entered and amalgamates the following individual LAQM processing tools:   * Annualisation tool; * Precision and accuracy tool – calculation of local bias; and * NO2 fall off with distance calculator.   **Longer Term Datasets:**  If there are previous years’ data from the diffusion tube survey, these can be reported as in Table 2.6 below, although this is not a requirement. Additional tables and charts may also be used to illustrate trends over the last 5 years.  Exceedances of the 40μg/m3 annual mean NO2 objective should be highlighted in **bold**.  NO2 annual means in excess of 60μg/m3, indicating a potential exceedance of the NO2 hourly mean AQS objective, should be highlighted in **bold and underlined**.  All results should be bias-adjusted, with the bias adjustment factors used for each year included.  **Delete this box when the document is finished** |

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Table 2.5 – Results of NO2 Diffusion Tubes 2021

| **Site ID** | **Location** | **Site Type** | **Within AQMA?** | **Triplicate or Co-located Tube** | **Full Calendar Year Data Capture 2021 (Number of Months or %) a** | **2021 Annual Mean Concentration (µg/m3) - Bias Adjustment factor = XX b** |
| --- | --- | --- | --- | --- | --- | --- |
| DT1 | A1 Location | Roadside | N | Triplicate and Co-located | 11 | 34.6 |
| DT2 | A2 Location | Roadside | N | N | 12 | **43.4** |
| DT3 | A3 Location | Roadside | Y | N | 12 | **62.3** |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

**In bold**, exceedance of the NO2 annual mean AQS objective of 40µg/m3

Underlined, annual mean > 60µg/m3, indicating a potential exceedance of the NO2 hourly mean AQS objective

a Means should be “annualised” as in Boxes 7.9 and 7.10 of LAQM.TG16, if full calendar year data capture is less than 75%

b If an exceedance is measured at a monitoring site not representative of public exposure, NO2 concentration at the nearest relevant exposure should be estimated based on the [NO2 fall-off with distance calculator](https://laqm.defra.gov.uk/air-quality/air-quality-assessment/no2-falloff/), and results should be discussed in a specific section. The procedure is also explained in paragraphs 7.77 to 7.79 of LAQM.TG16.

Table 2.6 – Results of NO2 Diffusion Tubes (2017 to 2021)

| **Site ID** | **Site Type** | **Within AQMA?** | **Annual Mean Concentration (µg/m3) - Adjusted for Bias a** | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **2017 (Bias Adjustment Factor = XX)** | **2018 (Bias Adjustment Factor = XX)** | **2019 (Bias Adjustment Factor = XX)** | **2020 (Bias Adjustment Factor = XX)** | **2021 (Bias Adjustment Factor = XX)** |
| DT1 | Roadside | N | **64.1** | 32.6 | 34.7 | **40.2** | 36.9 |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

**In bold**, exceedance of the NO2 annual mean AQS objective of 40µg/m3

Underlined, annual mean > 60µg/m3, indicating a potential exceedance of the NO2 hourly mean AQS objective

a Means should be “annualised” as in Boxes 7.9 and 7.10 of LAQM.TG16, if full calendar year data capture is less than 75%

Figure 2.4 – Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites

A trend chart providing NO2 annual mean results over the past 5 years (or more if available) may be inserted here. Please discuss any trends shown.

### Particulate Matter (PM10)

|  |
| --- |
| Recommended formats for results tables are given below. These should answer the following questions:   * Are there any COVID-19 related impacts? * Is the annual mean concentration greater than 40µg/m3, or * Are there more than 35 daily mean exceedances of 50µg/m3, or does the 90.4th percentile of daily mean concentrations exceed 50µg/m3?   Comment on whether there are exceedances of the air quality objectives for PM10 and whether they occur within or outside AQMAs.  Confirm whether the monitoring site locations are representative of relevant public exposure. Also flag if there are concentrations above the air quality objectives for PM10 measured at monitoring sites which are not representative of public exposure.  Results can be presented in a table, as in Table 2.7 and 2.8 below.  Ensure that data have been adjusted to gravimetric equivalent (TEOM data [**should be corrected using the VCM here**](https://laqm.defra.gov.uk/air-quality/air-quality-assessment/volatile-correction-model/)) and are presented as a calendar year mean. Ensure that details of these calculations are presented in the text or in an appendix.  Exceedances of the 40μg/m3 annual mean PM10 objective should be highlighted in **bold**.  Cases where there are more than the permitted 35 exceedances of the 50μg/m3 daily mean PM10 objective, or where the 90.4th percentile exceeds 50µg/m3 should be highlighted in **bold**. Where the period of valid data is less than 85% of a full year, please include the 90.4th percentile in brackets after the number of exceedance.  Where possible, previous years’ statistics should be included for comparison but this is not a requirement.  If monitoring is not in place for PM10, the council should review this approach and detail future opportunities to establish monitoring for this pollutant. It is not sufficient to simply state that no monitoring is in place.  **Delete this box when the document is finished** |

Start writing here…

Table 2.7 – Results of Automatic Monitoring for PM10: Comparison with Annual Mean Objective

| **Site ID** | **Site Type** | **Within AQMA?** | **Valid Data Capture for Monitoring Period % a** | **Valid Data Capture 2021 % b** | **Confirm Gravimetric Equivalent (Y or N/A)** | **Annual Mean Concentration (µg/m3)** | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **2017\*** **c** | **2018\* c** | **2019\* c** | **2020\* c** | **2021 c** |
| CM1 | Roadside | Y | 95 | 95 | Y | 27.1 | 25.1 | 37.1 | **41.4** | 39.6 |
|  |  |  |  |  |  |  |  |  |  |  |
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**In bold**, exceedance of the PM10 annual mean AQS objective of 40µg/m3

a i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

b i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

c Means should be “annualised” as in Boxes 7.9 and 7.10 of LAQM.TG16, if valid data capture is less than 75%

\* Annual mean concentrations for previous years are optional

Figure 2.5 – Trends in Annual Mean PM10 Concentrations

A trend chart providing PM10 annual mean results over the past 5 years (or more if available) may be inserted here. Please discuss any trends shown.

