North Tyneside Council

2021 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

Date: June, 2021

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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[1,2].

The mortality burden of air pollution within the UK is equivalent to 28,000 to 36,000 deaths at typical ages[3], with a total estimated healthcare cost to the NHS and social care of £157 million in 2017[4].

North Tyneside is situated between the North Sea and the regional capital of Newcastle upon Tyne and is one of the five metropolitan districts which makes up the Tyne and Wear conurbation. The Borough is made up of 20 wards and has a residential population of around 194,000 with approximately 84,000 households and covers an area of 84km^2. 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 there are a number of large villages; Wideopen, Burradon, Annitsford, and Backworth.

The River Tyne is a commercial river with ship repair, offshore fabrication, fishing and port related industries. The riverside urban area is undergoing major regeneration which has

[1] Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

[2] Defra. Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

[3] Defra. Air quality appraisal: damage cost guidance, July 2020

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

resulted in some diversification from ship building to offshore related construction work. There has also been a number of newly developed industrial estates that have been 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. New residential areas have been developed on former industrial land adjacent to the former Amec shipyard at Wallsend, Hayhole gas works at Wallsend and a new large development at The Limes, Great Lime Road, Palmersville and also 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 maybe used.

Although there are no Air Quality Management Areas (AQMAs) within the Borough, North Tyneside has one area of concern for nitrogen dioxide (NO_2) located along an 800m stretch of the A1058 footpath from the Newcastle/ Wallsend boundary. In 2017, DEFRA's "UK Air Quality Plan For Tackling Nitrogen Dioxide" identified this kerbside location on A1058 Wallsend/ Newcastle boundary as exceeding the EU NO_2 annual mean limit value. North Tyneside was therefore identified as one of the Local Authorities with a NO_2 exceedance derived from traffic data and air quality modelling. It is important to note that as per LAQM.TG16 guidance a footpath location would not be representative of exposure for the annual mean NO_2 air quality objective. As the UK Plan utilises Ambient Air Quality Directive (AAQD) siting criteria exposure has been identified at 4m from the kerbside of roadlinks where there is any public access.

This NO_2 kerbside exceedance area was for an area of 800 metres along the Coast Road A1058 at the Borough boundary with Newcastle. Detailed dispersion modelling using traffic data indicated that this area is expected to be marginally above the EU limit value for NO_2 by 2020. The Local Authority were directed by government to comply with the legal NO_2 limits in the shortest time possible. The Local Authority are held responsible for NO_2 compliance and was tasked to undertake as part of the UK plan for tackling roadside NO_2 concentrations 2017, a Targeted Feasibility Study in accordance with the HM Treasury's Green Book approach. This was completed to identify the option(s) which will deliver compliance in the shortest possible time.

Measures to address the precited Coast Road A1058 exceedances were reviewed as part of an option appraisal assessment to determine the possible actions to improve air quality

in this area in the shortest possible time. The options appraisal process was developed as a joint initiative between the three authorities; Newcastle, Gateshead and North Tyneside identified with NO_2 exceedances. A joint bid was successfully awarded to ensure all buses passing through NO_2 exceedance zone were able to be retrofitted to improve air quality emissions. Appraisal modelling showed that this would reduce NO_2 emissions to ensure compliance with the EU limit value in North Tyneside by 2020. The option appraisal process determined that a Clean Air Zone (CAZ) would be introduced for the Newcastle Tyne Bridge area, but that an extension of the zone was not required within North Tyneside Borough. Other potential measures considered included supporting a fleet policy for businesses, further investment in public transport and walking and cycling routes to improve traffic flow and promote sustainable transport modes. These measures and updates regarding them are detailed in Table 2.2.

Monitoring carried out throughout the Borough continues to present concentrations below the UK air quality objectives, including the area around the Coast Road A1058. Road traffic emissions continue to be the main source of air quality emissions across the Borough. Through increased consultation and accessible information, local residents and community groups have identified air quality as a focus of concern. In response to air quality concerns by a local interest party, a number of NO_2 diffusion tubes were moved in 2018 to cover new areas of the Borough, this included for sites in Seaton Burn, Hazelrigg and Annitsford. The main pollutants monitored within the Borough of North Tyneside are NO_2 and $PM_{2.5}$ and PM_{10} which are principally traffic related emissions. These have remained in place throughout 2019 and 2020 and following these re-locations only 1 new tube has been introduced. This is located on White House Drive – adjacent Miller and Carter, there have been no further new/relocated locations.

The latest annual monitoring data for 2020 for NO_2, $PM_{2.5}$ and PM_{10} have reported concentration levels that are below the air quality objectives. Due to this there was no requirement to declare any AQMAs.

There were four major road developments granted planning approval in 2020 that had the potential to give rise to any concerns relating to air quality impacts. These were all granted after they each provided adequate air quality assessments that were reviewed by the air quality department of North Tyneside Borough Council that concluded that there was no risk the air quality objectives being exceeded . The details of these are listed on Appendix C.

One new industrial process started operating in 2019 which will lead to localised emissions of volatile organic solvents. One new pollutant source was identified in 2019 and continued in 2020. Crown Packaging a surface coating process which is regulated under the Environmental Permitting Regulations 2016 to control and minimise. It has abatement plant known as thermal oxidisers to control emissions to atmosphere and emissions limits are stipulated within the permit to mitigate effects from the process. The permit was granted on the 14th of January 2020.

There are no new major sources of nitrogen dioxide and particulate matter in the Borough in 2020. North Tyneside Council will continue to monitor for nitrogen dioxide using passive and real time monitoring, and particulates using the real time station.

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades and will continue to improve due to national policy decisions, there are some areas where local action is needed to improve air quality further.

The 2019 Clean Air Strategy[5] sets out the case for action, with goals even more ambitious than EU requirements to reduce exposure to harmful pollutants. The Road to Zero[6] sets out the approach to reduce exhaust emissions from road transport through a number of mechanisms; this is extremely important given that the majority of AQMAs across the UK are designated due to elevated concentrations heavily influenced by transport emissions.

Within 2020 the North East Region (including North Tyneside) have began to agree the areas first Transport Plan. This will includeinvestment in electric vehicle charging, a local bus partnership, smart ticketing and more.

- Multi-operator smartcard ticketing via Network One, available throughout the area to improve integration between different bus companies, Tyne and Wear Metro, the Shields Ferry, and local rail services;

[5] Defra. Clean Air Strategy, 2019

[6] DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

- A boost to the region's electric vehicle charging infrastructure with the introduction of seven new public charge point "clusters" around the region, thanks to funding from the Local Growth Fund;
- A high visibility promotional campaign to run this summer, encouraging the public to get out and about using active travel and support local staycations and businesses as the region looks to recover from the impact of the pandemic;
- A partnership approach to working with local bus companies (through NEbus, their local association) to help bus services recover from the devastating financial effects of the pandemic, and to make bus journeys faster, greener and more attractive.

North Tyneside Borough Council's actions to improve air quality during 2020 have continued to focus on major road improvements to reduce traffic congestion and improve the flow of traffic through the Borough. This includes the Coast Road A19/A1058 Silverlink Roundabout scheme to improve traffic flows on the A19 to the Tyne Tunnel and the transport infrastructure improvements to the A189 Salters Lane. This has continued within 2020 with the installation of a toucan crossing on the A189 Salters Lane, near the Gosforth Nature Reserve.

North Tyneside Borough Council is continually reviewing measures that can be taken to reduce air quality impacts. One such measure has included the purchase of ultra low emission vehicles for use by the maintenance and repairs team. This consists of ten environmentally-friendly electric vans.

The Council continues to do promotional air quality work within local schools. This is via the GoSmarter scheme. GoSmarter in North Tyneside aims to encourage more sustainable travel choices to and from schools by encouraging parents to leave the car at home and to more sustainable forms of transport via cycling, walking, scooting or using public transport. As well as aiming to change pupil, parent and staff behaviour, the initiative involves physical changes to streets near schools. As part of the initiative pupils can get involved in designing local cycling and walking improvements, which are then introduced soon afterwards.

Another measure introduced to several schools within the North Tyneside area is the implementation of School Streets. This involves the closure of streets outside school gates to motor vehicles during drop-off and pick-up times each day. The closures will be in place for 18 months initially but could be made permanent if appropriate with cones put out and signage displayed to show restricted areas, which will be marshalled by school representatives. The scheme, which will be delivered by our partner Capita, will have

multiple benefits and it is hoped it will encourage more parents and children to take up active, sustainable forms of travel to school.

North Tyneside Council are encouraging and promoting alternative clean transport modes such as cycling to improve air quality. The cycling strategy has introduced a number of cycling lanes and improved routes in the Borough to give access and safety for cyclists. The cycling network routes continue to be reviewed. As part of the “Ambition for North Tyneside” programme cycle network reviews have taken place with the aim of;

- Making the southbound section of the road along the coast between Whitley Bay and Tynemouth a two-way cycle route to allow the promenade and footpaths to be used solely by pedestrians.
- Creating more space for pedestrians along busy town centre streets to support local businesses and observe social distancing. These include Park View in Whitley Bay, High Street West in Wallsend, Nile Street in North Shields and Front Street, Tynemouth.
- Identifying ‘pop-up’ cycle routes to link the coastal strip plans to nearby town and district centres and to provide direct access to employment areas where public transport capacity is reduced.

These cycle networks will also be incorporated and used by the recently approved funding for electric cargo bikes. These aim to improve air quality, promote sustainable travel and support local businesses. The Council has been successful in a bid for more than £76,000 from the DfT’s e-Cargo Bike Grant Fund. The remainder of funding for the £84,000 scheme is made up from the Council’s contribution.

The Council encourages greater use of public transport and other modes of transport such as walking, cycling, and car sharing, when travelling to work and school, to make their journeys greener, cheaper and to provide positive health benefits. One such scheme is the Bikeability cycle training. Bikeability is 'cycling proficiency' for the 21st century, designed to give the next generation the skills and confidence to ride their bikes on today's roads.

There are three Bikeability levels. A child will typically start Bikeability Level 1 (bike handing skills) once they have learnt to ride a bike, with 9-14 year olds progressing through to Level 2 (basic road skills), and then Level 3 tackles more advanced road skills. Certificates and badges are awarded upon successfully completion of each course and pupils are encouraged and inspired to achieve all three levels. Every child in North Tyneside is given the opportunity to participate in bikeability cycle training.

