



Dover District Council

2024 Annual Status Report

June, 2024

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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

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Executive Summary: Air Quality in Our Area

Air Quality in Dover District 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 year¹.

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 pollution².

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})	<p>Particulate matter is everything in the air that is not a gas.</p> <p>Particles can come from natural sources such as pollen, as well as human made sources such as smoke from fires, emissions from industry and dust from tyres and brakes.</p> <p>PM₁₀ refers to particles under 10 micrometres. Fine particulate matter or PM_{2.5} are particles under 2.5 micrometres.</p>

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 Port of Dover town is the district's principal town and is a major hub of transport-related activity and is strategically important for the UK. Large volumes of road traffic utilise the A2 and A20 entering and leaving the town, which predominantly represents the main source of air pollution in the area. In addition to Dover, Deal and Sandwich are the other main towns within the district.

There are currently two Air Quality Management Areas (AQMAs) declared within the district. Both have been designated due to exceedances of the annual mean Air Quality Strategy³ (AQS) Objective for nitrogen dioxide (NO₂), with the elevated concentrations caused primarily by road traffic emissions. These are:

- A20 AQMA⁴, declared in 2004 (and amended in 2007 and 2009); and
- High Street/Ladywell AQMA⁵, declared in 2007.

In 2022, monitoring locations within the A20 AQMA remained below 10% of the AQS Objective (36µg/m³) for the fifth consecutive year. It is hypothesised that the COVID-19 pandemic and Brexit are having long term impacts in the traffic patterns and the air quality. As per the [LAQM TG\(22\)](#), the Council stated it intended to study the revocation of the A20 AQMA in 2023. Compliance was maintained in 2023 for the sixth consecutive year, with concentrations at all non-automatic monitoring sites decreasing when compared to 2022 data. The Council therefore intends to proceed with revocation of the A20 AQMA in 2024.

The monitor in High St/Ladywell AQMA reports its fourth year of compliance with monitored NO₂ annual mean concentrations below 10% of the AQS objective. However, as the annual NO₂ AQS Objective was exceeded in 2019, [Defra's current guidance](#) on the impact of COVID-19 on AQMA means that compliance during COVID-19 years (2020 and 2021) cannot be used to count towards revocation. Disregarding these years, the High Street/Ladywell AQMA now has two years' compliance within 10% of the AQS Objective. If compliance is maintained in 2024, the AQMA will then have 3 consecutive years' compliance and the Council will be able to begin to consider revocation.

Annual mean NO₂ concentrations were below 10% of the AQS Objective at all locations in 2023. The highest concentration was 32.8µg/m³, reported at the triplicate monitoring site

³ Defra. UK Air. [National Air Quality Objectives](#).

⁴ A20 AQMA Details. [UK Air Defra website for A20 AQMA](#).

⁵ High Street/Ladywell AQMA. [UK Air Defra website for High Street/Ladywell AQMA](#).

(DV-06, DV-07, DV-08) located within the High Street/Ladywell AQMA. Concentrations at all monitoring sites were decreased when compared to 2022 data.

In the past five years, there have been no exceedances of the annual PM₁₀ AQS Objective (40µg/m³) at the automatic PM₁₀ monitoring site on Townwall Street (Dover Centre Roadside). In 2023, there were no 24-hour means that exceeded the daily PM₁₀ AQS Objective of 50µg/m³.

There is currently no monitoring undertaken for PM_{2.5} within the district. However, the annual mean PM_{2.5} concentration at Dover Centre in 2023 was estimated in accordance with the methodology presented in [LAQM.TG\(22\)](#) to be 15.6µg/m³, which is below the PM_{2.5} annual mean AQS Objective of 20µg/m³.

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 Plan⁶ 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 harmful to human health. The Air Quality Strategy⁷ provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

The Road to Zero⁸ details the Government's approach to reduce exhaust emissions from road transport through a number of mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of personal travel and the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

A new [Air Quality Action Plan](#) (AQAP) was approved by Defra in May 2024 and is being presented to full Council for adoption on 17th July. More information can be found in the

⁶ Defra. Environmental Improvement Plan 2023, January 2023

⁷ Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

⁸ DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

[DDC AQAP consultation website](#). Measures to further improve the air quality in Dover have been included in the new AQAP and are presented in this year's ASR.

Dover District Council (the Council) adopted its [Core Strategy \(CS\)](#) in February 2010. The CS covers the period up to 2026 and includes ambitious plans to regenerate Dover and other areas of the district and has an adopted Land Allocations Local Plan (LALP). The Council is currently in the process of producing a [Dover District Local Plan](#)⁹ which will replace the adopted CS, LALP and 'saved' 2002 Local Plan Policies. A Consultation on Main Modifications ran from 11th April to 24th May 2024, and the Local Plan is expected to be adopted later this year. Air quality is one of a number of key considerations that has been taken into account as part of the development, consultation, adoption and implementation of the new Local Plan.

In 2023, KMAQP successfully bid for a joint Defra Air Quality Grant. The funding has been used to develop a digital training resource for Health Care Practitioners across Kent and Medway to enable practitioners to advise patients with cardio-vascular disease or respiratory disease on how to reduce their exposure to air pollution, and work on Patient and Public resources is also underway. The unveiling of the platform will coincide with Clean Air Day on 20th June 2024.

Conclusions and Priorities

During 2023, there were no exceedances of the relevant annual mean AQS Objective for either NO₂ or PM₁₀ across Dover. The concentrations at all sites across the NO₂ diffusion tube network decreased compared to 2022. Comparing with COVID-19 years, 2023 concentrations were decreased at 9 out of 15 sites when compared to 2020 data, and at 16 out of 19 sites when compared to 2021 data.

The A20 AQMA has now been compliant within 10% of the annual mean NO₂ for 6 consecutive years. The Council therefore intends to revoke this AQMA in 2024.

There have been no exceedances of the PM₁₀ annual mean objectives within the past five years, and there were no exceedances of the daily average AQS Objective in 2023.

⁹ Dover. [Dover District Local Plan](#).

Following extensive consultation with internal and external stakeholders in April 2023, the Council's cabinet provided approval to launch a public consultation seeking views on a draft AQAP which outlined proposed actions under five broad topics:

Priority 1: Transport

Priority 2: Behaviour Change

Priority 3: Strategies and Policy Guidance

Priority 4: Planning and Infrastructure

Priority 5: Air Quality Monitoring

The finalised AQAP was approved by Defra in May 2024 and is to be presented to Full Council for adoption on 17th July 2024.

The Dover District Local Plan was submitted for Examination on Friday 31st of March 2023. The Council consultation on Main Modifications ran from 11th April – 24th May 2024. It is anticipated that the Local Plan will be adopted in 2024 following appropriate consultations and approvals.

The impacts of Brexit upon the port will continue to be a key influence in the coming years and any decisions made will be assessed in terms of the air quality impacts within Dover.

Local Engagement and How to get Involved

There are several ways that everyone can get involved to help improve air quality in Dover. Due to road traffic being the main source of pollutant emissions within the district you can look to move to more sustainable methods of transport. For example: looking to minimise unnecessary car journeys by choosing to walk, cycle, car-share or use public transport instead.

For further information regarding air quality the following links are provided:

- To download DDC's air quality monitoring data, you can visit: <https://kentair.org.uk/data> ;
- To report a nuisance or pollution problem, please fill in the form located here: <https://forms.dover.gov.uk/xfp/form/1230>; and
- All other general enquiries should be made by either ringing 01304 872428 or emailing EnvProtection@DOVER.GOV.UK. You can also visit <https://www.dover.gov.uk/Environment/Environmental-Protection/Air-Quality/Air-Quality-Monitoring.aspx>.

Local Responsibilities and Commitment

This ASR was prepared by Bureau Veritas in conjunction with the Environmental Protection section of Dover District Council with the support and agreement of the following officers:

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This ASR has been approved by Andrzej Kluczynski, Environmental Protection & Crime Manager:



and

Cllr Jamie Pout

Deputy Leader of Dover District Council

Portfolio holder for Transport, Licensing and Environmental Services

If you have any comments on this ASR, please send them to Brian Gibson at:

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1 Local Air Quality Management

This report provides an overview of air quality in Dover District Council 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 Dover District Council to improve air quality and any progress that has been made.

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

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

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

A summary of AQMAs declared by Dover District Council can be found in Table 2.1. The table presents a description of the two AQMAs that are currently designated within Dover District Council. Appendix D: Map(s) of Monitoring Locations and AQMAs provides maps of AQMAs and also the air quality monitoring locations in relation to the AQMAs. The air quality objectives pertinent to the current AQMA designations are as follows:

- NO₂ annual mean.

The A20 AQMA has now been compliant within 10% of the annual mean NO₂ for 6 consecutive years (see Section 3). The Council therefore intends to revoke this AQMA in 2024.

The High St/Ladywell AQMA reports its 4th year of compliance. However, as the annual NO₂ AQS Objective was exceeded in 2019, [Defra's current guidance](#) on the impact of COVID-19 on AQMA compliance means that complaint COVID-19 years (2020 and 2021) cannot be used to count towards revocation. Disregarding these years, the High Street/Ladywell AQMA now has two years' compliance within 10% of the AQS Objective. If compliance is maintained in 2024, the AQMA will then have 3 consecutive years' compliance and the Council will be able to begin considering revocation.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
A20 AQMA	2004 (amended in 2007 and 2009)	NO ₂ Annual Mean	An area following the A20 from just west of the Limekiln Roundabout at the western end to a point c.140m from the Eastern Docks in Dover. No longer includes properties in Marine Parade and East Cliff to the east.	YES	49.8	28.7	6 years	Dover AQAP, May 2024	Final version not yet published. Draft available at: https://www.dover.gov.uk/Environment/Environmental-Protection/Air-Quality/Air-Quality-Action-Plan-Consultation.aspx
High Street/Ladywell AQMA	2007	NO ₂ Annual Mean	An area encompassing roads and properties between the junction of Effingham Crescent/High Street, and Priory Hill/High Street.	NO	50.5	32.8	2 years (excluding 2020 and 2021 COVID-19 years)	Dover AQAP, May 2024	Final version not yet published. Draft available at: https://www.dover.gov.uk/Environment/Environmental-Protection/Air-Quality/Air-Quality-Action-Plan-Consultation.aspx

Dover District Council confirm the information on UK-Air regarding their AQMA(s) is up to date.

