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DARLINGTON
Borough Council

2024 Air Quality Annual Status Report (ASR)

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

Date: June, 2024

Information	Darlington Borough Council Details
Local Authority Officer	Carol Whelan/Stacey Newton
Department	Environmental Health, Chief Executive's Office and Economic Growth Group
Address	Darlington Borough Council, Environmental Health, Town Hall, Darlington, DL1 5QT
Telephone	01325 406437/406438
E-mail	carol.whelan@darlington.gov.uk stacey.newton@darlington.gov.uk
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Executive Summary: Air Quality in Our Area

Air Quality in Darlington Borough Council

Breathing in polluted air affects our health and costs the NHS and our society billions of pounds each year. Air pollution is recognised as a contributing factor in the onset of heart disease and cancer and can cause a range of health impacts, including effects on lung function, exacerbation of asthma, increases in hospital admissions and mortality. In the UK, it is estimated that the reduction in healthy life expectancy caused by air pollution is equivalent to 29,000 to 43,000 deaths a year[1].

Air pollution particularly affects the most vulnerable in society, children, the elderly, and those with existing heart and lung conditions. Additionally, people living in less affluent areas are most exposed to dangerous levels of air pollution[2].

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

Table ES 1 - Description of Key Pollutants

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

[1] UK Health Security Agency. Chemical Hazards and Poisons Report, Issue 28, 2022.

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

The borough of Darlington (population circa 108,000) is located in the northeast of England, in the County of Durham. The borough consists of the large market town of Darlington as well as several other smaller villages. Darlington Borough Council is part of the Tees Valley Combined Authority (TVCA), a partnership of five authorities (Darlington, Hartlepool, Middlesbrough, Redcar & Cleveland and Stockton-on-Tees) that work closely together and alongside other partners in making local decisions.

The annual review and assessment process has consistently concluded that air quality across the borough is generally good when compared with Government objectives, and there are currently no Air Quality Management Areas declared within the borough.

In contrast to the other four Tees Valley Combined Authority councils, Darlington Borough Council does not have any large industrial areas within its borders. The main source of air pollution within the borough that gives rise to increased pollutant concentrations is road traffic emissions from the main arterial road network, which connects the relatively densely populated centre of Darlington itself out to its more rural surroundings.

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[3] sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term targets for fine particulate matter ($PM_{2.5}$), the pollutant of most harm to human health. The Air Quality Strategy[4] provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

The Road to Zero[5] details the Government's approach to reduce exhaust emissions from road transport through a number of mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of personal travel and the

[3] Defra. Environmental Improvement Plan, 2023, January 2023

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

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

majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

The air quality across Darlington is generally considered to be good and there are currently no designated AQMAs within the borough, therefore an Air Quality Action Plan (AQAP) is not required. Darlington will continue to monitor and assess the results for the coming year within the NO_2 diffusion tube network.

Local actions to reduce the impact of vehicle emissions within Darlington are principally taken in conjunction with local authorities within the TVCA area. In 2020, TVCA produced a Strategic Transport Plan (STP) for the period up to 2030. This acts as a Local Transport Plan for all five Tees Valley authorities. The STP concentrates on the following areas:

- Reducing traffic congestion at peak times through improved network management and road improvements.
- Encouraging local bus companies to review services with particular emphasis on access to new and emerging employment opportunities, and to renew their fleet on an on-going basis.
- Encouraging wider transport choices by improving pedestrian, cycling and public transport, including rail.
- Encouraging the provision of a low emission vehicle infrastructure through the planning regime.

In 2022/23 the Darlington Transport Plan, a Town Centre Transport Plan and Parking Strategy were adopted by the Council. One of the objectives of Darlington's Transport Plan (2022 – 2030) is to reduce the impact of transport on the environment and support health and wellbeing. This strategy supports the delivery of the Tees Valley STP.

The Darlington Local Plan 2016 – 2036 was also adopted in February 2022 and seeks to ensure the borough's need for housing, a thriving economy, community facilities and infrastructure are met, as well as safeguarding the environment, adapting to climate change and securing good design. Policy DC 3 (Health and Wellbeing) of the Plan sets out that:

"All new development that may cause groundwater, surface water, air (including odour), noise or light pollution, either individually or cumulatively, will be required to incorporate measures to prevent and reduce their pollution so as not to cause unacceptable impacts on the living conditions

of all existing and potential future occupants of land and buildings, the character and appearance of the surrounding area and the landscape".

In addition, the Local Plan also requires, in the case of development of 150 or more homes and all other non-residential 'major' development, the submission of a Health Impact Assessment (HIA) as part of the application to explain how health considerations have informed the design. This includes air quality considerations. Public Health England's (now the UK Health Security Agency) 'Health Impact Assessment in spatial planning' guidance document (October 2020), recognises HIA is one mechanism to integrate health throughout the planning process and a valuable process that enables local action on the wider determinants of health by helping maximise the health benefits of a plan or development and minimise the potential harms, while maintaining a focus on reducing inequalities. The Council (including Public Health, Planning Policy, Development Management and Environmental Health) have recently produced a Development Guidance Note and Comprehensive Health Impact Assessment tool (January 2024).

The Council launched the 'Burn Right' campaign in Autumn 2023 which continued into the start of 2024. The campaign aimed to remind and educate people on smoke control area requirements in Darlington and the importance of burning suitable fuels. The campaign involved articles in the One Darlington magazine, social media messages, website updates, displaying posters in fuel retailers, as well as displaying the campaign graphics on a digital billboard close to a main roundabout in the Town Centre. The message was disseminated to Council staff via the weekly Briefing. The campaign also signposted people to information available as part of Defra's Burn Better, Breathe Better campaign. Further details on the local campaign are included in Appendix F.

The measures discussed above will continue to contribute to further reductions in air pollution within the borough of Darlington.

A co-benefit of some of the actions will also be to help the Borough reduce overall carbon emissions in response to the Council's declaration of a climate emergency.

Conclusions and Priorities

During 2023 no exceedances of the NO_2 annual mean objective were recorded within the borough of Darlington. Pollution concentrations continue to be relatively low and monitoring will continue to ensure that any concentration trends can be identified.

Darlington Borough Council will continue to assess new developments submitted through the planning department to ensure that any proposed developments are not detrimental to local air

quality. In addition, any new industrial processes will be regulated in line with The Environmental Permitting (England and Wales) Regulations 2016 (as amended).

Darlington Borough Council will continue to co-operate with the four other Tees Valley Councils in implementing measures to further improve air quality. The councils will also continue to identify in more detail the sources of fine particles where possible, to see if any additional local action can cost effectively reduce emissions/concentrations.

Local Engagement and How to get Involved

The public can engage with Darlington Borough Council via their website which contains further local information on the following:

- Air quality monitoring;
- Care for clean air campaign;
- Industrial air pollution control;
- Smoke control areas; and
- Garden bonfires.

The Tees Valley Combined Authority website also promotes and provides information on travelling sustainably in the Borough of Darlington, and the wider Tees Valley. It includes information on:

- Walking and cycling routes and hubs which offer a range of services and advice to encourage more active travel including things such as free bike MOTs and repairs;
- Bus and rail operators including journey planning;
- Electric vehicles including information on available grant schemes and maps of charging points.

Darlington Borough Council Travel Advisors and the Darlington Active Travel (Walking and Cycling) Hub also offer advice to residents, businesses and the public for all journeys including helping people choose greener, healthier forms of travel.

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Health Section of Darlington Borough Council with the support and agreement of the following Sections:

- Licensing
- Planning Policy
- Sustainable Transport

- Fleet Management
- Car Parking
- Public Health

This ASR has been approved by Councillor McEwan, Economy Portfolio Holder and Councillor Roche, Health and Housing Portfolio Holder.

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

If you have any comments on this ASR please send them to Carol Whelan, Environmental Health Manager (Environmental Protection) and Stacey Newton (Environmental Health Officer) at:

Darlington Borough Council, Town Hall, Darlington, DL1 5QT

Telephone 01325 406437/406438

Email carol.whelan@darlington.gov.uk stacey.newton@darlington.gov.uk

Table of Contents

Figures

Tables

1 Local Air Quality Management

This report provides an overview of air quality in Darlington Borough during 2023. 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 Darlington Borough Council to improve air quality and any progress that has been made.

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

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

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

Darlington Borough currently does not have any declared AQMAs. A local Air Quality Strategy is under development to prevent and reduce polluting activities. This has been considered at the Health and Housing Scrutiny Committee and is awaiting final approval at Cabinet later in 2024.

