



# Lancaster City Council

## 2026 Annual Status Report

June 2026



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|                    | Name       | Job Title              | Signature                                                                             |
|--------------------|------------|------------------------|---------------------------------------------------------------------------------------|
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# 2026 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, 2026

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| Report Reference Number | Lancaster City Council 2026 ASR                                            |
| Date                    | June 2026                                                                  |

## Local Responsibilities and Commitment

This ASR was prepared by the < Environmental Health Department of Lancaster City Council with the support and agreement of the following officers and departments:

- Rachel Stainton
- Will Griffith, Chief Officer, Environment and Place
- Mark Cassidy, Chief Officer, Planning and Climate Change
- Officers of Lancaster City Council's Energy and Sustainability Team
- Councillor Paul Hart
- Lancashire Air Quality, Lancashire County Council

This ASR has not been signed off by a Director of Public Health, though the document will be shared with the Public Health Team and the Growth, Environment, Transport and Health Directorate at Lancashire County Council.

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

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## Executive Summary: Air Quality in Our Area

### Air Quality in Lancaster City Council

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 <sub>2</sub> )                          | Nitrogen dioxide is a gas which is generally emitted from high-temperature combustion processes such as road transport or energy generation.                                                                                                                                                                                                                                                           |
| Sulphur Dioxide (SO <sub>2</sub> )                           | Sulphur dioxide (SO <sub>2</sub> ) is a corrosive gas which is predominantly produced from the combustion of coal or crude oil.                                                                                                                                                                                                                                                                        |
| Particulate Matter (PM <sub>10</sub> and PM <sub>2.5</sub> ) | <p>Particulate matter is everything in the air that is not a gas.</p> <p>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.</p> <p>PM<sub>10</sub> refers to particles under 10 micrometres. Fine particulate matter or PM<sub>2.5</sub> are particles under 2.5 micrometres.</p> |

In Lancaster City Council, one Air Quality Management Area (AQMA), City of Lancaster, is declared for annual mean NO<sub>2</sub> concentrations. Therefore the main pollutant of concern within the Council is NO<sub>2</sub>, which largely originates from vehicle emissions.

During 2025, NO<sub>2</sub> concentrations in Lancaster were generally consistent with the previous year's monitoring results. Passive monitoring was undertaken at 31 diffusion tube

locations in 2025 with an average annual mean concentration of 23.3  $\mu\text{g}/\text{m}^3$  across the network. Two sites located within the City of Lancaster AQMA recorded concentrations within 10% of the annual average  $\text{NO}_2$  objective, Site LC10 (38.4  $\mu\text{g}/\text{m}^3$ ) and LC11 (36.7  $\mu\text{g}/\text{m}^3$ ) (after fall off with distance correction). At the automatic monitoring site, Cable Street, an annual mean  $\text{NO}_2$  concentration of 25.7  $\mu\text{g}/\text{m}^3$  was recorded which is the lowest reported over the past five years.

Monitoring of  $\text{PM}_{10}$  and  $\text{PM}_{2.5}$  recorded at the Cable Street automatic monitoring only have a data capture of 19.2%, which is below the 25% threshold for annualisation. Therefore, the monitoring results is not comparable to the relevant annual average objective.

Lancaster City Council is not required to monitor  $\text{SO}_2$  as there are no relevant sources of concern within the district.

## 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.

The Environmental Improvement Plan<sup>1</sup> sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term targets for fine particulate matter ( $\text{PM}_{2.5}$ ), the pollutant of most harmful to human health. The Air Quality Strategy<sup>2</sup> provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

The Road to Zero<sup>3</sup> details the Government's approach to reduce exhaust emissions from road transport through a number of mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of personal travel, and the majority of AQMAs are designated due to elevated concentrations heavily influenced by transport emissions.

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<sup>1</sup> Defra. Environmental Improvement Plan 2023, January 2023

<sup>2</sup> Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

<sup>3</sup> DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

Lancaster City Council has produced a Air Quality Action Plan (AQAP) for the City of Lancaster AQMA which was finalised in December 2024 and is published on the Council [website](#). The AQAP discusses a number of key priorities including: reducing transport emissions and improving vehicle efficiency through encouraging and facilitating the use of low emission vehicles, expanding sustainable transport services, and incentives for taxis to use electric vehicles.

The Council have other policies and strategies in place to support improvements in local air quality.

In January 2025, Lancaster City Council adopted a revised Local Plan for the period 2020 to 2031<sup>4</sup> which sets out the strategic policies and land allocations. The section focusing on 'Transport, Accessibility and Connectivity' is most relevant to air quality with policies about 'Lancaster Park and Ride', 'Developing the Cycling and Walking Network' and 'Public Transport Corridors'. The Local Plan sets out the Council's commitment to improving and expanding the cycle and pedestrian routes and ensuring adequate infrastructure is in place, such as cycle parking. Encouraging active travel has multiple benefits for health and wellbeing through encouraging outdoor activity whilst having the co-benefit of reducing pollutant concentrations from vehicular traffic.

The Council's Defra Air Quality Grant (2021) funded project concluded in November 2025. The project aimed to improve public awareness of air pollution and promote public health awareness.. The project facilitated a publicly available portal, [EarthSense](#), which displayed up-to-date real-time local air quality information from a network of Zephyr sensors. The annual mean concentrations of NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> from the 9 monitors can be found in [Table C.4](#) in Appendix C.

The Defra Air Quality Grant (2022) funding which had previously been planned to be used for an Electric Taxi Project, has been redistributed to fund a rapid charging infrastructure project. This project incentivises taxi drivers to switch to an electric vehicle through a reduced charging tariff, to encourage higher adoption of low emission vehicles within the district. Further to this, the plans for increasing electric charging are discussed within the revised Local Plan, with sections enforcing electric charging infrastructure within new developments.

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<sup>4</sup> Local Plan 2020-2031. Lancaster City Council [1.Part One DPD SPLA Adopted FINAL.pdf](#). January 2025

In June 2025, the [Lancaster City Centre Parking Strategy 2025-2028](#) was approved by the Cabinet. It aims to ensure Lancaster City Centre has a well-managed supply of public parking facilities alongside maintaining the Council's overarching commitment to climate action.

Through social messaging Lancaster City Council continue to support the Global Action Clean Air Day and Clean Air Night as a funding founder as it aligns strongly with the Council's own campaign to improve public awareness and knowledge around air pollution.

## Conclusions and Priorities

During 2025, there were two passive monitoring sites LC10 (38.4  $\mu\text{g}/\text{m}^3$ ) and LC11 (36.7  $\mu\text{g}/\text{m}^3$ ) recorded annual average  $\text{NO}_2$  concentration within 10% of the objective after fall off with distance correction. Both of these sites are located within the only remaining AQMA within the district, the City of Lancaster AQMA.

In 2024, a AQAP was developed for this AQMA which was finalised and published in December 2024. The AQAP highlights a number of key priorities with a focus on the transition to low emission vehicles and increasing sustainable travel through ensuring cycle path links, electric vehicle charging points and adequate bus stops.

The automatic monitoring station at Cable Street, recorded annual mean concentrations of  $\text{NO}_2$  which are well below the annual mean and 1-hour mean objectives.

## How to get Involved

As part of the ongoing AQMA process, and since publication of the AQAP, the Council welcomes suggestions from local residents, businesses and interest groups where further improvements could be possible. For further information about the Council's monitoring infrastructure, the types of pollutants, health impacts, and previous ASRs/ AQAPs can be found on the Council's [Air Quality page](#).

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# 1 Local Air Quality Management

This report provides an overview of air quality in Lancaster City Council during 2025. 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 Lancaster City 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 Lancaster City Council can be found in Table 2.1. The table presents a description of the AQMA that is currently designated within Lancaster City Council. Appendix D: Map(s) of Monitoring Locations and AQMAs provides maps of the AQMA and also the air quality monitoring locations in relation to the AQMA. The air quality objective pertinent to the current AQMA designation is as follows:

- NO<sub>2</sub> annual mean.

In March 2026, Lancaster City Council revoked the NO<sub>2</sub> 1-hour mean objective for the City of Lancaster AQMA.

**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? | Highest Concentration: Declaration | Highest Concentration: Current Year | Number of Years Compliant with Air Quality Objective | Name and Date of AQAP Publication | Web Link to AQAP                                             |
|------------------------|---------------------|---------------------------------------|-------------------------------------------------|--------------------------------------------------------------------------------|------------------------------------|-------------------------------------|------------------------------------------------------|-----------------------------------|--------------------------------------------------------------|
| City of Lancaster AQMA | 2004                | NO <sub>2</sub> Annual Mean           | Covers gyratory system in Lancaster city centre | No                                                                             | 75 µg/m <sup>3</sup>               | 38.4 µg/m <sup>3</sup>              | 0                                                    | December 2024                     | <a href="#">Air quality reports - Lancaster City Council</a> |

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

☒ Lancaster City Council confirm that all current AQAPs have been submitted to Defra.

## 2.2 Progress and Impact of Measures to address Air Quality in Lancaster City Council

Defra's appraisal of last year's ASR concluded

1. It is strongly recommended that the Council consider amending the current AQMA to remove the declaration for hourly mean NO<sub>2</sub> exceedances as the AQMA has now been compliant with this AQO for 10 years.

*The hourly mean NO<sub>2</sub> objective has been revoked in March 2026.*

2. A caption is missing for the table on Page 24/Page 25.

*This has been amended and the duplicate table has been removed.*

3. Concentrations for 2024 in Table A.4 and Table A.8, and concentrations for 2023 and 2024 in Table A.3 and Table A.6 have been provided to one decimal place. However, the concentrations for earlier years have been provided as whole numbers.

*The concentrations are provided to one decimal place in all tables in 2026 ASR.*

4. A screen capture of the appropriate national bias adjustment spreadsheet has been provided. This is commended and should be included in future reports.
5. There is inconsistency between Table 3.1 and Table A.4. It is stated in Table 3.1 that the annual mean concentration for LC11 in 2023 was 27 µg/m<sup>3</sup>. However, it is stated in Table A.4 that the annual mean concentration for LC11 in 2023 was 37 µg/m<sup>3</sup>.

*The annual mean concentration for LC11 in 2023 was 36.8 µg/m<sup>3</sup>. This has been corrected.*

6. The Council have provided a good discussion on measures to improve PM<sub>2.5</sub> emissions. This includes the Public Health Outcomes Framework D01 indicator, with is 4.3% for Lancaster. This is lower than the England average (5.2%).
7. Clear maps have been provided to highlight the locations of monitoring sites. These maps are easy to read, and the monitoring sites are easy to identify. However, the automatic monitor does not appear on any map. This should be added.

The above comments have been addressed in this year's ASR.

Lancaster City Council has taken forward a number of direct measures during the current reporting year of 2025 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. 61 measures are included within Table 2.2, with the type of measure and the progress Lancaster City Council have made during the reporting year of 2025 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 the Lancaster Air Quality Action Plan (published December 2024).

Key completed measures are:

- Air Quality Action Plan submitted and accepted – December 2024: [Air quality reports - Lancaster City Council](#).
- Adoption of the new [Lancaster City Centre Parking Strategy 2025-2028](#) which was approved by the Cabinet in June 2025.

Lancaster City Council expects the following measures to be completed over the course of the next reporting year:

- Expansion of roadside electric charging points for electric vehicles
- M6 / Heysham Link Road (The Bay Gateway) Conditional Complimentary Measures  
The transport Authority are considering some smaller intervention within the city centre gyratory as part of the compliance with the Bay Gateway Development Consent Order (DCO). Additionally, the recently published consultation edition of the Local Transport Plan (LTP) (implementation plan) [Appendix A.pdf](#) – published by the Lancashire Combined County Authority – refers to an (unfunded) priority scheme for City Centre Public Realm improvements including road space reallocation of £10-20m. this Plan will be “prioritised to progress” during the LTP implementation plan period of the next 5 years, albeit that is dependent upon the transport authority identifying a relevant funding source.

Lancaster City Council's priorities for the coming year are:

- Undertake further improvements to electric vehicle charging infrastructure through the redistribution of the Defra Air Quality Grant 2022 funding. Lancaster City Council aim to scale up accessible charging infrastructure within off-street council run car parks and in particular, target locations where home charging is not feasible

or more difficult to implement. Additionally, the funding will be used to incentivise taxi drivers to transition to electric vehicles through a reduced tariff. Further information regarding the future of EV charging within the district is available within the recently adopted [Lancaster City Centre Parking Strategy 2025-2028](#).

- Support and encourage modal shift to sustainable travel. [The Local Cycling and Walking Infrastructure Plan for Lancaster](#) has been published and was adopted in April 2024 ([Local Cycling and Walking Infrastructure Plans \(LCWIPs\)](#)) and a Sustainable Travel Supplementary Planning Document is in development. The Canal Quarter Masterplan features a commitment to safe pedestrian and cycle friendly streets ([Canal Quarter masterplan unveiled - Lancaster City Council](#)). Lancaster City Council adopted a revised Local Plan for 2020-2031 with sections focusing on electric charging infrastructure. These strategies aim to facilitate a shift from private vehicle use to active travel which will reduce vehicle emissions and in turn have a positive impact on pollutant concentrations
- Reduce emissions related to bus congestion through the traffic management system 'Traffic Light Technology Intelligent Bus Priority'. This measure aims to reduce bus related emissions by reducing congestion and improving traffic flow, predominantly within the AQMA. Managing urban traffic technology solutions begin elsewhere in Lancashire as part of the Transforming Cities fund. Funding has yet to be agreed as part of the movement strategy for Lancaster Centre. In [Highways and transport strategy 2023 – 2025](#), Lancashire Combined Authority is now consulting on how transport improvements could be delivered locally over next 4 years.
- Plan to implement an EV charging hub with battery storage and solar canopies at Auction Mart Car Park. The hub will include a 60kW charger, two 22kW chargers, and a 7kW charge point. Lancaster City Council will offer tailored tariffs for different user groups through solar saver sessions, keeping costs affordable while passing on savings from renewable energy to drivers. This approach will support the transition to EVs within an air quality management area.

Lancaster City Council worked to implement these measures in partnership with the following stakeholders during 2025:

- Lancashire County Council (the local transport and public health authority);
- EarthSense Systems Limited - to deliver low cost air quality monitoring within the city centre

- ESU1 Limited – to service and maintain the Council’s automatic monitoring stations
- Air Quality Data Management – manage, monitor and ratify data from the Council’s automatic air quality stations
- Bureau Veritas UK – consultant appointed to help in the delivery of the Air Quality Action Plan for the Lancaster City Centre AQMA
- Gradko International Limited – to supply and analyse nitrogen dioxide diffusion tubes
- Global Action Plan – continue to promote both Clean Air Day and Clean Air Night as a founding member. Lancaster City Council also committed to local campaigns on social media to reduce air quality impacts from human behaviours – for example burning, best practice for domestic burning associated with heating homes and encouraging greener forms of travel.

The principal challenges and barriers to implementation that Lancaster City Council anticipates facing are:

- Local government structure - challenges and difficulties co-ordinating and planning localised priorities within a two-tier authority structure with differing financial/corporate priorities and political influences. However, with likely imminent changes to local government reorganisation, in the longer term this could improve working collaboratively and ensure that barriers and challenges are managed and prioritised more effectively at local level.
- Public perception - uncertainty around electric vehicle use for members of the public and businesses alike, may hinder transition to cleaner forms of transport. Also, roll out of EV charging schemes, takes time, and impacts on public confidence of whether there is the infrastructure to support cleaner transport, including whether associated costs are prohibitive.
- Existing road infrastructure - limitations around what can be done around Lancaster City Centre gyratory traffic system. Funding for traffic light technology to decrease congestion and improve traffic flows has been rejected.
- Changing behaviours - encouraging residents and businesses to change travel habits and how we monitor and report any changes in behaviour locally. Lancaster City Council anticipates that the measures stated above and in Table 2.2 will assist in achieving compliance in City of Lancaster AQMA.

Lancaster City Council anticipates that the measures stated above and in Table 2.2 will achieve compliance in City of Lancaster AQMA.