Table 2.8 – Results of Automatic Monitoring for PM10: Comparison with 24-hour Mean Objective

| **Site ID** | **Site Type** | **Within AQMA?** | **Valid Data Capture for Monitoring Period % a** | **Valid Data Capture 2021 % b** | **Confirm Gravimetric Equivalent (Y or N/A)** | **Number of Daily Means > 50µg/m3** | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **2017\* c** | **2018\* c** | **2019\* c** | **2020\* c** | **2021 c** |
| CM1 | Roadside | Y | 95 | 92 | Y | 12 | 20 | 25 | **36** | 21 |
| CM2 | Roadside | Y | 100 | 80 | Y | 10 | **37 (58.2)** | 27 | 26 | 31 **(53.5)** |
|  |  |  |  |  |  |  |  |  |  |  |
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**In bold**, exceedance of the PM10 daily mean AQS objective (50µg/m3 – not to be exceeded more than 35 times per year)

a i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

b i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

c if data capture for full calendar year is less than 85%, include the 90.4th percentile of 24-hour means in brackets

\* Number of exceedances for previous years is optional

### Sulphur Dioxide (SO2)

|  |
| --- |
| If SO2 monitoring is available then provide a table of results. A recommended format for the table of results is given below. This should answer the following questions:  • Are there any COVID-19 related impacts?   * Are there more than 35 15-minute means greater than 266µg/m3? (Or if the period of valid data is less than 85% of a full year, is the 99.9th percentile of 15-minute means greater than this value?) * Are there more than 24 1-hour means greater than 350µg/m3? (Or if the period of valid data is less than 85% of a full year, is the 99.7th percentile of 1-hour means greater than this value?) * Are there more than 3 24-hour means greater than 125µg/m3? (Or if the period of valid data is less than 85% of a full year, is the 99.2th percentile of 24-hour means greater than this value?)   Comment on whether there are exceedances of the air quality objectives for SO2 and whether they occur within or outside AQMAs.  Ensure that the monitoring site locations are representative of relevant public exposure. Also flag if there are concentrations above the air quality objectives for SO2 measured at monitoring sites which are not representative of public exposure.  Exceedances of the relevant SO2 AQS objectives (or relevant percentiles if data capture is less than 85% for a full year) should be highlighted in **bold**.  Where possible, previous years’ statistics should be included for comparison but this is not a requirement.  If monitoring is not in place for SO2, the council should review this approach and detail future opportunities to establish monitoring for this pollutant. It is not sufficient to simply state that no monitoring is in place.  **Delete this box when the document is finished** |

Start writing here…

Table 2.9 – Results of Automatic Monitoring for SO2: Comparison with Objectives

| **Site ID** | **Site Type** | **Within AQMA?** | **Valid Data Capture for Monitoring Period % a** | **Valid Data Capture 2021 % b** | **Number of: c** | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **15-minute Means > 266µg/m3** | **1-hour Means > 350µg/m3** | **24-hour Means > 125µg/m3** |
| CM1 | Roadside | N | 92 | 80 | 33 **(275.3)** | **26 (365.1)** | 0 (99.0) |
| CM2 | Roadside | Y | 95 | 95 | 28 | 12 | **4** |
|  |  |  |  |  |  |  |  |
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**In bold**, exceedance of the relevant AQS objective (15-min mean = 35 allowed/year; 1-hour mean = 24 allowed/year; 24-hour mean = 3 allowed/year)

a i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

b i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

c if data capture for full calendar year is less than 85%, include the relevant percentile in bracket (in µg/m3): 15-min mean = 99.9th ; 1-hour mean = 99.7th ; 24-hour mean = 99.2th percentile

Figure 2.6 – Trends in SO2 Concentrations

A trend chart may be inserted here. Please discuss any trends shown.

### Benzene

|  |
| --- |
| If benzene monitoring is available then provide a table of results. This should answer the following questions:   * Are there any COVID-19 related impacts? * Are any running annual means greater than 16.25µg/m3? * Are any running annual means greater than 3.25µg/m3?   Comment on whether there are exceedances of the air quality objectives for benzene and whether they occur within or outside AQMAs.  Ensure that the monitoring site locations are representative of relevant public exposure. Flag if there are concentrations above the air quality objectives for benzene measured at monitoring sites which are not representative of public exposure.  Exceedances of the objectives for benzene should be highlighted in **bold**.  If monitoring is not in place for Benzene, the council should review this approach and detail future opportunities to establish monitoring for this pollutant. It is not sufficient to simply state that no monitoring is in place.  **Delete this box when the document is finished** |

