



**North Tyneside Council**

# 2023 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: 27 June 2023

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## Executive Summary: Air Quality in Our Area

### Air Quality in North Tyneside

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children, the elderly, and those with existing heart and lung conditions. There is also often a strong correlation with equalities issues because areas with poor air quality are also often less affluent areas<sup>1,2</sup>.

The mortality burden of air pollution within the UK is equivalent to 29,000 to 43,000 deaths at typical ages<sup>3</sup>, with a total estimated healthcare cost to the NHS and social care of £157 million in 2017<sup>4</sup>.

North Tyneside is located to the east of the regional capital of Newcastle upon Tyne. It is one of the five metropolitan districts that makes up the Tyne and Wear conurbation. The Borough is made up of 20 wards and has a residential population of around 209,000 with approximately 84,000 households and covers an area of 84km<sup>2</sup>. The Borough stretches from the eastern boundary of Newcastle upon Tyne to the North Sea and from the southern boundary of Northumberland to the River Tyne.

The northern fringe of the Borough is open countryside with the main urban areas, including the towns of Wallsend, North Shields, Tynemouth, and Whitley Bay located along the river and coastline. Additionally, there are three large settlements to the west of the Borough; Longbenton, Forest Hall and Killingworth and to the north of the Borough are the villages; Wideopen, Burradon, Annitsford, and Backworth.

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<sup>1</sup> Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

<sup>2</sup> Defra. Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

<sup>3</sup> Defra. Air quality appraisal: damage cost guidance, January 2023

<sup>4</sup> Public Health England. Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report, May 2018

The River Tyne is a commercial river with ship repair, offshore fabrication, fishing and port related industries. The riverside urban area has undergone major regeneration which has resulted in some diversification from ship building to offshore related construction work. Business parks were created along the main transport routes of the A19 and the coast road A1058 consisting of office developments including the Cobalt Business Park, Balliol Business Park and retail outlets including the Silverlink and Royal Quays. Residential areas were developed on former industrial land adjacent to the heavy engineering yard Smulders in Wallsend. Residential premises were built on the former Hayhole gas works at Wallsend and at The Limes, Great Lime Road, Palmersville and on greenfield land adjacent to the A19 at Backworth and Scaffold Hill.

North Tyneside Council has created 61 smoke control areas that cover the majority of North Tyneside. Within these areas it is an offence to create smoke from a chimney except during lighting up when kindling can be used. New legislation on smoke control will give residents more confidence in obtaining compliant fuel as suppliers and shops may only sell smokeless solid fuel and all wood sold in volumes of less than 2 cubic metres must be certified as 'Ready to Burn'. This will help to reduce the amount of particulates in the borough.

There have been no changes to the main pollutants monitored within the Borough of North Tyneside, which are nitrogen dioxide (NO<sub>2</sub>), and fine particulates of less than 2.5 microns (PM<sub>2.5</sub>) or 10 microns in diameter (PM<sub>10</sub>). These pollutants are principally traffic related emissions. Monitoring carried out throughout the Borough in 2022 has shown that the pollutant levels for nitrogen dioxide have marginally increased when compared with 2020 monitoring data but are lower than pre-covid emission levels. All monitoring locations continue to show North Tyneside has good air quality with nitrogen dioxide annual mean concentrations well below the UK air quality objectives, including at the automatic monitoring station located at NTC01 on the Coast Road A1058. There have been no new sites introduced in 2022. North Tyneside has not declared any Air Quality Management Areas (AQMAs) within the Borough and the latest monitoring data has shown no requirement to proceed to declare any AQMAs.

There were two major developments granted planning approval in 2022 that had the potential to affect air quality. Air Quality Assessments were required with the planning applications to consider the air quality impacts arising from the development. The Air Quality Impact Assessments determined that the developments would have negligible impact on air quality and that the air quality objectives would not be exceeded. Further information on the planning applications is provided in Appendix C.

One new industrial process applied for an environmental permit in 2022 as detailed in Appendix C. This permit was granted in August 2022. The process involves the respraying of road vehicles with coating and finishing products applied using spray guns within a spray booth. The spray booth has filters to absorb particulates and reduce volatile organic compounds (VOCs) being released into the atmosphere. The permit is required to ensure the control of VOC emissions in accordance with the Environmental Permitting Regulations 2016. VOCs are a contributor to greenhouse gases and therefore are regulated.

There were no new major sources of nitrogen dioxide and particulate matter in the Borough in 2022. North Tyneside Council will continue to monitor for nitrogen dioxide using passive and real time monitoring, and particulates using the real time station located on the Coast Road A1058. Two new indicative continuous air emission monitors have been purchased. These monitors are currently located about two schools with and without car pick up ban to review the air quality. The monitors will then be located in 2023 to review air quality emissions about Holystone bypass A191 for a two year period. The air emission monitors will measure the pollutants NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>.

## 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>5</sup> sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term PM<sub>2.5</sub>

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<sup>5</sup> Defra. Environmental Improvement Plan 2023, January 2023

targets. The National Air Quality Strategy, due to be published in 2023, will provide more information on local authorities' responsibilities to work towards these new targets and reduce PM<sub>2.5</sub> in their areas. The Road to Zero<sup>6</sup> details the approach to reduce exhaust emissions from road transport through a number of mechanisms; this is extremely important given that the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

North Tyneside Borough Council's actions to improve air quality during 2022 included the completion of two transport related schemes that were implemented in 2022 and finished in early 2023. The first scheme comprised improvements to the cycling and walking links at the A1056/A189 Weetslade roundabout to improve access for new residential estates in the area. The second scheme was at the Four Lane Ends Bus Interchange. This scheme involved improvements to the bus, cycling and walking links from Front Street at Benton to the Four Lane Ends Interchange. Both schemes are designed to improve access to public transport and provide alternative transport modes and shift the number of journeys by car, thereby improving air quality in these areas.

The Council are continuing to progress initiatives as part of the Action on Climate Change Campaign. The initiatives, although targeted as climate change measures, will also have positive benefits on local air quality. One measure that continued in 2022 was the ongoing replacement of 20,000 streetlights with new LED energy efficient versions. Currently 10,000 of the streetlights have been replaced. The Council are working to engage in more sustainable practices including the planting of trees and increasing planting of biodiversity areas; encouraging reductions in energy use and holding free seminars on carbon reduction that will have associated benefits in reducing air pollution. The Council also promoted the 'World No Car Day' held on the 22 September 2022 which was promoted to staff, residents and businesses within the borough to embrace sustainable travel. It was an opportunity for staff to leave their cars at home and use a sustainable method of travel, such as bus, cycle or walking for their commute to work.

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<sup>6</sup> DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

The Council continues to promote and encourage sustainable travel choices for schools via the 'GoSmarter' Scheme. This scheme promotes the use of other modes of transport such as walking and cycling for parents taking their children to school. As part of this scheme, a number of schools implemented a road closure scheme in 2021 during the drop off and pick up times, which continued in 2022. The streets are marshalled by school representatives. A physical barrier is used to close the road located outside of the school entrance to prevent vehicle access. Signage is displayed outside the school to promote the scheme. This is designed to make their journeys greener, cheaper and to provide positive health benefits. The Council are supporting a study into the effectiveness of the scheme on air pollutants to assess the benefits of the road closure scheme. The study includes monitoring air pollutant levels at a school participating in the road closure scheme and comparing against a school without the road closure during pick up and drop off times. A review on air quality together with any behaviour change on transport as result of temporary closure ban will be considered. The two schools are supporting the study by parents of pupils being requested to complete a questionnaire.