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                                                                                                                                                                                                                                                                                                                           |
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| Priority Air Quality Actions |                                                          |                                       |                                                                                                                                                                               |                                 |                                    |                                                   |                               |                |                           |                |                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                 |
| 1                            | Improvements to Electric Vehicle Charging Infrastructure | Promoting Low Emission Transport      | Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging                                                          | 2025                            | 2028 & onwards                     | Lancaster City Council                            | Defra Air Quality Grant 2022  | Funded         |                           | Implementation | Encouraging a shift towards ownership of low emission vehicles to facilitate reductions in NO <sub>2</sub> concentrations associated with older, polluting vehicles.             | Increased EV charging infrastructure to meet future demand.<br><br>Develop a joint City & County Electric Vehicle charging strategy by 2028.                                                                                                                                                                                                                                                                                                                                                                                       | The Defra Air Quality Grant (2022) funding has been redistributed to fund a rapid charging infrastructure project in the Lancaster District. EV charging is discussed further within the recently adopted <a href="#">Lancaster City Centre Parking Strategy 2025-2028</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Ensuring accessible charging infrastructure by scaling up EV charging within off-street council-run car parks and targeting locations where home charging is not feasible/difficult.                                                                                                                                                                            |
| 2                            | Local Cycling and Walking Infrastructure Plan (LCWIP)    | Transport Planning and Infrastructure | Cycle network                                                                                                                                                                 | 2021                            | 2032                               | Lancashire County Council, Lancaster City Council | Department for Transport      | Funded         | £1 million - £10 million  | Implementation | Facilitating a modal shift away from private vehicles to increased rates of walking, cycling and wheeling will have positive impacts on air pollutants associated with vehicles. | Increased cycling, walking and wheeling rates across Lancaster and wider county.                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Following extensive consultation, the Lancaster LCWIP was adopted in 2024. <a href="https://www.lancashire.gov.uk/media/951846/lancaster.pdf">https://www.lancashire.gov.uk/media/951846/lancaster.pdf</a> . This sets out the long term strategy of potential infrastructure to improve and support active and sustainable travel. <a href="#">Air quality - Lancashire County Council</a>                                                                                                                                                                                                                                                                                                                                                                      | Next steps - prioritise all schemes in readiness for future funding opportunities, such as the anticipated Local Transport Fund (LTF), and any future tranches of Active Travel Funding (ATF). Interactive LCWIP map: <a href="https://lancashire.citizenspace.com/lcwip-engagement-stage-2/">https://lancashire.citizenspace.com/lcwip-engagement-stage-2/</a> |
| 3                            | Traffic Light Technology - Intelligent Bus Priority      | Traffic Management                    | Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane | 2024                            | 2025                               | Lancashire County Council                         | Bus Services Improvement Plan | Funded         | £500k - £1 million        | Planning       | Smoothing of bus journeys, reducing congestion, improving traffic flow, and therefore reducing bus related emissions mainly in the Lancaster AQMA.                               | All traffic signal installations on Lancaster gyratory upgraded with UTC SCOOT.                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <a href="https://www.lancashire.gov.uk/council/strategies-policies-plans/roads-parking-and-travel/highways-and-transport-strategy-2023-2025/">https://www.lancashire.gov.uk/council/strategies-policies-plans/roads-parking-and-travel/highways-and-transport-strategy-2023-2025/</a> - Managing urban traffic through technology solutions priorities begin in Preston as part of the Transforming Cities fund. Still subject to funding being agreed as part of the movement strategy for Lancaster centre. Lancashire Combined Authority now consulting on how transport improvements could be delivered locally over next 4 years. Transforming travel in Lancashire and increasing Lancashire's economic potential   Lancashire Combined County Authority . | Proposed expansion of this project using Intelligent Traffic Management Fund.<br><br>Funding from County Council no longer available – looking for alternative funding.                                                                                                                                                                                         |
| 4                            | Lancaster Transport Masterplan (a)                       | Traffic Management                    | UTC, Congestion management, traffic reduction                                                                                                                                 | 2016                            | 2031                               | Lancashire County Council, Lancaster City Council |                               |                |                           | Planning       | General air quality improvements from reduced traffic and congestion across district, including Lancaster AQMA                                                                   | M6/Heysham link Road, Lancaster Caton Road Park and Ride, Renumbering A6, Strategic Multiuser cycle network, Lancaster Reach express Public Transport service, reconfiguration of J33 of M6, Lancaster South Park and Ride, Lancaster Movement Strategy (incorporating Lancaster Centre network review and restraint measures). ULEV Strategy, Morecambe Movement Strategy, Morecambe to Lancaster Rail services, Heysham supporting development, Carnforth Town Centre Improvements, Carnforth Railway Station, Rural connections | Plans arising from the Masterplan have been developed over 2019 to 2022/23 but currently halted. ( <a href="https://www.lancaster.gov.uk/planning/planning-policy/local-plan-review/">https://www.lancaster.gov.uk/planning/planning-policy/local-plan-review/</a> ).<br><br>The Local Plan Review is complete, and the County Council are now due to revisit/review.                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                 |

| 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                                                                                                                                                                             |
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| 5           | Electric low emission buses              | Vehicle Fleet Efficiency      | Promoting Low Emission Public Transport                                                                                                                                       |                                 |                                    | Lancashire County Council, Lancaster City Council, Stagecoach, Department for Transport |                           | Not Funded     | £1 million - £10 million  | Planning       | Reduction of NOx across district and Lancaster AQMA in particular through low emission buses. Estimated 1-2 ug/m3 reduction in NO2.                           | Deployment of 31 electric buses in Lancaster by Stagecoach.                                                                                                                                      | Alternative funding sought as ZEBRA bid unsuccessful.                                                                                             | Funding required                                                                                                                                                                                                  |
| 6           | Speed limits in residential areas        | Traffic Management            | Reduction of speed limits, 20mph zones                                                                                                                                        | 2012                            |                                    | Lancashire County Council                                                               | Lancashire County Council | Funded         | £1 million - £10 million  | Completed      | Improved air quality in residential areas.                                                                                                                    | Most residential areas designated 20 mph zones                                                                                                                                                   | Most residential zones in Lancaster District now covered                                                                                          |                                                                                                                                                                                                                   |
| 7           | Transport Masterplan for Lancaster (b)   | Traffic Management            | Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane | 2016                            | 2031                               | Lancashire County Council, Lancaster City Council                                       |                           |                |                           | Planning       | See above - Lancaster Transport Masterplan (a)                                                                                                                | See above - Lancaster Transport Masterplan (a)                                                                                                                                                   | See above - Lancaster Transport Masterplan (a)                                                                                                    |                                                                                                                                                                                                                   |
| 8           | Lancaster Parking Strategy               | Traffic Management            | Emission based parking or permit charges                                                                                                                                      | 2015                            | 2025                               | Lancaster City Council                                                                  | N/A                       |                |                           | Planning       | City of Lancaster AQMA air quality improvements through a reduction of circulating traffic and congestion within the city centre through accessing car parks. | Optimal use of space for car parks, reducing circulation through the city centre, with links to sustainable transport strategy, provision for EVs, and accommodates alternative transport modes. | The parking strategy has now been approved by the Cabinet:<br><a href="#">Lancaster City Centre Car Parking Strategy 2025 /2028 28</a>            |                                                                                                                                                                                                                   |
| 9           | AQ Station Traffic Management Link       | Traffic Management            | Other                                                                                                                                                                         | 2015                            | 2025                               | Lancaster City Council, Lancashire County Council                                       |                           |                |                           | Planning       | Assist with traffic management measures in Lancaster AQMA, improving congestion.                                                                              | AQ station linked with traffic management.                                                                                                                                                       | No further development here and would suggest unlikely to progress in view of strategic review being undertaken by Lancashire Combined Authority. | Potential links with Intelligent Traffic Management Fund project.                                                                                                                                                 |
| 10          | M6 / Heysham Link Road (The Bay Gateway) | Traffic Management            | Other                                                                                                                                                                         | 2013                            | 2016                               | Lancashire County Council                                                               | Department for Transport  | Funded         | > £10 million             | Completed      | Traffic reduction in range of 3-9% within the Lancaster AQMA.                                                                                                 | Traffic reduction and reduced NO <sub>2</sub> concentrations within the AQMA.                                                                                                                    | Monitoring in 2019 indicates a general reduction on levels reported for 2018.                                                                     | A Developmental Consent Order for the Bay Gateway has an implementation date of 31st October 2026.                                                                                                                |
| 11          | Travel Plans for New Development         | Promoting Travel Alternatives | Workplace Travel Planning                                                                                                                                                     |                                 |                                    | Lancashire County Council                                                               |                           |                |                           | Implementation | General air quality improvements from reduced traffic and congestion across district.                                                                         | New developments have sustainable transport plans.                                                                                                                                               | Ongoing                                                                                                                                           | Lancashire County Council Sustainability Team was disassembled in 2015 due to County Council budget cuts. Transport planning function in relation to new development transferred to County Council Highways Team. |
| 12          | School Travel Plans                      | Promoting Travel Alternatives | School Travel Plans                                                                                                                                                           |                                 | 2015                               | Lancashire County Council                                                               |                           |                |                           | Implementation | General air quality improvements from reduced traffic and congestion across district.                                                                         | Lancaster district schools with travel plans                                                                                                                                                     | Sixty-six schools have travel plans                                                                                                               | Most schools utilised grant funding to provide cycle storage facilities.                                                                                                                                          |

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| 13          | Promoting Home Working                         | Promoting Travel Alternatives | Encourage / Facilitate home-working               | 2020                            |                                    | Lancashire County Council, Lancaster City Council |                |                |                           | Implementation | A reduction in traffic related pollution due to a decreased number of trips for work.                                     | Less trips for work.                            | The City and County Councils have flexible working policies which give employees the opportunity to work from home where appropriate.                                                                                                                                                                              | The COVID-19 pandemic resulted in an increased number of employees working from home.                                                                                                                                                                                                                                                             |
| 14          | Lancashire Cycle September and other events    | Promoting Travel Alternatives | Intensive active travel campaign & infrastructure |                                 |                                    |                                                   |                |                |                           | Implementation | Reduced traffic emissions through encouraging use of alternative transport (cycling) to reduce dependence on cars.        | Increased cycling rates across Lancaster.       | Love to Ride's Cycle September is an annual event that encourages cycling and both the City Council and County Council take part in. Further info on cycling in Lancashire: <a href="https://www.lancashire.gov.uk/cycling/">https://www.lancashire.gov.uk/cycling/</a>                                            | Lancaster hosts the Bay Health Festival of which 'A Celebration of Cycling' is a theme: <a href="https://www.thebayhealthfestivals.org.uk/event-details/bay-health-festivals-cycling-extravaganza">https://www.thebayhealthfestivals.org.uk/event-details/bay-health-festivals-cycling-extravaganza</a>                                           |
| 15          | Cycling Demonstration Town                     | Promoting Travel Alternatives | Promotion of cycling                              |                                 |                                    | Lancashire County Council                         |                |                |                           | Implementation | Reduced traffic emissions through encouraging use of alternative transport (cycling) to reduce dependence on cars.        | Increased cycling rates across Lancaster.       | Four contraflow cycle lanes, three toucan crossings, seven on-road cycle lanes, cycle links to canal tow path, cycling assess to pedestrian areas, twelve crossing upgrades, new path links, 1176 cycle parking spaces, signage, workplace engagement, events (25,000 contacts), cycle training, school engagement |                                                                                                                                                                                                                                                                                                                                                   |
| 16          | Lancaster Rail Station Park and Ride           | Promoting Travel Alternatives | Promote use of rail and inland waterways          |                                 |                                    |                                                   |                |                |                           | Implementation | Reduced traffic emissions through encouraging use of alternative transport (rail) to reduce dependence on cars.           | More rail journeys opted for over car journeys. | 165 spaces at Lancaster Rail Station (operated by Avanti West Coast)                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                   |
| 17          | Carnforth Rail Station Park and Ride           | Promoting Travel Alternatives | Promote use of rail and inland waterways          |                                 |                                    |                                                   |                |                |                           | Implementation | Reduced traffic emissions through encouraging use of alternative transport (rail) to reduce dependence on cars.           |                                                 | Sixty-four fee charged spaces                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                   |
| 18          | Bare Lane Rail Station Park and Ride           | Promoting Travel Alternatives | Promote use of rail and inland waterways          |                                 |                                    |                                                   |                |                |                           | Implementation | Reduced traffic emissions through encouraging use of alternative transport (rail) to reduce dependence on cars.           |                                                 | Twelve free spaces                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                   |
| 19          | Morecambe Rail Station Park and Ride           | Promoting Travel Alternatives | Promote use of rail and inland waterways          |                                 |                                    |                                                   |                |                |                           | Implementation | Reduced traffic emissions through encouraging use of alternative transport (rail) to reduce dependence on cars.           |                                                 | One hundred fee payable spaces but fee refunded with rail ticket                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                   |
| 20          | Silverdale Rail Station Park and Ride          | Promoting Travel Alternatives | Promote use of rail and inland waterways          |                                 |                                    |                                                   |                |                |                           | Implementation | Reduced traffic emissions through encouraging use of alternative transport (rail) to reduce dependence on cars.           |                                                 | Three free spaces                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                   |
| 21          | Wennington Rail Station Park and Ride          | Promoting Travel Alternatives | Promote use of rail and inland waterways          |                                 |                                    |                                                   |                |                |                           | Implementation | Reduced traffic emissions through encouraging use of alternative transport (rail) to reduce dependence on cars.           |                                                 | Seven free spaces                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                   |
| 22          | Information via County Council website         | Promoting Travel Alternatives | Other                                             |                                 |                                    | Lancashire County Council                         |                | Not Funded     | < £10k                    | Implementation | Reduced traffic emissions through promoting travel alternatives.                                                          |                                                 | County Council website updated regularly with public transport information                                                                                                                                                                                                                                         | <a href="https://www.lancashire.gov.uk/roads-parking-and-travel/public-transport/">https://www.lancashire.gov.uk/roads-parking-and-travel/public-transport/</a>                                                                                                                                                                                   |
| 23          | Information via Lancaster City Council website | Public Information            | Via the Internet                                  |                                 |                                    | Lancaster City Council                            | N/A            | Not Funded     | < £10k                    | Implementation | Behaviour change relating to travel and domestic burning, and so an overall reduction in transport and burning emissions. |                                                 | A new web page to Council website was introduced in 2022 providing information about air quality pollutants and advice about what individuals can do to assist with local air quality matters and reduce their own exposure                                                                                        | <a href="https://www.lancaster.gov.uk/environmental-health/environmental-protection/air-quality/">https://www.lancaster.gov.uk/environmental-health/environmental-protection/air-quality/</a> AND <a href="https://www.lancaster.gov.uk/environmental-health/environmental-">https://www.lancaster.gov.uk/environmental-health/environmental-</a> |

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| 24          | Burning of Waste Fact Sheet                                                 | Public Information                    | Via leaflets               | 2014                            |                                    | Lancaster City Council                            | N/A                              | Not Funded       | < £10k                    | Implementation | The leaflet aims to educate around the harms, hazards, and legalities of burning waste with the aim of discouraging waste burning, and therefore a reduction in particulate matter emissions. |                           | The fact sheet is provided to residents and businesses that are alleged to have burn burning waste to educate and inform and prevent further waste burning. It is also publicly available online.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Fact sheet available at: <a href="https://www.lancaster.gov.uk/environmental-health/environmental-protection/smoke-control">https://www.lancaster.gov.uk/environmental-health/environmental-protection/smoke-control</a>                                                                                                                                                                             |
| 25          | Direct Communication / Education and School Projects                        | Public Information                    | Via other mechanisms       | 2022                            |                                    | Lancashire County Council, Lancaster City Council | Defra and LA                     | Partially Funded | < £10k                    | Implementation |                                                                                                                                                                                               |                           | Original programme planned through County Council Safe and Healthy Schools but County Council aspect currently undelivered. Following Defra grant funding (AQ grant 2021), Lancaster City Council has produced a school project of which seven local schools have participated (see below).                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                      |
| 26          | Cycle Hire                                                                  | Transport Planning and Infrastructure | Public cycle hire scheme   |                                 |                                    | Lancashire County Council                         | N/A                              | Not Funded       | < £10k                    | Implementation |                                                                                                                                                                                               |                           | Visit Lancashire website with information relating to bicycle hire.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Available at: <a href="https://www.visitlancashire.com/things-to-do/cycling-lancashire/cycle-hire">https://www.visitlancashire.com/things-to-do/cycling-lancashire/cycle-hire</a>                                                                                                                                                                                                                    |
| 27          | M6 / Heysham Link Road (The Bay Gateway) Conditional Complimentary Measures | Transport Planning and Infrastructure | Other                      | 2016                            | 2026                               | Lancashire County Council                         |                                  |                  |                           |                | See above - M6 Link / Bay Gateway                                                                                                                                                             |                           | The transport Authority are considering some smaller intervention within the city centre gyratory as part of the compliance with the Bay Gateway Development Consent Order (DCO). Additionally, the recently published consultation edition of the Local Transport Plan (LTP) (implementation plan) Appendix A.pdf – published by the Lancashire Combined County Authority – refers to an (unfunded) priority scheme for City Centre Public Realm improvements including road space reallocation of £10-20m. this Plan will be “prioritised to progress” during the LTP implementation plan period of the next 5 years, albeit that is dependent upon the transport authority identifying a relevant funding source. | For more info see: <a href="https://www.lancashire.gov.uk/council/strategies-policies-plans/roads-parking-and-travel/highways-and-transport-masterplans/lancaster-district-highways-and-transport-masterplan/">https://www.lancashire.gov.uk/council/strategies-policies-plans/roads-parking-and-travel/highways-and-transport-masterplans/lancaster-district-highways-and-transport-masterplan/</a> |
| 28          | Caton Road Park and Ride                                                    | Alternatives to private vehicle use   | Bus based Park & Ride      | 2014                            | 2016                               | Lancashire County Council                         | Department for Transport and NHS | Funded           | > £10 million             | Implementation | Reduction in the number of car trips in and around the city centre and therefore a reduction in traffic related emissions (NO2) within the AQMA.                                              | Park and ride usage       | Park and ride usage has increased year on year and averaged at 238 passengers per day in 2023. Discounts available for University Hospital of Morecambe Bay NHS Foundation Trust staff. NHS funding contribution for additional bus frequency.                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | The park and ride has 650 free spaces and 18 electric vehicle charging points. More information at: <a href="https://www.lancashire.gov.uk/roads-parking-and-travel/public-transport/park-and-ride/lancaster-park-and-ride/">https://www.lancashire.gov.uk/roads-parking-and-travel/public-transport/park-and-ride/lancaster-park-and-ride/</a>                                                      |
| 29          | Co-Wheels Car Club - Car Share Scheme                                       | Alternatives to private vehicle use   | Car Clubs                  |                                 |                                    | Lancaster City Council                            |                                  |                  |                           |                |                                                                                                                                                                                               |                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                      |
| 30          | Shared Wheels                                                               | Alternatives to private vehicle use   | Car & lift sharing schemes |                                 |                                    | Lancashire County Council                         |                                  |                  |                           |                |                                                                                                                                                                                               | Members registered        | Currently 2951 members registered across Lancashire, down from 3892 previous year. 210 members registered from Lancashire County Council staff.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                      |