North Tyneside continues to support a cycle to work scheme where employees are able to purchase a cycle via salary sacrifice. This scheme encourages employees to cycle to work and by promoting the scheme it is hoped that additional employees will choose to cycle to work and along with health benefits associated with regular exercise, it is hoped that this will improve air quality within the Borough.

North Tyneside Council also supports a car sharing scheme for all employees located at the main Council offices at The Quadrant. This scheme is managed by the Cobalt Travel Centre that coordinates drivers and passengers. An employee applies to join the scheme and the travel centre find a suitable match for the lift sharing buddy. The Council has 80 employees currently signed up for the lift sharing scheme.

Additionally, North Tyneside Council supported a bid to the Clean Bus Technology Fund which covered Go North East. Stagecoach and Arriva cross boundary services travelling between Newcastle and Northumberland. The award was part of a £40 million funding boost as part of a government drive to put more low emission buses on the roads. The funding has enabled currently 49 buses travelling along the Coast Road A1058 to be retrofitted with a Selective Catalytic Reduction (SCR) system. This technology assists reductions in NO_x and NO_2 emissions and will also reduce harmful particulate matter. A further 20 buses have been retrofitted with SCR systems in 2020.

In addition, North Tyneside Council has appraised its taxi licensing scheme to ensure that future taxi operations are environmentally sustainable and have introduced a vehicle age policy. No new licences will be granted for vehicles that are more than four years old from 2022, with existing licences requiring a vehicle over eight years old to be removed from service from 2024. All electric and zero emission vehicles are exempt from the age standards.

Within 2020 North Tyneside Council have introduced a Business Energy Saving Team (BEST) which is project delivered jointly by local authorities in the region including North Tyneside Council. BEST helps businesses save money by identifying ways to cut back on the amount of energy they use. Examples of the benefits of BEST include 3NB Ltd, the team behind Stay Coastal – a seven-suite boutique hotel in Whitley Bay which opened its doors in August. They were able to save £1,200 a year by upgrading the gas boiler and water heating system. Funded through ERDF (European Regional Development Fund), BEST is available to help businesses improve their energy efficiency and reduce costs across North Tyneside as well as Newcastle, Northumberland, Gateshead and Sunderland.

Conclusions and Priorities

We are pleased to report that no exceedances of the Air Quality Objectives were identified during the year 2020. North Tyneside Council does not currently have any AQMA's and given 2020's results the conclusion has been drawn that it is unnecessary to declare any AQMAs for any pollutants.

A review of the monitoring data over the last five years indicates a slight increase in NO_2 levels from 2016-2019 but then a slight decrease in 2020, although levels are still below the National Air Quality Objectives.

Local Engagement and How to get Involved

Air quality monitoring data on the Councils website and it is our intention to ensure the air quality strategy will be available to view on its adoption. The website provides details on how and where we monitor air quality. There is also information provided on the smoke control orders and links to the daily air pollution forecast. Copies of historic annual air quality reports are also available.

Public participation remains a high priority for the Council so that everyone can do their bit to improve air quality. Public information on how to improve the energy efficiency of their homes and in turn reduce their fuel consumption and pollution emissions is promoted on the Councils website so that the consumer can save money as well as reduce air emissions. The Council provides signposting on government initiatives to help householders to insulate their properties and the links to these initiatives are given on the Councils website.

North Tyneside Council encourages everyone to consider how they travel, as cycling and walking will improve health and well-being, but also the environment. A network of cycle routes has been developed and is promoted on North Tyneside's website.

A cycling strategy and local transport strategy have been adopted by the Council. Further information about these strategies can be obtained from the following website:

https://my.northtyneside.gov.uk/category/1226/cycling-strategy-and-design-guidance

Information on North Tyneside Council climate change and sustainability policies are available on the following websites:

Http://my.northtyneside.gov.uk/category/539/sustainability

https://my.northtyneside.gov.uk/category/1237/transport-strategy

Detailed information is also available on the government stance on air quality. Further information on Local Air Quality Management is available at the following web address:

https://uk-air.defra.gov.uk/.

Information on North Tyneside Council's air quality, including past reports are available at: http://my.northtyneside.gov.uk/category/589/air-quality

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1 Local Air Quality Management

This report provides an overview of air quality in North Tyneside during 2020. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) 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 pursuit of the objectives. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by North Tyneside 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 12 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

North Tyneside currently does not have any declared AQMAs. The provision of an Air Quality Strategy is in progress and is anticipated to be introduced to coincide with the adoption of a Climate Change strategy during year end 2020/21. For reference, a map of North Tyneside Council's monitoring locations is available in Appendix D.

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

Defra's appraisal of last year's ASR concluded;

- The Council has good QA/QC procedures, which were applied appropriately and accurately to the 2019 monitoring data; national adjustment factors have been determined
- In the report, the Council has detailed extensive measures and plans to continue to address air quality within its administrative boundaries
- On the basis of the evidence provided by the local authority the conclusions reached are acceptable for all sources and pollutants.

DEFRA's appraisal also commented a clarification point on distance correction that has been taken note of within the 2020 ASR to ensure this is completed in line with LAQM.TG16. There was positive reflection on the inclusive of an automatic monitoring station which has remained in place throughout 2020 on the Coast Road demonstrating the Councils proactive and dedicated approach to improving air quality.

The inclusion of maps and actions being taken on comments from the previous year's appraisal are also praised, these are envisaged to continue throughout this year and future ASR's for North Tyneside.

North Tyneside has taken forward a number of direct measures during the current reporting year of 2020 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.1. Six measures are included within Table 2.1, with the type of measure and the progress North Tyneside have made during the reporting year of 2020 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 have completed a number of transport improvement measures during the current reporting year of 2020 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2.

These measures all relate to transport lead air quality improvements. More details on transport related actions can be found in the Tyne and Wear Local Transport Plan, http://www.tyneandwearltp.gov.uk/documents.

The Council has a 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 has invested in a new fleet of zero emission vehicles, consisting of ten Nissan e-NV200 vehicles to be used in the construction, housing repairs, and maintenance services. These are considered ultra-low emission vehicles, and form part of the aim for the Council to move away from conventional internal combustion engines and associated tail-pipe emissions, which are harmful to the local air quality as transport related emissions contribute to the main source of pollutants in the Borough.

The provision of an Air Quality Strategy is in progress, this had been expected to be adopted in 2020, but has been subject to further delay. This strategy is still expected to be progressed during 2021. The strategy will focus on measures to address air quality improvements within the Borough including measures that will mitigate $PM_{2.5}$ impacts.

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

- Support for monitoring of NO_2 at 49 diffusion tube locations.
- Support of real time continuous air quality monitoring for NO_2 and Particulates at the real time air station located on the Coast Road A1058.

North Tyneside Council will aim to complete the following measures over the course of the next reporting year:

- Adoption of the Councils Air Quality Strategy which was delayed enabling the Council to progress a climate change strategy. Public consultation on the air quality strategy is anticipated to occur during 2021 with the strategy adopted following the consultation exercise.

The principal challenges and barriers to implementation that North Tyneside anticipates facing are the recovery time from various COVID 19 Lockdowns which has slowed the progress on certain measures. Principally, the retrofitting of buses with SCR as these were limited due to supply and installation due to social distancing measures.

Table 2.1 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	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	A189 Cycle and Walking Route	Promoting Travel Alternatives	Promotion of cycling	2020	2021	Local Authority Transport Dept.	Developers & highway infrastructure funding	NO	Funded	£100k - £500k	Implementation	Reduced vehicle emissions	Reduction of NO_2 and PM	Implementation phase	NA
2	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_2 and PM	Implementation on-going	NA
3	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_2 and PM	Implementation on-going	NA
4	Retrofitting of Buses with SCRT	Promoting Low Emission Transport	Other	2019	2021	Local Authority Environmental Health	Clean Bus Technology Fund	YES	Funded	£1 million - £10 million	Implementation	Reduced vehicle emissions	Reduction of NO_2	Nearing Completion	Delays due to Covid 19
5	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_2, PM	Implementation on-going	NA
6	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_2, PM	Implementation on-going	NA

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

As detailed in Policy Guidance LAQM.PG16 (Chapter 7), local authorities are expected to work towards reducing emissions and/or concentrations of $PM_{2.5}$ (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that $PM_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Poor air quality due to particulate pollution is associated with both short and long-term adverse effects on human health. Short term exposure to high levels of air pollution can cause a range of adverse effects: exacerbation of asthma, effect on lung function, an increase in hospital admissions for respiratory and cardio-vascular conditions and increases in mortality. Long-term exposure to air pollution increases mortality risk. The relative risks associated with long-term exposure are higher than short term exposure. Public Health England (PHE) has stated that exposure to $PM_{2.5}$ is a significant cause of disease in England, and is at least as important as road accidents, communicable disease, liver disease and suicide. Poor air quality has an adverse effect on health, including reduced life expectancy and increased morbidity.

North Tyneside Council aims to adopt an Air Quality Strategy to address the measures taken to reducing $PM_{2.5}$ in the Borough. This strategy will be initiated and progressed through the use of a Steering Group, whose membership consists of all relevant partners including transport planners, public health team, planning, climate change team and environmental health. The strategy will detail the actions necessary to help improve and promote air quality and thereby have the overall benefit of contributing to reducing $PM_{2.5}$.

North Tyneside is taking the following measures to address $PM_{2.5}$:

- Use of an Air Quality steering group to prioritise actions and measures to tackle $PM_{2.5}$. The membership consists of all relevant partners including transport planners, public health team, planning, climate change team and environmental health. Other relevant partners will be encouraged to attend including the North East Combined Authority that is responsible for strategic transport across all seven local authority areas in the North East.
- Adoption of the Air Quality Strategy, anticipated to be progressed during 2020 that will include for the air quality actions and measures, for example:

- Continuing commitment to improve traffic management such as use of bus lanes, cycle lanes and traffic light sequencing measures to reduction congestion and ensure free flowing traffic.
- 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.
- Reduce emissions from road transport; this includes encouraging alternatives to the car, reducing emissions from vehicles on the road and encouraging the uptake of alternative 'low emission' vehicles. Other measures to consider include the introduction of electric charging points, parking charges, reducing of engines idling etc.
- Promotion of alternative modes of travel e.g. public transport, cycling initiatives, car sharing schemes, introduction of green travel plans. A cycling strategy was adopted in 2018 to promote and encourage cycling as a healthy and sustainable way of making everyday journeys. The cycling strategy outlines the Councils 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 webpage. Local residents will be encouraged to compost garden waste rather than burn it in bonfires.