The Council continues to support an increase in electric vehicle use and provides council employees with the option of a leasing scheme. The Council ensures electric charging points are included as part of new housing developments. The Council is continuing to engage with private charge point providers to look at introducing hub arrangements, such as at nearby car parks or public buildings.

North Tyneside Council continues to encourage and promote alternative clean transport modes such as cycling to improve air quality and promotes a cycle to work scheme via salary sacrifice. North Tyneside's [cycling strategy](#) is available on the councils website.

A car sharing scheme is available for all employees located at the main Council offices at The Quadrant which is managed by the Cobalt Travel Centre who coordinate drivers and passengers.

An age policy for taxi licences was adopted in 2022. This policy restricts the age of new vehicles to be licensed to under four years old from 2024 to ensure the vehicles meet the latest emission standards. Any taxi vehicle licence will not be renewed for vehicles over

eight years of age from 2026. Electric and zero emission vehicles are exempt from the age standards.

## Conclusions and Priorities

North Tyneside Council does not currently have any AQMA's and the latest monitoring data for 2022 has confirmed that pollutant are below the air quality objective levels and there have been no exceedances. In conclusion there is no requirement for any Air Quality Management Areas to be declared.

The long-term monitoring over the period 2018 and 2022 shows a slight increase in nitrogen dioxide levels at most of the sites in 2022 when compared to 2021. The increase in pollutant levels at most of the sites during 2022 is the result of increased traffic levels. The pollutant levels in 2022 continues to be lower when compared to 2018 and 2019 results.

There are no new developments that are considered likely to impact on air quality and monitored pollutant levels continue to be below the National Air Quality Objectives.

North Tyneside Councils objectives identified during the year 2022 have been met. These included monitoring NO<sub>2</sub> at 29 locations and monitoring of particulates and NO<sub>2</sub> at one real time monitoring station; implementation of the Air Quality Strategy and the introduction of an age standard for taxis.

North Tyneside Councils properties for 2023 will be to monitor NO<sub>2</sub> at 29 diffusion tube locations and continue the support for real time continuous air quality monitoring of NO<sub>2</sub> and Particulates at one real time air station located on the Coast Road A1058 and at two locations on the Holystone Bypass using real time indicative air samples.

## Local Engagement and How to get Involved

North Tyneside Council can report that there are no exceedances of the Air Quality Objectives identified during the year 2022. North Tyneside Council does not currently have any AQMA's and given that the air quality monitoring data for 2022 has shown that levels



of pollutants are below the annual air quality objective levels we would conclude that it is unnecessary to declare any AQMAs for any pollutants.

The long-term review of the nitrogen dioxide monitoring data over the period 2018 to 2022 indicates an overall fall in emissions when comparing emission levels in 2018 compared to 2022. There has been a rise in nitrogen dioxide emission from 2021 to 2022 following the recovery of the covid pandemic compared to the fall in emission between 2018 and 2020. The nitrogen dioxide annual means within the borough are still below the National Air Quality Objectives. There was a significant decrease in pollutant levels in 2020 which was attributable to the reduced car usage during the pandemic. Levels in 2022 have slightly increased when compared to 2021 pollutant levels, which is considered the result of increased traffic levels. There are no new developments that are considered likely to impact on air quality.

## **Local Responsibilities and Commitment**

This ASR was prepared by the Environmental Health Department of North Tyneside Council with the support and agreement of the following officers and departments:

- Integrated Transport Team
- Development Control
- Environmental Sustainability Officer
- Public Health

This ASR has been approved by:



Joanne Lee, Head of Public Protection

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

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# 1 Local Air Quality Management

This report provides an overview of air quality in North Tyneside during 2022. 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 North Tyneside 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

### 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.

North Tyneside Council currently does not have any declared AQMAs. A local Air Quality Strategy is in place to prevent and reduce polluting activities. The Local Air Quality Strategy is available on the Council's website.

## Progress and Impact of Measures to address Air Quality in North Tyneside

Defra's appraisal of last year's ASR concluded that:

- The Council has good QA/QC procedures, which were applied appropriately and accurately in 2021 monitoring data.
- Detailed extensive measures and plans to address air quality and provided a thorough account of actions implemented and planned to implement to maintain good air quality.
- Committed to implementing an Air Quality Strategy to outline measures to target air pollution, specifically PM<sub>2.5</sub> impacts.
- Recommended that the figures and tables within the report be cross referenced and that the report could refer to the fraction of mortality attributable to particulate air pollution under the Public Health Outcomes Frameworks indicator D01.

North Tyneside Council has taken forward a number of direct measures during the current reporting year of 2022 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.1. Seven measures are included within Table 2.1, with the type of measure and the progress North Tyneside have made during the reporting year of 2022 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.1.

North Tyneside Council continues its commitment to reduce its carbon footprint and improve air quality as part of its Low Carbon Plan 2016-2027. As part of this commitment the Council supports the cobalt car sharing scheme which is managed by the Cobalt Travel Team and promoting the cycling strategy.

The North Tyneside Air Quality Strategy has been developed with the support of a steering group in 2022 and following public engagement, the Council has approved and adopted the local North Tyneside Air Quality Strategy in June 2023. The strategy focuses on measures to address air quality improvements within the Borough including measures that will mitigate PM<sub>2.5</sub> impacts.

North Tyneside Council have completed the following measures over the course of this reporting year:

- Monitoring and ratification of NO<sub>2</sub> at 29 diffusion tube locations.
- Support of real time continuous air quality monitoring for NO<sub>2</sub> and Particulates at the real time air station located on the Coast Road A1058.

North Tyneside Council expects the following measures to be completed over the course of the next reporting year:

- Monitoring of NO<sub>2</sub> at 29 diffusion tube locations
- Monitoring of real time continuous air quality monitoring for NO<sub>2</sub> and Particulates at one real time air station located on the Coast Road A1058.
- Review of air quality at school entrances with or without road closure and impact on modal changes.
- Implementation of real time indicative air sampling at two monitoring locations on the Holystone Bypass. Section 106 funding was secured from the Scaffold Hill, Bellway and Taylor Wimpey development that consisted of the development of 410 residential dwellings that was granted planning consent in 2015. The Section 106 funding was for the developer to provide a funding contribution to the Local Authority to enable air quality monitoring to be carried out along Holystone Way bypass. The purpose of this monitoring is to assess particulates and nitrogen dioxide levels resulting from any possible increased traffic levels on Holystone Bypass arising from the residential development at Holystone (Scaffold Hill) and ensure that the air quality in the area complies with national air quality standards.

North Tyneside Council does not anticipate any principal challenges and barriers to the implementation of the above measures.