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| 31          | Lancaster Community Car Club                                                 | Alternatives to private vehicle use     | Car Clubs                                                                                                            | 2012                            |                                    | Lancaster Community Car Club - Community Interest Company |                                  |                |                           |                |                                                                                                                                                                                   |                                                                                            | Currently has 30 individual members and 7 cars.                                                                                                                                                                                  | This Community Interest Group is part of Lancaster Cohousing                                                                                                                                                                                                                      |
| 32          | Sustainable Transport Fund Grants                                            | Alternatives to private vehicle use     | Other                                                                                                                | 2014                            | 2015                               | Lancashire County Council                                 | Local Sustainable Transport Fund | Funded         |                           | Completed      |                                                                                                                                                                                   | Businesses engaged and grants provided                                                     | Thirteen further schemes during 2014/15. Over 100 businesses engaged and 50 grants provided over the period of the scheme                                                                                                        | Main transport route between Lancaster and Preston targeted including Lancaster centre. Grants awarded for cycle storage, changing facilities and for pool bikes.                                                                                                                 |
| 33          | Local Transport Plan 3 (LTP3)                                                | Policy Guidance and Development Control | Other policy                                                                                                         | 2019                            | 2021                               | Lancashire County Council                                 | N/A                              | Not Funded     |                           | Completed      |                                                                                                                                                                                   | Production of Local Transport Plan                                                         | Current version (LTP3) sets out transport priorities until 2021                                                                                                                                                                  |                                                                                                                                                                                                                                                                                   |
| 34          | Local Transport Plan 4 (LTP4)                                                | Policy Guidance and Development Control | Other policy                                                                                                         | 2023                            | 2025                               | Lancashire County Council and Atkins                      | N/A                              | Not Funded     |                           | Planning       |                                                                                                                                                                                   | Production of Local Transport Plan                                                         | County Council have started work to update LTP and commissioned Atkins to start work on LTP4 which will establish priorities for next decade.                                                                                    | Expected provisional area-wide LTP by March 2025                                                                                                                                                                                                                                  |
| 35          | Local Air Quality Planning Guidance                                          | Policy Guidance and Development Control | Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality | 2015                            | 2025                               | Lancaster City Council                                    | N/A                              | Not Funded     | < £10k                    | Planning       | Planning policy to limit the contribution of new developments to air pollution and therefore impacts on a range of pollutants including oxides of nitrogen and particulate matter | Production of a Planning Advisory Note for Air Quality and Supplementary Planning Document | Planning advisory notes for air quality and walking and cycling complete. Supplementary planning documents relating to sustainable travel, and electric vehicle infrastructure are being drafted.                                | For info: <a href="https://keepconnected.lancaster.gov.uk/st-spd">https://keepconnected.lancaster.gov.uk/st-spd</a> AND <a href="https://keepconnected.lancaster.gov.uk/evci-spd">https://keepconnected.lancaster.gov.uk/evci-spd</a>                                             |
| 36          | Lancashire Public Health Team Air Quality Coordination                       | Policy Guidance and Development Control | Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality | 2015                            |                                    | Lancashire County Council                                 |                                  |                |                           | Planning       |                                                                                                                                                                                   |                                                                                            | Initial meeting in 2015. Air quality briefing note produced in 2017. Public Health work was dominated by Covid in 2020. Public Health team looking to coordinate roles of stakeholders at County Council to improve air quality. |                                                                                                                                                                                                                                                                                   |
| 37          | Lancaster Air Quality Strategy                                               | Policy Guidance and Development Control | Other policy                                                                                                         | 2013                            | 2015                               | Lancaster City Council                                    | N/A                              | Not Funded     | < £10k                    | Completed      | General air quality strategy so all key air pollutants                                                                                                                            | Production of a local Air Quality Strategy                                                 | The Lancaster Air Quality Strategy 'Clearing the Air' was published in 2013. A new Air Quality Action Plan has been drafted for City of Lancaster AQMA and will be published in 2024.                                            | Available at: <a href="https://www.lancaster.gov.uk/environmental-health/environmental-protection/air-quality/air-quality-reviews-and-assessments">https://www.lancaster.gov.uk/environmental-health/environmental-protection/air-quality/air-quality-reviews-and-assessments</a> |
| 38          | Local Plan Review - Planning Policy Lancaster City Council                   | Policy Guidance and Development Control | Other policy                                                                                                         | 2017                            | 2024                               | Lancaster City Council                                    |                                  |                |                           |                |                                                                                                                                                                                   |                                                                                            | The Local Plan is currently under review and has recently been open to participation and engagement. Further consultation is being prepared.                                                                                     | More information: <a href="https://www.lancaster.gov.uk/planning/planning-policy/local-plan-review">https://www.lancaster.gov.uk/planning/planning-policy/local-plan-review</a>                                                                                                   |
| 39          | Guidance on electric vehicle charging point requirements for new development | Policy Guidance and Development Control | Other policy                                                                                                         | 2015                            | 2024                               | Lancaster City Council                                    |                                  |                |                           |                | Reduction in traffic related emission through encouraging the transition to electric vehicles.                                                                                    |                                                                                            | Guidance reviewed in 2021/22 as part of Local Plan Review. Due for adoption in 2024. DM29 Policy adopted.                                                                                                                        | Barriers: electricity grid capacity issues. More information: <a href="https://www.lancaster.gov.uk/planning/planning-policy/planning-policy-consultations">https://www.lancaster.gov.uk/planning/planning-policy-consultations</a>                                               |

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| 40          | M6 / Heysham Link Road - Traffic Regulation Order                                   | Freight and Delivery Management  | Route Management Plans/ Strategic routing strategy for HGV's                                                         | 2016                            | 2016                               | Lancashire County Council                                                    |                           |                |                           |                |                                                                                                                              |                                                                          | Order placed 2016                                                                                                                                                                                                                                                                                                                                                             | HGV traffic to use J34 Link Road (Bay Gateway). The link road must not be fully opened to vehicular traffic until the undertaker has completed statutory consultation upon a proposal to make traffic regulation order prohibiting HGVs from roads forming part of the A6 in central Lancaster and along the A589 Morecambe Road, east of the link road, except for access.                                                                                                                       |
| 41          | Clean Bus Technology Fund Grant Phase 1                                             | Vehicle Fleet Efficiency         | Promoting Low Emission Public Transport                                                                              | 2015                            | 2025                               | Lancashire County Council, Stagecoach, and Lancaster City Council as partner | Clean Bus Technology Fund | Funded         | £100k - £500k             | Planning       | Estimated 4% reduction in NOx levels in Lancaster AQMA                                                                       | NOx emissions from buses reduced by over 90%                             | £288,150 grant to upgrade eight buses with technology to reduce emissions. Spend amendment agreed in 2019 and potential further amendment in 2024.                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 42          | Clean Bus Technology Fund Grant Phase 2                                             | Vehicle Fleet Efficiency         | Promoting Low Emission Public Transport                                                                              | 2017                            |                                    | Lancaster City Council and Stagecoach                                        | Clean Bus Technology Fund | Not Funded     |                           | Aborted        | Estimated 12% reduction of NOx emissions in Lancaster AQMA                                                                   | NOx emissions from buses reduced by over 90%                             | Grant application not successful (2017) as Defra air quality modelling indicated Lancaster was not exceeding air quality objectives (it was in fact exceeding according to measured data)                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 43          | Lancaster City Council Climate Emergency                                            | Promoting Low Emission Plant     | Public Procurement of stationary combustion sources                                                                  | 2019                            | 2030                               | Lancaster City Council                                                       |                           |                |                           | Implementation | Mainly CO2 reduction through climate action but direct benefits to air quality due to pollutants associated with combustion. | The Council estate to be net zero by 2030                                | The Climate Emergency declaration in 2019 was followed by steps to a net zero Council by 2023. Lancaster scored top of the Climate Emergency UK leaderboard. Buildings and heating - £1 million to improve energy efficiency of Council buildings, Salt Ayre Leisure Centre Decarbonisation Project, improvements to the Council housing stock, biodiversity, plus much more. | More information: <a href="https://www.lancaster.gov.uk/sites/climate-emergency/new-and-updates">https://www.lancaster.gov.uk/sites/climate-emergency/new-and-updates</a>                                                                                                                                                                                                                                                                                                                         |
| 44          | County Council Provision of roadside electric charging points for electric vehicles | Promoting Low Emission Transport | Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging | 2015                            | 2020                               | Lancashire County Council, Highways                                          |                           |                |                           | Completed      | Reduction in traffic related emission through encouraging the transition to electric vehicles.                               | Charge points installed roadside (County Council are highways authority) | Grant monies awarded for 150 points across Lancashire. The Lancashire and Blackburn with Darwen Electric Vehicle Infrastructure Strategy was approved 2023.                                                                                                                                                                                                                   | More information: <a href="https://www.lancashire.gov.uk/roads-parking-and-travel/electric-vehicle-charge-points/">https://www.lancashire.gov.uk/roads-parking-and-travel/electric-vehicle-charge-points/</a> AND <a href="https://www.lancashire.gov.uk/media/945415/the-lancashire-and-blackburn-with-darwen-electric-vehicle-infrastructure-strategy.pdf">https://www.lancashire.gov.uk/media/945415/the-lancashire-and-blackburn-with-darwen-electric-vehicle-infrastructure-strategy.pdf</a> |
| 45          | City Council Provision of electric charging points in car parks                     | Promoting Low Emission Transport | Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging | 2018                            | 2023                               | Lancaster City Council                                                       |                           |                |                           | Completed      | Reduction in traffic related emission through encouraging the transition to electric vehicles.                               | Charge points installed in district car parks.                           | Charge points have been provided in 10 carparks across the district. Locations here: <a href="https://www.zap-map.com/live/">https://www.zap-map.com/live/</a>                                                                                                                                                                                                                | A strategy is required locally to direct future implementation. A draft EV infrastructure SPD is in production. A regional strategy has been produced by the County Council: <a href="https://www.lancashire.gov.uk/roads-parking-and-travel/electric-vehicle-charge-points">https://www.lancashire.gov.uk/roads-parking-and-travel/electric-vehicle-charge-points</a>                                                                                                                            |

| 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                                                                                                                                                                                                                                                              |
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| 46          | Provision of roadside electric charging points for electric vehicles 2  | Promoting Low Emission Transport | Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging | 2023                            | 2026                               | Lancashire County Council                                                               | Local Electric Vehicle Infrastructure (LEVI) | Funded         | > £10 million             | Planning       | Reduction in traffic related emission through encouraging the transition to electric vehicles.                                                   |                                                             | The County Council is one of 16 councils to secure funding from the LEVI extended pilot scheme. The trial aims to expand to more residents and trial lamp post integrated charge points in residential areas, helping those that do not have access to off-street parking.                                                                                                                                                                                                                                                                                                   | In addition to the LEVI extended pilot, the County Council has been allocated indicative funding of £10.1 million from the LEVI capital fund for provision of local, low power, public on-street charging, subject to the submission of a delivery plan in early 2024 that is accepted by the DfT. |
| 47          | Roadside Green Barriers Research Project                                | Other                            | Other                                                                                                                | 2017                            | 2020                               | Lancaster City Council, Lancaster University, Lancashire County Council                 |                                              |                |                           | Completed      | Green barriers to prevent exposure to roadside pollution.                                                                                        |                                                             | LCC worked with Lancaster University on deployment of green barriers in poor AQ locations and also to inform general planting schemes for AQ (AQ beneficial species).                                                                                                                                                                                                                                                                                                                                                                                                        | Awaiting report.                                                                                                                                                                                                                                                                                   |
| 48          | Promoting use of electric vehicles as taxis                             | Promoting Low Emission Transport | Taxi emission incentives                                                                                             | 2017                            | 2026                               | Lancaster City Council                                                                  | Defra                                        | Funded         | £500k - £1 million        | Planning       | Reduction of NOx across district and Lancaster AQMA in particular through transition to EVs.                                                     | Number of electric taxis in local taxi fleet                | The Defra Air Quality Grant (2022) funding which had previously been planned to be used for an Electric Taxi Project, has been redistributed to fund a rapid charging infrastructure project. This project incentivises taxi drivers to switch to an electric vehicle through a reduced charging tariff to encourage higher adoption of low emission vehicles within the district. Further to this, the plans for increasing electric charging are discussed within the revised Local Plan with sections enforcing electric charging infrastructure within new developments. | Resource issues with the Council and current taxi driver for electric vehicles are potential barriers                                                                                                                                                                                              |
| 49          | Grant bid for electric vehicle charging infrastructure from OLEV scheme | Promoting Low Emission Transport | Taxi emission incentives                                                                                             | 2016                            | 2022                               | Lancaster City Council and Lancashire County Council                                    | OLEV                                         | Funded         |                           | Completed      | Reduction of NOx across district and Lancaster AQMA in particular through transition to EVs.                                                     | Rapid chargers installed and operational.                   | Four rapid chargers for use by taxis are now delivered and operational at Heysham, Billy Hill, Morecambe and Spring Garden St Lancaster. Five other Lancashire authorities have also installed chargers through the Lancaster co-ordinated bid delivering 24 rapid chargers across the region.                                                                                                                                                                                                                                                                               | Rapid charger fees have increased significantly over past year which may impact use.                                                                                                                                                                                                               |
| 50          | Electrification of the City Council Fleet                               | Promoting Low Emission Transport | Company Vehicle Procurement - Prioritising uptake of low emission vehicles                                           | 2017                            | 2030                               | Lancaster City Council                                                                  | Lancaster City Council                       | Funded         | £1 million - £10 million  | Implementation | Reduction of NOx across district and Lancaster AQMA in particular through transition to EVs.                                                     | Percentage of fleet electric                                | Fifty-seven vehicles (31% fleet) currently EVs, plus an electric bin wagon:<br><a href="https://www.lancaster.gov.uk/news/2022/apr/lancashire-s-first-electric-bin-wagon-takes-to-the-road">https://www.lancaster.gov.uk/news/2022/apr/lancashire-s-first-electric-bin-wagon-takes-to-the-road</a>                                                                                                                                                                                                                                                                           | Increasing capital and electricity prices                                                                                                                                                                                                                                                          |
| 51          | Electric low emission buses                                             | Vehicle Fleet Efficiency         | Promoting Low Emission Public Transport                                                                              |                                 |                                    | Lancashire County Council, Lancaster City Council, Stagecoach, Department for Transport | DfT ZEBRA 2                                  | Not Funded     | £1 million - £10 million  | Planning       | Reduction of NOx across district and Lancaster AQMA in particular through low emission buses. Estimated 1-2 ug/m3 reduction in NO <sub>2</sub> . | Deployment of 31 electric buses in Lancaster by Stagecoach. | Alternative funding sought as ZEBRA bid unsuccessful.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Funding required                                                                                                                                                                                                                                                                                   |

