Dover District Council
Annual Status Report 2023
Bureau Veritas

June 2023

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Identification

Client	Dover District Council
Document Title	2023 Annual Status Report
Bureau Veritas Ref No.	AIR18315696

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Configuration

Version	Date	Author	Reason for Issue/Summary of Changes	Status
1.0	16/06/2023	M. Fernandez Zoppi	Draft for comment	Draft

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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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Report Reference Number	Dover District Council 2023 ASR
Date	June 2023

Executive Summary: Air Quality in Our Area

Air Quality in Dover District 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].

Dover is "the gateway to England" and its location at the narrowest crossing point in the Channel has always given it great significance for both trade and military activities.

Dover is the district's principal town, the major employment centre, an international gateway and a transport hub. In addition to Dover, Deal and Sandwich are the other main towns within the district.

The main sources of pollutant emissions within Dover town are linked with port activities; regular cross-channel ships and large volumes of road traffic arising as a result of associated transport of good along the A2 and A20 entering and leaving the town.

Dover District Council (the Council) has adopted its Core Strategy (CS) on 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 examining a new Dover District Local Plan[5]

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[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, January 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

[5] Dover. New Dover District Local Plan.

which will replace the Adopted CS, LALP and 'saved' 2002 Local Plan Policies. The Plan is expected to be adopted in 2024. Air quality will be one of a number of key considerations that will need to be taken into account as part of the development, consultation, adoption and implementation of the new Local Plan.

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 Strategy[6] (AQS) objective for nitrogen dioxide (NO_2), with the elevated concentrations caused primarily by road traffic emissions. These are:

- A20 AQMA[7], declared in 2004 (and amended in 2007 and 2009); and
- High Street/Ladywell AQMA[8], declared in 2007.

In 2021, a dispersion modelling exercise was carried out for both AQMAs to establish whether any changes to the extent of AQMA boundary could be made. The results concluded that exceedances of the annual mean NO_2 objective were still evident within the High St / Ladywell AQMA, and concentration was predicted to be within 10% of the AQS Objective at receptors within the A20 AQMA. Concentrations predicted at receptors outside the AQMA were below the annual mean NO_2 AQS objective. Following the modelling report, it was recommended that the AQMAs remain as currently declared. However, in 2022, monitoring locations within the A20 AQMA remained below 10% of the AQS objective for the 5th 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 will study the revocation of the A20 AQMA in 2023.

The monitor in High St / Ladywell AQMA reports its 3rd year of compliance with monitored NO_2 annual mean concentrations below 10% of the AQS objective. Due to the nature of 2020, 2021 and the impact of the COVID-19 pandemic restrictions on traffic volumes, and air quality, there is uncertainty with regard to whether 2020 and 2021 monitoring data will be considered an outlier when compared to the normal pollution trends until the long-term impacts are better understood. Further study into the long-term impacts are required to fully determine the influence of the Covid-19 pandemic on air quality. The High St /

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[6] Defra. UK Air. National Air Quality Objectives.

[7] A20 AQMA Details. UK Air Defra website for A20 AQMA.

[8] High Street/Ladywell AQMA. UK Air Defra website for High Street/Ladywell AQMA.

Ladywell AQMA will remain as currently declared and the Council will evaluate future trends in the area.

A new Air Quality Action Plan (AQAP) to be released in late 2023 has been developed and approved for consultation, which is open from 15th of June until the 27th of July. More information can be found in the DDC AQAP consultation website. Measure to further improve the air quality in Dover has been included in the new AQAP.

There were no exceedances of the annual mean NO_2 objective in 2022. Two sites, DV-30 and DV-38 recorded annual mean concentrations above 36 µg/m^3 (within 10% of the AQS objective). Site DV-30 is adjacent to 19 High Street, within the High Street/ Ladywell AQMA boundary. Site DV-38, which is outside the declared AQMAs, is adjacent to the roundabout at London Road, Deal. The site is not representative of exposure so the concentration at the nearest location relevant for exposure (32.3 µg/m^3), which is below the 10% of the AQS objective, has been estimated using the Diffusion Tube Data Processing Tool/NO_2 fall-off with distance calculator available on the LAQM Support website. The highest concentration of 37.4 µg/m^3 was observed at DV-38.

There have been no exceedances of the PM_{10} AQS objective within the past five years at the single PM_{10} monitoring location on Townwall Street (Dover Centre). 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 2022 was estimated in accordance with the methodology presented in LAQM.TG (22) to be 13.6µg/m^3.

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[9] 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, due to be published in 2023, will provide more information on local authorities' responsibilities to work towards these new targets and

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

reduce $PM_{2.5}$ in their areas. The Road to Zero[10] 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.

A package of measures to improve air pollution within the district are to be identified in the updated AQAP that is due to be published in late 2023 and has been recently approved for public consultation. A draft AQAP was previously developed, although a decision was made in early 2018 to put the AQAP on hold due to the Council's need to focus on contingency planning for the UK's departure from the European Union as Dover is a key area of impact. The AQAP has been further delayed due to the Covid-19 pandemic and resourcing issues. However, works are now underway for it to be published later in 2023 and internal consultation with stakeholders was completed in September 2022 and was recently approved in March 2023 for public consultation.

Additionally, in March 2023 the Council have submitted for examination a new Dover District Local Plan to assess how future development will impact air quality within the area, with particular attention paid to any scenarios that will negatively impact air quality in sensitive areas, such as within AQMAs or within any of the internationally designated sites within the district.

Conclusions and Priorities

During 2022, there were no exceedances of the relevant annual mean objective for either NO_2 or PM_{10} across Dover. This is the third consecutive year with no exceedances recorded at the High Street AQMA and the fifth consecutive year at the A20 AQMA. The concentrations at most sites across the NO_2 diffusion tube network increased compared to 2021 concentrations likely due to increased traffic emission as a result of recovered traffic activities from Covid-19 pandemic. Two sites, DV-30 and DV-38 recorded annual mean concentrations above 36 µg/m^3 (within 10% of the AQS objective).

There have been no exceedances of the PM_{10} annual mean objectives within the past five years.

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

The AQAP based upon detailed modelling of the AQMAs and taking into consideration Defra's proposals for 'tackling roadside nitrogen dioxide concentrations' was approved for public consultation in March 2023. This will be placed in the context of identified significant developments in Dover, including re-development of the Western Docks through the Dover Western Docks Revival Project and work on the Dover Waterfront area. The potential impact upon air quality from these developments will be appraised through the Strategic Environmental Assessment approach and through requests for air quality assessments under the planning and development regime. The impacts of the Covid-19 pandemic upon the air quality and traffic within Dover have caused delays in the development of the AQAP, nevertheless the Council aims to complete this by the end of 2023.

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:

Brian Gibson, Senior Environmental Protection Officer

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

This ASR has not been signed off by a Director of Public Health.

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 (DDC) 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 DDC to improve air quality and any progress that has been made.

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

2 Actions to Improve Air Quality

Air Quality Management Areas

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

A summary of AQMAs declared by DDC can be found in Table 2.1. The table presents a description of the two AQMAs that are currently designated within DDC. Appendix D: Maps 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 for NO_2 annual mean.

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	30.8	5 years	Jul-07. New Draft AQAP has been completed. Internal/stakeholder consultation in progress.	https://www.dover.gov.uk/Environment/Environmental-Protection/Air-Quality/Dover-Air-Quality-Action-Plan-(No-2-A20).pdf
High Street/Lady-well 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	35.5	3 years	Jul-07. New Draft AQAP has been. Internal/stakeholder consultation in progress	https://www.dover.gov.uk/Environment/Environmental-Protection/Air-Quality/Dover-Air-Quality-Action-Plan-(No-2-A20).pdf

☒ **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.**

Progress and Impact of Measures to address Air Quality in Dover

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. *Comments from last year's ASR appraisal have been included and addressed in the report. This is welcomed, and we encourage this to continue in future ASRs.*

2. *The Council state that there has been a delay in the release of their revised AQAP. They are encouraged to release this AQAP as soon as possible, as the previous AQAP was published more than 5 years ago.*

3. *As part of the report discussing $PM_{2.5}$, Council have appropriately included Public Health Outcomes Frameworks and provided details of $PM_{2.5}$ from Defra background maps in the absence of any monitoring in the district. It is clear that the Council recognise the importance of $PM_{2.5}$, stating that the draft AQAP will consider measures which specifically target $PM_{2.5}$ concentrations. This shows the Council's pro-active and dedicated approach to tackling air quality in their jurisdiction and is very much welcomed.*

4. *The Council state that there has been passive monitoring at 21 sites in 2021. This is increased from 17 in 2020. The Council is encouraged to provide information in the report regarding these new sites (e.g., Why were they added? Where are they located?).*

5. *Council have provided a clear map of the diffusion tube monitoring network; trends are displayed and discussed in the report, this is welcomed.*

6. *Robust and accurate QA/QC procedures were applied. Calculations for bias adjustment and annualisation factors were outlined in detail.*

7. *Overall, the report is detailed, concise and satisfies the criteria of relevant reporting standards. The Council should continue their good and thorough work."*

Based on Defra's appraisal of last year's ASR, Dover District Council will continue to provide detailed ASRs in accordance with relevant Policy and Technical Guidance documents.

