St Albans District Council

2023 Annual Status Report

Bureau Veritas

June 2023

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2023 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management, as amended by the Environment Act 2021

Date: June, 2023

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Date	June 2023

Executive Summary: Air Quality in Our Area

Air Quality in St Albans District Council

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

The mortality burden of air pollution within the UK is equivalent to 29,000 to 43,000 deaths at typical ages[3], with a total estimated healthcare cost to the NHS and social care of £157 million in 2017[4].

St Albans City & District Council is located in Hertfordshire, east of Hemel Hempstead, and 20 miles from north west London. St Albans is mainly a rural area but has 3 urban towns: St Albans, Harpenden and Wheathampstead.

The main source of air pollution within St Albans City & District Council is from vehicular emissions. The main pollutant of concern is Nitrogen Dioxide (NO_2). A number of main A roads (A4147, A5183 and A1081) pass through the District. The M25 runs east to west through the southern area of the District. The M1 runs north to south up through the western area of the District and the A414 (North Orbital Road) provides an interlink between the M25 and M1.

During 2022, 27 out of 50 passive monitoring locations recorded an increase in annual mean NO_2 concentrations from 2021. Despite this, there is still no reported exceedance of the annual mean NO_2 AQS (Air Quality Strategy) objective of 40µg/m^3 within St Albans. Two

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

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

[3] Defra. Air quality appraisal: damage cost guidance, January 2023

[4] Public Health England. Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report, May 2018

passive monitoring sites reported concentrations within 10% of the NO_2 AQS objective; SA160 (39.4 µg/m^3) and SA163 (36.1.6 µg/m^3). Both sites are not at locations of relevant exposure, and once fall-off with distance calculations were carried out to predict the concentrations at the nearest relevant receptor, the estimated concentrations adjust to 35.2 µg/m^3 and 30.0 µg/m^3.

St Albans City & District Council currently has one declared Air Quality Management Area (AQMA No.1) within the District. Details of the AQMA can be found here: https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=254. AQMA No.1 has been declared due to exceedances of the NO_2 annual mean AQS objective and PM_{10} 24 – hour AQS. All AQMA boundaries are either close to, or have busy roads within them, recognising the influence vehicle emissions have upon air quality.

An Air Quality Action Plan (AQAP) was completed in 2003 and progress on the existing measures was last updated in the 2022 ASR. The most recent update of the AQAP measures is included within this report, as shown in Table 2.2. Within the AQAP, measures are outlined to be completed in order to achieve the annual mean objective for NO_2, thus improving air quality within the AQMAs and therefore the District as a whole. County wide training of LA Officers on the interrogation of recently developed HCC AQ model (providing 1km granularity of NO_2, PM_{10}, $PM_{2.5}$ and CO_2) to inform various proposed interventions was undertaken in March 2023. This AQ model will create a baseline year output and future year outputs (suggested 2025 and 2030) taking into account expected emissions and transport data and will provide source apportionment in all AQMAs. It is intended to use this model to examine the impact of potential interventions and inform the development a meaningful AQAP. An updated AQAP will follow.

Let's Clear the Air Campaign

The Let's Clear the Air campaign, DEFRA and HCC funded, ran from September 2022 and will wind down in July 2023. As of April, over 100,000 individual engagements with HCC resources had been counted. Over ten thousand hits have been received to the webpage resources. HCC are evaluating the project over the summer and will provide information on this in the 2024 ASR.

At the start of the Let's Clear the Air campaign 405 individual requests was sent air quality alerts for district/borough council sign ups. These sign ups have occurred over several years building to the current number. Through the lifetime of the campaign a 42% increase, 172 sign ups, has been achieved. This is compared to 6% increase in the other local authority areas of Luton and Central Bedfordshire which share the same alert sign up page but are

not within the area being targeted by the campaign. For St Albans, there was an increase from 39 to 64 between September 2022 and April 2023 – a 64% increase which is higher than the county average.

Peahen Junction: St Albans City Centre. Data is being collected with which to look at the impact of the phased traffic management intervention on air pollution in this AQMA No.1. Once the trial is over the data will be evaluated and reported.

St Albans City & District Council within the last reporting year have revoked both AQMA No.2 and No.7. These revocations were supported by compliance for the last 5 years in NO_2 monitoring data and with decreasing trends. Based on the results for NO_2 and that it was not expected that the PM_{10} 24-hour limit was being exceeded, St Albans District Council revoked both AQMA No.2 and No.7. A summary of annual mean NO_2 concentrations within both AQMAs for the previous 5 years is shown below.

Site ID	Annual Mean NO_2 concentrations ($\mu g/m^3$)				
	2018	2019	2020	2021	2022
AQMA No.2					
SA142	30.2	30.4	19.6	20.6	20.8
AQMA No.7					
SA123	34.4	32.4	22.7	23.2	22.5
SA124	34.4	32.3	22.6	23.6	22.1
SA145	34.2	32.3	22.3	21.2	21.8
SA153	27.6	27.0	18.0	18.5	18.7

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades, there are some areas where local action is needed to protect people and the environment from the effects of air pollution.

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

St Albans currently focus on monitoring and reporting NO_2 via the passive monitoring network. The Council will continue to act upon guidance issued by Defra and will undertake supplementary monitoring if required.

St Albans have recently been successful partners in the Clean Air Fund bid with other Hertfordshire LA's and Hertfordshire County Council. The Clean Air Fund Project is a multifaceted project that seeks to increase knowledge and target 5 areas of air quality.

Clean Air Fund Project

Overarching objectives are to increase knowledge on;

- how air pollution can impact resident's health;
- how individuals can reduce their pollution footprint through positive air quality practice and,
- how Hertfordshire residents can reduce personal exposure to air pollutants (focus on vulnerable groups/individuals).

