DARLINGTON
Borough Council

2023 Air Quality Annual Status Report (ASR)

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

Date: June, 2023

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Executive Summary: Air Quality in Our Area

Air Quality in Darlington Borough Council

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 29,000 to 43,000 deaths at typical ages[3], with a total estimated healthcare cost to the NHS and social care of £157 million in 2017[4].

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

[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, March 2023

[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

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[5] sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term $PM_{2.5}$ targets. The National Air Quality Strategy, published in April 2023, provides more information on local authorities' responsibilities to work towards these new targets and reduce $PM_{2.5}$ in their areas. The Road to Zero[6] details the approach to reduce exhaust emissions from road transport through a number of mechanisms; this is extremely important given that the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

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 neighbouring councils through the TVCA. In 2020, the 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.

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

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

- 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 a new Transport Strategy for the Borough, 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 reduce the impact of transport on the environment and support health and wellbeing. This strategy replaces the old Local Implementation Plan and 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. Environmental Health are working with Public Health, Planning Policy and Development Management (i.e., the Local Planning Authority) on some internal policy guidance/tools around HIAs and this work will continue.

At the start of 2023, Environmental Health carried out over 40 inspections and wrote to premises in the Darlington Borough Council area to check compliance with The Air Quality (Domestic Solid

Fuels Standards) (England) Regulations 2020. Further detail is provided in Section 2.3 of the main report.

The 'Care for Clean Air Campaign' was also launched in January 2023 which targeted idling around schools and involved press articles, social media messages, contacting schools with information and resources to share on idling with parents and carers, as well as putting up temporary signs on lampposts outside schools and banners (see photo below of campaign banner outside a Darlington primary school). Further campaign details are included in Appendix F.

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

Conclusions and Priorities

During 2022 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 trying to identify in more detail the sources of fine particles 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 Let's Go Tees Valley website (currently being reviewed) also promotes and provides information on travelling sustainably in the Borough of Darlington, and the wider Tees Valley. It includes information on:

- More sustainable travel options:
  - Local walking routes;
  - Train timetables and maps;
  - Bus timetables and maps;
  - Cycle routes;
  - Smarter driving; and
  - Electric vehicles.
- Getting to school:
  - Walking, cycling and scooting; and
  - Travelling during off-peak hours.
- Inspiring local sustainable travel stories.

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:

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1 Local Air Quality Management

This report provides an overview of air quality in Darlington Borough during 2022. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in order to achieve and maintain the objectives and the dates by which each measure will be carried out. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Darlington Borough Council to improve air quality and 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 demonstrate the Council's commitment to air quality and provide information on local measures, plans and policies which impact air quality. This is to be published by the end of 2023.

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

Defra's 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. *The report has addressed comments from the previous round of appraisals. The Council's hard work in improving their ASRs is welcomed.*
2. *Robust and accurate QA/QC procedures were applied and there is clear reasoning and evidence for the calculation of a national bias adjustment factor.*
3. *The Council have reported the fraction of mortality attributable to particulate air pollution in Darlington in detail, with a clear comparison to the regional and national averages. There is also detailed discussion of measures to tackle $PM_{2.5}$ exposure in the borough. This is encouraged.*
4. *Some of the policy text, for example around the Environment Act, which was amended in 2021, is now outdated and so could be updated.*
5. *The council have provided a clear map of the diffusion tube monitoring network; trends are displayed and discussed in the report, this is welcomed.*
6. *Overall, the report is detailed, concise and satisfies the criteria of relevant standards. The council should continue their good and thorough work.*

The comments made within the appraisal report, as shown above, have been taken into account for the completion of the 2023 ASR.

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 2022. Details of all measures completed, in progress or planned are set out in Table 2.1.

Twenty-three 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 2022 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.1.

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 completed during the reporting year are:

- Solid fuel check inspections of retailers – Visits to check compliance with The Air Quality (Domestic Solid Fuels Standards) (England) Regulations 2020.
- Care for Clean Air campaign – Social media messages, press releases, website information, information provided to Darlington primary and secondary schools, temporary lamppost signs, and banners. Council staff were also reminded not to idle their engine on the internal 'Briefing' which is sent out weekly via email.
- Electric Vehicle Charging Points installed at Commercial Street West, Kendrew Street West, Park Place East, Park Place West and Winston Street North; adding to charge points already installed at Feethams Multi Storey Car Park and East Street Car Park.
- First phase of new cycling and walking route on Woodland Road completed October 2022.
- Work to redevelop Outram Street, a link road between Woodland Road and Duke Street, began. This will include the removal of existing planters to create a route for cyclists and improving some areas of the carriageway. The changes to Outram Street follow the completion of the phase 1 redevelopment of Woodland Road to create dedicated cycle lanes and improved pedestrian access. Currently the cycle route between West Park and the town is a signposted but indirect i.e., passes through residential streets in the Denes – the work being carried out aims to create a direct and dedicated route for cyclists and pedestrians that keeps them separate from vehicles as much as possible.
- Work commenced in early 2023 on the Duke Street improvements which is to involve the installation of a dedicated cycle lane and widening of pavements to allow for better pedestrian access.
- As part of the Enhanced Partnership (with the regions bus operators), Darlington took part in the Kids Go Free scheme where 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.