Dover has taken forward a number of direct measures during the current reporting year of 2022 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. 22 measures are included within Table 2.2, with the type of measure and the progress Dover have made during the reporting year of 2022 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

The updated draft AQAP has been completed and approved for consultation in April 2023. The draft AQAP and more information about the consultation process can be found in the DDC AQAP consultation website. The progress of the air quality measures from the draft AQAP are updated in the ASR.

Key completed measures in 2022 are:

- DDC introduced Cycling Hire scheme in January 2022.
- DDC has worked with the Kent & Medway Air Quality Partnership to develop Pollution Patrol which is an interactive education tool for children, parents and teachers to learn about air quality, its effects and how to reduce air pollution.

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

- DDC succeed in OLEV funding bid for 19 sites, 42 units to be completed in 2023. 7 ELV chargers have been installed at Council office car park and the possibility to increase numbers for public use may be explored.
- Dover Fastrack which will become a zero-emission bus service with a fleet of electric buses – has a new route under construction 2023.

Dover District Council worked to implement these measures in partnership with the following stakeholders during 2021:

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

Dover District Council anticipates that the measures stated above and in Table 2.2 will assist to achieve compliance in High Street/Lady-well AQMA. This will be reviewed and

updated in the forthcoming AQAP. The A20 AQMA reports five consecutive years of compliance and four consecutive years of annual mean NO_2 concentrations being lower than 36µg/m^3 (within 10% of the annual mean NO_2 objective). As per the LAQM TG(22), the council will study the revocation of the A20 AQMA in 2023.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved					Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
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	-	Planning	Below annual mean AQS objectives	% increase in amount of usage in schemes identified in comments column	Ongoing	· 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	2023-2027	DDC/KCC	DDC/KCC	No	Not Funded	-	Planning	Below annual mean AQS objectives	. No. of travel plans in place . Reduction in school vehicle drop-offs / pick-ups	On-going	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 and bike rental scheme	Promoting Travel Alternatives	Promotion of cycling	Ongoing	2025-2027	DDC/KCC	DDC/KCC	No	Not Funded	-	Planning	Below annual mean AQS objectives	. %modal shift to cycling/walking, No. miles new cycle lanes/routes . Number of bikes available and rentals	On-going	. 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: · E cycle training scheme · Kent Connected App · Clearing of NCN paths · Explore Kent website

Commented [MFZ2]: Needs updates from the Local Authority

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved						Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
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	-		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.
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	Not Funded	-		Planning	Below annual mean AQS objectives	% modal shift to public transport	On-going	. 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.
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	-		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	-		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.
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	-		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). Promoted and supported 2023

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved					Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
															Clean Air Day Campaign.
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	-	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	-	Planning	NO2 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	-	Implementation	NO2 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 homeworking	2023	2025-2027	DDC	DDC	No	Not Funded	-	Implementation	NO2 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.

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved					Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
13	Educational campaigns for schools	Public Information	Other	2022	2025-2027	DDC & K&MAQP	DEFRA and LA contributions	Yes	Partially funded	<£10k	Planning	NO2 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"
14	District wide Clean Air Days	Public Information	Other	2023	2023-2027	DDC/KCC	DDC/KCC	No	Not Funded	-	Implementation	NO2 Measure to increase public awareness	Number of campaigns	part of Kent initiative 2022	DDC promoted and supported the 2023 national clean air day and will continue to do so for future events.
15	Taxi/Private Hire Vehicle Policy license fees	Promoting Low Emission Transport	Taxi Licensing conditions	2022	2023	DDC	DDC	No	Not Funded	-	Implementation	NO2 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	-	Implementation	NO2 To be confirmed if considered for further assessment. NOx 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

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved					Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
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	-	Implementation	NO2 To be confirmed if considered for further assessment. NOx 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.	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.
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/OZEM	Office for zero Emission Vehicles	No	Funded	£224,270	Planning	NO2 Small impact upon NO2 concentrations from measure individually, estimated to be less than 1µg/m3 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.
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	-	Implementation	NO2 Small impact upon NO2 concentrations from measure individually, estimated to be less than 1µg/m3 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	-	Planning	NO2 Small impact upon NO2 concentrations from measure individually, estimated to be less than 1µg/m3 based upon a low to medium uptake.	Reduction in NO2 concentrations	Port of Dover have published an Air Quality Action Plan	· 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	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved					Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
															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	-	Planning	NO2 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	-	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)

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 2.5µm or less). There is clear evidence that PM$_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Currently there is no monitoring of PM$_{2.5}$ completed within Dover. However, in accordance with LAQM.TG(22), PM$_{2.5}$ concentrations can be estimated from PM$_{10}$, further details in 3.1.5. The PM$_{2.5}$ concentrations can be estimated from PM$_{10}$ monitoring using either a local PM$_{10}$ and PM$_{2.5}$ monitoring PM$_{coarse}$ split (the fraction of PM between 10µm and 2.5µm, i.e., PM$_{10}$ minus PM$_{2.5}$), or a nationally derived correction[11]. The national factor for PM$_{coarse}$ is 5.5 for background sites and 6.4 for roadside sites in 2022. As there is no local monitoring for PM$_{2.5}$, the nationally derived correction PM$_{coarse}$ of 6.4 for roadside sites has been applied to the PM$_{10}$ concentration (22.0 µg/m^3) at the automatic monitoring site, Dover Centre. The estimated PM$_{2.5}$ concentration in 2022 at the automatic monitoring site Dover Centre was 13.6µg/m^3, which is below the PM$_{2.5}$ annual mean AQS Objective (20µg/m^3). The main sources of PM$_{10}$ pollutant emissions within Dover Centre are linked with port activities; regular cross-channel ships and large volumes of road traffic arising as a result of associated transport of goods along the A2 and A20 entering and leaving the town.

The Defra 2022 background maps for Dover (2018 reference year)[12] show that all background concentrations of PM$_{2.5}$ are far below the annual mean Air Quality Objectives of 20µg/m^3 for PM$_{2.5}$. The average PM$_{2.5}$ background concentration for DDC is 8.6µg/m^3. The highest background concentration is estimated to be 10.7µg/m^3 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

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[11] Defra. Estimating PM$_{2.5}$ from PM$_{10}$ Measurements. Available at: https://laqm.defra.gov.uk/air-quality/air-quality-assessment/estimating-pm2-5-from-pm10-measurements/

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

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 $PM_{2.5}$ concentration (5.5 µg/m^3) is estimated to arise from secondary $PM_{2.5}$ formation, which forms following chemical reactions of other gaseous atmospheric pollutants, such as NO_x, ammonia (NH_3), and volatile organic compounds (VOCs).

The Public Health Outcomes Framework data tool[13] compiled by Public Heath England quantifies the mortality burden of $PM_{2.5}$ within England on a county and local authority scale. The 2021 fraction of mortality attributable to $PM_{2.5}$ pollution (indicator D01) in Dover is 4.7%, which is below the average for the Southeast region (5.4%) and for England (5.5%). The 2021 estimates of the fraction of mortality attributable to $PM_{2.5}$ pollution range from 3.5% in the Isles of Scilly to 7.2% in the City of London.

There are currently no designated smoke control areas within Dover. However, information is provided within the air quality section of the Council's website.

It is 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. The Council recognise the importance of considering $PM_{2.5}$ and also 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 2020[14]. 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. Furthermore, the draft AQAP considers measures that specifically target $PM_{2.5}$ concentrations.

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[13] 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

[14] 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 2018 and 2022 to allow monitoring trends to be identified and discussed.

Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Dover undertook automatic (continuous) monitoring of particulate matter of less than 10 micrometres in diameter (PM_{10}) at one site during 2023. Table A.1 in Appendix A shows the details of the automatic monitoring site. The KentAir page presents automatic monitoring results for Dover, with automatic monitoring results also available through the UK-Air website .

Local authorities do not have to report annually on the following pollutants: 1,3 butadiene, benzene, carbon monoxide and lead, unless local circumstances indicate there is a problem.

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 undertook non- automatic (i.e., passive) monitoring of NO_2 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: Maps 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.

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 (NO₂)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of $40\mu g/m^3$. 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.

In 2022, there were eight monitoring locations within A20 AQMA. All monitoring locations reported concentrations below 10% of the NO_2 annual mean AQS objective of $40\mu g/m^3$ ($36\mu g/m^3$), with the maximum reported being $30.8\mu g/m^3$ at DV-25 showing a slight increase from 2021.