The project splits into 5 strands:

- domestic solid fuel burning
- travel mode (active travel), need and planning

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

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

- anti-idling (likely school focus, considering others)
- air quality alert system uptake
- reducing exposure

St Albans District Council participated in Clean Air Day in 2022, and will continue to promote Clean Air Day promotion in 2023 links to the project with a focus on anti-idling events across all Hertfordshire Authorities. Working with the Public Health and Herts Climate Change & Sustainability Partnership, volunteers are currently being invited and trained to promote the message of anti-idling with a focus on education and communication. As part of this, an information hub will be considered to signpost individuals to information, likely to be held on HCC webpages.

St Albans are working closely with their HCC partner on the monitoring and evaluation of three potential Active Travel Fund and Traffic Management scheme projects, one of which directly impacts an AQMA – (High street closure). The others are concerned with junction improvements to promote a Low Traffic Neighbourhood (Fleetville) & the creation of dedicated on road space for cyclists (Marlborough Road).

Conclusions and Priorities

In 2022, there have been no exceedances of any of the relevant NO_2 AQS objective at areas of relevant exposure. As such, compliance has been achieved throughout St Albans City & District Council. The Council will continue to collect monitoring data to determine whether this will be maintained in years to come. St Albans City & District Council are focused on reducing annual mean NO_2 concentrations via the implementation of currently identified measures but to also develop new measures as part of the Air Quality Action Plan (AQAP) update. The Council's priorities for the next reporting year are:

- Prioritise and develop the AQAP update;
- Continue working with the relevant partners to progress The Clean Air Fund Project;
- Continue working with Local Authorities within Hertfordshire to improve air quality throughout the area;
- Continue reviewing the NO_2 diffusion tube monitoring network, in order to identify any areas which may require additional monitoring and to identify any potential areas of exceedances; and

Local Engagement and How to get Involved

At an individual level there are a number of ways the public are able to get involved and help improve air quality on a local level. The main source of air pollution within St Albans District is vehicle emissions and changing the method of transport used can help reduce the amount of pollutant emissions released from vehicle sources. This can be from both the reduction in the number of vehicles being used and through the type of vehicles being used.

Changes in transport use such as the following help in reducing emissions of NO_2, PM_{10} and $PM_{2.5}$ from vehicle sources:

- Use public transport where available – This reduces the number of private vehicles in operation reducing pollutant concentration through the number of vehicles and reducing congestion;
- Walk or cycle if your journey allows it – Choosing to walk or cycle for your journey reduces the number of vehicles on the road. There is the added benefit of keeping fit and healthy. In addition, many of the cycle routes are off-road meaning you are not in close proximity to emissions from road traffic sources;
- Reduce time of idling vehicles – If using a car for a journey avoid idling. When it is apparent there will be no movement required then switch the engine off to reduce the amount of pollutant emissions released;
- Car/lift sharing – Where a number of individuals are making similar journeys, such as travelling to work or to school, car sharing reduces the number of vehicles on the road and therefore the amount of emissions being released. This can be promoted via travel plans through the workplace and within schools; and
- Alternative fuel / more efficient vehicles – Choosing a vehicle that meets the specific needs of the owner, fully electric, hybrid fuel and more fuel efficient cars are available, and all have different levels of benefits by reducing the amount of emissions being released.

Real time and historical air quality data for Hertfordshire and Bedfordshire is presented at www.airqualityhertsbeds.co.uk, an index related legend is provided so users can follow the current air quality. There are also a number of links providing further information, including the legislation of air quality within the UK, diffusion tube data, previous LAQM reports and graphical representations of data across the region. Up to date diffusion tube data and news relating to air quality within the District can be found on the St Albans City and District website at https://www.stalbans.gov.uk/environmental-services.

Local Responsibilities and Commitment

This ASR was prepared by the Bureau Veritas on behalf of St Albans District Council with the support and agreement of the following officers and departments:

Tara Murphy (Specialist Officer Environmental Compliance)

Emma Turner - Strategy & Programme Manager (Highways Strategy & Implementation)

Matthew Clark - Programme Manager – Air Quality | Sustainable Growth/Public Health Service

Anne Hardy – Road Safety & Sustainable Travel Manager (Road Safety & Active Travel)

Vale Male – Principal Rail Officer (Strategic Transport and Rail)

Matt Lale - Passenger Transport Manager | Integrated Transport Unit | Passenger Transport

Further AQAP updates provided by St Albans DC Officers from Regulatory Services (Environmental Compliance, Parking, Licencing)

Trees & Woodlands, Planning, & Infrastructure

Hertfordshire County Council

This ASR has been approved by:

Robin Ray – Assistant Director Regulatory & Compliance, Community & Place Delivery

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

If you have any comments on this ASR please send them to Tara Murphy at:

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St Albans,

AL1 3JE

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Figures

Tables

1 Local Air Quality Management

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

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

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

2 Actions to Improve Air Quality

Air Quality Management Areas

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

A summary of AQMAs declared by St Albans District Council can be found in Table 2.1. The table presents a description of the one AQMA that is currently designated within St Albans District Council. Figure D.1 provides a map of the AQMA and also the air quality monitoring locations in relation to the AQMA. The air quality objectives pertinent to the current AQMA designations are as follows:

- NO_2 annual mean; and
- PM_{10} 24 Hour mean

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by National Highways?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Name and Date of AQAP Publication	Web Link to AQAP
St Albans AQMA No. 1	Declared 02/11/2004, Amended 08/07/2009	NO_2 Annual Mean	The area comprising of odd numbers 1-7 London Road, 1-11c Holywell Hill and even numbers 2-38 London Road, St Albans.	NO	61	39.4	Air Quality Action Plan for St Albans City and District Council December 2003	http://aqma.defra.gov.uk/action-plans/StADC%20AQAP%202003.pdf
St Albans AQMA No. 1	Declared 02/11/2004, Amended 08/07/2009	PM_{10} 24 Hour Mean	The area comprising of odd numbers 1-7 London Road, 1-11c Holywell Hill and even numbers 2-38 London Road, St Albans.	NO	-	-		-

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

☒ **St Albans District Council confirm that all current AQAPs have been submitted to Defra.**

Progress and Impact of Measures to address Air Quality in St Albans District Council

Defra's appraisal of last year's ASR conclude:

1. *"SACDC have presented NO_2 trends for monitoring locations both inside the AQMAs and outside of the AQMAs. This is extremely useful as it allows the reader to easily understand trends relating to NO_2 within the borough. This approach to data/trend presentation is encouraged for future reports.*
2. *The maps of the AQMA boundaries and the locations of the monitoring sites are clearly shown and labelled. This is good practice and should be continued for future reports.*
3. *On Figure A.2, there is no line that shows the air quality objective. This should be included in future reports so that the reader can easily see if there are any exceedances of the air quality objective in this figure.*
4. *On Figures A.1 to A.10, the line that shows the air quality objective doesn't go all the way across the graphs. This should be corrected in future reports by having the line go all the way across the graphs so that the reader can more easily see if there are any exceedances of the air quality objective.*
5. *In the section about sources of air pollution in Appendix C, there should be some text that explains how each planning application affects air quality and what mitigation measures, if any, are required to minimise the impact of the proposed developments or to ensure that there are no exceedances of the air quality objective."*

St Albans District Council has taken forward a number of direct measures during the current reporting year of 2022 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. 17 measures are included within Table 2.2, with the type of measure and the progress St Albans District Council have made during the reporting year of 2022 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

St Albans City & District Council expects the following measures to be completed over the course of the next reporting year:

- The implementation of measure 10, the installation of Electric Vehicle (EV) Charge Points in car parks at Hart Road, London Road, and Keyfield Terrace is due for completion in 2023.

- Investigate the status of on-street parking in the AQMA and determine if parking is contributing to traffic congestion at each junction - A review is already underway and further survey work with residents will be undertaken this summer (2023).
- Consider an increase in car parking charges with the view to making bus travel a more attractive alternative – From April 2022 and again in 2023 Permit prices changed to include emissions based charging to encourage cleaner car ownership.

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	Investigate the status of on-street parking in the AQMA and determine if parking is contributing to traffic congestion at each junction. Investigate the provision of on-street loading facilities and co-ordinated timings of deliveries.	Traffic Management	UTC, Congestion management, traffic reduction	2017/18	2023	SADC/HCC	SADC/HCC	No	Not Funded	< £10k	Implementation	See note 1 at end of table	Parking restrictions in place	The Parking Team have been consulting on proposals to amend parking restrictions to improve traffic flows. Work on Belmont Hill to remove unrestricted parking was completed in September 2019 meaning less traffic circling to compete for spaces. In Holywell Hill loading restrictions are in place during peak traffic hours to improve traffic flow near the shops. Further consultation to remove parking bays on Holywell Hill and change single yellow lines to double yellow lines is still ongoing and is included in a review of existing resident zones M and N nearby. A review is already underway and further survey work with residents will be undertaken this summer (2023). It is intended to look at Traffic Flow and environmental impacts as part of this review. Changes are subject to consultation and any recommendations subject to approval by the lead Councillor once available.	-
2	SADC will assert comprehensive control over Part B/Part A2 processes for smaller scale industries under the environmental permitting (England & Wales) regulations 2007.	Environmental Permits	Other measure through permit systems and economic instruments	-	-	Annual subsistence fee and other relevant fees and charges payable by the process operator. Fees and Charges set by DEFRA	Defra and LA	NO	Not Funded	< £10k	Implementation	See note 1 at end of table	Inspections due/carried out in line with annual inspection programme	All processes are risk rated annually and inspection frequency determined based upon risk. Programmed annual inspections to April 2023 are up to date. Processes operating without a permit are identified and appropriate enforcement action taken.	-
3	SADC will investigate complaints about nuisance (domestic and industrial emissions).	Public Information	Via other mechanisms	-	-	SADC	SADC	NO	Not Funded	£10k - 50k	Implementation	See note 1 at end of table	Time taken to resolve complaints	Complaints are investigated as and when received.	-
4	Continue to monitor air quality within the district and as necessary review the suitability of monitoring locations in line with DEFRA guidance TG16	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2018	-	SADC	SADC	NO	Not Funded	< £10k	Implementation	See note 1 at end of table	Data capture	Details of diffusion tube monitoring is recorded on https://www.stalbans.gov.uk/environmental-	-
5	To increase bus patronage and encourage modal shift from the car to public transport.	Transport Planning and Infrastructure	Bus route improvements	2018	2023	SADC/HCC	SADC/HCC	NO	Not Funded	-	Implementation	See note 1 at end of table	Service numbers	St Albans Bus Users Forum provides a platform for bus users, bus service operators and HCC Passenger Transport Team to discuss services and hear about service improvements. HCC and bus operators, alongside the 10 District and Borough Councils signed a Memorandum of Understanding, have formed the Intalink Enhanced Partnership (April 2020) using powers enabled by the Bus Services Act 2017. This partnership now provides a forum for closer working between HCC,	Bus Services operated on a commercial basis. Over the last year the main issue with public transport has been driver shortages. Operators have struggled to retain drivers for a number of reasons, and this has had a knock on