2.2 Progress and Impact of Measures to address Air Quality in Darlington Borough Council

Defra's commentary appraisal of last year's ASR concluded the following:

The report is well structured, detailed, and provides the information specified in the Guidance. The following comments are designed to help inform future reports:

1. *Please update the information in the AQAP table and;*
2. *Add NO_2 concentration data to the diffusion tube map.*

The comments made within the appraisal report, as shown above, have been taken into account for the completion of the 2024 ASR. The first point related to missing data from cells in Table 2.1, specifically in terms of Key Performance Indicators (KPIs). This column has now been included and KPI's added where possible.

Whilst Darlington Borough Council currently has no requirement to declare an AQMA, the Council is committed to further improving air quality in general and has taken forward a number of measures during the current reporting year of 2023. Details of all measures completed, in progress or planned are set out in Table 2.1.

Twenty-nine measures are included within Table 2.1, with the type of measure and the progress Darlington Borough Council has made during the reporting year of 2023 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.1.

Darlington Borough Council undertakes local action in co-operation with neighbouring councils through the TVCA, as well as through the Tees Valley Environmental Protection Group (TVEPG), which includes a representative from the Environment Agency. The Council also encourages standalone measures that may have a beneficial impact on air quality.

Key measures during the reporting year are:

- Burn Right Campaign (Autumn/Winter 2023-24) – Social media messages, website information, local magazine/press articles, posters in fuel retailers, digital billboard graphics and information sent to Council staff via the Briefing.
- Continuation of the Care for Clean Air campaign – Social media messages, website information, and temporary lamppost anti-idling signs near schools recirculated over Autumn/Winter 2023-24.

- Clean Air Day (15 June 2023) – Council website news article encouraging drivers to use alternative more sustainable modes of transport.
- Darlington station improvements underway – project led by TVCA and Network Rail and includes work to make the station easier to use for people arriving on foot, by bike and by public transport. The work is to include the installation of a new fully accessible and enclosed footbridge, as well as new cycle lanes, bike shelters and electric car charging points.
- Extension of the Tees Flex bus service – an on-demand bus service operated by Stagecoach, set up with the purpose of connecting people in rural areas (not well served by conventional bus routes) to economic centres to enable them to access jobs and services.
- DBC's Street Scene team trial of biofuel (hydrotreated vegetable oil) in half of their household waste wagon fleet to see if it will be a viable alternative in the long term.
- Teesside Airport which previously became home to a temporary hydrogen refuelling station, will see a permanent hydrogen refuelling station based at the site after being successful in the Government's latest £8million Hydrogen Transport Hub Demonstration. There are proposals to set up another temporary refuelling station during 2024 and then a new permanent station in late 2024 to early 2025.
- Electric Vehicle Charging Point installed at Abbott's Yard Council car park.
- A Tees Valley wide strategy for on street electric vehicle charging led by TVCA has been finalised.
- A new cycling and walking route (Woodland Road Phase 1) is complete, which is part of an overall route from West Park/Faverdale to Darlington town centre. This section runs from Hollyhurst Road junction, via Woodland Road, Outram Street and Duke Street. Sections on Woodland Road and Duke Street involve the installation of a dedicated cycle lane and widening of pavements to allow for better pedestrian access.
- As part of the Enhanced Bus Partnership (with the regions bus operators, local authorities, TVCA and the Confederation of Passenger Transport), Darlington took part in the Kids Go Free scheme in school holidays in 2023, where up to three children aged 11 or under were able to travel for free all day, every day, throughout the school holidays (when accompanied by an adult with a valid ticket or pass), to help local parents and carers plan exciting and cost-effective days out while encouraging more sustainable transport choices.
- The Active Travel Hub programme, funded by TVCA, continues to operate in Darlington and across the Tees Valley, with further emphasis on local community engagement and public

consultation, to support the delivery of Darlington's and TVCA's ambitious vision for the Local Walking and Cycling Infrastructure Plan, with capital funding from Active Travel England (ATE).

- Continuation of the Wheels to Work Scheme - The project will help people who do not have access to a car or bike, or who cannot make the journey by bus or train, to get to their job or college. This Tees Valley scheme will hire an electric motorbike, or electric bicycle, to eligible individuals. It will also provide the necessary safety equipment and training.
- A Licensing Policy which offers a 25% reduction in licensing fees for vehicles that are fuelled by liquid petroleum gas (LPG), electric, petrol-electric and compressed natural gas (NGV). Darlington Borough Council's latest taxi licensing policy which was implemented from 1 January 2021 introduced a requirement for all vehicles to be Euro 6 compliant or emission free by 1 April 2023 (with wheelchair accessible vehicles being exempt from this requirement). Euro 6 introduced a further, significant reduction in NOx emissions from diesel engines and established similar standards for petrol and diesel vehicles. All 239 taxis meet this requirement, the only exception being wheelchair accessible vehicles which have been allowed to remain due to shortages in this type of vehicle (currently 12 of these). The taxi licensing policy (and commitment to tougher emission standards) also mentions consideration of longer-term plans aimed at promoting 'cleaner' vehicles, expanding the electric charging infrastructure to encourage uptake of electric vehicles amongst the taxi trade, as well as educational interventions (particularly around vehicle idling at taxi ranks).

Darlington Borough Council worked to implement these measures in partnership with the following stakeholders during 2023:

- TVCA;
- TVEPG;
- Tees Valley bus service operators;
- Local developers.

Darlington Borough Council anticipates that the measures stated above and in Table 2.1 will help maintain compliance with the AQ objectives across the borough.

A number of the schemes do not all address air quality directly, but all will have a bearing on improving air quality. Darlington Borough Council's Public Health team support the work done in relation to air quality and will continue to work alongside Environmental Health and other colleagues across the Council.

Monitoring of pollutants will also continue to ensure that any increase in concentration trends can be identified, as well as to ensure compliance with AQ objectives.

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	Woodburning campaign - Burn Right (Appendix F)	Public Information	Via other mechanisms	2023		Darlington Borough Council - Environmental Health	LA and DEFRA (Air Quality New Burdens Determination (2022/23) 31/6620	YES	Funded	< £10k	Implementation	To raise awareness of smoke control area requirements and burning suitable fuel	No. of hits/ statistics on social media/website	Social media messages, news articles, information sheet/website updates, posters at fuel retailers, graphic on digital billboard.	
2	Idling campaign schools - Care for Clean Air (Appendix F)	Public Information	Via other mechanisms	2023		Darlington Borough Council - Environmental Health		NO	Not funded	< £10k	Implementation	To reduce idling and emissions of Nox, PM10 and PM2.5	No. of hits/ statistics on social media/website	Social media messages, press releases, website updates, information provided to schools, lamppost signs, banners. Lamppost signs recirculated around schools during over winter 2023/24.	
3	Darlington Railway Station improvements	Transport Planning and Infrastructure	Public transport improvements - interchanges stations and services	2023	2025	Tees Valley Combined Authority, Darlington Borough Council, Network Rail, London North Eastern Railway	Tees Valley Combined Authority & Central Government	NO	Funded	> £10 million	Implementation	To encourage more sustainable travel choices	None	Demolition work completed to make way for extension. Construction of new multi-storey car park underway. Work expected to start on new footbridge 2024.	Work is to include the installation of a new fully accessible and enclosed footbridge, as well as new cycle lanes, bike shelters and electric car charging points.
4	A refuelling station serving hydrogen-powered vehicles based in the Tees Valley at Teesside International Airport. Tees Valley Hydrogen Transport Hub, the airport, along with other key organisations, is testing zero emission, hydrogen-fuelled commercial and support vehicles	Promoting Low Emission Transport	Procuring alternative refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2020	2025	Tees Valley Combined Authority and Tees Valley Local Authorities	Department for Transport and Innovate UK - Hydrogen Transport Hub Demonstration (Tees Valley)	NO	Funded	£1 million - £10 million	Implementation	To provide the infrastructure for use of hydrogen vehicles	None	One temporary hydrogen refuelling station is already operational.	The Tees Valley is aiming to be home to the UK's first Hydrogen Transport Hub. Proposals to set up another temporary refuelling station during 2024 and then a new permanent station in late 2024 to early 2025.
5	Tees Valley Bus Service Improvement Plan (BSIP). Zero Emission Bus Regional Areas 2 (ZEBRA2) Scheme - hydrogen bus trial	Policy Guidance and Development Control	Low Emissions Strategy	2022	2027	Tees Valley Combined Authority, Local Authorities and operators of bus services	ZEBRA(2)	NO	Funded	> £10 million	Implementation	To encourage the use of low emission vehicles	None	TVCA have been successful in their application for funding (ZEBRA2). Arriva will run a number of single decker ZEBs on service 2 out of their Darlington depot. 8 chargers will also be installed at their Darlington depot. All Darlington Arriva buses are currently Euro 5 or Euro 6 compliant, and a number have stop start technology. All buses are fitted with engine cut off features after 4/5 minutes.	Tees Valley aims to be one of the first regions in the UK to have an entirely zero emission local bus fleet.