Start writing here…

### Other Pollutants Monitored

|  |
| --- |
| Please detail any COVID-19 related impacts if applicable. Add as many sub-sections as required. Delete if no other pollutants are monitored.  If you carry out monitoring for pollutants not covered by the LAQM regulations (for example ozone, PAH, PM2.5) you may also wish to report it here.  Local authorities may wish to include information on dust deposition, radiation monitoring, and odour complaints (especially where these are relevant to sources identified in this report).  If monitoring is not in place for any other pollutants, the council should review this approach and detail future opportunities to establish monitoring for this pollutant. It is not sufficient to simply state that no monitoring is in place.  **Delete this box when the document is finished** |

Start writing here…

### Summary of Compliance with AQS Objectives

|  |
| --- |
| **The sentences below summarise the Local Authority area’s compliance (or otherwise) with the AQS Objectives.**  Please select one of the boxes below and complete it.  Please note that decisions to amend or revoke Air Quality Management Areas (AQMAs) should not be based solely on data associated with the COVID-19 pandemic and associated lockdowns. **Delete this box when the document is finished** |

<LA Name> has examined the results from monitoring in the <borough> <district>. Concentrations are all below the objectives, therefore there is no need to proceed to a Detailed Assessment.

***DELETE SENTENCE IF NOT APPLICABLE. OTHERWISE ADD LOCAL AUTHORITY NAME, AMEND THE TEXT AS APPROPRIATE AND LEAVE IN THE REPORT.***

<LA Name> has examined the results from monitoring in the <borough> <district>. Concentrations outside of the AQMA are all below the objectives at relevant locations, therefore there is no need to proceed to a Detailed Assessment.

***DELETE SENTENCE IF NOT APPLICABLE. OTHERWISE ADD LOCAL AUTHORITY NAME, AMEND THE TEXT AS APPROPRIATE AND LEAVE IN THE REPORT.***

<LA Name> has measured concentrations of <pollutant> above the <annual mean> <1-hour>, <24-hour>, <15-minute> objective at relevant locations <outside of the AQMA >, and **will need to proceed to a Detailed Assessment**, for <description of area(s) to be assessed>.

***DELETE SENTENCE IF NOT APPLICABLE. OTHERWISE ADD LOCAL AUTHORITY NAME, AMEND THE TEXT AS APPROPRIATE AND LEAVE IN THE REPORT.***

# New Local Developments

|  |
| --- |
| This section should deal with any changes in the Local Authority area that may affect air quality. It is only necessary to consider locations which have not been assessed during the earlier rounds, or where there has been a change or new development.  If an air quality assessment has been carried out (e.g. as part of an Environmental Statement) for a new development, please summarise the outcome, and provide a reference to the assessment.  You do not need to do any further screening or assessment of these developments; simply log them, for consideration in the next Updating and Screening Assessment.  **However, if sufficient information is available to clearly identify a risk of exceedance of an AQS objective at this stage, then the Local Authority should proceed immediately to a Detailed Assessment and not delay until the next round of Review and Assessment.**  If there are no such developments, then there is no need to proceed further with this part. Please complete the green text box to state this explicitly in the report.  Please explain what information has been used to determine this decision. It is not sufficient to simply state there are no such developments.  Consideration should be given to monitor additional pollutants where additional sources have been identified. For further information, refer to TG16, Box 5.1 – Summary of Emission Sources and Relevant Pollutants to be considered as part of the Updating and Screening to Assessment.  **Delete this box when the document is finished** |

Start writing here…

## Road Traffic Sources

|  |
| --- |
| Please identify any of the following which are new since the last Updating and Screening Assessment:   * Narrow congested streets with residential properties close to the kerb. * Busy streets where people may spend one hour or more close to traffic. * Roads with a high flow of buses and/or HGVs. * Junctions. * New roads constructed or proposed since the last Updating and Screening Assessment. * Roads with significantly changed traffic flows. * Bus or coach stations.   If there are none of the above, please complete the green text box to state this explicitly in the report.  Please explain what information has been used to determine this decision. It is not sufficient to simply state there none, or no new road traffic sources.  Consideration should be given to monitor additional pollutants where additional sources have been identified. For further information, refer to TG16, Box 5.1 – Summary of Emission Sources and Relevant Pollutants to be considered as part of the Updating and Screening to Assessment.  **Delete this box when the document is finished** |

Start writing here…

## Other Transport Sources

|  |
| --- |
| Please identify any of the following which are new since the last Updating and Screening Assessment:   * Airports. * Locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m. * Locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m. * Ports for shipping.   If there are none of the above, please complete the green text box to state this explicitly in the report.  Please explain what information has been used to determine this decision. It is not sufficient to simply state there are none, or no other transport sources.  Consideration should be given to monitor additional pollutants where additional sources have been identified. For further information, refer to TG16, Box 5.1 – Summary of Emission Sources and Relevant Pollutants to be considered as part of the Updating and Screening to Assessment.  **Delete this box when the document is finished** |

Start writing here…

## Industrial Sources

|  |
| --- |
| Please identify any of the following which are new since the last Updating and Screening Assessment:   * **Industrial installations:** new or proposed installations for which an air quality assessment has been carried out. * **Industrial installations:** existing installations where emissions have increased substantially or new relevant exposure has been introduced. * **Industrial installations:** new or significantly changed installations with no previous air quality assessment. * Major fuel storage depots storing petrol. * Petrol stations. * Poultry farms.   If there are none of the above, please complete the green text box to state this explicitly in the report.  Please explain what information has been used to determine this decision. It is not sufficient to simply state there are none, or no new industrial sources.  Consideration should be given to monitor additional pollutants where additional sources have been identified. For further information, refer to TG16, Box 5.1 – Summary of Emission Sources and Relevant Pollutants to be considered as part of the Updating and Screening to Assessment.  **Delete this box when the document is finished** |