North Tyneside Council secured 1.2m funding for the retrofitting of 69 buses operated by Arriva, Go North East and Stagecoach to meet latest emission standards. The buses to be retrofitted with SCR technology operate along the Coast Road A1058 and are those that operate within the 800m NO_2 exceedance area. The retrofitting programme commenced in July 2019 and was partially completed in 2020. The retrofitting of the 69 buses is to be completed in due course, and this will help to reduce primary and secondary sources of $PM_{2.5}$. However, there were delays during 2020 due to COVID 19 lockdowns which has prevented the full completion of all buses, but this is anticipated to be completed during 2021.

The use of an age standard for all taxi licensed to operate within the Borough will provide air quality benefits for both particulates and NO_2. The Council has appraised its taxi licensing scheme and introduced a policy to require all new taxis to be less than four years old from 2022. Current taxi licences when renewed will have to be less than eight years

old from 2024. 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.

The Environmental Health Team of North Tyneside Council closely monitors dust emissions from industrial installations and respond to any complaints regarding dust emissions from demolition and/or construction sites. It is considered that construction sites contribute to localised particulate emissions and therefore as part of the planning process a condition is attached where applicable to approvals requiring construction sites to have a Construction Environmental Management Plan (CEMP) in place.

North Tyneside Council promotes the provision of the smoke control areas within the Borough to remind residents that it is an offence to create smoke from a chimney except if using authorised fuel or an exempt fireplace or smoke arising 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 s to minimise particulate emissions.

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 2020 by North Tyneside and how the monitoring results compare with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2016 and 2020 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

North Tyneside undertook automatic (continuous) monitoring at one site during 2020. Table A.1 in Appendix A shows the details of the automatic monitoring sites. The 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 .

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.

Monitoring at two real time continuous sites in North Tyneside was discontinued in 2019. The sites were Howdon Sewage Works in East Howdon and High Street East, in Wallsend. The air quality monitoring software for these two air quality stations suffered a major failure during 2019 and all data on the database could not be recovered. A decision was taken to decommission the two real time air stations at Wallsend and East Howdon. Unfortunately it was not cost effective to continue supporting the monitoring equipment as our supplier had identified the equipment as obsolete and if it malfunctioned it would not be repairable.

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

3.1.2 Non-Automatic Monitoring Sites

North Tyneside undertook non- automatic (i.e. passive) monitoring of NO_2 utilising NO_2 diffusion tubes at 50 sites during 2020. Table A.2 in Appendix A presents the details of the non-automatic sites.

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

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO_2)

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

For diffusion tubes, the full 2020 dataset of monthly mean values is provided in Appendix B. The concentration data presented in Table B.1 includes distance corrected values, only where relevant.

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

The most recent diffusion tube data in 2020 has shown that no diffusion tube locations have an annual mean concentration above the annual mean objective level. The highest recorded annual means were at the location FAS3 which reported annual mean concentrations, following bias adjustment, of 31.0µg/m^3.

The annual mean real time monitoring NO_2 results of Table A.3 indicates a decrease in concentrations at all sites compared to the 2019 data. This is due to reduced traffic levels and completed roadworks around the high tube reading locations from 2019.

The long-term trend chart in Figures A.1 and A 2 provide a comparison between 2016 and 2020 of the long-term monitoring sites and shows a slight increase in nitrogen dioxide levels at some of the sites from 2015 to 2019, but then a decrease at all locations through 2020. This is believed to be the result of decreased traffic resulting from COVID related lockdowns and restrictions.

The real time continuous air station located on the Coast Road has shown that the annual mean concentration was just below the annual mean objective level of 40µg/m^3 (35µg/m^3), but this site is located at the roadside, some 80 metres to the nearest residential property on Home Park. Passive NO_2 monitoring carried out on Home Park at nearest residential premises to Coast Road in 2019 indicated emission levels of 23.5µg/m^3, well below the annual mean objective. As a consequence of this low reading the Council have removed the CR1 tube location for 2020.

It is concluded that the NO_2 monitoring results for both the continuous monitoring site, and the diffusion tube locations show consistent results below the annual mean NO_2 objective. In addition the 1-hour NO_2 objective has not exceeded at the Coast Road monitoring location, and due to all diffusion tube monitoring locations being below 60µg/m^3 there is no indication that the 1-hour mean objective is likely to be breached.

3.2.2 Particulate Matter (PM_{10})

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

Table A.7 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past five years with the air quality objective of 50µg/m^3, not to be exceeded more than 35 times per year. This has shown that there have been three occasions when the daily mean concentration has been exceeded, this is a decrease from 2019 when five occasions of exceedance were noted.

3.2.3 Particulate Matter ($PM_{2.5}$)

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

The annual mean for 2020 was 7.5µg/m^3 which is well below the 2020 target concentration of 25µg/m^3, and a decrease from the 2019 value of 9µg/m^3.

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) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
NTC01	Coast Road	Roadside	428352	566974	NO_2,PM_{10},$PM_{2.5}$	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	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Height (m)
MC1	White House Drive – adjacent Miller and Carter	Kerbside	427067	568371	NO_2	N/A	2.0	3
LP1	Dudley Lane, Seaton Burn	Kerbside	426806	568780	NO_2	10.0	<1	3
LB2	Front Street/Benton road, Longbenton	Kerbside	430713	567967	NO_2	2.0	<1	3
LB1	West Farm Avenue/Benton Road, Longbenton	Industrial	426871	568591	NO_2	6.0	2.0	3
MR1	Tynemouth	Roadside	436723	569438	NO_2	10.0	<1	3
LH7	Battlehill Drive, Wallsend	Roadside	429262	567378	NO_2	4.0	4.0	3
W17	Hotspur Road, Wallsend	Roadside	429316	567391	NO_2	5.0	2.0	3
W10	Coast Road, Wallsend	Kerbside	431854	566961	NO_2	3.0	2.0	3
W99	Frank Street, Wallsend	Kerbside	432876	567249	NO_2	30.0	2.0	3
TR1	Tynemouth Road, Rosehill	Roadside	432664	566413	NO_2	3.0	2.0	3
BR1	Burradon Road, Annitsford	Roadside	427095	573616	NO_2	5.0	2.0	3
HW3	Meldon Street, East Howdon	Roadside	431445	566574	NO_2	2.0	<1	3
HR1	Bewicke road, Willington Quay	Suburban	433194	566418	NO_2	5.0	2.0	3

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Height (m)
NW1, NW2, NW3	Northumberland Dock Road, East Howdon	Industrial	433289	566313	NO_2	N/A	10.0	3
CH1	Norham Road/Rothbury Terrace	Kerbside	433580	567865	NO_2	N/A	<1	3
CH5	Front Street, Chirton	Roadside	433097	569066	NO_2	N/A	2.0	3
NS10	Queen Alexandra Road, North Shields	Kerbside	434461	568278	NO_2	N/A	<1	3
PG2	North Road/Preston Road, Preston	Roadside	434096	569100	NO_2	1.0	2.0	3
TY1	Front Street, Tynemouth	Roadside	435069	569861	NO_2	3.0	<1	3
WR1	Whitley Road, Whitley Bay	Kerbside	437016	569377	NO_2	10.0	2.0	3
WB9	Morrisons Petrol Station, Whitley Bay	Kerbside	435671	571019	NO_2	2.0	2.0	3
CM1	Broadway, Cullercoats	Industrial	435205	571823	NO_2	15.0	<1	3
WB20	Grosvenor Drive/Norham Road, Whitley Bay	Kerbside	435390	571977	NO_2	N/A	<1	3
FS1	Front Street, Monkseaton	Kerbside	434953	572040	NO_2	5.0	<1	3
GH1	Lower Crane Street, Shiremoor	Kerbside	434064	571727	NO_2	5.0	2.0	3

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Height (m)
BM1	Park Lane, Shiremoor	Roadside	431743	570649	NO_2	4.0	2.0	3
SP1	Holystone Way, Holystone	Roadside	430444	570242	NO_2	5.0	2.0	3
FAS1	Junction Forest Hall Road/Gt Lime Rd	Kerbside	570288	428215	NO_2	5.0	1.0	3
FAS2	A189/benton Lane roundabout	Roadside	570226	526563	NO_2	10.0	2.0	3
FAS3	A1056 Killingworth Way roundabout	Kerbside	571767	526197	NO_2	25.0	0.4	3
FAS4	A1056/B1318 Junction	Kerbside	571772	424277	NO_2	N/A	0.4	3
FAS5	A191/Coach Ln junction	Kerbside	568552	427471	NO_2	N/A	0.8	3
FAS6	A191/Tyne Park junction	Roadside	568613	427845	NO_2	N/A	1.0	3
FAS7	A191/A186 Station Road/Whitley Rd rounabout	Roadside	568999	428961	NO_2	10.0	1.2	3
FAS8	A191/Wheatsheaf Roundabout	Roadside	569991	429844	NO_2	20.0	1.3	3
FAS9	A186/A191 Holystone Roundabout	Kerbside	570609	430531	NO_2	N/A	0.4	3
FAS10	A191 New York R/Park Ln Junction	Roadside	570391	431852	NO_2	4.0	1.5	3

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Height (m)
FAS11	A191 New York Rd opp Silverfox Way	Roadside	570109	432509	NO_2	N/A	2.8	3
FAS12	Middle Engine Lane underpass	Roadside	568712	431803	NO_2	16.0	1.6	3
FAS13	A1058/A19 Silverlink junction	Kerbside	568472	432252	NO_2	4.0	0.8	3
FAS14	Battlehill Dr/Addington Dr junction	Kerbside	568369	431583	NO_2	N/A	2.2	3
FAS15	A193/A19 Junction	Roadside	567408	433009	NO_2	N/A	1.6	3
FAS16	A193 TTTE Roundabout	Roadside	567473	433247	NO_2	4.0	0.9	3
FAS17	A1058/A192 Preston rd N Roundabout	Roadside	569946	434992	NO_2	N/A	1.5	3
FAS18	Rake Ln/Seatonville Rd Roundabout	Kerbside	570901	434638	NO_2	N/A	0.8	3
FAS19	Station Rd, forest Hall adj Oakhurst Terrace	Roadside	569039	427774	NO_2	17.0	1.3	3
FAS20	Killingworth Way, adj A19 slip rd	Kerbside	572432	428695	NO_2	4.0	0.8	3

Notes:

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

(2) N/A if not applicable.

