High Peak Borough Council

Annual Status Report 2022

Bureau Veritas

September 2022

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Document Control Sheet

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2022 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

September 2022

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Executive Summary: Air Quality in Our Area

Air Quality in High Peak Borough Council

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children, the elderly, and those with existing heart and lung conditions. There is also often a strong correlation with equalities issues because areas with poor air quality are also often less affluent areas[1,2].

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

High Peak Borough Council (HPBC) is one of the eight district and borough authorities that make up the county of Derbyshire. HPBC is located in the northwest of the region between the Greater Manchester conurbation to the west and the metropolitan areas of Sheffield and Barnsley to the east.

The main source of air pollution within HPBC is road traffic emissions from the major roads that cross the borough (the A6, the A628 and the A57) and form key travel routes between the cities of Manchester and Sheffield, as well as the local roads that connect the borough's main population centres (Glossop, New Mills, Whaley Bride, Chapel-en-le-Frith and Buxton) to these key travel routes. Residential exposure to the increased pollutant concentrations caused by these emissions is the primary concern as there are a number of properties located within close proximity to the road network.

Two Air Quality Management Areas (AQMAs) have been declared within HPBC due to exceedances of the 40 µg/m^3 annual mean objective for NO_2; Tintwistle AQMA (on the

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

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

[3] Defra. Air quality appraisal: damage cost guidance, July 2021

[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

A628 Woodhead Road) and Dinting Vale AQMA (on the A57 Dinting Vale Road) both declared in 2019.

Monitoring of NO_2 is completed throughout HPBC using a network of passive diffusion tubes. During 2021, there were 53 monitoring locations where diffusion tubes were deployed (with nine locations having been added since 2020) as well as an AURN automatic rural background monitoring site.

A general increase in NO_2 concentrations was observed among 53 sites in 2021 in comparison to 2020 data. There was one exceedance of the annual mean NO_2 objective of 40 µg/m^3 recorded at site 42 (43.7 µg/m^3) during 2021 which is located outside the existing AQMAs. Though it should be noted that, once distance correction had been applied to determine the concentration at the closest receptor, the monitoring fell below 40 µg/m^3. The two AQMAs were declared as a result of road traffic emissions and the increased concentrations during 2021 are therefore likely to be the result of recovery in vehicle traffic activities from the Covid-19 pandemic from 2020.

During 2021, one monitoring location (site 42) outside of the existing AQMAs recorded an exceedances of the annual mean NO_2 objective and three sites (site 25 in Dinting Vale AQMA, site 33 and site 44 outside of AQMAs) recorded an concentration within 10% of the annual mean objective. Though it should be noted that, once distance correction had been applied to determine the concentration at the closest receptor, the site 42 monitoring fell below 40 µg/m^3 but still within 10% of the annual mean objective; site 25 and site 44 fell below 10% of the annual mean objective after distance correction. Except for site 25, all other three sites are located along the A6 Fairfield Road in Buxton, within the study area of a detailed assessment undertaken during 2019 in order to inform a decision on whether a new AQMA will be declared. This decision has been delayed due to the Covid-19 pandemic and the nationally enforced lockdowns that have resulted in shifting priorities and resourcing constraints during 2020 and 2021. HPBC intends to make further progress on this during 2022 and a detailed assessment will be undertaken during the AQAP work in 2022.

Actions to Improve Air Quality

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

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

HPBC has taken forward a number of measures during the reporting year of 2021 in pursuit of improving local air quality:

- Energy Saving Trust have completed the assessment of fleet in HPBC and made recommendations to consider in fleet management and suitable replacements when appropriate.
- During 2021, Environmental Services (Waste Collection) trialled a number of electric vehicles. Unfortunately all were unsuccessful in having sufficient battery power to complete a normal days' duties. A 3-month trial of the use of HVO (hydrotreated veg. oil) has been completed with positive results.
- The Council undertook a "scatter[7]" assessment, which is a local authority focussed emissions measurement and modelling tool. This is to obtain a baseline of emissions from the council, and will be used to inform Climate Change Action plan, which is due for publication in 2022
- Cycle to work scheme has been relaunched
- Climate Change Action Plan has been launched, with a list of complimentary actions to tackle air quality issues.
- Work with local groups to produce a sustainable travel plan for Buxton.
- Progress on A57 Link Roads (previously known as Trans Pennine Upgrade Programme).
- Progress on Greater Manchester Clean Air Zone.

HPBC are currently in the process of developing an Air Quality Action Plan (AQAP) in response to the declaration of the Tintwistle and Dinting Vale AQMAs at the end of 2019.

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[5] Defra. Clean Air Strategy, 2019

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

[7] SCATTER (Setting City Area Targets and Trajectories for Emissions Reduction) information available at: https://scattercities.com/

The new AQAP is expected to be released for consultation during 2022. Provisional measures have been included in Table 2.2 and a full update will be provided next year to encompass any updates within the finalised AQAP.

Conclusions and Priorities

During 2021, no exceedances of the NO_2 annual mean objective were recorded within existing AQMAs. One exceedance was recorded outside of existing AQMAs. NO_2 concentrations monitored via diffusion tubes were higher at most sites (51 out of 53 sites) than concentrations measured at the same locations during 2020.

In relation to the two existing AQMAs, it is recommended that both Tintwistle and Dinting Vale remain in force, as monitoring sites within both AQMAs have recorded exceedances of the annual mean objective within the past five years, with the exception of 2020 and 2021 in which concentrations across the UK were reduced relative to the Covid-19 pandemic.

In relation to the relatively high concentrations recorded along the A6 in Buxton, HPBC are investigating declaring a new AQMA based upon the Detailed Assessment completed, and continuation of monitoring established, during 2019. This decision has been delayed due to the impacts of Covid-19 and the resulting reallocation of Council resources during 2020 and 2021. HPBC intends to make further progress on this during 2022.

In addition, as highlighted above, HPBC are currently in the process of developing a new AQAP. Due to Council resourcing issues, the development and implementation of the AQAP has been further delayed. Current estimates are that the AQAP will be prepared and sent out for draft consultation during 2022.

Local Engagement and How to get Involved

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

- Air quality monitoring;
- Declared AQMAs;
- Smoke control areas; and
- Wood burning stoves.

The public can also report any concerns about air quality via the Council's website.

As the main source of air pollution within the borough is road traffic, HPBC encourages consideration of alternative modes of transport by promoting sustainable transport choices. Further information can be found on the Derbyshire County Council website, which discusses:

- Sustainable travel and smarter choices (cycling, public transport, car sharing schemes and community transport schemes); and
- School travel plans (including Travel Smart – a range of practical initiatives and curriculum projects to promote cycling, scooting, car shar and public transport on the school journey).

In addition, HPBC is currently involved in the Air Aware project in collaboration with neighbouring Staffordshire authorities, contributing to the Air Aware website which provides downloadable materials and further information on:

- Funding;
- Volunteering;
- Small actions that can make a big difference, such as:
    - Turning your car off;
    - Car sharing;
    - Getting on your bike (or scooter);
    - Walking;
    - Getting your car serviced;
    - Working smarter;
    - Using public transport;
    - Zero and low carbon vehicles; and
    - Renewable home energy sources.

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Health Department of High Peak Borough Council with the support and agreement of the following officers and departments:

- Communities and Climate Change
- Asset Management
- Service Commissioning

This ASR has been approved by:

- Mark Trillo – Executive Director

- Alicia Patterson – Head of Environmental Health

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

If you have any comments on this ASR please send them to Dr Daniel McCrory at:

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1 Local Air Quality Management

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

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by High Peak Borough Council to improve air quality and any progress that has been made.

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

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority should prepare an Air Quality Action Plan (AQAP) within 12 to 18 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

A summary of AQMAs declared by HPBC can be found in Table 2.1. The table presents a description of the two AQMAs that are currently designated within HPBC. 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.

High Peak Borough Council currently has two AQMAs:

- HPBC AQMA No. 1: Tintwistle; and
- HPBC AQMA No. 2: Dinting Vale.

Both of the current AQMAs have been declared in response to exceedances of the NO_2 annual mean objective.

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 National Highways?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Name and Date of AQAP Publication	Web Link to AQAP
HPBC AQMA No.1: Tintwistle	11/09/2019	NO_2 Annual Mean	The designated area incorporates the following section of the Woodhead Road; between the Bank Lane/ Woodhead Road Junction and the Old Road/ Woodhead Road Junction	Yes	46.6 µg/m^3	32.9 µg/m^3	Ongoing, provisional measure and progress provided in Section 2.2	Ongoing
HPBC AQMA No. 2 Dinting Vale	04/12/2019	NO_2 Annual Mean	The AQMA encompasses the properties between the A626 Glossop Road / A57 Dinting Vale Junction and the A57 Dinting Vale/ Dinting Lane Junction.	Yes	40.6 µg/m^3	36.6 µg/m^3	Ongoing, provisional measure and progress provided in Section 2.2	Ongoing

☒ **HPBC confirm the information on UK-Air regarding their AQMA(s) is up to date.**

☐ **HPBC confirm that all current AQAPs have been submitted to Defra.**

2.2 Progress and Impact of Measures to address Air Quality in High Peak Borough 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". Additional comments made are as follows:

1. *"Due to the impacts of Covid-19, the development and implementation of the AQAP has also been slightly delayed. The council should prepare and submit AQAP for consultation as soon as possible.*
2. *The highest pollutant concentration in HPBC was recorded outside of the existing AQMAs in Buxton during 2020. A detailed assessment was delayed informing a decision on whether a new AQMA will be declared due to the Covid-19 pandemic. The Council was encouraged to make further progress on this next year.*
3. *Trends in NO_2 concentrations are clearly presented and discussed, which is welcomed, and very clear and detailed mapping of the monitoring network and AQMA boundaries is provided.*
4. *In relation to $PM_{2.5}$, the Council have mentioned and discussed the Public Health Outcomes Framework fraction of mortality attributable to particulate pollution, which is welcomed.*
5. *The report is well structured and concise and satisfies the relevant criteria to a good standard. The Council should continue their good work."*

This year, HPBC continues working to prepare AQAP and progress and provisional measures are provided in this section. A detailed assessment of the Buxton area is currently under preparation to provide reference for further decision of this area.

HPBC has taken forward a number of direct measures during the current reporting year of 2021 in pursuit of improving local air quality. The Council are currently in the process of developing an AQAP for the Tintwistle and Dinting Vale AQMAs that were declared at the end of 2019. Due to the Council resources issues during 2021, the development and implementation of the AQAP has been further delayed. Current estimates are that the AQAP will be prepared and sent out for draft consultation during 2022. Provisional measures have been included in Table 2.2.

42 measures are provisionally included within Table 2.2 with the type of measure also shown. Confirmation on the measures included within the AQAP, and subsequent

progress HPBC make on these measures once their AQAP is finalised will be presented in next year's ASR. Where barriers may arise, restricting the implementation of the measure, these will also be presented within Table 2.2.

Key measures progressed and completed during 2021 are:

- A57 Link Roads (previously known as Trans Pennine Upgrade Programme) has progressed through 2021. Detail of the program is provided in Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC.
- Energy Saving Trust have completed the assessment of fleet in HPBC and made recommendations to consider in fleet management and suitable replacements when appropriate.
- During 2021 Environmental Services (Waste Collection) trialled a number of electric vehicles, unfortunately all were unsuccessful in having sufficient battery power to complete normal days duties. A 3 month trial of the use of HVO (hydrotreated veg. oil) has been completed with positive results.
- Cycle to work scheme has been relaunched.
- Climate Change Action Plan has been launched, with a list of complimentary actions to tackle air quality issues.
- A sustainable travel plan for Buxton has been published by Buxton Town Team.
- During 2021, work started on implementing the Greater Manchester Clean Air Zone, which was due to go live in May 2022 and Clean Air Zone signs were placed along all the main routes (A57, A628 and A6) into Greater Manchester from HPBC. Detail of the scheme is provided in Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC.

HPBC expects the following measures to be completed over the course of the next reporting year:

- Continue to progress the A57 Link Roads (previously known as Trans Pennine Upgrade Programme). A final decision on the scheme is due to be announced in December 2022.
- Procurement of renewable energy will be reviewed as part of the revised contracts in 2023.
- To Facilitate Travel Behaviour Change, The Transport Strategy Team at Derbyshire County Council are developing a new local transport plan, which will impact on air

quality, with a consultation in Spring/ Summer of 2022 and publishing the final plan at the end of the year.

- Continue to progress Derbyshire County Councils Bus Service Improvement Plan.
- Continue to progress Greater Manchester Clean Air Zone.

HPBC worked to implement these measures in partnership with the following stakeholders during 2021:

- National Highways;
- East Midlands Councils;
- Derbyshire County Council (DCC);
- Nottinghamshire County Council (NCC);
- Transport for Greater Manchester;
- Energy Saving Trust;
- Staffordshire Moorlands District Council (SMDC);
- Staffordshire County Council (SCC);
- Public Health England (PHE);
- Derby City Council;
- Buxton Town Team.

HPBC anticipates that the measures in Table 2.2 will help contribute towards compliance within the two currently declared AQMAs.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Review of Air Quality, Speed limits and Road Safety along A628	Traffic Management	UTC, Congestion management, traffic reduction	2021	Not yet commenced	National Highways (North – East)	National Highways (North – East)	No	Funded			Reduced emissions from vehicles	Reduction in traffic congestion	Not yet commenced	
2	Assessment of impact of the proposed TPUP Scheme along A628 and A57	Traffic Management	UTC, Congestion management, traffic reduction	2017	2022	National Highways (North – West)	National Highways (North – East)	No	Funded			TBC	TBC	Completed in 2021	A final decision on the scheme is due to be announced in December 2022 and will be reported in next year's ASR.
3	Junction Capacity and route assessment review along A57	Traffic Management	UTC, Congestion management, traffic reduction	2020	Not yet commenced	Derbyshire County Council (DCC)/ HPBC	DCC/ HPBC	No	Funded			Reduced Vehicle emissions	Reduction in traffic congestion	Glossop Gateway Masterplan and local impact report currently being drafted	Local Impact Report (LIR) delayed due to delay in submission Development Consent Order (DCO) application for the Trans-Pennine Upgrade Programme (the TPUP Scheme).
4	Installation of public rapid EV Charging points across Brough	Promoting Low Emission Transport	Promote Low Emission Vehicles	2018/ 2019	Ongoing	HPBC / DCC/Nottinghamshire County Council (NCC)	HPBC / DCC/NCC	No	Funded			Reduced Vehicle emissions	increased installation of EV charging points	Phase 1 complete	https://www.transport nottingham.com/driving/ultra-low-emission-vehicles/
5	Installation of off-street EV Charging points across borough	Promoting Low Emission Transport	Promote Low Emission Vehicles	2020	Ongoing	HPBC / DCC/NCC	HPBC / DCC/NCC	No	Funded			Reduced Vehicle emissions	increased installation of EV charging points	Phase 2 Complete	https://www.transport nottingham.com/driving/ultra-low- emission-vehicles/
6	Develop Electric Vehicle Charging Strategy	Promoting Low Emission Transport	Developing infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2019	Ongoing	HPBC / DCC/	HPBC / DCC/	No	Funded			Reduced Vehicle emissions	Unknown	Near	https://www.transportnottingham.com/driving/electric-vehicle-projects/
7	Incentivize parking for low emission vehicles	Promoting Low Emission Transport	Emission based parking or permit charges	2021	2021 /2022	HPBC/DCC	None	No	Not funded			Reduced emissions from vehicles	TBC	Parking review being undertaken for the district	
8	Continue to promote and increase the installation of EV charging points through development control processes	Promoting Low Emission Transport	Procuring alternative Refueling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2015	Operational	HPBC	None	No	Not funded			Reduced emissions from vehicles	Increased installation of EV charging points	EV charging points are conditioned through the planning process, this is to be strengthened by the implementation of Air Quality supplementary planning document	
9	Work to improve the cycling network around A57 into Glossop	Promoting low emission transport	Cycle scheme and network	2020	Not yet commenced	HPBC/DCC	TBC HPBC/DCC/ Grant/ National Highways designated funds	Yes	Funded			Reduced emissions from vehicles	Additional cycling schemes	Glossop Gateway Masterplan and local impact report currently being drafted	Local Impact Report (LIR) delayed due to delay in submission Development Consent Order (DCO) application for the Trans-Pennine Upgrade Programme (the TPUP Scheme).
10	Construction of a railway station and the return of public trains to Gamesley Station	Alternatives to private vehicle use	Rail based park & ride	2011	Ongoing	Transport for Greater Manchester / DCC/ HPBC	Network Rail	No	Funded			Reduced emissions from vehicles	Rail facilities improved	Construction of a new railway station with publicly accessible trains available	Proposals is currently being considered by parliament
11	Review west bound bus stop by Dinting Vale Primary School	Traffic Management	Other	2021	2021	DCC	DCC / National Highways designated funds	No	Funded	~£10,000		It is difficult to quantify reduction as a result of this measure but implementing this measure will result in reducing	Bus stop reviewed	Not yet commenced Discussions have taken place	A cost of around £10K has been established for this proposal