Within High Street/ Ladywell AQMA, there is a triplicate monitoring site: DV-06, DV-07 and DV-08. It reported an annual mean NO_2 concentration of $35.5\mu g/m^3$ showing a slight increase from 2021. It is below 10% of the NO_2 annual mean AQS objective and the annual mean NO_2 concentrations reported pre pandemic. Just outside the borders of the High St AQMA, there are two monitoring sites, DV-30 and DV-31, with reported concentrations of $36.5\mu g/m^3$ and $29.6 \mu g/m^3$ respectively.

At monitoring locations outside of the declared AQMAs, all NO_2 annual mean concentrations are below the AQS objective of $40\mu g/m^3$, with the maximum being $37.4\mu g/m^3$ reported at DV-38 followed by DV-30 ($36.5\mu g/m^3$) both within 10% of the NO_2 annual mean AQS objective. While DV-30 is at a site of relevant exposure, DV-38 is not. Using the Diffusion Tube Data Processing Tool/NO_2 fall-off with distance calculator available on the LAQM Support website for the DV-38 site, the NO_2 concentration at the

nearest location relevant for exposure has been estimated, 32.3 µg/m^3. Which is below 10% of the AQS objective.

The concentrations recorded at all sites excluding six (DV-01, triplicate: 12, 18 and 19, DV-24, DV-36, DV-37 and DV-39) in DDC increased in 2022. However, all were below the annual mean objective of 40 µg/m^3.

Figure A.1 to Figure A.3 show the trends of monitoring concentrations in the A20 AQMA, in the High Street/Ladywell AQMA and outside any AQMA respectively. The general increase of NO_2 concentrations from 2021 to 2022 is likely due to the recovery of traffic activities from impacts of the Covid-19 pandemic and thus increasing traffic emissions during 2022. It is believed that the Covid-19 pandemic is having a long-term impact in the traffic patterns as all the concentrations remain significantly lower than those reported in 2019 in line with national trends.

There have been no diffusion tube monitoring sites with an annual mean greater than 60 µg/m^3. As per LAQM.TG(22), an annual mean NO_2 concentration greater than 60µg/m^3 can be used as a proxy to indicate whether there is an exceedance of the NO_2 1-hour mean AQS objective (no more than 18 hourly mean concentrations in exceedance of 200µg/m^3). It is assumed that there have been no exceedances of the 1-hour mean objective of 200 µg/m^3 within Dover.

3.1.4 Particulate Matter (PM$_{10}$)

Table A.5 in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM$_{10}$ annual mean concentrations for the past five years with the air quality objective of 40µg/m^3.

Table A.6 in Appendix A compares the ratified continuous monitored PM$_{10}$ daily mean concentrations for the past five years with the air quality objective of 50µg/m^3, not to be exceeded more than 35 times per year.

The PM$_{10}$ monitoring site is located in Dover Centre within the A20 AQMA. There have been no exceedances of the PM$_{10}$ AQS objective within the past five years. The annual mean concentration has remained between 20.8µg/m^3 and 26.0µg/m^3 in the last five years. During 2022 it has slightly increased from last years concentration of 20.8µg/m^3 to 22.0µg/m^3. There has been two 24-hour mean greater than 50 µg/m^3 during 2022, compared to no instance during 2021.

3.1.5 Particulate Matter (PM2.5)

There is currently no monitoring of $PM_{2.5}$ within Dover. However, in accordance with LAQM.TG(22), the $PM_{2.5}$ concentrations can be estimated from PM_{10} monitoring using either a local PM_{10} and $PM_{2.5}$ monitoring PM_{coarse} split (the fraction of PM between 10μm and 2.5μm, i.e. PM_{10} minus $PM_{2.5}$), or a nationally derived correction[15]. The national factor for PM_{coarse} is 5.5 for background sites and 6.4 for roadside sites in 2022. As there is no local monitoring for $PM_{2.5}$, the nationally derived correction PM_{coarse} of 6.4 for roadside sites has been applied to the PM_{10} concentration (22.0 μg/m^3) at the automatic monitoring site, Dover Centre. The estimated $PM_{2.5}$ concentration in 2022 at the automatic monitoring site, Dover Centre, was therefore 13.6μg/m^3, which is below the $PM_{2.5}$ annual mean AQS Objective (20μg/m^3).

3.1.6 Sulphur Dioxide (SO2)

There is currently no SO_2 monitoring in Dover, however historically Dover conducted SO_2 monitoring in the previously declared Eastern Docks AQMA.

The AQMA was declared for exceedances of the 15-minute SO_2 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.

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[15] Defra. Estimating $PM_{2.5}$ from PM_{10} 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	PM10	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	-	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	-	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	N/A	N/A	No	2.0
DV-30	19, High Street, Dover	Kerbside	631581	141744	NO_2	NO	0.0	5.0	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-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	1, St Martin's Road, Guston, Dover	Urban Background	632064	143993	NO_2	NO	10	N/A	No	2.0
DV-40a	5, St. Martin's Road, Guston, Dover	Urban Background	632069	144006	NO_2	NO	5	N/A	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: Automatic Monitoring (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 2022 (%) (2)	2018	2019	2020	2021	2022
Dover Centre	632302	141465	Roadside	87.3	87.3	26.0	22.0	22.7	20.8	22.0

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

☒ **Reported concentrations are those at the location of the monitoring site (annualised, as required), i.e., prior to any fall-off with distance correction.**

Notes:

The annual mean concentrations are presented as µg/m³.

Exceedances of the NO₂ 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.

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

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

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

Table A.4 – Annual Mean 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 2022 (%) [2]	2018	2019	2020	2021	2022
DV-01	631369	141961	Roadside	100.0	100.0	31.2	30.8	25.5	26.2	26.1
DV-04	630944	143159	Urban Background	100.0	100.0	16.2	15.3	12.7	13.7	13.8
DV- 05	631986	141321	Urban Centre	92.3	92.3	28.8	24.4	20.3	22.1	23.6
DV-06, DV-07, DV-08	631601	141722	Roadside	92.3	92.3	**40.4**	39.8	33.7	35.2	35.5
DV-10	632298	141469	Roadside	100.0	100.0	38.3	35.9	26.4	28.3	30.6
DV-11, DV-16, DV-17	632317	141429	Roadside	100.0	100.0	29.9	28.1	23.1	22.1	24.7
DV-12, DV-18, DV-19	631576	140474	Roadside	92.3	92.3	34.5	31.5	26.5	27.2	26.5
DV-23	631729	140965	Roadside	100.0	100.0	34.3	31.2	25.3	27.7	28.2
DV-24	631825	141112	Roadside	92.0	92.0	39.0	33.7	26.1	27.6	27.4
DV-25	631858	141167	Roadside	90.4	90.4	32.6	29.3	28.9	30.2	30.8
DV-28	630717	140020	Urban Background	100.0	100.0	-	-	-	14.1	16.3
DV-30	631581	141744	Kerbside	64.8	64.8	**40.5**	**40.4**	35.7	33.9	36.5
DV-31	631598	141763	Kerbside	92.0	92.0	31.2	31.5	23.5	26.5	29.6

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 2022 (%) [2]	2018	2019	2020	2021	2022
DV-32	632657	141499	Roadside	100.0	100.0	35.4	31.7	26.7	28.5	29.8
DV-33	632835	141572	Roadside	92.0	92.0	37.6	35.9	28.4	29.5	32.9
DV-36	635698	152325	Roadside	100.0	100.0	-	18.5	14.9	16.4	16.0
DV-37	636161	151957	Kerbside	100.0	100.0	-	-	-	29.5	22.9
DV-38	636259	151914	Kerbside	100.0	100.0	-	-	-	34.0	37.4
DV-39	631418	142455	Roadside	100.0	100.0	-	-	-	19.9	18.9
DV-40	632064	143993	Urban Background	100.0	100.0	-	-	-	11.5	12.4
DV-40a	632069	144006	Urban Background	100.0	100.0	-	-	-	10.0	10.5

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

☒ **Diffusion tube data has been bias adjusted.**

☒ **Reported concentrations are those at the location of the monitoring site (bias adjusted and annualised, as required), i.e. prior to any fall-off with distance correction.**

Notes:

The annual mean concentrations are presented as $\mu g/m^3$.

Exceedances of the NO_2 annual mean objective of $40\mu g/m^3$ are shown in **bold**.