Table A.3 – Annual Mean NO_2 Monitoring Results: Automatic Monitoring (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
NTC01	428352	566974	Roadside	99.2	99.2	N/A	N/A	N/A	**46**	35

☐ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16**

☒ **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^3.

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

All means have been "annualised" as per LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

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

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

Table A.4 – Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
MC1	427067	568371	Kerbside	80.8	80.8	N/A	N/A	N/A	N/A	15.2
LP1	426806	568780	Kerbside	90.4	90.4	N/A	N/A	19.4	16.4	12.8
LB2	430713	567967	Kerbside	82.7	82.7	N/A	35.1	23.6	26.5	18.8
LB1	426871	568591	Industrial	90.4	90.4	N/A	31.9	32.1	28.9	20.3
MR1	436723	569438	Roadside	90.4	90.4	N/A	N/A	N/A	18.1	12.3
LH7	429262	567378	Roadside	90.4	90.4	N/A	26.2	22.1	25.5	20.0
W17	429316	567391	Roadside	90.4	90.4	29.5	24.1	18.6	19.2	14.0
W10	431854	566961	Kerbside	90.4	90.4	32.2	27.1	28.3	31.6	23.1
W99	432876	567249	Kerbside	90.4	90.4	N/A	N/A	24.4	25.5	19.0
TR1	432664	566413	Roadside	90.4	90.4	33.9	27.2	25.5	25.4	21.2
BR1	427095	573616	Roadside	82.7	82.7	NA	NA	18.1	16.7	11.0
HW3	431445	566574	Roadside	90.4	90.4	N/A	N/A	18.1	20.7	16.7
HR1	433194	566418	Suburban	57.7	57.7	22.1	26.3	23.5	26.7	19.5
NW1/2/3	433289	566313	Industrial	65.4	65.4	21.9	21.1	18.5	19.1	12.5*
CH1	433580	567865	Kerbside	90.4	90.4	25.6	24.9	27.3	30.2	22.1
CH5	433097	569066	Roadside	80.8	80.8	27.8	27.0	24.4	26.4	17.6
NS10	434461	568278	Kerbside	90.4	90.4	28.7	29.6	22.1	22.9	19.2
PG2	434096	569100	Roadside	90.4	90.4	34.2	29.1	26.4	26.2	20.3
TY1	435069	569861	Roadside	90.4	90.4	28.9	30.7	23.6	28.4	18.1
WR1	437016	569377	Kerbside	82.7	82.7	N/A	N/A	21.4	21.1	17.0
WB9	435671	571019	Kerbside	90.4	90.4	25.3	21.7	19.7	23.9	17.5
CM1	435205	571823	Industrial	90.4	90.4	N/A	N/A	16.5	17.8	12.2
WB20	435390	571977	Kerbside	82.7	82.7	N/A	16.7	15.8	16.9	13.1
FS1	434953	572040	Kerbside	90.4	90.4	23.5	21.9	19.8	21.6	16.4
GH1	434064	571727	Kerbside	90.4	90.4	NA	NA	21.7	24.6	17.5
BM1	431743	570649	Roadside	63.5	63.5	26.5	24.2	20.8	22.4	16.6
SP1	430444	570242	Roadside	82.7	82.7	27.5	27.4	25.3	29.2	21.5
FAS1	570288	428215	Kerbside	34.6	34.6	N/A	N/A	22.5	22.7	13.3
FAS2	570226	526563	Roadside	90.4	90.4	N/A	N/A	25.9	24.1	18.9
FAS3	571767	526197	Kerbside	75.0	75.0	N/A	N/A	39.6	**40.5**	31.0
FAS4	571772	424277	Kerbside	73.1	73.1	N/A	N/A	27.8	26.4	20.2
FAS5	568552	427471	Kerbside	48.1	48.1	N/A	N/A	34.6	33.3	21.2

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
FAS6	568613	427845	Roadside	40.4	40.4	N/A	N/A	28.2	24.6	19.7
FAS7	568999	428961	Roadside	90.4	90.4	N/A	N/A	30.8	29.0	21.6
FAS8	569991	429844	Roadside	90.4	90.4	N/A	N/A	28.1	27.0	20.4
FAS9	570609	430531	Kerbside	90.4	90.4	N/A	N/A	34.0	38.4	28.1
FAS10	570391	431852	Roadside	71.2	71.2	N/A	N/A	29.5	28.6	20.4
FAS11	570109	432509	Roadside	38.5	38.5	N/A	N/A	29.4	29.9	20.9
FAS12	568712	431803	Roadside	63.5	63.5	N/A	N/A	30.0	30.0	18.5
FAS13	568472	432252	Kerbside	90.4	90.4	N/A	N/A	36.1	25.7	28.1
FAS14	568369	431583	Kerbside	90.4	90.4	N/A	N/A	28.1	31.0	26.9
FAS15	567408	433009	Roadside	75.0	75.0	N/A	N/A	29.3	29.0	22.9
FAS16	567473	433247	Roadside	90.4	90.4	N/A	N/A	28.8	27.3	21.3
FAS17	569946	434992	Roadside	90.4	90.4	N/A	N/A	31.5	29.9	23.4
FAS18	570901	434638	Kerbside	90.4	90.4	N/A	N/A	25.2	24.3	19.1
FAS19	569039	427774	Roadside	90.4	90.4	N/A	N/A	30.6	33.5	23.8
FAS20	572432	428695	Kerbside	67.3	67.3	N/A	N/A	19.7	22.6	16.7

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16**

☒ **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 µg/m^3.

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

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

Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG16 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%).

* Triplicate site annualised using diffusion tube tool only for one site NW3.

Figure A.1 – Trends in Annual Mean NO_2 Concentrations Original Sites

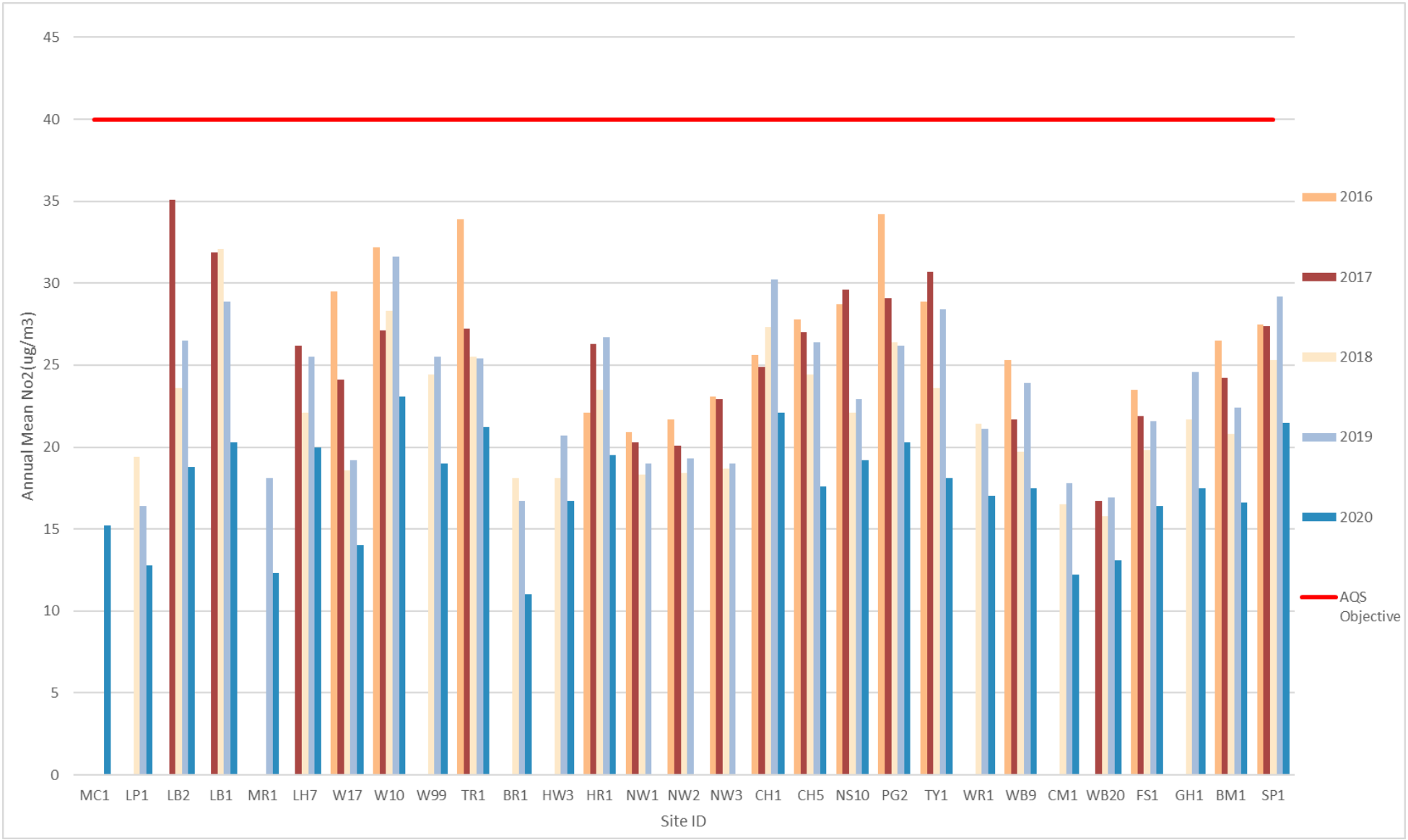
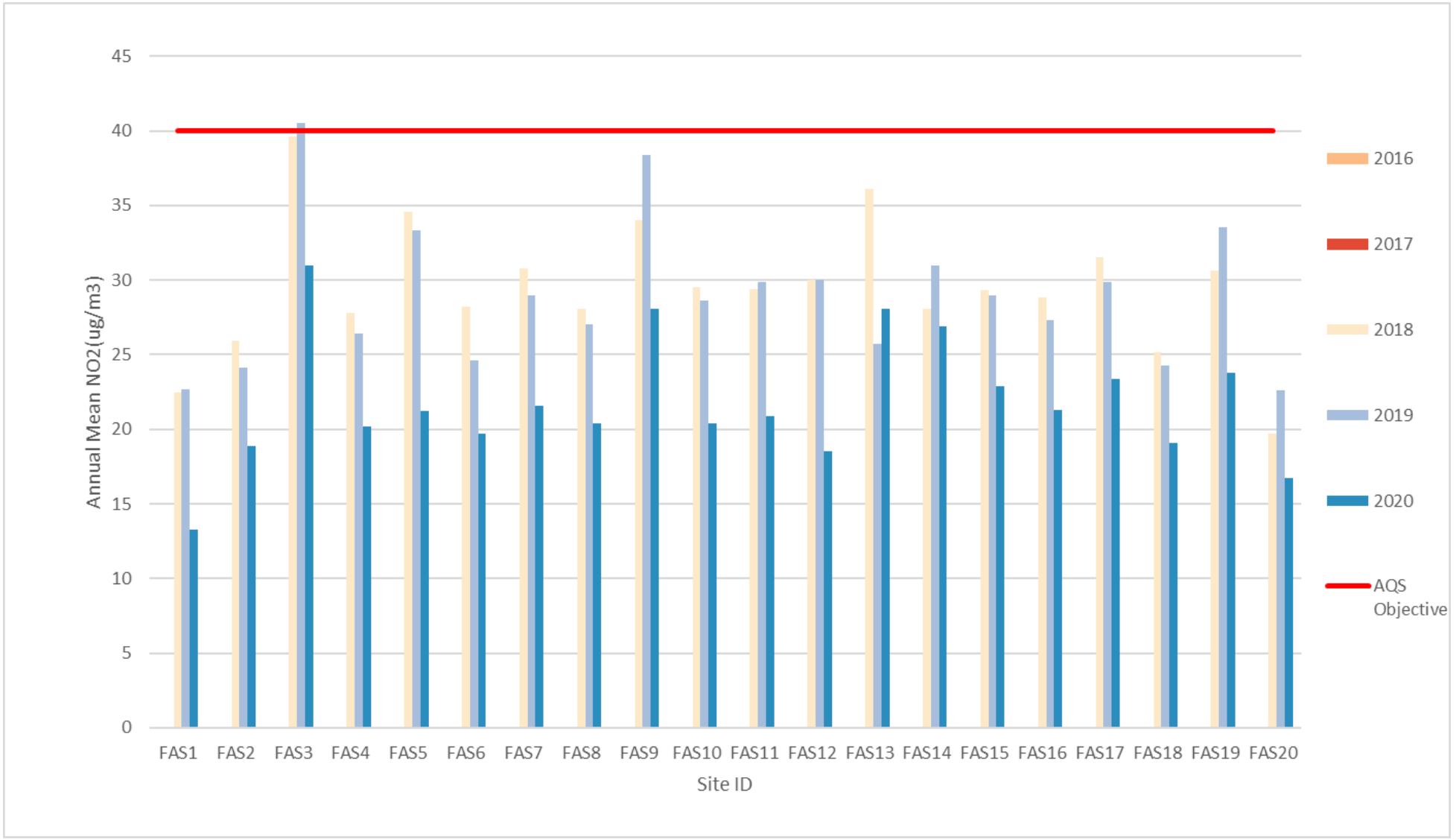