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
												traffic queues and as such reduce emissions			
12	Review of Bus Vehicle Fleet Efficiency	Promoting Low Emission Transport	Promote Low Emission Vehicles	2020	Not yet commenced	HPPC / DCC /Energy Saving Trust /	DCC/ Greater Manchester	No	Funded			Reduced emissions from vehicles	Review of emission limits of buses serving Dinting Vale Primary school	Discussions have taken place with DCC regarding available funding	The introduction of the GM CAZ means funding is available for bus routes serving GM for emissions improvements
13	Investigate the feasibility of implementing a CAZ in Glossop	Traffic Management	Other	2011	Consider at a future date	HPBC/DCC	HPBC/ Defra Grant	Yes	Funded			N/A as this measure will not be pursued at this time	Feasibility of CAZ/LES investigated and implemented if possible	No current suitable route however working with Greater Manchester with their proposed CAZ and as such this may be looked at further	
14	Increased Focus on AQ in School Travel Plans	Promoting Travel Alternatives	School Travel Plans	2018/ 2019	ongoing	HPBC/ DCC Staffordshire Moorlands District Council (SMDC)/Staffordshire County Council (SCC)	DCC/HPBC	No	Funded			Reduced emissions from vehicles	No of Schools Travel Plans approved & adopted	Travel plans ongoing, additional AQ focus not yet introduced	https://www.derbyshire.gov.uk/transport-roads/transport-plans/sustainable-travel/school-travel-plans/school-travel-plans.aspx
15	School based educational activities	Promoting Travel Alternatives / Public Information	Other	2018/ 2019	Not yet commenced	HPBC/ DCC SMDC/ SCC	DCC/HPBC	No	TBC			Through public awareness	No of schools engaged	Not yet commenced	https://www.staffordshire.gov.uk/DoingOurBit/Get-Inspired/Clean-green-and-safe/Air-aware/Air-aware.aspx
16	Anti-idling initiatives in educational settings	Traffic Management	Anti-idling enforcement	2018/ 2019	Not yet commenced	HPBC/ DCC SMDC/ SCC	DCC/HPBC	No	TBC			Reduced emissions from vehicles	No of schools engaged	Not yet commenced	https://www.staffordshire.gov.uk/DoingOurBit/Get-Inspired/Clean-green-and-safe/Air-aware/Air-aware.aspx
17	Business/ Workplace Travel; Planning	Promoting Travel Alternatives	Workplace Travel Planning	2018/ 2019	Operational	DCC/ HPBC	HPBC/DCC	No	TBC			Reduced emissions from vehicles	No of Business Travel Plans approved & adopted	Quantitative appraisal is on-going	https://www.derbyshire.gov.uk/transport-roads/transport-plans/sustainable-travel/sustainable-travel-and-smarter-choices.aspx
18	Business /Workplace promotion on of Low emission vehicles	Vehicle Fleet Efficiency	Fleet efficiency and recognition schemes	2020	Operational	HPBC/ Energy Saving Trust	HPBC	TBC	TBC			Reduced emissions from vehicles	No of Business engaged with Energy Saving Trust	Quantitative appraisal is on-going	To make business aware of the grants available from to reduce emissions from fleet and impacts of GMCAZ
19	Communication initiatives, e.g. website information updates	Public Information	Other	2017/18	Operational	HPBC/ SMDC	HPBC	TBC	TBC			Through public awareness	New website	Implementation is on- going	https://www.staffordshire.gov.uk/DoingOurBit/Get-Inspired/Clean-green-and-safe/Air-aware/Air-aware.aspx
20	Encourage taxis licensed by the Council to comply with vehicle emission limits	Promoting Low Emission Transport	Other	Not yet commenced	Not yet commenced	HPBC	HPBC	TBC	TBC			Reduced emissions from vehicles	Number of LEV Taxis in the fleet. All licensed taxis should meet minimum emission standard	This has been on hold whilst we awaited the outcome of National Guidance. Consultation with taxi drivers planned for 2021	
21	Support the procurement of greener fleet	Vehicle Fleet Efficiency	Fleet efficiency and recognition schemes	2019	Not known	HPBC/ Energy Saving Trust	HPBC/ Energy Saving Trust	No	TBC			Reduced emissions from vehicles and buildings	Number of LEV in the fleet	Ongoing	Energy Saving Trust have completed the assessment of our fleet and made recommendations to consider in fleet management and suitable replacements when appropriate
22	Review HPBC Core Strategy PolicyEQ10 Review	Policy Guidance and Development Control	Other policy	2020	EQ10 Operational Review Ongoing	HPBC	HPBC	TBC	TBC			Reduced vehicle and building emissions	New Policy Adopted	Implementation ongoing	
23	Review of HPC strategies / Policies	Policy Guidance and Development Control	Other policy	2020	Review of procurement Strategies has begone	HPBC	HPBC	TBC	TBC			Reduced vehicle and building emissions	New Policy Adopted	Implementation ongoing	
24	Encourage / facilitate home-working	Promoting Travel Alternatives	Workplace Travel Planning	2015	Ongoing	DCC/HPBC	DCC/HPBC	TBC	TBC			Reduced vehicle emissions	No of home workers	Ongoing	https://www.derbyshire.gov.uk/transport-roads/transport-plans/sustainable-travel/travel-smart/travel-smart.aspx

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25	Promotion of cycling	Promoting Travel Alternatives	Workplace Travel Planning	2015	Ongoing	DCC/HPBC	DCC	TBC	TBC			Reduced vehicle emissions	N/A	Ongoing	https://www.derbyshire.gov.uk/leisure/countryside/access/cycling/cycling.aspx
26	Promotion of walking	Promoting Travel Alternatives	Workplace Travel Planning	2015	Ongoing	DCC/HPBC	DCC	TBC	TBC			Reduced vehicle emissions	N/A	Ongoing	https://www.derbyshire.gov.uk/leisure/countryside/access/walking/walking-for-everyone.aspx
27	Car Share Derbyshire	Promoting Travel Alternatives	Workplace Travel Planning	2015	Ongoing	DCC/HPBC	DCC	TBC	TBC			Reduced vehicle emissions	No of users	Ongoing	https://liftshare.com/uk/community/derbyshire
28	Promote use of rail – Community rail partnerships	Promoting Travel Alternatives	Workplace Travel Planning	2015	Ongoing	DCC/HPBC	DCC	TBC	TBC			Reduced vehicle emissions	N/A	Ongoing	https://www.derbyshire.gov.uk/transport-roads/public-transport/community-rail-partnerships/community-rail-partnerships.aspx
29	Public cycle hire schemes	Promoting Travel Alternatives	Workplace Travel Planning	2015	Ongoing	DCC/HPBC	DCC	TBC	TBC			Reduced vehicle emissions	No of users	Ongoing	https://www.derbyshire.gov.uk/leisure/countryside/access/cycling/cycle-hire/cycle-hire.aspx
30	Improving Cycle network - general	Promoting Travel Alternatives	Workplace Travel Planning	2015	Ongoing	DCC/HPBC	DCC/ National Highways	TBC	TBC			Reduced vehicle emissions	Implementation of cycle network improvements	Ongoing	https://www.derbyshire.gov.uk/leisure/countryside/access/cycling/cycling.aspx
31	East Midlands Air Quality Network Guidance for Developers	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2018	N/A	PHE /East Midlands Councils	HPBC/ PHE /East Midlands Councils	TBC	TBC			Reduction in a range of pollutants	N/A	Establishes a range of measures expected by developers Reduction in a range of pollutants from development	To be adapted locally taken to the Planning and Health Group on completion for discussion and local adoption and implementation
32	Derbyshire Air Quality Working Group	Policy Guidance and Development Control	Derbyshire Groups Co-coordinating Area wide Strategies to reduce emissions and improve air quality	2016 onwards	Ongoing	Derby City Council/ DCC/ District Councils	HPBC Derby City Council/ DCC/ District Councils	TBC	TBC			Reduction in a range of pollutants	n/a	Work Plans / Action Plans Developed	Annual report from group taken to Health and Wellbeing Board. Annual work plan created and a ten year Derbyshire Air Quality Strategy in production
33	Raise awareness of impacts of coal and wood burning	Public Information	Regional Groups Co-ordinating programmes to develop Area-wide Strategies to reduce emissions and improve air quality	2010 onwards	Ongoing	HPBC/ Derby City Council/ DCC/ District Councils	HPBC	TBC	TBC			Reduction in a range of pollutants	N/A	Ongoing	DEFRA Leaflet now on Council websites (City and County). In addition, DCC Healthy Homes Programme continues to offer grant funding to convert coal fires to gas central heating systems.
34	Inspect under the Environmental Permit regime and enforce legislation to reduce combustion processes	Environmental Permits	Introduction/ increase of environment charges through permit systems and economic instruments	Ongoing	Continual	HPBC	HPBC/ Fees charged to Business	TBC	TBC			By restricting emissions from industrial processes	Installations adhering to permits and enforcement/penalties for breaches	Ongoing	This is standard HPBC work in Environmental Protection
35	Air quality monitoring	Public Information	Other	Ongoing	Ongoing	HPBC	HPBC	TBC	TBC			N/A	Number of monitoring locations and On-time submittal of ASRs	Ongoing annually	Possibly liaise with Defra regarding need for additional monitoring and/or AURN funding. Consider continuous monitoring and AQ grant application
36	Derbyshire County Councils Bus Service Improvement Plan	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2021	2029	HPBC/DCC	HPBC/DCC	TBC	TBC			Reduced emissions from vehicles	Percentage of buses at Euro 6 or higher	Ongoing	Derbyshire County Councils Bus Service Improvement Plan has a target for increasing the percentage of buses at Euro 6 or higher to 95% by 2029/30 amongst https://derbysbus.info/Derbyshire%20BSIP%20–%20Final%2029-10-21.pdf
37	New local transport plan	Policy Guidance and Development Control	Other policy	2021	2022	DCC	DCC	TBC	TBC			Reduced emissions from vehicles	N/A	Ongoing	To Facilitate Travel Behaviour Change, The Transport Strategy Team at DCC are developing a new local transport plan, which will impact on air quality, with a consultation in Spring/ Summer of 2022 and publishing the final plan at the end of the year.

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
38	Greater Manchester Clean Air Zone	Promoting Low Emission Transport	Low Emission Zone (LEZ)	2021	2026	GM	GM	TBC	TBC			Reduced NO_2 emission	Compliance with legal NO_2 limits	Ongoing	During 2021, work started on implementing the scheme, which was due to go live in May 2022 and Clean Air Zone signs were placed along all the main routes (A57, A628 and A6) into Greater Manchester from HPBC.
39	Electric vehicles trial and HVO (hydrotreated veg oil) trail	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2021	2021	HPBC/SMDC	HPBC/SMDC	No	TBC			Reduced emissions from vehicles	N/A	Completed	During 2021 Environmental Services (Waste Collection) trialled a number of electric vehicles, unfortunately all were unsuccessful in having sufficient battery power to complete normal days duties. A 3 month trial of the use of HVO (hydrotreated veg. oil) has been completed with positive results.
40	Cycle to work	Promoting Travel Alternatives	Promotion of cycling	2021	Ongoing	DCC/HPBC	DCC/HPBC	TBC	TBC			Reduced emissions from vehicles	No. of people attending the scheme	Ongoing	Cycle to work scheme relaunched, information available at: https://staff.derbyshire.gov.uk/pay-and-benefits/my-benefits-and-discounts/cycle-to-work-scheme/cycle-to-work-scheme.aspx
41	Climate Change Action Plan Launched	Policy Guidance and Development Control	Other policy	2021	2021	HPBC	HPBC	No	TBC			Reduced emissions from HPBC buildings , vehicles, operations and others	N/A	Completed	Climate Change Action Plan Launched, with a list of complimentary actions to tackle Air Quality issues https://www.highpeak.gov.uk/ClimateChange https://www.highpeak.gov.uk/media/6680/High-Peak-Climate-Change-Action-Plan/pdf/HP_Climate_change_plan.pdf?m=1626100708743 https://www.highpeak.gov.uk/media/7096/Climate-Change-Action-Plan-Part-2/pdf/HPBC_Draft_Climate_Change_Plan.pdf?m=1650632869773
42	Sustainable Travel Plan - Buxton on Move	Promoting Travel Alternatives	Personalised Travel Planning	2021	Ongoing	HPBC/Buxton Town Team	HPBC/Buxton Town Team	TBC	TBC			Reduced emissions from vehicles	N/A	Ongoing	HPBC will continue and improve engagement with local groups concern with travel around Buxton. Information available at: https://www.buxtontownteam.org/buxton-on-the-move https://www.buxtontownteam.org/_files/ugd/ec6295_375bd67f797247debf478f6094e50f80.pdf

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 7), local authorities are expected to work towards reducing emissions and/or concentrations of $PM_{2.5}$ (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that $PM_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Efforts within High Peak are being concentrated on monitoring NO_2 levels, with a particular focus on the established AQMAs. As primary emissions of both NO_2 and particulates predominately originate from the same source, measures implemented to reduce NO_2 levels within the borough will also reduce levels of PM_{10} and $PM_{2.5}$.

The current Defra 2021 background maps for HPBC (2018 based[8]) show that the highest concentration across the borough is predicted to be 7.1 µg/m^3 within the 1 x 1 km grid square with the centroid grid reference of 406500 381500, an area of north east Chapel-en-le-Frith, encompassing a section of the A6 Chapel Bypass.