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
6	Tees Valley Bus Service Improvement Plan. Bus partnership working	Promoting Low Emission Transport	Other	2022		Tees Valley Combined Authority, Local Authorities and operators of bus services	Department for Transport - BSIP	NO	Funded	> £10 million	Implementation	To encourage use of sustainable transport & low emission vehicles	None	An Enhanced Bus Partnership has been created to deliver improvements to bus services across themes of ensuring a sustainable network for the future, bus priority improvements, improved fare offers, enhanced customer experience and decarbonising the bus fleet. TVCA received confirmation of £1.5million BSIP+ funding for 2023/24.	Ongoing work
7	Urban Traffic Management Control (UTMC) - Traffic signalling and use of smart technology including air quality monitors	Traffic Management	UTC, Congestion management, traffic reduction	2019	2027	Tees Valley Combined Authority and Local Authorities	City Regional Sustainable Transport Settlements (CRSTS)	NO	Funded	£1 million - £10 million	Planning	Smart technology to prevent and control traffic congestion	None	TVCA are currently exploring options for upgrades to the UTMC system to all for improvements to bus priority, which will be applied to signalised junctions/crossings on priority bus corridors.	
8	Electric Vehicle Charging Points (EVCP) to be installed in six town centre Council car parks. The new charging points will be in Abbott's Yard, Winston Street North, Commercial Street West, Park Place East, Park Place West and Kendrew Street West	Promoting Low Emission Transport	Procuring alternative refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2022	2023	Tees Valley Combined Authority and Local Authorities	Tees Valley Combined Authority following receiving £720,000 from Government's Office for Zero Emission Vehicles	NO	Funded	£500k - £1 million	Completed	Promote the use of and provide infrastructure for electric vehicles	No. of charge points	Funding to deliver chargers in 32 public car parks across the Tees Valley. Electric charging points already installed at Feethams Multi Storey Car Park on Beaumont Street and at East Street Car Park. Further EVCP's installed at Commercial Street West 4 x 11kW Kendrew St West 4 x 11kW Park Place East 6 x 11kW Park Place West 4 x 11kW Winston Street 5 x 11kW Abbott's Yard 1 x 50kW	Each EVCP represents 2 charging points
9	Electric Vehicle Charging Infrastructure Project On street Electric Vehicle charging	Promoting Low Emission Transport	Procuring alternative refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2023		Tees Valley Combined Authority and Local Authorities	Local Electric Vehicle Infrastructure (LEVI) fund	NO	Funded	£1 million - £10 million	Implementation	Promote the use of and provide infrastructure for electric vehicles	None	Tees Valley wide strategy for on street charging led by TVCA has been finalised, which will be followed by a localised Darlington strategy.	

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
10	DBC Fleet Management and Electric Vehicles	Vehicle Fleet Efficiency	Fleet efficiency and recognition schemes			Darlington Borough Council		NO	Not funded		Implementation	Reduce vehicle emissions	No. of low emission vehicles in Council fleet	The Council has an electric fleet of vehicles currently consisting of (16 Building Services, 3 Highways, 2 Building Cleaning, 2 Street Scene, 1 Cemeteries, 1 Pest Control, 1 South Park Gardener, 1 Occupational Therapy, 1 Library Service) Trial of HVO fuel in some refuse vehicles ongoing. A Fleet review was completed in 2020 for DBC by the Energy Saving Trust, with recommendations put forward including continuing to replace the fleet with electric alternatives, reviewing vehicle need/usage and challenging the need for large vans.	
11	Tees Valley Local Cycling and Walking Infrastructure Programme (LCWIP)	Transport Planning and Infrastructure	Cycle network	2020		Tees Valley Combined Authority and Local Authorities	City Regional Sustainable Transport Settlements (CRSTS) Active Travel Fund (ATF2/3/4E)	NO	Funded	£1 million - £10 million	Implementation	Promotion of alternative forms of transport and reduce vehicle use	None	LCWIP identified 6 routes within Darlington. First route Faverdale/West Park to Town Centre underway see item 15 below. Currently reviewing feasibility of a number of routes including Town Centre to Teesside International Airport (via Yarm Road) and Woodland Road Phase 3.	
12	Improvements to the Stockton and Darlington Railway (S&DR) track bed to ensure this key pedestrian and cycle route is accessible all year round linking the village of Middleton St George to key employment sites to the east of Darlington	Transport Planning and Infrastructure	Cycle network	2020	2025	Darlington Borough Council - Sustainable Transport & Highways	Various	NO	Partially funded	£1 million - £10 million	Implementation	To encourage cycling and walking within the Borough	None	Alignment of Stockton and Darlington Railway Walking and Cycling route as a continuous public right of way through the Borough, as close to the original alignment as possible. Covers 26-mile route from Durham to Stockton via Darlington.	Funding is a barrier to implementation
13	New cycling route along Lingfield Way which will connect a further extension of the cycle network along Allington Way	Transport Planning and Infrastructure	Cycle network	2019	2020	Darlington Borough Council - Sustainable Transport & Highways	National Productivity Investment Fund (NPIF)	NO	Funded	£500k - £1 million	Completed	To encourage cycling within the Borough	None	Completed in 2020.	

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14	Shared use path along the spine road at the new Amazon development on Morton Park Way and the funding of additional bus services	Transport Planning and Infrastructure	Cycle network	2018	2021	Developer	S106 Obligation	NO	Funded	£1 million - £10 million	Completed	To encourage cycling and walking within the Borough	None	S106 bus subsidy funding has been utilised to provide a subsidised bus service (Arriva service 2A) connecting Amazon to the town centre. A segregated path was constructed in 2020.	
15	New cycling and walking route on Woodland Road, Outram Street and Duke Street	Transport Planning and Infrastructure	Cycle network	2020	2027	Darlington Borough Council - Sustainable Transport & Highways	Tees Valley Mayor and Tees valley Combined Authority / Department for Transport	NO	Funded	£1 million - £10 million	Implementation	To encourage cycling and walking within the Borough	None	The first phase from Darlington Memorial Hospital to Town Centre completed October 2022. Work on Outram Street and Duke Street completed 2023. Phase 2 from the Hollyhurst junction on Woodland Road to Deneside Road via the Tennis Dene is yet to be completed.	Works to create a new route between West Park and the Town Centre.
16	Darlington Borough Council's Local Plan 2016 -2036 adopted February 2022. Policy IN4 requires every new residential property which has a garage or dedicated marked out residential car parking space within its curtilage should include an electric socket suitable for charging electric vehicles. Non-residential development creating over 50 parking spaces are required to provide at least one double electric vehicle charging point (2 spaces). For each additional 50 parking spaces at least one double charging point will be required	Policy Guidance and Development Control	Other policy	2016		Local Authority	N/A	NO	Not funded		Implementation	To provide the infrastructure for use of electric vehicles	None		
17	Licensing requirement (taxis) for all vehicles to be Euro 6 compliant by 1 April 2023	Policy Guidance and Development Control	Other policy	2021	2024	Darlington Borough Council - Licensing Section	N/A	NO	Not funded		Completed	To ensure the use of vehicles that produce lower emissions	% of compliant vehicles	All taxi fleet in Darlington is Euro 6 compliant (currently 239 vehicles).	Wheelchair accessible vehicles exempt from requirement (currently 12)
18	Licensing policy offers 25% reduction in licensing fees for vehicles that are fuelled by liquid petroleum gas, electric, hybrid and compressed natural gas	Policy Guidance and Development Control	Other policy	2021		Darlington Borough Council - Licensing Section	N/A	NO	Not funded		Completed	To encourage the use of low emission vehicles	None		
19	Transport related article/poster on air quality in One Darlington Magazine and use of social media to raise awareness of idling of engines	Public Information	Via other mechanisms	2019	2019	Darlington Borough Council - Environmental Health		NO	Not funded	< £10k	Completed	To reduce road traffic emissions and idling	None		