- Two road improvement schemes aiming to make it safer for children to walk, scoot and cycle to school started. The areas (Whitby Way, outside the rear entrance to Mount Pleasant Primary School, and Roundhill Road, close to Hurworth Primary School), were identified as part of the Safe Routes to School Programme (part of the Local Transport Plan) which aims to educate and inform residents of the travel choices available to them and their impact on the environment.
- 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. Currently 192 of 226 vehicles (85%) meet the Euro 6 requirement. There is a period of grace for those vehicles which are not yet Euro 6 compliant, in that the current license will be allowed to lapse and any vehicles that are not Euro 6 at this stage will not get their license renewed (expected to be no later than 31 March 2024). Of the 34 vehicles that are not Euro 6 compliant, 7 of these are wheelchair accessible and are therefore exempt from the requirement, meaning there are only 27 vehicles left to meet the standard. 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 2022:

- 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.

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	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	2022	Tees Valley Combined Authority and Tees Valley Local Authorities		NO		£1 million - £10 million	Implementation	To provide the infrastructure for use of hydrogen vehicles		Hydrogen refuelling station is operational	The Tees Valley is aiming to be home to the UK's first Hydrogen Transport Hub.
2	Tees Valley Bus Service Improvement Plan. Zero Emission Bus Regional Areas (ZEBRA) 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.		NO		>£10 million	Implementation	To encourage the use of low emission vehicles		A total of £25m has been set aside for the conversion of buses in the region from the TVCA's £310m "sustainable transport settlement".	Tees Valley aims to be one of the first regions in the UK to have an entirely zero emission local bus fleet.
3	Bus partnership working/ Bus Service Improvement Plans (BSIP)	Promoting Low Emission Transport	Other			Tees Valley Combined Authority, Local Authorities and operators of bus Services.		NO			Implementation	To encourage use of sustainable transport & low emission vehicles		An Enhanced Bus Partnership has been created to deliver improvements to bus services. Arriva who operate the vast majority of bus services in Darlington took part in the Kid Go Free Scheme over summer 2022. Of a total of 68 buses allocated to the Darlington Arriva depot, 13 are Euro 6 compliant with stop start technology, 54 are Euro 5 compliant. All buses are fitted with engine cut off features after 4/5 minutes and there is 1 Euro 3 engine vehicle covering repairs.	Ongoing work
4	Urban Traffic Management Control (UTMC) - Traffic signalling and use of smart technology including air quality monitors.	Traffic Management	UTC, Congestion management, traffic reduction	2019		Tees Valley Combined Authority and Local Authorities	City Regional Sustainable Transport Settlements fund	NO		£1 million - £10 million	Planning	Smart technology to prevent and control traffic congestion		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.	

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
5	Electric Vehicle Charging Points (EVCP) to be installed in six town centre 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	2022	Tees Valley Combined Authority and Local Authorities	Tees Valley Combined Authority following receiving £720,000 from Government's Office for Zero Emission Vehicles	NO		£500k - £1 million	Implementation	Promote the use of and providing infrastructure for electric vehicles		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 22kW Kendrew St West 4 x 22kW Park Place East 5 x 22kW Park Place West 4 x 22kW Winston Street 5 x 22kW	Each EVCP represents 2 charging points Abbotts Yard Car Park installation due 2023
6	DBC Fleet Management and Electric Vehicles	Vehicle Fleet Efficiency	Fleet efficiency and recognition schemes			Darlington Borough Council		NO			Implementation	Reduce vehicle emissions		The Council has an electric fleet of vehicles currently consisting of (8 Building Services, 3 Highways, 2 Building Cleaning, 2 Street Scene, 1 Cemeteries, 1 Pest Control, 1 South Park Gardener)	
7	Tees Valley Local Cycling and Walking Infrastructure Programme (LCWIP)	Transport Planning and Infrastructure	Cycle network	2020		Tees Valley Combined Authority and Local Authorities		NO		£1 million - £10 million	Implementation	Promotion of alternative forms of transport and reduce vehicle use		LCWIP identified 6 routes within Darlington. First route Faverdale/West Park to Town Centre underway see item 11 below. Currently reviewing feasibility of Town Centre to Teesside International Airport (via Yarm Road) route.	
8	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	2019		Darlington Borough Council - Sustainable Transport & Highways		NO			Implementation	To encourage cycling and walking within the Borough		S&DR line from Teesside International Airport to Newton Aycliffe. A DBC Project Manager has been appointed to deliver this scheme as part of a programme of schemes over the next 3 years - in the lead up to 2026. Feasibility work on other sections carried out by consultants is ongoing.	
9	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		NO			Completed	To encourage cycling within the Borough		Completed in 2020.	