The Public Health Outcomes Framework data tool[9] compiled by Public Health England quantifies the mortality burden of $PM_{2.5}$ within England on a county and local authority scale. The 2020 fraction of mortality attributable to $PM_{2.5}$ pollution across England is 5.6%, and the fraction within HPBC is below the national average at 4.5%, as well as the East Midlands regional average of 5.2%.

LAQM.TG(16) Table A.1 Action toolbox presents a list of measures that can be implemented to help reduce concentrations of $PM_{2.5}$. Where required HPBC will review any proposed actions to be implemented with the County Council Public Health team to consider the potential impact of the actions and whether any further action is required.

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

[9] Public Health Outcomes Framework, Public Health England. data tool available online at https://fingertips.phe.org.uk/search/air%20quality#page/1/gid/1/pat/6/ati/202/are/E10000007/iid/30101/age/230/sex/4/cid/4/tbm/1/page-options/ovw-do-0

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

This section sets out the monitoring undertaken within 2021 by HPBC and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2017 and 2021 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

HPBC has no automatic (continuous) monitoring sites within the borough. However, there is an Automatic Urban and Rural Network (AURN) national monitoring site located at Ladybower Reservoir that is within High Peak. The results of this station have been included for completeness within this ASR and raw data is available on the UK Air website. Table A.1 in Appendix A shows the details of the automatic monitoring sites.

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

HPBC undertook non- automatic (i.e. passive) monitoring of NO_2 at 53 sites during 2021. Table A.2 in Appendix A presents the details of the non-automatic sites.

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

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, annualisation (where the annual mean data capture is below 75% and greater

than 25%), and distance correction. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

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

For diffusion tubes, the full 2021 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.

Table A.5 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year. The annual mean NO_2 concentration was not greater than 60 µg/m^3 at any diffusion tube monitoring site during 2021. Therefore, exceedance of the 1-hour mean objective at any monitoring location within High Peak is considered to be unlikely.

Two diffusion tube monitoring locations within HPBC recorded data capture less than 75% during 2021, the results of the two locations have been annualised and the details are provided in Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC.

The NO_2 results for 2021 have been bias adjusted using a national bias adjustment factor of 0.85. Full details of the bias adjustment and QA/QC monitoring procedures are provided in Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC.

The analysis of the 2021 monitoring data is completed below in relation to the designated AQMAs within HPBC.

The concentrations recorded at all sites (8 sites) within the AQMAs increased in 2021 and were all below the annual mean objective of 40 µg/m^3. The concentration at most of other sites outside AQMAs (43 out of 45 sites) also increased in 2021 with only one site (HP42) recorded an annual concentration over 40 µg/m^3. This is likely due to the recovery of traffic

activities from impacts of the Covid-19 pandemic and thus increasing traffic emissions during 2021

HPBC AQMA No.1 – Tintwistle

Monitored concentrations are presented in Table A.4 and Figure A.1. The concentrations in Figure A.1**Error! Reference source not found.** are compared against the annual mean o bjective value for NO_2.

There are three diffusion tube locations within the Tintwistle AQMA. During 2021, site 6 (26.5 µg/m^3) recorded the lowest concentration of any of the Tintwistle AQMA monitoring sites, whilst the highest concentration within the AQMA was recorded at site 5 (32.9 µg/m^3). A general trend of reduction is observed over the past five years with the exception of the 2020 which was under the impact of Covid-19 pandemic which resulted in a greater than expected reduction in concentrations.

Although there have been three years with no monitored exceedance within this AQMA, the concentrations in 2020 and 2021 were still under the impact of the Covid-19 pandemic. Considering concentrations at sites 5 and 8 have been in exceedance, or within 10% of the annual mean objective of 40 µg/m^3 in the years prior to 2020 (pre-Covid period), the AQMA is to remain in force.

HPBC AQMA No. 2 – Dinting Vale

Monitored concentrations are presented in Table A.4 and Figure A.2. The concentrations in the Figure A.2 are compared against the annual mean objective value for NO_2.

There are five diffusion tube locations within the Dinting Vale AQMA. During 2021, site 52 (26.0 µg/m^3) recorded the lowest concentration among the five Dinting Vale AQMA monitoring sites, whilst the highest concentration within the AQMA was recorded at site 25 (36.6 µg/m^3).

Whilst a general trend of reduction is observed over the past five years of data at site 21 and available four years of data at site 25 (with exception of the 2020 which was under the impact of Covid-19 pandemic), both sites have been in exceedance, or within 10% of the annual mean objective of 40 µg/m^3 in the years prior to 2020 (pre-Covid period). Therefore, the Dinting Vale AQMA is to remain in force.

Diffusion Tubes Outside of Existing AQMAs

Monitored concentrations are presented in Table A.4, Figure A.3 and Figure A.4. The concentrations in Figure A. 3 and Figure A.4 are compared against the annual mean objective value for NO_2.

There are 45 diffusion tube monitoring sites located outside of the existing AQMAs, 13 of which have been monitoring for at least five years. During 2021, site 13 recorded the lowest concentration (11.3 µg/m^3) of any of the monitoring sites located outside of the AQMAs, whilst the highest concentration outside of the AQMAs was recorded at site 42 (43.7 µg/m^3).

Outside of the existing AQMAs, an exceedance of the annual average limit for NO_2 was recorded at one site 42 (43.7 µg/m^3) and two sites (site 33 and site 44) recorded concentration within 10% of the annual mean objective of 40 µg/m^3 (39.1 µg/m^3 and 36.6 µg/m^3 respectively). Though it should be noted that, once distance correction had been applied to determine the concentration at the closest receptor, the site 42 monitoring fell below 40 µg/m^3 but still within 10% of the annual mean objective; and site 44 fell below 10% of the annual mean objective after distance correction. All three sites are located along the A6 Fairfield Road in Buxton.

3.2.2 Sulphur Dioxide (SO_2)

Table A.6 in Appendix A compares the ratified continuous monitored SO_2 concentrations for 2021 with the air quality objectives for SO_2. At the Ladybower AURN site, there were no recorded exceedances of any of the objectives for SO_2.

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)
UKA00171	Ladybower AURN	Rural	416585	389645	NO_2, O_3, SO_2	No	Chemiluminescent	N/A	N/A	4

Notes:

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

(2) N/A if not applicable

Table A.2 – 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)
HP1	Rear of Howard Town House, Glossop	Roadside	403645	394051	NO_2	No	0.2	5.5	No	2.7
HP3	95 Woodhead Road, Tintwistle	Roadside	402892	397536	NO_2	No	0.1	4.5	No	2.1
HP4	60 Woodhead Road, Tintwistle	Roadside	402828	397493	NO_2	No	0.1	2.0	No	2.0
HP5	81 Woodhead Road, Tintwistle	Roadside	402695	397442	NO_2	AQMA 1 - Tintwistle	0.2	4.8	No	2.0
HP6	75 Woodhead Road, Tintwistle	Roadside	402550	397360	NO_2	AQMA 1 - Tintwistle	0.1	4.1	No	2.5
HP8	34 Church Street, Tintwistle	Roadside	402243	397265	NO_2	AQMA 1 - Tintwistle	0.2	2.1	No	2.4
HP9	8 The Stocks, Tintwistle	Roadside	402193	397274	NO_2	No	0.2	9.1	No	2.0
HP10	Furness Vale School	Roadside	400843	383475	NO_2	No	0.2	4.1	No	2.3
HP11	Dove Holes School	Roadside	407667	378235	NO_2	No	0.2	3.6	No	2.8
HP13	8 Granby Rd, Buxton	Roadside	406582	373422	NO_2	No	0.2	11.2	No	2.0
HP14	Brookfield, Hadfield	Roadside	401111	395391	NO_2	No	6.1	1.5	No	2.5
HP16	10 Woolley Bridge Hadfield HP12B	Roadside	401221	395992	NO_2	No	1.5	1.4	No	2.8
HP17	Newtown traffic lights (A6) New Mills	Roadside	399411	384561	NO_2	No	4.1	1.1	No	2.7
HP18	Barmoor Clough, Dove Holes	Roadside	407476	379542	NO_2	No	103.0	2.6	No	2.5
HP20	Manchester Rd / New Rd junction, Tintwistle	Kerbside	401962	397279	NO_2	No	0.9	0.9	No	2.6
HP21a, HP21b	Dinting School (A57)	Roadside	402073	394337	NO_2	AQMA 2 - Dinting Vale	0.2	1.6	No	2.5

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)
HP22a, HP22b	236 High Street West, Glossop (A57)	Roadside	402430	394221	NO_2	No	0.2	3.1	No	2.6
HP24	64 High Street East, Glossop (A57)	Roadside	403794	394089	NO_2	No	2.3	1.4	No	2.4
HP25a, HP25b	A57 / Dinting Vale / Glossop Road (West Bound)	Roadside	401797	394509	NO_2	AQMA 2 - Dinting Vale	2.7	0.6	No	2.5
HP26a, HP26b	Lamppost near 70-72 Woolley Bridge (East Bound)	Roadside	401024	395675	NO_2	No	0.3	2.3	No	2.5
HP27a	North of 41 Wooley Bridge Road – Tom Howley (North Bound)	Roadside	400960	395819	NO_2	No	9.5	2.9	No	2.6
HP28	Near 411 Hadfield Road (lamppost) (south Bound)	Roadside	401269	395969	NO_2	No	2.8	2.0	No	2.6
HP29	10 Manchester Rd (row of Houses) (West Bound)	Roadside	401224	396974	NO_2	No	0.2	2.4	No	2.4
HP30	25 Manchester Road (East Bound)	Roadside	401641	397241	NO_2	No	3.1	2.3	No	2.5
HP31	58 Manchester Road (West Bound)	Roadside	401875	397260	NO_2	No	0.4	1.5	No	2.6
HP32a, HP32b	37 Buxton Road, Bridgemont	Roadside	401200	382565	NO_2	No	2.1	1.4	No	2.5
HP33a, HP33b	135 Fairfield Road (lamp post)	Roadside	406600	373951	NO_2	No	0.2	2.9	No	2.5
HP34	25 Buxton Road, Dove Holes (A6) S-Bound	Roadside	407543	377757	NO_2	No	0.8	1.9	No	2.5
HP35	85 Hallsteads, Dove Holes (A6) N-Bound	Roadside	407678	378329	NO_2	No	0.4	2.8	No	2.5

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)
HP36	144 Buxton Road, Furness Vale (A6) N- bound	Roadside	400739	383533	NO_2	No	9.4	1.9	No	2.6
HP37	81 Buxton Road, Furness Vale (A6) S-bound	Roadside	400679	383627	NO_2	No	2.5	2.3	No	2.6
HP38	86 Buxton Road, New Town, (A6) N - Bound	Roadside	399681	384577	NO_2	No	2.3	1.6	No	2.6
HP39	79 Buxton Road, New Town, (A6) S - Bound	Roadside	399713	384580	NO_2	No	3.5	2.0	No	2.6
HP40	33 Buxton Road, New Mills, (A6) S - Bound	Roadside	399629	384618	NO_2	No	2.8	2.9	No	2.5
HP41a, HP41b	22 Fairfield SB	Roadside	406405	373760	NO_2	No	0.2	2.1	No	2.4
HP42a, HP42b	52 Fairfield NB	Roadside	406402	373898	NO_2	No	3.1	2.2	No	2.6
HP43	101 Fairfield (SB)	Roadside	406451	373920	NO_2	No	3.6	1.5	No	2.6
HP44	Bulls Head Fairfield NB	Roadside	406607	373973	NO_2	No	0.2	1.6	No	2.6
HP45	117 Buxton Road Whaley bridge NB	Roadside	401082	380736	NO_2	No	0.2	3.0	No	2.5
HP46	Whaley Bridge Primary School NB	Roadside	401107	381054	NO_2	No	7.8	2.6	No	2.6
HP47	Charlesworth ; G&D	Roadside	400526	392905	NO_2	No	0.7	0.2	No	2.6
HP48	Hadfield Park	Roadside	402442	395858	NO_2	No	2.4	1.9	No	2.3
HP49	Hadfield Hadfield Road	Roadside	401932	395946	NO_2	No	2.7	2.1	No	2.5
HP50	Buxton - London Road	Roadside	405959	372781	NO_2	No	0.4	2.5	No	2.6
HP51	LP near 21/25 Dinting Vale, A57	Roadside	402076	394319	NO_2	AQMA 2 - Dinting Vale	0.4	2.1	No	2.4

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
HP52	TP near 9 Dinting Vale, A57	Roadside	402127	394270	NO_2	AQMA 2 - Dinting Vale	2.4	2.2	No	2.2
HP53	LP near 6 Dinting Vale	Kerbside	402145	394271	NO_2	AQMA 2 - Dinting Vale	4.0	0.5	No	2.3
HP54	LP near 31 Church Road, New Mills	Roadside	400302	385253	NO_2	No	3.2	1.4	No	2.2
HP55	LP near 28 Church Road, New Mills	Roadside	400323	385276	NO_2	No	3.5	1.0	No	2.2
HP56	LP near 202/204 Albion Road, Newtown	Roadside	399440	384641	NO_2	No	3.0	2.1	No	2.3
HP57	TP near 26 Hernstone Lane, Peak Forest	Roadside	411647	379093	NO_2	No	4.0	1.5	No	2.2
HP58	LP near Peak Forest C of E Primary School	Roadside	411389	379251	NO_2	No	6.2	2.1	No	2.2
HP59	SP on A6013 near Sickleholme Garage	Kerbside	420767	382376	NO_2	No	21.5	0.3	No	2.2

Notes:

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

(2) N/A if not applicable.