Dover District Council confirm that all current AQAPs have been submitted to Defra.

2.2 Progress and Impact of Measures to address Air Quality in Dover District Council

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

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. *DDC undertook dispersion modelling to assess the AQMAs and establish if any changes could be made to their boundaries. This is encouraging to see.*
2. *Table A.3 has been filled in by mistake. This table should contain automatic NO₂ concentrations, however the PM₁₀ concentrations from the Dover Centre monitoring site have been included in this table instead.*

This has been amended in this year's ASR.

3. *Appendix D includes clear, details maps showing the locations of monitoring sites and the AQMA boundaries.*
4. *DDC has included all ASR appraisal comments from the 2021 ASR, this is encouraging to see, however DDC has not included any response to these comments or acted on those that required action in the 2022 ASR.*

Comments and actions are detailed in this section.

5. *The AQAP has not been updated since 2007, AQAPs should be updated every 5 years. DDC said the new AQAP will be released in 2023.*

DDC has produced an updated AQAP for 2024-2028 which was accepted in May 2024. The updated measures table is presented in Table 2.2 below.

6. *DDC included the Public Health Outcomes Framework relating to PM_{2.5} mortality, Defra background concentrations of PM_{2.5} as well as an estimate of the PM_{2.5} concentration at the automatic PM₁₀ monitoring site. The detail provided in this section of the ASR is welcomed, however greater detail could be included surrounding the measures being undertaken to reduce emissions and concentrations of PM_{2.5}.*

Measures set out in the Council's updated AQAP that are expected to reduce emissions and concentrations of PM_{2.5} have been discussed in Section 2.2 below.

7. *Excluding the minor error regarding Table A.3, this is a good ASR with sufficient detail. The Council are encouraged to continue this for future ASRs.*

Dover District Council has taken forward a number of direct measures during the current reporting year of 2024 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. 22 measures are included within Table 2.2, with the type of measure and the progress Dover District Council have made during the reporting year of 2024 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

Key completed measures are:

- **Taxi/Private Hire Vehicle Policy license fees** - DDC new Licensing Policy. 4.3.3: Vehicle Specifications enable Electric, Hybrid or LPG converted vehicles to be licensed. This Authority offers a reduction in the licence fee for any vehicle that is electric, hybrid or LPG converted of 25%.
- **Alternative fuel (EV) infrastructure development** - DDC succeed in OLEV funding bid for 19 sites. 29 public electric vehicle charging posts have been installed across the district and an additional 7 ELV chargers have been installed at Council office car park. There are plans to increase numbers for public use.

Dover District Council worked to implement these measures in partnership with the following stakeholders during 2023:

- Kent County Council (KCC)
- Kent and Medway Air Quality Partnership (KMAQP)
- Kent Energy Centre
- National Highways

Dover District Council expects the following measures to be completed over the course of the next reporting year:

- **Local Plan policy and guidance** - The Dover District Local Plan was submitted for Examination on Friday 31st of March 2023. The Council consultation on Main Modifications ran from 11th April – 24th May 2024. It is anticipated that the Local Plan will be adopted in 2024 following appropriate consultations and approvals.

Following extensive consultation with internal and external stakeholders in April 2023, Dover District Council's cabinet provided approval to launch a public consultation seeking views on a draft AQAP which outlined proposed actions under five broad topics:

Priority 1: Transport

Priority 2: Behaviour Change

Priority 3: Strategies and Policy Guidance

Priority 4: Planning and Infrastructure

Priority 5: Air Quality Monitoring

The final version of the Dover AQAP (2024-2028) was approved by Defra in May 2024. The AQAP is being presented to full Council for adoption on 17th July 2024. The progress of air quality measures from the final AQAP are presented in this year's ASR.

Dover District Council's priorities for the coming year are:

- **Work with KCC to improve public transport services and encourage the use of more sustainable transport modes** – A new Fast Track Bus Service (ELV) from Whitfield to Dover Town is currently underway. Stagecoach have also committed to invest in low emission technology and have a zero-emission fleet by 2035. KCC is offering travel plans for new developments.
- **Work with KMAQP on promotional activities to raise the profile of air quality in Dover** - Dover DC as member of KMAQP worked with KCC on the Kent and Medway Energy and Low Emissions Strategy (ELES)
- **Procuring low emission vehicles for the LGV and HGV fleet, council-owned fleets and refuse fleet** – Four EVs are currently utilised by DDC. DDC Environmental Crime team currently runs three ELVs. DDC Grounds Maintenance is exploring the use of ELVs for supervisors, and DDC Parking Services and Community Safety Unit are looking to move to ELVs upon contract renewal.

Dover District Council anticipates that the measures stated above and in Table 2.2 will achieve compliance in High Street/Ladywell AQMA by 2025. Concentrations within the A20 AQMA have remained below 10% of the AQS Objective ($36\mu\text{g}/\text{m}^3$) for six consecutive years. It is therefore anticipated that Dover District Council will proceed with AQMA revocation this reporting year.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	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	Work with KCC to improve public transport services and encourage the use of more sustainable transport modes	Transport Planning and Infrastructure	Public transport improvements- interchanges stations and services	2022	2035	DDC/KCC	DDC/KCC	No	Funded	£1 million - £10 million	Planning	Below annual mean AQS objectives	% modal shift to public transport	On-going	<ul style="list-style-type: none"> . New Fast Track Bus Service (ELV) from Whitfield to Dover Town underway. Stagecoach commitment to invest in low emission technology and have a zero emission fleet by 2035. . KCC offering travel plans for new developments.
8	Work with KMAQP on promotional activities to raise the profile of air quality in Dover	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	2022	Ongoing	DDC/KMAQP	DDC/KMAQP	No	Not Funded	< £10k	Planning	Below annual mean AQS objectives	% improvement in energy efficiency, SAP rating	On-going	<ul style="list-style-type: none"> Dover DC as member of K&MAQP worked with KCC on Kent and Medway Energy and Low Emissions Strategy (ELES)
17	Procuring low emission vehicles for the LGV and HGV fleet, council-owned fleets and refuse fleet	Promoting Low Emission Transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	Ongoing	2029	DDC	DDC	No	Not Funded	£50k - £100k	Implementation	NO ₂ To be confirmed if considered for further assessment. NO _x emission reduction will be able to be calculated annually depending on the change in fleet composition	Fleet composition	4 Electric Vehicles current utilised by DDC.	<ul style="list-style-type: none"> DDC Environmental Crime team currently runs three ELVs. DDC Grounds Maintenance exploring use of ELVs for supervisors. DDC Parking Services and Community Safety Unit looking at move to ELVs upon contract renewal.
1	Encourage Council Travel Plan opportunities and seek to facilitate uptake of sustainable modes of transport;	Promoting Travel Alternatives	Workplace Travel Planning	2023	2025-2027	DDC	DDC	No	Not Funded	< £10k	Planning	Below annual mean AQS objectives	% increase in amount of usage in schemes identified in comments column	Ongoing	<ul style="list-style-type: none"> Cycle to work scheme Electric Staff Vehicle Pool Car trial Electric Vehicle Staff Salary scheme -Flexible and remote working
2	Work together with KCC to encourage the uptake of Employer and School Travel Plans within the District; including School start time variations and walking to school incentives/ encouragement	Promoting Travel Alternatives	School Travel Plans	2022	tbc	DDC/KCC	DDC/KCC	No	Not Funded	< £10k	Planning	Below annual mean AQS objectives	<ul style="list-style-type: none"> . No. of travel plans in place . Reduction in school vehicle drop-offs / pick-ups 	On-going	<ul style="list-style-type: none"> Approximately 73% of primary and 89% of secondary schools in Dover District have approved school travel plans
3	Work with KCC to improve the facilities for cycling and walking within Dover district; promote cycle-to-work scheme	Promoting Travel Alternatives	Promotion of cycling	Ongoing	2025-2027	DDC/KCC	DDC/KCC	No	Not Funded	< £10k	Planning	Below annual mean AQS objectives	<ul style="list-style-type: none"> . %modal shift to cycling/walking, No. miles new cycle lanes/routes . Number of bikes available and rentals 	On-going	<ul style="list-style-type: none"> . Includes Dover District Cycling Plan. 2019 Updated DDC website published local cycle routes and introduced Betteshanger cycle tracks. DDC introduced Cycling to Work scheme in Oct 2021. . Introduction of: <ul style="list-style-type: none"> - E cycle training scheme - Kent Connected App