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	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		£1 million - £10 million	Completed	To encourage cycling and walking within the Borough		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.	
11	New cycling and walking route on Woodland Road, Outram Street and Duke Street	Transport Planning and Infrastructure	Cycle network	2020	2022	Darlington Borough Council - Sustainable Transport & Highways	Tees Valley Mayor and Tees valley Combined Authority / Department of Transport	NO		£1 million - £10 million	Implementation	To encourage cycling and walking within the Borough		The first phase from Darlington Memorial Hospital to Town Centre completed October 2022. Phase 2 from the Hollyhurst junction on Woodland Road to the roundabout on Staindrop Road is due to be completed end 2023 - depending on funding. Work to redevelop Outram Street began 2022. Work commenced in early 2023 on the Duke Street improvements.	Works to create a new route between West Park and the Town Centre
12	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			Completed	To provide the infrastructure for use of electric vehicles			
13	Licensing vehicles age restriction policy introduced a requirement 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			Implementation	To control the age of licenced taxi's and ensure the use of vehicles that produce lower emissions		Currently 85% of the taxi fleet in Darlington are Euro 6 compliant.	Remaining taxi fleet expected to meet requirement by 31 March 2024
14	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			Completed	To encourage the use of low emission vehicles			
15	Transport related article/poster on air quality One Darlington Magazine and use of social media to raise awareness of idling of engines	Public Information	Via other mechanisms	2019		Darlington Borough Council - Environmental Health	N/A	NO			Completed	To reduce road traffic emissions and idling			

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
16	Wood burning stoves article on air quality in One Darlington Magazine	Public Information	Via other mechanisms	2018		Darlington Borough Council - Environmental Health	N/A	NO			Completed	To raise awareness of particulates from wood burning stoves			
17	Idling campaign hackney taxi drivers	Public Information	Anti-idling enforcement	2022		Darlington Borough Council - Environmental Health & Licensing Section	N/A	NO			Implementation	To reduce idling		Leaflet distributed to hackney taxi drivers on idling of engines	
18	Idling campaign schools - Care for Clean Air (Appendix F)	Public Information	Via other mechanisms	2023		Darlington Borough Council - Environmental Health	N/A	NO			Implementation	To reduce idling		Social media messages, press releases, website updates, information provided to schools, lamppost signs, banners. Further work also proposed over 2023/24	
19	Compliance checks – the Air Quality (Domestic Solid Fuels Standards) (England) Regulations 2020	Public Information	Via other mechanisms	2023		Darlington Borough Council - Environmental Health	N/A	NO			Implementation	To ensure compliance with legislation		Visits to 43 retailers selling fuels and letters sent to a further 75. Further work proposed including to make contact with stove suppliers within DBC area	
20	Safe Routes to School Programme	Traffic Management	Other	2022		Darlington Borough Council - Sustainable Transport & Highways	N/A	NO			Implementation	To ensure a safer more convenient highway network around schools and encourage sustainable travel choices		Work on two road improvement schemes – Mount Pleasant Primary School and Hurworth Primary School	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.
21	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		Tees Valley Combined Authority and Local Authorities	Tees Valley Combined Authority	NO			Implementation	To enable access to employment and training by sustainable modes of transport		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	
22	A68 Cockerton and Woodland Road/Carmel Road North roundabouts improvement scheme	Traffic Management	Other	2022		Darlington Borough Council – Sustainable Transport & Highways	N/A	NO			Planning	To improve traffic flow/ease congestion and improve walking and cycling routes in the area		Public consultation began for roundabout redevelopment proposals to redesign key junctions on one of Darlington's busiest commuter routes.	
23	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			Implementation	To explain how health considerations (including air quality) have informed the design		Environmental Health are working with Public Health, Planning Policy and Development Management on some internal policy guidance/tools around HIAs.	Ongoing work

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8), local authorities are expected to work towards reducing emissions and/or concentrations of $PM_{2.5}$ (particulate matter with an aerodynamic diameter of 2.5µg 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.

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 and 2021 (new method used for 2020 and 2021)) are as follows:

Fraction (%)	England	North East	Darlington	Hartlepool	Middlesbrough	Redcar & Cleveland	Stockton-on-Tees
2018	5.2	3.8	3.9	4.0	4.4	4.0	4.1
2019	5.1	3.6	3.7	3.9	4.4	4.1	4.0
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

$PM_{2.5}$ 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 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. A site in Darlington is being considered for a new air quality monitoring station as part of the Automatic Urban and Rural Network (AURN) to monitor concentrations of $PM_{2.5}$.

However, 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.