| 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                                                                                                |
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| 52          | Non-road mobile machinery emissions during construction          | Promoting Low Emission Plant            | Shift to installations using low emission fuels for stationary and mobile sources | 2021                            |                                    | Lancaster City Council                                                                                | N/A                                                                                                   |                  |                           | Planning       | Reduction in range of air pollutants associated with combustion machinery, primarily involved with development.                                 | Developments affected by this requirement                                                                                  | Potential for adoption of scheme to require use of low emission NRMM but not yet explored further.                                                                                                                                                                                                                                                                                                                                                                                                                                  | National scheme not currently available.                                                                                             |
| 53          | Defra Air Quality Grant bid to support behaviour change measures | Public Information                      | Via other mechanisms                                                              | 2021                            | 2027                               | Lancaster City Council, EarthSense                                                                    | Defra                                                                                                 | Funded           | £100k - £500k             | Implementation | Focus on a reduction in particulate matter from domestic burning through behaviour change, particularly in burning 'hotspots'.                  | Reduction in measured PM over winter months in burning 'hotspots'. Engagement with the public portal from local residents. | Twelve Zephyr sensors installed early 2023. Public perceptions survey carried out end of 2023. Public portal due to be released July 2024.                                                                                                                                                                                                                                                                                                                                                                                          | Staff resourcing issues, SuperSkips industrial fire required use of sensors, pre-election rules preventing release of public portal. |
| 54          | School Air Quality Project                                       | Public Information                      | Via other mechanisms                                                              | 2021                            |                                    | Lancaster City Council                                                                                | Defra and Lancaster City Council                                                                      | Partially Funded | < £10k                    | Implementation | Education of children around all key aspects of air pollution and measures individuals and communities can take to limit emissions and exposure | Number of schools that engage with the project                                                                             | The 'Air That We Breathe' project was developed in conjunction with local schools and mapped onto the KS2 Geography curriculum and 'Morecambe Bay Curriculum'. A kit box has been produced containing key knowledge for teachers, activity plans, and air quality measuring equipment. So far, seven schools have taken part - an initial 6 schools for the pilot and a further one school as part of British Science week 2024                                                                                                     | Staff resourcing issues limiting the ability to advertise the project and put resource into delivery.                                |
| 55          | Clean Air Night partnership                                      | Public Information                      | Via other mechanisms                                                              | 2022                            |                                    | Global Action Plan, Lancaster City Council, Hertfordshire County Council, and other local authorities | Global Action Plan, Lancaster City Council, Hertfordshire County Council, and other local authorities | Partially Funded | £10k - 50k                | Implementation | Focus on a reduction in particulate matter from domestic burning through education, improved awareness, and behaviour change.                   |                                                                                                                            | Partnership bid (Sep 2022) with Hertfordshire County Council and Global Action Plan to take forward 'Clean Air Night' - proposal aimed at raising public awareness of impacts of domestic burning. The grant bid was unsuccessful but Hertfordshire have funded the campaign, with Lancaster and other LAs contributing as 'funding founders'. Lancaster City Council presented at the first 'Clean Air Night Summit' in Jan 2024, with the communications team sharing educational messages to encourage better burning practices. |                                                                                                                                      |
| 56          | Information to farmers                                           | Public Information                      | Via other mechanisms                                                              | 2021                            | 2023                               | Lancaster City Council                                                                                |                                                                                                       |                  |                           | Completed      | Reduced ammonia emissions (which lead to particulate matter formation in the atmosphere).                                                       |                                                                                                                            | In 2021 a letter was sent to all farms within the district advising on best practice to minimise air quality impacts and odour associated with manure/slurry spreading and use of fertilisers. A further letter was sent in 2023 providing similar advice and details of organisations who offer assistance and national grant schemes available to help farmers reduce emissions.                                                                                                                                                  |                                                                                                                                      |
| 57          | New schools associated with new housing development              | Policy Guidance and Development Control | Other policy                                                                      |                                 |                                    |                                                                                                       |                                                                                                       |                  | £1 million - £10 million  | Planning       | School provision will reduce the need for additional trips for school travel.                                                                   | Schools provided with major developments                                                                                   | The Local Plan contains the requirement for a series of new schools to meet future demand generated by new housing growth. Schools would be delivered in part through new development but also through funding via the Education Authority.                                                                                                                                                                                                                                                                                         | As yet, none of the strategic sites identified have sufficiently advanced to see the delivery of new school provision.               |
| 58          | Lune Valley Cycle Path (Greenway)                                | Transport Planning and                  | Cycle network                                                                     | 2023                            |                                    | Sustrans, Lancashire County Council,                                                                  | Department for Transport                                                                              | Partially Funded |                           | Planning       | Reduced traffic emissions through promoting active travel.                                                                                      | Greenway extended.                                                                                                         | Upgrades to existing section of Greenway between Caton and Bull Beck Picnic Site. Family Fun Day hosted Feb 2024 to showcase                                                                                                                                                                                                                                                                                                                                                                                                        | More information and updates: <a href="https://storymaps.arcgis.com/">https://storymaps.arcgis.com/</a>                              |

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|             | Improvements and Extension                                                            | Infrastructure                        |                                                                                                                                                                               |                                 |                                    | Lancaster City Council                                   |                          |                |                           |                |                                                                                                                                                                                                   |                                                                                      | improvements at Bull Beck. Exploring feasibility and funding options to extend the Lune Valley Greenway to Hornby, Wray, Wennington, and Kirkby Lonsdale.                                                                                      | stories/b17198f215ac4fbb9efc15d8a61a5429                                                                                                                                                                                                                               |
| 59          | Bus Service Improvement Plan                                                          | Transport Planning and Infrastructure | Bus route improvements                                                                                                                                                        | 2021                            |                                    | Lancashire County Council                                | Department for Transport | Funded         | > £10 million             | Implementation | Reduced traffic emissions by promoting bus travel over private car use.                                                                                                                           |                                                                                      | Reduced fare offers, enhanced bus services, bus priority schemes.                                                                                                                                                                              | More info: <a href="https://www.lancashire.gov.uk/council/strategies-policies-plans/roads-parking-and-travel/bus-service-improvement-plan/">https://www.lancashire.gov.uk/council/strategies-policies-plans/roads-parking-and-travel/bus-service-improvement-plan/</a> |
| 60          | Sandylands Project - Safer, greener, and healthier streets scheme                     | Traffic Management                    | Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane | 2021                            |                                    | Lancashire County Council                                | Active Travel Fund       | Funded         |                           | Planning       | General reduction in traffic related emissions due to measures aimed at reducing volume and speed of traffic and rat running. Improved crossings, enhanced street environment, and cycle parking. |                                                                                      | Autumn 2022 - traffic surveys. Early 2024 - public engagement with residents and production of co-discovery report. June 2024 - co-design workshop for local people and engagement survey currently open. Summer 2024 - scheme implementation. | More information: <a href="https://www.lancashire.gov.uk/roads-parking-and-travel/active-travel/sandylands/">https://www.lancashire.gov.uk/roads-parking-and-travel/active-travel/sandylands/</a>                                                                      |
| 61          | MSc Research Project with Lancaster University Environment Centre – Using Zephyr data | Other                                 | Other                                                                                                                                                                         | 2023                            | 2024                               | Lancaster City Council, Lancaster University, EarthSense | N/A                      |                |                           | Completed      |                                                                                                                                                                                                   | Research project exploring spatial-temporal patterns in air quality across Lancaster | Dissertation completed and received from Lancaster University. Report shows NO <sub>2</sub> trends are traffic related whilst PM <sub>2.5</sub> trends are most likely associated with domestic burning.                                       |                                                                                                                                                                                                                                                                        |

## 2.3 PM<sub>2.5</sub> – Local Authority Approach to Reducing Emissions and/or Concentrations

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy<sup>5</sup>, local authorities are expected to work towards reducing emissions and/or concentrations of fine particulate matter (PM<sub>2.5</sub>). There is clear evidence that PM<sub>2.5</sub> (particulate matter smaller than 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

The Public Health Outcomes Framework data tool<sup>6</sup> compiled by Public Health England quantifies the mortality burden of PM<sub>2.5</sub> within England on a country and local authority scale. The fraction of mortality attributable to PM<sub>2.5</sub> in Lancaster (4.0%) is lower than that seen across the region (4.9%) and the England average (5.3%). As is the case for NO<sub>2</sub> emissions, traffic emissions are also the primary source of anthropogenic particulates (both PM<sub>10</sub> and PM<sub>2.5</sub>) emissions within Lancaster. As such, the implementation of the transport measures within the Air Quality Action Plan should help reduce the concentration of PM<sub>2.5</sub>.

Lancaster City Council is taking the following measures to address PM<sub>2.5</sub>:

- Automatic monitoring of PM<sub>2.5</sub> is carried out at one location within the local authority, at Cable Street. This is a roadside site located near to the city centre bus station. In 2024, an annual mean concentration of 10.4 µg/m<sup>3</sup> was recorded. However, the data capture of PM<sub>2.5</sub> at the site is less than 25% for 2025. Therefore, the recorded annual mean cannot be directly compared to the Environmental Targets Regulations<sup>7</sup> of 10 µg/m<sup>3</sup>.
- Additionally, monitoring was undertaken at nine Zephyr monitors located in suburban areas and alongside quieter roads. The annual mean results are presented in Appendix C, Figure C.4. Across the network, all sites recorded annual mean concentrations below the 10 µg/m<sup>3</sup> target. The Zephyr sensors project has

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<sup>5</sup> Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

<sup>6</sup> [Public Health Outcomes Framework | Fingertips | Department of Health and Social Care](#)

<sup>7</sup> [The Environmental Targets \(Fine Particulate Matter\) \(England\) Regulations 2022](#)

been funded by the Defra Air Quality Grant which aims to increase public awareness of air pollution and the local air quality impacts of solid fuel burning..

- A Zephyr monitor has recently been located within the city centre, at Dalton Square

## **Lancashire County Council**

Lancashire County Council work closely with the member district councils to act on reducing the health impacts of air pollution. Within the County Council's '[Environment and Climate Strategy 2023-2025](#)', improving air quality is a key objective.

The County Council's responsibilities include transport planning, network management, highway maintenance, public health and procuring local vehicle fleets. One of the strategies in place which has a positive impact on air pollution is the Lancashire cycling and walking strategy, [Actively Moving Forwards](#). This encourages the use of sustainable forms of travel through an ambitious plan to increase the number of people walking and cycling in the county by 2028. This initiative aims to increase the uptake of active travel through improvements to infrastructure and opportunities to take part in training and activities such as Bikeability and Local Cycling Groups. Further information about the ongoing activities can be found on the [Active Travel In Lancashire website](#).

In conjunction with Lancashire's cycling and walking strategy, there are seven supplementary documents for [Local Cycling and Walking Infrastructure Plans \(LCWIPs\)](#).

The County Council also have a [Bus Service Improvement Plan](#) in place which hopes to encourage increased usage through improving reliability, frequency and affordability.

Lancashire County Council provide further education material on the sources and health impacts of air pollution on their pages, [Summary of Emissions Data](#) and [Monitoring of Air Quality and Health Impacts](#). Findings in 2022 show that Lancaster had the lowest average concentration of NO<sub>x</sub> at 3.82 µg/m<sup>3</sup> and is the only authority in Lancashire that did not exceed WHO guidelines for background concentrations for PM<sub>2.5</sub> (<5 µg/m<sup>3</sup>).

## **Smoke Control**

Lancaster City Council have declared eight smoke control areas which cover the majority of Lancaster. Information regarding the location of the areas, the exempt appliances, and the fining process is available on [the Council website](#).

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

This section sets out the monitoring undertaken within 2025 by Lancaster City Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2021 and 2025 to allow monitoring trends to be identified and discussed.

### 3.1 Summary of Monitoring Undertaken

#### 3.1.1 Automatic Monitoring Sites

Lancaster City Council undertook automatic (continuous) monitoring at one site during 2025. Table A.1 in Appendix A shows the details of the automatic monitoring sites. The [UK Air Quality](#) page presents automatic monitoring results for Lancaster Cable Street, with automatic monitoring information also available through the [UK-Air website - locally-managed automatic monitoring](#).

Maps showing the location of the monitoring site 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

Lancaster City Council undertook non-automatic (i.e. passive) monitoring of NO<sub>2</sub> at 31 sites during 2025. Table A.2 in Appendix A presents the details of the non-automatic sites.

Maps showing the locations 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<sub>2</sub>)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO<sub>2</sub> annual mean concentrations for the past five years with the air quality objective of 40µg/m<sup>3</sup>. 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).

In 2025, the annual mean NO<sub>2</sub> concentration recorded at Lancaster Cable Street (Urban Traffic) automatic monitoring site was 25.7 µg/m<sup>3</sup>, therefore well below the objective of 40 µg/m<sup>3</sup> and recording the lowest annual mean concentration over the past five years.

For diffusion tubes, the full 2025 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<sub>2</sub> hourly mean concentrations for the past five years with the air quality objective of 200µg/m<sup>3</sup>, not to be exceeded more than 18 times per year. There were no exceedances of the NO<sub>2</sub> 1-hour mean objective as has been the case for over ten years. The last recorded 1-hour mean concentration over 200 µg/m<sup>3</sup> occurred in December 2014.

During 2025, the average NO<sub>2</sub> annual mean concentration across the entire diffusion tube network was 23.3 µg/m<sup>3</sup>, with the lowest concentration of 9.3 µg/m<sup>3</sup> recorded at LC4 (Brunton Road) and the maximum being 38.0µg/m<sup>3</sup> at LC10 (Dalton Square) after fall off with distance correction. This continues the trend at this location of recording the highest mean concentration for the past five years. In 2025, two sites recorded annual mean NO<sub>2</sub> concentrations within 10% of the objective of 40 µg/m<sup>3</sup>; Site LC10 (38.0 µg/m<sup>3</sup>) and LC11 (36.2 µg/m<sup>3</sup>), after fall off with distance correction. The concentration at Site LC11 (Thurnham Street) has decreased slightly in comparison to 2024 (36.6 µg/m<sup>3</sup>). Both sites, LC10 and LC11, are located within the City of Lancaster AQMA.

The concentrations recorded at each site for 2024 and 2025 are presented and compared in Table 3.1. Across the network, eight sites recorded an increased in annual mean NO<sub>2</sub> concentration between 2024 and 2025, 21 sites experiencing a reduction in concentration

and the concentration remained unchanged at one site. LC19 recorded the largest decrease of 7.3  $\mu\text{g}/\text{m}^3$  between 2024 and 2025, while LC20 recorded the largest increase of 6.6  $\mu\text{g}/\text{m}^3$ . The two monitoring locations are both at China Street within the City of Lancaster AQMA and opposite to each other. The second largest increase was recorded at LC31 with an increase of 5.2  $\mu\text{g}/\text{m}^3$ . LC31 is located at 3 St Leonards Gate and outside the AQMA. All concentrations remained below the annual mean Air Quality Objective of 40  $\mu\text{g}/\text{m}^3$ .