Start writing here…

## Commercial and Domestic Sources

|  |
| --- |
| Please identify any of the following which are new since the last Updating and Screening Assessment:   * Biomass combustion plant – individual installations. * Areas where the combined impact of several biomass combustion sources may be relevant. * Areas where domestic solid fuel burning may be relevant. * Combined Heat and Power (CHP) plant.   The council should consider the potential impact of commercial/domestic retrofitting schemes that may be carbon neutral but potentially emit additional pollutants. Consideration should be given to monitor additional pollutants where additional sources have been identified. For further information, refer to TG16, Box 5.1 – Summary of Emission Sources and Relevant Pollutants to be considered as part of the Updating and Screening to Assessment.  If there are none of the above, please complete the green text box to state this explicitly in the report. Please explain what information has been used to determine this decision e.g. monitoring, census data or household surveys. It is not sufficient to simply state there are none, or no new commercial and domestic sources.  **Delete this box when the document is finished** |

Start writing here…

## New Developments with Fugitive or Uncontrolled Sources

|  |
| --- |
| Please identify any of the following potential sources of fugitive or uncontrolled particulate matter, which are new since the last Updating and Screening Assessment:   * Landfill sites. * Quarries. * Unmade haulage roads on industrial sites. * Waste transfer stations, etc. * Other potential sources of fugitive particulate matter emissions.   If there are none of the above, please complete the green text box to state this explicitly in the report.  Please explain what information has been used to determine this decision. It is not sufficient to simply state there are none, or no new developments with fugitive or uncontrolled sources.  Consideration should be given to monitor additional pollutants where additional sources have been identified. For further information, refer to TG16, Box 5.1 – Summary of Emission Sources and Relevant Pollutants to be considered as part of the Updating and Screening to Assessment.  **Delete this box when the document is finished** |

Start writing here…

<LA Name> confirms that there are no new or newly identified local developments which may have an impact on air quality within the Local Authority area.

<LA Name> confirms that all the following have been considered:

* **Road traffic sources**
* **Other transport sources**
* **Industrial sources**
* **Commercial and domestic sources**
* **New developments with fugitive or uncontrolled sources.**

***DELETE SENTENCES IF NOT APPLICABLE. OTHERWISE ADD LOCAL AUTHORITY NAME, AMEND TEXT AS APPROPRIATE AND LEAVE IN.***

<LA Name> has identified the following new or previously unidentified local developments which may impact on air quality in the Local Authority area.

< List them here>

These will be taken into consideration in the next Updating and Screening Assessment.

<LA Name> has identified the following new or previously unidentified local development, for which available information clearly suggests that there is a risk of exceeding <objective> <pollutant>.

< description of development here>

Therefore <LA Name> **will need to proceed to a Detailed Assessment** for this development.

***DELETE SENTENCES IF NOT APPLICABLE. OTHERWISE ADD LOCAL AUTHORITY NAME, AMEND TEXT AS APPROPRIATE AND LEAVE IN.***

# Local / Regional Air Quality Strategy

|  |
| --- |
| **Inclusion of this section is recommended. Please refer to paragraphs 4.26 and 4.27 in LAQM.TG16 for further information.**  **The relevant Policy Guidance documents recommend that all Local Authorities (particularly those that have not had to declare an AQMA and do not expect to declare one in future, but which have areas close to the AQS Objectives), should consider drawing up a Local Air Quality Strategy.**  Progress Reports provide an opportunity to report on the development of the strategy, or, if the strategy is already in place, to report on progress towards implementation of the measures it may contain. The following questions may usefully be addressed:   * Progress towards development of the strategy * If it is already completed, progress towards its implementation? * Ease of access to the strategy (is it available through local libraries or on the authority’s website)? * When will it next be reviewed?   **Please delete the whole section if not used and delete this box when the document is finished** |

Start writing here…

# Planning Applications

|  |
| --- |
| **Inclusion of this section is recommended. Please refer to paragraphs 4.28 to 4.30 of LAQM.TG16 for further information.**  **Progress Reports only need to take account of planning applications that have been approved.**  However, this part of the Progress Report can also be used to highlight planning applications for new developments which have not yet been approved but which could impact upon air quality, if the Local Authority so desires. This will help give a picture of areas where changes may occur and also where combined impacts of several developments may become important.  **Please delete the whole section if not used and delete this box when the document is finished** |

Start writing here…

# Air Quality Planning Policies

|  |
| --- |
| **Inclusion of this section is recommended.** Please refer to paragraph 4.31 of LAQM.TG16 for further information.  This section can reference the relevant Development Plan(s).  **Please delete the whole section if not used and delete this box when the document is finished** |

Start writing here…

# Local Transport Plans and Strategies

|  |
| --- |
| **Inclusion of this section is recommended.** Please refer to paragraphs 4.32 and 4.33 of LAQM.TG16 for further information.  **Please delete the whole section if not used and delete this box when the document is finished** |

Start writing here…

# Climate Change Strategies

|  |
| --- |
| **Inclusion of this section is optional.** It is recommended that you summarise details of any Climate Change Strategies here if applicable.  **Please delete the whole section if not used and delete this box when the document is finished** |