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
														LA's, and Bus Operators. There are 5 key objectives which are aimed at improving bus transport. The initial focus for HCC will be to make changes to the road network to improve bus punctuality by prioritising bus journeys over other traffic in congested areas. Feasibility studies to identify localised improvements have been completed by HCC's consultant WSP. Phase 1 schemes implementation is underway, which include bus stop upgrades and road marking amendments. Phase 1 schemes to improve bus stops completed March 22. HCC are to draft a Bus Passenger Charter in collaboration with passengers. Consultation was launched in January 2022 to understand bus users priorities.	effect on the services that have been running. Within St Albans there has been a number of service changes which operators have made commercially. The three main services that were withdrawn were Centrebus Service 34 between St Albans and Dunstable, Metroline Service 84 between St Albans and Barnet and Arriva Service 357 between Harpenden and Borehamwood. Hertfordshire County Council was able to retain the Service 34 and the 357 and partly retain the 84 but all services still serve St Albans.
6	To investigate the feasibility of a Clean Air Zone	Promoting Low Emission Transport	Low Emission Zone (LEZ)	2018	-	SADC/HCC	TBC	NO	Not Funded	-	Planning	See note 1 at end of table	Vehicle counts	Possible funding identified and steering group to be set up to investigate suitability and eligibility for funding for Clean Air Zones.	Application for DEFRA funding was unsuccessful. Subject to satisfying eligibility criteria, we may re-apply, should funding streams become available. We are also exploring other measures, which in addition to other AQAP actions and downward trend in air pollution levels, may bring about sufficient reduction to revoke AQMA No.1 (Peahen Junction).
7	Pilot the Station Travel Plan	Promoting Travel Alternatives	Other	2010	-	SADC/HCC	HCC	NO	Not Funded	-	Planning	See note 1 at end of table	Usage figures	St Albans City Station: GTR have not moved forward with the proposed pilot to promote active and sustainable travel to stations. All rail companies are under considerable financial pressure so funding for this kind project is scarce. Work has been done over the past year to improve the security of cycle storage at the station to encourage more cycling to the station.	-
8	Community Rail Partnership (CRP) The Abbey Line	Promoting Travel Alternatives	Promote use of rail and inland waterways	2010	-	SADC/HCC	SADC/HCC	NO	Not Funded	-	Planning	See note 1 at end of table	Usage figures	Abbey Line: The train service is now running again following disruption to services during the pandemic. It is not however as reliable as HCC would wish it to be. A new timetable was introduced in December 2022 and slightly altered in May 2023. The service now runs hourly off peak rather than every 45 minutes formally. This has allowed the introduction of a later service which has been actively promoted by the CRP as a means of enjoying an evening out in Watford or St Albans without the need to use the car. The CRP activities	-

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
														have increased over the past 12 months with more promotional activities such as a Santa Train, relaunching the Abbey Trail walking route with new leaflets and notice boards and the development of a community garden at Garston Station. The CRP, HCC and the rail user group ABfly continue to work with the train operator to improve the reliability of the service when disruption is caused by problems not related to the industrial action which is affecting train services across the country and is likely to continue for some months.	
9	Investigate possibility of road signs to discourage through traffic.	Traffic Management	Other	2018		HCC	HCC	NO	Not Funded		Implementation	See note 1 at end of table	Traffic counts	Variable Message Signs to be activated during city centre events to inform motorists of delays and parking options. An additional review of St Albans Street signage to be undertaken after the town centre trial, initial scoping completed as part of the Central St Albans Active Travel Fund project.	Messages restricted by DfT Traffic Signs Regulations & General Direction. St Albans traffic flow remains complex and subject to substantial impact from relatively small changes in the wider strategic network
10	Investigate introduction of additional electric charging at council car parks within the District .	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2020	-	SADC	SADC	NO	Not Funded	-	Planning	See note 1 at end of table	Usage figures	Installation of EV Charge Points in car parks at Hart Road, London Road, and Keyfield Terrace is due for completion in June 22.	-
11	Consider requiring developers to install electric charging points in new developments under S106 agreements.	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2019	2023	SADC	SADC	NO	Not Funded	-	Planning	See note 1 at end of table	Installation	We provided a response to the SLP consultation. Further discussions with the Planning Department regarding formulation of St Albans AQ Planning Policy Guidance to provide consistency of advice to developers across Herts & Beds are continuing. 10 Electric Vehicle Charge Points have been installed in the new Harpenden Sports and Leisure Centre.	-
12	Consider an increase in car parking charges with the view to making bus travel a more attractive alternative.	Promoting Travel Alternatives	Other	2019	-	SADC	SADC	NO	Not Funded	-	Planning	See note 1 at end of table	Car park volume figures	From April 2022 and again in 2023 Permit prices changed to include emissions based charging to encourage cleaner car ownership. This was done in a phased approach over 2 years. In addition, all other vehicle type permits and other charges relating to on street parking, were increased or amended to encourage more sustainable transport where possible. Voucher parking schemes have been removed across some city centre zones and longer restrictions have been applied to those streets / zones to encourage vehicles to use car parks and not use residential streets. Ongoing reviews of permit parking schemes will consider environmental impacts and continue to reduce the number of vehicles who can use those areas for parking	-
13	Continue the Trees Against Pollution project and explore green wall/hedging opportunities	Transport Planning and Infrastructure	Other	2018	-	SADC	SADC	NO	Not Funded	-	Implementation	See note 1 at end of table	Number of trees planted.	Over 3,608 trees planted at Council owned sites across the District in 2022/23. LATF Grant claim successful as a joint SADC/HCC bid, and projects mainly funded by SADC. the Council has given away 7,646 trees to residents in partnership with HCC.	-
14	Cycling and Walking Strategy	Promoting Travel Alternatives	Promotion of cycling	2017	-	SADC/HCC	SADC/HCC	NO	Not Funded	-	Implementation	See note 1 at end of table	Usage figures	HCC and SADC are working in partnership to develop a Local Cycling and Walking	-