**Table 3.1– Changes in Nitrogen Dioxide Levels at Non-Automatic Monitoring Sites Between 2024 – 2025.**

| Diffusion Tube ID | 2024 NO <sub>2</sub> Monitoring Result ( $\mu\text{g}/\text{m}^3$ ) | 2025 NO <sub>2</sub> Monitoring Result ( $\mu\text{g}/\text{m}^3$ ) | Difference ( $\mu\text{g}/\text{m}^3$ ) |
|-------------------|---------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------|
| LC1               | 31.4                                                                | 30.8                                                                | -0.6                                    |
| LC4               | 10                                                                  | 9.3                                                                 | -0.7                                    |
| LC5               | 23.1                                                                | 23.4                                                                | 0.3                                     |
| LC9               | 20.5                                                                | 19.4                                                                | -1.1                                    |
| LC10              | 40.8                                                                | 38.4                                                                | -2.4                                    |
| LC11              | 37.1                                                                | 36.7                                                                | -0.4                                    |
| LC13              | 24.4                                                                | 22.9                                                                | -1.5                                    |
| LC14              | 19.8                                                                | 19.9                                                                | 0.1                                     |
| A                 | 17.5                                                                | 17.2                                                                | -0.3                                    |
| C1, D1, E1        | 27.2                                                                | 26.0                                                                | -1.2                                    |
| H                 | 20.8                                                                | 20.5                                                                | -0.3                                    |
| I                 | 24.4                                                                | 24.1                                                                | -0.3                                    |
| J                 | 29.9                                                                | 28.9                                                                | -1.0                                    |
| K                 | 26.6                                                                | 25.8                                                                | -0.8                                    |
| L                 | 25.8                                                                | 24.2                                                                | -1.6                                    |
| cfO               | 27                                                                  | 25.2                                                                | -1.8                                    |
| V                 | 22.6                                                                | 20.9                                                                | -1.7                                    |
| Z                 | 22.1                                                                | 22.2                                                                | 0.1                                     |
| ZC                | 20.6                                                                | 20.6                                                                | 0.0                                     |
| CF2               | 24                                                                  | 23.4                                                                | -0.6                                    |
| CF5               | 21.6                                                                | 21.4                                                                | -0.2                                    |
| T1                | 18.3                                                                | 18.4                                                                | 0.1                                     |
| LC19              | 35.5                                                                | 28.2                                                                | -7.3                                    |
| LC20              | 27.6                                                                | 34.2                                                                | 6.6                                     |
| LC26              | 17.2                                                                | 15.5                                                                | -1.7                                    |

|      |      |      |      |
|------|------|------|------|
| BLS1 | 16   | 15.9 | -0.1 |
| H1   | 15.1 | 15.6 | 0.5  |
| LC31 | 20.8 | 26.0 | 5.2  |
| LC32 | 29.6 | 30.3 | 0.7  |
| MC4  | 21.6 | 20.4 | -1.2 |
| LC35 | -    | 17.7 | -    |

### 3.2.2 Particulate Matter (PM<sub>10</sub>)

Table A.6 in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM<sub>10</sub> annual mean concentrations for the past five years with the air quality objective of 40µg/m<sup>3</sup>.

Table A.7 in Appendix A compares the ratified continuous monitored PM<sub>10</sub> daily mean concentrations for the past five years with the air quality objective of 50µg/m<sup>3</sup>, not to be exceeded more than 35 times per year.

In 2025, the annual mean PM<sub>10</sub> concentration recorded at Lancaster Cable Street was 17.8 µg/m<sup>3</sup> which is higher than the 2024 annual average. However, the data capture of PM<sub>10</sub> at Lancaster Cable Street was below 25% and therefore cannot be annualised for the annual mean concentration in accordance with LAQM.TG(22). As the data capture is less than 25%, the monitoring results are therefore not representative and not comparable to the relevant objectives.

### 3.2.3 Particulate Matter (PM<sub>2.5</sub>)

Table A.8 in Appendix A presents the ratified and adjusted monitored PM<sub>2.5</sub> annual mean concentrations for the past five years.

The 2025 annual mean concentration recorded at Cable Street automatic monitoring station was 10.4 µg/m<sup>3</sup> which is higher than the 2024 annual average. However, the data capture of PM<sub>2.5</sub> at Lancaster Cable Street was below 25% and therefore cannot be annualised for the annual mean concentration. As the data capture is less than 25%, the monitoring results are therefore not representative and not comparable to the relevant objectives.

## 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? <sup>(1)</sup> | Monitoring Technique                     | Distance to Relevant Exposure (m) <sup>(1,2)</sup> | Distance to kerb of nearest road (m) <sup>(1)</sup> | Inlet Height (m) |
|---------|--------------|-----------|-------------------------|--------------------------|--------------------------------------------------------|----------|----------------------------|------------------------------------------|----------------------------------------------------|-----------------------------------------------------|------------------|
| A1      | Cable Street | Roadside  | 347684                  | 461963                   | NO <sub>2</sub> , PM <sub>10</sub> , PM <sub>2.5</sub> | Yes      | City of Lancaster          | APNA-370 NO <sub>x</sub> analyser, FIDAS | 0.4                                                | 4.0                                                 | 2.0              |

**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 ID | 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) <sup>(1)</sup> | Distance to kerb of nearest road (m) <sup>(2)</sup> | Tube Co-located with a Continuous Analyser? | Tube Height (m) |
|-------------------|-----------------------------|------------------|-------------------------|--------------------------|----------------------|----------------------|--------------------------------------------------|-----------------------------------------------------|---------------------------------------------|-----------------|
| LC1               | Great John Street           | Roadside         | 347852                  | 461682                   | NO <sub>2</sub>      | City of Lancaster    | 2.5                                              | 2.5                                                 | No                                          | 3.5             |
| LC4               | Brunton Road                | Urban Background | 347904                  | 460508                   | NO <sub>2</sub>      | No                   | 0.2                                              | 1.5                                                 | No                                          | 3.5             |
| LC5               | Owen Road                   | Roadside         | 347846                  | 462448                   | NO <sub>2</sub>      | City of Lancaster    | 0.2                                              | 2.5                                                 | No                                          | 3.0             |
| LC9               | Brock Street 1              | Roadside         | 347808                  | 461564                   | NO <sub>2</sub>      | City of Lancaster    | 0.2                                              | 2.7                                                 | No                                          | 3.0             |
| LC10              | Dalton Square               | Roadside         | 347834                  | 461596                   | NO <sub>2</sub>      | City of Lancaster    | 0.2                                              | 3.3                                                 | No                                          | 3.0             |
| LC11              | Thurnham Street             | Roadside         | 347821                  | 461404                   | NO <sub>2</sub>      | City of Lancaster    | 0.2                                              | 3.1                                                 | No                                          | 3.0             |
| LC13              | King Street 1               | Roadside         | 347580                  | 461593                   | NO <sub>2</sub>      | City of Lancaster    | 0.2                                              | 2.4                                                 | No                                          | 3.0             |
| LC14              | King Street 2               | Roadside         | 347685                  | 461389                   | NO <sub>2</sub>      | City of Lancaster    | 0.2                                              | 2.2                                                 | No                                          | 3.0             |
| A                 | High School, Morecambe Road | Kerbside         | 347582                  | 462451                   | NO <sub>2</sub>      | City of Lancaster    | N/A                                              | 0.3                                                 | No                                          | 3.0             |
| C1, D1, E1        | Cable Street, Lancaster     | Roadside         | 347685                  | 461963                   | NO <sub>2</sub>      | City of Lancaster    | 2.0                                              | 3.7                                                 | Yes                                         | 2.0             |
| H                 | South Road 1                | Roadside         | 347859                  | 461126                   | NO <sub>2</sub>      | No                   | 0.2                                              | 9.0                                                 | No                                          | 3.0             |
| I                 | Parliament Street           | Roadside         | 347909                  | 462015                   | NO <sub>2</sub>      | City of Lancaster    | 0.2                                              | 3.5                                                 | No                                          | 3.0             |
| J                 | North Road                  | Roadside         | 347852                  | 461909                   | NO <sub>2</sub>      | City of Lancaster    | 0.2                                              | 1.9                                                 | No                                          | 3.0             |
| K                 | Stonewell                   | Roadside         | 347850                  | 461791                   | NO <sub>2</sub>      | City of Lancaster    | 0.2                                              | 4.4                                                 | No                                          | 3.0             |
| L                 | King Street                 | Roadside         | 347613                  | 461523                   | NO <sub>2</sub>      | City of Lancaster    | 0.2                                              | 1.5                                                 | No                                          | 2.5             |
| CFO               | Market Street               | Roadside         | 349909                  | 470624                   | NO <sub>2</sub>      | No                   | 0.2                                              | 1.4                                                 | No                                          | 3.0             |
| V                 | Main Road                   | Roadside         | 348359                  | 455352                   | NO <sub>2</sub>      | No                   | 0.2                                              | 1.6                                                 | No                                          | 3.0             |
| Z                 | Main Road                   | Roadside         | 348345                  | 455272                   | NO <sub>2</sub>      | No                   | 0.2                                              | 2.3                                                 | No                                          | 2.5             |
| ZC                | Main Road                   | Roadside         | 348375                  | 455393                   | NO <sub>2</sub>      | No                   | 0.4                                              | 2.3                                                 | No                                          | 3.0             |

| Diffusion Tube ID | 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) <sup>(1)</sup> | Distance to kerb of nearest road (m) <sup>(2)</sup> | Tube Co-located with a Continuous Analyser? | Tube Height (m) |
|-------------------|-----------------------------------------------|-----------|-------------------------|--------------------------|----------------------|----------------------|--------------------------------------------------|-----------------------------------------------------|---------------------------------------------|-----------------|
| CF2               | Lancaster Road/Market Street                  | Roadside  | 349934                  | 470605                   | NO <sub>2</sub>      | No                   | 0.2                                              | 2.3                                                 | No                                          | 3.5             |
| CF5               | Scotland Road                                 | Roadside  | 349962                  | 470618                   | NO <sub>2</sub>      | No                   | 0.2                                              | 1.8                                                 | No                                          | 3.0             |
| T1                | Lancaster Road Torrisholme                    | Roadside  | 345631                  | 463694                   | NO <sub>2</sub>      | No                   | 0.2                                              | 2.4                                                 | No                                          | 3.5             |
| LC19              | China Street 1                                | Roadside  | 347502                  | 461841                   | NO <sub>2</sub>      | City of Lancaster    | 0.4                                              | 1.5                                                 | No                                          | 3.0             |
| LC20              | China Street 2                                | Roadside  | 347515                  | 461835                   | NO <sub>2</sub>      | City of Lancaster    | 0.2                                              | 1.5                                                 | No                                          | 3.0             |
| LC26              | Scotforth Road 2, Scotforth (No.100 Resid.)   | Roadside  | 347990                  | 459418                   | NO <sub>2</sub>      | No                   | 0.2                                              | 5.5                                                 | No                                          | 3.0             |
| BLS1              | Main Road, Bolton Le Sands (11A Resid)        | Roadside  | 348594                  | 468500                   | NO <sub>2</sub>      | No                   | 0.2                                              | 4.0                                                 | No                                          | 3.0             |
| H1                | Heysham Road, Heysham (109 Resid - downspout) | Roadside  | 341964                  | 463273                   | NO <sub>2</sub>      | No                   | 0.2                                              | 2.5                                                 | No                                          | 2.5             |
| LC31              | 3 St Leonards Gate Lancaster                  | Roadside  | 348114                  | 462071                   | NO <sub>2</sub>      | No                   | 0.4                                              | 3.0                                                 | No                                          | 3.0             |
| LC32              | The Pub, China Street, Lancaster              | Roadside  | 347511                  | 461744                   | NO <sub>2</sub>      | City of Lancaster    | 0.2                                              | 2.0                                                 | No                                          | 3.5             |
| MC4               | Shrimp Roundabout Morecambe                   | Kerbside  | 345240                  | 463663                   | NO <sub>2</sub>      | No                   | 20                                               | 1.0                                                 | No                                          | 3.0             |
| LC35              | Caton Road                                    | Roadside  | 348058                  | 462118                   | NO <sub>2</sub>      | City of Lancaster    | 3.0                                              | 1.8                                                 | No                                          | 2.8             |

**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<sub>2</sub> Monitoring Results: Automatic Monitoring (µg/m<sup>3</sup>)**

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) <sup>(1)</sup> | Valid Data Capture 2025 (%) <sup>(2)</sup> | 2021 | 2022 | 2023 | 2024 | 2025 |
|---------|-------------------------|--------------------------|-----------|-------------------------------------------------------------|--------------------------------------------|------|------|------|------|------|
| A1      | 347684                  | 461963                   | Roadside  | 88.0                                                        | 88.0                                       | 32.1 | 27.4 | 26.6 | 26.0 | 25.7 |

☒ 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<sub>2</sub> 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 2025.

**Notes:**

The annual mean concentrations are presented as µg/m<sup>3</sup>.

Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> 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<sub>2</sub> Monitoring Results: Non-Automatic Monitoring (µg/m<sup>3</sup>)**

| Diffusion Tube ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type        | Valid Data Capture for Monitoring Period (%) <sup>(1)</sup> | Valid Data Capture 2025 (%) <sup>(2)</sup> | 2021        | 2022        | 2023 | 2024        | 2025 |
|-------------------|-------------------------|--------------------------|------------------|-------------------------------------------------------------|--------------------------------------------|-------------|-------------|------|-------------|------|
| LC1               | 347852                  | 461682                   | Roadside         | 99.7                                                        | 99.7                                       | 37.8        | 35.7        | 31.4 | 31.4        | 30.8 |
| LC4               | 347904                  | 460508                   | Urban Background | 99.7                                                        | 99.7                                       | 12.2        | 9.9         | 9.2  | 10.0        | 9.3  |
| LC5               | 347846                  | 462448                   | Roadside         | 80.8                                                        | 80.8                                       | 28.7        | 23.9        | 22.6 | 23.1        | 23.4 |
| LC9               | 347808                  | 461564                   | Roadside         | 90.1                                                        | 90.1                                       | 23.9        | 23.1        | 20.0 | 20.5        | 19.4 |
| LC10              | 347834                  | 461596                   | Roadside         | 99.7                                                        | 99.7                                       | <b>48.3</b> | <b>47.0</b> | 39.2 | <b>40.8</b> | 38.4 |
| LC11              | 347821                  | 461404                   | Roadside         | 99.7                                                        | 99.7                                       | <b>43.3</b> | <b>40.9</b> | 36.8 | 37.1        | 36.7 |
| LC13              | 347580                  | 461593                   | Roadside         | 90.1                                                        | 90.1                                       | 26.8        | 27.2        | 24.5 | 24.4        | 22.9 |
| LC14              | 347685                  | 461389                   | Roadside         | 90.1                                                        | 90.1                                       | 29.4        | 24.8        | 21.3 | 19.8        | 19.9 |
| A                 | 347582                  | 462451                   | Kerbside         | 99.7                                                        | 99.7                                       | 21.7        | 18.6        | 19.1 | 17.5        | 17.2 |
| C1, D1, E1        | 347685                  | 461963                   | Roadside         | 99.7                                                        | 99.7                                       | 32.4        | 28.2        | 27.1 | 27.2        | 26.0 |
| H                 | 347859                  | 461126                   | Roadside         | 99.7                                                        | 99.7                                       | 24.8        | 22.9        | 20.6 | 20.8        | 20.5 |
| I                 | 347909                  | 462015                   | Roadside         | 99.7                                                        | 99.7                                       | 27.4        | 25.4        | 23.5 | 24.4        | 24.1 |
| J                 | 347852                  | 461909                   | Roadside         | 99.7                                                        | 99.7                                       | 34.8        | 32.6        | 28.6 | 29.9        | 28.9 |
| K                 | 347850                  | 461791                   | Roadside         | 99.7                                                        | 99.7                                       | 30.7        | 28.9        | 26.6 | 26.6        | 25.8 |
| L                 | 347613                  | 461523                   | Roadside         | 90.1                                                        | 90.1                                       | 29.4        | 27.4        | 24.8 | 25.8        | 24.2 |
| CFO               | 349909                  | 470624                   | Roadside         | 99.7                                                        | 99.7                                       | 28.3        | 28.8        | 24.7 | 27.0        | 25.2 |
| V                 | 348359                  | 455352                   | Roadside         | 99.7                                                        | 99.7                                       | 27.2        | 24.8        | 22.3 | 22.6        | 20.9 |
| Z                 | 348345                  | 455272                   | Roadside         | 99.7                                                        | 99.7                                       | 24.7        | 24.1        | 21.0 | 22.1        | 22.2 |
| ZC                | 348375                  | 455393                   | Roadside         | 99.7                                                        | 99.7                                       | 23.5        | 21.8        | 20.8 | 20.6        | 20.6 |
| CF2               | 349934                  | 470605                   | Roadside         | 78.6                                                        | 78.6                                       | 22.5        | 24.6        | 22.7 | 24.0        | 23.4 |
| CF5               | 349962                  | 470618                   | Roadside         | 99.7                                                        | 99.7                                       | 25.2        | 23.9        | 20.9 | 21.6        | 21.4 |
| T1                | 345631                  | 463694                   | Roadside         | 99.7                                                        | 99.7                                       | 21.1        | 17.6        | 18.2 | 18.3        | 18.4 |
| LC19              | 347502                  | 461841                   | Roadside         | 99.7                                                        | 99.7                                       | <b>42.5</b> | 39.4        | 33.2 | 35.5        | 28.2 |
| LC20              | 347515                  | 461835                   | Roadside         | 99.7                                                        | 99.7                                       | 32.7        | 30.9        | 27.4 | 27.6        | 34.2 |
| LC26              | 347990                  | 459418                   | Roadside         | 99.7                                                        | 99.7                                       | 23.0        | 20.9        | 18.1 | 17.2        | 15.5 |
| BLS1              | 348594                  | 468500                   | Roadside         | 99.7                                                        | 99.7                                       | 19.7        | 17.3        | 15.9 | 16.0        | 15.9 |
| H1                | 341964                  | 463273                   | Roadside         | 99.7                                                        | 99.7                                       | 16.9        | 15.1        | 14.5 | 15.1        | 15.6 |
| LC31              | 348114                  | 462071                   | Roadside         | 90.4                                                        | 90.4                                       | 27.3        | 22.3        | 19.9 | 20.8        | 26.0 |
| LC32              | 341964                  | 463273                   | Roadside         | 99.7                                                        | 99.7                                       | -           | 29.1        | 29.5 | 29.6        | 15.6 |
| MC4               | 345240                  | 463663                   | Kerbside         | 99.7                                                        | 99.7                                       | 25.4        | 20.7        | 20.8 | 21.6        | 20.4 |
| LC35              | 348058                  | 462118                   | Roadside         | 99.7                                                        | 99.7                                       | -           | -           | -    | -           | 17.7 |

☒ 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  $\mu\text{g}/\text{m}^3$ .