NO_2 annual means exceeding $60\mu g/m^3$, 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 NO₂ Concentrations in A20 AQMA

Figure A.2 – Trends in Annual Mean NO₂ Concentrations in High St/Ladywell AQMA
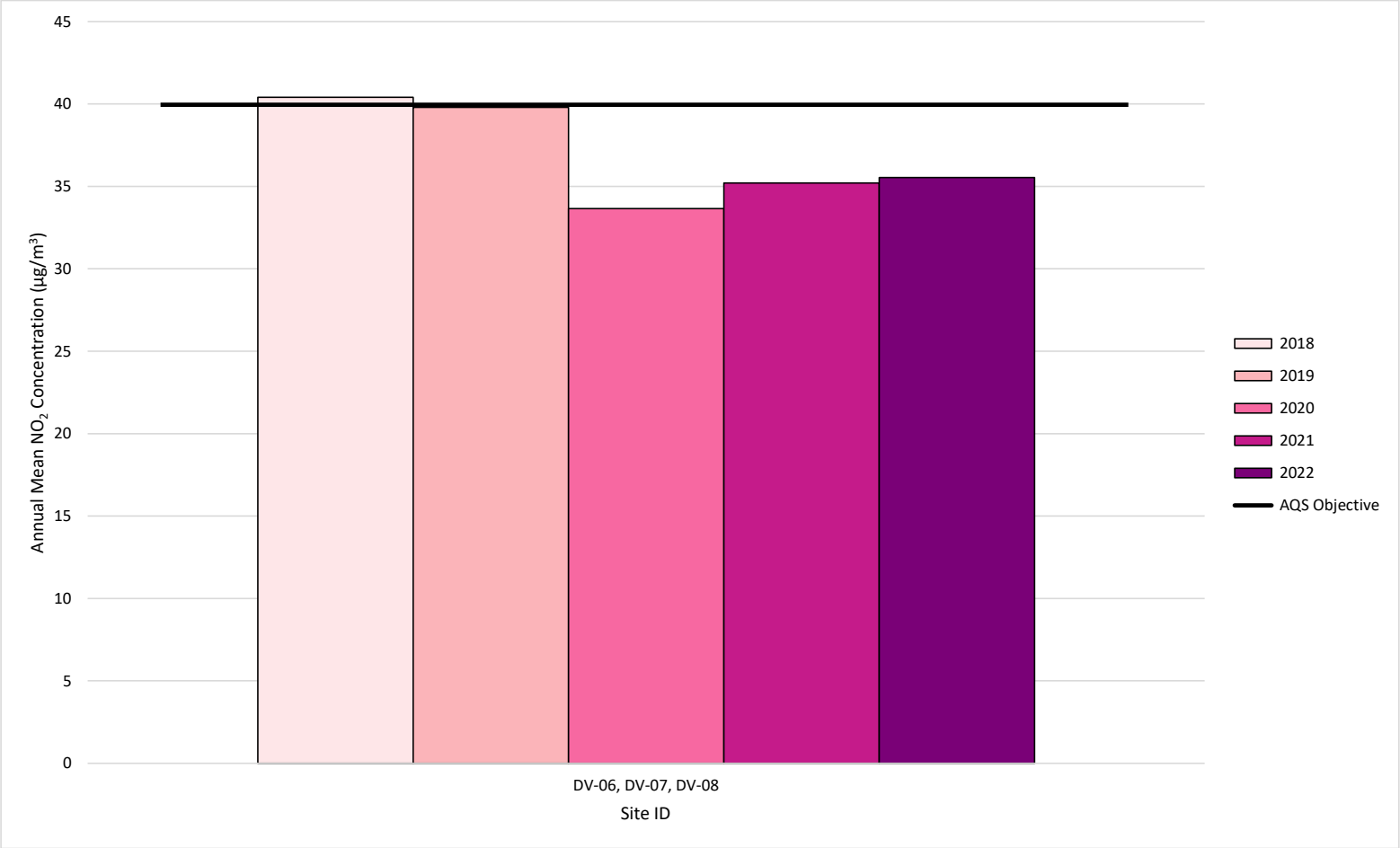
Figure A.3 – Trends in Annual Mean NO₂ Concentrations outside any AQMA
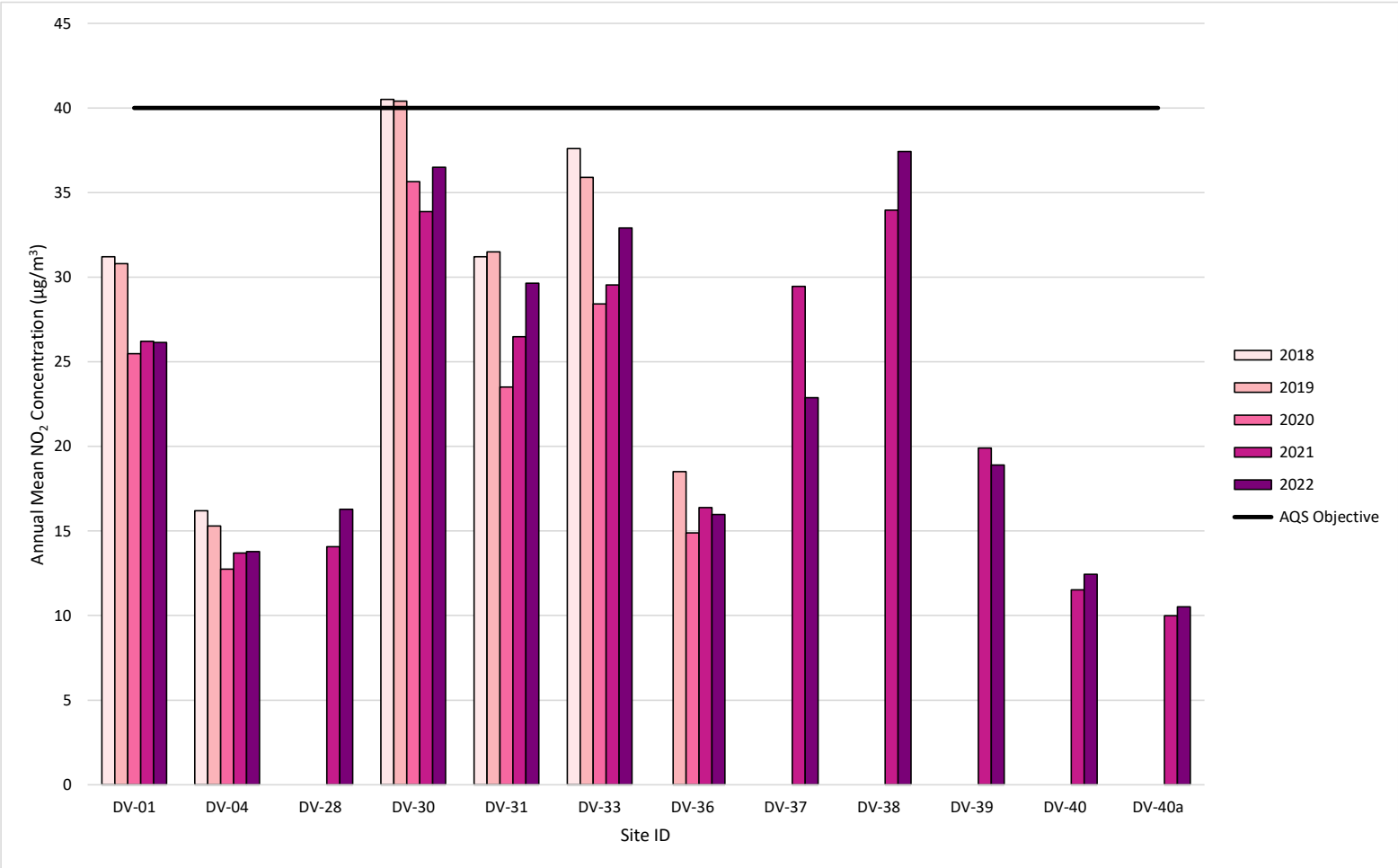
Table A.5 – Annual Mean PM₁₀ Monitoring Results (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2022 (%) [2]	2018	2019	2020	2021	2022
Dover Centre	632302	141465	Roadside	87.3	87.3	26.0	22.0	22.7	20.8	22.0