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20	Wood burning stoves article on air quality in One Darlington Magazine	Public Information	Via other mechanisms	2018	2018	Darlington Borough Council - Environmental Health		NO	Not funded	< £10k	Completed	To raise awareness of particulates from wood burning stoves	None		
21	Idling campaign hackney taxi drivers	Public Information	Via leaflets	2022	2022	Darlington Borough Council - Environmental Health & Licensing Section		NO	Not funded	< £10k	Completed	To reduce idling	None	Leaflet distributed to hackney taxi drivers on idling of engines	
22	Compliance checks – the Air Quality (Domestic Solid Fuels Standards) (England) Regulations 2020	Public Information	Via other mechanisms	2022		Darlington Borough Council - Environmental Health		NO	Not funded	< £10k	Implementation	To ensure compliance with legislation	No. of retailers/suppliers contacted	Visits to 43 retailers selling fuels and letters sent to a further 75. Further work still proposed including to make contact with stove suppliers within DBC area.	
23	Safe Routes to School Programme	Traffic Management	Other	2022		Darlington Borough Council - Sustainable Transport & Highways	City Regional Sustainable Transport Settlements (CRSTS) Highway Allocation	NO	Funded	£500k - £1 million	Implementation	To ensure a safer more convenient highway network around schools and encourage sustainable travel choices	None	Work on various schemes have progressed. Mount Pleasant Primary School and Hurworth Primary School – complete. Abbey Schools (Abbey Road & Cleveland Terrace) – consultation complete. Delivery expected in 2025/26 school holidays. St Augustine's – initial consultation led to scheme changes, due to reconsult.	Schemes supported by a programme of education, information and publicity to inform residents of the travel choices available to them and their impact on the environment.
24	Wheels to Work Scheme - aims to help people who do not have access to a car or bike, or who cannot make the journey by bus or train, to get to their job or college by hiring an electric motorbike or bicycle	Transport Planning and Infrastructure	Public cycle hire scheme	2021	2024	Tees Valley Combined Authority and Local Authorities	Tees Valley Combined Authority	NO	Funded	£500k - £1 million	Implementation	To enable access to employment and training by sustainable modes of transport	None	TVCA has allocated £840,000 over a three-year period to deliver the scheme and acquire a fleet of e-motorbikes to transition to an all-electric fleet.	
25	A68 Cockerton and Woodland Road/Carmel Road North roundabouts improvement scheme	Traffic Management	Other	2022		Darlington Borough Council – Sustainable Transport & Highways		NO	Not funded		Planning	To improve traffic flow/ease congestion and improve walking and cycling routes in the area	None	Public consultation began for roundabout redevelopment proposals to redesign key junctions on one of Darlington's busiest commuter routes.	
26	Darlington Borough Council's Local Plan 2016 -2036 adopted February 2022. Policy DC3 Health and Wellbeing requires in the case of development of 150 or more homes and all other non-residential 'major' development, the submission of a Health Impact Assessment as part of the application	Policy Guidance and Development Control	Other policy	2016		Local Authority	N/A	NO	Not funded		Implementation	To explain how health considerations (including air quality) have informed the design	None	A Development Guidance Note and Comprehensive Health Impact Assessment tool has been produced.	

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
27	Promotion of Clean Air Day (15 June 2023)	Public Information	Via other mechanisms	2023	2023	Darlington Borough Council - Environmental Health		NO	Not funded	< £10k	Completed	Promotion of alternative forms of transport and reduce vehicle use	None	Council news article encouraging more sustainable travel choices.	
28	Tees Flex on-demand bus service	Alternatives to private vehicle use	Other	2020	2024	Tees Valley Combined Authority and Local Authorities	Tees Valley Mayor and Tees Valley Combined Authority	NO	Funded	£1 million - £10 million	Implementation	Promotion of alternative forms of transport and reduce vehicle use	None	Demand Responsive Transport solution. On-demand bus sharing service covering Darlington.	Three-year pilot launched in 2020, extended for further 18 months from February 2023 – contract currently being reviewed by TVCA.
29	Introduction of garden waste collection service and discouraging garden bonfires	Public Information	Via other mechanisms	2019		Darlington Borough Council – Waste department		NO	Not funded		Implementation	To reduce emissions from garden bonfires	No. of subscribers	Increase in uptake of garden waste collection service each year since introduction up to 2023. Reduction in complaint numbers about garden bonfires since 2020.	

* N.B. Key performance indicators are not defined Council key performance indicators but detail how the success of the measures can be presented and reviewed where possible.

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy[6], local authorities are expected to work towards reducing emissions and/or concentrations of fine particulate matter ($PM_{2.5}$). There is clear evidence that $PM_{2.5}$ (particulate matter smaller than 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Overview

$PM_{2.5}$ are very fine particulates which are now considered to be a more significant health risk than the larger particulates PM_{10}, as they penetrate further into the respiratory system and are less easily dislodged. Recognising this, the UK Public Health Outcomes Framework includes an indicator relating to fine particulate matter ($PM_{2.5}$). In May 2022 the definition and method of calculating the indicator D01 'Fraction of mortality attributable to particulate air pollution' was revised. The latest factors nationally and for the Tees Valley (2018, 2019, 2020, 2021 and 2022 (new method) are as follows:

Fraction (%)	England	North East	Darlington	Hartlepool	Middlesbrough	Redcar & Cleveland	Stockton-on-Tees
2018	7.1	5.2	5.3	5.5	6.0	5.5	5.7
2019	7.1	4.9	5.1	5.4	6.0	5.7	5.6
2020	5.6	4.0	4.1	4.1	4.4	4.0	4.2
2021	5.5	4.8	4.6	4.5	5.2	4.4	4.9
2022	5.8	5.4	5.2	5.1	5.9	4.9	5.5

$PM_{2.5}$ is not currently part of the LAQM framework within England and as such there is no statutory requirement on local authorities to review and assess $PM_{2.5}$ for LAQM purposes. However, the Environment Act 2021 established a legally binding duty on Government to set (by 31st October 2022) an annual mean target on the level of $PM_{2.5}$, in addition to a longer-term target. The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 set the

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

two $PM_{2.5}$ targets into law and contain provisions on how they will be monitored and assessed. The legally binding targets are as follows, each with an interim target (not legally binding):

- Annual mean concentration of $PM_{2.5}$ in ambient air is equal to or less than 10 micrograms per cubic metre (µg/m³) by 31st December 2040, with an interim target of 12µg/m³ by January 2028.
- 35% reduction in population exposure to $PM_{2.5}$ by 31st December 2040 (as compared with a baseline period of 1st January 2016 to 31st December 2018), with interim target of 22% reduction by January 2028.

While the responsibility for meeting these targets sits with national government, local authorities have a role to play in delivering reductions in $PM_{2.5}$ at a more local level and the government still expects all local authorities to effectively use their powers to reduce $PM_{2.5}$ emissions from the sources which are within their control.

There is not currently any monitoring of $PM_{2.5}$ or PM_{10} completed within the borough, therefore no concentration values can be reported or estimated using the method as described in Box 7.7 of LAQM.TG(22), which provides a method for estimating $PM_{2.5}$ concentrations from PM_{10} measurements. However, a site in Darlington has been confirmed for a new air quality monitoring station as part of the Automatic Urban and Rural Network (AURN) to monitor concentrations of $PM_{2.5}$.