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
	and bike rental scheme														- Clearing of NCN paths - Explore Kent website
4	Work together with developers to improve sustainable transport links serving new developments.	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2022	2025-2027	DDC	DDC	No	Not Funded	< £10k	Planning	Below annual mean AQS objectives	No. planning applications where improvements secured	Planning conditions included in all major developments to install ELV charging points	Change in building regulations requiring some new developments to have electric vehicle charging infrastructure.
6	Local air quality monitoring within the District to ensure a high standard of data is achieved	Public Information	Other	1995 onwards	ongoing	DDC	DDC	No	Not Funded	£10k - 50k	Planning	Below annual mean AQS objectives	Recorded Concentration	Completed Annually, renewed in 2018. Two automatic sites decommissioned, but more diffusion tubes added to compensate	General trend of reduction in concentrations monitored (LAQMTG16)
7	Make details of the Action Plan measures and annual progress reports available on the Website	Public Information	Via the Internet	Annually	Annually	DDC	DDC	No	Not Funded	< £10k	Planning	Below annual mean AQS objectives	Availability of recently published reports on the Website	On-going	ASR documents freely available. Part of general and continual efforts of DDC Environmental Protection..
9	Local Plan policy and guidance	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Ongoing	2024	DDC/KCC	DDC/KCC	No	Not Funded	< £10k	Implementation	Below annual mean AQS objectives	Implementation of policy	Local Plan timetable: Regulation 18 draft since November 2021; Local Plan dated to 2040	. The DDC draft local plan already includes sustainable travel initiatives. . AQ Assessments for all planning applications where AQ is an issue . Developers are advised to make reference to K&MAQP Guidance for AQ and IAQM/EPUK Guidance
10	District wide promotion of active travel	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	Ongoing	2025-2027	DDC/KCC	DDC/KCC	No	Not Funded	< £10k	Planning	NO ₂ Measure to increase public awareness	Number of promotion events	National campaigns promoted on social media platforms	DDC webpages can link to active travel - KCC looking to update Local Transport Plan -. DDC run Wellbeing at Work initiatives.
11	Behaviour change campaigns to reduce single occupancy car trips	Public Information	Other	Ongoing	2025-2027	DDC	DDC	No	Not Funded	< £10k	Implementation	NO ₂ Measure to increase public awareness	Number of campaigns	Electric pool cars available and DDC staff mileage scheme reviewed	Officers are encouraged to car share where site visits permit. Social media posts to encourage the public to follow DDCs example.
12	Flexible working and home working encouraged	Promoting Travel Alternatives	Encourage / Facilitate home-working	2023	2025-2027	DDC	DDC	No	Not Funded	< £10k	Implementation	NO ₂ Measure to increase public awareness	Number of campaigns	New Flexible working policy being viewed at DDC	Flexible working and home working policy has already been in place.
13	Educational campaigns for schools	Public Information	Other	2022	2025-2027	DDC	DEFRA and LA contributions	Yes	Partially funded	<£10k	Planning	NO ₂ Measure to increase public awareness	Number of school sign ups to pollution patrol	Reviewed in early 2023 to evaluate school participation	As part of a 'Schools Group' DDC partner in a successful Defra bid for a 'Digital Schools Resource' led by Canterbury CC called "Pollution Patrol"

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
14	District wide Clean Air Days	Public Information	Other	2023	2023-2027	DDC/KCC	DDC/KCC	No	Not Funded	< £10k	Implementation	NO ₂ Measure to increase public awareness	Number of campaigns	part of Kent initiative 2022	DDC to promote national clean air days.
15	Taxi/Private Hire Vehicle Policy license fees	Promoting Low Emission Transport	Taxi Licensing conditions	2022	2023	DDC	DDC	No	Not Funded	£1,500	Implementation	NO ₂ Measure to increase public awareness	Implementation of policy	Part of DDC Licensing Policy	DDC new Licensing Policy. 4.3.3: Vehicle Specifications enable Electric, Hybrid or LPG converted vehicles to be licensed. This Authority offers a reduction in the licence fee for any vehicle that is electric, hybrid or LPG converted of 25%.
16	Engage with bus operators to introduce ultra-low emission vehicles into the fleets	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	2022	2022	DDC	DDC	No	Not Funded	< £10k	Implementation	NO ₂ To be confirmed if considered for further assessment. NO _x emission reduction will be able to be calculated annually depending on the change in fleet composition	Fleet composition	Part of Construction of Dover Fastrack 2022	Dover Fastrack which will become a zero-emission bus service with a fleet of electric buses – has a new route under construction. In addition Stagecoach have a net zero target for their fleet of 2035
18	Alternative fuel (EV) infrastructure development	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2022	2023	DDC	Office for zero Emission Vehicles	No	Funded	£320,529 (Total Project Costs)	Planning	NO ₂ Small impact upon NO ₂ concentrations from measure individually, estimated to be less than 1µg/m ³ based upon a low to medium uptake.	Number of EV charging points	29 public electric vehicle charging posts installed across the district	DDC succeed in OLEV funding bid for 19 sites, 42 units to be completed 2022. Additional 7 ELV chargers have been installed at Council office car park and there are plans to increase numbers for public use.
19	On and off-street parking charges linked to vehicle emissions standards	Promoting Low Emission Transport	Priority parking for LEV's	2022	2022	DDC	DDC	No	Not Funded	< £10k	Implementation	NO ₂ Small impact upon NO ₂ concentrations from measure individually, estimated to be less than 1µg/m ³ based upon a low to medium uptake.	Number of discounted permits	Parking permits discounted for low emission vehicles	On and off street parking charges for low emission vehicles explored.
20	Port of Dover improvements	Freight and Delivery Management	Other	2022	2025-2027	Port of Dover	Port of Dover	No	Not Funded	£50k - £100k	Planning	NO ₂ Small impact upon NO ₂ concentrations from measure individually, estimated to be less than	Reduction in NO ₂ concentrations	Port of Dover have published an Air Quality Action Plan	<ul style="list-style-type: none"> P&O have 2 new hybrid vessels that use electric power when in port to reduce emissions. POD exploring use of further anti-idling signage along port "buffer zone". Feasibility Study

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
												1µg/m ³ based upon a low to medium uptake.			undertaken regarding use of electric vehicles
21	Provision of high quality, bespoke and accessible information on sustainable travel	Public Information	Other	2022	2022	DDC/KCC	DDC/KCC	No	Not Funded	< £10k	Planning	NO ₂ Measure to increase public awareness	Number of campaigns	DDC officers' input in to KCC Low Emission Strategy.	DDC officers' input in to KCC Low Emission Strategy.
22	Work with Kent Energy Centre to promote and implement energy efficiency measures in Dover	Promoting Low Emission Plant	Shift to installations using low emission fuels for stationary and mobile sources	2019	2022	DDC/Kent Energy Centre	DDC/Kent Energy Centre	No	Not Funded	< £10k	Planning	Below annual mean AQS objectives	% improvement in energy efficiency, SAP rating	On-going	Dover DC as member of K&MAQP worked with KCC on Kent and Medway Energy and Low Emissions Strategy (ELES)

Note: Measures are colour-coded from green to red based on a cost-benefit analysis. Further details are presented in Section 6.2 of the Dover AQAP.

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 Strategy¹⁰, 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 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

The Defra 2023 background maps for Dover (2018 reference year)¹¹ show that all background concentrations of PM_{2.5} are far below the annual mean Air Quality Objectives of 20µg/m³ for PM_{2.5}. The average PM_{2.5} background concentration for DDC is 8.4µg/m³. The highest background concentration is estimated to be 10.5µg/m³ within the 1 x 1km grid square with the centroid grid reference of 623500,151500. This grid square is located near Spinney Lane in Aylesham, outside of the AQMAs. There is an industrial estate within the village including a waste recycling centre on Spinney Lane. The industrial and agricultural activities in, and surrounding, the village may contribute to the PM_{2.5} concentration at this location. The background maps also provide a breakdown of sources. For this grid square, the majority of the estimated PM_{2.5} concentration (5.4µg/m³) is attributed to secondary PM_{2.5} formation, where PM_{2.5} is formed from the chemical reactions of other gaseous atmospheric pollutants such as sulfur dioxide (SO₂) and nitrogen oxides (NO_x, NO and NO₂).

The Public Health Outcomes Framework data tool¹² compiled by Public Health England quantifies the mortality burden of PM_{2.5} within England on a county and local authority scale. The 2022 fraction of mortality attributable to particle air pollution (indicator D01) in Dover is 4.8%, which is below the average for the Southeast region (5.7%) and for

¹⁰ Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

¹¹ Defra Background Mapping data for local authorities (2018-based), available online at <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018>

¹² Public Health Outcomes Framework, Public Health England. data tool available online at <https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data#page/1/ati/101/are/E07000108>

England (5.8%). The 2022 estimates of the fraction of mortality attributable to PM_{2.5} pollution range from 2.5% in West Devon to 8.3% in the City of London.

It was proposed, as suggested in [LAQM.TG\(22\)](#) that action in relation to PM_{2.5} monitoring, and reduction actions are reviewed with Kent County Council Public Health Team whilst developing the updated AQAP to consider whether any specific additional actions are required. Dover District Council expects that some of the measures implemented within its AQAP and set out in Table 2.2 for the achievement of reductions in NO₂ will have co-benefits in additionally reducing concentrations of PM₁₀ and PM_{2.5}. As road transport has been identified as the main source of pollution within Dover District Council and is known to be an important source of PM_{2.5} emissions, measures aimed at promoting low emission transport and travel alternatives are likely to help reduce local PM_{2.5} concentrations. In particular, measures 1 to 5 in Table 2.2 can be expected to reduce PM_{2.5} emissions from road transport within the district.

The Council recognise the importance of considering PM_{2.5} and that long-term exposure (over several years) to elevated concentrations of particulate matter (PM_{2.5}) at levels typically experienced in urban areas reduces life expectancy between several months and a few years. Dover Council has contributed to and supports the Kent and Medway Energy and Low Emissions Strategy, published in June 2020¹³. The strategy highlighted that in 2017 there were an estimated 922 deaths associated with PM_{2.5} exposure across Kent and Medway. The Kent and Medway Energy and Low Emissions Strategy has therefore included particulate matter as one of the key indicators of success across the region.

¹³ https://www.kent.gov.uk/_data/assets/pdf_file/0009/112401/Kent-and-Medway-Energy-and-Low-Emissions-Strategy.pdf

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

This section sets out the monitoring undertaken within 2023 by Dover District 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

Dover District Council undertook monitoring of particulate matter of less than 10 micrometres in diameter (PM₁₀) at one site during 2023. Table A.1 in Appendix A shows the details of the automatic monitoring site.

The [Dover Centre Roadside page](#) available on [Kent Air](#) presents automatic monitoring results for Dover District Council.

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

3.1.2 Non-Automatic Monitoring Sites

Dover District Council undertook non-automatic (i.e. passive) monitoring of NO₂ at 21 sites during 2023. Table A.2 in Appendix A presents the details of the non-automatic sites.

Maps showing the location of the monitoring sites are provided in Appendix D: Map(s) of Monitoring Locations and AQMAs. 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.