Table 2.1 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Cobalt Car Sharing Scheme	Promoting Travel Alternatives	Workplace Travel Planning	2015	N/A	Cobalt Travel Team	NA	NO	Not Funded	< £10k	Implementation	Reduced vehicle emissions	Reduction of NO <sub>2</sub> and PM	Implementation on-going	NA
2	Cycle Strategy	Promoting Travel Alternatives	Promotion of cycling	N/A	N/A	Local Authority Transport Dept.	N/A	NO	Not Funded	< £10k	Implementation	Reduced vehicle emissions	Reduction of NO <sub>2</sub> and PM	Implementation on-going	NA
3	Compliance Charge for Part B Processes	Environmental Permits	Other	N/A	Ongoing	Local Authority Environmental Health	NA	NO	Not Funded	N/A	Implementation	Reduced industrial emissions	Reduction of NO <sub>2</sub> , PM	Implementation on-going	NA
4	Taxi Licensing Scheme	Promoting Low Emission Transport	Taxi Licensing conditions	2020	Ongoing	Local Authority Licensing	NA	NO	Not Funded	N/A	Implementation	Reduced vehicle emissions	Reduction of NO <sub>2</sub> , PM	Implementation on-going	NA
5	Go Smarter Scheme	Promoting Travel Alternatives	Schools Travel Plan		Ongoing	Local Authority Transport Dep.	NA	No	Not Funded	<10k	Implementation	Reduced vehicle emissions	Reduction of NO <sub>2</sub> , PM	Implementation on-going	NA
6	School Road Closure	Promoting Travel Alternatives	Schools Travel Plans	2022	Ongoing	Local Authority Transport Dep.	NA	No	Not Funded	N/A	Implementation	Reduced vehicle emissions	Reduction of NO <sub>2</sub> , PM	Implementation on-going	NA
7	Smoke Control Enforcement	Public Information	Via Leaflets	2023	2023/24	Local Authority Environmental Health	Smoke Enforcement Grant	YES	Funded	<10K	Planned	Reduced Smoke Emissions	Reduction of PM	Implementation on-going	NA

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8), local authorities are expected to work towards reducing emissions and/or concentrations of PM<sub>2.5</sub> (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that PM<sub>2.5</sub> has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

North Tyneside Council currently monitors PM<sub>2.5</sub> at one real time station within the borough, located on the Coast Road A1058. This PM<sub>2.5</sub> pollutant levels at this location has shown a slight increase in the pollutant levels over the last two years, considered to be the result of increase traffic travelling along the main Coast Road. The Public Health Outcomes Framework D01 Fraction of mortality attributable to particulate air pollution for North Tyneside for the year 2021 has been calculated as 5.3% which is higher than the North East Region of 4.8% but is slightly lower than the level of 5.5% calculated for England. The mortality rate is the 3<sup>rd</sup> highest in the North East region and therefore tackling particulates is a priority for the local authority.

North Tyneside Council is taking the following measures to address PM<sub>2.5</sub>:

- Use of an Air Quality steering group to prioritise actions and measures to tackle PM<sub>2.5</sub>. The membership consists of all relevant partners including transport planners, public health team, planning, climate change team and environmental health.
- An Air Quality Strategy has been adopted that sets effective goals to bring about air quality improvements.
- An ongoing commitment to bring about traffic management improvements to reduce congestion.
- Reduce emissions from new developments (during the construction phase and in subsequent use) and existing buildings by implementing energy efficiency measures and affordable warmth schemes to reduce heat loss and drive down fuel bills.
- Encouraging use of public transport and promoting alternative modes of transport. Thereby reducing emissions from vehicles on the road and encouraging the uptake of alternative 'low emission' vehicles. Other measures include the use of travel

plans for new developments, introduction of electric charging points, parking charges, and reducing of engines idling etc.

- Promotion of a cycling strategy that was adopted in 2018. The council promotes and encourages cycling as a healthy and sustainable way of making everyday journeys. The cycling strategy outlines the Council's strategic approach to supporting cycling in the Borough.

North Tyneside Council will continue to provide information to residents on air pollution, promote advice to the public on measures that can be taken on an individual level, and health issues by maintaining an up-to-date Council [air quality](#) webpage. Residents are encouraged to compost garden waste rather than burn it in bonfires.

North Tyneside has introduced an age standard as part of its taxi policy for all taxis licensed to operate within the Borough that will provide air quality benefits for both particulates and NO<sub>2</sub>. The policy requires all new taxis to be less than four years old from 2024. Current taxi licences when renewed will have to be less than eight years old from 2026. The age standard does not apply for electric, or zero emission vehicles and this age policy is to encourage the uptake of use of ultra-low emission vehicles.

North Tyneside Council has 61 smoke control areas within the Borough that cover the majority of North Tyneside. Residents are reminded that it is an offence to create smoke from a chimney except during lighting up when kindling may be used. Residents are directed via the Council's website to relevant guidance on the correct use of solid fuel appliances to minimise particulate emissions. Grant funding has been provided to the Council in 2023 to enable enforcement of the smoke control orders. It is our intention to carry out proactive work within areas where there is high uptake of wood burning stoves, including carrying out leaflet drops to remind residents of the correct use of the fuels and stoves and proactive visits to educate residents on their use.

The Environmental Health Team of North Tyneside Council recommends conditions be attached to all major planning applications granted approval to have a Construction Environmental Management Plan (CEMP) in place to mitigate dust emissions that may arise during construction, as it is recognised that such sites will contribute to localised

particulate emissions. Complaints about dust arisings from construction and demolition activities are fully investigated and the Team closely monitors dust emissions from industrial installations.

North Tyneside Council will continue the regulation of Part B and A2 permitted air pollution industrial installations. Planned risk-based inspections to ensure the compliance with the permitted processes will be carried out in accordance with DEFRA guidance. The regulation of processes will ensure that emissions from small industrial processes (Part B and A2 processes) do not exceed the national process guidance note emission limits and are minimised as far as is practically possible not exceeding excessive cost.

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

This section sets out the monitoring undertaken within 2022 by North Tyneside Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2018 and 2022 to allow monitoring trends to be identified and discussed.

### Summary of Monitoring Undertaken

#### 3.1.1 Automatic Monitoring Sites

North Tyneside Council undertook automatic (continuous) monitoring at 1 site during 2022. Table A.1 in Appendix A shows the details of the automatic monitoring sites. NB. Local authorities do not have to report annually on the following pollutants: 1,3 butadiene, benzene, carbon monoxide and lead, unless local circumstances indicate there is a problem. The automatic monitoring results for North Tyneside Council real time monitoring station on the Coast Road can be viewed on the [Air Quality England Website](#). This is a real time continuous air quality monitoring site within North Tyneside. The site is owned and maintained by the Urban Observatory and located on the Coast Road in Wallsend.

A map showing the location of the monitoring site is provided in Appendix D1d. Further details on how the monitor is calibrated and how the data has been adjusted are included in Appendix C.

#### 3.1.2 Non-Automatic Monitoring Sites

North Tyneside Council undertook non- automatic (i.e. passive) monitoring of NO<sub>2</sub> at 29 sites during 2022. Table A.2 in Appendix A presents the details of the non-automatic sites.

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

## 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.

### 3.1.2 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).

For diffusion tubes, the full 2022 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.3 gives the latest NO<sub>2</sub> annual mean concentration in 2022 for the real time continuous air station located on the A1058 Coast Road as 35.4µg/m<sup>3</sup> which is well below the annual mean objective of 40µg/m<sup>3</sup>. The NO<sub>2</sub> annual mean concentration in 2022 compared to 2020 are similar and is significantly lower than the annual mean concentration monitored in 2019 (46µg/m<sup>3</sup>). Nitrogen Dioxide levels at the Coast Road real time station have fallen between 2018 to 2022. The site is located at the roadside and is approximately 80 metres to the nearest residential property on Home Park. Previous passive NO<sub>2</sub> monitoring carried out in 2019 on Home Park, monitoring location CR1, indicated emission levels well below the annual mean objective. This demonstrates how pollution exposure drops the further away from the pollutant source e.g busy road.