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2021 (%) (2)	2017	2018	2019	2020	2021
UKA00171	416585	389645	Rural	98.6	98.6	6.4	5.7	6.1	4.6	4.7

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

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

Notes:

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

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

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

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

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

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

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

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2021 (%) (2)	2017	2018	2019	2020	2021
HP1	403645	394051	Roadside	100.0	100.0	22.5	22.9	19.6	15.1	16.3
HP3	402892	397536	Roadside	100.0	100.0	31.9	28.7	25.7	18.2	20.2
HP4	402828	397493	Roadside	100.0	100.0	34.1	27.7	32.6	28.1	23.0
HP5	402695	397442	Roadside	92.3	92.3	**50.9**	**47.0**	37.4	20.3	32.9
HP6	402550	397360	Roadside	100.0	100.0	33.0	32.8	30.0	19.7	26.5
HP8	402243	397265	Roadside	90.4	90.4	**46.4**	39.3	35.5	24.8	30.6
HP9	402193	397274	Roadside	92.3	92.3	25.6	22.7	21.0	14.7	15.9
HP10	400843	383475	Roadside	100.0	100.0	27.1	27.5	25.8	19.1	21.1
HP11	407667	378235	Roadside	90.4	90.4	19.9	21.6	20.5	15.5	15.9
HP13	406582	373422	Roadside	100.0	100.0	12.5	13.8	13.8	10.8	11.3
HP14	401111	395391	Roadside	100.0	100.0	25.8	24.1	23.0	18.3	18.7
HP16	401221	395992	Roadside	100.0	100.0	27.0	25.8	23.9	18.3	19.7
HP17	399411	384561	Roadside	100.0	100.0	32.8	32.6	31.4	23.2	26.2
HP18	407476	379542	Roadside	100.0	100.0	37.7	38.1	35.8	25.1	27.0
HP20	401962	397279	Kerbside	84.6	84.6	38.5	28.4	26.3	19.4	30.5
HP21a, HP21b	402073	394337	Roadside	100.0	100.0	**44.4**	**41.3**	38.9	29.3	32.4
HP22a, HP22b	402430	394221	Roadside	100.0	100.0	37.2	33.6	31.3	24.7	26.4
HP24	403794	394089	Roadside	100.0	100.0	-	29.8	29.4	22.9	23.6
HP25a, HP25b	401797	394509	Roadside	100.0	100.0	-	**53.6**	**46.3**	36.1	36.6
HP26a, HP26b	401024	395675	Roadside	100.0	100.0	-	34.5	30.8	23.3	26.7
HP27a	400960	395819	Roadside	100.0	100.0	-	32.7	33.8	24.4	27.0
HP28	401269	395969	Roadside	100.0	100.0	-	23.0	21.6	18.5	18.4
HP29	401224	396974	Roadside	100.0	100.0	-	30.7	27.3	18.8	21.3
HP30	401641	397241	Roadside	100.0	100.0	-	28.3	27.3	19.4	20.2
HP31	401875	397260	Roadside	92.3	92.3	-	37.8	35.9	24.9	27.6
HP32a, HP32b	401200	382565	Roadside	100.0	100.0	-	**40.3**	38.6	28.8	31.6
HP33a, HP33b	406600	373951	Roadside	100.0	100.0	-	**48.2**	**45.4**	33.8	39.1
HP34	407543	377757	Roadside	92.3	92.3	-	23.6	26.3	21.6	24.7
HP35	407678	378329	Roadside	100.0	100.0	-	29.0	29.2	22.5	25.9

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 2021 (%) [2]	2017	2018	2019	2020	2021
HP36	400739	383533	Roadside	92.3	92.3	-	32.3	30.8	23.6	27.1
HP37	400679	383627	Roadside	100.0	100.0	-	25.3	27.3	21.4	22.2
HP38	399681	384577	Roadside	100.0	100.0	-	27.4	33.3	23.2	24.6
HP39	399713	384580	Roadside	100.0	100.0	-	23.0	23.5	17.5	19.1
HP40	399629	384618	Roadside	100.0	100.0	-	26.3	27.9	19.0	20.9
HP41a, HP41b	406405	373760	Roadside	100.0	100.0	-	-	**44.4**	34.1	35.4
HP42a, HP42b	406402	373898	Roadside	92.3	92.3	-	-	**50.3**	36.5	**43.7**
HP43	406451	373920	Roadside	90.4	90.4	-	-	34.0	26.5	27.3
HP44	406607	373973	Roadside	100.0	100.0	-	-	36.2	30.6	36.6
HP45	401082	380736	Roadside	100.0	100.0	-	-	28.5	22.6	23.1
HP46	401107	381054	Roadside	100.0	100.0	-	-	20.8	14.7	15.6
HP47	400526	392905	Roadside	90.4	90.4	-	-	32.2	24.1	28.2
HP48	402442	395858	Roadside	100.0	100.0	-	-	-	22.5	22.9
HP49	401932	395946	Roadside	100.0	100.0	-	-	-	15.5	16.4
HP50	405959	372781	Roadside	100.0	100.0	-	-	-	21.3	23.7
HP51	402076	394319	Roadside	100.0	100.0	-	-	-	-	29.8
HP52	402127	394270	Roadside	82.7	82.7	-	-	-	-	26.0
HP53	402145	394271	Kerbside	100.0	100.0	-	-	-	-	33.2
HP54	400302	385253	Roadside	82.7	82.7	-	-	-	-	23.6
HP55	400323	385276	Roadside	67.3	67.3	-	-	-	-	21.7
HP56	399440	384641	Roadside	100.0	100.0	-	-	-	-	24.1
HP57	411647	379093	Roadside	100.0	100.0	-	-	-	-	18.3
HP58	411389	379251	Roadside	100.0	100.0	-	-	-	-	24.2
HP59	420767	382376	Kerbside	100	26.9	-	-	-	-	16.3

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

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

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

Notes:

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

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

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

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

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

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

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

Figure A.1 – Trends in Annual Mean NO_2 Concentrations Within Tintwistle AQMA

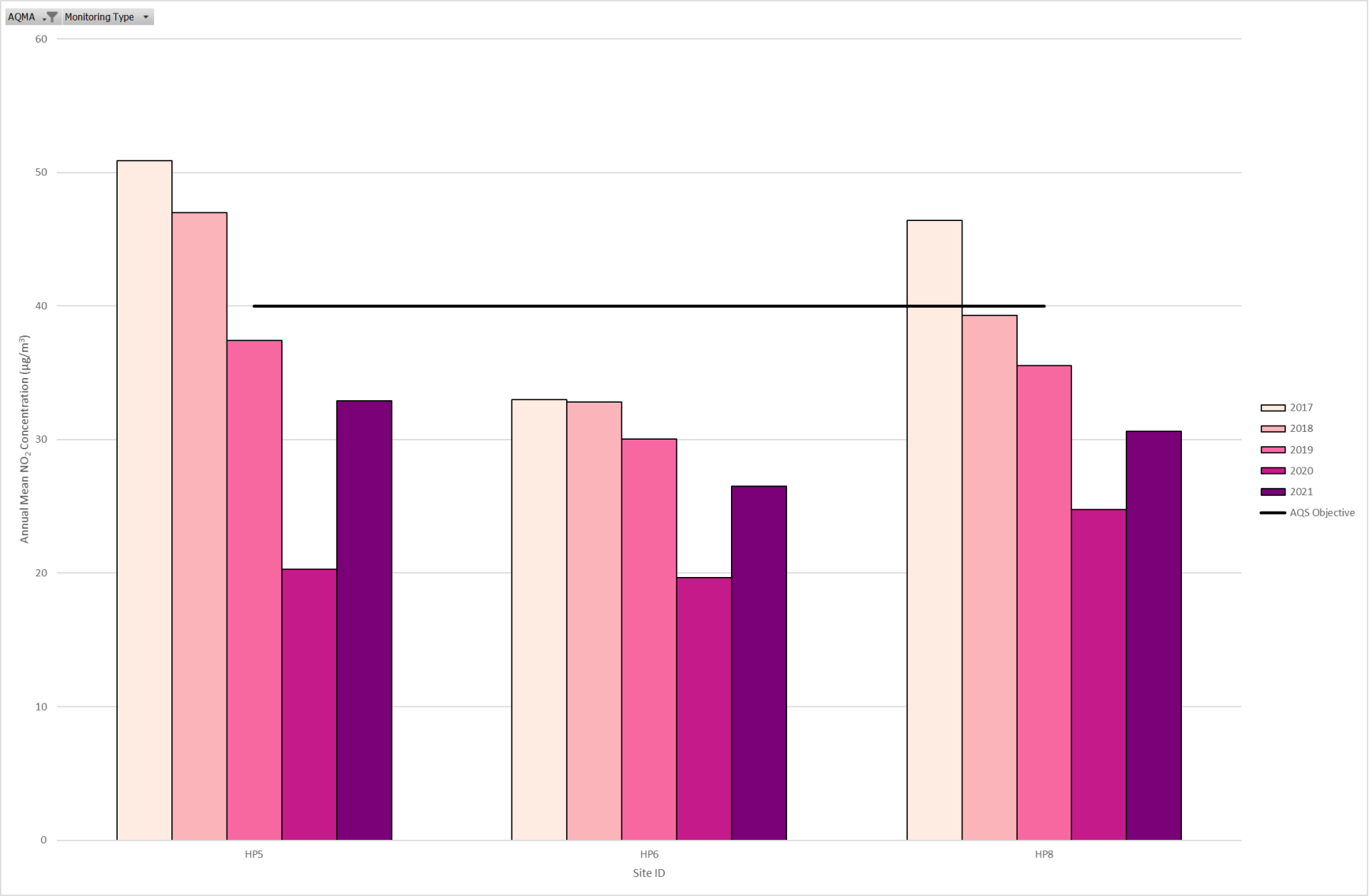


Figure A.2 – Trends in Annual Mean NO_2 Concentrations Within Dinting Vale AQMA

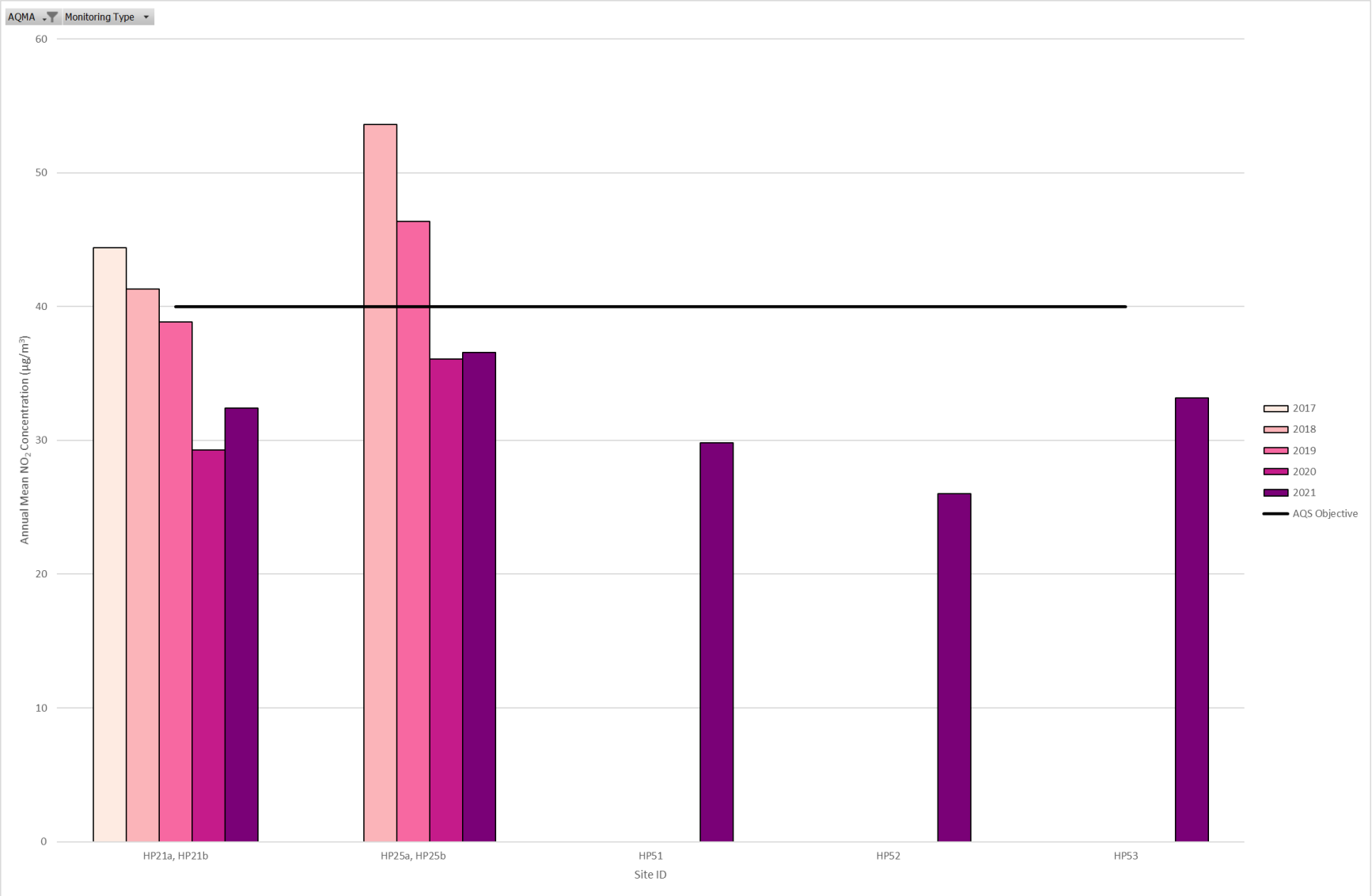


Figure A.3 – Trends in Annual Mean NO_2 Concentrations Outside AQMA: Within Area of Concern on A6