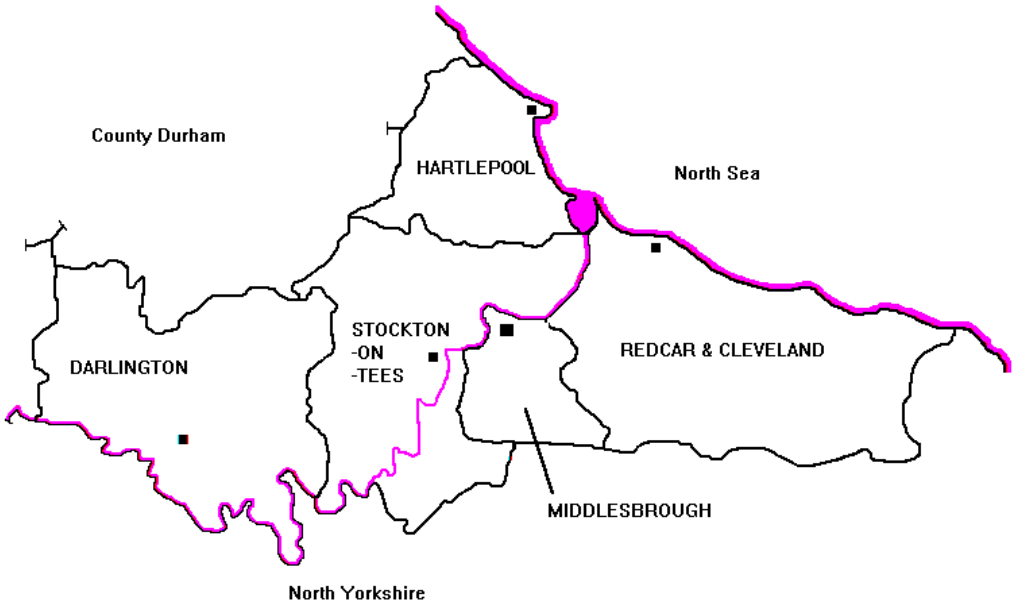
Within the Tees Valley, there are three $PM_{2.5}$ monitors as part of the national network, Middlesbrough Breckon Hill (urban background); Stockton Eaglescliffe (urban background); and Stockton A1035 Nelson Terrace (roadside), all giving direct $PM_{2.5}$ annual means. These sites are located approximately 22km, 12 km and 15.5 km from Darlington, respectively. The Breckon Hill and Eaglescliffe stations have PM_{10} monitors alongside them so that a locally derived factor of $PM_{2.5}$ to PM_{10} can be calculated and compared with the national factor and used at local PM_{10} monitors with a similar location.

Annual means for $PM_{2.5}$ within the Tees Valley (Middlesbrough Breckon Hill and Stockton Eaglescliffe, Stockton A1305 Nelson Terrace) for the last five years (2019 – 2023) have ranged between 6.5 and 10.3µg/m³, with variations year on year likely to be due to weather variations. The levels indicate that the interim target (annual mean) is already being met at these locations. The highest level of 10.3µg/m³ was at the Middlesbrough site in 2019, with levels being below 10µg/m³ since then.

Technical Guidance recognises that due to its extremely small size, $PM_{2.5}$ can travel for long distances in the air and it is estimated that as much as 40% to 50% of the levels found in any given area can be from sources outside a local authority's direct boundary. Around half of concentrations are thought to be secondary sourced, i.e., reactions between other pollutants in the atmosphere. In addition, coastal and rural areas can have higher proportions of natural sources such as salt, fine sand and pollens, the extent of which will be weather dependent. This means that locally emitted $PM_{2.5}$ will tend to be significantly less than 50% of the total burden, with road traffic, industry and domestic solid fuel burning (wood and coal) being the principal sources.

Darlington $PM_{2.5}$

Darlington Borough Council is one of five unitary Councils forming the general area known as the Tees Valley. As shown below, it is the most westerly of these Councils and third largest in area, at 198.4 km^2.



Darlington Borough has a densely populated central area but is otherwise largely rural. It is a major shopping and commercial centre and is the main railway centre for the Tees Valley. There is very little heavy industry compared with other Tees Valley Councils, and although some quarrying and other industrial processes lie just outside its boundary, they do not significantly impact on Darlington air quality.

The main A1 motorway (North – South), and the A66 trunk route (East – West) run through the Borough, but are mainly in rural areas, with no areas of relevant exposure. Within the urban area,

there are some congested commuter routes, and in the absence of a northern by-pass, some heavy through traffic on the northern outskirts of the town.

The majority of the Darlington urban area is within a smoke control area, subject to Smoke Control Orders, and natural gas is the main source of heating in all but a few rural villages. As highlighted in the 2019 ASR, Environmental Health did some work in 2018 to raise awareness and educate people more on the use of wood burning stoves and remind them of the Smoke Control Area requirements.

Work started in 2022 and continued into 2023 to carry out visits to check on compliance at premises with the Air Quality (Domestic Solid Fuels Standards) (England) Regulations 2020, relating to the sale/certification of domestic solid fuels and the phasing out of certain solid fuels (bituminous coal and wet wood) for use in domestic properties. A total of 43 premises have been visited, and a further 75 have been written to. Generally, compliance with this legislation has been good at premises within the Darlington area. Further work, including visits to stove suppliers, is still proposed.

The Environment Act 2021 from the 1st May 2022 enabled local authorities including Darlington Borough Council to start issuing financial penalties for a chimney releasing smoke in a smoke control area. While no financial penalties have been issued, 16 no. warnings have been issued since the introduction of these new powers until the end of 2023. Grant funding has been allocated to Darlington Borough Council for the new burdens associated with the enforcement and management of Smoke Control Areas, as introduced by the Environment Act 2021.

Towards the end of 2023 Environmental Health launched the 'Burn Right' campaign on woodburning. While information was already available on this subject and advice provided to residents of Darlington, the campaign sought to remind and educate people on the smoke control area requirements in Darlington and the importance of burning suitable fuel. The campaign involved social media messages, press releases, website updates, displaying posters in fuel retailers and graphics being displayed on a digital billboard near a main roundabout in the Town Centre.

The principal source of fine particulate pollution in Darlington is still likely to be from road transport, but even this is limited. Other than along the main commuter routes into the town centre, road traffic is generally light as the significant through routes are in their own transport corridors. This general view of sources is reflected in the national 1 km^2 sector model background maps for Darlington, produced by Defra and the Devolved Administrations, based on 2018

emission source estimates (Projections in the 2018 reference year background maps are based on assumptions which were current before the Covid-19 outbreak in the UK). Typical background levels ($PM_{2.5}$) are shown as 6.2 – 7.9µg/m³ per km^2. The average $PM_{2.5}$ loading per km^2 in 2018 is shown as 6.9µg/m^3, which is projected to reduce to 6.1µg/m^3 in 2030.

The levels already show compliance with the new annual mean target; however Darlington Borough Council are not complacent in aiming to reduce $PM_{2.5}$ levels further over the coming years. Further work is proposed on woodburning including targeting areas outside of the smoke control area.

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

This section sets out the monitoring undertaken within 2023 by Darlington Borough Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2019 and 2023 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Darlington Borough Council did not undertake any automatic (continuous) monitoring during 2023.

3.1.2 Non-Automatic Monitoring Sites

Darlington Borough Council undertook non-automatic (i.e., passive) monitoring of NO_2 at 14 locations during 2023. Table A.1 in Appendix A presents the details of the non-automatic sites.

A map showing the location of the monitoring sites is 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.

3.1.3 Nitrogen Dioxide (NO_2)

Table A.2 and Figure A.1 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 2023 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.

All monitoring locations within Darlington continue to report annual mean NO_2 concentrations well below the AQ objective. Fall-off with distance correction was not required due to the low monitored concentrations (less than 36µg/m^3). Following bias adjustment and annualisation where required (not required), the maximum reported concentration in 2023 is 28.6µg/m^3 at diffusion tube monitoring location D1, located along the A167 near Northgate roundabout in Darlington. This monitoring location has reported the maximum concentration in 2019 (35.8µg/m^3), 2020 (30.0µg/m^3), 2021 (32.1µg/m^3) and 2022 (30.2µg/m^3).

Figure A.1 presents the 2023 annual mean NO_2 concentrations at Darlington Borough Council's monitoring sites. Concentrations at eleven out of the fourteen sites decreased slightly during 2023 in comparison to 2022. Concentrations at the other three locations increased slightly during 2023 in comparison to 2022.

It is possible to infer the risk of exceedances of the 1-hour mean NO_2 AQ objective at diffusion tube monitoring sites. LAQM.TG(22) provides an empirical relationship that states exceedances of the 1-hour objective are unlikely when the annual mean concentration is below 60µg/m^3. Given that the highest recorded annual mean concentration at any of the diffusion tube monitoring sites in 2023 is 28.6µg/m^3, it is possible to conclude that there have been no exceedances of the hourly

mean NO_2 objective. Results over the last five years at all monitoring locations have been below 60µg/m³.