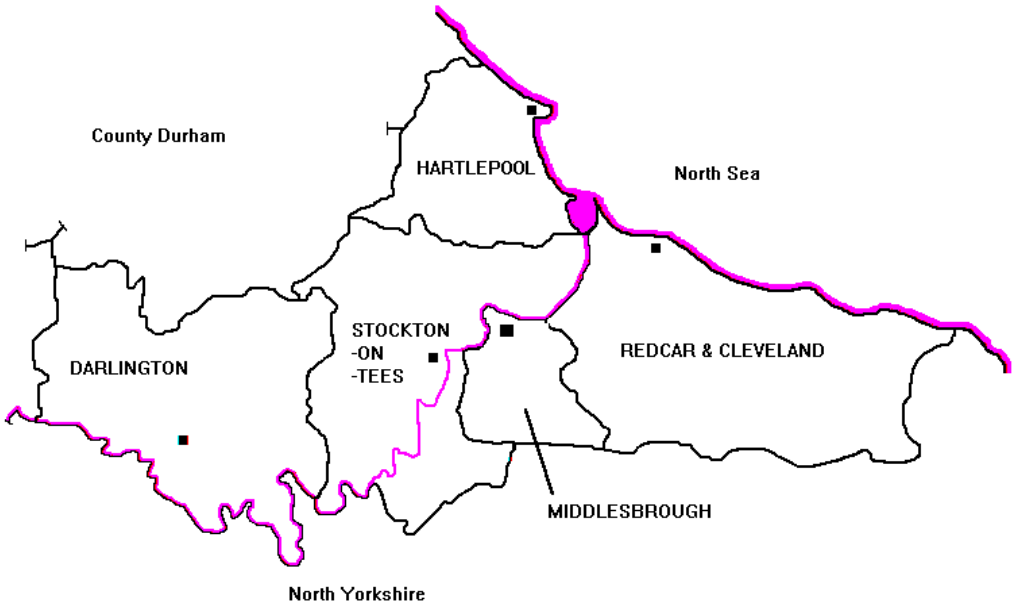
Annual means for $PM_{2.5}$ within the Tees Valley (Middlesbrough Breckon Hill and Stockton Eaglescliffe, Stockton A1305 Nelson Terrace) for the last five years (2018 – 2022) have ranged between 6.5 and 10.3µg/m^3, with variations year on year likely to be due to weather variations. The levels indicate that the interim target (annual mean) is already being met at these locations. The highest level of 10.3µg/m^3 was at the Middlesbrough site in 2019, with levels being below 10µg/m^3 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 also proposed over 2023/24.

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. 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, and further work in this area is proposed.

The principal source of fine particulate pollution is 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/m^3 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.

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

This section sets out the monitoring undertaken within 2022 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 2018 and 2022 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 2022.

3.1.2 Non-Automatic Monitoring Sites

Darlington Borough Council undertook non-automatic (i.e., passive) monitoring of NO_2 at 15 locations during 2022. These included two duplicate sites (D7/D12) and (D6/D15). 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 2022 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

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/m³). Following bias adjustment and annualisation where required (not required), the maximum reported concentration in 2022 is 30.2µg/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) and 2021 (32.1µg/m^3).

Figure A.1 presents the 2022 annual mean NO_2 concentrations at Darlington Borough Council's monitoring sites. Concentrations at eleven sites all decreased slightly during 2022 in comparison to 2021. Concentrations at two locations increased only slightly during 2022 in comparison to 2021 and the concentration at one location stayed the same.

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 2022 is 30.2µg/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
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
D7, D12	North Road	Roadside	429016	515546	NO_2	No	4.0	1.5	No	2.3

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)
D13	106 High Northgate	Kerbside	429028	515523	NO_2	No	2.7	0.4	No	2.4
D14	Eldon Street Corner	Kerbside	429183	516223	NO_2	No	8.5	0.6	No	2.8*
D6, D15	Blackwell Bridge	Roadside	427734	512591	NO_2	No	10.0	2.0	No	2.6*
D16	Hill House Lane	Kerbside	434227	516944	NO_2	No	4.8	0.7	No	2.4
D17	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.

* Tube height lowered as of 02.11.2022, as follows: D8 – 2.4m, D14 – 2.5m and D6/D15 – 2.3m, following a review of the Health and Safety Risk Assessment.

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 2022 (%) (2)	2018	2019	2020	2021	2022
D1	429026	514898	Kerbside	100.0	100.0	38.7	35.8	30.0	32.1	30.2
D2	429351	514819	Roadside	82.7	82.7	30.9	27.8	21.5	22.5	22.4
D3	434205	514165	Roadside	92.3	92.3	15.3	14.2	11.1	10.1	10.9
D4	429478	517375	Roadside	100.0	100.0	34.0	31.4	26.0	23.5	22.2
D5	428152	514966	Roadside	100.0	100.0	23.9	24.9	16.9	19.7	17.8
D8	430905	515918	Kerbside	73.1	73.1	33.8	31.1	26.3	26.4	26.4
D9	431299	514137	Roadside	73.1	73.1	28.6	25.0	19.9	21.6	19.7
D10	429170	514534	Kerbside	75.0	75.0	34.1	31.6	27.4	26.1	25.1
D11	431107	516524	Roadside	84.6	84.6	24.0	18.8	18.9	20.4	18.5
D7, D12	429016	515546	Roadside	100.0	100.0	**40.8**	34.8	28.3	28.8	27.7
D13	429028	515523	Kerbside	90.4	90.4	32.5	28.8	23.2	25.5	23.1
D14	429183	516223	Kerbside	92.3	92.3	29.4	24.8	19.0	21.1	20.1
D6, D15	427734	512591	Roadside	100.0	100.0	35.5	31.5	26.0	26.8	25.2

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 2022 (%) (2)	2018	2019	2020	2021	2022
D16	434227	516944	Kerbside	92.3	92.3			17.3	15.2	15.7
D17	427201	516597	Roadside	84.6	84.6			15.6	15.8	15.4

☒ **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**.