The 2022 nitrogen dioxide annual mean results for diffusion tube monitoring locations shown in Table A.4 indicate all locations had no exceedance of the annual mean objective level. A few sites in 2022 experienced a slight increase in NO<sub>2</sub> exposure when compared to the previous year. NO<sub>2</sub> pollution levels increased at monitoring location CC1 (John Street, Cullercoats) from 14µg/m<sup>3</sup> to 23.0 µg/m<sup>3</sup> in 2021 to 2022 respectively. The 2021

annual mean data was derived from 6 months monitoring, whereas 2022 is based on the full years monitoring. The increase in NO<sub>2</sub> levels is likely caused by an increase in traffic in that locality.

The highest recorded annual means were at the kerbside location W10 about Coast Road, Battlehill which reported consistent annual mean concentrations for the last two years of 26.10µg/m<sup>3</sup>, following bias adjustment which are still well below the annual objective.

None of the diffusion tube monitoring locations have pollutant concentrations within 10% of the annual mean objective level and the annual mean NO<sub>2</sub> pollutant levels do not suggest any indication that concentrations will have exceedances of the 1-hour NO<sub>2</sub> mean objective level.

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.

The long-term trend chart in Figures A.1 provide a comparison between 2018 and 2022 of the long-term NO<sub>2</sub> indicative monitoring sites in the borough from Annitsford to North Shields. The chart shows a slight increase in nitrogen dioxide annual mean at most of the sites in 2022 when compared to 2021. However, the overall trend shows a downward fall in concentrations between 2018 to 2022. The monitoring data for 2022 shows lower pollutant levels for most sites when compared to 2018 and 2019. The increase in pollutant levels during 2022 is the result of increased traffic levels.

### 3.1.3 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>. 2022 monitoring data gave a level of 20.9 µg/m<sup>3</sup> which is a slight increase over that reported in 2021. This is the result of increased traffic volumes operating on the A1058 and associated HGV and bus activity on this route, as it is one of the main access roads into the borough from Newcastle.

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. There have been 8 occasions when the daily mean air quality objective was exceeded which is still below the air quality objective which permits 35 exceedances of the daily mean concentration per year and the result accounts for around 22% of the recommended limit of 35 times per year.

### 3.1.4 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 annual mean for 2022 was 9.98µg/m<sup>3</sup> which is well below the annual mean target value of 25µg/m<sup>3</sup>. There was a slight increase in annual mean in 2022 from the 2021 annual mean concentration of 8.06µg/m<sup>3</sup>. It is considered that the increase is attributable to increased traffic volumes using the A1058 Coast Road.



## 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?	Monitoring Technique	Distance to Relevant Exposure (m) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Inlet Height (m)
NTC01	Coast Road	Roadside	428352	566974	NO <sub>2</sub> , PM <sub>10</sub> , PM <sub>2.5</sub>	NO	Chemiluminescent; Palas FIDAS (optical light scattering)	37	2	2

**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.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)
BM1	Park Lane, Shiremoor.	Roadside	431743	570649	NO2	NO	4.0	2.0	No	3.0
BR1	Burradon road, Annitsford.	Roadside	427095	573616	NO2	NO	5.0	2.0	No	3.0
CC1	John Street, Cullercoats.	Kerbside	436246	571385	NO2	NO	8.0	<1	No	3.0
CH1	Norham Road/ Rothbury Terrace, North Shields.	Kerbside	433580	567865	NO2	NO	N/A	<1	No	3.0
CH5	Front Street, Chirton.	Roadside	434456	568275	NO2	NO	N/A	2.9	No	3.0
CM1	Broadway, Cullercoats	Industrial	435803	571122	NO2	NO	15.0	<1	No	3.0
FS1	Front Street, Monkseaton	Kerbside	434064	571727	NO2	NO	5.0	<1	No	3.0
GH1	Lower Crane Street, Shiremoor	Kerbside	431751	571811	NO2	NO	5.0	2.0	No	3.0
HP1	Whitley Road, Holystone	Roadside	430473	570490	NO2	NO	5.0	<1	No	3.0
HR1	Bewicke Road, Willington Quay	Suburban	432664	566413	NO2	NO	5.0	2.0	No	3.0
HW3	Meldon Street, East Howdon	Roadside	433202	566428	NO2	NO	2.0	<1	No	3.0
LB1	West Farm Avenue/Benton Road, Longbenton	Industrial	426871	568591	NO2	NO	6.0	2.0	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)
LB2	Front Street/Benton Road, Longbenton	Kerbside	427094	568383	NO <sub>2</sub>	NO	2.0	<1	No	3.0
LH7	Battlehill Drive, Wallsend	Roadside	430735	567974	NO <sub>2</sub>	NO	4.0	4.0	No	3.0
LP1	Dudley Lane, Seaton Burn	Kerbside	424237	573762	NO <sub>2</sub>	NO	10.0	<1	No	3.0
MC1	White House Drive, Adjacent Miller and Carter	Kerbside	426331	570973	NO <sub>2</sub>	NO	N/A	2.0	No	3.0
MR1	Manor Road, Tynemouth	Roadside	436720	569437	NO <sub>2</sub>	NO	10.0	<1	No	3.0
NS10	Queen Alexandra Road, North Shields	Kerbside	434103	569099	NO <sub>2</sub>	NO	N/A	<1	No	3.0
PG2	North Road, Preston Road, Preston Grange	Roadside	435069	569861	NO <sub>2</sub>	NO	1.0	2.0	No	3.0
RV1	Monkseaton Drive, Whitley Bay	Roadside	435076	573325	NO <sub>2</sub>	NO	5.0	2.0	No	3.0
SP1	Holystone Way, Holystone	Roadside	430444	570242	NO <sub>2</sub>	NO	5.0	2.0	No	3.0
TR1	Tynemouth Road, Rosehill	Roadside	431831	566955	NO <sub>2</sub>	NO	3.0	2.0	No	3.0
TY1	Front Street, Tynemouth	Roadside	437016	569377	NO <sub>2</sub>	NO	3.0	<1	No	3.0
W10	Coast Road, Wallsend	Kerbside	429316	567388	NO <sub>2</sub>	NO	3.0	2.0	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)
W17	Hotspur Street, Wallsend	Roadside	429094	568218	NO <sub>2</sub>	NO	5.0	2.0	No	3.0
W99	Frank Street, Wallsend	Kerbside	429934	566314	NO <sub>2</sub>	NO	30.0	2.0	No	3.0
WB9	Morrison Petrol Station, Whitley Bay	Kerbside	435390	571977	NO <sub>2</sub>	NO	2.0	2.0	No	3.0
WB20	Grosvenor Drive/Norham Road, Whitley Bay	Kerbside	435205	571823	NO <sub>2</sub>	NO	N/A	<1	No	3.0
WR1	Whitley Road, Whitley Bay	Kerbside	435801	572022	NO <sub>2</sub>	NO	10.0	2.0	No	3.0

**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 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
NTC01	428352	566974	Roadside	98.8	98.8	N/A	46	35	35.9	35.4

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.