Appendix A: Monitoring Results

Table A.1 – 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) [1]	Distance to kerb of nearest road (m) [2]	Tube Co-located with a Continuous Analyser?	Tube Height (m)
D1	Northgate	Kerbside	429026	514898	NO_2	No	N/A	1.0	No	2.5
D2	Haughton Road	Roadside	429351	514819	NO_2	No	1.7	2.3	No	2.5
D3	Platform 1 (Middleton St George)	Roadside	434205	514165	NO_2	No	4.6	1.5	No	2.5
D4	Salters Lane	Roadside	429478	517375	NO_2	No	4.5	1.4	No	2.5
D5	Woodland Rd	Roadside	428152	514966	NO_2	No	20.0	1.6	No	2.6
D6	Blackwell Bridge	Roadside	427734	512591	NO_2	No	10.0	2.0	No	2.6
D7	North Road	Roadside	429016	515546	NO_2	No	4.0	1.5	No	2.3
D8	Haughton Green	Kerbside	430905	515918	NO_2	No	19.0	0.6	No	2.6
D9	Yarm Road / McMullen Rd	Roadside	431299	514137	NO_2	No	9.0	2.0	No	2.4
D10	St Cuthbert's	Kerbside	429170	514534	NO_2	No	N/A	0.8	No	2.4
D11	Whinfield Road	Roadside	431107	516524	NO_2	No	7.6	1.9	No	2.4

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) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
D12	106 High Northgate	Kerbside	429028	515523	NO_2	No	2.7	0.4	No	2.4
D13	Eldon Street Corner	Kerbside	429183	516223	NO_2	No	8.5	0.6	No	2.8
D14	West Auckland Road	Roadside	427201	516597	NO_2	No	11.0	1.8	No	2.4

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 – 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 2023 (%) (2)	2019	2020	2021	2022	2023
D1	429026	514898	Kerbside	100.0	100.0	35.8	30.0	32.1	30.2	28.6
D2	429351	514819	Roadside	84.6	84.6	27.8	21.5	22.5	22.4	21.4
D3	434205	514165	Roadside	75.0	75.0	14.2	11.1	10.1	10.9	11.2
D4	429478	517375	Roadside	100.0	100.0	31.4	26.0	23.5	22.2	21.5
D5	428152	514966	Roadside	100.0	100.0	24.9	16.9	19.7	17.8	16.3
D6	427734	512591	Roadside	100.0	100.0	31.5	26.0	26.8	25.2	24.8
D7	429016	515546	Roadside	75.0	75.0	34.8	28.3	28.8	27.7	27.6
D8	430905	515918	Kerbside	100.0	100.0	31.1	26.3	26.4	26.4	26.0
D9	431299	514137	Roadside	100.0	100.0	25.0	19.9	21.6	19.7	19.1
D10	429170	514534	Kerbside	100.0	100.0	31.6	27.4	26.1	25.1	24.8
D11	431107	516524	Roadside	50.0	50.0	18.8	18.9	20.4	18.5	16.3
D12	429028	515523	Kerbside	92.3	92.3	28.8	23.2	25.5	23.1	23.5
D13	429183	516223	Kerbside	92.3	92.3	24.8	19.0	21.1	20.1	20.3

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 2023 (%) (2)	2019	2020	2021	2022	2023
D14	427201	516597	Roadside	100.0	100.0	-	15.6	15.8	15.4	14.1

☒ **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 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**.

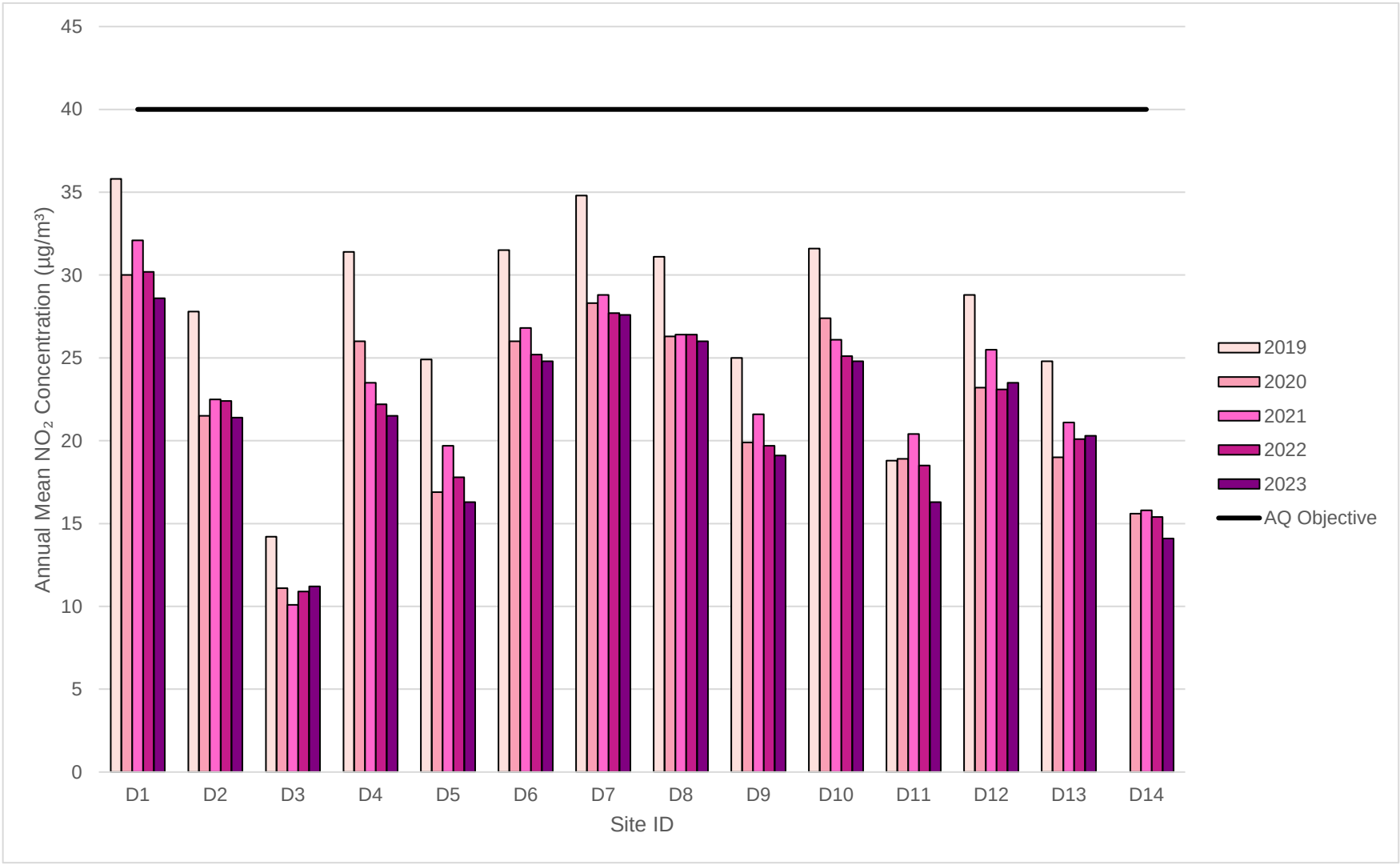
Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

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

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

Figure A.1 – Trends in Annual Mean NO_2 Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B.1 – NO_2 2023 Diffusion Tube Results ($\mu g/m^3$)

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 (0.83)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
D1	429026	514898	35.5	33.5	36.9	35.1	37.3	38.3	31.8	28.7	34.9	34.6	35.2	31.8	34.5	28.6	-	
D2	429351	514819	31.3		27.4	24.7	24.3	21.0	21.2	27.3		29.7	27.9	23.6	25.8	21.4	-	
D3	434205	514165	19.1		13.7	12.5			9.1	10.1	12.5	13.4	19.2	11.7	13.5	11.2	-	
D4	429478	517375	35.7	33.9	28.3	19.7	22.3	20.1	19.5	22.9	26.3	24.1	30.9	27.0	25.9	21.5	-	
D5	428152	514966	29.6	23.0	22.2	17.6	15.2	12.4	12.8	13.9	17.4	19.2	28.6	23.8	19.6	16.3	-	
D6	427734	512591	35.3	32.8	33.0	27.3	27.5	29.5	26.2	30.3	31.1	30.1	30.7	24.8	29.9	24.8	-	
D7	429016	515546	41.5		36.0		30.3	23.8	29.4		34.3	33.1	39.0	31.8	33.2	27.6	-	
D8	430905	515918	41.7	36.2	33.2	27.7	28.8	28.8	25.1	27.2	30.3	29.0	37.2	31.0	31.4	26.0	-	
D9	431299	514137	27.8	22.3	25.5	21.7	21.2	20.8	17.5	20.4	22.7	25.5	29.3	21.5	23.0	19.1	-	
D10	429170	514534	28.0	30.0	30.7	30.8	29.5	30.0	24.7	27.6	33.7	33.1	31.3	29.1	29.9	24.8	-	
D11	431107	516524	28.2	24.3	22.3	17.2							27.5	19.8	23.2	16.3	-	
D12	429028	515523	30.3	25.4	33.1	31.9	29.3	30.1	21.1	25.4	30.0		29.9	25.0	28.3	23.5	-	
D13	429183	516223	29.4	30.3	30.9	21.2	21.1	20.2	20.4	19.5	26.9	23.8	25.6		24.5	20.3	-	
D14	427201	516597	23.4	18.7	19.3	12.4	14.3	12.7	13.0	14.8	17.9	18.2	22.6	16.6	17.0	14.1	-	

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

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

☐ **Local bias adjustment factor used.**

☒ **National bias adjustment factor used.**

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

☒ **Darlington Borough Council confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Darlington Borough Council During 2023

Darlington Borough Council has not identified any new sources relating to air quality within the reporting year of 2023.