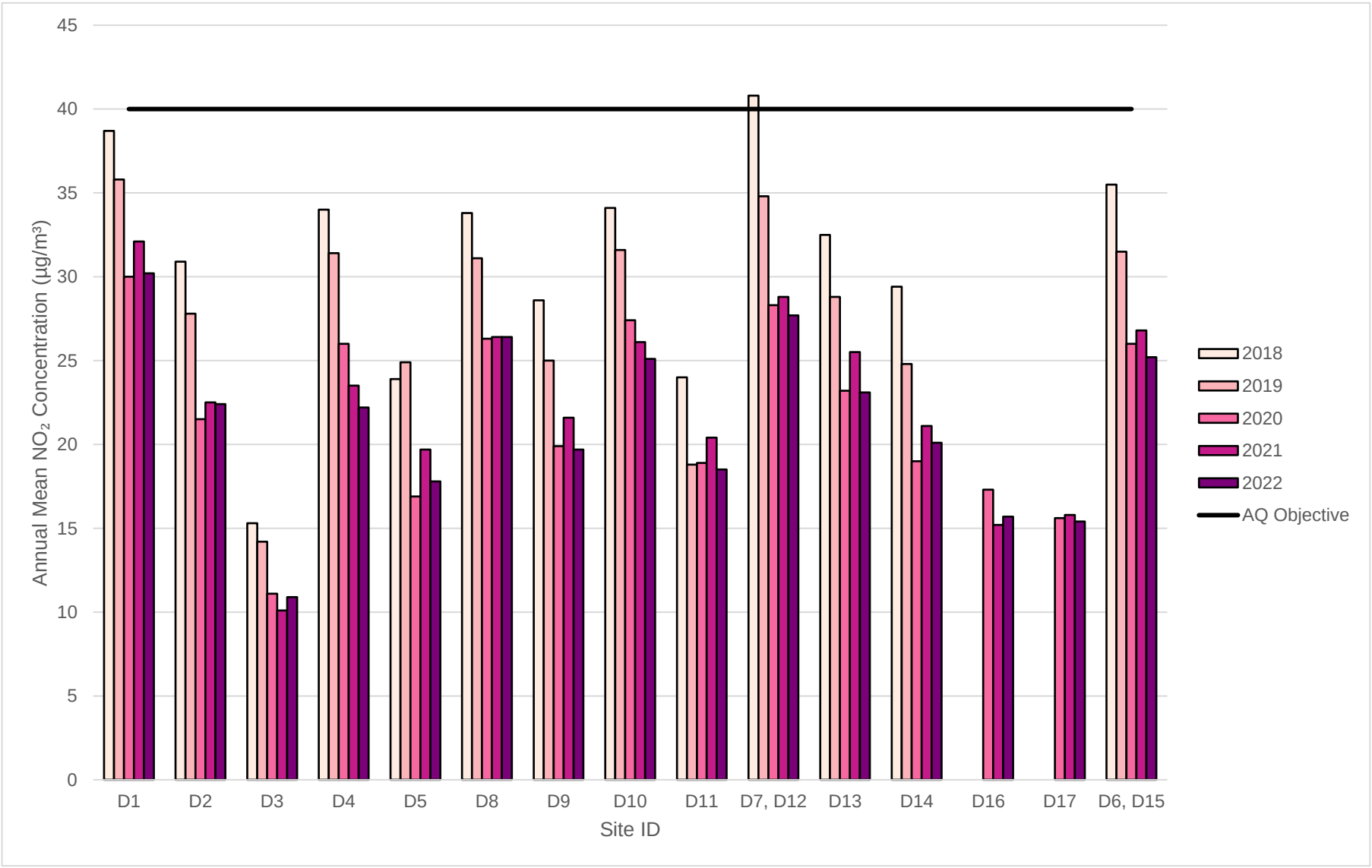
Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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 2022