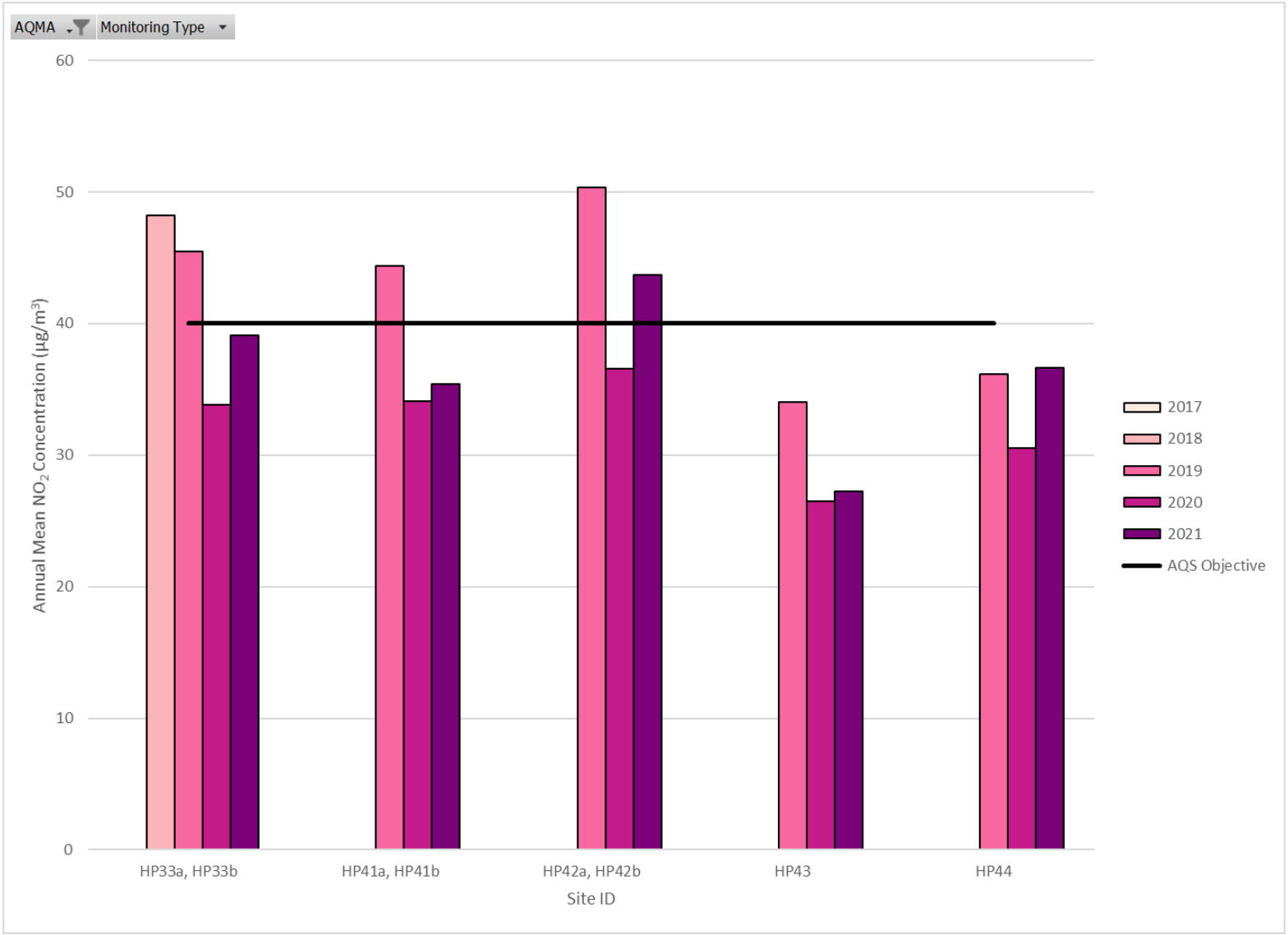


Figure A.4 – Trends in Annual Mean NO_2 Concentrations Outside of AQMAs – Part 1

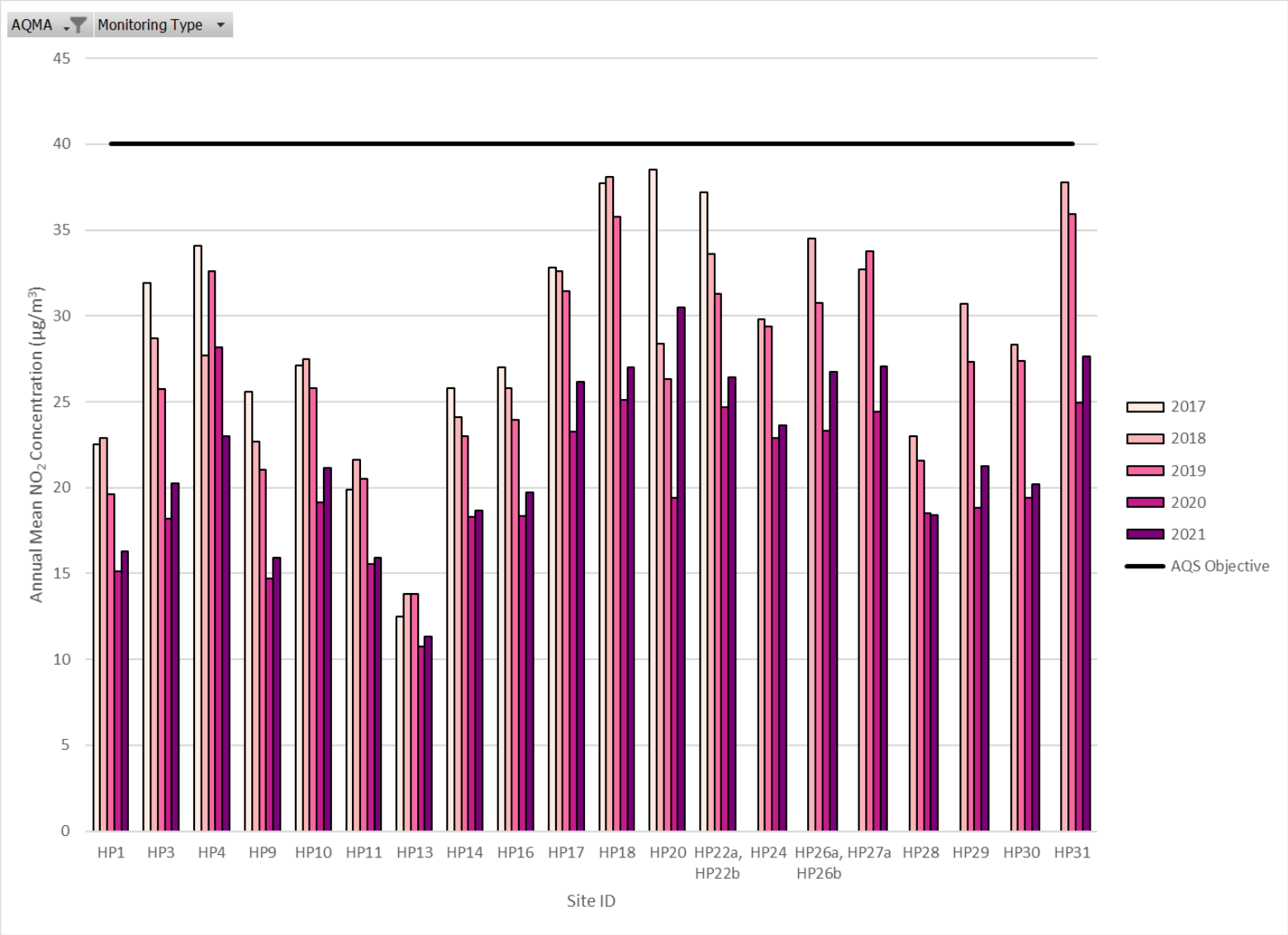


Figure A.5 – Trends in Annual Mean NO_2 Concentrations Outside of AQMAs – Part 2

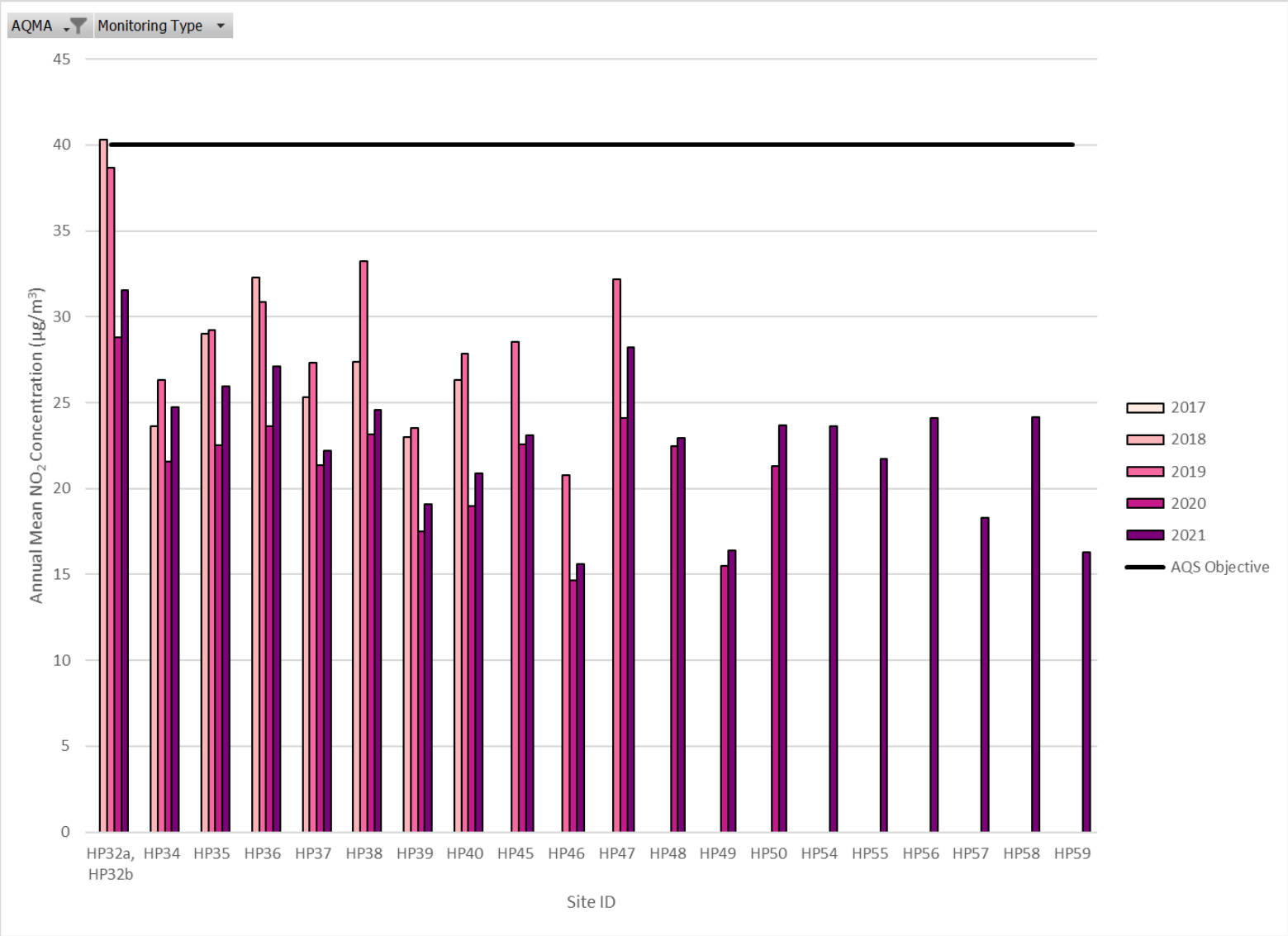


Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2017	2018	2019	2020	2021
UKA00171	416585	389645	Rural	98.6	98.6	0	0	0	0	0

Notes:

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

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

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

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

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

Table A.6 – SO_2 2021 Monitoring Results, Number of Relevant Instances

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2021 (%) (2)	Number of 15-minute Means > 266µg/m^3	Number of 1-hour Means > 350µg/m^3	Number of 24-hour Means > 125µg/m^3
UKA00171	416585	389645	Rural	78.5, 79.2, 79.2	78.5, 79.2, 79.2	0 (7.8)*	0 (4.2)*	0 (1)*

Notes:

Results are presented as the number of instances where monitored concentrations are greater than the objective concentration.

Exceedances of the SO_2 objectives are shown in **bold** (15-min mean = 35 allowed a year, 1-hour mean = 24 allowed a year, 24-hour mean = 3 allowed a year).

If the period of valid data is less than 85%, the relevant percentiles are provided in brackets.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year. Data captures of 15-minute data, 1-hour data and 24-hour data are provided respectively.

(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%).

* Due to the data capture is less than 85%, the relevant percentiles have been provided in brackets.

Appendix B: Full Monthly Diffusion Tube Results for 2021

Table B.1 – NO_2 2021 Diffusion Tube Results (µg/m^3)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.85)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
HP1	403645	394051	24.6	18.3	21.6	13.8	18.0	15.6	16.9	16.7	20.4	18.2	23.7	21.9	19.1	16.3	-	
HP3	402892	397536	30.4	23.7	25.8	17.6	22.8	21.1	22.1	23.5	25.8	23.2	26.8	22.7	23.8	20.2	-	
HP4	402828	397493	19.2	20.8	21.4	16.1	25.6	23.8	25.9	23.5	30.2	30.0	27.1	61.3	27.1	23.0	-	
HP5	402695	397442	I/S	30.6	34.3	27.8	39.6	38.4	36.6	38.3	45.4	47.2	45.1	42.3	38.7	32.9	-	
HP6	402550	397360	17.9	40.3	27.6	18.3	31.7	30.6	32.6	39.2	37.9	32.3	35.1	30.6	31.2	26.5	-	
HP8	402243	397265	29.8	29.2	32.6	22.6	32.0	28.0	I/S	30.8	76.4	37.0	43.3	34.6	36.0	30.6	-	
HP9	402193	397274	20.4	17.5	17.9	14.3	16.7	15.3	16.9	I/S	20.6	20.4	23.8	22.0	18.7	15.9	-	
HP10	400843	383475	27.6	21.4	25.9	23.1	24.0	22.6	26.0	21.9	28.1	24.2	31.7	21.9	24.9	21.1	-	
HP11	407667	378235	15.7	23.0	18.5	16.9	20.6	18.6	I/S	18.5	23.0	14.9	19.6	17.0	18.8	15.9	-	
HP13	406582	373422	19.6	17.4	13.3	12.8	11.4	10.0	10.0	9.8	13.1	10.0	15.8	16.8	13.3	11.3	-	
HP14	401111	395391	17.9	23.0	23.4	16.8	22.5	17.6	20.8	17.1	24.2	24.9	29.6	25.8	22.0	18.7	-	
HP16	401221	395992	27.1	26.4	24.0	17.1	22.0	18.8	19.9	19.2	27.4	21.7	28.7	26.2	23.2	19.7	-	
HP17	399411	384561	27.0	29.6	30.8	30.3	34.7	33.3	30.4	30.6	35.9	25.1	34.3	27.6	30.8	26.2	-	
HP18	407476	379542	22.8	30.4	28.1	23.4	31.1	35.6	37.2	40.1	41.0	22.6	38.9	29.9	31.8	27.0	-	
HP20	401962	397279	16.4	I/S	I/S	17.4	60.6	18.5	61.9	40.2	52.7	29.1	30.2	31.5	35.9	30.5	-	
HP21a	402073	394337	42.8	36.6	40.6	34.3	35.6	33.6	34.1	35.1	41.4	34.8	45.3	40.6	-	-	-	Duplicate Site with HP21a and HP21b - Annual data provided for HP21b only
HP21b	402073	394337		39.5	40.2	28.9	41.0	36.9	36.2	34.1	41.5	35.7	43.4	40.2	38.1	32.4	-	Duplicate Site with HP21a and HP21b - Annual data provided for HP21b only
HP22a	402430	394221	35.4	31.3	35.3	25.6	32.9	26.4	27.9	27.1	33.1	29.6	39.2	33.1	-	-	-	Duplicate Site with HP22a and HP22b - Annual data provided for HP22b only
HP22b	402430	394221	37.0	31.8	33.6	26.9	32.2	25.6	28.2	25.7	33.4	30.0	37.7	27.2	31.1	26.4	-	Duplicate Site with HP22a and HP22b - Annual data provided for HP22b only
HP24	403794	394089	21.5	28.5	27.9	22.6	31.1	26.1	27.2	25.4	34.6	22.4	34.3	32.0	27.8	23.6	-	
HP25a	401797	394509	44.2	43.1	40.9	34.3	52.0	37.7	41.1	42.3	47.4	43.5	45.5	43.2	-	-	-	Duplicate Site with HP25a and HP25b - Annual data provided for HP25b only
HP25b	401797	394509	37.0	43.7	48.6	34.4	50.9	42.7	44.1	40.1	46.8	45.3	40.4	43.9	43.0	36.6	28.0	Duplicate Site with HP25a and HP25b - Annual data provided for HP25b only
HP26a	401024	395675	I/S	33.3	31.1	29.4	35.3	30.0	31.1	27.5	34.6	23.1	33.5	32.9	-	-	-	Duplicate Site with HP26a and HP26b - Annual data provided for HP26b only
HP26b	401024	395675	33.9	32.0	28.7	27.3	35.3	29.4	33.8	28.5	36.2	28.1	I/S	32.4	31.5	26.7	-	Duplicate Site with HP26a and HP26b - Annual data provided for HP26b only
HP27a	400960	395819	31.4	35.5	34.7	23.4	34.7	28.2	30.1	29.5	34.8	34.5	35.7	29.2	31.8	27.0	-	
HP28	401269	395969	20.0	23.6	24.2	15.5	21.4	17.9	20.5	17.8	25.6	20.8	26.6	25.7	21.6	18.4	-	
HP29	401224	396974	21.2	26.9	24.4	17.0	26.3	24.0	23.0	25.4	30.9	26.6	26.9	27.7	25.0	21.3	-	
HP30	401641	397241	27.8	24.0	22.3	15.8	24.2	21.2	21.7	21.1	27.8	25.8	28.2	25.3	23.8	20.2	-	
HP31	401875	397260	I/S	31.2	29.5	21.1	34.7	29.4	33.6	32.2	38.5	33.5	38.2	35.7	32.5	27.6	-	
HP32a	401200	382565	33.3	32.9	38.5	38.0	38.8	38.6	39.7	38.2	43.9	39.7	36.4	33.0	-	-	-	Duplicate Site with HP32a and HP32b - Annual data provided for HP32b only
HP32b	401200	382565	38.6	33.2	38.0	32.7	37.7	37.4	38.1	37.7	44.1	32.5	35.7	34.6	37.1	31.6	-	Duplicate Site with HP32a and HP32b - Annual data provided for HP32b only
HP33a	406600	373951		38.2	38.6	34.1	49.4	45.9	46.8	43.6	65.5	46.3	40.7	50.6	-	-	-	Duplicate Site with HP33a and HP33b - Annual data provided for HP33b only
HP33b	406600	373951	50.0	42.4	36.7	38.4	49.2	43.2	44.4	55.8	57.0	54.0	40.1	42.3	46.0	39.1	38.6	Duplicate Site with HP33a and HP33b - Annual data provided for HP33b only
HP34	407543	377757	26.2	I/S	25.3	31.2	31.0	31.1	31.8	33.0	36.5	21.9	27.6	24.2	29.1	24.7	-	
HP35	407678	378329	28.1	36.6	28.8	27.7	35.2	28.2	34.2	28.5	36.8	26.5	29.9	25.6	30.5	25.9	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.85)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
HP36	400739	383533	37.4	30.4		25.2	33.6	30.7	32.2	32.9	38.2	31.2	32.2	27.1	31.9	27.1	-	
HP37	400679	383627	25.0	27.8	26.7	21.1	27.3	21.5	24.9	21.7	30.4	26.3	33.8	26.6	26.1	22.2	-	
HP38	399681	384577	23.0	26.6	30.8	23.9	32.0	25.7	29.7	26.4	34.5	27.0	36.9	30.3	28.9	24.6	-	
HP39	399713	384580	26.6	21.0	23.2	20.5	22.3	19.5	22.4	19.6	26.0	20.1	24.1	24.3	22.5	19.1	-	
HP40	399629	384618	28.4	23.0	25.2	21.7	22.6	22.6	21.5	22.2	29.9	21.5	29.9	26.3	24.6	20.9	-	
HP41 a	406405	373760	39.0	43.7	35.6	45.0	50.6	45.2	38.1	46.2	51.1	33.8	35.1	34.5	-	-	-	Duplicate Site with HP41a and HP41b - Annual data provided for HP41b only
HP41 b	406405	373760	34.4	42.1	33.8	44.3	50.2	45.3	39.5	46.9	53.8	37.3	35.2	39.2	41.7	35.4	-	Duplicate Site with HP41a and HP41b - Annual data provided for HP41b only
HP42 a	406402	373898		32.0	40.9	50.6	57.7	55.7	49.3	56.2	62.8	54.6	53.4	42.3	-	-	-	Duplicate Site with HP42a and HP42b - Annual data provided for HP42b only
HP42 b	406402	373898		42.1	52.3	46.2	58.3	56.2	51.2	54.9	61.9	55.7	50.1	45.8	51.4	**43.7**	36.5	Duplicate Site with HP42a and HP42b - Annual data provided for HP42b only
HP43	406451	373920	33.9	31.8	28.2	29.1	38.1	31.1	31.5	30.2	39.4	I/S	26.5	33.0	32.1	27.3	-	
HP44	406607	373973	35.7	33.9	34.7	37.9	39.9	38.9	40.2	63.8	45.7	33.6	35.3	77.8	43.1	36.6	35.9	
HP45	401082	380736	31.4	26.0	30.5	23.5	27.0	25.0	23.0	24.0	29.0	26.5	33.9	26.5	27.2	23.1	-	
HP46	401107	381054	13.9	20.8	17.0	17.6	18.1	15.5	16.9	18.4	19.9	18.6	22.5	21.4	18.4	15.6	-	
HP47	400526	392905	30.1	25.5	33.7	31.6	31.6	38.8	34.2	34.8	38.6	25.8	40.2	I/S	33.2	28.2	-	
HP48	402442	395858	31.6	25.4	28.2	23.2	31.9	29.1	27.8	28.0	37.4	24.3	20.3	16.6	27.0	22.9	-	
HP49	401932	395946	22.6	18.2	21.4	13.9	17.8	15.5	16.7	15.6	22.2	19.5	25.6	22.7	19.3	16.4	-	
HP50	405959	372781	30.1	26.7	23.0	28.6	31.7	29.5	30.2	27.0	32.6	19.2	26.7	29.0	27.9	23.7	-	
HP51	402076	394319	43.5	36.4	39.7	31.5	22.0	33.0	32.0	32.3	38.8	32.0	41.2	38.8	35.1	29.8	-	
HP52	402127	394270	26.7	32.4	37.3	26.1	34.2	24.9	I/S	I/S	27.5	30.8	33.7	32.2	30.6	26.0	-	
HP53	402145	394271	42.8	37.9	39.5	29.3	39.0	33.9	35.5	33.2	43.0	52.1	44.9	37.3	39.0	33.2	-	
HP54	400302	385253	31.2	29.8	31.1	23.2	28.2	23.3	24.1	25.6	35.2	26.0	I/S	I/S	27.8	23.6	-	
HP55	400323	385276	30.2	23.4	I/S	22.8	25.8	I/S	24.0	24.7	30.6	24.8	I/S	I/S	25.8	21.7	-	
HP56	399440	384641	28.4	30.0	28.0	22.3	30.5	28.1	22.3	27.1	34.3	27.7	32.5	29.4	28.4	24.1	-	
HP57	411647	379093	14.3	21.1	18.2	15.5	39.2	19.6	22.3	20.0	25.5	20.1	23.8	19.0	21.6	18.3	-	
HP58	411389	379251	20.0	23.1	25.6	21.9	29.6	26.6	27.9	34.2	34.1	45.6	27.3	25.4	28.4	24.2	-	
HP59	420767	382376	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20.8	22.1	22.3	21.7	16.3	-	