Figure A.2 – Trends in Annual Mean NO_2 Concentrations FAS Sites



* Monitoring sites FAS 1 to FAS 20 were locations identified to review traffic pollution from the coast road action zone.

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
NTC01	428352	566974	Roadside	99.2	99.2	N/A	N/A	N/A	0	0

Notes:

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

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

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

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

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

Table A.6 – Annual Mean PM_{10} Monitoring Results (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
NTC01	428352	566974	Roadside	98.1	98.1	N/A	N/A	N/A	17	15.4

☐ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16 .**

Notes:

The annual mean concentrations are presented as µg/m^3.

Exceedances of the PM_{10} annual mean objective of 40µg/m^3 are shown in **bold**.

All means have been "annualised" as per LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

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

Figure A.2 – Trends in Annual Mean PM_{10} Concentrations

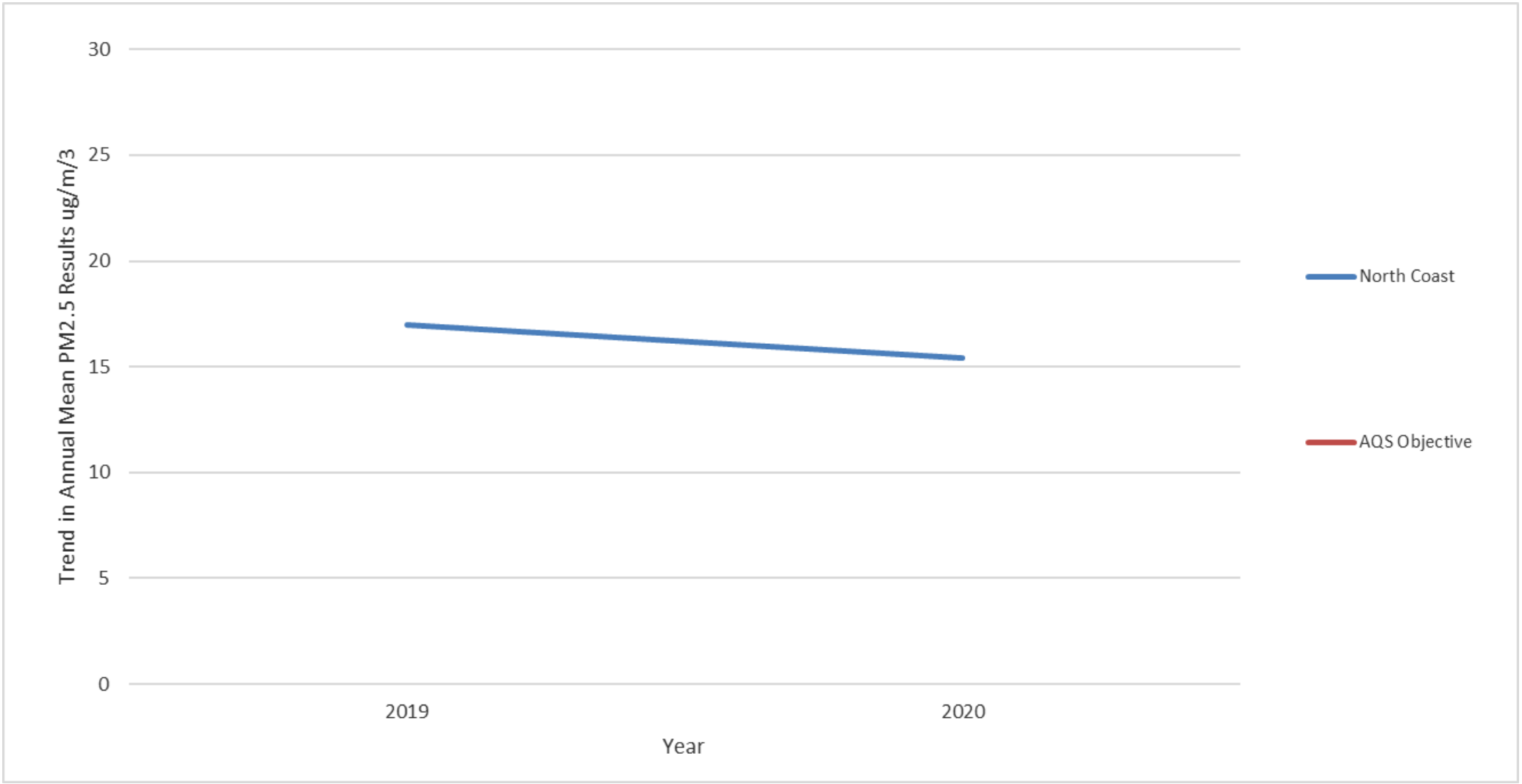


Table A.7 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
NTC01	428352	566974	Roadside	98.1	98.1	N/A	N/A	N/A	5	3

Notes:

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

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

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

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

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

Figure A.3 – Trends in Number of 24-Hour Mean PM_{10} Results > 50µg/m^3

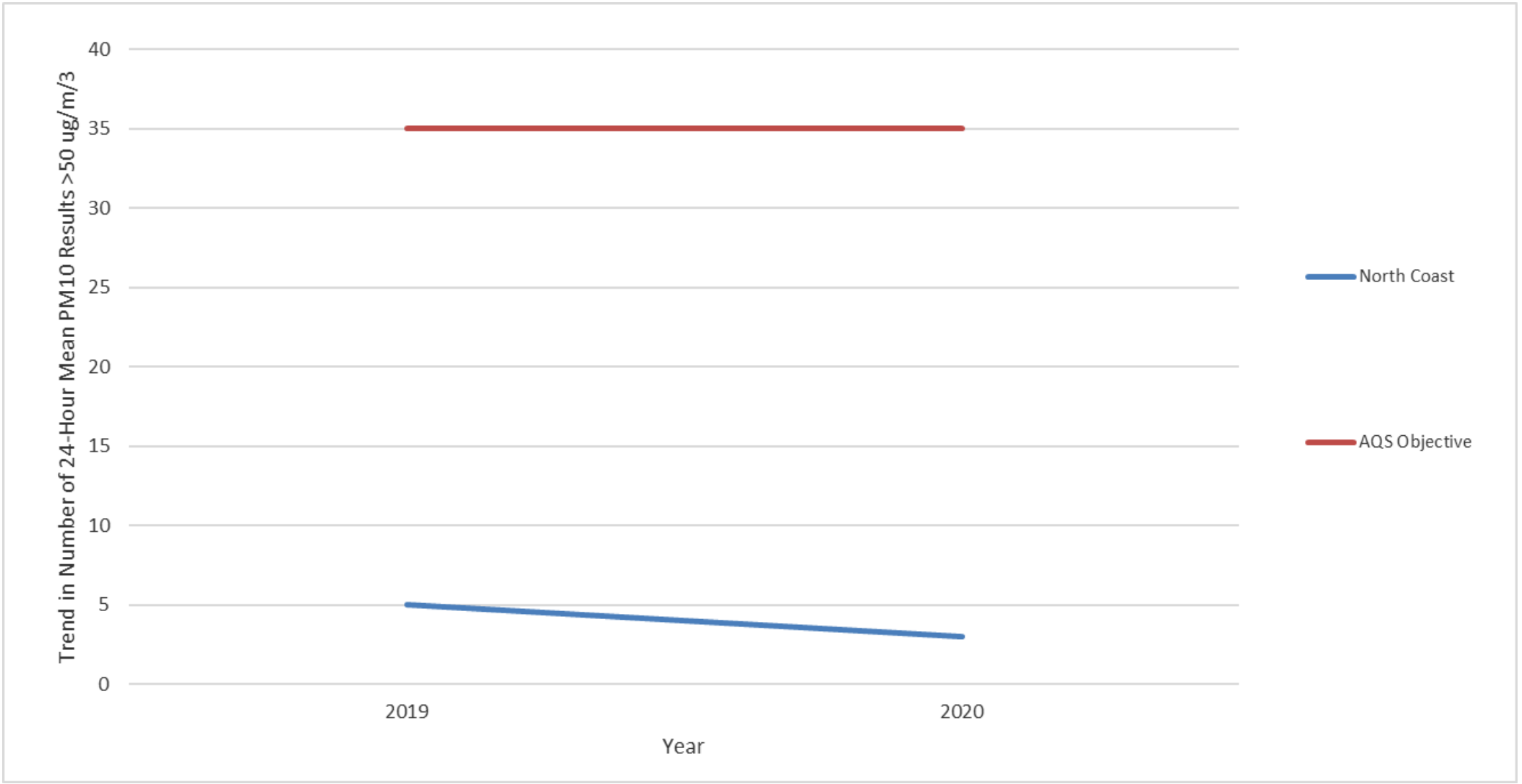


Table A.8 – Annual Mean $PM_{2.5}$ Monitoring Results (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
NTC01	428352	566974	Roadside	98.2	98.2	N/A	N/A	N/A	9	7.5

☐ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16**

Notes:

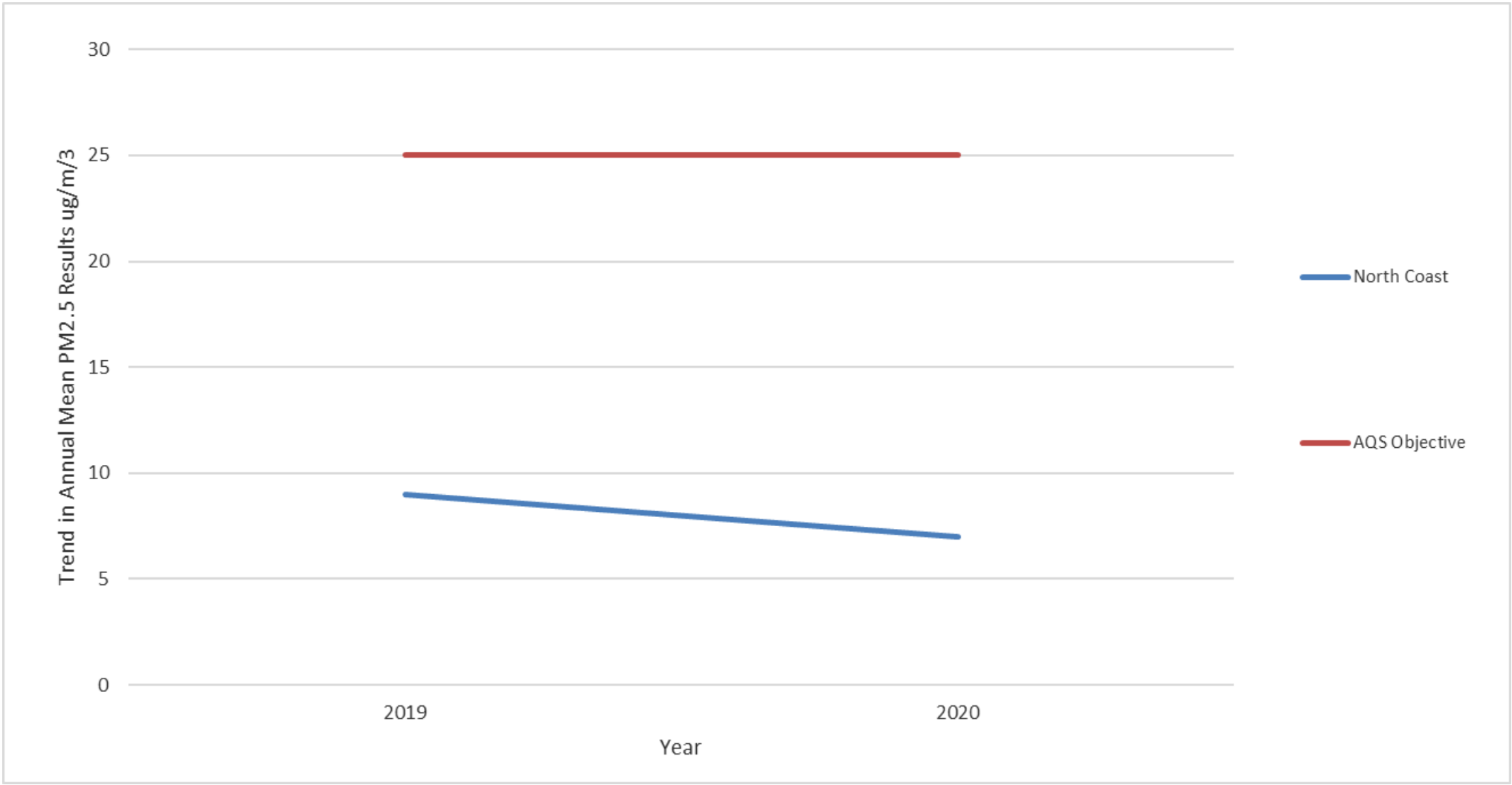
The annual mean concentrations are presented as µg/m^3.

All means have been "annualised" as per LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

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

Figure A.4 – Trends in Annual Mean $PM_{2.5}$ Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2020

Table B.1 – NO_2 2020 Diffusion Tube Results (µg/m^3)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.81)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
MC1	427067	568371	25.5	24.0	17.5	9.9		12.1	11.2	15.3	19.6		27.7	24.9	18.8	15.2		
LP1	426806	568780	19.8	17.7	16.6	9.9		12.1	8.8	13.0	14.9	16.6	24.5	19.8	15.8	12.8		
LB2	430713	567967	31.9	22.9		14.3		18.6	15.0	19.8	24.1	24.0	33.1	28.3	23.2	18.8		
LB1	426871	568591	35.0	27.4	24.1	16.1		21.5	16.7	22.1	20.6	27.6	34.0	30.2	25.0	20.3		
MR1	436723	569438	19.8	18.7	17.6	9.3		10.8	8.1	11.8	13.2	14.1	24.6	19.4	15.2	12.3		
LH7	429262	567378	30.8	25.5	25.9	15.7		22.9	17.2	22.3	24.1	24.2	32.3	31.4	24.8	20.0		
W17	429316	567391	23.6	22.2	18.0	10.7		11.1	9.3	11.6	16.3	18.6	25.4	22.5	17.2	14.0		
W10	431854	566961	35.5	29.1	28.8	19.0		23.7	22.6	25.2	27.8	29.0	37.9	34.6	28.5	23.1		
W99	432876	567249	28.4	27.5	26.5	14.3		18.6	16.0	19.6	21.7	24.3	31.6	30.1	23.5	19.0		
TR1	432664	566413	32.1	30.0	30.8	18.6		23.3	18.8	23.5	24.5	20.0	32.0	33.5	26.1	21.2		
BR1	427095	573616	15.3	14.8	14.8	10.1		12.5	7.7	14.0	13.0	15.1	N/S	18.2	13.6	11.0		
HW3	431445	566574	28.8	26.3	19.9	13.8		13.8	13.7	14.2	19.5	21.7	31.2	23.9	20.6	16.7		
HR1	433194	566418	30.3	26.5	26.8	16.8			3.6	21.3	23.1			33.8	22.8	19.5		
NW1	433289	566313	21.1					12.3	10.0	11.9	11.7	9.7	26.2		-	-		Triplicate Site with NW1, NW2 and NW3 - Annual data provided for NW3 only
NW2	433289	566313	20.0	20.2				12.0	10.3	8.5	17.7	15.3	20.4		-	-		Triplicate Site with NW1, NW2 and NW3 - Annual data provided for NW3 only
NW3	433289	566313	18.7	22.4				12.2	10.5	11.9	16.8	16.6	23.4		15.9	12.5		Triplicate Site with NW1, NW2 and NW3 - Annual data provided for NW3 only
CH1	433580	567865	31.9	28.1	31.2	18.7		30.1	18.6	27.0	26.5	28.2	33.1	26.7	27.3	22.1		
CH5	433097	569066	29.4	24.7	23.6	14.5		15.5	16.4	17.5	20.9	23.3	32.1		21.8	17.6		
NS10	434461	568278	35.7	32.4	26.6	13.5		13.0	17.3	15.1	22.7	23.1	33.7	27.4	23.7	19.2		
PG2	434096	569100	35.9	32.0	27.0	14.1		16.5	19.9	19.9	22.8	23.9	35.2	28.8	25.1	20.3		
TY1	435069	569861	34.4	31.1	25.3	11.2		15.3	13.9	12.1	14.4	29.2	32.7	25.8	22.3	18.1		
WR1	437016	569377	24.9	25.9	22.6			12.1	14.0	15.2	18.3	19.8	31.4	25.0	20.9	17.0		
WB9	435671	571019	30.7	25.3	26.0	14.8		15.0	12.6	16.9	19.5	18.3	30.6	27.8	21.6	17.5		
CM1	435205	571823	19.2	17.0	15.9	9.7		11.6	8.1	13.7	14.1	14.5	23.5	19.0	15.1	12.2		
WB20	435390	571977	21.0	18.4	17.5	9.4		10.4	1.8	11.1	14.1	16.7	21.0	21.6	14.8	13.1		
FS1	434953	572040	26.8	23.9	21.1	13.2		15.2	13.3	16.9	18.4	19.4	28.7	26.2	20.3	16.4		
GH1	434064	571727	25.7	26.2	23.1	12.0		15.0	14.0	17.6	21.5	24.5	27.0	30.3	21.5	17.5		
BM1	431743	570649	25.3	25.1	21.9	11.2		15.7	11.0	17.7	16.9			4.5	16.6	16.6		
SP1	430444	570242	27.6	30.7	28.7	17.7		25.9	19.0	24.6		29.1	33.5	28.8	26.6	21.5		
FAS1	570288	428215									17.4	19.3	24.3	24.7	21.4	13.3		
FAS2	570226	526563	37.9	29.1	25.2	11.5		16.5	13.7	19.3	20.8	27.2	30.2	25.7	23.4	18.9		
FAS3	571767	526197	51.8	36.5				33.3	29.2	38.3	38.0	40.1	38.8	38.7	38.3	31.0		
FAS4	571772	424277	35.6	23.8	25.8	15.6		26.8	16.6	26.8	25.2	28.0			24.9	20.2		
FAS5	568552	427471	46.5	34.2				24.4	17.1				31.0	28.0	30.2	21.2		
FAS6	568613	427845	41.5	24.2	24.9			20.7						28.4	28.0	19.7		
FAS7	568999	428961	44.4	32.4	23.9	16.9		22.0	16.8	21.4	25.3	25.7	36.5	28.7	26.7	21.6		
FAS8	569991	429844	39.2	27.9	24.9	15.4		20.8	16.3	20.9	24.4	26.6	34.0	26.8	25.2	20.4		
FAS9	570609	430531	52.9	39.5	32.9	19.8		28.7	26.2	30.0	33.3	38.1	43.4	37.3	34.7	28.1		
FAS10	570391	431852	50.1	31.4	26.0	15.2		17.9	18.0	20.8	24.1		23.7		25.2	20.4		
FAS11	570109	432509	44.5	29.3	28.5	16.7							27.7		29.3	20.9		
FAS12	568712	431803	40.7	33.1	29.9	16.6		24.7	21.7				9.8	19.9	24.6	18.5		
FAS13	568472	432252	58.6	38.8	34.9	18.3		26.2	24.3	29.0	31.8	38.1	44.5	36.7	34.7	28.1		
FAS14	568369	431583	45.9	79.7	30.8	18.0		21.7	20.0	23.4	27.9	28.7	37.8	32.0	33.3	26.9		