Two new non-automatic monitoring sites were established by Dover District Council in October 2023; DV-40 (39 Queen Street, Deal) and DV-41 (4-6 West Street, Deal). Both are roadside sites and were introduced following an approach by the Deal Town Council who expressed concerns about potential elevated air pollution at this busy junction. Dover District Council intends to provide a short report showing a full year's data to demonstrate

compliance with the annual NO₂ AQS Objective. If there are no breaches at the end of 2024, monitoring at DV-40 and DV-41 will cease.

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO₂)

Table A.3 in Appendix A compare the ratified and adjusted monitored NO₂ annual mean concentrations for the past five years with the air quality objective of 40µg/m³. 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.

In 2023, there were eight monitoring locations within the A20 AQMA, all of which reported concentrations below 10% of the NO₂ annual mean AQS Objective of 40µg/m³ (36µg/m³). All sites within the A20 AQMA reported decreases in annual mean NO₂ when compared to 2022 data, with the highest reported concentration, 28.7µg/m³, occurring at DV-25.

There is one triplicate monitoring site (DV-06, DV-07 and DV-08) located within High Street/Ladywell AQMA, as well as two additional monitoring sites located near to the AQMA boundary (DV-31 and DV-30). All sites in and around the High Street/Ladywell AQMA reported annual mean NO₂ concentrations below 10% of the AQS Objective, and concentrations at all sites were decreased when compared to 2022 data. The highest concentration of 32.8µg/m³ was reported at the triplicate site located within High Street/Ladywell AQMA.

At all monitoring locations outside of AQMAs, annual mean NO₂ concentrations were below 10% of the AQS Objective and were lower than the reported 2022 concentrations.

The two new monitoring sites established in 2023 - DV-40 and DV-41 - reported annual mean NO₂ concentrations of 17.4µg/m³ and 18.4µg/m³ respectively, which are well below

the annual NO₂ AQS Objective. As each site had only been established for three months by the end of 2023, this data has been annualised. Non-automatic monitoring will therefore continue until the end of 2024 to enable the Council to utilise data for a full monitoring year to demonstrate compliance. If compliance is maintained in 2024, monitoring will cease at these locations.

Considering COVID-19 years, 2023 concentrations were decreased at nine out of 15 sites when compared to 2020 data, and at 16 out of 19 sites when compared to 2021 data. 2023 NO₂ concentrations were decreased at every non-automatic site when compared to 2022 data. The reduction in concentrations across the district is likely a result of Dover District Council's ongoing efforts to tackle NO₂ emissions from road traffic through measures targeting the promotion of low emission transport and travel alternatives (as set out in Table 2.2).

There have been no diffusion tube monitoring sites with an annual mean greater than 60µg/m³. As per [LAQM.TG\(22\)](#), an annual mean NO₂ concentration greater than 60µg/m³ can be used as a proxy to indicate whether there is an exceedance of the NO₂ 1-hour mean AQS Objective (no more than 18 hourly mean concentrations in exceedance of 200µg/m³). It is therefore assumed that there have been no exceedances of the 1-hour mean objective of 200µg/m³ within Dover.

3.2.2 Particulate Matter (PM₁₀)

Table A.4 – Annual Mean PM₁₀ Monitoring Results (µg/m³) in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM₁₀ annual mean concentrations for the past five years with the air quality objective of 40µg/m³.

Table A.5 in Appendix A: Monitoring Results compares the ratified continuous monitored PM₁₀ daily mean concentrations for the past five years with the air quality objective of 50µg/m³, not to be exceeded more than 35 times per year.

The PM₁₀ monitoring site is located in Dover Centre within the A20 AQMA. There have been no exceedances of the PM₁₀ AQS objective within the past five years. The 2023 annual mean concentration (21.5µg/m³) was slightly reduced when compared to 2022 data (22.0µg/m³). There were no 24-hour means that exceeded 50µg/m³, compared to two in 2022.

3.2.3 Particulate Matter (PM_{2.5})

There is currently no monitoring of PM_{2.5} within Dover District Council. However, in accordance with [LAQM.TG\(22\)](#), PM_{2.5} concentrations can be estimated from monitored PM₁₀ concentrations using either a local PM₁₀ and PM_{2.5} monitoring PM_{coarse} split (the fraction of PM between 10µm and 2.5µm, i.e. PM₁₀ minus PM_{2.5}), or a nationally derived factor¹⁴.

The national factor for PM_{coarse} split is 4.7 for background sites and 5.9 for roadside sites in 2023. As there is no local monitoring for PM_{2.5}, the nationally derived roadside factor of 5.9 road has been applied to the PM₁₀ concentration (21.5 µg/m³) at the Dover Centre Roadside automatic monitoring site. The estimated PM_{2.5} concentration in 2023 was therefore 15.6µg/m³, which is below the PM_{2.5} annual mean AQS Objective (20µg/m³).

3.2.4 Sulphur Dioxide (SO₂)

There is currently no SO₂ monitoring in Dover, however historically Dover conducted SO₂ monitoring in the previously declared Eastern Docks AQMA.

The AQMA was declared for exceedances of the 15-minute SO₂ objective in the Eastern Docks area in 2002. Since this time, sulphur emissions from ferry ships using the Port of Dover have reduced. Monitoring data showed that the air quality objectives were being met at the port, with no exceedances since 2006. Residents within the AQMA were consulted via letter in 2013 and no comments were received, the AQMA was therefore revoked in 2014 and monitoring was discontinued.

¹⁴ Defra. Estimating PM_{2.5} from PM₁₀ Measurements. Available at: <https://laqm.defra.gov.uk/air-quality/air-quality-assessment/estimating-pm2-5-from-pm10-measurements/>

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Inlet Height (m)
Dover Centre	A20 Townwall Street, Dover	Roadside	632302	141465	PM ₁₀	YES A20 AQMA	TEOM	N/A	2.5	2

Notes:

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

(2) N/A if not applicable

Table A.2 – Details of Non-Automatic Monitoring Sites

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
DV-01	Paydens, High Street, Dover	Roadside	631369	141961	NO ₂	NO	2.0	1.5	NO	2.6
DV-04	Car Park - Opp No.2, Christchurch Way, Dover	Urban Background	630944	143159	NO ₂	NO	6.0	N/A	NO	1.6
DV-05	Bench Street, Dover	Urban Centre	631986	141321	NO ₂	YES - A20	4.0	30.0	NO	3.0
DV-06, DV-07, DV-08	Dover Town Hall	Roadside	631601	141722	NO ₂	YES - High St/Ladywell	0.0	2.5	NO	3.0
DV-10	PM10 Micros TEOM, Townwall Street, Dover	Roadside	632298	141469	NO ₂	YES - A20	0.0	2.5	NO	2.0
DV-11, DV-16, DV-17	The Gateway, Dover	Roadside	632317	141429	NO ₂	YES - A20	0.0	12.0	NO	3.0
DV-12, DV-18, DV-19	St Martins House, Hawkesbury Street, Dover	Roadside	631576	140474	NO ₂	YES - A20	0.0	10.0	NO	3.0
DV-23	126, Snargate Street, Dover	Roadside	631729	140965	NO ₂	YES - A20	0.0	15.0	NO	3.0
DV-24	148, Snargate Street, Dover	Roadside	631825	141112	NO ₂	YES - A20	0.0	10.0	NO	3.0
DV-25	167, Snargate Street, Dover	Roadside	631858	141167	NO ₂	YES - A20	0.0	15.0	NO	3.0
DV-28	Sunny Corner, Old Folkestone Road, Dover	Urban Background	630717	140020	NO ₂	NO	0.0	N/A	NO	2.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
DV-30	19, High Street, Dover	Kerbside	631581	141744	NO ₂	NO	0.0	5.0	NO	2.0
DV-31	3, Ladywell, Dover	Kerbside	631598	141763	NO ₂	NO	2.0	2.0	NO	2.0
DV-32	1, Marine Parade, Dover	Roadside	632657	141499	NO ₂	YES - A20	2.0	4.0	NO	2.0
DV-33	24, Marine Parade, Dover	Roadside	632835	141572	NO ₂	NO	10.0	5.0	NO	2.0
DV-36	Sholden Primary School, London Road, Deal	Roadside	635698	152325	NO ₂	NO	0.0	2.0	NO	2.0
DV-37	London Road, Deal	Kerbside	636161	151957	NO ₂	NO	5	2.0	NO	2.0
DV-38	Roundabout, London Road, Deal	Kerbside	636259	151914	NO ₂	NO	2.0	1.5	NO	2.0
DV-39	St Edmund's School, Barton Road, Dover	Roadside	631418	142455	NO ₂	NO	5	2.5	NO	2.0
DV-40	39 Queen Street, Deal	Roadside	637538	152556	NO ₂	NO	1.8	2.9	No	2.0
DV-41	4-6 West Street, Deal	Roadside	637507	152590	NO ₂	NO	0.5	3.0	No	2.0

Notes:

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

(2) N/A if not applicable.