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
														Infrastructure Plan for the district, which will include a range of proposed infrastructure improvements to make walking and cycling easier, safer and more attractive. The LCWIP went out for consultation in April-March 2023 and adoption of the Plan is expected in Winter 2023-24. Provision of way finding monoliths within the city centre. A414 Corridor Strategy identifies package of walking/cycling improvements	
15	Taxi emissions	Promoting Low Emission Transport	Taxi Licensing conditions	2020	-	SADC	SADC	NO	Not Funded		Implementation	See note 1 at end of table	Certificate of Compliance data	Emissions controlled through Certificate of Compliance at garage check. Vehicle Licence Conditions amended to include the following; Any taxi driver can licence a fully electric vehicle as long as it complies with the hackney carriage and private hire vehicle licence conditions. This type of vehicle attracts a discount of £60. A new taxi licensing policy was introduced in 2020 which includes an emission standard for engines in taxis and private hire vehicles. At first application, vehicles had to meet or exceed Euro 5 emissions standards. This changed from 01/04/2022, at first application vehicles must now meet or exceed Euro 6 emissions standards. At renewal – From 01/04/2022 vehicle licences will not be renewed in respect of any licensed vehicle that does not meet or exceed Euro 5 emissions standards. From 01/04/2025 vehicle licences will not be renewed in respect of any licensed vehicle that does not meet or exceed Euro 6 emissions standards.	-
16	Campaign to raise awareness of air quality and the impact on air quality, of idling engines (when parked)	Public Information	Via the Internet	2017	2023	SADC	SADC	NO	Not Funded	-	Planning	See note 1 at end of table	Media coverage	The Idling Action St Albans campaign has been running since 2017 to raise awareness of the issue of engine idling when parked or stationary for more than a minute. It included social media activities, letters, school engagement activities, market stalls, Idling Action St Albans events and information leaflets issued with resident car parking per Hertfordshire County Council in partnership with St Albans and the other District and Borough Councils in the county have taken forward an information campaign aimed at improving awareness of how we can reduce sources of pollution and reduce our exposure to pollution. The campaign focussed on the themes of domestic solid fuel burning, vehicle idling, active travel/public transport uptake to reduce source of pollution. It provided clean air routes mapped using mobile air quality sensors, advice on reducing internal burning and creating ventilation where possible to reduce exposure as well as simple tips around travel planning to avoid congested hotspots and peak travel times where possible. The campaign to date has reached over 100,000 people across the county and has increase the number of signups to an existing air quality alert by nearly 50% in 6 months. All assets created are available to St Albans for future use and promotion of the cleaner air agenda.	-

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
17	Bus fleet/ lower pollutant emissions	Promoting Low Emission Transport	Other	2019	-	SADC/HCC/Bus Operators	HCC/Bus Operators	NO	Not Funded	-		See note 1 at end of table	Number of link improvements	HCC is still considering a cross-county Mass Rapid Transit service. Feasibility design and consideration is continuing with support from HCC's appointed consultants. The long term proposal is to improve links by public transport from St Albans to Watford, Hemel and towards Welwyn, Hatfield and Hertford by providing alternatives to car use. HCC's bid for DfT's 'All Electric Bus Town Fund' for St Albans was unsuccessful. Through the Intalink Enhanced Partnership HCC have been working closely with all operators to make sure the bus network is as stable as it can be. Further government funding has helped to stabilise the network but that funding is time limited. With the award of £29m of Bus Service Improvement Plan (BSIP funding) funding for the next 3 years means St Albans is one of the key towns that HCC will be focusing on in terms of bus services, infrastructure, ticketing and fares and bus priority.	The Pandemic has delayed investment by bus operators, therefore a target of reducing emissions through the introduction of buses to meet Euro VI standard has been slipped.
NOTE 1 - It is not possible to specifically quantify the impact of small scale projects that the Council are working on with partners. However individual & cumulative AQ measures which reduce emissions are beneficial to improving pollutant levels both AQMA's and the District generally.															

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8), local authorities are expected to work towards reducing emissions and/or concentrations of $PM_{2.5}$ (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that $PM_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

St Albans City & District Council does not currently undertake any monitoring of PM_{10} or $PM_{2.5}$. St Albans City and District Council are working to reduce emissions of air pollutants across the District, many of the measures used to reduce emissions of NO_2 and PM_{10} also impact the emissions of $PM_{2.5}$ due to the pollutants originating from the same sources. The primary source of local air pollution within St Albans contributing to NO_2 and particulate matter pollution is vehicular emissions. Current AQAP measures within Table 2.2 aim to reduce on road vehicle percentage and promote travel alternatives, therefore contributing to reducing particulate emissions. St Albans City & District Council is taking the following measures to address pollutants originating from vehicle emissions and therefore address $PM_{2.5}$:

- AQAP Measure 5 – To increase bus patronage and encourage modal shift from the car to public transport.
- AQAP Measure 8 – Community Rail Partnership (CRP) The Abbey Line.
- AQAP Measure 10 – Investigate introduction of additional electric charging at council car parks within the District.
- AQAP Measure 11 – Consider requiring developers to install electric charging points in new developments under S106 agreements.
- AQAP Measure 12 – Consider an increase in car parking charges with the view to making bus travel a more attractive alternative.
- AQAP Measure 14 – Cycling and Walking Strategy
- AQAP Measure 15 – Taxi Emissions
- AQAP Measure 17 – Bus fleet/ lower pollutant emissions

The Department of Health's Public Health Outcomes Framework has a number of public health indicators that are used to focus public health action, identify areas of health inequality and concern, and monitor the differences in health impacts across regions in the

UK. This framework includes an indicator "D01- Fraction of Mortality Attributable to Particulate Air Pollution"[7] which is calculated using background annual average $PM_{2.5}$ concentrations, modelled at a $1km^2$ resolution based on measured concentrations from the AURN. St Albans has a 6.1% fraction of mortality calculated for 2022, which is above both the average for England overall (5.5%), and the Southwest Region (5.1%). The 2021 data is used as the 2022 dataset has not been made available at the time of writing.

The current Defra 2022 background maps for St Albans City & District Council (2018 based) show that all background concentrations of $PM_{2.5}$ are far below the recommended annual mean AQS objective for $PM_{2.5}$ of 20 $\mu g/m^3$. The highest concentration is predicted to be 10.9 $\mu g/m^3$ within the 1km x 1km grid square with the centroid grid reference of 509500, 208500. This is an area located on Hogg End Lane, situated next to the M1 (A414).

[7] Public Health Outcomes Framework: D01- Fraction of Mortality Attributable to Particulate Air Pollution

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

This section sets out the monitoring undertaken within 2022 by St Albans District Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2018 and 2022 to allow monitoring trends to be identified and discussed.

Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

There is currently no automatic monitoring undertaken by St Albans City & District Council in 2022.

3.1.2 Non-Automatic Monitoring Sites

St Albans District Council undertook non-automatic (i.e., passive) monitoring of NO_2 at 50 sites during 2022, this includes the deployment of 9 new sites in 2022 and one site decommissioned. Table A.1 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.