Start writing here…

# Implementation of Action Plans

|  |
| --- |
| **Inclusion of this section is recommended. You may submit your Action Plan Progress Report separately. However, it is recommended that you combine the two reports into one.**  Please refer to paragraphs 4.20 to 4.23 of LAQM.TG16 for further information.  It would be helpful if you could provide this information in the form of a large table in the format of the blank table (Table 9.1) that is provided below, with an example in the first row. However, this can be supplemented and amended at the Local Authority’s discretion.  **Please delete the whole section if not used and delete this box when the document is finished** |

Start writing here…

Table 9.1 – Action Plan Progress

| **No.** | **Measure** | **Focus** | **Lead Authority** | **Planning Phase** | Implemen-tation Phase | **Indicator** | Target Annual Emission Reduction in the AQMA | **Progress to Date** | **Progress in Last 12 Months** | **Estimated Completion Date** | **Comments Relating to Emission Reductions** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Manage bus emissions | Reduce unit emissions in the AQMA using Bus Quality Partnership Agreements (BQPA) | County Council | 2013 | 2014-15 | Elimination of Euro I and II buses by 2016 | 2% | Failure to reach a BQPA meant the authority applied for a Traffic Regulation Control (TRC) | The TRC was adopted with the condition of having no Euro I and Euro II buses passing through the AQMA from 2014 onwards | 2016 | Elimination of remaining few Euro I and II buses still estimated to deliver a 2% reduction in annual emissions. |
| 2 |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  |  |  |  |  |

Additional supporting information on the above measures and progress towards their completion can be added here…

# Conclusions and Proposed Actions

## Conclusions from New Monitoring Data

|  |
| --- |
| For example, exceedances identified, within and outside of existing AQMAs. Cases where exceedance was previously suspected but monitoring has confirmed that the AQS Objective is met. Significant trends.  Has monitoring identified any potential or actual exceedances at relevant locations outside existing AQMAs?  Are all monitoring results within AQMAs below the air quality objective, such that it may be appropriate to revoke the AQMA?  In both of these cases a Detailed Assessment would be required.  **Delete this box when the document is finished** |

Start writing here…

## Conclusions relating to New Local Developments

|  |
| --- |
| Summary of new local developments that will require more detailed consideration in the next Updating and Screening Assessment.  In particular, do any of these give rise to the need for a Detailed Assessment?  **Delete this box when the document is finished** |

Start writing here…

## Other Conclusions

|  |
| --- |
| Any conclusions drawn from consideration (if applicable) of:   * Implementation of Air Quality Action Plans * Additional monitoring (of parameters not covered by regulations) * Local air quality strategy * Planning applications not yet approved * Local Transport Plan * Relevant updates of planning policies that relate to air quality.   Delete this box when the document is finished |

Start writing here…

## Proposed Actions

|  |
| --- |
| * Has the new monitoring data identified the need to proceed to a Detailed Assessment for any pollutant? If so, which pollutant(s) and objectives, and where? If not, state explicitly that this is the case. * Has the new monitoring data identified any need for additional monitoring, or changes to the existing monitoring programme (e.g. re-location of sites)? * Are changes required to any existing AQMAs – for example should their boundaries be changed or can they be revoked? If so it will be necessary to proceed to a Detailed Assessment. * Details of proposed dates of completion of any other outstanding LAQM Tasks such as outstanding Detailed or Further Assessments and/or AQMA declarations. * What is your next course of action? * Submit 2023 Air Quality Progress Report * And (if necessary) progress to a Detailed Assessment (for which locations, pollutants and objectives)   • It is recognised that the COVID-19 pandemic and implementation of lockdown restrictions has the potential to impact emissions to air from a range of sectors and activities, and that this position may continue beyond the initial lockdown(s).  • Decisions to amend or revoke Air Quality Management Areas (AQMAs) should take this into account. The requirements of TG16 continue to apply and an AQMA should only be considered for amendment or revocation following a minimum of three and ideally five consecutive years compliance. Where 2020 is one of the consecutive years of compliance, DAERA and councils must be confident of a downward trend in pollutant concentrations and that air quality objectives will continue to be met in future years.  • If authorities wish to make any changes to AQMAs, whether declaration, amendment or revocation, based upon 2020 data, please provided detailed data to support your approach.  **Delete this box when the document is finished** |

Start writing here…

# References

|  |
| --- |
| Please provide a list of all documents referred to in the report.  **Delete this box when the document is finished** |

Start writing here…

# Appendices

Appendix A: Quality Assurance / Quality Control (QA/QC) Data

Appendix B: …..

|  |
| --- |
| Appendices may include maps, tables, lists of processes, etc. Include as many as necessary.  **Delete this box when the document is finished** |

# Appendix A: QA/QC Data

|  |
| --- |
| **INSTRUCTIONS**  Please include information relating to the QA/QC on monitoring data, including bias adjustments, annualisation and fall-off with distance correction, as appropriate:   * Discussion and justification on the choice of bias adjustment factor applied for diffusion tubes (i.e. local vs national), with reference to previous years’ choices of bias factors, giving due consideration to the discussion in Chapter 7 of [Technical Guidance LAQM.TG16](https://laqm.defra.gov.uk/guidance/). * Discussion on the annualisation process, which is provided in Chapter 7 of [Technical Guidance LAQM.TG16](https://laqm.defra.gov.uk/guidance/). * Details of distance correction using the diffusion tube data processing/ NO2 fall off with distance calculator as discussed in Chapter 7 of [Technical Guidance LAQM.TG16](https://laqm.defra.gov.uk/guidance/). **Distance correction is an important point to consider if your monitoring sites are not representative of public exposure, e.g. if located at roadside or kerbside, but with façades of nearest properties set back further from the road.** * Please include calculations within the tables provided as found within the relevant LAQM tools; particularly regarding bias adjustments, annualisation and fall-off with distance correction, where appropriate. * Covid-19 Pandemic and Diffusion Tube Availability   In terms of availability, since the first national lockdown period DAERA and LAQM Helpdesk have not been made aware of any significant shortages in supply from any of the diffusion tube laboratories which are included within the national bias adjustment database. Therefore, it is hoped that there have been no issues for authorities being supplied with diffusion tubes. However, if this is not the case, please provide further detail in this report.  **Failure to provide clear and auditable details is likely to result in the rejection of the report.**  **Delete this box when the document is finished** |