Table B.1 – NO_2 2022 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 (0.82)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
D1	429026	514898	**43.1**	32.6	**45.3**	37.8	33.3	30.0	32.5	35.6	36.1	35.2	**41.8**	38.4	36.8	30.2	_	
D2	429351	514819	**41.7**	23.6	28.5	24.2		20.2	21.9	23.1	28.3	31.5		30.2	27.3	22.4	_	
D3	434205	514165	18.8	11.0	17.6	12.3	9.1	7.4	9.6		12.7	12.0	17.7	17.4	13.2	10.9	_	
D4	429478	517375	39.6	27.4	27.9	21.4	20.1	24.6	23.2	25.5	23.5	28.9	31.8	31.4	27.1	22.2	_	
D5	428152	514966	39.0	25.4	29.7	17.4	16.5	15.0	15.6	12.6	18.4	19.8	25.7	26.0	21.8	17.8	_	
D6	427734	512591	37.0	28.3	31.5	26.2	27.0	29.6	30.1	33.3	31.8	30.0	30.2	31.9	-	-	_	Duplicate Site with D6 and D15 - Annual data provided for D15 only
D7	429016	515546	**42.2**	37.5	39.3	31.5		30.5	34.3	32.9		32.5	39.5	**42.6**	-	-	_	Duplicate Site with D7 and D12 - Annual data provided for D12 only
D8	430905	515918	38.5	31.1	36.7	28.4		29.0	28.7	29.1	33.9			34.5	32.2	26.4	_	
D9	431299	514137	30.1	20.6				19.0	18.4	22.1	23.4	25.7	32.0	24.4	24.0	19.7	_	
D10	429170	514534	36.4	21.9	**40.6**		26.2	25.6	26.7			31.9	34.5	32.0	30.6	25.1	_	
D11	431107	516524	29.9		28.3	20.0	16.9		15.6	18.8	20.8	23.9	25.5	26.1	22.6	18.5	_	
D12	429016	515546		30.4	36.0	23.8	19.2		31.7		37.3	33.1	34.4	39.3	33.8	27.7	-	Duplicate Site with D7 and D12 - Annual data provided for D12 only
D13	429028	515523	28.4	22.9	33.9	30.2		21.0	23.3	27.4	30.4	28.6	31.3	32.8	28.2	23.1	_	
D14	429183	516223	28.5	20.7	29.0	21.1	18.3	17.1		20.2	23.6	26.8	32.9	32.1	24.6	20.1	_	
D15	427734	512591	**41.8**	27.9	35.9	27.1	29.6	27.9	27.1	32.4	33.3	25.7	30.6	30.8	30.7	25.2	_	Duplicate Site with D6 and D15 - Annual data provided for D15 only
D16	434227	516944	25.5	15.9	23.7	15.7	13.4	15.5		12.9	18.4	21.0	26.1	22.4	19.1	15.7	_	
D17	427201	516597	24.3	16.8	22.1	14.9	13.8	14.3	13.7			19.3	25.1	23.9	18.8	15.4	_	

☒ **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 2022 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 2022

Darlington Borough Council has not identified any new sources relating to air quality within the reporting year of 2022.

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 2022:

- 21/00708/DC Railway Heritage Quarter Station Road, Darlington. Proposed Railway Heritage visitor attraction comprising works to various buildings to provide entry point, reception, visitor centre, cafe and display space (Goods Shed); exhibition and interpretation space (Head of Steam); archive study area, function and temporary exhibition space (Carriage Works); repair, maintenance, storage and display of locomotives and associated rail artefacts (1861 Building); erection of purpose built facility for the creation and maintenance of new locomotives and new pedestrian bridge link (Live Engineering Works); office accommodation (Lime Cells); construction of car park (land to east of High Northgate) and associated public realm, external works and landscaping.
- 21/00937/FUL 158-166 Northgate, North Lodge, Darlington. Change of use from commercial (Use Class E) to a mix of residential apartments (Use Class C3) and Service apartments (sui generis) and a shared community space including conversion of loft area with dormer extensions and roof lights, ground floor extension to side elevation, alterations and additional windows/doors and associated internal works.
- 22/00582/FUL Land off John Williams Boulevard, John Williams Boulevard, Darlington. Residential development consisting of 27 no. dwellings with associated access, landscaping and infrastructure.

Additional Air Quality Works Undertaken by Darlington Borough Council During 2022

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 2022 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 AR050 (May – June 2022), in which Gradko scored 100%. The percentage score reflects the results deemed to be satisfactory based upon the z-score of < ± 2.

The precision of the current 14 local authority co-location studies in 2022 detailed within the national bias adjustment factor spreadsheet (version 03/23) 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 2022 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 not required for any site for the 2022 monitoring period.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2023 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 0.82 for the year 2022 (based on 14 studies) as derived from the National Bias Adjustment Factor Spreadsheet (version 03/23).