Table A.3 – Annual Mean NO₂ Monitoring Results: Non-Automatic Monitoring (µg/m³)

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
DV-01	631369	141961	Roadside	90.4	90.4	30.8	25.5	26.2	26.1	24.6
DV-04	630944	143159	Urban Background	90.4	90.4	15.3	12.7	13.7	13.8	11.6
DV-05	631986	141321	Urban Centre	100.0	100.0	24.4	20.3	22.1	23.6	23.3
DV-06, DV-07, DV-08	631601	141722	Roadside	100.0	100.0	39.8	33.7	35.2	35.5	32.8
DV-10	632298	141469	Roadside	100.0	100.0	35.9	26.4	28.3	30.6	25.8
DV-11, DV-16, DV-17	632317	141429	Roadside	100.0	100.0	28.1	23.1	22.1	24.7	21.0
DV-12, DV-18, DV-19	631576	140474	Roadside	100.0	100.0	31.5	26.5	27.2	26.5	25.1
DV-23	631729	140965	Roadside	100.0	100.0	31.2	25.3	27.7	28.2	25.7
DV-24	631825	141112	Roadside	84.6	84.6	33.7	26.1	27.6	27.4	27.2
DV-25	631858	141167	Roadside	92.3	92.3	29.3	28.9	30.2	30.8	28.7
DV-28	630717	140020	Urban Background	100.0	100.0			14.1	16.3	12.8
DV-30	631581	141744	Kerbside	100.0	100.0	40.4	35.7	33.9	36.5	31.2
DV-31	631598	141763	Kerbside	100.0	100.0	31.5	23.5	26.5	29.6	26.6

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
DV-32	632657	141499	Roadside	92.3	92.3	31.7	26.7	28.5	29.8	27.4
DV-33	632835	141572	Roadside	82.7	82.7	35.9	28.4	29.5	32.9	30.4
DV-36	635698	152325	Roadside	100.0	100.0	18.5	14.9	16.4	16.0	14.3
DV-37	636161	151957	Kerbside	100.0	100.0	-	-	29.5	22.9	20.8
DV-38	636259	151914	Kerbside	92.3	92.3	-	-	34.0	37.4	30.1
DV-39	631418	142455	Roadside	92.3	92.3	-	-	19.9	18.9	18.7
DV-40	637538	152556	Roadside	100.0	25.0	-	-	-	-	17.4
DV-41	637507	152590	Roadside	100.0	25.0	-	-	-	-	18.4

☒ 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 $\mu\text{g}/\text{m}^3$.

Exceedances of the NO₂ annual mean objective of 40 $\mu\text{g}/\text{m}^3$ are shown in **bold**.

NO₂ annual means exceeding 60 $\mu\text{g}/\text{m}^3$, indicating a potential exceedance of the NO₂ 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 NO₂ Concentrations in A20 AQMA

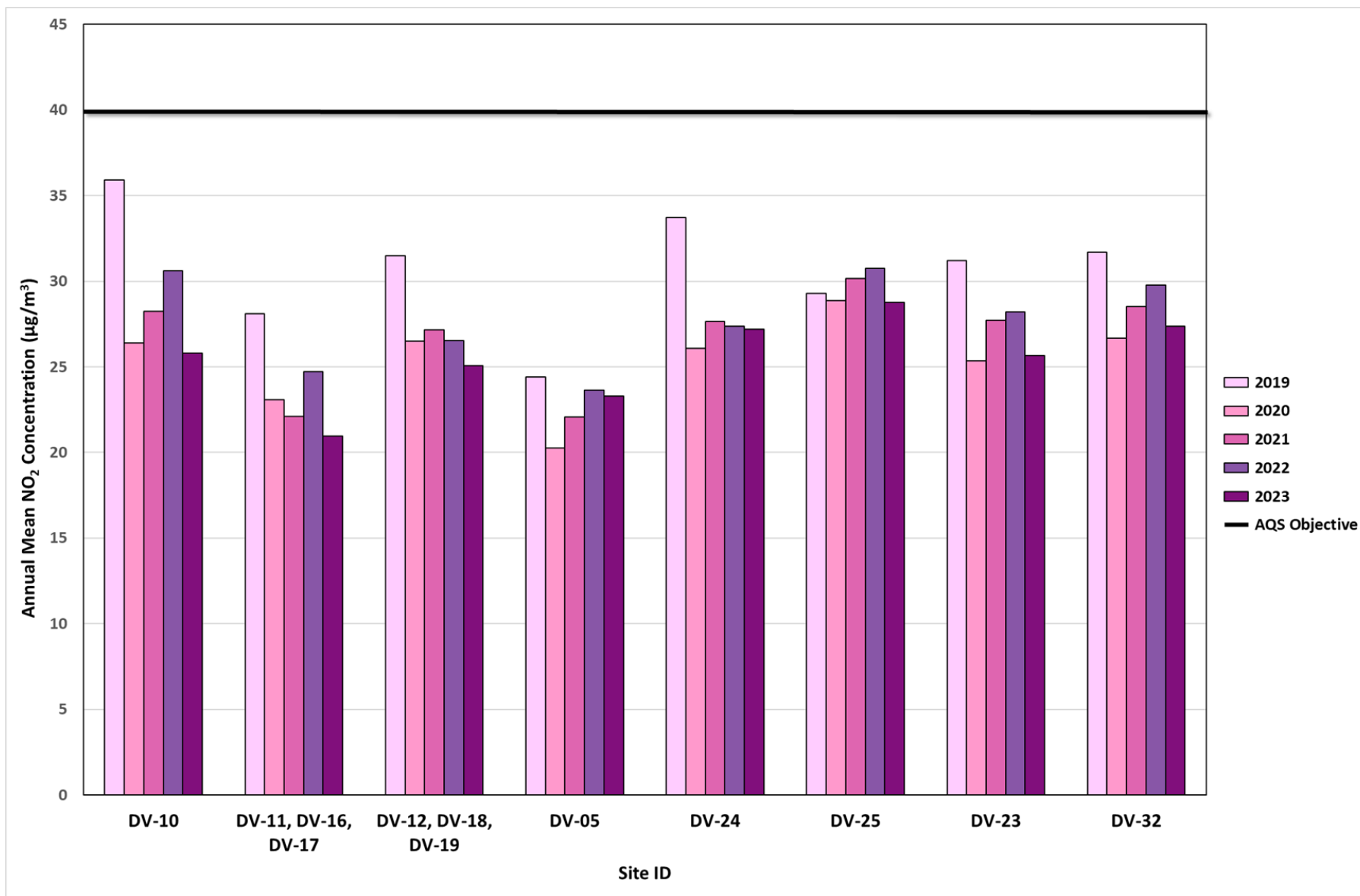


Figure A.2 – Trends in Annual Mean NO₂ Concentrations in and around High Street/Ladywell AQMA