☒ **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%).
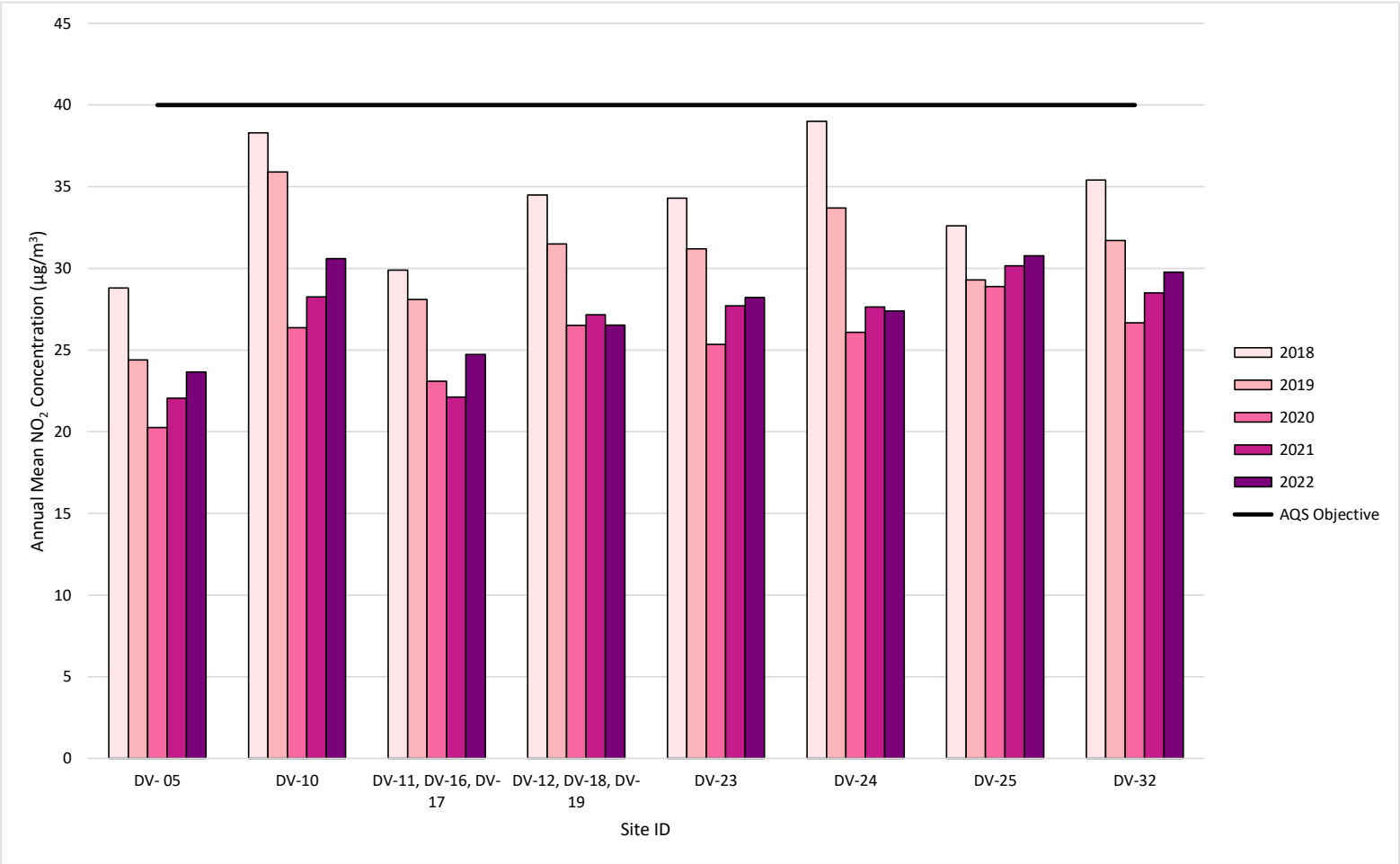
Figure A.4 – Trends in Annual Mean PM₁₀ Concentrations
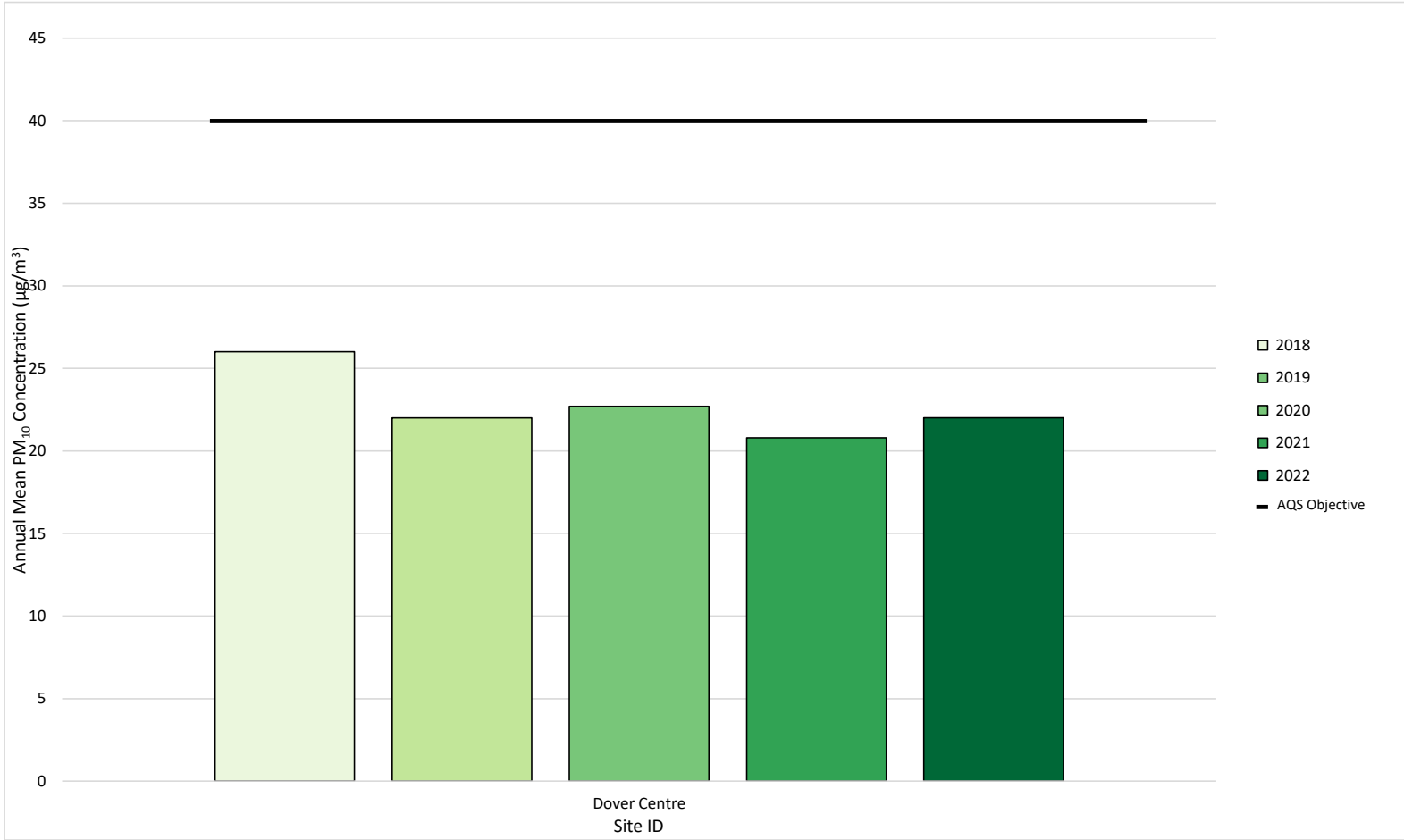
Table A.6 – 24-Hour Mean PM$_{10}$ Monitoring Results, Number of PM$_{10}$ 24-Hour Means > 50µg/m^3.

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2022 (%) [2]	2018	2019	2020	2021	2022
Dover Centre	632302	141465	Roadside	87.3	87.3	7	8	1	0	2

Notes:

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

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

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

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

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

Figure A.5 – Trends in Number of 24-Hour Mean PM₁₀ Results > 50µg/m³·
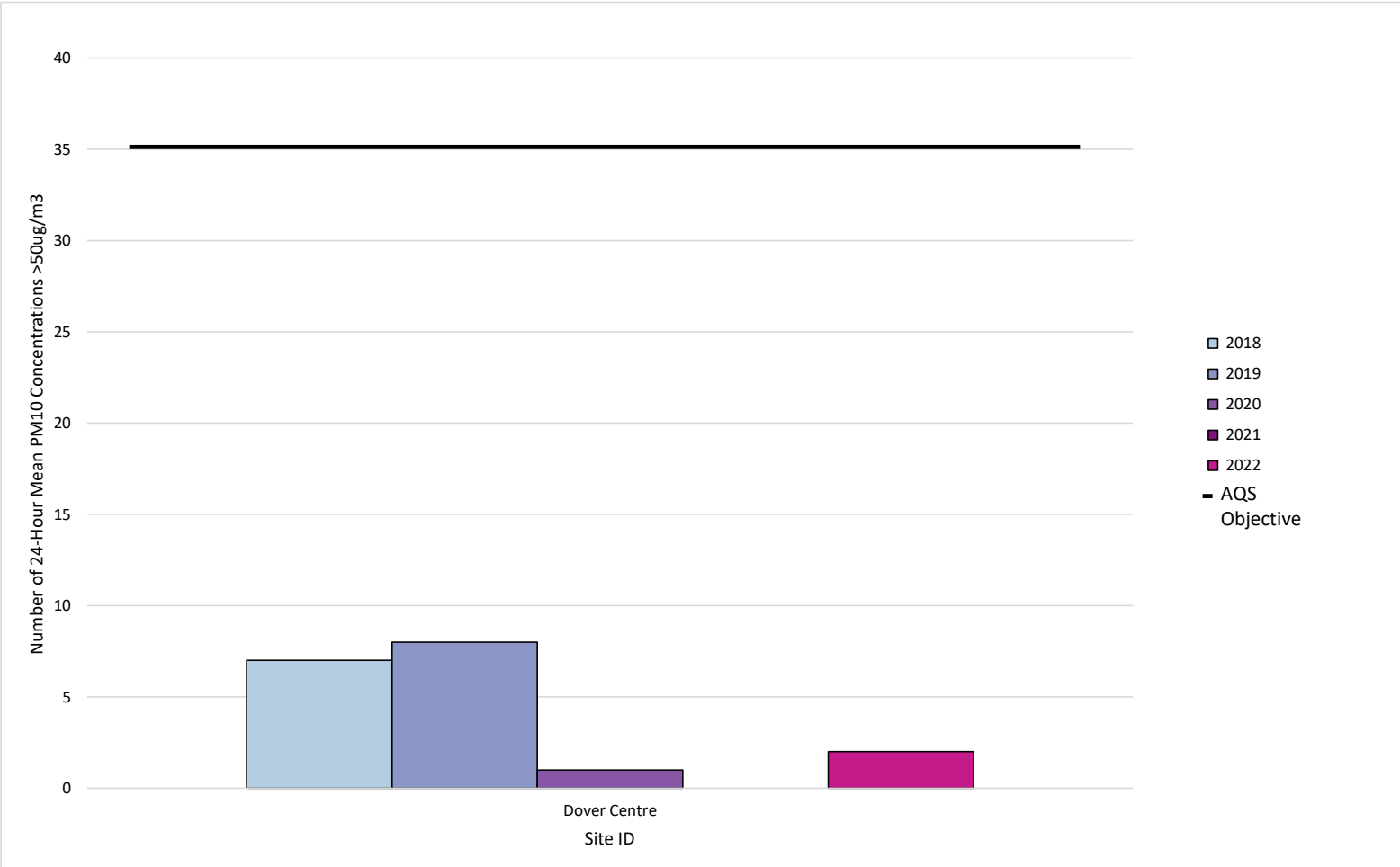
# Appendix B: Full Monthly Diffusion Tube Results for 2022