Individual Pollutants

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

3.1.3 Nitrogen Dioxide (NO_2)

Table A.2 in Appendix A compare the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40µg/m^3. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e., the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2022 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

During 2022, all diffusion tube monitoring locations reported NO_2 values which were compliant with the NO_2 AQS objective, with no reported exceedances since 2019.

Between 2020 and 2021, 27 sites recorded an increase in NO_2 concentrations, with the remaining 23 sites reporting a decrease. St Albans continues to be compliant against the AQS objective, however 2 sites are within 10% of the AQS objective (SA160 and SA163) and look to be increased from the previous year near the 40 µg/m^3 guideline.

Within AQMA No.1 during 2022, all diffusion tubes reported increases in NO_2 concentrations compared to 2021, with only one monitoring location reported a decrease (SA148). AQMA No.1 saw an increase at 5 sites (SA137, SA138, SA143, SA160 and SA161). Increases in concentrations may be attributed to COVID-19 due to the decline in concentrations within 2020, which may account for the increases in individual sites back to pre-pandemic levels.

There were two sites which reported concentrations with 10% of the annual mean NO_2 AQS objective of 40 µg/m^3 within St Albans. These were at sites SA160 and SA163, situated in AQMA No.1. SA160 (39.4 µg/m^3) and SA163 (36.1 µg/m^3), which are not located at relevant exposure, and once fall-off with distance calculations were carried out to predict the concentrations at the nearest relevant receptor, the estimated concentrations were 35.1 µg/m^3 and 31.0 µg/m^3 respectively.

Figure A.1 – Figure A.10 presents graphs showing the annual mean NO_2 concentrations from 2018 – 2022. There is a general trend of increase in NO_2 concentrations over the 5-year period of monitoring results for all monitoring sites from 2021.

Figure A.1 shows the trends in AQMA No.1 for the past 5 years, AQMA No.1 continues to report concentrations within 10% of the AQS objective, therefore the council will continue to use the passive monitoring network to assess and reduce pollution. Overall, for the previous 5 years there is a declining trend in NO_2 concentrations in monitoring locations outside and within AQMA areas, despite the average increase from 2021 to 2022.

As annual mean concentrations were well below 60µg/m^3 at all sites, it is unlikely that any exceedances of the 1-hour mean objective has occurred at any sites, in accordance with LAQM TG (22).

Appendix A: Monitoring Results

Table A.1 – Details of Non-Automatic Monitoring Sites

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
SA101	Museum Hatfield Road	Roadside	515105	207476	NO_2	N	9.3	1.6	No	2.7
SA107	Redbourn JMI Long Cutt Redbourn	Urban Background	510138	212525	NO_2	N	11.3	2.2	No	2.6
SA109	High Street Harpenden	Kerbside	513427	214308	NO_2	N	6.3	0.1	No	2.6
SA110	Crabtree JMI Crabtree Lane Harpenden	Kerbside	514438	214353	NO_2	N	7.5	1.5	No	2.6
SA112	High Street Wheathampstead	Kerbside	517727	214041	NO_2	N	16.3	1.7	No	2.6
SA114	Fleetville 1 Royal Road	Urban Background	516549	207391	NO_2	N	51.3	12.5	No	2.5
SA117	Five Acres London Colney Roundabout	Kerbside	517712	204782	NO_2	N	11.9	1.4	No	2.4
SA120	Sleapcross Gardens Smallford	Kerbside	520053	206618	NO_2	N	15.6	1.7	No	2.3
SA121	Mount Drive Park Street	Kerbside	514654	204546	NO_2	N	37.5	1.4	No	2.5
SA123	Radlett Road Park Street	Kerbside	515311	202730	NO_2	N	4.4	0.3	No	2.4
SA124	Smug Oak Lane Bricket Wood	Kerbside	515383	202528	NO_2	N	4.5	1.3	No	2.5
SA125	Lye Lane Bricket Wood	Kerbside	513308	202655	NO_2	N	15.6	0.4	No	2.4
SA127	Oakwood Road Bricket Wood	Kerbside	512570	202716	NO_2	N	4.4	1.4	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)
SA128	Waterdale Old Watford Rd Bricket Wd A405	Urban Background	512004	202105	NO_2	N	1.0	25.0	No	2.4
SA133	Belmont Hill	Kerbside	514606	206801	NO_2	N	13.8	2.5	No	2.4
SA134	Albert Street	Kerbside	514648	206919	NO_2	N	5.0	2.2	No	2.6
SA135	Watsons Walk	Kerbside	515060	206866	NO_2	N	3.8	1.2	No	2.5
SA136	St Peters Street	Kerbside	514883	207422	NO_2	N	34.3	1.1	No	2.3
SA137	High Street	Kerbside	514684	207105	NO_2	N	4.3	1.6	No	2.5
SA138	Peahen PH Holywell Hill	Kerbside	514701	207082	NO_2	Y – AQMA No.1	15.6	2.6	No	2.6
SA140	Lattimore Road North	Kerbside	515185	207070	NO_2	N	6.3	2.5	No	2.5
SA141	Town Hall	Urban Background	514722	207226	NO_2	N	1.9	1.5	No	2.6
SA142	Beech Tree Cottage (AL3 6AR)	Roadside	510754	206091	NO_2	N	20.2	0.0	No	2.3
SA143	London Road West	Kerbside	514752	207094	NO_2	Y – AQMA No.1	0.6	2.8	No	2.6
SA144	Forester House 1 St Peters Street	Kerbside	514833	207347	NO_2	N	9.3	1.2	No	2.6
SA145	Moor Mill Lane Colney Street	Roadside	515257	202638	NO_2	N	12.5	1.6	No	2.3
SA146	Forrester House 2 St Peters Street	Urban Background	514856	207353	NO_2	N	5.6	21.9	No	2.6
SA147	Shops St Peters Street	Urban Background	514818	207357	NO_2	N	47.5	15.6	No	2.5
SA148	Chequer Street	Kerbside	514705	207119	NO_2	N	3.1	0.7	No	2.4
SA149	London Road East	Roadside	515067	206946	NO_2	N	5.6	2.5	No	2.6
SA150	Hatfield/Royal Road	Kerbside	516590	207276	NO_2	N	7.5	1.8	No	2.3
SA151	Thamesdale London Colney	Roadside	518782	203507	NO_2	N	4.4	1.5	No	2.3
SA152	Shenley Lane/Kings Road London Colney	Roadside	517091	204114	NO_2	N	6.9	2.4	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)
SA153	Watling Street Park Street	Kerbside	515275	202794	NO_2	N	12.0	1.4	No	2.4
SA154	Mount Pleasant Lane Bricket Wood	Roadside	512776	202050	NO_2	N	21.9	2.0	No	2.5
SA155	Westminster Court	Kerbside	514346	206329	NO_2	N	27.5	1.8	No	2.4
SA156	Folly Lane East	Roadside	514602	207674	NO_2	N	2.5	1.6	No	2.4
SA157	Catherine Street	Kerbside	514840	207613	NO_2	N	1.3	0.5	No	2.4
SA158	High Street Redbourn	Roadside	510818	212167	NO_2	N	2.5	1.7	No	2.6
SA159	Marford Road Wheathampstead	Roadside	517727	213901	NO_2	N	2.5	2.0	No	2.6
SA160	Hollywell Hill	Roadside	514682	207060	NO_2	Y – AQMA No.1	2.5	2.5	No	2.4
SA161	London Road Centre	Kerbside	514787	207069	NO_2	Y – AQMA No.1	1.9	0.5	No	2.5
SA162	Verulam Road	Roadside	514596	207338	NO_2	N	1.8	0.3	No	2.5
SA163	Holywell Hill (Albert Street)	Roadside	514646	206942	NO_2	Y – AQMA No.1	1.1	2.4	No	2.5
SA164	Marlborough Road	Roadside	515024	207071	NO_2	N	2.1	2.3	No	2.5
SA165	London Road (Black Cut)	Roadside	515316	206719	NO_2	N	2.1	33.2	No	2.5
SA166	Lattimore Road South	Roadside	515144	206984	NO_2	Y – AQMA No.1	2.2	4.8	No	2.5
SA167	Clarence Road	Roadside	515990	207769	NO_2	N	0.7	8.3	No	2.5
SA168	Hatfield Road (Co-op Funeral Services)	Roadside	516144	207318	NO_2	N	0.5	16.6	No	2.5
SA169	Beaumont Avenue	Roadside	516887	207702	NO_2	N	1.7	5.8	No	2.5