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.81)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
FAS15	567408	433009	42.6	25.6				16.4	21.6	27.4	27.0	31.1	33.0	30.2	28.3	22.9		
FAS16	567473	433247	38.9	32.8	27.6	16.2		19.8	18.3	21.0	24.2	29.9	31.9	29.0	26.3	21.3		
FAS17	569946	434992	42.8	31.8	30.9	17.3		26.3	21.0	27.6	28.4	28.0	35.2	29.1	28.9	23.4		
FAS18	570901	434638	39.4	27.7	24.2	11.6		18.5	14.0	18.4	21.5	23.5	33.3	26.8	23.6	19.1		
FAS19	569039	427774	38.8	29.0	29.3	23.2		30.5	23.0	32.2	29.5	29.4	28.6	30.3	29.4	23.8		
FAS20	572432	428695	29.5					22.9	12.6	21.9	19.5	20.4	28.7	23.9	22.4	16.7		

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

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16**

☐ **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 2020 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

Month of May missing due to Gradko Laboratory shut down due to COVID19

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

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

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within North Tyneside During 2020

There were four new developments during 2020 that were identified to have potential effects on the air quality within North Tyneside of which each provided an Air Quality Assessment to gain approval.

20/00459/FUL was an application by Sterling Pharma Solutions Ltd located at Dudley Lane Dudley Northumberland NE23 7QG which entailed the installation of a Combined Heat and Power Plant as well as the creation of flood storage compensation areas.

20/00871/FUL was an application by Sterling Pharma Solutions Ltd located at Dudley Lane Dudley Northumberland NE23 7QG. Continued from 20/00459/FUL this included Construction of additional pre-treatment steps to be integrated with existing on-site biological effluent treatment plant. This will comprise additional enclosed storage tanks, biological treatment tanks and associated ancillary pipework. A greenhouse will be erected to the east of the existing biological effluent treatment plant.

20/01741/FUL was an application by BP Oil UK Ltd & Highbridge Business Park Ltd at Plot 11 The Silverlink North Cobalt Business Park West Allotment Newcastle Upon Tyne. This was for an erection of petrol filling station (Sui Generis) with associated retail kiosk (Use Class E) and drive-thru coffee shop (Use Class E) with associated car parking, service arrangements, landscaping and access including the provision of a new roundabout.

20/00045/FUL was an application by Persimmon Homes North East for the Proposed construction of a three-armed roundabout at the A191 Whitley Road, associated road infrastructure to provide vehicular access to approved residential development, construction of bus gate and associated landscape scheme. This was located at Land Parcel South Of Whitley Road Benton Newcastle Upon Tyne.

Additional Air Quality Works Undertaken by North Tyneside During 2020

North Tyneside has not completed any additional works within the reporting year of 2020.

QA/QC of Diffusion Tube Monitoring

Diffusion Tube Annualisation

Eleven diffusion tubes have been annualised, as shown in Table C.1, where data capture has fallen below 75%. Automatic monitoring data has been used from Newcastle Centre and Hartlepool St Abbs Walk urban background continuous sites. Annualisation has been completed using the LAQM diffusion tube data processing tool therefore in accordance with the methodology detailed within LAQM.TG16.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2020 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_x/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

North Tyneside have applied a national bias adjustment factor of 0.81 to the 2020 monitoring data. A summary of bias adjustment factors used by North Tyneside over the past five years is presented in Table C.1.

North Tyneside Council operates a continuous NO_2 monitoring stations 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. The tubes were prepared using the 20% TEA in water preparation method. The national bias adjustment factor for Gradko 20% TEA in water is 0.81 for the year 2020

(based on eighteen studies) as derived from the national bias adjustment factor spreadsheet as presented in **Error! Reference source not found.**.

Figure C.1 – Gradko 20% TEA in Water 2020 National Bias Adjustment Factor

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/21

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
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet
This spreadhseet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated at the end of June 2021
LAQM Helpdesk Website

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.

Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List
If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the Drop-Down List
If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down List
If a year is not shown, we have no data[2]

Step 4: 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[3] shown in blue at the foot of the final column.

If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953

Analysed By[1]	Method	Year[2]	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[4]	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	20% TEA in water	2020	R	Gedling Borough Council	10	31	25	24.1%	G	**0.81**
Gradko	20% TEA in water	2020	R	SOUTHAMPTON CITY COUNCIL	12	37	27	37.1%	G	**0.73**
Gradko	20% TEA in water	2020	R	Fareham Borough Council	10	25	14	77.4%	G	**0.56**
Gradko	20% TEA in water	2020	R	Fareham Borough Council	12	30	22	35.1%	G	**0.74**
Gradko	20% TEA in water	2020	R	Fareham Borough Council	10	22	17	26.5%	G	**0.79**
Gradko	20% TEA in water	2020	R	SOUTHAMPTON CITY COUNCIL	11	32	31	4.9%	G	**0.95**
Gradko	20% TEA in water	2020	KS	Marylebone Road Intercomparison	12	57	43	33.3%	G	**0.75**
Gradko	20% TEA in water	2020	R	Bath & North East Somerset	11	32	29	13.0%	G	**0.89**
Gradko	20% TEA in water	2020	R	Gateshead Council	12	22	17	28.1%	G	**0.78**
Gradko	20% TEA in water	2020	R	Gateshead Council	12	23	21	11.6%	G	**0.90**
Gradko	20% TEA in water	2020	R	Gateshead Council	10	26	25	6.5%	G	**0.94**
Gradko	20% TEA in water	2020	R	Gateshead Council	12	28	21	30.5%	G	**0.77**
Gradko	20% TEA in water	2020	R	Gateshead Council	12	31	32	-3.4%	G	**1.03**
Gradko	20% TEA in water	2020	R	Luton Borough Council	9	38	28	33.8%	G	**0.75**
Gradko	20% TEA in water	2020	R	Nottingham City Council	12	31	34	-8.5%	G	**1.09**
Gradko	20% TEA in water	2020	R	Dudley MBC	13	33	28	19.9%	G	**0.83**
Gradko	20% TEA in water	2020	UB	Dudley MBC	13	23	14	61.2%	G	**0.62**
Gradko	20% TEA in water	2020	R	Dudley MBC	13	44	34	30.6%	G	**0.77**
Gradko	20% TEA in water	2020		**Overall Factor[3] (18 studies)**				**Use**		**0.81**

Table C.1 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2020	National	03/21	0.81
2019	National	03/20	0.93
2018	National	03/18	0.92
2017	National	03/17	0.87
2016	National	03/16	0.92

NO_2 Fall-off with Distance from the Road

Distance correction is only required for sites with an annual mean concentration of greater than 36µg/m^3 where the site is not at a point of relevant exposure. There are no monitoring sites that meet these criteria; therefore distance correction has not been completed at any monitoring sites.

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

The type of PM_{10} and $PM_{2.5}$ 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.

NO_2 Fall-off with Distance from the Road

No automatic NO_2 monitoring locations within North Tyneside required distance correction during 2020.