#### 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 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
BM1	431743	570649	Roadside	100	100	20.8	22.4	16.6	16.9	18.9
BR1	427095	573616	Roadside	100	100	18.1	16.7	11.0	13.2	13.3
CC1	436246	571385	Kerbside	100	100	<b>NA</b>	<b>NA</b>	<b>NA</b>	14.0	23.9
CH1	433580	567865	Kerbside	92	92	27.3	30.2	22.1	25.0	26.3
CH5	434456	568275	Roadside	92	92	24.4	26.4	17.6	21.0	20.1
CM1	435803	571122	Industrial	100	100	16.5	17.8	12.2	13.5	13.4
FS1	434064	571727	Kerbside	100	100	19.8	21.6	16.4	16.6	16.8
GH1	431751	571811	Kerbside	100	100	21.7	24.6	17.5	18.5	18.5
HP1	430473	570490	Roadside	92	92	<b>NA</b>	<b>NA</b>	<b>NA</b>	14.4	16.6
HR1	432664	566413	Suburban	92	92	23.5	26.7	19.5	23.6	22.6
HW3	433202	566428	Roadside	100	100	18.1	20.7	16.7	18.4	16.8
LB1	426871	568591	Industrial	100	100	32.1	28.9	20.3	22.2	23.1
LB2	427094	568383	Kerbside	100	100	23.6	26.5	18.8	20.5	24.5
LH7	430735	567974	Roadside	92	92	22.1	25.5	20.0	23.5	25.6
LP1	424237	573762	Kerbside	83	83	19.4	16.4	12.8	10.2	12.1
MC1	426331	570973	Kerbside	92	92	<b>N/A</b>	<b>N/A</b>	15.2	17.1	17.5
MR1	436720	569437	Roadside	100	100	<b>N/A</b>	18.1	12.3	13.2	13.6
NS10	434103	569099	Kerbside	100	100	22.1	22.9	19.2	20.0	20.0
PG2	435069	569861	Roadside	100	100	26.4	26.2	20.3	22.1	20.0
RV1	435076	573325	Roadside	100	100	<b>NA</b>	<b>NA</b>	<b>NA</b>	18.1	15.2
SP1	430444	570242	Roadside	100	100	25.3	29.2	21.5	23.0	23.2
TR1	431831	566955	Roadside	100	100	25.5	25.4	21.2	24.0	22.0
TY1	437016	569377	Roadside	100	100	23.6	28.4	18.1	18.8	18.4
W10	429316	567388	Kerbside	100	100	28.3	31.6	23.1	26.1	26.1
W17	429094	568218	Roadside	83	83	18.6	19.2	14.0	15.2	14.8
W99	429934	566314	Kerbside	100	100	24.4	25.5	19.0	20.2	18.6
WB9	435390	571977	Kerbside	100	100	19.7	23.9	17.5	17.6	17.7
WB20	435205	571823	Kerbside	83	83	15.8	16.9	13.1	13.2	13.2

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 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
WR1	435801	572022	Kerbside	100	100	21.4	21.1	17.0	16.9	16.5

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 NO<sub>2</sub> annual mean objective of  $40\mu\text{g}/\text{m}^3$  are shown in **bold**.

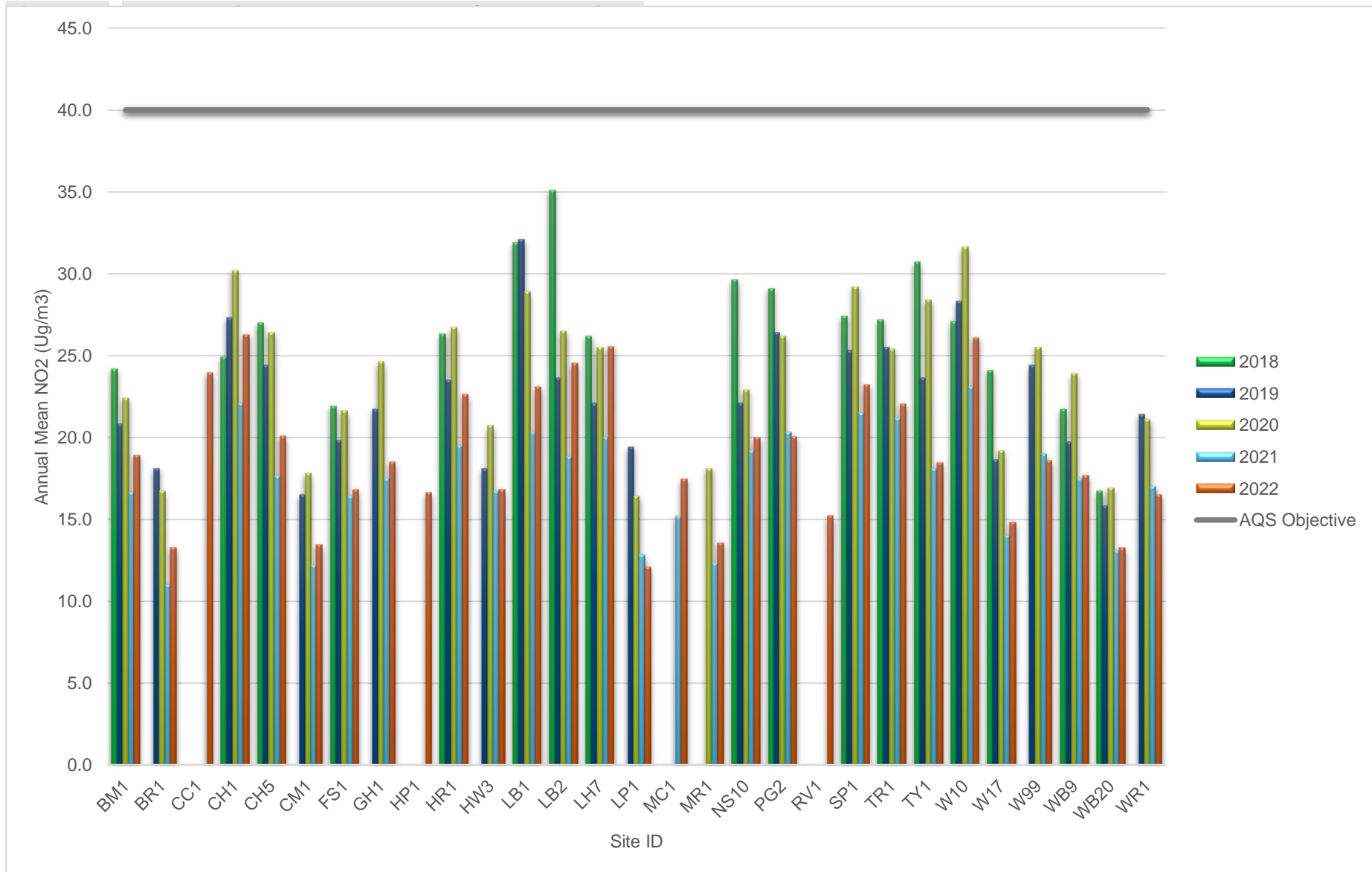
NO<sub>2</sub> annual means exceeding  $60\mu\text{g}/\text{m}^3$ , indicating a potential exceedance of the NO<sub>2</sub> 1-hour mean objective are shown in **bold and underlined**.

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%).