Notes:

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

(2) N/A if not applicable.

Table A.2 – Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2022 (%) [2]	2018	2019	2020	2021	2022
SA101	515105	207476	Roadside	92.3	92.3	28.3	29.1	19.3	21.3	21.1
SA107	510138	212525	Urban Background	100.0	100.0	20.9	20.9	14.7	14.6	15.8
SA109	513427	214308	Kerbside	100.0	100.0	25.0	26.9	15.9	18.0	19.3
SA110	514438	214353	Kerbside	100.0	100.0	21.0	21.2	12.3	12.9	13.0
SA112	517727	214041	Kerbside	92.3	92.3	26.7	26.1	19.6	20.6	19.7
SA114	516549	207391	Urban Background	100.0	100.0	26.3	27.2	20.7	23.1	22.5
SA117	517712	204782	Kerbside	100.0	100.0	25.5	26.3	17.0	17.6	17.2
SA120	520053	206618	Kerbside	90.4	90.4	29.3	29.8	20.2	20.7	20.3
SA121	514654	204546	Kerbside	100.0	100.0	31.6	31.4	24.2	24.2	23.1
SA123	515311	202730	Kerbside	100.0	100.0	34.4	32.4	22.7	23.2	22.5
SA124	515383	202528	Kerbside	100.0	100.0	34.4	32.3	22.6	23.6	22.1
SA125	513308	202655	Kerbside	82.7	82.7	25.8	24.5	18.0	19.2	19.3
SA127	512570	202716	Kerbside	100.0	100.0	26.6	27.1	17.9	18.5	18.7
SA128	512004	202105	Urban Background	100.0	100.0	34.7	34.4	23.8	24.0	23.8
SA133	514606	206801	Kerbside	100.0	100.0	31.8	33.4	21.5	25.2	25.1
SA134	514648	206919	Kerbside	100.0	100.0	34.8	36.4	20.9	23.0	23.9
SA135	515060	206866	Kerbside	100.0	100.0	34.3	32.8	20.1	23.0	22.5
SA136	514883	207422	Kerbside	100.0	100.0	**48.5**	**45.6**	35.3	38.6	34.2
SA137	514684	207105	Kerbside	100.0	100.0	-	**41.8**	25.7	24.8	31.4
SA138	514701	207082	Kerbside	100.0	100.0	**45.2**	**43.6**	27.5	29.5	31.6
SA140	515185	207070	Kerbside	100.0	100.0	27.3	26.3	17.3	18.3	18.1
SA141	514722	207226	Urban Background	82.7	82.7	26.8	-	15.2	16.1	17.0
SA142	510754	206091	Roadside	100.0	100.0	30.2	30.4	19.6	20.6	20.8
SA143	514752	207094	Kerbside	90.4	90.4	**42.4**	**40.8**	25.6	26.2	28.2
SA144	514833	207347	Kerbside	75.0	75.0	39.7	38.2	28.7	30.4	29.0
SA145	515257	202638	Roadside	92.3	92.3	34.2	32.3	22.3	21.2	21.8
SA146	514856	207353	Urban Background	90.4	90.4	30.6	29.6	19.0	21.6	21.7
SA147	514818	207357	Urban Background	100.0	100.0	35.2	39.7	24.4	25.7	24.5
SA148	514705	207119	Kerbside	100.0	100.0	**52.7**	**49.0**	35.8	38.4	35.6
SA149	515067	206946	Roadside	100.0	100.0	32.3	30.0	20.2	21.6	23.5
SA150	516590	207276	Kerbside	100.0	100.0	-	31.5	21.9	20.5	20.7
SA151	518782	203507	Roadside	100.0	100.0	36.8	34.2	24.5	27.0	21.9
SA152	517091	204114	Roadside	100.0	100.0	29.1	27.0	20.1	19.7	20.4
SA153	515275	202794	Kerbside	100.0	100.0	27.6	27.0	18.0	18.5	18.7