Table B.1 – NO$_2$ 2022 Diffusion Tube Results (µg/m^3)

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 (0.76)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DV-01	631369	141961	36.7	31.6	50.1	31.2	30.6	30.7	35.9	34.7	33.9	33.3	27.0	37.5	34.4	26.1	-	
DV-04	630944	143159	21.3	16.9	25.7	18.2	17.4	16.9	16.3	18.5	14.5	17.3	13.9	19.9	18.1	13.8	-	
DV- 05	631986	141321	20.0	29.5	39.3	31.7	32.9		37.6	29.8	27.2	32.2	25.8	33.5	31.1	23.6	-	
DV-06	631601	141722	54.2	49.4	51.8	40.0	43.0	40.8	47.3	40.4	46.9	42.3		38.2	-	-	-	Triplicate Site with DV-06, DV-07 and DV-08 - Annual data provided for DV-08 only
DV-07	631601	141722	73.6	46.9	67.8	46.6	49.2	47.5	41.5	48.7	44.7	46.7		44.8	-	-	-	Triplicate Site with DV-06, DV-07 and DV-08 - Annual data provided for DV-08 only
DV-08	631601	141722	52.9	55.7	54.4	41.3	43.4	39.6	44.3	41.7	45.2	39.9		43.5	46.8	35.5	-	Triplicate Site with DV-06, DV-07 and DV-08 - Annual data provided for DV-08 only
DV-10	632298	141469	45.2	40.2	55.4	40.8	37.1	29.4	44.5	41.8	32.9	36.8	39.7	39.1	40.3	30.6	-	
DV-11	632317	141429	28.6	33.0	46.1	27.7	31.6	32.2	35.1	36.0	26.8	31.5	33.0	32.3	-	-	-	Triplicate Site with DV-11, DV-16 and DV-17 - Annual data provided for DV-17 only
DV-12	631576	140474	36.3	33.5	44.0	31.3	36.8		35.1	41.2	28.1	32.4	28.3	28.5	-	-	-	Triplicate Site with DV-12, DV-18 and DV-19 - Annual data provided for DV-19 only
DV-16	632317	141429	38.0	30.1	43.8	31.7	31.5	31.9	33.1	30.3	25.0	35.0	32.0	28.6	-	-	-	Triplicate Site with DV-11, DV-16 and DV-17 - Annual data provided for DV-17 only
DV-17	632317	141429	32.8	33.2	46.7	30.2	30.1	30.2	36.1	31.2	25.4	32.4	29.8	28.1	32.5	24.7	-	Triplicate Site with DV-11, DV-16 and DV-17 - Annual data provided for DV-17 only
DV-18	631576	140474	37.5		48.8	34.0	35.8		34.3	39.3	27.9	32.9	30.0	27.6	-	-	-	Triplicate Site with DV-12, DV-18 and DV-19 - Annual data provided for DV-19 only
DV-19	631576	140474	30.0	36.9	47.8	39.4	37.9		32.8	44.7	30.0	32.7	30.0	28.6	34.9	26.5	-	Triplicate Site with DV-12, DV-18 and DV-19 - Annual data provided for DV-19 only
DV-23	631729	140965	35.3	35.8	48.0	39.1	38.3	38.9	45.1	39.7	33.6	32.8	28.1	31.1	37.1	28.2	-	
DV-24	631825	141112	40.8	40.8	43.9	33.2	37.1	31.2		34.3	30.0	36.0	33.8	34.9	36.0	27.4	-	
DV-25	631858	141167	47.4	39.5	50.4		42.5	38.9	45.5	43.1	36.1	37.5	35.7	30.2	40.5	30.8	-	
DV-28	630717	140020	30.6	15.7	39.3	16.7	22.8	20.8	30.1	24.6	12.6	15.7	13.2	16.2	21.4	16.3	-	

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 (0.76)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DV-30	631581	141744		47.2	50.4			45.2	48.8		43.9	48.6	50.3	43.5	47.3	36.5	-	
DV-31	631598	141763	43.8	36.0	48.8	34.3	35.9	28.0		67.8	30.8	33.0	32.3	36.6	39.0	29.6	-	
DV-32	632657	141499	45.9	36.2	56.4	41.3	37.3	33.9	48.9	42.1	33.5	32.2	31.5	32.2	39.2	29.8	-	
DV-33	632835	141572	52.8		61.8	50.2	33.5	38.4	51.8	43.1	36.7	37.7	34.9	36.9	43.3	32.9	-	
DV-36	635698	152325	25.0	21.3	35.2	19.6	20.6	21.8	22.7	18.2	16.5	21.4	7.8	21.6	21.0	16.0	-	
DV-37	636161	151957	33.8	29.1	46.7	34.1	27.2	27.5	29.3	31.3	29.2	30.8	10.7	30.2	30.1	22.9	-	
DV-38	636259	151914	41.6	42.5	68.4	42.5	48.6	49.3	59.8	54.1	40.6	51.0	48.7	43.3	49.2	37.4	32.3	
DV-39	631418	142455	34.5	27.6	36.2	16.7	17.0	23.3	24.2	21.7	22.0	25.0	25.7	27.3	24.9	18.9	-	
DV-40	632064	143993	18.0	15.9	30.6	13.3	13.8	12.5	16.8	13.8	12.4	16.1	14.5	18.6	16.4	12.4	-	
DV-40a	632069	144006	12.8	12.1	30.1	12.8	11.5	12.1	14.3	12.5	9.3	12.2	11.7	14.5	13.8	10.5	-	

☒ **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 2022 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 During 2022

Several new development applications have been progressed in 2022. 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 (2022)

Reference	Location	Details	Status	Comments
23/00111	Land Southwest of London Road Deal CT14 0AD	Outline application for the erection of up to 120 dwellings with associated parking and means of access (all matters reserved except for access)	Awaiting decision Jan 23	Air quality assessment has been submitted.
22/00652	Land Southwest of London Road Deal	Outline application for the erection of up to 155 dwellings with associated parking and means of access (all matters reserved except for access)	No Decision Made May 22	Air quality assessment has been submitted.
21/00402	Land Southwest of Sandwich Road, Sholden, CT14 0AD	Outline application for the erection of up to 110 dwellings with associated parking and means of access (all matters reserved except for access)	Granted March 22	Air quality assessment has been submitted.

Additional Air Quality Works Undertaken by Dover During 2022

Dover District Council has not completed any additional works within the reporting year of 2022.

QA/QC of Diffusion Tube Monitoring

The diffusion tubes are supplied and analysed by SOCOTEC Didcot, formerly called Environmental Scientifics Group (ESG) Didcot, utilising the 50% triethanolamine (TEA) in acetone preparation method. A bias adjustment of 0.76 for the year 2022 (based on 26 studies) has been derived from the national bias adjustment calculator, as shown in Figure C.1.

SOCOTEC Didcot is a UKAS accredited laboratory and participates in the AIR-PT Scheme for NO_2 tube analysis and the Annual Field Intercomparison Exercise. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO_2 concentrations reported are of a high calibre.

In the 2022 AIR-PT result, AIR-PT AR042 (January – June 2022) SOCOTEC scored 100%. The results for July to December 2022 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 NO_2 diffusion tubes (50% TEA in Acetone) supplied by SOCOTEC Didcot has been classified as 'good' for all 26 observations in 2022. 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.