**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 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
NTC01	428352	566974	Roadside	98.8	98.8	<b>N/A</b>	0	0	0	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 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
NTC01	428352	566974	Roadside	91.3	91.3	<b>N/A</b>	17	15.4	16.7	20.9

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

**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 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
NTC01	428352	566974	Roadside	91.3	91.3	N/A	5	3	1	8

**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 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
NTC01	428352	566974	Roadside	91.3	91.3	N/A	9	7.5	8.06	9.98

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

**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 2022

Table B.1 – NO<sub>2</sub> 2022 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
BM1	431743	570649	25.0	19.7	34.3	18.8	14.7	15.1	16.2	17.4	18.1	24.4	37.7	32.0	22.8	18.9	-	
BR1	427095	573616	13.4	9.9	27.4	15.1	10.6	13.9	11.8	13.6	14.1	16.5	25.6	20.0	16.0	13.3	-	
CC1	436246	571385	17.1	14.5	22.1	11.5	158.8	20.5	12.4	12.4	12.4	16.6	25.2	22.8	28.9	23.9	-	
CH1	433580	567865	28.1	22.0	50.1	29.6	22.0	20.7	25.5	25.7	29.5	NA	62.5	32.3	31.6	26.3	-	
CH5	434456	568275	28.5	23.6	31.0	20.6	17.0	17.8	17.8	20.3	23.0	23.8	42.4	NA	24.2	20.1	-	
CM1	435803	571122	17.8	13.6	25.5	14.0	11.2	11.2	13.5	12.7	14.2	15.9	22.2	22.6	16.2	13.4	-	
FS1	434064	571727	20.6	17.7	30.4	18.6	16.1	14.7	15.1	17.2	16.8	20.3	27.7	27.9	20.2	16.8	-	
GH1	431751	571811	23.4	21.4	32.5	18.3	16.0	17.3	18.3	19.4	21.8	21.0	30.4	27.5	22.3	18.5	-	
HP1	430473	570490	16.8	14.4	31.7	19.7	13.5	NA	15.1	17.3	16.9	18.7	31.2	24.9	20.0	16.6	-	
HR1	432664	566413	NA	24.6	39.6	25.3	22.0	21.2	22.3	25.0	26.2	26.2	34.4	33.1	27.3	22.6	-	
HW3	433202	566428	25.4	21.2	26.3	17.4	13.7	14.4	14.8	17.3	19.9	20.3	25.0	27.4	20.2	16.8	-	
LB1	426871	568591	27.6	24.5	40.1	28.9	23.0	23.4	22.3	24.3	25.8	26.7	34.5	32.4	27.8	23.1	-	
LB2	427094	568383	33.9	27.2	40.5	25.7	22.5	24.5	24.9	27.2	30.2	29.9	34.7	33.2	29.5	24.5	-	
LH7	430735	567974	31.6	26.5	37.8	24.0	NA	NA	23.6	26.4	30.6	31.4	40.1	36.2	30.8	25.6	-	
LP1	424237	573762	NA	12.4	NA	13.6	10.2	10.1	11.7	12.9	14.2	16.6	23.5	20.6	14.6	12.1	-	
MC1	426331	570973	20.8	17.9	32.9	18.8	16.7	16.5	17.3	18.3	21.0	21.6	29.7	NA	21.0	17.5	-	
MR1	436720	569437	21.2	15.0	23.3	11.7	11.3	11.2	14.7	12.5	12.4	15.8	23.3	23.7	16.3	13.6	-	
NS10	434103	569099	36.7	27.5	29.6	17.4	17.8	20.2	16.4	19.8	19.1	25.2	28.1	31.2	24.1	20.0	-	
PG2	435069	569861	32.8	28.8	32.0	19.4	17.0	15.7	18.9	20.8	23.3	22.7	29.1	29.1	24.1	20.0	-	
RV1	435076	573325	2.5	16.1	28.1	18.9	14.6	13.9	13.9	19.0	18.3	20.2	27.4	27.2	18.3	15.2	-	
SP1	430444	570242	25.3	23.7	43.0	28.9	21.5	22.2	23.5	26.0	25.9	26.8	36.9	31.9	28.0	23.2	-	
TR1	431831	566955	27.7	25.0	36.4	23.4	20.1	20.9	23.2	26.3	29.1	24.5	30.6	31.3	26.5	22.0	-	
TY1	437016	569377	29.8	20.0	24.2	17.9	15.7	16.8	18.7	19.8	17.3	23.5	28.6	33.9	22.2	18.4	-	
W10	429316	567388	34.6	27.5	40.3	25.7	23.5	26.7	28.2	29.8	28.8	33.7	40.1	38.5	31.4	26.1	-	
W17	429094	568218	NA	NA	23.7	14.2	12.4	11.7	12.8	14.1	16.4	19.2	26.9	27.1	17.9	14.8	-	
W99	429934	566314	25.5	19.3	30.7	19.2	16.7	17.1	17.2	19.1	23.1	23.3	30.4	27.0	22.4	18.6	-	

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
WB9	435390	571977	16.8	20.7	30.7	18.9	16.5	15.6	17.5	18.4	17.2	22.4	30.9	30.2	21.3	17.7	-	
WB20	435205	571823	20.9	14.9	23.0	12.7	NA	9.7	NA	8.4	10.8	13.8	21.8	23.6	15.9	13.2	-	
WR1	435801	572022	17.1	19.7	29.2	14.8	12.6	15.2	17.6	16.1	16.4	20.8	30.5	28.7	19.9	16.5	-	

- 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.
- North Tyneside Council confirm that all 2022 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 North Tyneside During 2022

#### Planning:

There were two new developments during 2022 that were identified to have potential effects on the air quality within North Tyneside. One of the planning applications was for residential developments of which an Air Quality Assessment was provided to gain approval. The other application was a hybrid development consisting of a well being hub that included for residential properties and associated commercial units including health care buildings and a nursery. Further information on the new developments is given as follows:

22/01122/FUL. –This planning application was for a development of 228 residential dwellings with access, landscaping, sustainable drainage, and associated infrastructure. The development site is located in the Wallsend area of North Tyneside and was permitted on the 5 January 2023. An Air Quality Assessment was provided as part of the application that considered the potential increase in air pollutants resulting from the development. The principal pollutants of concern were identified as nitrogen dioxide and particulates, arising from road traffic vehicles. The Air Quality Assessment has concluded that there will be a negligible increase in both nitrogen dioxide and particulates and overall air pollutant levels will be below the air quality objective levels for NO<sub>2</sub> and particulates if the development was to occur. Mitigation measures were recommended within the Air Quality Assessment that included for transport related measures such as electric vehicle charging infrastructure and travel plans. Construction dusts were considered, and a condition was recommended to be attached to the planning consent to ensure the dust mitigation measures recommended within the air quality report are implemented, as the track out risk for dust arising was assessed as medium.

21/02191/FUL – This application was permitted on the 21 June 2022. The planning application was for the construction of an extra care site that included for a health and wellbeing hub, a children's nursery (and residential dwellings for people in later life) together with access roads, car parking areas, landscaping areas, SuDS basins and other ancillary works. An Air Quality Assessment was provided as part of the application that considered the potential impact arising from road traffic related emissions from the A19 road affecting the proposed development. The principal pollutants of concern were identified as nitrogen dioxide and particulates, arising from road traffic vehicles. The Air Quality Assessment determined that there will be a negligible impact from both nitrogen dioxide and particulates and overall air pollutant levels will be below the air quality objective levels for NO<sub>2</sub> and PM<sub>10</sub> if the development was to occur. It was considered that any new development will contribute to the overall air quality levels within an area and therefore although the overall impacts on the new development were determined to be negligible there would still be impacts and therefore some mitigation measures were recommended to be incorporated within the scheme to address air pollutants, e.g. such as the provision of electric car charging points, travel plans and use of low NO<sub>x</sub> boilers.

**Table C.1 – New Industrial Sources**

Permit No.	Company Name	Address	Guidance Note	Description
NT172	Activate Accident Repair Ltd	Unit 2 Balliol Business Park, Benton Lane, Newcastle upon Tyne, NE12 8EU	Pg 6/34	Respraying of Road Vehicles

The permit was issued on the 26 August 2022. The process involves the respraying of vehicles within a spray booth, using compressed air spraying to apply the coating and finishing products. Equipment is cleaned within a fully enclosed automatic spray gun cleaning unit fitted with extraction system within a dedicated paint storage room. All cleaning solvents are returned to sealed containers. VOC releases will occur from spillages and handling, extraction systems, curing and baking within the spray booth, storage and waste materials.