## QA/QC Diffusion Tube Monitoring

Within this section provide details relating to the following aspects of non-automatic (i.e. passive) monitoring using diffusion tubes:

* The supplier used for diffusion tubes within 2020 and the method of preparation, e.g. 20% TEA in water;
* Information on the diffusion tube supplier; any accreditation held, analysis procedure followed, participation in analysis schemes (e.g. AIR-PT) and most recent results, inclusion in the annual field inter-comparison exercise and associated result;
* If the diffusion tube supplier has been changed part way through the year (if so provide the previous two points for both suppliers);
* State whether or not the monitoring has been completed in adherence with the 2021 Diffusion Tube Monitoring Calendar, providing commentary of any divergences as necessary.

The additional subsections should be used to provide QA/QC details of the data processing methodologies applied to diffusion tube monitoring data, specifically in relation to annualisation, bias adjustment and fall-off-with-distance calculations.

If you do not undertake diffusion tube monitoring, please delete this section.

### Diffusion Tube Annualisation

If annualisation was required for any non-automatic monitoring sites, the sites requiring annualisation should be clearly defined along with details of the calculation method undertaken provided in Table A. 2. Annualisation is required for any site with data capture less than 75% but greater than 25%.

Or:

All diffusion tube monitoring locations within <Local Authority Name> recorded data capture of 75% therefore it was not required to annualise any monitoring data. In addition, any sites with a data capture below 25% do not require annualisation.

### Diffusion Tube Bias Adjustment Factors

<Local Authority Name> have applied a <national/local> bias adjustment factor of <insert factor> to the <Year> monitoring data. A summary of bias adjustment factors used by <Local Authority Name> over the past five years is presented in Table A. 1.

Provide discussion in relation to the bias adjustment factor chosen; a national factor or a local factor.

* If a national factor has been used, please state as per Table A.1 which version of the national spreadsheet the factor has been taken from and also the number of studies applicable to the factor.
* If a local factor has been used, please advise at which site(s) the co-location study has been completed at and present the details in Table A. 2.
* If more than one co-location study has been utilised to derive a local factor, please provide the calculations that have been completed within the body of text. These should be completed in line with guidance provided within LAQM.TG16 Chapter 7: NOx and NO2 Monitoring, NO2 by Diffusion Tubes.

Table A.1 - Bias Adjustment Factor

|  |
| --- |
| **INSTRUCTIONS**  Please complete the following table detailing the bias adjustment factors used to adjust the diffusion tube monitoring data. If a national factor has been used, please detail the version of the [National Bias Adjustment Factors Spreadsheet](https://laqm.defra.gov.uk/air-quality/air-quality-assessment/national-bias/) that has been used (detailed in the top-right corner of each revision of the spreadsheet). If a local factor has been derived, please leave this column blank or insert a dash (-).  **Delete this box when the document is finished** |

|  |  |  |  |
| --- | --- | --- | --- |
| Year | Local or National | If National, Version of National Spreadsheet | Adjustment Factor |
| 2021 | Local | - | 0.88 |
| 2020 | National | 09/20 | 1.01 |
| 2019 | National | 06/19 | 1.05 |
| 2018 | National | 09/18 | 1.07 |
| 2017 | National | 06/17 | 1.08 |

### NO2 Fall-off with Distance from the Road

If fall-off-with-distance calculations were required for any non-automatic monitoring sites, a summary of the sites should be provided here and the output data from [the LAQM NO2 fall-off with distance calculator](https://laqm.defra.gov.uk/air-quality/air-quality-assessment/no2-falloff/), or output from the [Diffusion Tube Data Processing Tool](https://laqm.defra.gov.uk/air-quality/air-quality-assessment/diffusion-tube-data-processing-tool/) should be presented in Table A. 4. Distance correction should be considered at any monitoring site where the annual mean concentration is greater than 36µg/m3 and the monitoring site is not located at a point of relevant exposure (taking the limitations of the calculator into account).

Or:

No diffusion tube NO2 monitoring locations within <Local Authority Name> required distance correction during <Year>.

## QA/QC of Automatic Monitoring

Within this section details relating to the following should be included:

* Who completes the data management and Local Site Operator (LSO) duties for any automatic monitoring sites within the authority;
* Details on the frequency of calibrations, audit/servicing;
* Ratification process, and if the monitoring data presented within the USA is provisional or ratified;
* If live/historic data is available through a website.

### PM10 and PM2.5 Monitoring Adjustment

If PM10/PM2.5 monitoring is completed within your authority, where applicable please detail any correction factors applied to the data before it is published (e.g. using the Volatile Correction Model (VCM) or a specific correction factor). Correction factors as detailed within LAQM.TG16 Chapter 7: Particulate Matter Monitoring.