Figure C.1 - National Diffusion Tube Bias Adjustment Factor

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 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 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:	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 shown in blue at the foot of the final column.							
If a laboratory is not shown, we have no data for 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. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953							

Analysed By[1]	Method *Provide your solution, choose (All) from the pop-up list*	Year[2] *To code your solution, choose (All)*	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[4]	Bias Adjustment Factor (A) (Cm/Dm)
Socotec Didcot	50% TEA in acetone	2022	UB	Torfaen County Borough Council	13	13	10	33.4%	G	0.75
Socotec Didcot	50% TEA in acetone	2022	R	Bridgend Council	12	37	27	40.6%	G	0.71
Socotec Didcot	50% TEA in Acetone	2022	R	Cardiff Council / Shared Regulatory Services	11	42	33	27.3%	G	0.79
Socotec Didcot	50% TEA in Acetone	2022	R	Dacorum Borough Council	12	24	18	30.8%	G	0.76
Socotec Didcot	50% TEA in Acetone	2022	UB	Gravesham Borough Council	11	22	18	19.6%	G	0.84
Socotec Didcot	50% TEA in Acetone	2022	UB	Gravesham Borough Council	11	26	22	17.0%	G	0.85
Socotec Didcot	50% TEA in acetone	2022	R	Kingston Upon Hull City Council	12	30	23	27.9%	G	0.78
Socotec Didcot	50% TEA in acetone	2022	UB	Kingston Upon Hull City Council	12	24	18	35.0%	G	0.74
SOCOTEC Didcot	50% TEA in acetone	2022	UB	City Of York Council	12	16	13	31.6%	G	0.76
SOCOTEC Didcot	50% TEA in acetone	2022	R	City Of York Council	12	25	19	28.7%	G	0.78
SOCOTEC Didcot	50% TEA in acetone	2022	R	City Of York Council	11	23	17	37.2%	G	0.73
SOCOTEC Didcot	50% TEA in acetone	2022	R	City Of York Council	11	37	27	37.6%	G	0.73
SOCOTEC Didcot	50% TEA in acetone	2022	R	East Suffolk Council	11	32	23	38.6%	G	0.72
SOCOTEC Didcot	50% TEA in acetone	2022	R	Ipswich Borough Council	11	42	28	50.4%	G	0.66
SOCOTEC Didcot	50% TEA in acetone	2022	KS	Marylebone Road Intercomparison	12	60	42	40.7%	G	0.71
SOCOTEC Didcot	50% TEA in acetone	2022	R	North East Lincolnshire Council	10	46	31	49.4%	G	0.67
SOCOTEC Didcot	50% TEA in acetone	2022	R	North East Lincolnshire Council	10	28	27	3.7%	G	0.96
SOCOTEC Didcot	50% TEA in acetone	2022	R	Wrexham County Borough Council	12	16	14	15.5%	G	0.87
SOCOTEC Didcot	50% TEA in Acetone	2022	R	Horsham District Council	11	25	22	14.4%	G	0.87
SOCOTEC Didcot	50% TEA in acetone	2022	R	Leeds City Council	12	40	29	37.8%	G	0.73
SOCOTEC Didcot	50% TEA in acetone	2022	KS	Leeds City Council	11	33	23	44.6%	G	0.69
SOCOTEC Didcot	50% TEA in acetone	2022	R	Leeds City Council	12	43	34	26.0%	G	0.79
SOCOTEC Didcot	50% TEA in acetone	2022	R	Leeds City Council	11	41	30	34.2%	G	0.75
SOCOTEC Didcot	50% TEA in acetone	2022	R	Leeds City Council	12	30	22	36.9%	G	0.73
SOCOTEC Didcot	50% TEA in acetone	2022	UC	Leeds City Council	12	30	22	34.1%	G	0.75
SOCOTEC Didcot	50% TEA in acetone	2022	R	Thanet District Council	12	23	17	29.1%	G	0.77
SOCOTEC Didcot	50% TEA in acetone	2022		**Overall Factor[3] (26 studies)**					Use	0.76

Diffusion Tube Annualisation

Annualisation was required for only one non-automatic monitoring sites during 2022; DV30. The annualisation was carried out by calculating an annualisation factor using background concentrations from the three closest background monitoring sites to Dover;

Canterbury, Rochester Stoke and Thurrock. Details of the calculations are provided in Table C.2.

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

Site ID	Annualisation Factor Canterbury	Annualisation Factor Rochester Stoke	Annualisation Factor Thurrock	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
DV-30	1.0347	1.0367	0.9763	1.0159	47.3	48.0

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2022 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.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.

Dover have applied a national bias adjustment factor of 0.76 to the 2022 monitoring data. A summary of bias adjustment factors used by Dover 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
2022	National	03/23	0.76
2021	National	03/22	0.78
2020	National	06/21	0.76
2019	National	03/20	0.75
2018	National	03/19	0.76

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. Where appropriate, non-automatic annual mean NO$_2$ concentrations corrected for distance are presented in Table C.4

Table C.4 – NO$_2$ Fall off With Distance Calculations (concentrations presented in µg/m^3)

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted)	Background Concentration	Concentration Predicted at Receptor
DV-38	1.5	3.5	37.4	10.0	32.3

QA/QC of Automatic Monitoring

Dover District Council's 2022 automatic air quality monitoring site's data has been ratified by Air Quality Data Management (AQDM) to the LAQM.TG (22) standards. The instruments used to validate the data undergo regular calibrations. For LAQM reporting, the EU Reference Equivalent PM$_{10}$ has been calculated by running the Volatile Correction Model (VCM) on the TEOM data.

PM$_{10}$ and PM$_{2.5}$ Monitoring Adjustment

The Council undertook monitoring of PM$_{10}$ based on TEOM analysers at one location during 2022. TEOMs collect particles on a small oscillating filter. The change in oscillation frequency of the filter is proportional to the change in PM$_{10}$ and PM$_{2.5}$ concentrations. TEOMs are operated at 50°C and as such lose volatile components of the PM$_{10}$ and PM$_{2.5}$. Therefore, the monitoring results have been corrected using the Volatile Correction Model[16]. The monitoring results are downloaded as gravimetric equivalent from the Kentair

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[16] Volatile correction model. https://www.volatile-correction-model.info

website[17]. The website managers of the Kentair website are responsible for the PM_{10} adjustment.

Automatic Monitoring Annualisation

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

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[17] Kent air. http://www.kentair.org.uk/

Appendix D: Maps of Monitoring Locations and AQMAs

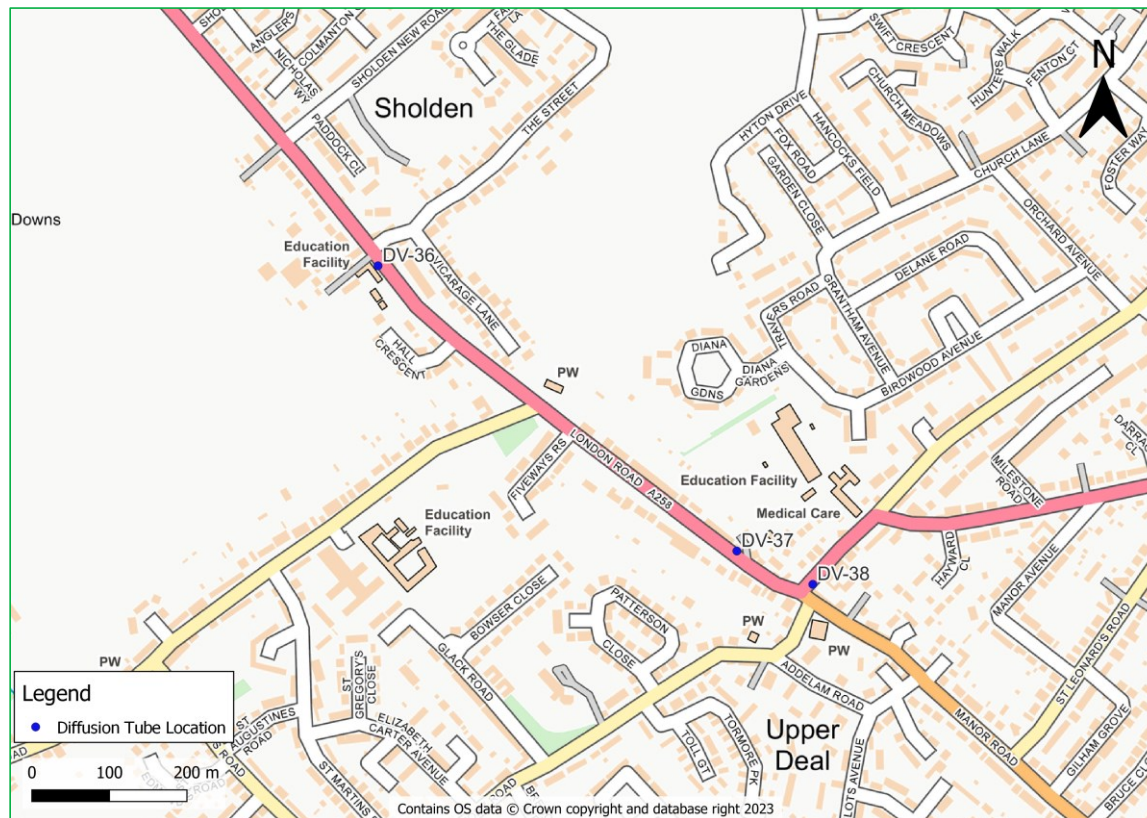**Figure D.1 – Map of Non-Automatic Monitoring Sites at Upper Deal and Sholden**