## Additional Air Quality Works Undertaken by North Tyneside Council During 2022

North Tyneside Council has not completed any additional works within the reporting year of 2022.

### QA/QC of Diffusion Tube Monitoring

#### Diffusion Tube Annualisation

Diffusion tube monitoring has been completed in adherence with the 2022 Diffusion Tube Monitoring Calendar. All diffusion tube monitoring locations within North Tyneside 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 2022 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.TG16 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.

North Tyneside Council have applied a national bias adjustment factor of 0.83 to the 2022 monitoring data. A summary of bias adjustment factors used by North Tyneside Council over the past five years is presented in Table C..

- A summary of bias adjustment factors used by North Tyneside over the past five years is presented in Table C..
- North Tyneside Council operates a continuous NO<sub>2</sub> monitoring station on the Coast Road Site but there are no co-location tubes available at the site to derive a local bias factor, thus the national bias adjustment factor spreadsheet has been used.
- Diffusion tubes for North Tyneside Council are supplied and analysed by Gradko International Ltd who are UKAS accredited testing laboratory (No. 2187) to

ISO:17025:2017. The laboratory also participates in the AIR PT analysis proficiency testing scheme, with their performance considered satisfactory for the assessment period May 2020 to June 2022. The tubes were prepared using the 20% TEA in water preparation method. The national bias adjustment factor for Gradko 20% TEA in water is 0.83 for the year 2022 (based on twenty seven studies) as derived from the national bias adjustment factor spreadsheet as presented in Table C.1

**Table C.1 – Bias Adjustment Factor**

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2022	National	03/23	0.83
2021	National	03/22	0.84
2020	National	03/21	0.81
2019	National	03/20	0.93
2018	National	03/18	0.92

### **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.

No diffusion tube NO<sub>2</sub> monitoring locations within North Tyneside required distance correction during 2022.

### **QA/QC of Automatic Monitoring**

North Tyneside utilities data from an automatic monitoring site operated and owned by the Urban Observatory at Newcastle University. The Urban Observatory carries out routine manual calibrations fortnightly. The supplier, Air Monitors, carries out maintenance and

independent calibration on the equipment every six months. North Tyneside Council uses Ricardo to ratify the data. The [https://www.airqualityengland.co.uk/local-authority/reports?la\\_id=255](https://www.airqualityengland.co.uk/local-authority/reports?la_id=255) page presents automatic monitoring results for North Tyneside, with automatic monitoring results also available through the UK-Air website.

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

The type of PM<sub>10</sub> and PM<sub>2.5</sub> monitors utilised within North Tyneside do not require the application of a correction factor.

### **Automatic Monitoring Annualisation**

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

### **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.

There were no automatic NO<sub>2</sub> monitoring locations within North Tyneside that required distance correction during 2022.

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

Figure D.1a – Map of Non-Automatic Monitoring Site (North East)

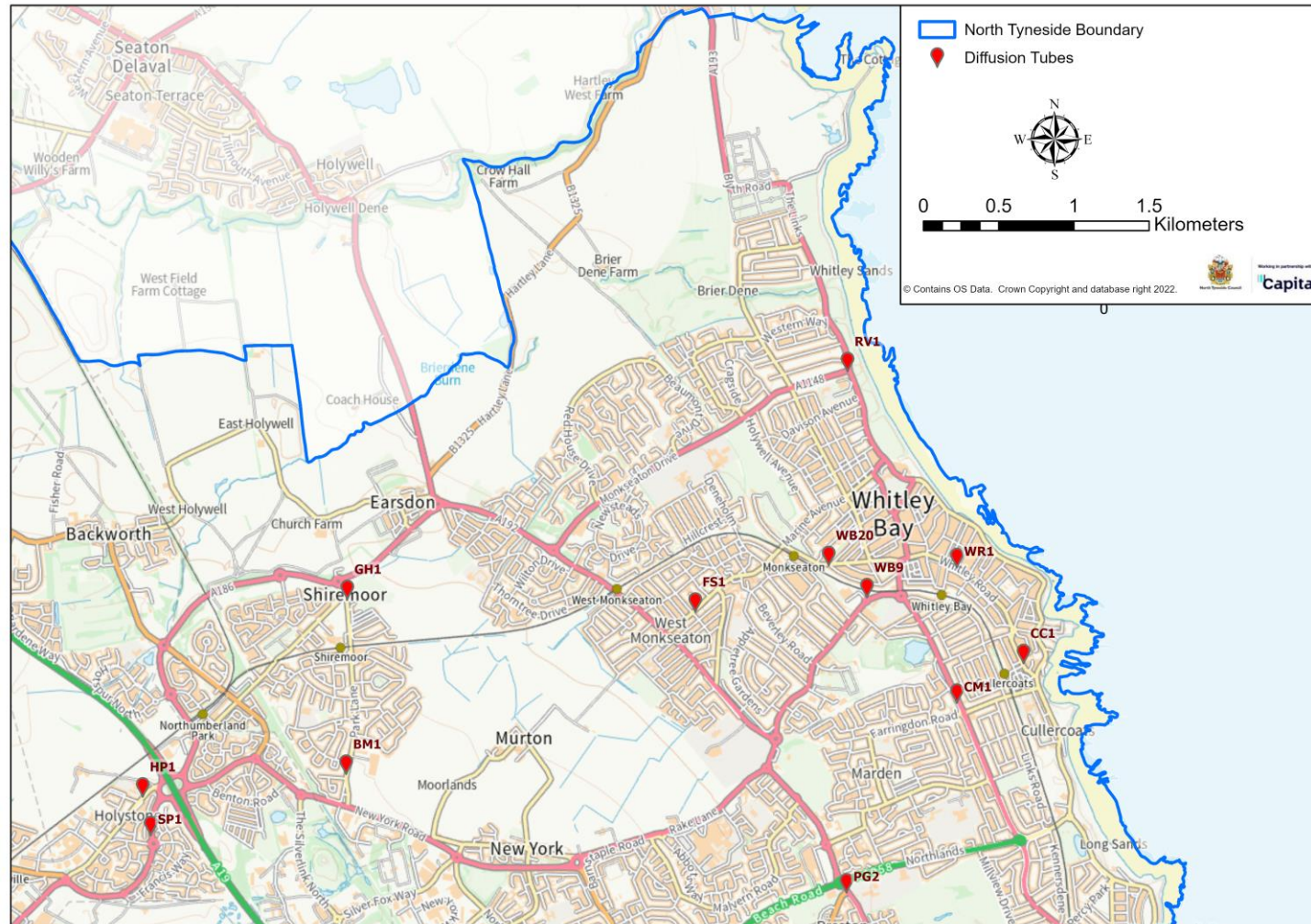




Figure D.2b – Map of Non-Automatic Monitoring Site (North West)