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/23

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 2023
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[5] (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[6]	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	50% TEA in Acetone	2022	KS	Adur District Council	10	30	21	42.9%	G	0.70
Gradko	50% TEA in Acetone	2022	UC	Falkirk Council	12	32	26	22.7%	G	0.81
Gradko	50% TEA in Acetone	2022	UB	Falkirk Council	9	15	13	16.4%	G	0.86
Gradko	50% TEA in Acetone	2022	R	Lb Newham	12	30	23	29.1%	G	0.77
Gradko	50% TEA in Acetone	2022	SU	Redcar & Cleveland Borough Council	12	14	10	44.9%	G	0.69
Gradko	50% TEA in Acetone	2022	R	Worthing Borough Council	9	33	23	44.2%	G	0.69
Gradko	50% TEA in acetone	2022	KS	Marylebone Road Intercomparison	12	52	42	23.0%	G	0.81
Gradko	50% TEA in acetone	2022	R	City Of London	11	60	54	11.6%	G	0.90
Gradko	50% TEA in acetone	2022	UB	City Of London	12	28	23	23.7%	G	0.81
Gradko	50% TEA in Acetone	2022	KS	London Borough Of Croydon	12	41	37	11.1%	G	0.90
Gradko	50% TEA in Acetone	2022	R	Royal Borough Of Windsor And Maidenhead	12	30	26	13.9%	G	0.88
Gradko	50% TEA in Acetone	2022	R	Royal Borough Of Windsor And Maidenhead	12	27	27	-1.0%	G	1.01
Gradko	50% TEA in Acetone	2022	R	Sandwell Mbc	12	34	27	27.1%	G	0.79
Gradko	50% TEA in Acetone	2022	UB	Sandwell Mbc	12	21	19	11.9%	G	0.89
Gradko	50% TEA in acetone	2022		Overall Factor[3] (14 studies)				Use		0.82

As there is currently no local co-location study within Darlington Borough Council the national factor has been applied to the 2022 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

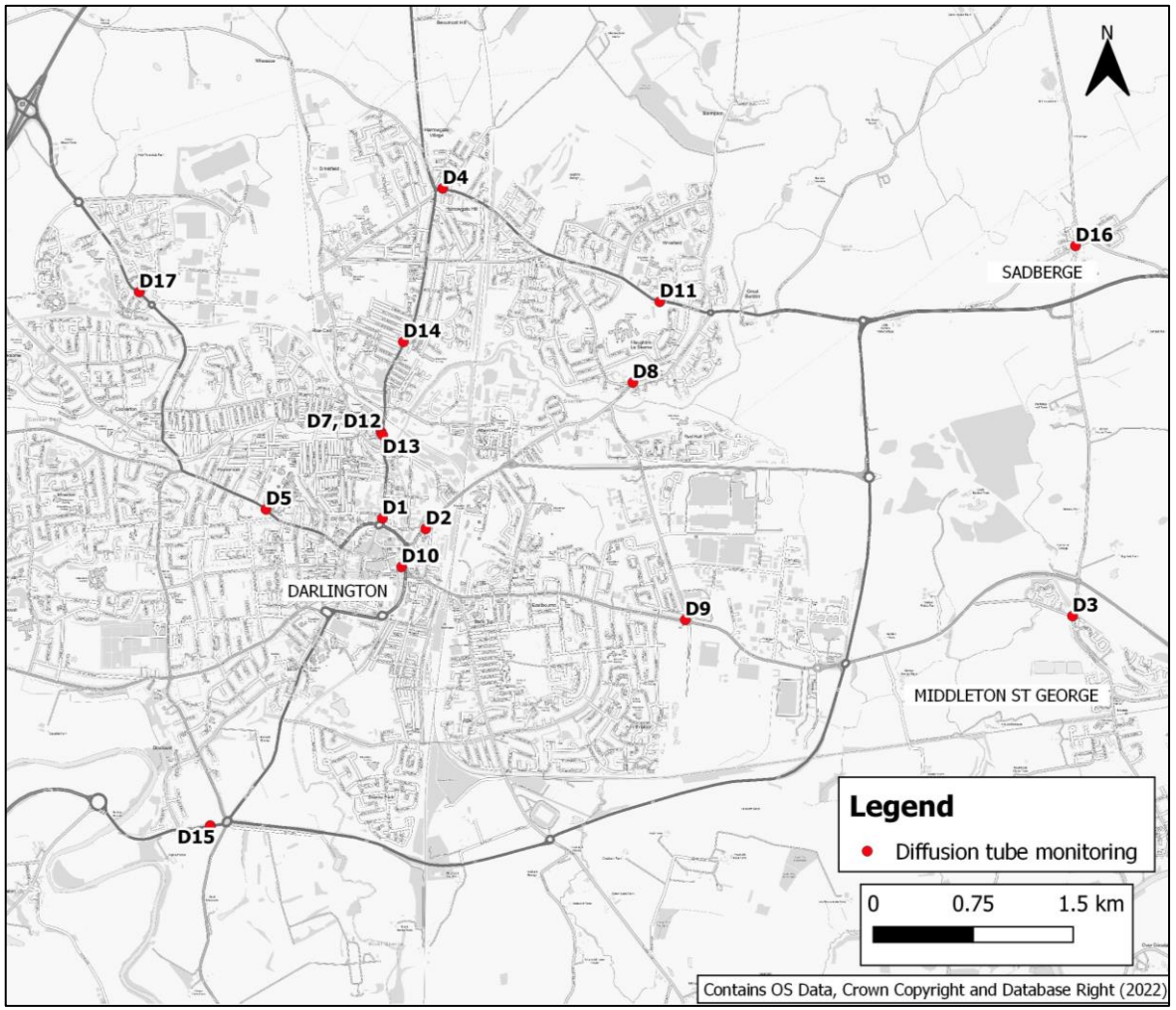
Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2022	National	03/23	0.82
2021	National	03/22	0.83
2020	National	03/21	0.82
2019	National	03/20	0.87
2018	National	03/19	0.92

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 2022.