Exceedances of the  $\text{NO}_2$  annual mean objective of  $40\mu\text{g}/\text{m}^3$  are shown in **bold**.

$\text{NO}_2$  annual means exceeding  $60\mu\text{g}/\text{m}^3$ , indicating a potential exceedance of the  $\text{NO}_2$  1-hour mean objective are shown in **bold and underlined**.

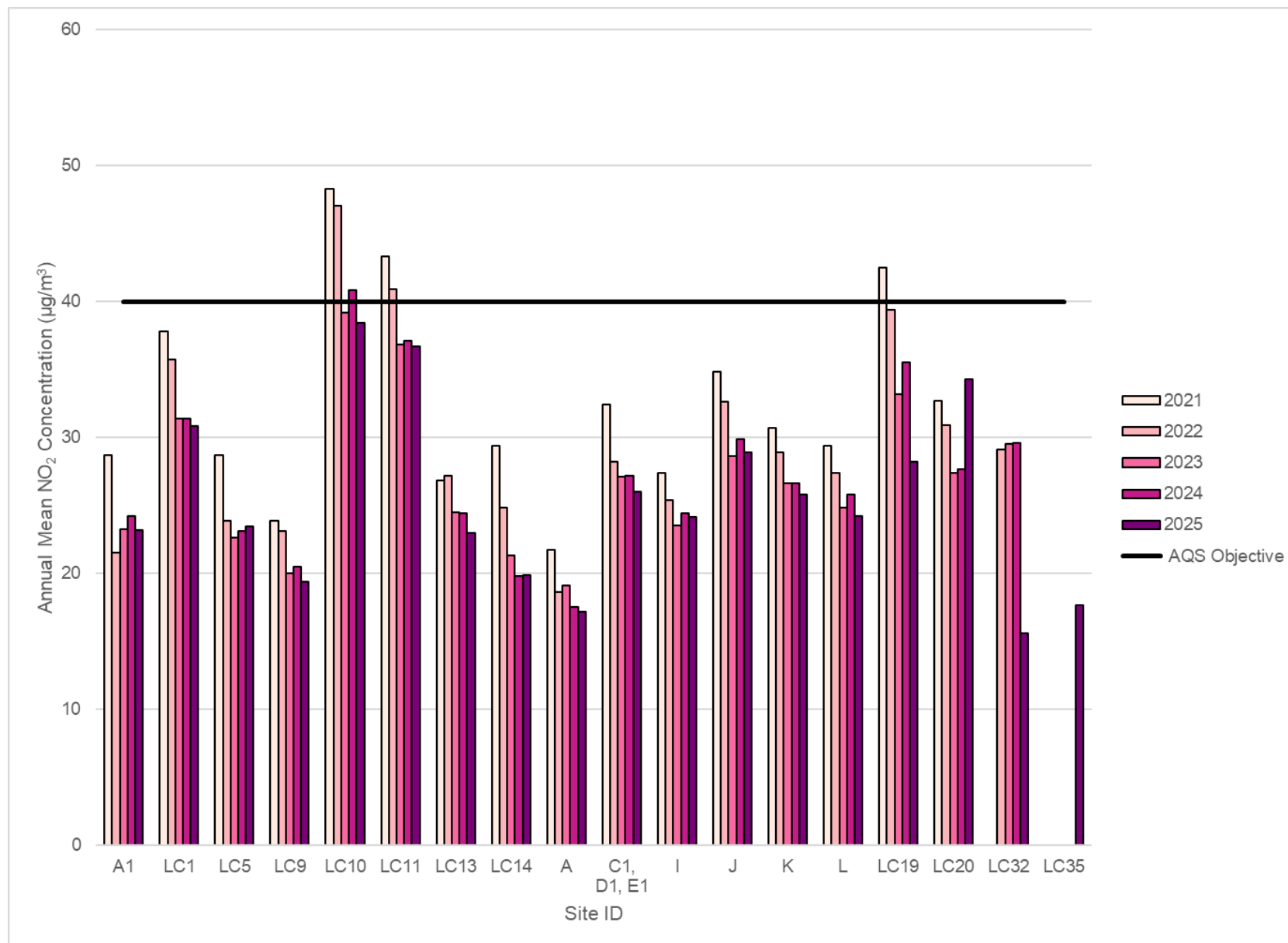
Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

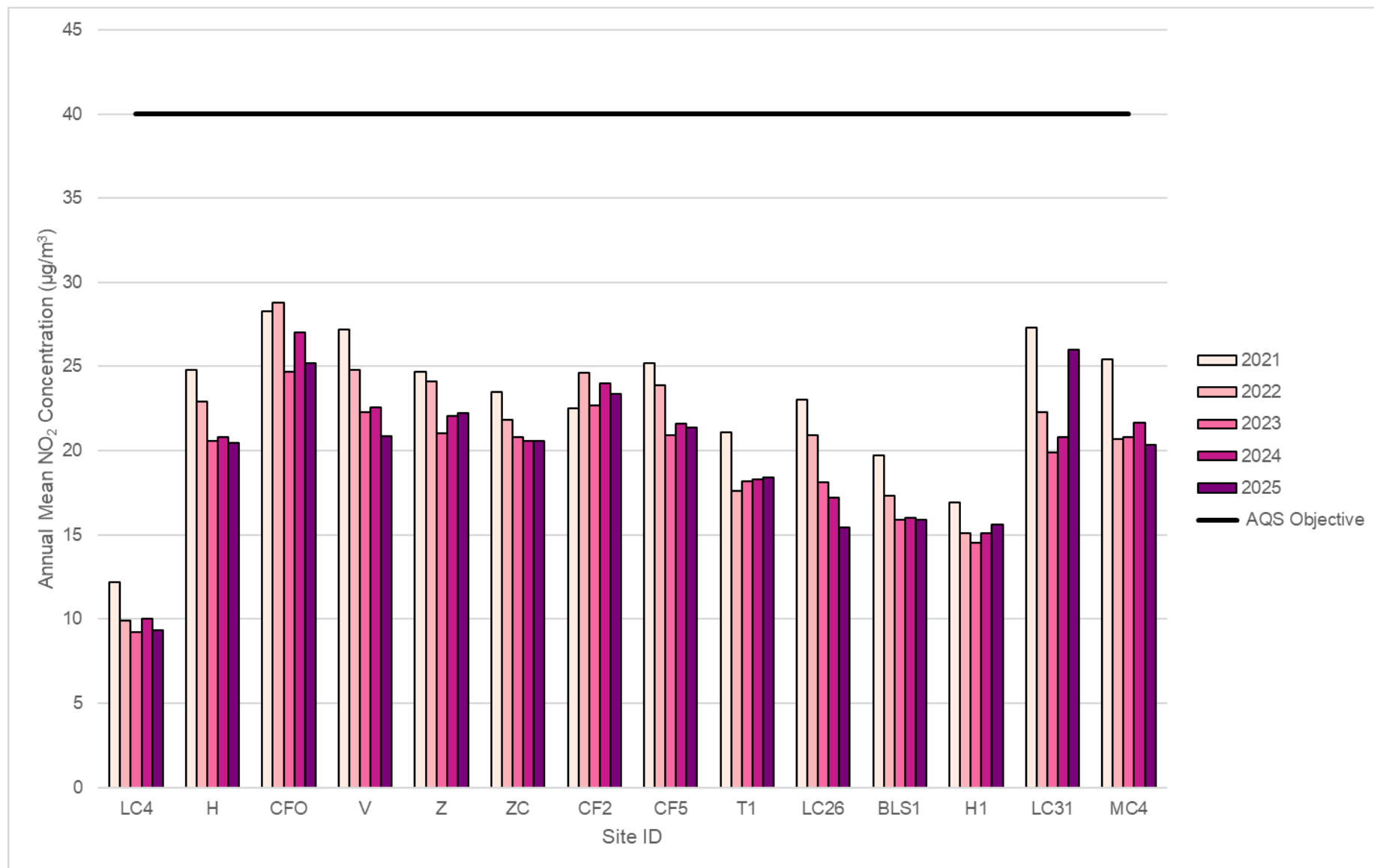
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(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 – Trends in Annual Mean NO<sub>2</sub> Concentrations – City of Lancaster AQMA**



**Figure A.2 – Trends in Annual Mean NO<sub>2</sub> Concentrations – outside of AQMA**



**Table A.5 – 1-Hour Mean NO<sub>2</sub> Monitoring Results, Number of 1-Hour Means > 200µg/m<sup>3</sup>**

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) <sup>(1)</sup> | Valid Data Capture 2025 (%) <sup>(2)</sup> | 2021 | 2022 | 2023 | 2024   | 2025 |
|---------|-------------------------|--------------------------|-----------|-------------------------------------------------------------|--------------------------------------------|------|------|------|--------|------|
| A1      | 347684                  | 461963                   | Roadside  | 88.0                                                        | 88.0                                       | 0    | 0    | 0    | 0 (83) | 0    |

**Notes:**

Results are presented as the number of 1-hour periods where concentrations greater than 200µg/m<sup>3</sup> have been recorded.

Exceedances of the NO<sub>2</sub> 1-hour mean objective (200µg/m<sup>3</sup> 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<sub>10</sub> Monitoring Results (µg/m<sup>3</sup>)**

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) <sup>(1)</sup> | Valid Data Capture 2025 (%) <sup>(2)</sup> | 2021 | 2022 | 2023 | 2024 | 2025 |
|---------|-------------------------|--------------------------|-----------|-------------------------------------------------------------|--------------------------------------------|------|------|------|------|------|
| A1      | 347684                  | 461963                   | Roadside  | 59.7                                                        | 19.2                                       | 16.5 | 14.6 | 14.4 | 13.4 | 17.8 |

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

\*As the data capture is less than 25%, the monitoring results are therefore not representative and not comparable to the relevant objectives.

#### **Notes:**

The annual mean concentrations are presented as µg/m<sup>3</sup>.

Exceedances of the PM<sub>10</sub> annual mean objective of 40µg/m<sup>3</sup> 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%).



**Table A.7 – 24-Hour Mean PM<sub>10</sub> Monitoring Results, Number of PM<sub>10</sub> 24-Hour Means > 50µg/m<sup>3</sup>**

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) <sup>(1)</sup> | Valid Data Capture 2025 (%) <sup>(2)</sup> | 2021 | 2022 | 2023 | 2024   | 2025   |
|---------|-------------------------|--------------------------|-----------|-------------------------------------------------------------|--------------------------------------------|------|------|------|--------|--------|
| A1      | 347684                  | 461963                   | Roadside  | 59.7                                                        | 19.2                                       | 2    | 4    | 0    | 0 (24) | 0 (34) |

\*As the data capture is less than 25%, the monitoring results are therefore not representative and not comparable to the relevant objectives.

**Notes:**

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m<sup>3</sup> have been recorded.

Exceedances of the PM<sub>10</sub> 24-hour mean objective (50µg/m<sup>3</sup> 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<sub>2.5</sub> Monitoring Results (µg/m<sup>3</sup>)**

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) <sup>(1)</sup> | Valid Data Capture 2025 (%) <sup>(2)</sup> | 2021 | 2022 | 2023 | 2024 | 2025 |
|---------|-------------------------|--------------------------|-----------|-------------------------------------------------------------|--------------------------------------------|------|------|------|------|------|
| A1      | 347684                  | 461963                   | Roadside  | 59.7                                                        | 19.2                                       | 7.7  | 7.9  | 7.0  | 7.1  | 10.4 |

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

\*As the data capture is less than 25%, the monitoring results are therefore not representative and not comparable to the relevant objectives.**Notes:**

The annual mean concentrations are presented as µg/m<sup>3</sup>.

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%).