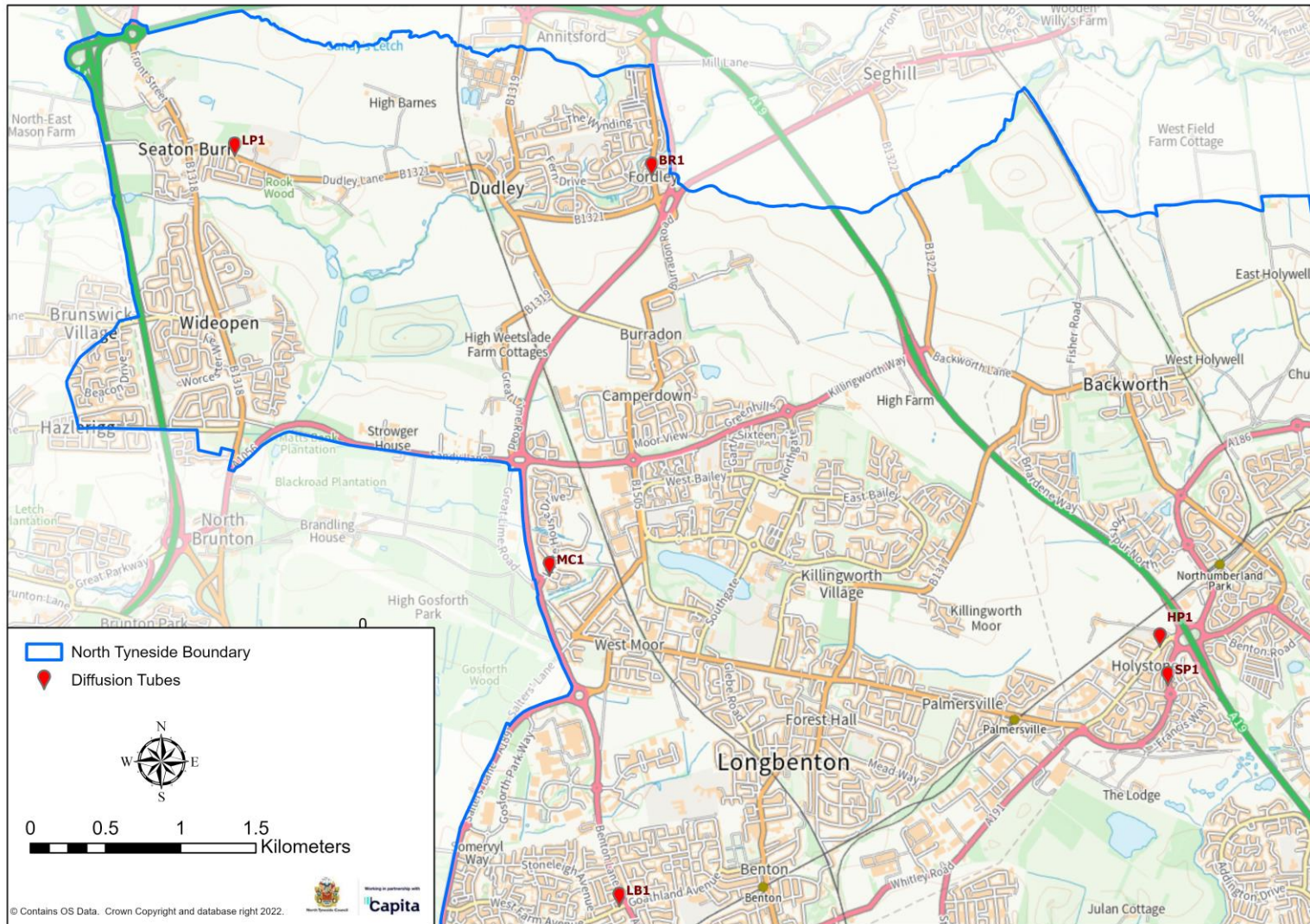
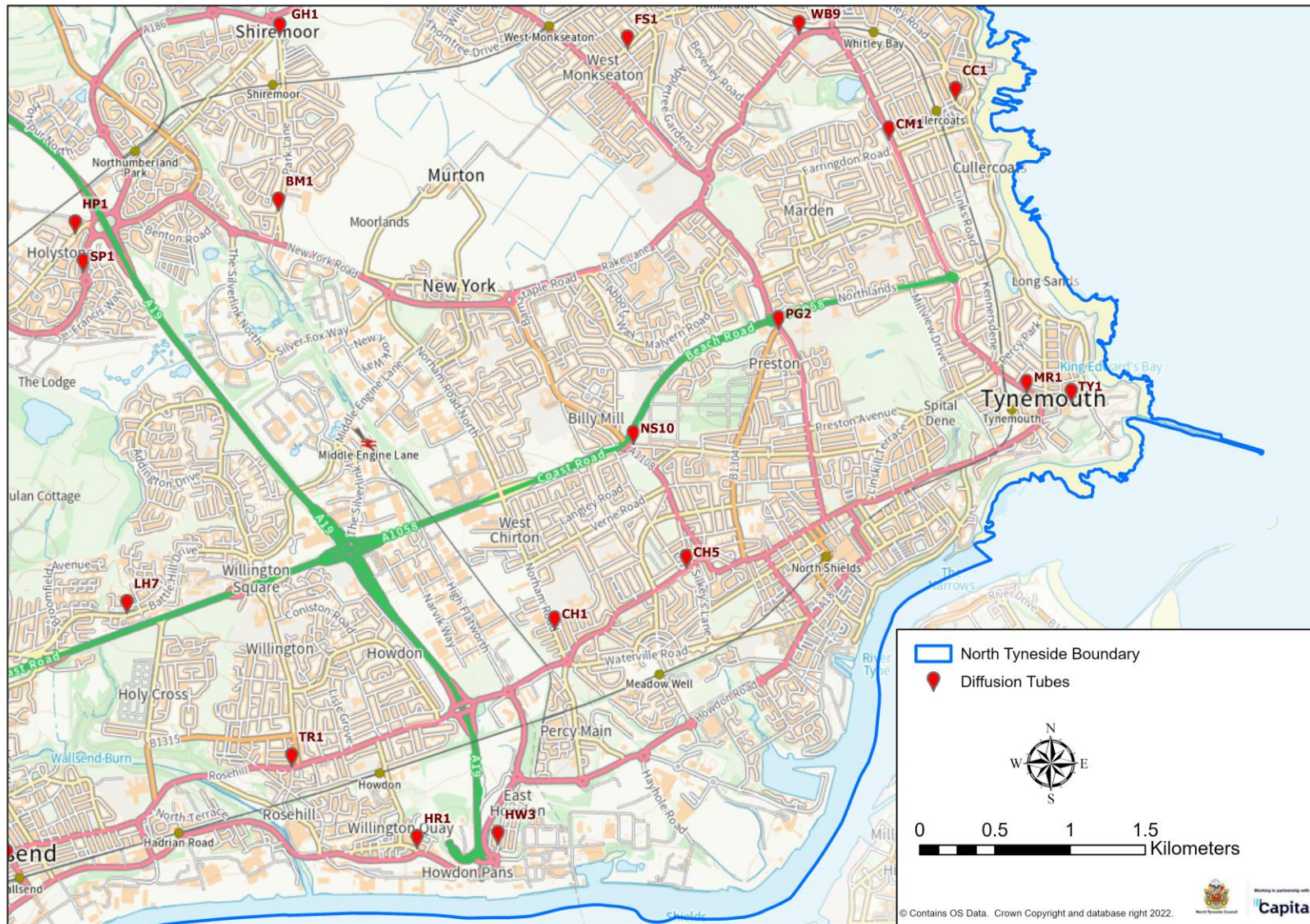




Figure D.3c – Map of Non-Automatic Monitoring Site (South East)







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

**Table E.1 – Air Quality Objectives in England<sup>7</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>7</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
EU	European Union
FDMS	Filter Dynamics Measurement System
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

## References

- Local Air Quality Management Technical Guidance LAQM.TG22. August 2022.  
Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Local Air Quality Management Policy Guidance LAQM.PG22. August 2022.  
Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.