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

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

☐ **Local bias adjustment factor used.**

☒ **National bias adjustment factor used.**

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

☒ **HPBC confirm that all 2021 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

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

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

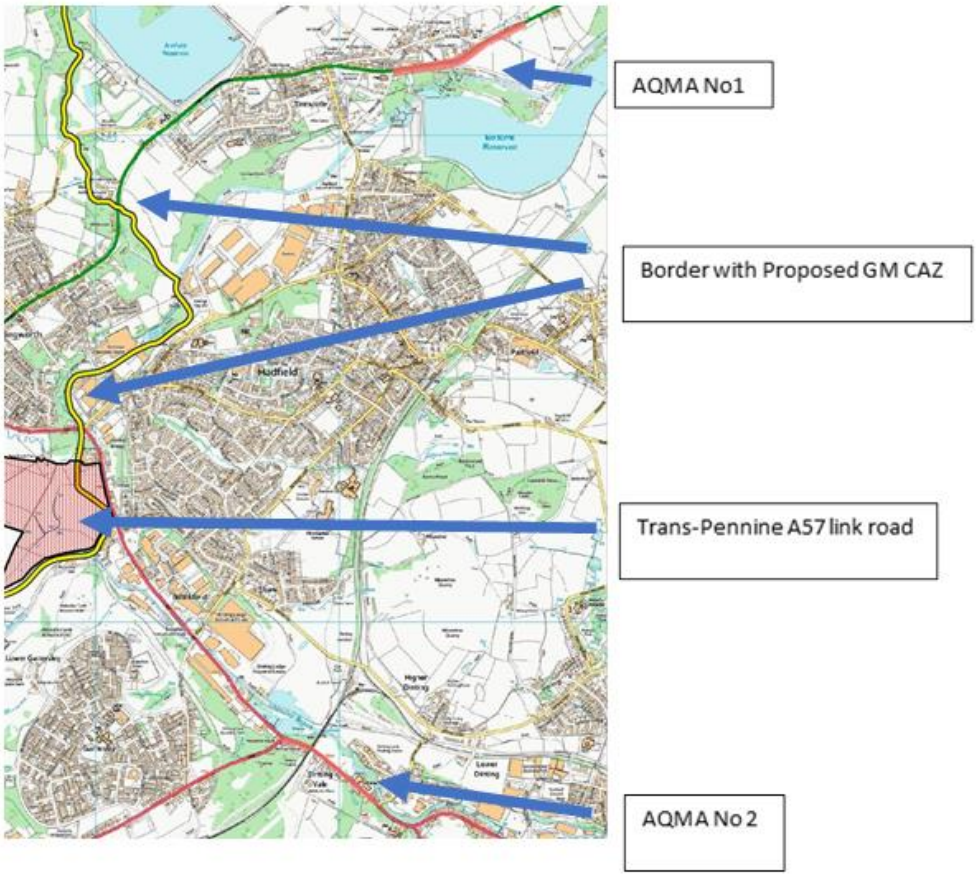
See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within High Peak Borough Council During 2021

HPBC has not identified any new sources relating to air quality within the reporting year of 2021. However, the proposed Greater Manchester Clean Air Zone and the Trans-Pennine Upgrade/A57 Link Road project are due to be implemented in 2022 and 2023, respectively. The location of these schemes in relation to the borough's declared AQMAs is shown below in Figure C.1:

Figure C.1 Locations of the Proposed Greater Manchester Clean Air Zone and the Trans-Pennine Upgrade/A57 Link Road



Trans-Pennine Upgrade/A57 Link Road project

A57 Link Roads (previously known as Trans Pennine Upgrade Programme), which includes the A5/A628 Mottram Bypass and the A57(T) to A57 Link Roads, progressed through 2021.

The A57 Link Road scheme, will provide a bypass of Mottram in Longdendale and new link road in an east to west direction from the A57(T) east of Mottram in Longdendale to Woolley Bridge, crossing the River Etherow on a newly constructed bridge. A new junction would be formed to the west of the existing A57 Woolley Bridge Road. This is shown as the hatched are in Figure x below,

Full details of the proposed A57 link road can be found here: https://highwaysengland.co.uk/our-work/north-west/a57-trans-pennine-upgrade/

Construction was initially due to commence around 2019/2020 but this was delayed, in part, due to concerns raised by HPBC and DCC at the consultation phase (pre-submission) about the wider impacts of the scheme on the local highway network, particularly the A57 through Glossop and the A628 through Tintwistle. Consequently, National Highways undertook further AQ modelling and monitoring throughout 2021 regarding these assessments.

The full documents were published in July 2021 and can be found here:

- Environmental Statement - Chapter 5 - Air Quality
- Appendix 5.5 Air Quality Model Results
- Figure 5.2i - Air Quality Model Sensitive Receptors
- Figure 5.4 - Air Quality EU Compliance Risk
- Figure 5.2ii - Air Quality Model Sensitive Receptors
- Appendix 5.2 - Air Quality Legislation and Policy
- Appendix 5.4 - Air Quality Baseline
- Appendix 8.4 - Assessment of Likely Significant Air Quality on Designated Habitats
- Appendix 5.3 - Further Details on Air Quality Modelling
- Figure 5.1 - Air Quality Constraints Map

Several queries were raised by HPBC, with regard to aspects of the submitted assessment. An overview of some of these queries can be found in the local impact report, jointly prepared and submitted by HPBC & DCC, to the planning inspectorate as part of the examination.

The examination formally began on November 17th and continued through to May 17th, 2022. Discussions with National Highways and the inspectorate continued throughout this period, copies of these discussions can these can be found here. The primary disagreement between the two bodies focused on the National Highways decision not to assess the schemes impacts on the HPBC's 2 AQMAs.

A final decision on the scheme is due to be announced in December 2022 and will be reported in next year's ASR.

Greater Manchester Clean Air

Glossop and Tintwistle share a large border with Tameside Metropolitan Borough Council (figure x), which is part of the Greater Manchester (GM). Authorities. GM authorities have received a direction from Government to introduce a Clean Air Plan to bring NO_2 levels within legal limits in "the shortest possible time". To achieve this, they are introducing a charging Clean Air Zone (CAZ) Category C, across the whole of the GM region.

A CAZ, Category C is a designated area that requires higher polluting commercial vehicles to pay a daily charge for each day on which they drive into, out of, within or through the CAZ. The charge will apply to the If the vehicle does not comply with the vehicle emission standards in Government's CAZ Framework[10].

During 2021, work started on implementing the scheme, which was due to go live in May 2022 and Clean Air Zone signs were placed along all the main routes (A57, A628 and A6) into Greater Manchester from HPBC.

However, in December 2021 GM Authorities wrote to central government noting that since the legal direction had been issued, the local area had had to deal with coronavirus pandemic, significant vehicle supply chain issues, particularly for vans, and the cost of living has increased. This means that the original Clean Air Plan was unworkable and would not meet the obligations in the direction to achieve compliance with the legal limit for harmful NO_2 air pollution by 2024 and could have caused significant financial hardship for people affected.

[10] A vehicle's Euro standard reflects the exhaust emissions that it produces further information is available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/863730/clean-air-zone-framework-feb2020.pdf

In February 2022 government agreed to lift the legal direction that GM should achieve compliance with legal NO_2 limits by 2024. It has issued a new direction for compliance in the shortest possible time and by 2026 at the latest. A new Greater Manchester Clean Air Plan will be submitted to government io July 2022. The impacts on the new proposals on HPBC will be reported in next year's ASR.

New planning development

Several new developments have been progressed in 2021. Table C.1 details a list of planning applications with its assessment reference and planning reference. If it is a major development, then HPBC are requesting that an Air Quality Assessment (AQA) or Low Emission Strategy.

Table C.1 Details of Planning Application in HPBC during 2021

Assessment date	Assessment reference	Site location	Area	Validation Date	Planning Reference	Planning Proposal	Comments
	N/A	Land at Waterswallows Road, Green Fairfield	Buxton/ Fairfield	23/07/2021	HPK/2021/0432	Variation of condition 2 in relation to HPK/2015/0617 [replacement of diesel generators with battery storage technology] - likely positive impact from noise and air quality	
	N/A	Land at Waterswallows Road, Green Fairfield	Buxton/ Fairfield	24/07/2021	HPK/2021/0433	Variation of condition 2 in relation to HPK/2014/0440 [replacement of diesel generators with battery storage technology] - likely positive impact from noise and air quality	
	AQ assesment Requested	, Land North Of , Dinting Road, , Glossop,	Glossop	19/05/2021	HPK/2021/0160	Reserved Matters Application for 100 dwellings following outline	Awaiting Decision

Assessment date	Assessment reference	Site location	Area	Validation Date	Planning Reference	Planning Proposal	Comments
						consent Ref: HPK/2017/0325	
01/03/2021	Air Quality Assessment Ashbourne Road, Buxton Reference: 4302r2	, Land At Foxlow Farm, Harpur Hill Road, Harpur Hill, Buxton,	Harpur Hill, Buxton	29/03/2021	HPK/2021/0145	Full planning application for the development of a Local Centre comprising a foodstore (Use Class E (a)), children's day nursery (Use Class E (f)) and flexible commercial/retail units (Use Class E and Sui Generis (hot food takeaway, veterinary surgery, public house/drinking establishment)) along with parking, access and other associated works	Awaiting S106 (Legal Obligation to be completed)
	Low emission strategy adopted / conditioned	, Ferney Bottom Farm, Grinlow Road, Harpur Hill, Buxton, SK17 9JH	Harpur Hill, Buxton	29/01/2021	HPK/2021/0020	New 3760sq.m portal framed building with ancillary office accommodation over two floors and service yard with operational	Planning Permission - Approved

Assessment date	Assessment reference	Site location	Area	Validation Date	Planning Reference	Planning Proposal	Comments
						and visitor parking including cycle and motor cycle parking.	
01/08/2020	AQ_assessment/2020/Britannia Mill	Britannia Mills Trading Estate, Buxworth, Derbyshire	Buxworth	06/04/2020	HPK/2020/0071	Outline Permission with all matters reserved for the demolition of existing buildings and removal/demolition of other infrastructure; and development of 110 dwellings with associated infrastructure; development of a multi-purpose community and tourist facility (for use by the community and in connection with the Bugsworth Canal Basin); the provision of car parking (44 spaces) for use in connection with the	

Assessment date	Assessment reference	Site location	Area	Validation Date	Planning Reference	Planning Proposal	Comments
						community/tourism facility, and for visitors to the Bugsworth Canal Basin; the provision of formal and informal recreation space; the provision of PROWs; and the erection of a bridge linking the site with the Bugsworth Canal Basin.	
26/11/2019	Air Quality Assessment Buxton Road, Furness Vale	Land Adjacent To The Haulage Yard, Buxton Road, Furness Vale, Derbyshire,	Furness Vale	01/07/2020	HPK/2020/0201	Residential development (Class C3) with associated access, parking and landscaping. The development comprises of 39 houses, mix of 2 and 3 bedroom that will offer the size and types of homes that respond to the housing needs of the area.	