Appendix D: Map of Monitoring Locations

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



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: Care for clean air campaign documents

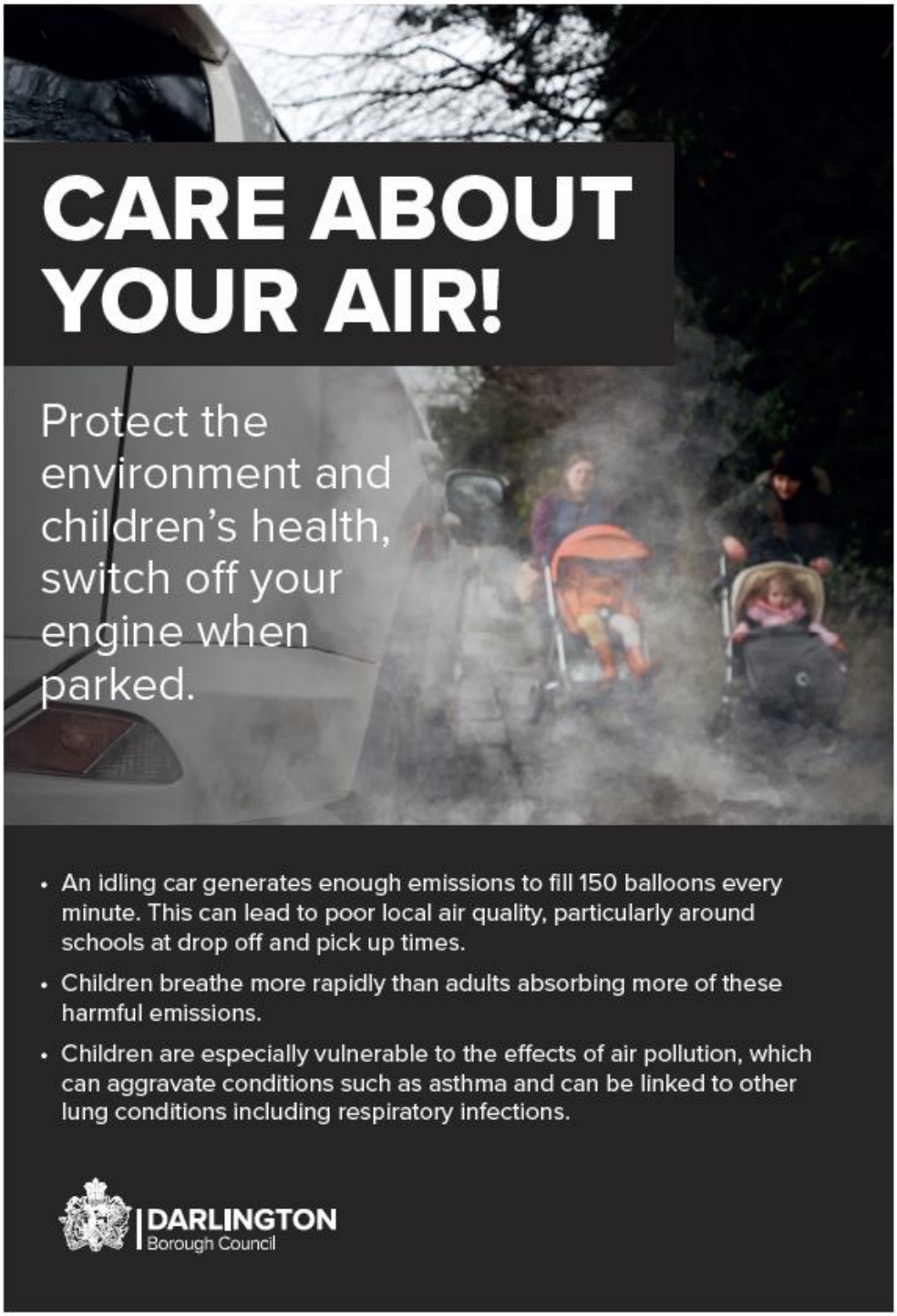


Image 1: Information provided to schools and lamppost signage

Image 2: Social media graphic

Image 3: Banner signage

A couple of the press releases can be found at the following:

https://www.darlington.gov.uk/your-council/news/news-item/?id=1858

https://www.darlington.gov.uk/your-council/news/news-item/?id=1871

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 2022 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 3.0, published March 2023, 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.
- National Air Quality Strategy: framework for local authority delivery, published April 2023, Defra.
- National Diffusion Tube Bias Adjustment Factor Spreadsheet, published March 2023.
- 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.