## Appendix B: Full Monthly Diffusion Tube Results for 2025

**Table B.1 – NO<sub>2</sub> 2025 Diffusion Tube Results (µg/m<sup>3</sup>)**

| 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 <(x.x)> | Annual Mean: Distance Corrected to Nearest Exposure | Comment                                                               |
|-------|-------------------------|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|-----------------------|---------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------------|
| LC1   | 347852                  | 461682                   | 37.4 | 44.9 | 33.9 | 45.2 | 29.0 | 31.2 | 28.1 | 29.1 | 36.8 | 30.4 | 42.9 | 37.5 | 34.7                  | 30.8                                              |                                                     |                                                                       |
| LC4   | 347904                  | 460508                   | 18.6 | 12.2 | 11.4 | 8.6  | 5.8  | 5.6  | 6.4  | 6.5  | 9.5  | 9.4  | 15.9 | 14.3 | 10.5                  | 9.3                                               |                                                     |                                                                       |
| LC5   | 347846                  | 462448                   | 29.4 | 20.5 |      | 31.9 | 24.2 | 19.3 | 22.1 | 21.8 | 24.1 | 23.5 |      | 44.1 | 26.3                  | 23.4                                              |                                                     |                                                                       |
| LC9   | 347808                  | 461564                   |      | 29.5 | 22.9 | 23.0 | 17.8 | 18.4 | 15.7 | 16.3 | 22.7 | 21.4 | 28.5 | 27.3 | 21.8                  | 19.4                                              |                                                     |                                                                       |
| LC10  | 347834                  | 461596                   | 43.1 | 47.8 | 37.5 | 54.7 | 48.5 | 44.4 | 42.0 | 42.0 | 39.8 | 43.0 | 46.8 | 38.3 | 43.2                  | 38.4                                              | 38.0                                                |                                                                       |
| LC11  | 347821                  | 461404                   | 42.8 | 42.1 | 45.0 | 50.0 | 39.2 | 42.7 | 41.0 | 37.3 | 38.1 | 40.1 | 42.9 | 37.8 | 41.2                  | 36.7                                              | 36.2                                                |                                                                       |
| LC13  | 347580                  | 461593                   | 29.7 | 35.2 | 24.9 | 31.4 | 20.8 | 27.4 | 24.4 | 24.8 | 19.4 |      | 30.8 | 21.6 | 25.8                  | 22.9                                              |                                                     |                                                                       |
| LC14  | 347685                  | 461389                   |      | 29.6 | 21.7 | 25.9 | 15.8 | 19.1 | 18.6 | 20.4 | 22.4 | 20.9 | 29.2 | 27.3 | 22.3                  | 19.9                                              |                                                     |                                                                       |
| A     | 347582                  | 462451                   | 25.1 | 20.1 | 18.6 | 19.9 | 15.3 | 17.3 | 18.3 | 16.7 | 19.6 | 19.6 | 22.7 | 19.1 | 19.3                  | 17.2                                              |                                                     |                                                                       |
| C1    | 347685                  | 461963                   | 31.6 | 27.1 | 27.8 | 35.1 | 31.0 | 25.5 | 30.0 | 27.2 | 26.3 | 29.1 | 35.2 |      | -                     | -                                                 | -                                                   | Triplicate Site with C1, D1 and E1 - Annual data provided for E1 only |
| D1    | 347685                  | 461963                   | 32.4 | 28.6 | 29.7 | 32.0 | 26.3 | 23.3 | 28.4 | 25.2 | 25.0 | 30.1 | 32.9 | 34.0 | -                     | -                                                 | -                                                   | Triplicate Site with C1, D1 and E1 - Annual data provided for E1 only |
| E1    | 347685                  | 461963                   | 31.7 | 26.5 | 32.6 | 35.2 | 29.0 | 24.6 | 28.8 | 26.7 | 26.0 | 27.1 | 26.4 | 32.2 | 29.2                  | 26.0                                              | -                                                   | Triplicate Site with C1, D1 and E1 - Annual data provided for E1 only |
| H     | 347859                  | 461126                   | 29.2 | 24.7 | 22.1 | 27.2 | 24.1 | 15.2 | 17.5 | 19.0 | 20.9 | 21.7 | 27.2 | 28.1 | 23.0                  | 20.5                                              |                                                     |                                                                       |
| I     | 347909                  | 462015                   | 32.0 | 31.8 | 26.7 | 31.3 | 22.5 | 20.2 | 23.8 | 23.2 | 25.1 | 29.4 | 32.8 | 29.7 | 27.1                  | 24.1                                              |                                                     |                                                                       |
| J     | 347852                  | 461909                   | 41.6 | 35.5 | 32.1 | 33.0 | 28.2 | 26.3 | 26.1 | 26.8 | 31.4 | 34.0 | 38.6 | 36.0 | 32.4                  | 28.9                                              |                                                     |                                                                       |
| K     | 347850                  | 461791                   | 33.0 | 36.0 | 32.1 | 38.3 | 25.1 | 23.4 | 24.1 | 23.6 | 26.5 | 28.1 | 31.3 | 31.5 | 29.0                  | 25.8                                              |                                                     |                                                                       |
| L     | 347613                  | 461523                   |      | 29.9 | 24.8 | 31.8 | 24.1 | 28.2 | 25.0 | 24.0 | 26.7 | 25.8 | 32.3 | 31.6 | 27.2                  | 24.2                                              |                                                     |                                                                       |
| CFO   | 349909                  | 470624                   | 33.2 | 32.1 | 31.3 | 31.0 | 27.0 | 27.2 | 26.5 | 25.7 | 23.9 | 27.2 | 27.9 | 27.7 | 28.3                  | 25.2                                              |                                                     |                                                                       |
| V     | 348359                  | 455352                   | 26.3 | 26.2 | 21.7 | 27.3 | 21.6 | 24.4 | 26.3 | 20.6 | 22.4 | 25.6 | 14.2 | 27.3 | 23.5                  | 20.9                                              |                                                     |                                                                       |
| Z     | 348345                  | 455272                   | 51.7 | 24.6 | 22.4 | 25.4 | 21.0 | 14.7 | 23.4 | 19.9 | 21.1 | 23.7 | 25.4 | 23.9 | 25.0                  | 22.2                                              |                                                     |                                                                       |
| ZC    | 348375                  | 455393                   | 29.7 | 25.8 | 23.4 | 27.8 | 16.2 | 18.4 | 17.9 | 18.7 | 23.1 | 22.4 | 29.9 | 26.9 | 23.1                  | 20.6                                              |                                                     |                                                                       |
| CF2   | 349934                  | 470605                   | 27.1 | 29.2 |      | 28.5 | 23.3 | 27.0 | 25.9 | 25.1 | 23.9 | 28.4 | 25.8 |      | 26.2                  | 23.4                                              |                                                     |                                                                       |
| CF5   | 349962                  | 470618                   | 33.2 | 25.7 | 25.1 | 30.2 | 21.4 | 19.4 | 20.1 | 20.2 | 22.8 | 22.0 | 25.8 | 24.7 | 24.0                  | 21.4                                              |                                                     |                                                                       |
| T1    | 345631                  | 463694                   | 27.1 | 28.3 | 19.4 | 23.3 | 14.8 | 17.8 | 16.1 | 16.4 | 22.1 | 19.6 | 22.6 | 24.6 | 20.7                  | 18.4                                              |                                                     |                                                                       |
| LC19  | 347502                  | 461841                   | 45.1 | 35.6 | 33.0 | 35.2 | 23.9 | 27.7 | 23.9 | 28.4 | 31.1 | 28.9 | 36.6 | 32.6 | 31.7                  | 28.2                                              |                                                     |                                                                       |
| LC20  | 347515                  | 461835                   | 37.7 | 47.4 | 33.9 | 45.6 | 32.9 | 34.6 | 38.0 | 37.9 | 40.6 | 41.4 | 44.7 | 36.5 | 38.5                  | 34.2                                              |                                                     |                                                                       |
| LC26  | 347990                  | 459418                   | 21.1 | 22.0 | 18.2 | 17.8 | 12.1 | 12.9 | 13.7 | 13.0 | 14.9 | 18.0 | 24.0 | 22.2 | 17.4                  | 15.5                                              |                                                     |                                                                       |
| BLS1  | 348594                  | 468500                   | 21.3 | 22.5 | 19.0 | 18.1 | 14.9 | 14.8 | 13.5 | 14.5 | 17.8 | 16.7 | 22.5 | 20.1 | 17.8                  | 15.9                                              |                                                     |                                                                       |
| H1    | 341964                  | 463273                   | 28.6 | 25.1 | 20.7 | 19.9 | 12.9 | 10.0 | 10.0 | 10.6 | 15.1 | 15.3 | 22.4 | 21.0 | 17.5                  | 15.6                                              |                                                     |                                                                       |
| LC31  | 348114                  | 462071                   | 56.7 | 23.1 | 21.0 | 24.1 |      | 45.6 | 24.8 | 22.7 | 24.7 | 23.4 | 24.4 | 27.6 | 29.2                  | 26.0                                              |                                                     |                                                                       |
| LC32  | 347511                  | 461744                   | 40.1 | 40.2 | 33.1 | 45.5 | 32.0 | 30.9 | 26.5 | 28.6 | 32.4 | 33.0 | 37.9 | 35.4 | 34.0                  | 30.3                                              |                                                     |                                                                       |
| MC4   | 345240                  | 463663                   | 29.3 | 25.5 | 24.4 | 28.3 | 20.8 | 18.5 | 19.8 | 18.5 | 18.3 | 22.5 | 24.9 | 25.7 | 22.9                  | 20.4                                              |                                                     |                                                                       |
| LC35  | 348058                  | 462118                   | 25.1 | 26.8 | 20.7 | 22.7 | 15.4 | 16.8 | 18.7 | 16.9 | 16.9 | 12.7 | 22.9 | 26.3 | 19.9                  | 17.7                                              |                                                     |                                                                       |

☒ All erroneous data has been removed from the NO<sub>2</sub> 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.

☒ Lancaster City Council confirm that all 2025 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

**Notes:**

Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

NO<sub>2</sub> annual means exceeding 60µg/m<sup>3</sup>, indicating a potential exceedance of the NO<sub>2</sub> 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 Lancaster City Council During 2025**

Lancaster City Council has not identified any significant sources impacting the local air quality during 2025.

### **Additional Air Quality Works Undertaken by Lancaster City Council During 2025**

Lancaster City Council has not completed any additional works within the reporting year of 2025, other than those already outlined above.

### **QA/QC of Diffusion Tube Monitoring**

During 2025, the diffusion tubes were supplied and analysed by Gradko International Ltd, using the 20% TEA in water preparation method. Gradko International are a UKAS accredited laboratory who participate in the AIR-PT scheme for NO<sub>2</sub> diffusion tube analysis and Annual Field Intercomparison Exercise. These provide strict criteria that participating laboratories must meet, ensuring that the reported NO<sub>2</sub> concentrations are of a high calibre. From the most recent set of AIR-PT results (AR068, January – February 2025, AR069, April – June 2025, AR071, July – September 2025, and AR072, October – December 2025), Gradko scored 50%, 75%, 100% and 100% respectively – the percentage score reflects the results deemed satisfactory based upon the z-score of  $\pm 2$ . Additionally, the precision of the NO<sub>2</sub> diffusion tubes (20% TEA in water) supplied by Gradko has been classified as ‘good’ for all 28 observations in 2025. This precision reflects the laboratory’s performance and consistency in preparing and analysing the tubes, as well as the subsequent handling of the tubes in the field. Further information on the precision summary results can be found on the [LAQM website](#).

During 2025, the exposure duration for period 3 (March 2025) exceeded the Defra recommended timeframe (5 March – 2 April). This occurred because the contract renewal was delayed and the replacement tubes had not yet arrived. Ideally, the tubes should have been removed on 2 April; however, they remained in place until 16 April 2025. As a result,

the April exposure period was shorter than usual, running only from 16 April to 2 May 2025.

In accordance with LAQM.TG(22), if the periods that the tubes were out varied beyond the four to five week recommendation, then it may be necessary to present a time weighted average. The diffusion tube monitoring data were processed using the DTDPT to generate the time weighted average as required in LAQM.TG(22).

### **Diffusion Tube Annualisation**

All diffusion tube monitoring locations within Lancaster City Council 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**

The diffusion tube data presented within the 2026 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<sub>x</sub>/NO<sub>2</sub> continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

One co-location study was carried out by Lancaster City Council with the triplicate site (C1, D1, E1) and the automatic monitoring station at Cable Street. A local bias adjustment factor was produced however due to a poor overall continuous monitor data capture; the national bias adjustment factor has been used. The national bias adjustment factor is higher than the local bias adjustment factor and therefore it is a precautionary approach to use national bias adjustment factor. The local bias adjustment factor calculation results are presented in Table C.2.

Lancaster City Council have applied a national bias adjustment factor of 0.89 to the 2025 monitoring data. A summary of bias adjustment factors used by Lancaster City Council over the past five years is presented in Table C.1.

### **Figure C. 1 – Bias Adjustment Factor Spreadsheet (03/26)**

| National Diffusion Tube Bias Adjustment Factor Spreadsheet                                                                                                                             |                                                                                                 |                                                                                           |                                                      |                                                                                                                                                                                                                                         | Spreadsheet Version Number: 03/26 |                                                     |                                                        |                                                                                                                                                    |                             |                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------------------------|
| Follow the steps below in the correct order to show the results of relevant co-location studies                                                                                        |                                                                                                 |                                                                                           |                                                      |                                                                                                                                                                                                                                         |                                   |                                                     |                                                        |                                                                                                                                                    |                             |                                    |
| Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods                                                                  |                                                                                                 |                                                                                           |                                                      |                                                                                                                                                                                                                                         |                                   |                                                     |                                                        | This spreadsheet will be updated at the end of June 2026                                                                                           |                             |                                    |
| Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet                                                                      |                                                                                                 |                                                                                           |                                                      |                                                                                                                                                                                                                                         |                                   |                                                     |                                                        | This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use. |                             |                                    |
| The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory. |                                                                                                 |                                                                                           |                                                      |                                                                                                                                                                                                                                         |                                   |                                                     |                                                        | LAQM Helpdesk Website                                                                                                                              |                             |                                    |
| Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.                                                                          |                                                                                                 |                                                                                           |                                                      |                                                                                                                                                                                                                                         |                                   |                                                     |                                                        |                                                                                                                                                    |                             |                                    |
| Step 1:                                                                                                                                                                                |                                                                                                 | Step 2:                                                                                   | Step 3:                                              | Step 4:                                                                                                                                                                                                                                 |                                   |                                                     |                                                        |                                                                                                                                                    |                             |                                    |
| Select the Laboratory that Analyses Your Tubes from the Drop-Down List                                                                                                                 |                                                                                                 | Select a Preparation Method from the Drop-Down List                                       | Select a Year from the Drop-Down List                | Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor <sup>†</sup> shown in blue at the foot of the final column. |                                   |                                                     |                                                        |                                                                                                                                                    |                             |                                    |
| If a laboratory is not shown, we have no data for this laboratory.                                                                                                                     |                                                                                                 | If a preparation method is not shown, we have no data for this method at this laboratory. | If a year is not shown, we have no data <sup>‡</sup> | If you have your own co-location study then see footnote <sup>†</sup> . If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953                                |                                   |                                                     |                                                        |                                                                                                                                                    |                             |                                    |
| Analysed By <sup>†</sup>                                                                                                                                                               | Method <sup>‡</sup><br><small>To undo your selection, choose (All) from the pop-up list</small> | Year <sup>‡</sup><br><small>To undo your selection, choose (All)</small>                  | Site Type                                            | Local Authority                                                                                                                                                                                                                         | Length of Study (months)          | Diffusion Tube Mean Conc. (Dm) (µg/m <sup>3</sup> ) | Automatic Monitor Mean Conc. (Cm) (µg/m <sup>3</sup> ) | Bias (B)                                                                                                                                           | Tube Precision <sup>‡</sup> | Bias Adjustment Factor (A) (Cm/Dm) |
| Gradko                                                                                                                                                                                 | 20% TEA in water                                                                                | 2025                                                                                      | UB                                                   | Dudley Mbc                                                                                                                                                                                                                              | 12                                | 18                                                  | 15                                                     | 24.1%                                                                                                                                              | G                           | 0.81                               |
| Gradko                                                                                                                                                                                 | 20% TEA in water                                                                                | 2025                                                                                      | R                                                    | Dudley Mbc                                                                                                                                                                                                                              | 12                                | 35                                                  | 34                                                     | 4.5%                                                                                                                                               | G                           | 0.96                               |
| Gradko                                                                                                                                                                                 | 20% TEA in water                                                                                | 2025                                                                                      | R                                                    | Belfast City Council                                                                                                                                                                                                                    | 10                                | 22                                                  | 22                                                     | 0.6%                                                                                                                                               | G                           | 0.99                               |
| Gradko                                                                                                                                                                                 | 20% TEA in water                                                                                | 2025                                                                                      | R                                                    | The Highland Council                                                                                                                                                                                                                    | 11                                | 15                                                  | 12                                                     | 22.9%                                                                                                                                              | G                           | 0.81                               |
| Gradko                                                                                                                                                                                 | 20% TEA in water                                                                                | 2025                                                                                      | R                                                    | Eastleigh Borough Council                                                                                                                                                                                                               | 12                                | 29                                                  | 25                                                     | 17.1%                                                                                                                                              | G                           | 0.85                               |
| Gradko                                                                                                                                                                                 | 20% TEA in water                                                                                | 2025                                                                                      | UB                                                   | Eastleigh Borough Council                                                                                                                                                                                                               | 12                                | 19                                                  | 18                                                     | 1.1%                                                                                                                                               | G                           | 0.99                               |
| Gradko                                                                                                                                                                                 | 20% TEA in water                                                                                | 2025                                                                                      | R                                                    | Eastleigh Borough Council                                                                                                                                                                                                               | 12                                | 20                                                  | 19                                                     | 8.5%                                                                                                                                               | G                           | 0.92                               |
| Gradko                                                                                                                                                                                 | 20% TEA in water                                                                                | 2025                                                                                      | R                                                    | Cheshire West And Chester                                                                                                                                                                                                               | 12                                | 28                                                  | 28                                                     | -0.5%                                                                                                                                              | G                           | 1.00                               |
| Gradko                                                                                                                                                                                 | 20% TEA in water                                                                                | 2025                                                                                      | R                                                    | Cheshire West And Chester                                                                                                                                                                                                               | 12                                | 27                                                  | 25                                                     | 8.4%                                                                                                                                               | G                           | 0.92                               |
| Gradko                                                                                                                                                                                 | 20% TEA in water                                                                                | 2025                                                                                      | R                                                    | Liverpool City Council                                                                                                                                                                                                                  | 11                                | 32                                                  | 26                                                     | 24.0%                                                                                                                                              | G                           | 0.81                               |
| Gradko                                                                                                                                                                                 | 20% TEA in water                                                                                | 2025                                                                                      | KS                                                   | Liverpool City Council                                                                                                                                                                                                                  | 10                                | 46                                                  | 40                                                     | 15.9%                                                                                                                                              | G                           | 0.86                               |
| Gradko                                                                                                                                                                                 | 20% TEA in water                                                                                | 2025                                                                                      | R                                                    | Nottingham City Council                                                                                                                                                                                                                 | 10                                | 25                                                  | 24                                                     | 3.3%                                                                                                                                               | G                           | 0.97                               |
| Gradko                                                                                                                                                                                 | 20% TEA in water                                                                                | 2025                                                                                      | R                                                    | Belfast City Council                                                                                                                                                                                                                    | 12                                | 40                                                  | 34                                                     | 17.2%                                                                                                                                              | G                           | 0.85                               |
| Gradko                                                                                                                                                                                 | 20% TEA in water                                                                                | 2025                                                                                      | R                                                    | Belfast City Council                                                                                                                                                                                                                    | 12                                | 33                                                  | 31                                                     | 6.5%                                                                                                                                               | G                           | 0.94                               |
| Gradko                                                                                                                                                                                 | 20% TEA in water                                                                                | 2025                                                                                      | R                                                    | Wychavon District Council                                                                                                                                                                                                               | 12                                | 27                                                  | 26                                                     | 5.5%                                                                                                                                               | G                           | 0.95                               |
| Gradko                                                                                                                                                                                 | 20% TEA in water                                                                                | 2025                                                                                      | R                                                    | Worcestershire                                                                                                                                                                                                                          | 12                                | 12                                                  | 13                                                     | -6.6%                                                                                                                                              | G                           | 1.07                               |
| Gradko                                                                                                                                                                                 | 20% TEA in water                                                                                | 2025                                                                                      | KS                                                   | Brighton & Hove City Council                                                                                                                                                                                                            | 10                                | 37                                                  | 29                                                     | 28.0%                                                                                                                                              | G                           | 0.78                               |
| Gradko                                                                                                                                                                                 | 20% TEA in water                                                                                | 2025                                                                                      | Overall Factor <sup>†</sup> (28 studies)             |                                                                                                                                                                                                                                         |                                   |                                                     |                                                        | Use                                                                                                                                                |                             | 0.89                               |

Table C.1 – Bias Adjustment Factor

| Monitoring Year | Local or National | If National, Version of National Spreadsheet | Adjustment Factor |
|-----------------|-------------------|----------------------------------------------|-------------------|
| 2025            | National          | 03/26                                        | 0.89              |
| 2024            | National          | 06/25                                        | 0.84              |
| 2023            | National          | 03/24                                        | 0.78              |
| 2022            | National          | 03/23                                        | 0.83              |
| 2021            | National          | 06/22                                        | 0.84              |

Table C.2 – Local Bias Adjustment Calculation

|                                          | Local Bias Adjustment Input 1 |
|------------------------------------------|-------------------------------|
| Periods used to calculate bias           | 10                            |
| Bias Factor A                            | 0.86 (0.8 - 0.93)             |
| Bias Factor B                            | 16% (8% - 25%)                |
| Diffusion Tube Mean (µg/m <sup>3</sup> ) | 29.8                          |
| Mean CV (Precision)                      | 5.7%                          |
| Automatic Mean (µg/m <sup>3</sup> )      | 25.6                          |
| Data Capture                             | 86%                           |
| Adjusted Tube Mean (µg/m <sup>3</sup> )  | 26 (24 - 28)                  |

## NO<sub>2</sub> Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO<sub>2</sub> concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO<sub>2</sub> fall-off with

distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO<sub>2</sub> concentrations corrected for distance are presented in Table B.1.