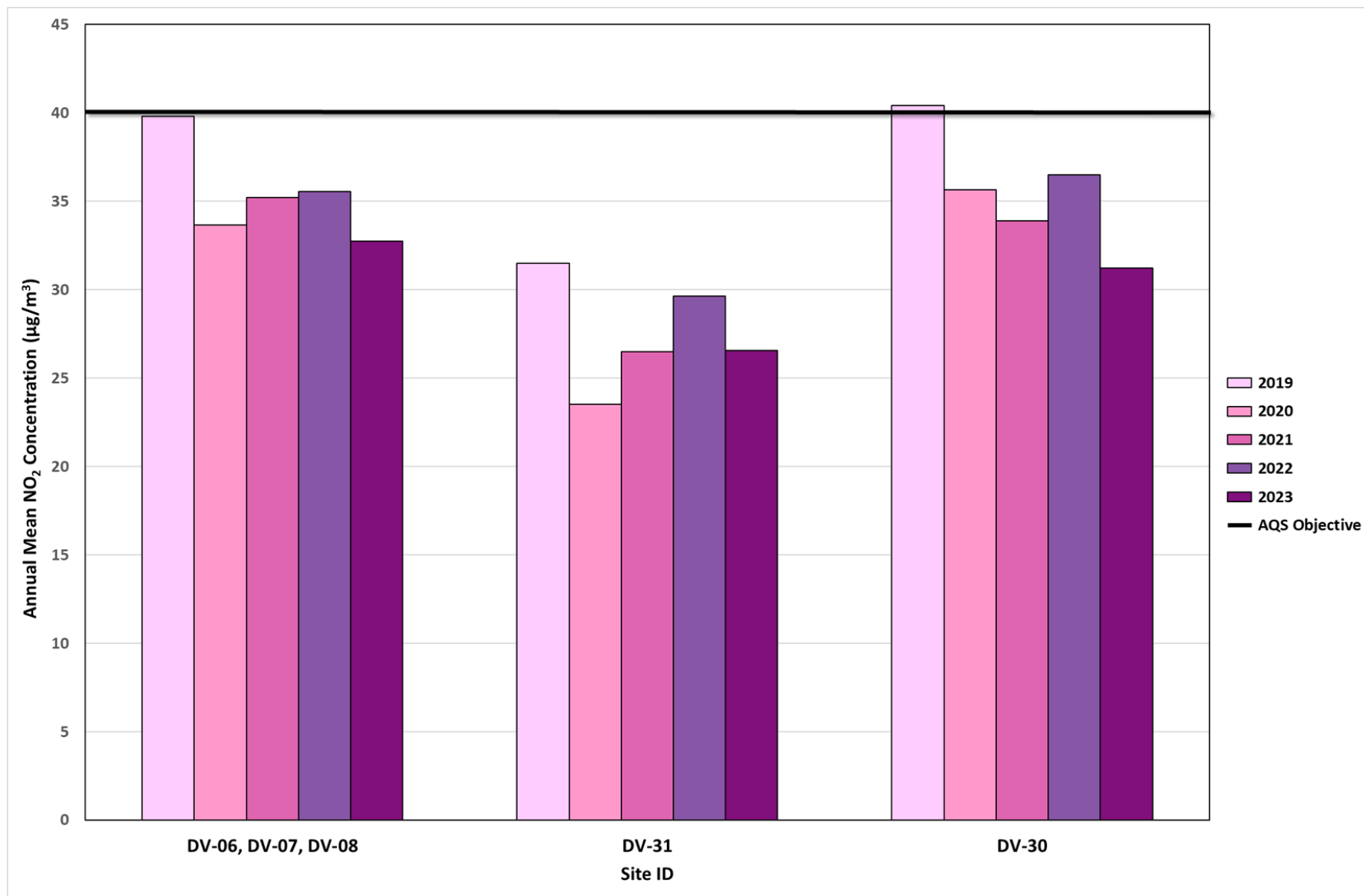


Figure A.3 – Trends in Annual Mean NO₂ Concentrations Outside of AQMAs

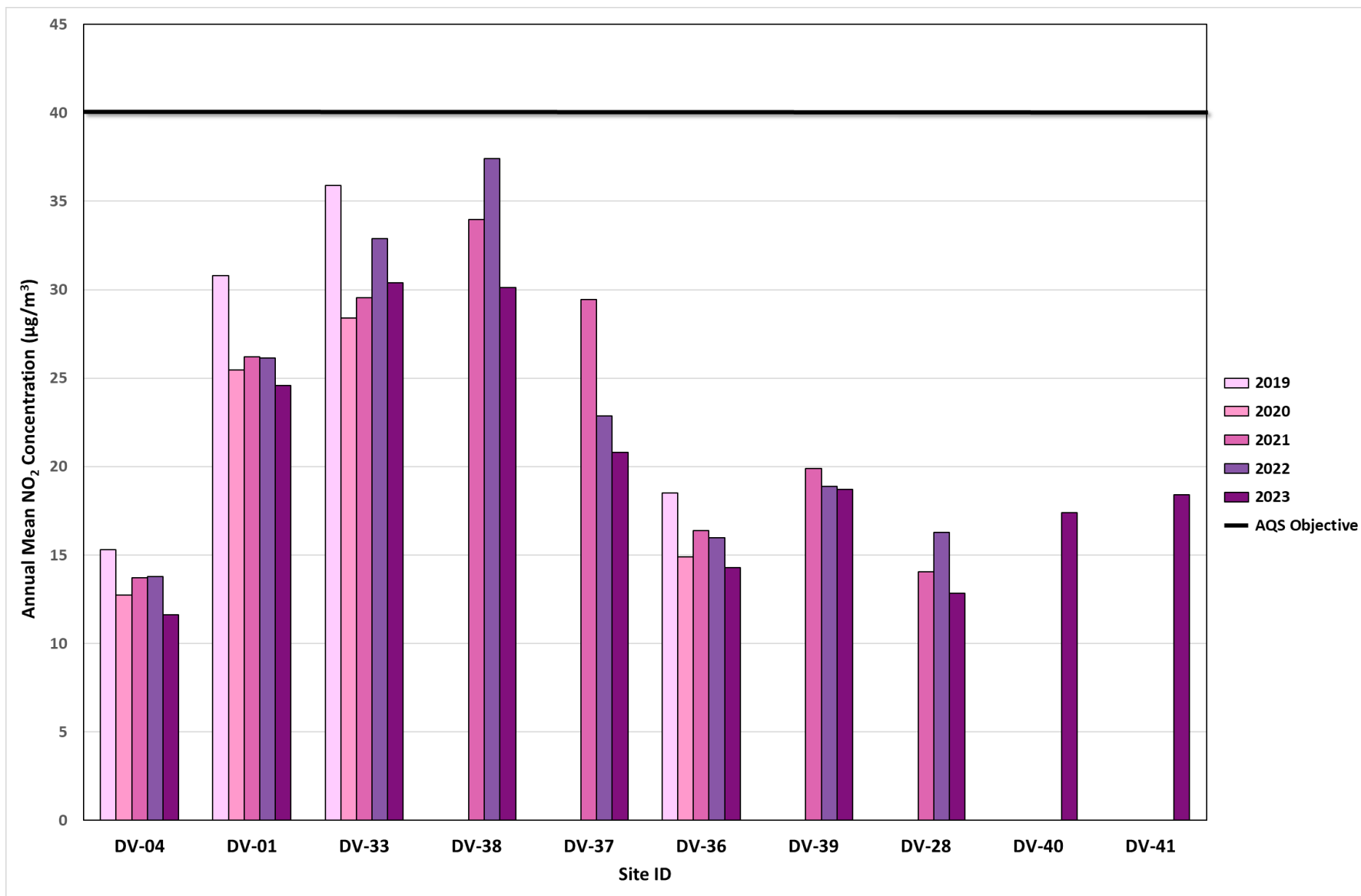


Table A.4 – Annual Mean PM₁₀ Monitoring Results (µg/m³)

Site 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
Dover Centre	632302	141465	Roadside	92.9	92.9	22.0	22.7	20.8	22.0	21.5

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

Notes:

The annual mean concentrations are presented as µg/m³.

Exceedances of the PM₁₀ annual mean objective of 40µg/m³ are shown in **bold**.

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

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

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

Figure A.4 – Trends in Annual Mean PM₁₀ Concentrations

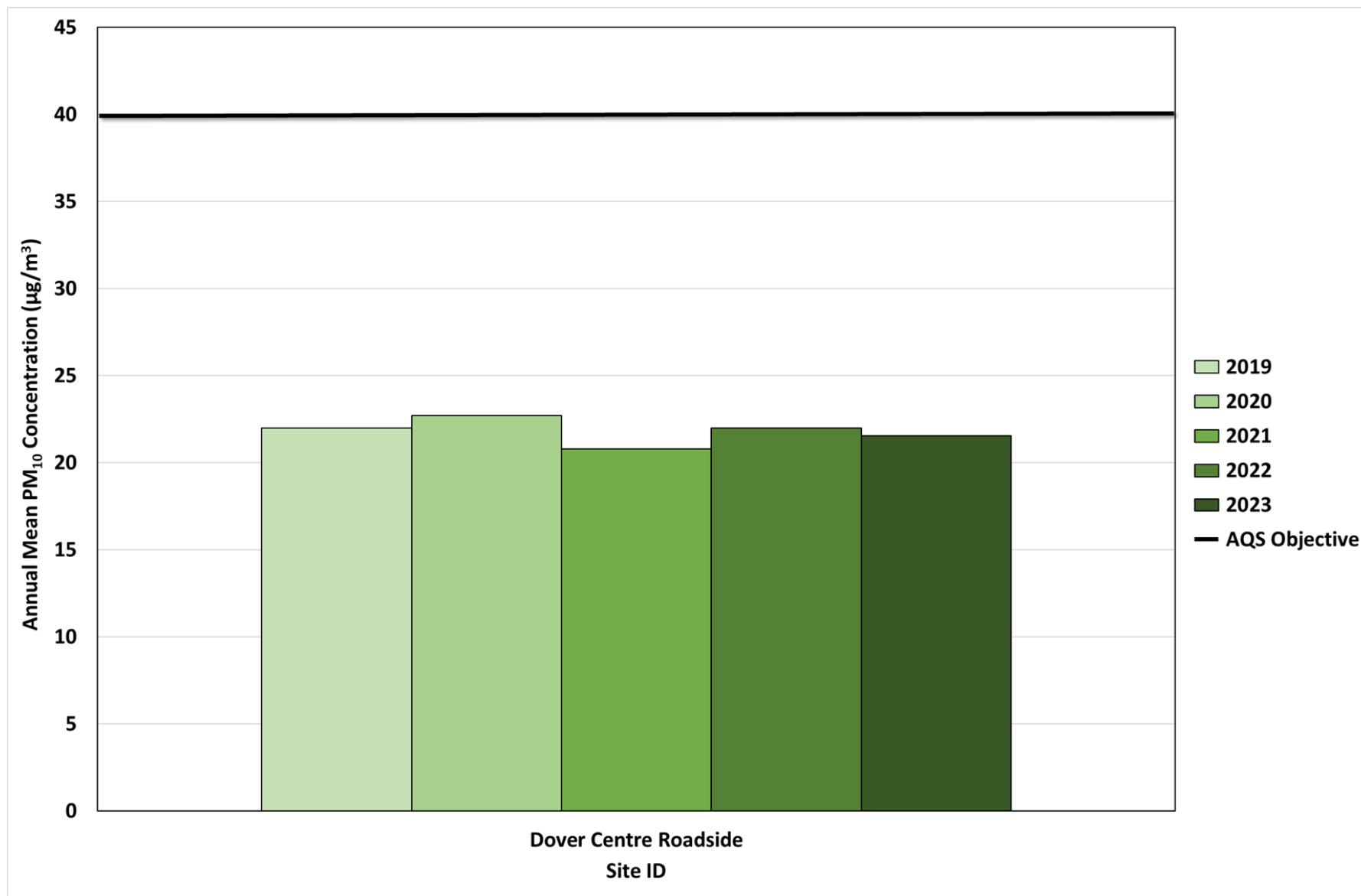


Table A.5 – 24-Hour Mean PM₁₀ Monitoring Results, Number of PM₁₀ 24-Hour Means > 50µg/m³

Site ID	X OS Grid Ref (Eastin g)	Y OS Grid Ref (Northin g)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
Dover Centre	632302	141465	Roadside	92.9	92.9	8	1	0	2	0

Notes:

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m³ have been recorded.