Assessment date	Assessment reference	Site location	Area	Validation Date	Planning Reference	Planning Proposal	Comments
	CM1/0320/85	Hindlow Works, Buxton Road, Buxton, SK17 0EL	Buxton	15/05/2020	CM1/0320/85	The installation and operation of a CHP plant which would generate both electrical and thermal energy through the combustion of natural gas. - New application to reguralise non-conformaties in the implementation of previous permission CM1/1016/58 (from 2017).	

Additional Air Quality Works Undertaken by High Peak Borough Council During 2021

HPBC has not completed any additional works within the reporting year of 2021.

QA/QC of Diffusion Tube Monitoring

The diffusion tubes for the year 2021 were supplied and analysed by Staffordshire Scientific Services, the tubes were prepared using the 20% TEA in water preparation method. All results have been bias adjusted and annualised where required before being presented in Table A.4.

Staffordshire Scientific Services is a UKAS accredited laboratory and participates in the AIR-PT Scheme for NO_2 tube analysis and the Annual Field Inter-Comparison Exercise. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO_2 concentrations reported are of a high calibre. The latest available AIR-PT results are AIR-PT AR042 (January – February 2021), AIR-PT AR043 (May – June 2021), AIR-PT AR04 (July – August 2021) and AIR-PT AR046 (September – October 2021). Staffordshire Scientific Services scored 100% on all four PT rounds. The percentage score reflects the results deemed to be satisfactory based upon the z-score of $< \pm 2$.

The precision of the 14 current local authority co-location studies (out of 15 in total) in 2021 detailed within the national bias adjustment factor spreadsheet (version 06/21) was rated as ‘good’ (tubes are considered to have "good" precision where the coefficient of variation of duplicate or triplicate diffusion tubes for eight or more periods during the year is less than 20%).

Diffusion tube monitoring during 2021 was undertaken in line with the Diffusion Tube Monitoring Calendar and recommended exposure period (5 weeks (+/- 4 days)).

Diffusion Tube Annualisation

Annualisation was required for two non-automatic monitoring sites. The sites requiring annualisation, along with details of the calculation method undertaken, are provided in Table C.2. Annualisation is required for any site with data capture less than 75% but greater than 25%. According to TG22, 75% data capture is equivalent to 9 months of monitoring

assuming monitoring has been completed in line with the Defra monitoring calendar. In addition, any sites with a data capture below 25% do not require annualisation.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2021 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG16 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

HPBC do not have any co-location studies within the borough to derive a local bias factor. Therefore, HPBC have applied a national bias adjustment factor of 0.85 to the 2021 monitoring data. A summary of bias adjustment factors used by HPBC over the past five years is presented in

Table C.1.

Figure C.2 National Diffusion Tube Bias Adjustment Factor

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 06/22

Follow the steps below **in the correct order** to show the results of **relevant** co-location studies
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet
This spreadhseet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated at the end of September 2022

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[3] 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[2]	If you have your own co-location study then see footnote[4] If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953

Analysed By[1]	Method (To undo your selection, choose (All) from the pop-up list)	Year[5] (To undo your selection, choose (All))	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m^3)	Automatic Monitor Mean Conc. (Cm) (µg/m^3)	Bias (B)	Tube Precision[6]	Bias Adjustment Factor (A) (Cm/Dm)
Staffordshire Scientific Services	20% TEA in water	2021		**Overall Factor[3] (15 studies)**				Use		0.85

Table C.1 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2021	National	06/22	0.85
2020	National	09/21	0.85
2019	National	09/20	0.93
2018	National	06/19	0.89
2017	National	06/19	0.88

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 B.1.

In line with LAQM.TG(16), distance correction has been applied to NO_2 monitoring sites that have recorded an annual mean concentration above or within 10% of the annual mean objective. During 2021 there were four locations that recorded concentrations greater than 36 µg/m^3 that are not sited at locations of relevant exposure. These concentrations were distance-corrected using the Diffusion Tube Data Processing Tool (version 2.0)[11],as shown in Table C.3 below.

QA/QC of Automatic Monitoring

Ladybower automatic continuous monitoring station is audited and maintained by Bureau Veritas as part of the AURN, and therefore the QA/QC procedures are not reported within this ASR. Full datasets are available through the UK Air website.

[11] Diffusion Tube Data Processing Tool (v2.0) available https://laqm.defra.gov.uk/air-quality/air-quality-assessment/diffusion-tube-data-processing-tool/

Automatic Monitoring Annualisation

The Ladybower AURN station recorded data capture of greater than 75% during 2021 (98.6% and 78.5% for NO_2 and SO_2, respectively), therefore no annualisation was required.

NO_2 Fall-off with Distance from the Road

No automatic NO_2 monitoring locations within HPBC required distance correction during 2021.

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

Site ID	Annualisation Factor Ladybower	Annualisation Factor Chesterfield Loundsley	Annualisation Factor Manchester Piccadilly	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
HP55	0.9803		1.0007	0.9905	25.8	25.5	
HP59	0.9926	0.8629	0.7907	0.8821	21.7	19.2	

Table C.3 – 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	Comments
HP25a, HP25b	0.6	3.3	36.6	9.1	28.0	
HP33a, HP33b	2.9	3.1	39.1	9.5	38.6	*Predicted concentration at Receptor within 10% the AQS objective.*
HP42a, HP42b	2.2	5.3	43.7	9.5	36.5	*Predicted concentration at Receptor within 10% the AQS objective.*
HP44	1.6	1.8	36.6	9.5	35.9	

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

Figure D.1 – Map of Automatic Monitoring Location: Ladybower AURN

Figure D.2 – Map of Diffusion Tube Monitoring Locations around Tintwistle AQMA

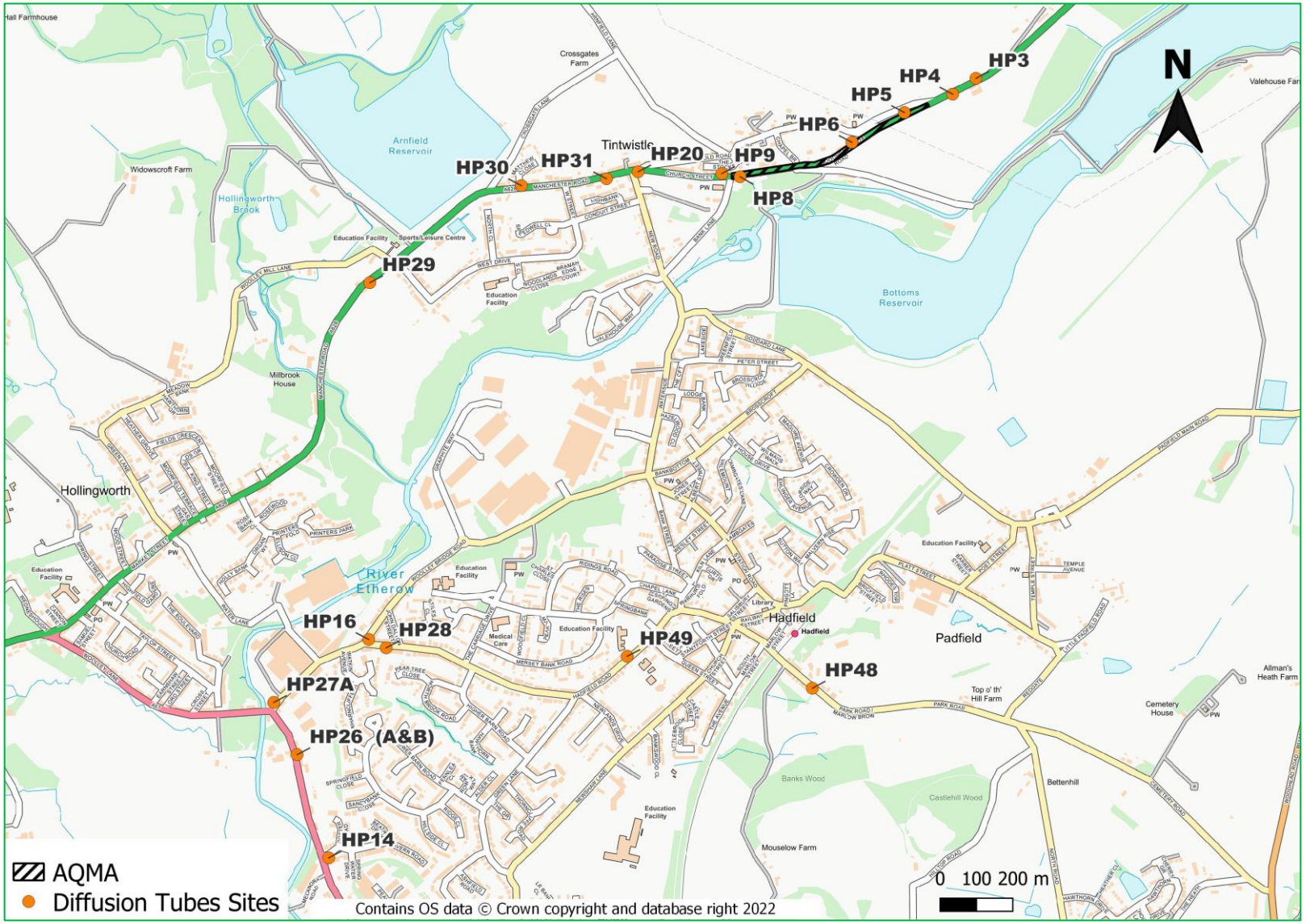


Figure D.3 – Map of Diffusion Tube Monitoring Locations around Dinting Vale AQMA

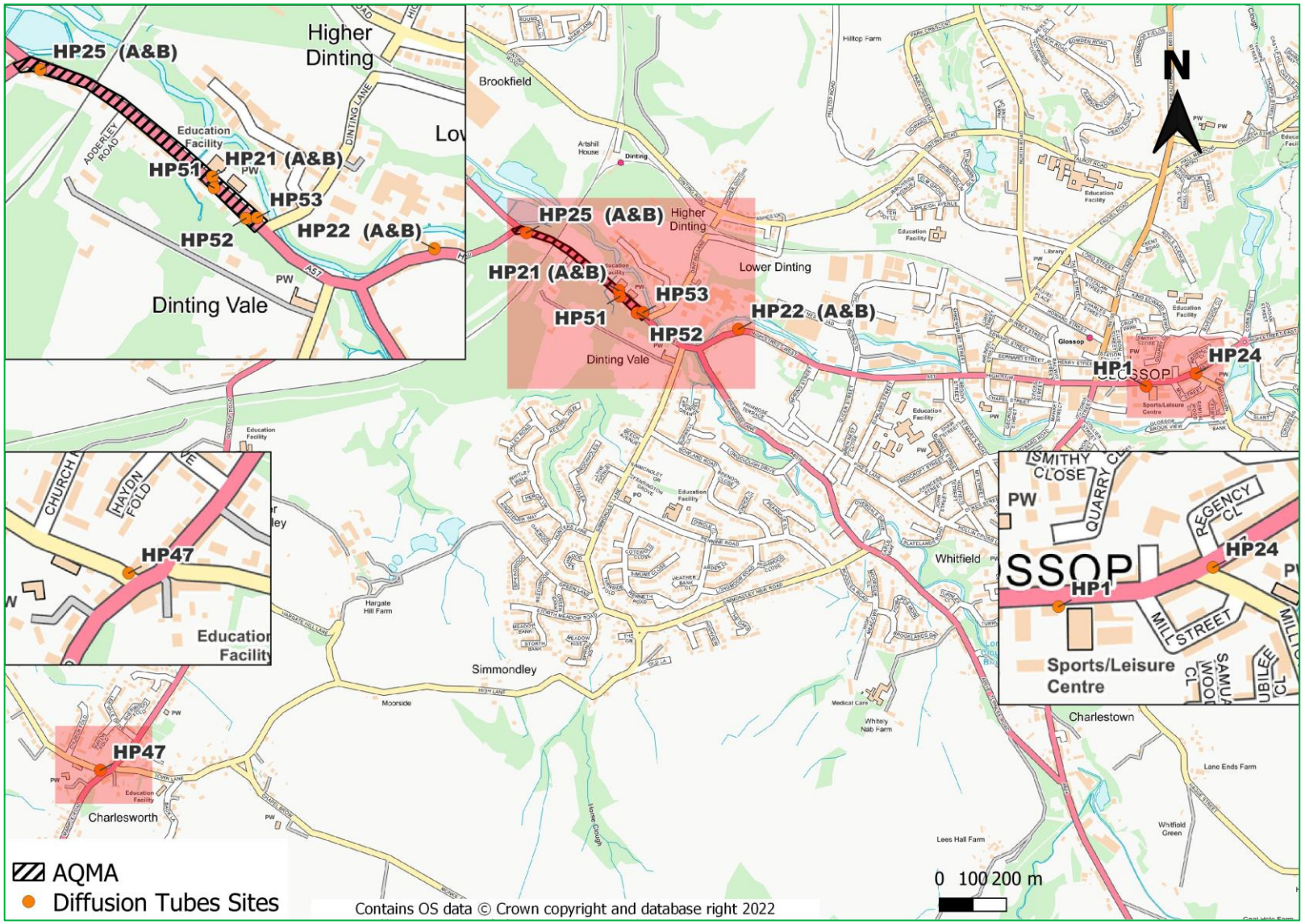


Figure D.4 – Map of Diffusion Tube Monitoring Locations Outside of AQMA (1)