Two diffusion tube sites had annual mean concentrations greater than 36 µg/m<sup>3</sup> and therefore require fall off with distance correction. The calculations are shown within Table C.3.

**Table C.3 – Non-Automatic NO<sub>2</sub> Fall off With Distance Calculations (concentrations presented in µg/m<sup>3</sup>)**

| 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                                                                 |
|---------|---------------------------------------|--------------------------------|--------------------------------------------------------|--------------------------|-------------------------------------|--------------------------------------------------------------------------|
| LC10    | 3.3                                   | 3.5                            | 38.4                                                   | 9.5                      | 38.0                                | <i>Predicted concentration at Receptor within 10% the AQS objective.</i> |
| LC11    | 3.1                                   | 3.3                            | 36.7                                                   | 9.5                      | 36.2                                | <i>Predicted concentration at Receptor within 10% the AQS objective.</i> |

## QA/QC of Automatic Monitoring

For 2025 the Council had one operational automatic air quality monitoring station located at Cable Street Lancaster, which commenced monitoring in 2011. The station monitors nitrogen dioxide via a Horiba APNA 370 NO<sub>2</sub> analyser and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) via a FIDAS instrument. The monitors are maintained and serviced by ESU1 with servicing undertaken twice per year. Routine calibration is undertaken by Lancaster City Council on a monthly basis. The site is not independently audited but data monitoring, validation, and ratification is undertaken by Air Quality Data Management.

Live and historic data is available at: <http://www.ukairquality.net/>

Automatic monitoring data provided in this report has been ratified by Air Quality Data Management (AQDM).

## PM<sub>10</sub> and PM<sub>2.5</sub> Monitoring Adjustment

Correction of the PM<sub>2.5</sub> Fidas monitoring data was conducted in accordance with methodology stipulated in paragraph 7.174 in LAQM.TG22, namely a division by 1.06 of the monitored concentrations.

### **Automatic Monitoring Annualisation**

The Cable Street automatic monitoring site had a data capture greater than 75% for NO<sub>2</sub> and less than 25% for PM<sub>10</sub> and PM<sub>2.5</sub>. Therefore, the data recorded at the site does not require annualisation. As the data capture for PM<sub>10</sub> and PM<sub>2.5</sub> is less than 25%, the monitoring results are therefore not representative and not comparable to the relevant objectives.

### **NO<sub>2</sub> Fall-off with Distance from the Road**

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO<sub>2</sub> concentration at the nearest location relevant for exposure has been estimated using the NO<sub>2</sub> fall-off with distance calculator available on the LAQM Support website. Where appropriate, automatic annual mean NO<sub>2</sub> concentrations corrected for distance are presented in Table A.3.

No automatic NO<sub>2</sub> monitoring locations within Lancaster City Council required distance correction during 2025.

## Summary of Low Cost Air Quality Sensor Monitoring

**Table C.4– Annual Mean Zephyr Monitoring Results ( $\mu\text{g}/\text{m}^3$ )**

| Site Location                               | NO <sub>2</sub> | PM <sub>10</sub> | PM <sub>2.5</sub> | Data Capture (%) |
|---------------------------------------------|-----------------|------------------|-------------------|------------------|
| Lancaster Carnforth Edward St               | 9.9             | 11.1             | 7.5               | 80.4             |
| Lancaster Fife St 2 (South)                 | 6.6             | 11.3             | 6.7               | 80.4             |
| Lancaster Halton Sykelands Ave              | 8.3             | 14.2             | 9.5               | 9.3              |
| Lancaster Heysham Norfolk Ave               | 6.1             | 12.4             | 7.8               | 80.4             |
| Lancaster Leycester Drive                   | 7.4             | 12.0             | 7.7               | 80.0             |
| Lancaster Redvers Street                    | 6.2             | 10.4             | 7.0               | 80.4             |
| Lancaster River Lune Millennium Cycle Track | 6.8             | 9.5              | 5.9               | 80.4             |
| Lancaster Rydal Road                        | 7.7             | 11.1             | 7.2               | 80.4             |
| Lancaster Warwick Ave                       | 5.6             | 10.3             | 6.8               | 78.2             |

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

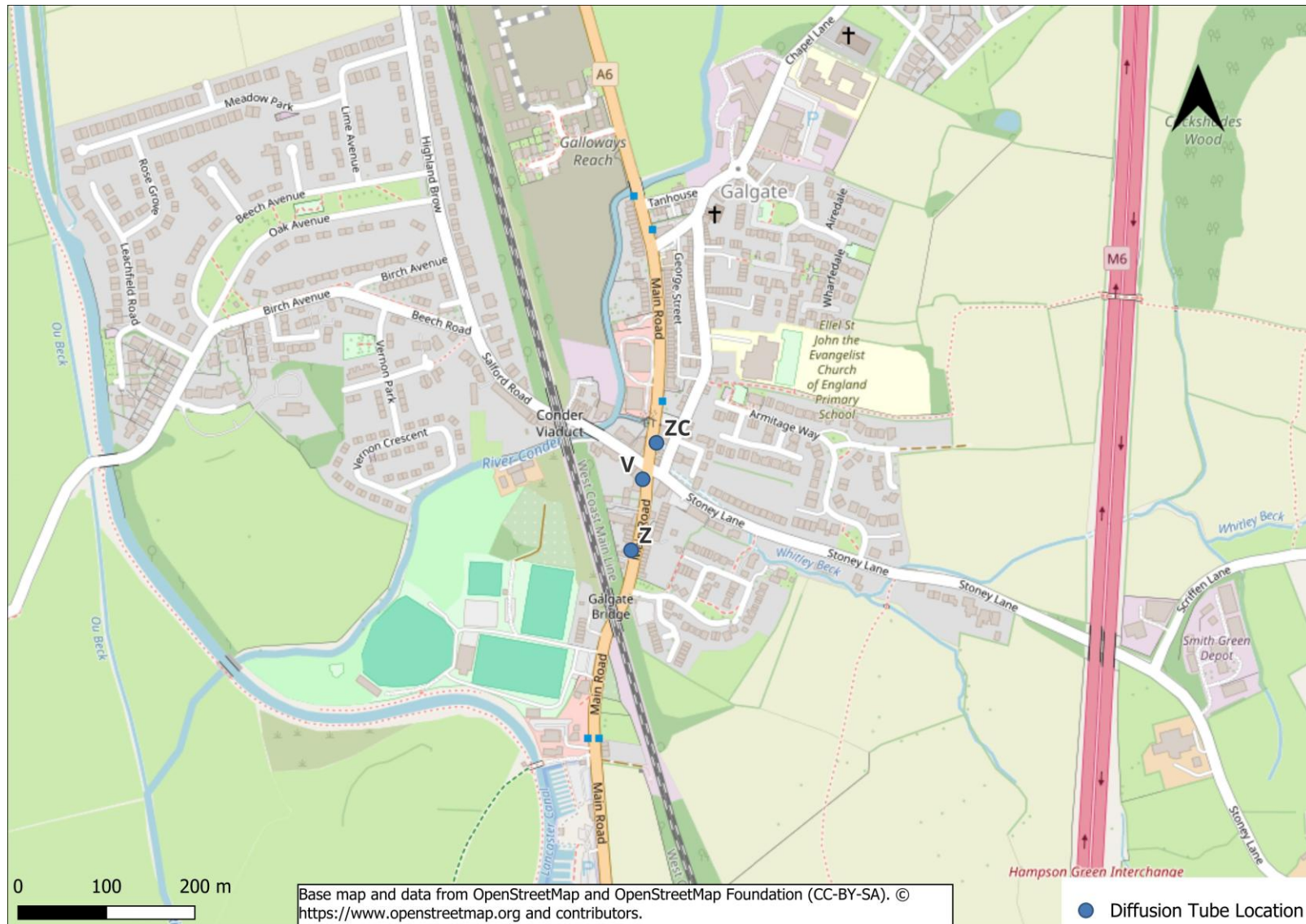
Figure D.1 – Map of Automatic and Non-Automatic Monitoring Site (City of Lancaster AQMA)



**Figure D.2 – Map of Automatic and Non-Automatic Monitoring Site (Lancaster – Outside of AQMA)**



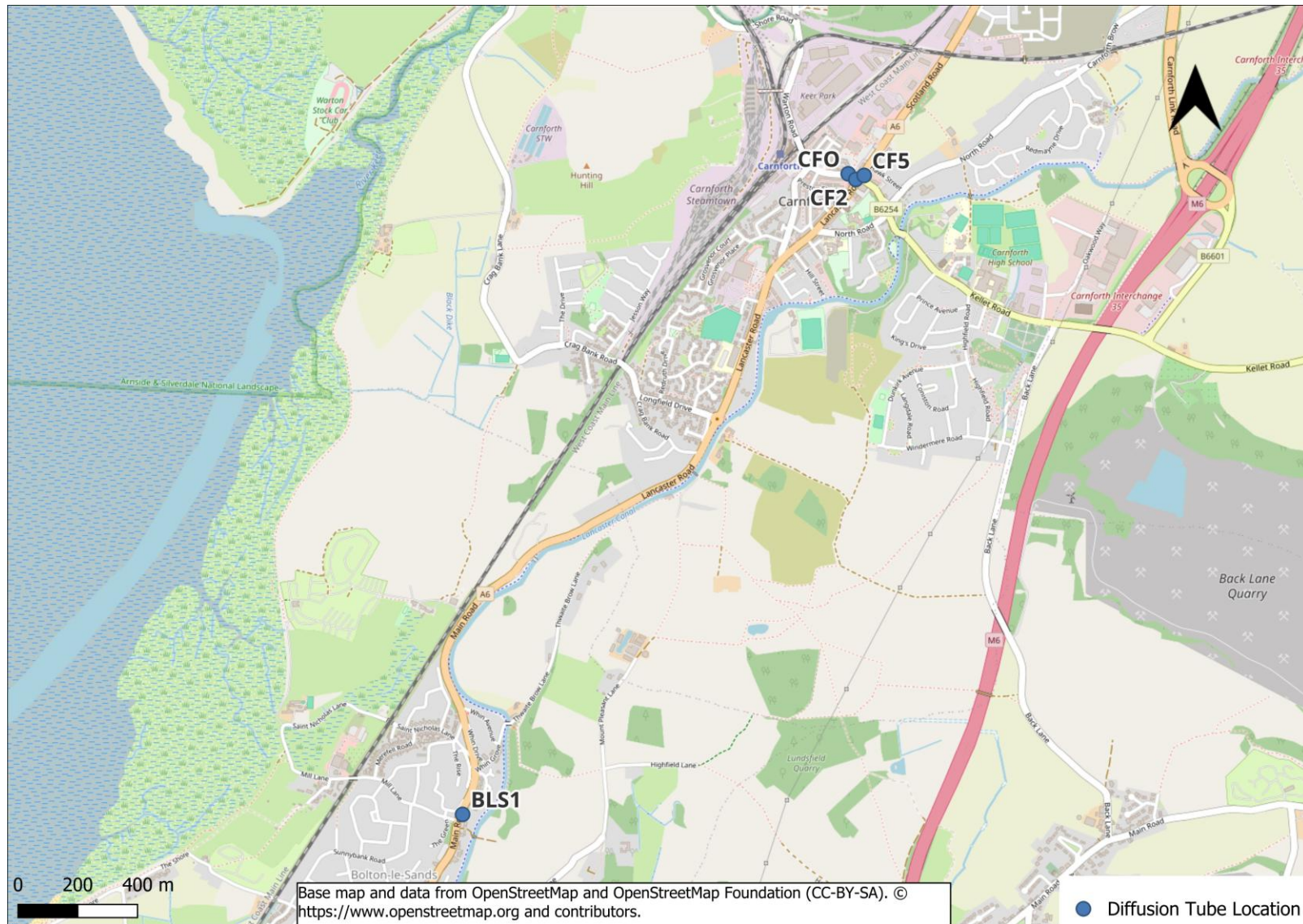
**Figure D.3 – Map of Automatic and Non-Automatic Monitoring Site (Galgate)**



**Figure D.4 – Map of Automatic and Non-Automatic Monitoring Site (Morecambe & Torrisholme)**



**Figure D.5 – Map of Automatic and Non-Automatic Monitoring Site (Carnforth & Bolton Le Sands)**



## Appendix E: Summary of Air Quality Objectives in England

**Table E.1 – Air Quality Objectives in England<sup>8</sup>**

| Pollutant                              | Air Quality Objective: Concentration                                | Air Quality Objective: Measured as |
|----------------------------------------|---------------------------------------------------------------------|------------------------------------|
| Nitrogen Dioxide (NO <sub>2</sub> )    | 200µg/m <sup>3</sup> not to be exceeded more than 18 times a year   | 1-hour mean                        |
| Nitrogen Dioxide (NO <sub>2</sub> )    | 40µg/m <sup>3</sup>                                                 | Annual mean                        |
| Particulate Matter (PM <sub>10</sub> ) | 50µg/m <sup>3</sup> , not to be exceeded more than 35 times a year  | 24-hour mean                       |
| Particulate Matter (PM <sub>10</sub> ) | 40µg/m <sup>3</sup>                                                 | Annual mean                        |
| Sulphur Dioxide (SO <sub>2</sub> )     | 350µg/m <sup>3</sup> , not to be exceeded more than 24 times a year | 1-hour mean                        |
| Sulphur Dioxide (SO <sub>2</sub> )     | 125µg/m <sup>3</sup> , not to be exceeded more than 3 times a year  | 24-hour mean                       |
| Sulphur Dioxide (SO <sub>2</sub> )     | 266µg/m <sup>3</sup> , not to be exceeded more than 35 times a year | 15-minute mean                     |

<sup>8</sup> The units are in microgrammes of pollutant per cubic metre of air (µg/m<sup>3</sup>).

## 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 <sub>2</sub>   | Nitrogen Dioxide                                                                                                                                                                                      |
| NO <sub>x</sub>   | Nitrogen Oxides                                                                                                                                                                                       |
| PM <sub>10</sub>  | Airborne particulate matter with an aerodynamic diameter of 10µm or less                                                                                                                              |
| PM <sub>2.5</sub> | Airborne particulate matter with an aerodynamic diameter of 2.5µm or less                                                                                                                             |
| QA/QC             | Quality Assurance and Quality Control                                                                                                                                                                 |
| SO <sub>2</sub>   | Sulphur Dioxide                                                                                                                                                                                       |

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