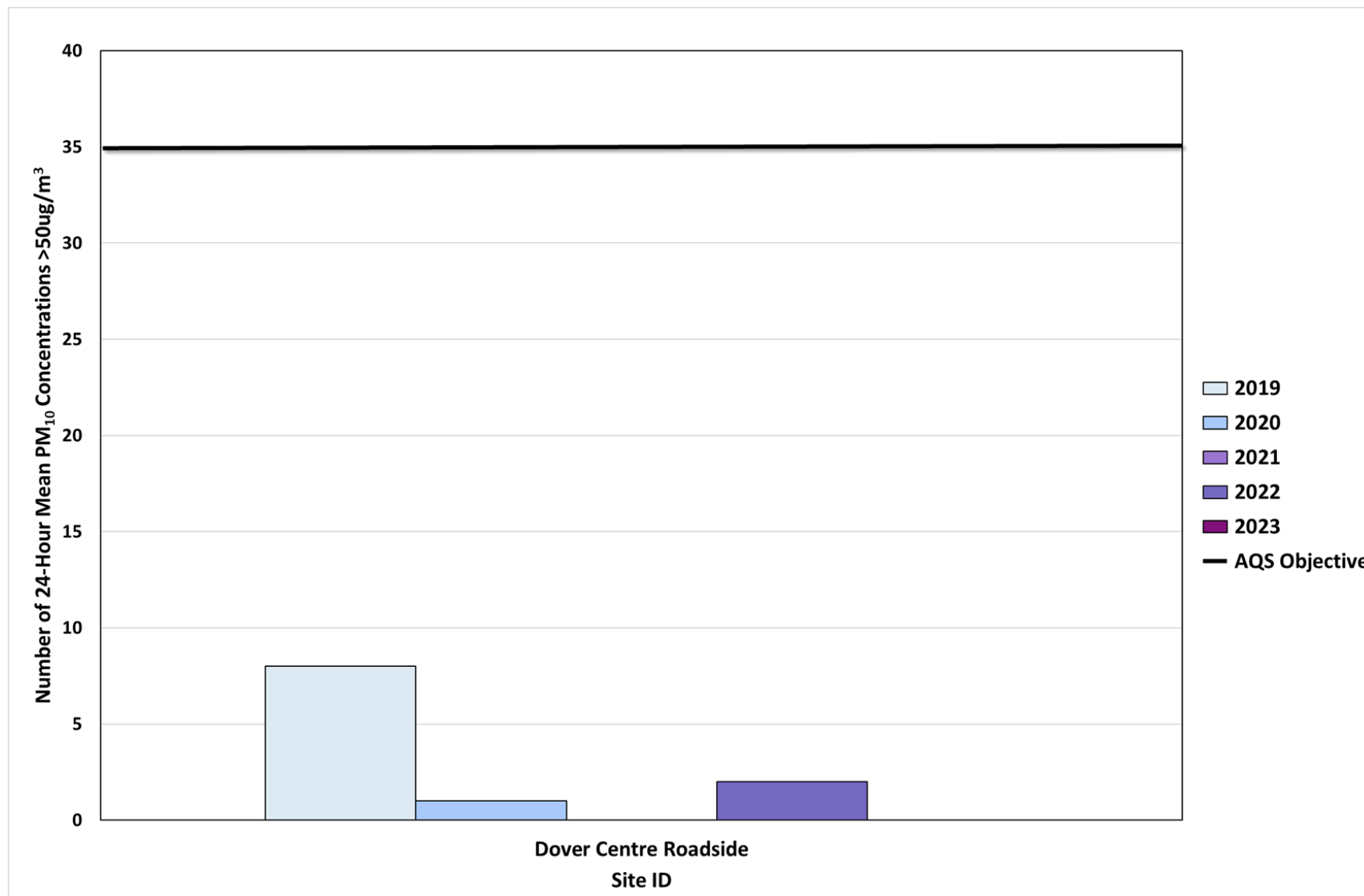
Exceedances of the PM₁₀ 24-hour mean objective (50µg/m³ not to be exceeded more than 35 times/year) are shown in **bold**.

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

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

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

Figure A.5 – Trends in Number of 24-Hour Mean PM₁₀ Results > 50µg/m³



Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B.1 – NO₂ 2023 Diffusion Tube Results (µg/m³)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DV-01	631369	141961	33.3	36.4	29.9	37.7	27.4		28.7	27.5	40.7	35.2	30.2	24.3	31.9	24.6		
DV-04	630944	143159	15.1	19.3	14.0	18.8	14.2		11.2	16.9	17.9	11.0	16.5	11.1	15.1	11.6		
DV-05	631986	141321	30.1	34.2	28.1	32.9	25.2	31.2	27.4	27.2	36.4	35.5	31.7	22.9	30.2	23.3		
DV-06	631601	141722	48.6	41.6	39.3	39.0	36.2	41.0	35.9	44.8	53.0	46.2	46.8	36.7	-	-		Triplicate Site with DV-06, DV-07 and DV-08 - Annual data provided for DV-08 only
DV-07	631601	141722	45.1	47.8	44.4	41.9	39.4	36.0	39.0	41.5	54.6	40.9	46.0	36.2	-	-		Triplicate Site with DV-06, DV-07 and DV-08 - Annual data provided for DV-08 only
DV-08	631601	141722	43.5	49.4	42.7	46.8	35.4	38.7	37.6	41.4	49.5	43.1	46.2	35.3	42.5	32.8		Triplicate Site with DV-06, DV-07 and DV-08 - Annual data provided for DV-08 only
DV-10	632298	141469	35.1	41.5	34.0	40.0	31.3	30.8	23.2	32.3	41.9	35.0	31.3	25.8	33.5	25.8		
DV-11	632317	141429	27.6	29.0	26.6	33.7	22.6	28.0	29.1	28.4	27.6	33.0	25.8	20.3	-	-		Triplicate Site with DV-11, DV-16 and DV-17 - Annual data provided for DV-17 only
DV-12	631576	140474	29.9	35.1	30.5	40.0	28.3	37.0	34.9	36.9	37.0	21.2	28.0	20.6	-	-		Triplicate Site with DV-12, DV-18 and DV-19 - Annual data provided for DV-19 only
DV-16	632317	141429	26.2	28.8	30.6	34.8	21.7	26.5	25.1	28.8	34.3	31.1	13.0	20.0	-	-		Triplicate Site with DV-11, DV-16 and DV-17 - Annual data provided for DV-17 only
DV-17	632317	141429	25.1	30.1	28.8	34.7	24.8	23.1	27.8	27.7	32.6	31.9	19.3	21.4	27.2	21.0		Triplicate Site with DV-11, DV-16 and DV-17 - Annual data provided for DV-17 only
DV-18	631576	140474	29.8	34.9	28.8	36.1	33.1	37.4	30.3	38.4	43.5	28.9	25.6	23.2	-	-		Triplicate Site with DV-12, DV-18 and DV-19 - Annual data provided for DV-19 only
DV-19	631576	140474	28.6	39.8	29.6	35.3	30.6	39.0	33.4	38.4	43.6	31.9	27.3	24.8	32.5	25.1		Triplicate Site with DV-12, DV-18 and DV-19 - Annual data provided for DV-19 only
DV-23	631729	140965	33.9	37.8	31.1	38.4	35.1	37.8	33.7	32.7	38.5	23.9	32.6	24.5	33.3	25.7		
DV-24	631825	141112	35.2	38.1	35.1	36.0		30.1	35.2	31.2	43.1	35.9	33.4		35.3	27.2		
DV-25	631858	141167	38.5	43.3	39.8	40.5	34.7	36.1	38.2	35.6	41.4		34.7	27.9	37.3	28.7		
DV-28	630717	140020	12.9	20.0	14.1	23.1	16.2	19.6	13.3	20.1	21.9	16.9	12.0	9.7	16.7	12.8		

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DV-30	631581	141744	42.8	44.0	40.5	42.6	35.5	33.1	38.3	42.2	49.5	36.4	44.4	37.3	40.6	31.2		
DV-31	631598	141763	37.2	38.2	25.7	35.7	33.5	34.7	30.5	36.6	43.3	35.1	35.8	27.7	34.5	26.6		
DV-32	632657	141499	32.5	39.7	37.2	41.7	34.4	36.3	30.8	33.0	36.5	39.8	28.9		35.5	27.4		
DV-33	632835	141572	38.9	42.8		47.2	40.3	39.6	40.1	36.9	46.5		34.2	28.3	39.5	30.4		
DV-36	635698	152325	20.1	20.0	18.4	18.5	15.8	20.8	19.0	18.6	24.1	17.9	18.0	11.7	18.6	14.3		
DV-37	636161	151957	28.3	35.9	25.6	27.8	27.5	28.3	20.8	27.1	29.8	25.7	28.2	19.1	27.0	20.8		
DV-38	636259	151914	33.6	49.1	38.3	49.2	40.3	40.0	36.9	41.3		42.7	33.2	25.8	39.1	30.1		
DV-39	631418	142455	23.2	32.0	23.9	24.8	30.5	22.6	19.8	21.6		21.7	25.7	21.5	24.3	18.7		
DV-40	637538	152556										25.1	29.3	17.7	24.0	17.4		
DV-41	637507	152590										27.6	26.4	22.3	25.4	18.4		

- All erroneous data has been removed from the NO₂ 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.
- Dover District Council confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

Notes:

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 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 Dover District Council During 2023

Several new development applications have been progressed in 2023. Table C.1 details a list of planning applications which relevant information. If it is a major development, then Dover District Council are requesting that an Air Quality Assessment (AQA) is completed.

Table C.1 - Planning Applications within Dover District Council (2023)

Reference	Location	Details	Status	Comments
24/00293	Land At The Corner Of Townwall Street And Woolcomber Street Dover CT16 1QF	Erection of a drive thru restaurant, car parking, car charging bays, substation, landscaping and associated works, including Customer Order Displays (COD) and a height restrictor	Awaiting decision May-24	Air quality assessment has been submitted
24/00181	The Beacon Project Bench Street Dover Kent	Full application for the erection of an up to four storeys in height building for uses including education, offices, studio, gallery and cafe (Use Classes E(g)(i), E(b) and F1)	Awaiting decision Jun-24	Air quality assessment has been submitted

Additional Air Quality Works Undertaken by Dover District Council During 2023

Dover District Council has not completed any additional works within the monitoring year of 2023.

QA/QC of Diffusion Tube Monitoring

The diffusion tubes are supplied and analysed by SOCOTEC Didcot, formerly the Environmental Scientifics Group (ESG) Didcot, utilising the 50% triethanolamine (TEA) in acetone preparation method.

SOCOTEC Didcot is a UKAS accredited laboratory and participates in the AIR-PT Scheme for NO₂ tube analysis and the Annual Field Intercomparison Exercise. These provide strict

performance criteria for participating laboratories to meet, thereby ensuring NO₂ concentrations reported are of a high calibre.

In the 2023 AIR NO₂ PT rounds, AIR-PT AR055 - AR059 (January - October 2023) SOCOTEC scored 100%. The results for November - December 2023 have not yet been published. The percentage score reflects the results deemed to be satisfactory based upon the z-score of < ±2. Additionally, the precision of the NO₂ diffusion tubes (50% TEA in Acetone) supplied by SOCOTEC Didcot has been classified as ‘good’ for all 28 observations in 2023. This precision reflects the laboratory’s performance and consistency in preparing and analysing the tubes, as well as the subsequent handling of the tubes in the field. Further information on the precision summary results can be found on the [LAQM website](#).

Diffusion Tube Annualisation

Annualisation was only required for the two new non-automatic monitoring sites, DV-40 and DV-41, which were deployed in October 2023. Annualisation was carried out by calculating an annualisation factor using background concentrations from the four nearest background monitoring sites: Canterbury, Rochester Stoke, Southend-On-Sea and Thurrock. Details of the calculations are provided in Table C.2.