Figure D.2 – Map of Non-Automatic Monitoring Sites at Buckland Valley and Dover Road

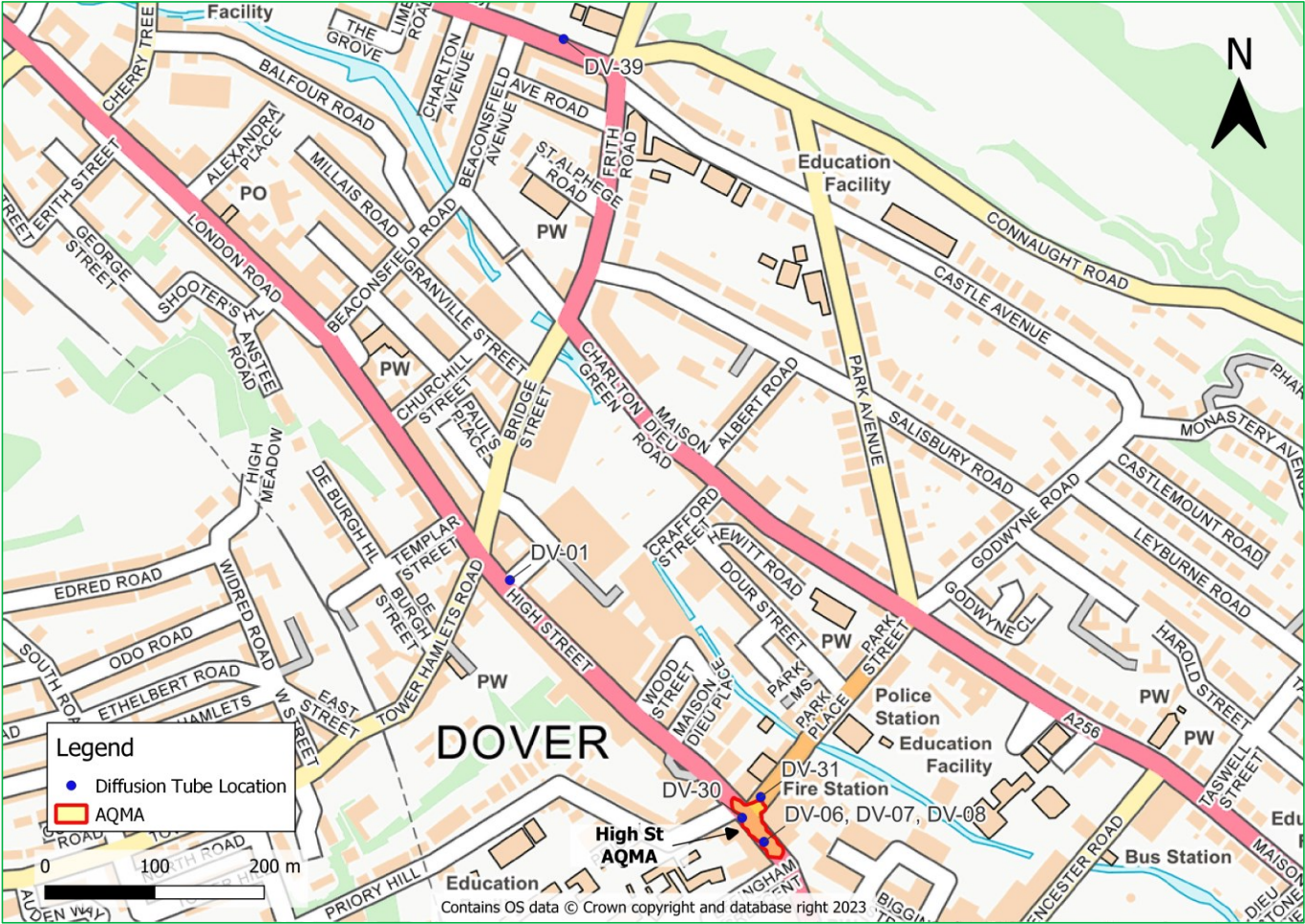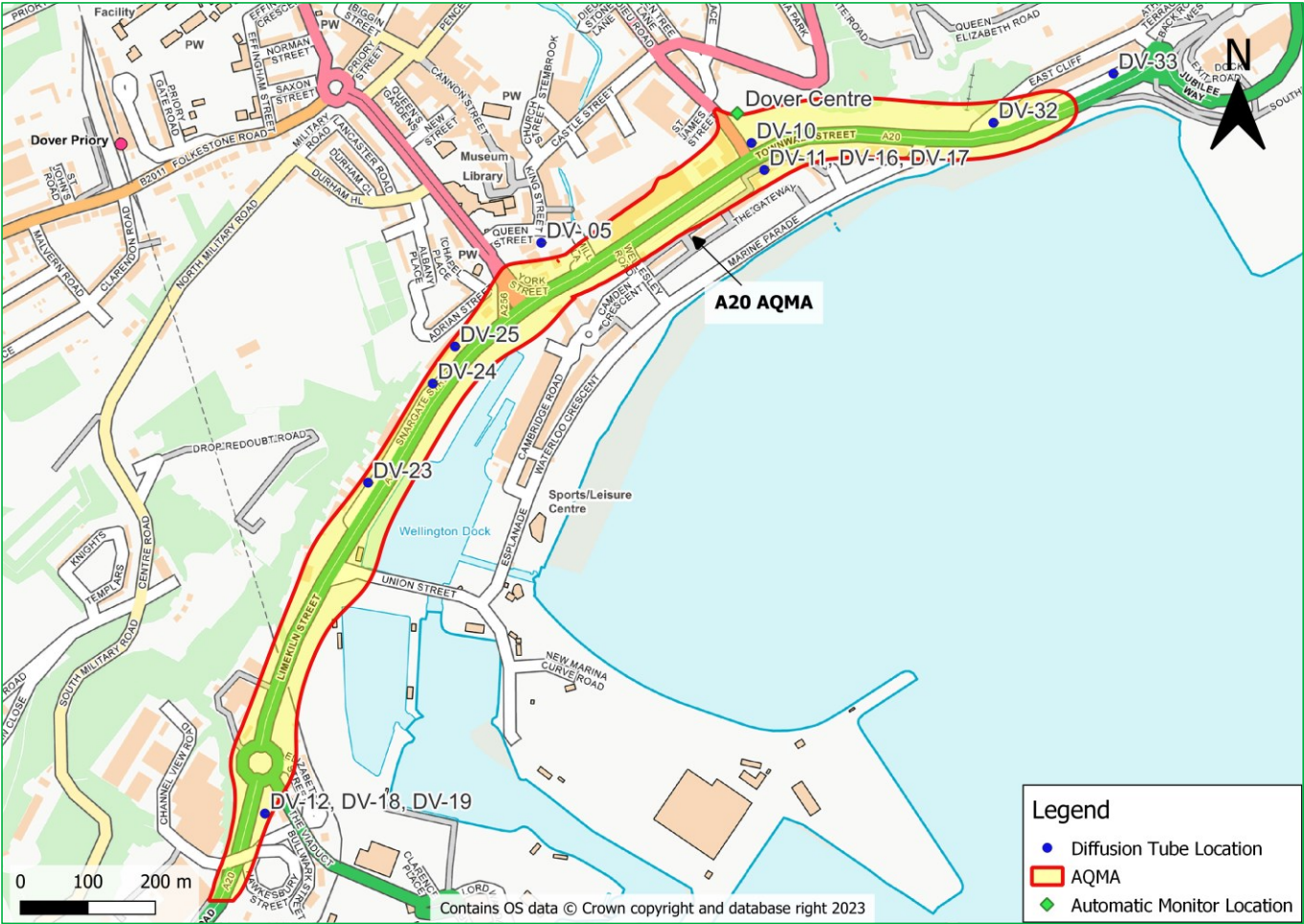**Figure D.3 – Map of Non-Automatic Monitoring Sites and the High Street AQMA**

Figure D.4 – Map of Monitoring Sites at A20 AQMA

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[18]

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

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

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
DDC	Dover District Council
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

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

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

- Dover District Council Annual Status Report 2021. Published by Dover District Council

- 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 Annual Status Report 2018. Published by Dover District Council