An environmental permit application was received in 2023 relating to a new mobile crusher based/registered in the area. The process is covered by the Environmental Permitting (England and Wales) Regulations 2016. A permit was issued in April 2023 and includes conditions relating to control of emissions to air and is subject to regulation and routine inspections by the Council.

To ensure that any new development would not adversely impact upon air quality within the borough, an air quality assessment/screening assessment was received for the following planning applications that were granted permission in 2023:

- 22/00423/FUL – Land East Of Lingfield Estate, Lingfield Point, Darlington. Industrial development comprising of the erection of 3 no. industrial buildings of Class B2 and/or B8 use (industrial, storage and distribution) with ancillary office space, access, gatehouse, landscaping, parking, service areas and associated works.
- 23/00782/FUL – Site Of Former Blackwell Grange Golf Club (East), Carmel Road South, Darlington. Residential development consisting of 44 No. dwellings, with associated access, landscaping, SUDS pond and infrastructure, demolition of agricultural building and the regeneration of Blackwell Grange historic parkland.

Additional Air Quality Works Undertaken by Darlington Borough Council During 2023

Whilst Darlington Borough Council does not currently have any declared AQMAs, work will continue in conjunction with neighbouring councils, through the TVCA, to implement local actions (as set out in Table 2.1) to reduce the impact of vehicle emissions within the borough.

QA/QC of Diffusion Tube Monitoring

The diffusion tubes for the year 2023 were supplied and analysed by Gradko International Ltd, the tubes were prepared using the 50% TEA in acetone preparation method.

Gradko is a UKAS accredited laboratory and participates in the AIR-PT Scheme for NO_2 tube analysis and the Annual Field Inter-Comparison Exercise. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO_2 concentrations reported are of a high calibre. The latest available AIR-PT result is AIR-PT AR059 (September – October 2023), in which Gradko scored 100%. The percentage score reflects the results deemed to be satisfactory based upon the z-score of $< \pm 2$.

The precision of the current 15 local authority co-location studies in 2023 detailed within the national bias adjustment factor spreadsheet (version 03/24) was rated as 'good' (tubes are considered to have "good" precision where the coefficient of variation of duplicate or triplicate diffusion tubes for eight or more periods during the year is less than 20%). Further information on the precision summary results can be found on the LAQM website.

Diffusion tube monitoring during 2023 was undertaken in line with the Diffusion Tube Monitoring Calendar and recommended exposure period (4 or 5 whole weeks (+/- 2 days)).

Diffusion Tube Annualisation

As per LAQM.TG(22), annualisation is required for any site which has a data capture of less than 75%, but greater than 25%. Annualisation was required for one site (D11 Whinfield Road) for the 2023 monitoring period.

Diffusion Tube Bias Adjustment Factors

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

Diffusion tubes for Darlington Borough Council are supplied and analysed by Gradko International Ltd. The tubes were prepared using the 50% TEA in acetone preparation method. The national bias adjustment factor for Gradko 50% TEA in acetone is 0.83 for the year 2023 (based on 15 studies) as derived from the National Bias Adjustment Factor Spreadsheet (version 03/24).

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/24

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 spreadsheet 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 2024
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 (To undo your selection, choose (All) from the pop-up list)	Year[2] (To undo your selection, choose (All))	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	50% TEA in acetone	2023	UB	City Of London Corporation	10	28	22	26.3%	G	**0.79**
Gradko	50% TEA in acetone	2023	R	City Of London Corporation	11	36	31	15.0%	G	**0.87**
Gradko	50% TEA in acetone	2023	R	LB Newham	12	27	21	28.0%	G	**0.78**
Gradko	50% TEA in acetone	2023	SU	Redcar And Cleveland Borough Council	12	14	10	48.0%	G	**0.68**
Gradko	50% TEA in Acetone	2023	R	Sandwell Mbc	12	33	26	27.6%	G	**0.78**
Gradko	50% TEA in acetone	2023	UB	Sandwell Mbc	11	21	18	15.8%	G	**0.86**
Gradko	50% TEA in acetone	2023	R	Sandwell Mbc	12	23	20	14.2%	S	**0.88**
Gradko	50% TEA in Acetone	2023	UC	Falkirk Council	12	33	29	14.9%	G	**0.87**
Gradko	50% TEA in Acetone	2023	UB	Falkirk Council	12	15	13	8.9%	G	**0.92**
Gradko	50% TEA in acetone	2023	R	London Borough Of Lewisham	11	33	27	22.7%	G	**0.82**
Gradko	50% TEA in Acetone	2023	R	London Borough Of Merton	12	37	31	18.5%	G	**0.84**
Gradko	50% TEA in acetone	2023	KS	Marylebone Road Intercomparison	11	47	38	25.7%	G	**0.80**
Gradko	50% TEA in acetone	2023	R	Royal Borough Of Windsor And Maidenhead	11	27	23	21.6%	G	**0.82**
Gradko	50% TEA in acetone	2023	R	Royal Borough Of Windsor And Maidenhead	12	24	24	0.6%	G	**0.99**
Gradko	50% TEA in acetone	2023	R	London Borough Of Richmond Upon Thames	11	18	16	15.6%	G	**0.86**
Gradko	50% TEA in acetone	2023		**Overall Factor[3] (15 studies)**				Use		**0.83**

As there is currently no local co-location study within Darlington Borough Council the national factor has been applied to the 2023 monitoring data.

A summary of bias adjustment factors used by Darlington Borough Council over the past five years is presented in Table C.1.

Table C.1 – Bias Adjustment Factor

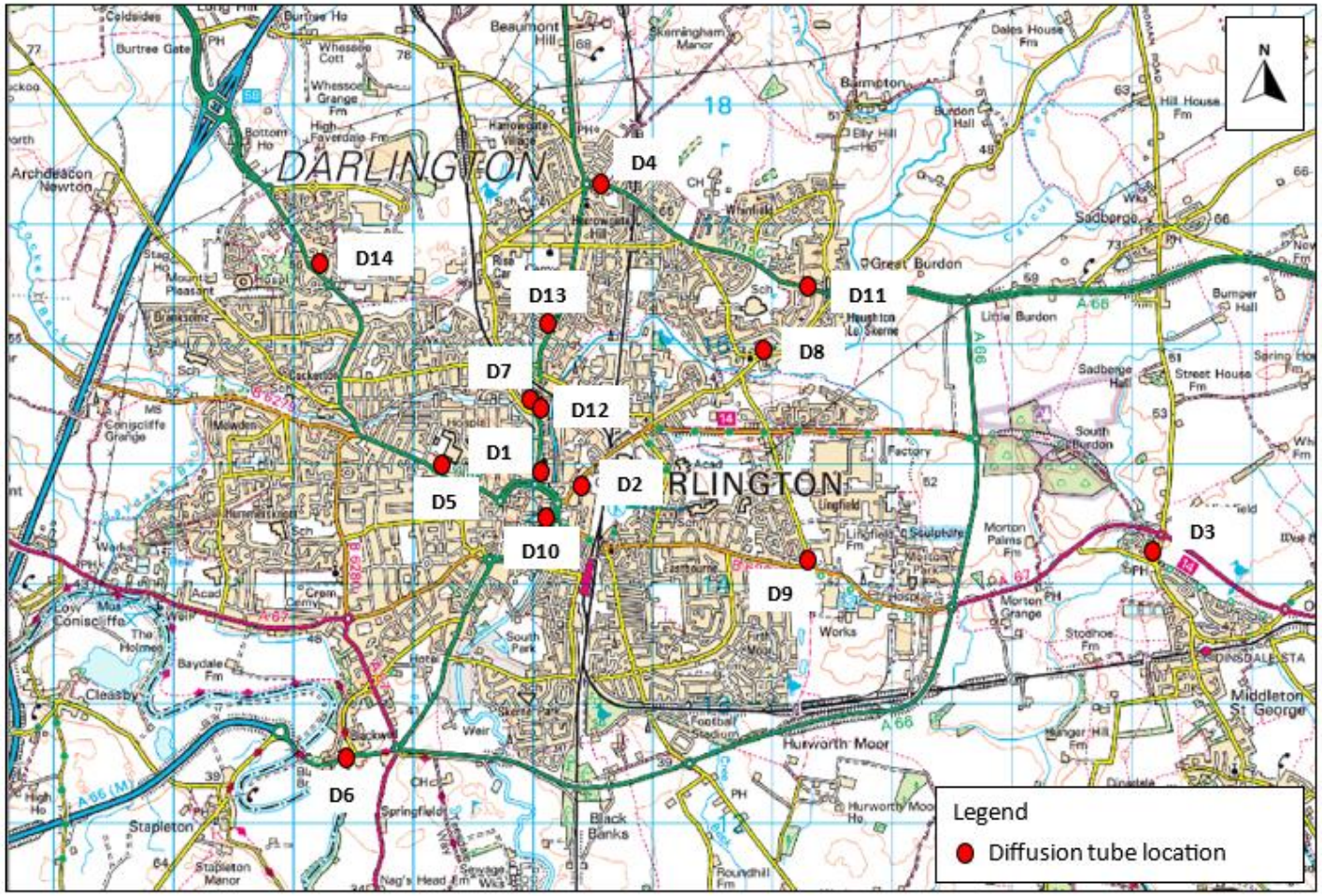
Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	National	03/24	0.83
2022	National	03/23	0.82
2021	National	03/22	0.83
2020	National	03/21	0.82
2019	National	03/20	0.87