Table C.2 – Annualisation Summary (concentrations presented in µg/m³)

Site ID	Annualisati on Factor Canterbury	Annualisati on Factor Rochester Stoke	Annualisati on Factor Southend-On-Sea	Annualisati on Factor Thurrock	Average Annualisati on Factor	Raw Data Annual Mean	Annualised Annual Mean
DV-40	0.9807	0.9405	0.9030	0.9313	0.9389	24.0	22.6
DV-41	0.9807	0.9405	0.9030	0.9313	0.9389	25.4	23.9

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.TG\(22\)](#) 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/NO₂ continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Dover District Council have applied a national bias adjustment factor of 0.77 for the year 2023 (based on 28 studies). This has been derived from the national bias adjustment calculator, as shown in Figure C.1. A summary of bias adjustment factors used by Dover District Council over the past five years is presented in Table C.3.

Table C.3 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	National	03/24	0.77
2022	National	03/23	0.76
2021	National	03/22	0.78
2020	National	06/21	0.76
2019	National	03/20	0.75

Figure C.1 - National Diffusion Tube Bias Adjustment Factor

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:	Step 2:	Step 3:	Step 4:							
Select the Laboratory that Analyses Your Tubes from the Drop-Down List	Select a Preparation Method from the Drop-Down List	Select a Year from the Drop-Down List	Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor ^a shown in blue at the foot of the final column.							
If a laboratory is not shown, we have no data for this method at this laboratory.	If a preparation method is not shown, we have no data for this method at this laboratory.	If a year is not shown, we have no data.	If you have your own co-location study then see footnote ^a . If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953							
Analysed By ^a	Method ^a	Year ^a	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m ³)	Automatic Monitor Mean Conc. (Cm) (µg/m ³)	Bias (B)	Tube Precision ^a	Bias Adjustment Factor (A) (Cm/Dm)
SOCOTEC Didcot	50% TEA in acetone	2023	UB	Torfaen County Borough Council	11	12	9	43.3%	G	0.70
SOCOTEC Didcot	50% TEA in Acetone	2023	R	East Suffolk Council	12	29	21	38.3%	G	0.72
SOCOTEC Didcot	50% TEA in Acetone	2023	R	Wrexham County Borough Council	11	17	14	25.2%	G	0.80
SOCOTEC Didcot	50% TEA in Acetone	2023	R	Horsham District Council	12	21	17	23.5%	G	0.81
SOCOTEC Didcot	50% TEA in Acetone	2023	R	Horsham District Council	10	25	17	43.5%	G	0.70
SOCOTEC Didcot	50% TEA in Acetone	2023	R	Horsham District Council	10	23	24	-5.4%	G	1.06
SOCOTEC Didcot	50% TEA in Acetone	2023	UI	North Lincolnshire Council	10	14	11	26.2%	G	0.79
SOCOTEC Didcot	50% TEA in acetone	2023	R	Bridgend Council	11	32	27	20.8%	G	0.83
SOCOTEC Didcot	50% TEA in acetone	2023	R	Cambridge City Council	12	22	18	24.8%	G	0.80
SOCOTEC Didcot	50% TEA in acetone	2023	R	Leeds City Council	10	39	29	32.3%	G	0.76
SOCOTEC Didcot	50% TEA in acetone	2023	KS	Leeds City Council	10	30	20	48.3%	G	0.67
SOCOTEC Didcot	50% TEA in acetone	2023	R	Leeds City Council	12	25	19	30.0%	G	0.77
SOCOTEC Didcot	50% TEA in acetone	2023	UC	Leeds City Council	11	26	19	40.0%	G	0.71
SOCOTEC Didcot	50% TEA in acetone	2023	KS	Manjebone Road intercomparison	11	53	38	41.4%	G	0.71
SOCOTEC Didcot	50% TEA in acetone	2023	R	Vale Of White Horse District Council	10	22	18	21.2%	G	0.83
SOCOTEC Didcot	50% TEA in acetone	2023	UB	Wirral Council	11	15	13	16.7%	G	0.86
				Overall Factor^a (28 studies)					Use	0.77

NO₂ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO₂ concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO₂ fall-off with distance calculator available on the LAQM Support website.

No non-automatic monitoring sites in Dover District Council required fall-off with distance correction during the 2023 monitoring year.

QA/QC of Automatic Monitoring

Dover District Council's 2023 automatic air quality monitoring data has been ratified by Air Quality Data Management (AQDM) according to the standards set out in the [LAQM.TG\(22\)](#). The instruments used to validate the data undergo regular calibrations. For LAQM reporting, the EU Reference Equivalent PM₁₀ has been calculated by running the Volatile Correction Model (VCM) on the TEOM data.

PM₁₀ and PM_{2.5} Monitoring Adjustment

The Council undertook monitoring of PM₁₀ based on TEOM analysers at one location during 2023. TEOMs collect particles on a small oscillating filter. The change in oscillation frequency of the filter is proportional to the change in PM₁₀ concentrations. TEOMs are operated at 50°C and as such lose volatile components of the PM₁₀. Therefore, the monitoring results have been corrected using the Volatile Correction Model¹⁵. The monitoring results are downloaded as gravimetric equivalent from the [Kentair](#) website¹⁶. The website managers of the Kentair are responsible for the PM₁₀ adjustment.

Automatic Monitoring Annualisation

No annualisation was required for Dover District Council's one automatic monitoring location since data capture was more than 75%.

¹⁵ Volatile correction model. <https://www.volatile-correction-model.info>

¹⁶ Kent air. <http://www.kentair.org.uk/>

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

Figure D.1 – Map of Non-Automatic Monitoring Sites in and around Dover A20 AQMA



Figure D.2 – Map of Non-Automatic Monitoring Sites in and around High Street/Ladywell AQMA

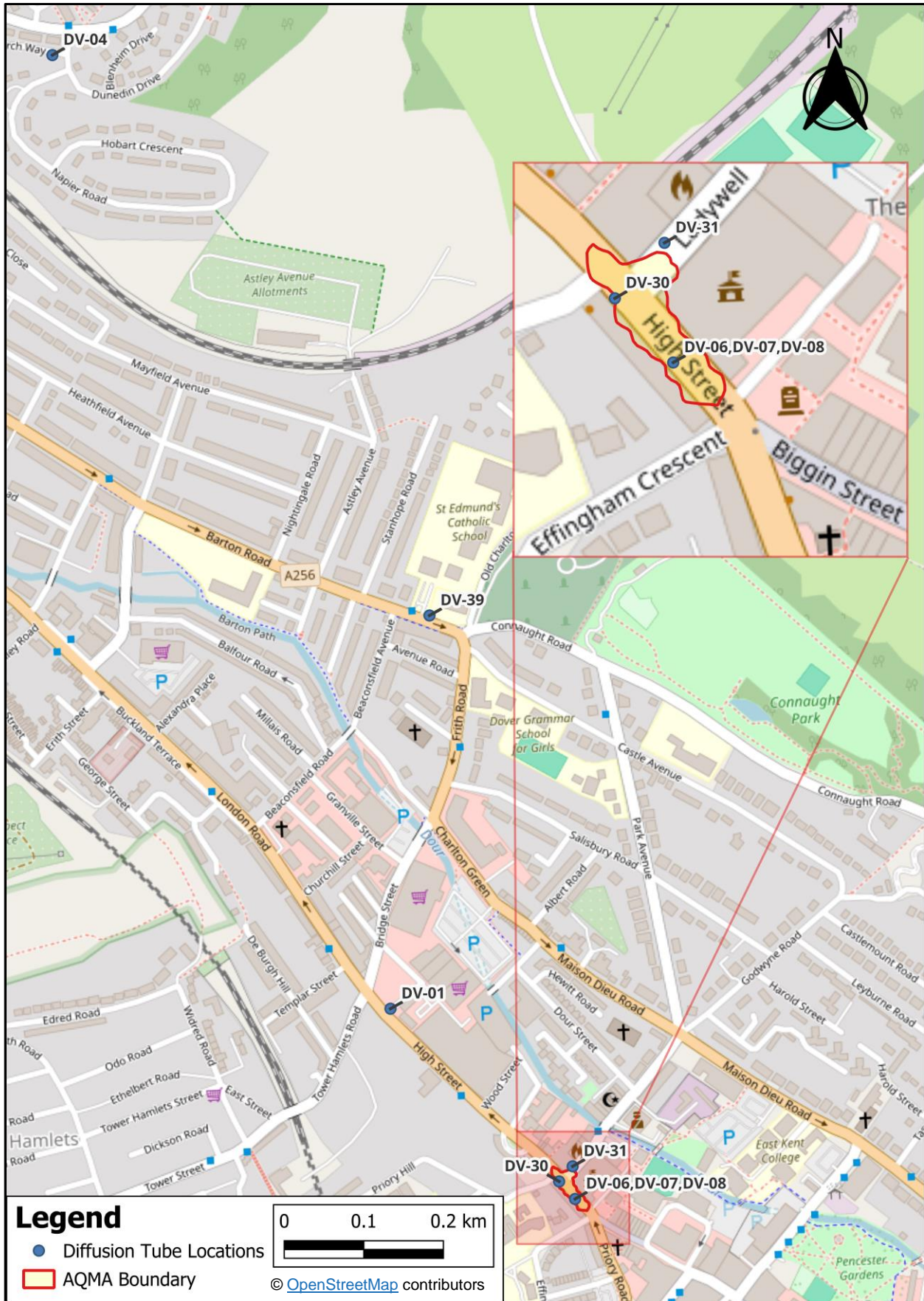


Figure D.3 – Map of Non-Automatic Monitoring Sites Outside of AQMAs



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England¹⁷

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

¹⁷ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO ₂	Sulphur Dioxide

References

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- Dover District Council Annual Status Report 2020. Published by Dover District Council.
- Dover District Council Annual Status Report 2019. Published by Dover District Council.
- Dover District Council Air Quality Action Plan.