Or:

The type of <PM10/PM2.5> monitor(s) utilised within <Local Authority Name> do not required the application of a correction factor.

Please delete this section if no PM10/PM2.5 monitoring is not completed within your authority.

### Automatic Monitoring Annualisation

If annualisation was required for any automatic monitoring sites a summary of the sites should be provided here and the annualisation data should be presented in Table A. 2. Annualisation is required for any site with data capture less than 75% but greater than 25%.

Or:

All automatic monitoring locations within <Local Authority Name> recorded data capture of greater than 75% therefore it was not required to annualise any monitoring data. In addition, any sites with a data capture below 25% do not require annualisation.

Please delete this section if no automatic monitoring is completed within your authority.

### NO2 Fall-off with Distance from the Road

If fall-off-with-distance calculations were required for automatic monitoring sites, a summary of the sites should be provided here and the output data from the LAQM NO2 fall-off with distance calculator should be presented in Table A. 4. Distance correction should be considered at any monitoring site where the annual mean concentration is greater than 36µg/m3 and the monitoring site is not located at a point of relevant exposure (taking the limitations of the calculator into account).

Or:

No automatic NO2 monitoring locations within <Local Authority Name> required distance correction during <Year>.

|  |
| --- |
| **INSTRUCTIONS**  The structure of the following QA/QC tables are consistent with those output by the [Diffusion Tube Data Processing Tool](https://laqm.defra.gov.uk/air-quality/air-quality-assessment/diffusion-tube-data-processing-tool/). It is therefore recommended that this tool is used to aid transparency of calculations and associated QA/QC pertaining to the processing of diffusion tube data.  However, it is acknowledged that not all local authorities will initially use the processing tool due to having many years of experience in processing the data within their authority using existing LAQM tools and methods. This also includes automatic monitoring data, for which the Diffusion Tube Data Processing Tool does not currently support. Therefore, in these instances please align these tables to present equivalent details, text and/or tabulated data, to support any calculations completed.  If you have any queries relating to the data that you should present, please contact the LAQM Helpdesk.  **Delete this box when the document is finished** |

Table A.2 – Annualisation Summary (concentrations presented in µg/m3)

|  |
| --- |
| **INSTRUCTIONS**  Both automatic and non-automatic annualisation results should be included within Table A. 2.  For diffusion tube annualisation the [Annualisation Tool](https://laqm.defra.gov.uk/air-quality/air-quality-assessment/annualisation-tool/) or the [Diffusion Tube Data Processing Tool](https://laqm.defra.gov.uk/air-quality/air-quality-assessment/diffusion-tube-data-processing-tool/) can be used to complete annualisation. Either tool should be used to ensure the correct methodology for annualisation is utilised. Table A. 2 has the same structure as the **Annualisation Summary** tab within both tools, therefore the required data can easily be copied.  If a LAQM tool has not been used for diffusion tube annualisation, please enter the relevant data into the table below or replace this table with one presenting the relevant details for annualisation.  Currently there is no LAQM tool to process annualisation for automatic monitoring, therefore guidance as per Chapter 7: NOx and NO2 Monitoring of the [Technical Guidance LAQM.TG16](https://laqm.defra.gov.uk/guidance/) should be followed and the results presented within Table A. 2.  If less than four background sites have been used to annualise, the relevant boxes can be left blank or a dash added (-). Any relevant comments should be added within the Comments column.  This table should be deleted if annualisation has not been required at any site.  **Delete this box when the document is finished** |

| Site ID | Annualisation Factor Site 1 Name | Annualisation Factor Site 2 Name | Annualisation Factor Site 3 Name | Annualisation Factor Site 4 Name | Average Annualisation Factor | Raw Data Annual Mean | Annualised Annual Mean | Comments |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DT1 |  |  |  |  |  |  |  |  |
| DT2 |  |  |  |  |  |  |  |  |

Table A.3 – Local Bias Adjustment Calculations

|  |
| --- |
| **INSTRUCTIONS**  Please complete Table A. 3 if a local bias adjustment factor has been calculated.  For the calculation of a local bias adjustment factor the [Diffusion Tube Precision Accuracy Bias Spreadsheet](https://laqm.defra.gov.uk/air-quality/air-quality-assessment/local-bias/) or the [Diffusion Tube Data Processing Tool](https://laqm.defra.gov.uk/air-quality/air-quality-assessment/diffusion-tube-data-processing-tool/) can be used to complete the calculations. Either tool should be used to ensure the correct methodology for bias calculation is utilised. Table A. 3 has the same structure as the **Local Bias Adjustment Outputs** tab within the LAQM Diffusion Tube Data Processing Tool, therefore the required data can be easily copied. If the [Diffusion Tube Precision Accuracy Bias Spreadsheet](https://laqm.defra.gov.uk/air-quality/air-quality-assessment/local-bias/) has been utilised, please enter the relevant data into Table A. 3. Alternatively, replace this table with one presenting the equivalent data of the local bias calculation and consider adding a screenshot of the completed **Prevision & Accuracy** tab for clarity.  If a local factor from more than one local co-location study has been calculated without utilising the Diffusion Tube Data Processing Tool, guidance to average the bias B values as per Chapter 7: NOx and NO2 Monitoring of the [Technical Guidance LAQM.TG16](https://laqm.defra.gov.uk/guidance/) should be followed.  The table has been set up to take account of a maximum of five local co-location studies. If less than five sites have been utilised the relevant boxes can be left blank or a dash added (-). If more than five sites have been utilised, please add any additional columns to the table.  This table should be deleted if a local bias adjustment factor has not been calculated.  **Delete this box when the document is finished** |