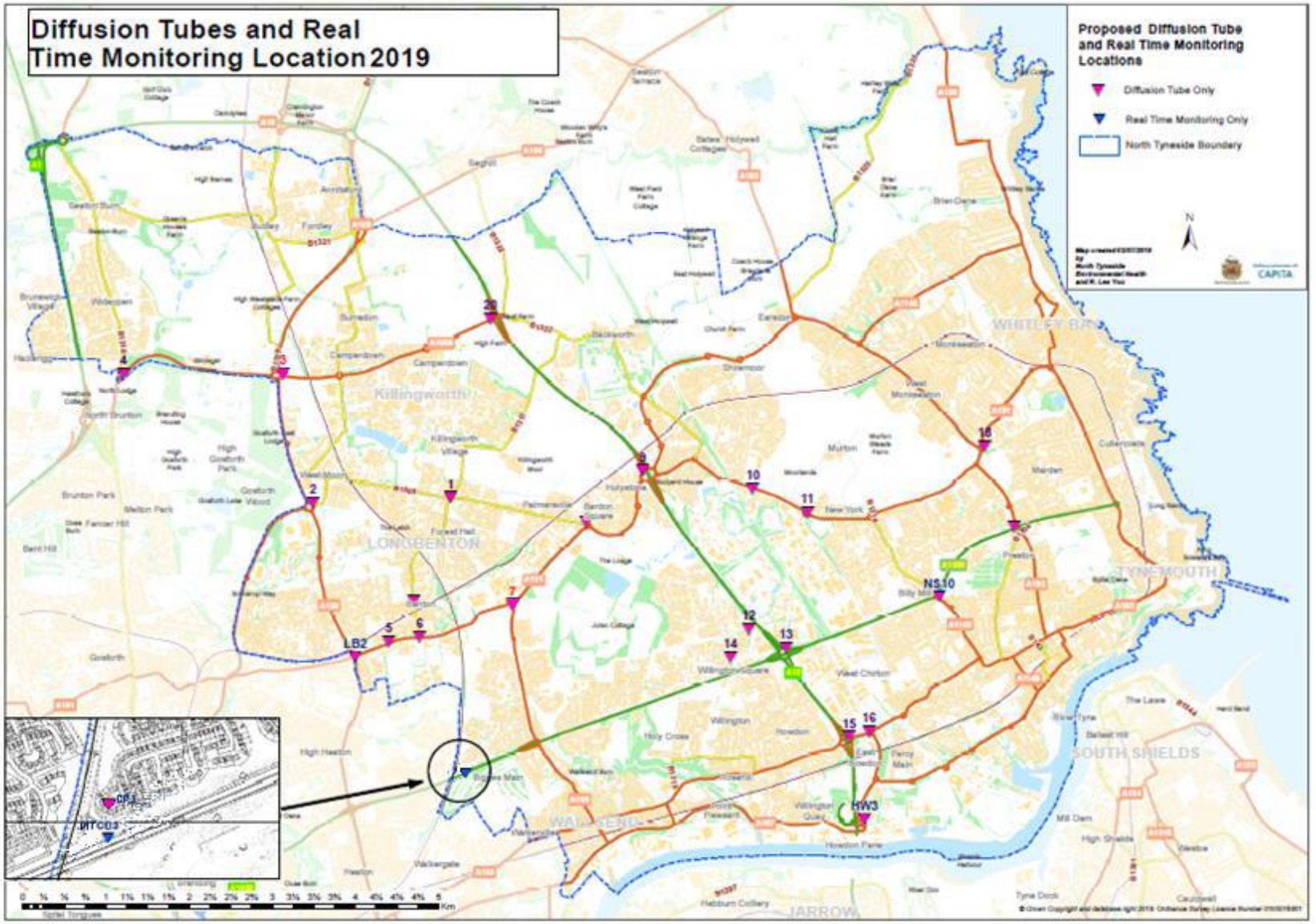
Table C.2 – Annualisation Summary (concentrations presented in µg/m^3)

Site ID	Annualisation Factor Newcastle Centre	Annualisation Factor Hartlepool St Abbs Walk	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
HR1	0.9549	0.9338	0.9444	25.5	24.1	
NW1	0.9529	0.9926	0.9728	-	-	*Triplicate Site with NW1, NW2 and NW3 - Annual data provided for NW3 only*
NW2	0.9529	0.9926	0.9728	-	-	*Triplicate Site with NW1, NW2 and NW3 - Annual data provided for NW3 only*
NW3	0.9529	0.9926	0.9728	15.9	15.4	*Triplicate Site with NW1, NW2 and NW3 - Annual data provided for NW3 only*
BM1	1.0839	1.1742	1.1291	18.1	20.4	
FAS1	0.7962	0.7377	0.7670	21.4	16.4	
FAS5	0.9086	0.8224	0.8655	30.2	26.1	
FAS6	0.9027	0.8363	0.8695	28.0	24.3	
FAS11	0.9420	0.8142	0.8781	29.3	25.8	
FAS12	0.9726	0.8887	0.9307	24.6	22.9	
FAS20	0.9207	0.9129	0.9168	22.4	20.6	

Appendix D: Maps of Monitoring Locations

Figure D.1 – Map of Automatic and Non-Automatic Monitoring Sites

Figure D.2 – Map of Automatic and Non-Automatic Monitoring Sites



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[7]

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

[7] The units are in microgrammes of pollutant per cubic metre of air (µg/m^3).

Appendix F: Impact of COVID-19 upon LAQM

COVID-19 has had a significant impact on society. Inevitably, COVID-19 has also had an impact on the environment, with implications to air quality at local, regional and national scales.

COVID-19 has presented various challenges for Local Authorities with respect to undertaking their statutory LAQM duties in the 2021 reporting year. Recognising this, Defra provided various advice updates throughout 2020 to English authorities, particularly concerning the potential disruption to air quality monitoring programmes, implementation of Air Quality Action Plans (AQAPs) and LAQM statutory reporting requirements. Defra has also issued supplementary guidance for LAQM reporting in 2021 to assist local authorities in preparing their 2021 ASR. Where applicable, this advice has been followed.

Despite the challenges that the pandemic has given rise to, the events of 2020 have also provided Local Authorities with an opportunity to quantify the air quality impacts associated with wide-scale and extreme intervention, most notably in relation to emissions of air pollutants arising from road traffic. The vast majority (>95%) of AQMAs declared within the UK are related to road traffic emissions, where attainment of the annual mean objective for nitrogen dioxide (NO_2) is considered unlikely. On 23rd March 2020, the UK Government released official guidance advising all members of public to stay at home, with work-related travel only permitted when absolutely necessary. During this initial national lockdown (and to a lesser extent other national and regional lockdowns that followed), marked reductions in vehicle traffic were observed; Department for Transport (DfT) data[8] suggests reductions in vehicle traffic of up to 70% were experienced across the UK by mid-April, relative to pre COVID-19 levels.

This reduction in travel in turn gave rise to a change of air pollutant emissions associated with road traffic, i.e. nitrous oxides (NO_x), and exhaust and non-exhaust particulates (PM). The Air Quality Expert Group (AQEG)[9] has estimated that during the initial lockdown period in 2020, within urbanised areas of the UK reductions in NO_2 annual mean concentrations were between 20 and 30% relative to pre-pandemic levels, which

[8] Prime Minister's Office, COVID-19 briefing on the 31st of May 2020

[9] Air Quality Expert Group, Estimation of changes in air pollution emissions, concentrations and exposure during the COVID-19 outbreak in the UK, June 2020

represents an absolute reduction of between 10 to 20µg/m^3 if expressed relative to annual mean averages. During this period, changes in $PM_{2.5}$ concentrations were less marked than those of NO_2. $PM_{2.5}$ concentrations are affected by both local sources and the transport of pollution from wider regions, often from well beyond the UK. Through analysis of AURN monitoring data for 2018-2020, AQEG have detailed that $PM_{2.5}$ concentrations during the initial lockdown period are of the order 2 to 5µg/m^3 lower relative to those that would be expected under business-as-usual conditions.

As restrictions are gradually lifted, the challenge is to understand how these air quality improvements can benefit the long-term health of the population.

Impacts of COVID-19 on Air Quality within North Tyneside

The Covid impacts on Air Quality within North Tyneside were relatively limited across 2020. The main issue that arose was the missing month of May's data, this was due to Gradko's laboratory being closed and therefore no tubes were able to be deployed during May.

Other than this there were no identifiable impacts as a consequence of COVID-19 upon air quality within North Tyneside.

Opportunities Presented by COVID-19 upon LAQM within North Tyneside

Some minor opportunities did present themselves upon the LAQM due to COVID-19 within North Tyneside. Principle of which were the creation of temporary lane closures to allow the introduction of cycle lanes and social distancing on the Links at Whitley Bay and down on North Shields Fish Quay.

The Coastal Strip pop-up cycle lane was rapidly introduced in July using Government funding as a cost-effective way to create safe space and reduce conflict between people walking and riding bikes on the seafront between Tynemouth and Whitley Bay during the busy summer months. It was also a way of supporting safe walking and cycling journeys as an alternative while public transport capacity was reduced.

Car parks along the seafront were also closed to discourage non-essential trips, this also contributed to improving air quality due to decreased levels of traffic particularly on the

coast road. A total of 22 car parks were closed across North Tyneside during 2020 lockdowns.

Challenges and Constraints Imposed by COVID-19 upon LAQM within North Tyneside

- The implementation of action plan measure four: retrofitting of the buses has been delayed due to financial constraints and social distancing measures. The funding source for the measure is to be revaluated within 2021. **Small Impact**

Table F 1 – Impact Matrix

Category	Impact Rating: None	Impact Rating: Small	Impact Rating: Medium	Impact Rating: Large
Automatic Monitoring – Data Capture (%)	More than 75% data capture	50 to 75% data capture	25 to 50% data capture	Less than 25% data capture
Automatic Monitoring – QA/QC Regime	Adherence to requirements as defined in LAQM.TG16	Routine calibrations taken place frequently but not to normal regime. Audits undertaken alongside service and maintenance programmes	Routine calibrations taken place infrequently and service and maintenance regimes adhered to. No audit achieved	Routine calibrations not undertaken within extended period (e.g. 3 to 4 months). Interruption to service and maintenance regime and no audit achieved
Passive Monitoring – Data Capture (%)	More than 75% data capture	50 to 75% data capture	25 to 50% data capture	Less than 25% data capture
Passive Monitoring – Bias Adjustment Factor	Bias adjustment undertaken as normal	<25% impact on normal number of available bias adjustment colocation studies (2020 vs 2019)	25-50% impact on normal number of available bias adjustment studies (2020 vs 2019)	>50% impact on normal number of available bias adjustment studies (2020 vs 2019) and/or applied bias adjustment factor studies not considered representative of local regime
Passive Monitoring – Adherence to Changeover Dates	Defra diffusion tube exposure calendar adhered to	Tubes left out for two exposure periods	Tubes left out for three exposure periods	Tubes left out for more than three exposure periods
Passive Monitoring – Storage of Tubes	Tubes stored in accordance with laboratory guidance and analysed promptly.	Tubes stored for longer than normal but adhering to laboratory guidance	Tubes unable to be stored according to be laboratory guidance but analysed prior to expiry date	Tubes stored for so long that they were unable to be analysed prior to expiry date. Data unable to be used
AQAP – Measure Implementation	Unaffected	Short delay (<6 months) in development of a new AQAP, but is on-going	Long delay (>6 months) in development of a new AQAP, but is on-going	No progression in development of a new AQAP
AQAP – New AQAP Development	Unaffected	Short delay (<6 months) in development of a new AQAP, but is on-going	Long delay (>6 months) in development of a new AQAP, but is on-going	No progression in development of a new AQAP

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 Highways England
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide

References

- Local Air Quality Management Technical Guidance LAQM.TG16. April 2021. 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.PG16. May 2016. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.