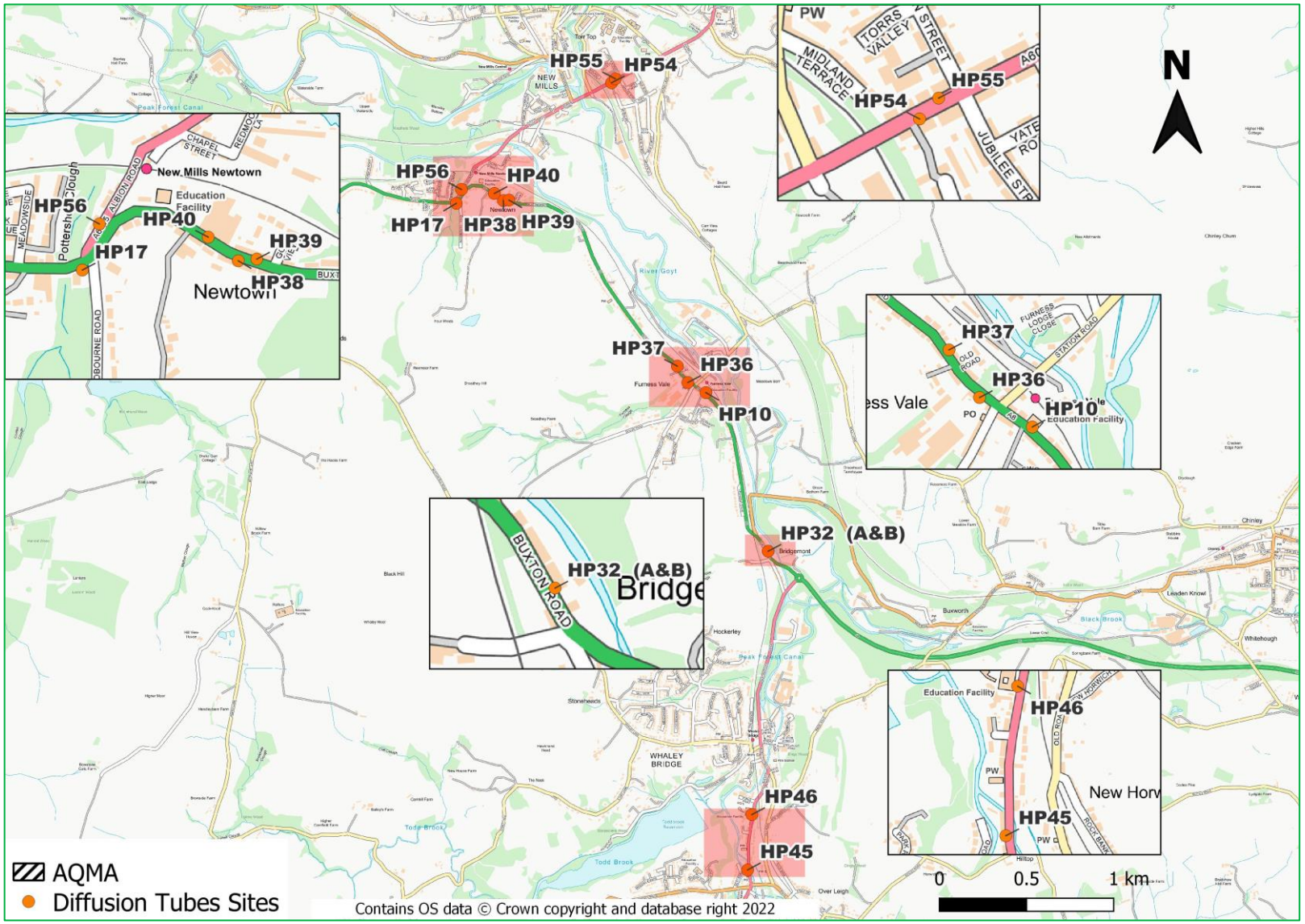


Figure D.5 – Map of Diffusion Tube Monitoring Locations Outside of AQMA (2)

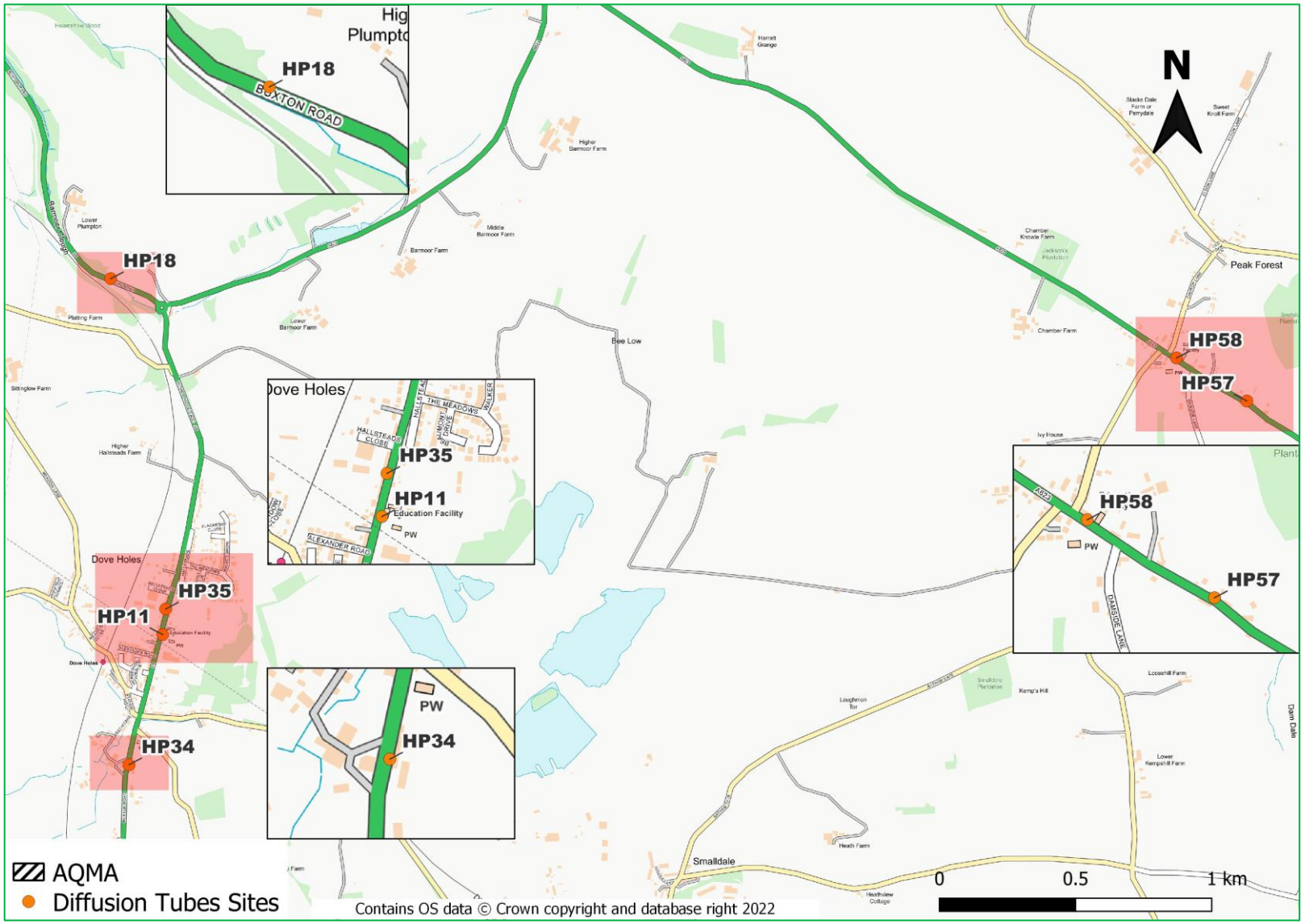


Figure D.6 – Map of Diffusion Tube Monitoring Locations Outside of AQMA (3)

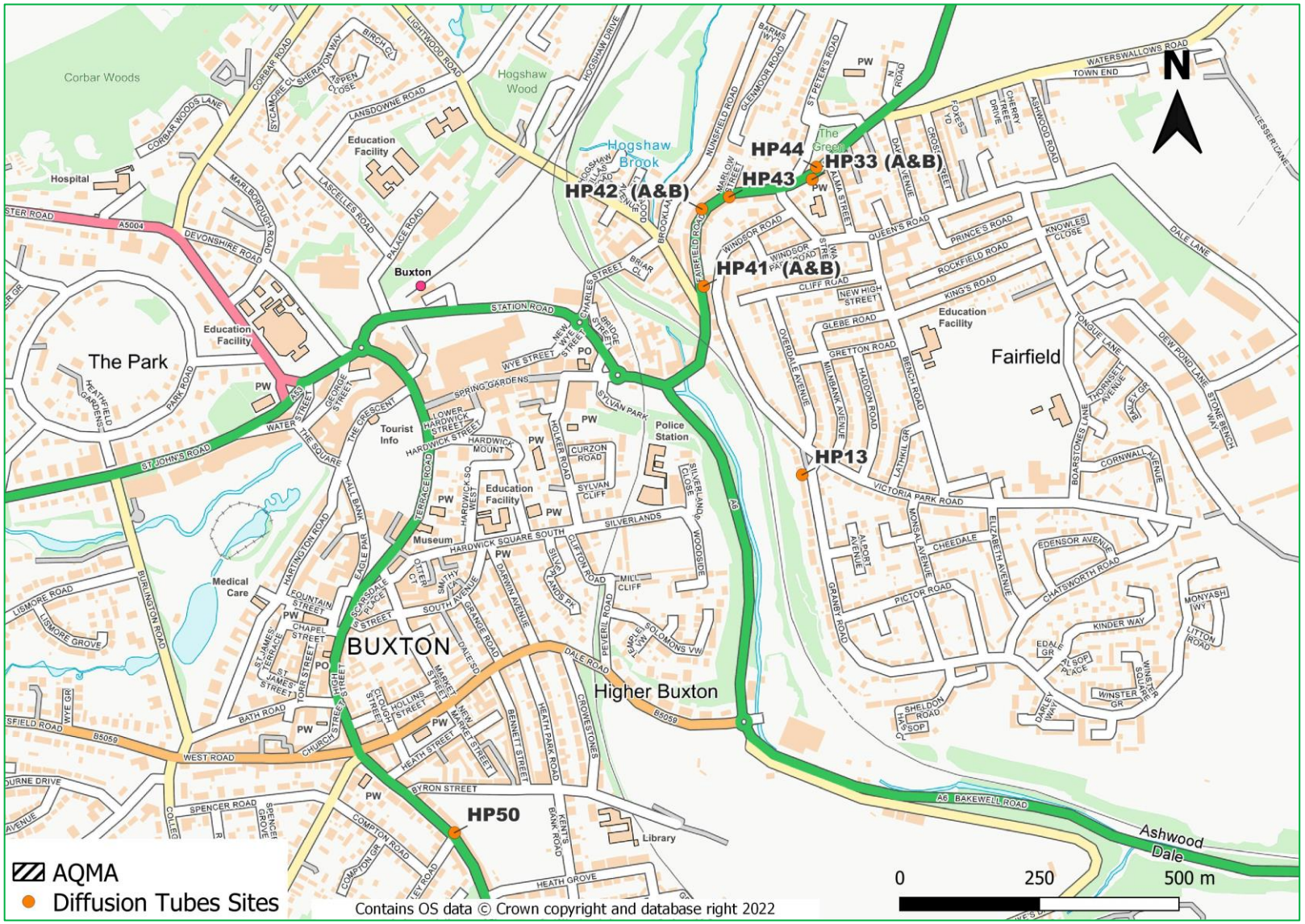
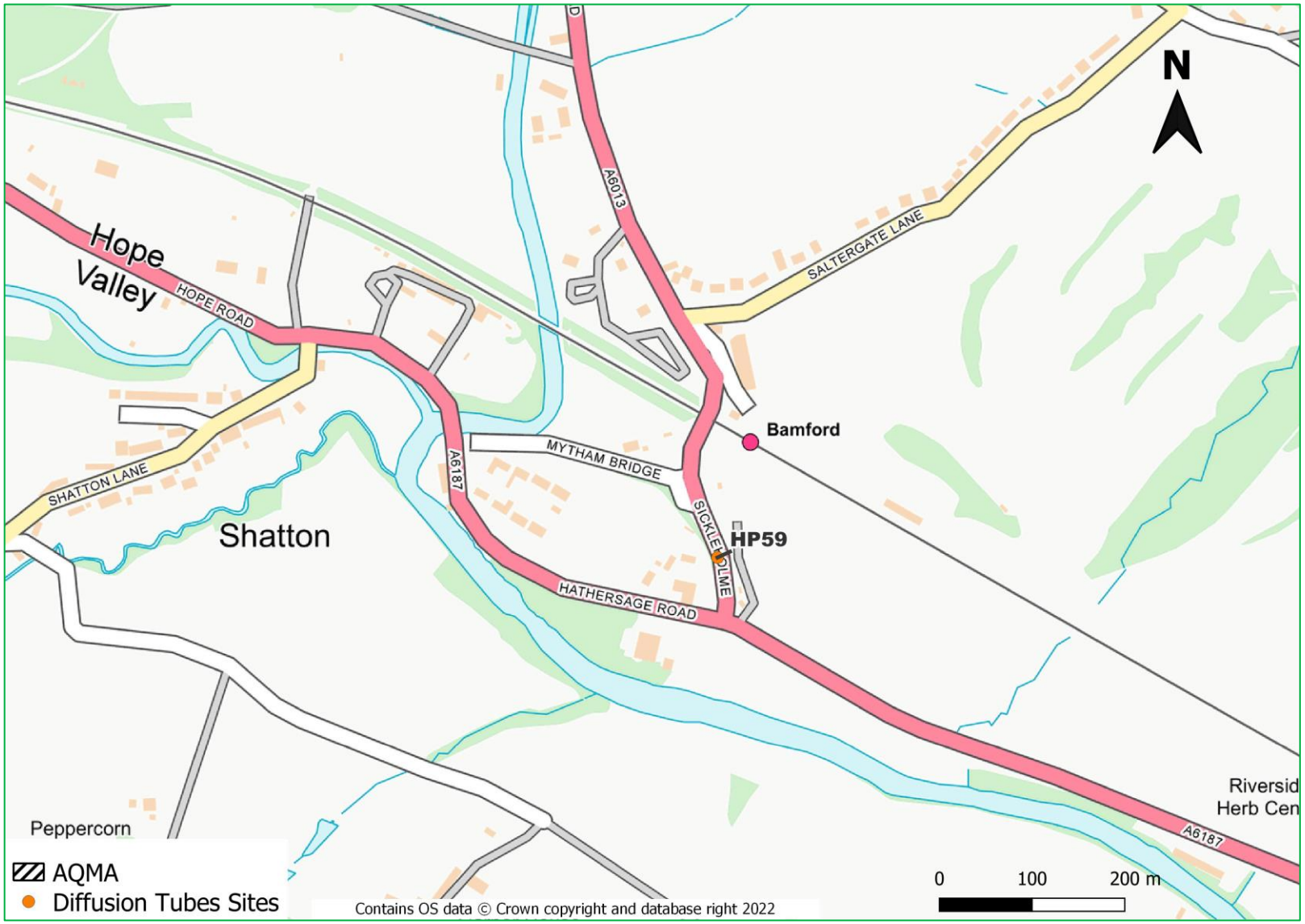


Figure D.7 – Map of Diffusion Tube Monitoring Locations Outside of AQMA (4)



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[12]

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

[12] 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
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
HPBC	High Peak Borough Council
DCC	Derbyshire County Council
NCC	Nottinghamshire County Council
SMDC	Staffordshire Moorlands District Council
SCC	Staffordshire County Council
PHE	Public Health England

References

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- 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.
- High Peak Borough Council 2019 Annual Status Report.
- High Peak Borough Council 2020 Annual Status Report.
- High Peak Borough Council 2021 Annual Status Report.
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- Diffusion Tube Data Processing Tool version 2.0, March 2022, Defra.