NO_2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO_2 fall-off with distance calculator available on the LAQM Support website. No diffusion tube NO_2 monitoring locations within Darlington Borough Council required distance correction during 2023.

Appendix D: Map of Monitoring Locations

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



Site ID	Maximum monthly NO_2 ($\mu g/m^3$)	Annual* NO_2 ($\mu g/m^3$)
D8	41.7	26.0
D7	41.5	27.6
D1	38.3	28.6
D4	35.7	21.5
D6	35.3	24.8
D10	33.7	24.8
D12	33.1	23.5
D2	31.3	21.4
D13	30.9	20.3
D5	29.6	16.3
D9	29.3	19.1
D11	28.2	16.3
D14	23.4	14.1
D3	19.2	11.2

*bias adjusted and annualised

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: Campaign documents

Image 1: Poster provided to retailers

Image 2: Billboard graphic

A news article can be found at the following:

https://www.darlington.gov.uk/your-council/news/news-item/?id=1981

The updated website information is at:

https://www.darlington.gov.uk/media/19708/clearing-the-air-in-smoke-control-zones-2.pdf

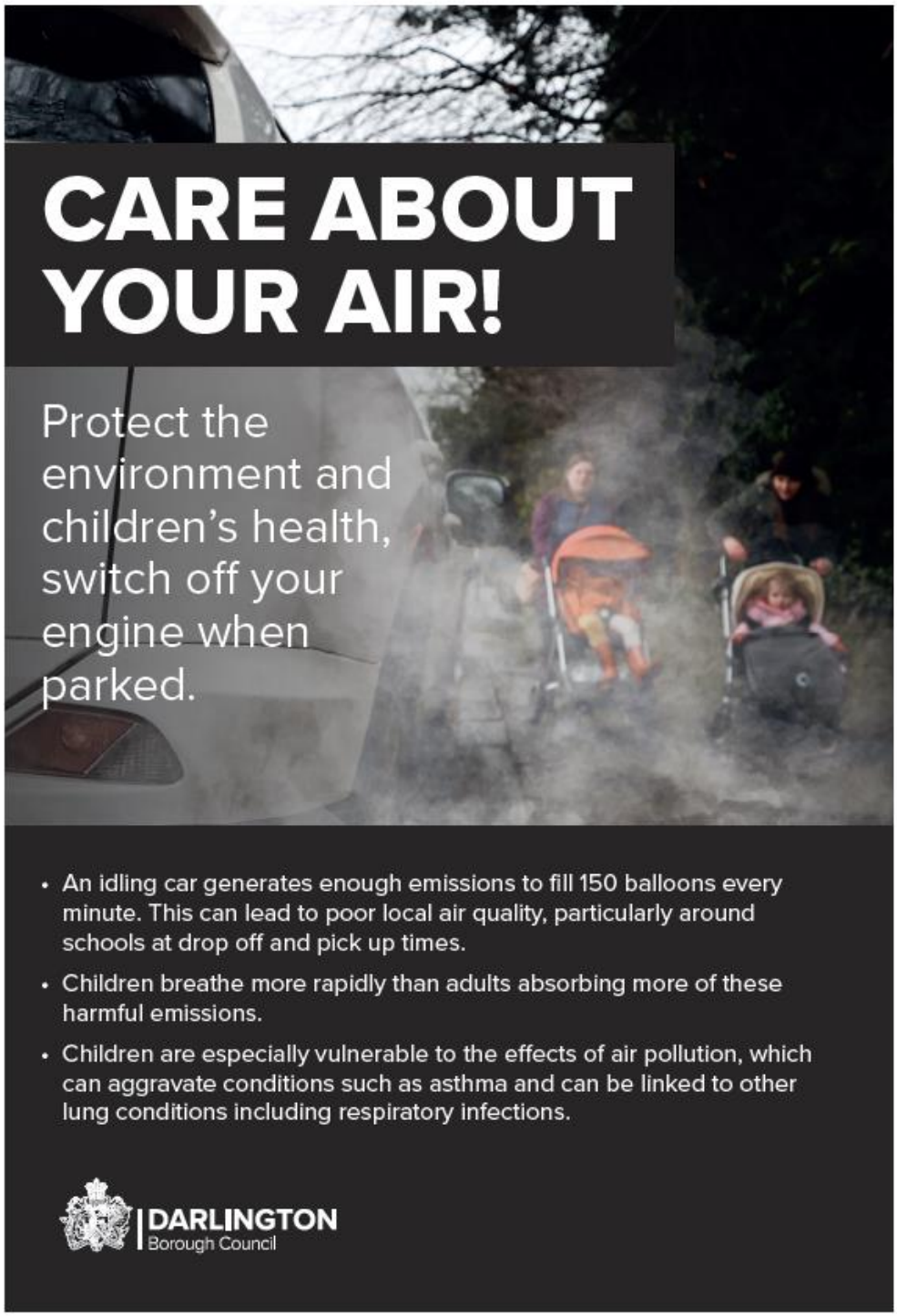


Image 1: Information provided to schools and lamppost signage

Image 2: Social media graphic

Image 3: Banner signage

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
AURN	Automatic Urban and Rural Network
BSIP	Bus Service Improvement Plan
Defra	Department for Environment, Food and Rural Affairs
EVCP	Electric Vehicle Charge Point
HIA	Health Impact Assessment
LAQM	Local Air Quality Management
LCWIP	Local Cycling and Walking Infrastructure Programme
LPG	Liquid Petroleum Gas
NGV	Natural Gas Vehicle
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
S&DR	Stockton and Darlington Railway
SO_2	Sulphur Dioxide
STP	Strategic Transport Plan
TVCA	Tees Valley Combined Authority
TVEPG	Tees Valley Environmental Protection Group
UTMC	Urban Traffic Management Control
ZEBRA	Zero Emission Bus Regional Areas (Scheme)

References

- Darlington Borough Council 2019 Annual Status Report.
- Darlington Borough Council Local Plan (2016-2036), adopted February 2022, Darlington Borough Council.
- Darlington Borough Council Transport Plan (2022-2030).
- Diffusion Tube Data Processing Tool version 4.0, published March 2024, Defra.
- Health Impact Assessment in spatial planning 'A guide for local authority public health and planning teams', published October 2020, Public Health England.
- 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.
- 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.
- Air Quality Strategy: framework for local authority delivery, published April 2023, Defra.
- National Diffusion Tube Bias Adjustment Factor Spreadsheet, published March 2024.
- Public Health Outcomes Framework. Published by the Office for Health Improvement & Disparities.
- Tees Valley Combined Authority Strategic Transport Plan (2020 – 2030), published 2020, Tees Valley Combined Authority.