|  | Local Bias Adjustment Input 1 | Local Bias Adjustment Input 2 | Local Bias Adjustment Input 3 | Local Bias Adjustment Input 4 | Local Bias Adjustment Input 5 |
| --- | --- | --- | --- | --- | --- |
| **Periods used to calculate bias** | 12 |  |  |  |  |
| **Bias Factor A** | 1.13 (1.06 – 1.21) |  |  |  |  |
| **Bias Factor B** | -12% (-17% - -6%) |  |  |  |  |
| **Diffusion Tube Mean (µg/m3)** | 30.9 |  |  |  |  |
| **Mean CV (Precision)** | 0.0% |  |  |  |  |
| **Automatic Mean (µg/m3)** | 35.0 |  |  |  |  |
| **Data Capture** | 100% |  |  |  |  |
| **Adjusted Tube Mean (µg/m3)** | 35 (33 – 37) |  |  |  |  |

Notes:

A single local bias adjustment factor has been used to bias adjust the 2021 diffusion tube results.

Or:

A combined local bias adjustment factor of <enter combined factor> has been used to bias adjust the 2021 diffusion tube results.

Table A.4 - NO2 Fall-off with Distance Calculations (concentrations presented in µg/m3)

|  |
| --- |
| **INSTRUCTIONS**  Both automatic and non-automatic distance corrected results can be included within Table A. 4.  For distance correction of NO2 monitoring the [NO2 Fall-Off with Distance Calculator](https://laqm.defra.gov.uk/air-quality/air-quality-assessment/no2-falloff/) or the [Diffusion Tube Data Processing Tool](https://laqm.defra.gov.uk/air-quality/air-quality-assessment/diffusion-tube-data-processing-tool/) can be used to complete the calculations. Either tool should be used to ensure the correct methodology for NO2 concentration fall off is utilised. Table A.4 has the same structure as the output tabs as follows, therefore the required data can easily be copied:   * NO2 Fall-Off with Distance Calculator – **Calculator - Multiple Tubes** * Diffusion Tube Data Processing Tool – **Step 4 - Fall off with Distance**   The Limitations / Important Notes tab within the calculator should be referred to in order to ensure only relevant sites are included within the calculator. Please ensure the correct distances are utilised within the calculator:  Any comments output from the calculator should be added within the Comments column.  This table should be deleted if distance correction has not been completed at any site.  **Delete this box when the document is finished** |

| Site ID | Distance (m): Monitoring Site to Kerb | Distance (m): Receptor to Kerb | Monitored Concentration (Annualised and Bias Adjusted) | Background Concentration | Concentration Predicted at Receptor | Comments |
| --- | --- | --- | --- | --- | --- | --- |
| DT1 |  |  |  |  |  |  |
| DT2 |  |  |  |  |  |  |

# Appendix B: Impact of COVID-19 upon LAQM

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| --- |
| **INSTRUCTIONS**  Completion of this Appendix is encouraged.  This Section should be used to highlight and discuss the impacts of COVID-19 upon LAQM and air quality during 2021. Eight questions are listed below that where applicable should be answered to help formulate a response:   1. Did your local authority maintain diffusion tube monitoring networks as normal (exposure and analysis in line with diffusion tube calendar) during 2021, including over the lockdown period?    1. If no, over what time period(s) and in what way was diffusion tube monitoring impacted? 2. Did your local authority maintain automatic air quality monitoring sites as normal (LSO visits, etc.) during 2021, including over the lockdown period?    1. If no, how and over what time period(s) was automatic monitoring impacted?    2. What is your assessment of how this may impact data reliability? 3. What challenges/constraints, that can be attributed to the pandemic, did you face when complying with the LAQM regime during 2021?   3.1 How could any possible challenges/constraints be eliminated/minimised in the future?   1. Did your local authority carry out any additional monitoring during 2021, in response to the COVID-19 pandemic?    1. If yes, please outline what types of monitoring were carried out and what the findings were. 2. Are there any ongoing issues with your local air quality monitoring network related to the COVID-19 response?    1. If yes, please provide details as to nature of issues and how these will impact air quality monitoring. 3. Has the local authority undertaken any analysis of the impact of the COVID-19 pandemic in air quality within its district?   6.1 If yes, please summarise key findings and indicate if/when a more detailed report will be made available.   1. Did COVID-19 provide any opportunities for LAQM within the local authority area in respect of improving local air quality, such as through promotion of walking and cycling, additional cycle infrastructure etc 2. Please provide any additional information relating to current or planned local air quality monitoring which may be relevant.   The inclusion of this Section is not intended to unduly add to the reporting burden of local authorities at a time when resources are already stretched, therefore please only complete to the level of detail readily available. As a guide, it is suggested that the maximum length of Appendix B should be no more than two/three pages.  **Delete this box when the document is finished** |

COVID-19 has had a significant impact on society. Inevitably, COVID-19 has also had an impact on the environment, with implications to air quality at local, regional and national scales. COVID-19 has continued to present various challenges for Local Authorities with respect to undertaking their statutory LAQM duties in the 2021 reporting year.

Despite the challenges that the pandemic has given rise to, it has also provided Local Authorities and other organisations with an opportunity to quantify the air quality impacts associated with wide-scale and extreme intervention and changes in behaviour such as reduced road traffic and working from home.

Start writing here…