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2022 (%) [2]	2018	2019	2020	2021	2022
SA154	512776	202050	Roadside	67.3	67.3	29.3	26.8	18.7	18.9	16.0
SA155	514346	206329	Kerbside	100.0	100.0	31.3	29.4	20.2	21.4	21.7
SA156	514602	207674	Roadside	92.3	92.3	37.1	35.9	24.9	26.9	26.4
SA157	514840	207613	Kerbside	100.0	100.0	**46.2**	**40.8**	29.1	32.1	29.1
SA158	510818	212167	Roadside	90.4	90.4	25.4	20.5	15.8	15.6	17.8
SA159	517727	213901	Roadside	76.9	76.9	29.7	28.8	19.4	21.1	20.2
SA160	514682	207060	Roadside	100.0	100.0	**59.3**	**54.7**	36.7	39.2	39.4
SA161	514787	207069	Kerbside	100.0	100.0	-	38.7	23.9	23.1	27.9
SA162	514596	207338	Roadside	59.6	59.6	-	-	-	-	22.3
SA163	514646	206942	Roadside	51.9	51.9	-	-	-	-	36.1
SA164	515024	207071	Roadside	67.3	67.3	-	-	-	-	22.5
SA165	515316	206719	Roadside	50.0	50.0	-	-	-	-	25.1
SA166	515144	206984	Roadside	67.3	67.3	-	-	-	-	20.9
SA167	515990	207769	Roadside	67.3	67.3	-	-	-	-	20.4
SA168	516144	207318	Roadside	59.6	59.6	-	-	-	-	21.4
SA169	516887	207702	Roadside	67.3	67.3	-	-	-	-	13.1

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

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

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

Notes:

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

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

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

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

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

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

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

Figure A.1 – Trends in Annual Mean NO_2 Concentrations: AQMA No.1 and St Albans Centre

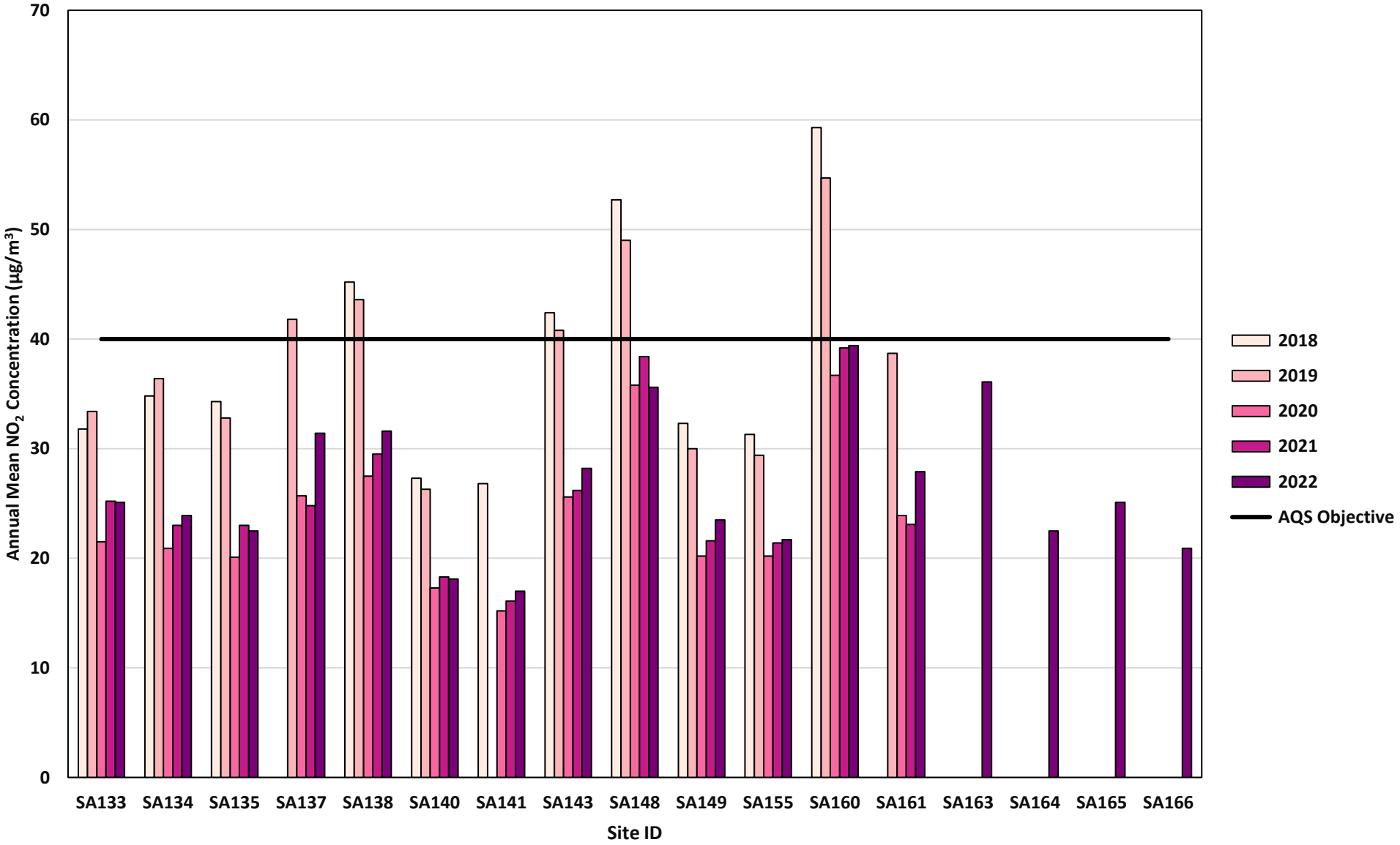


Figure A.2 – Trends in Annual Mean NO_2 Concentrations: Potters Crouch

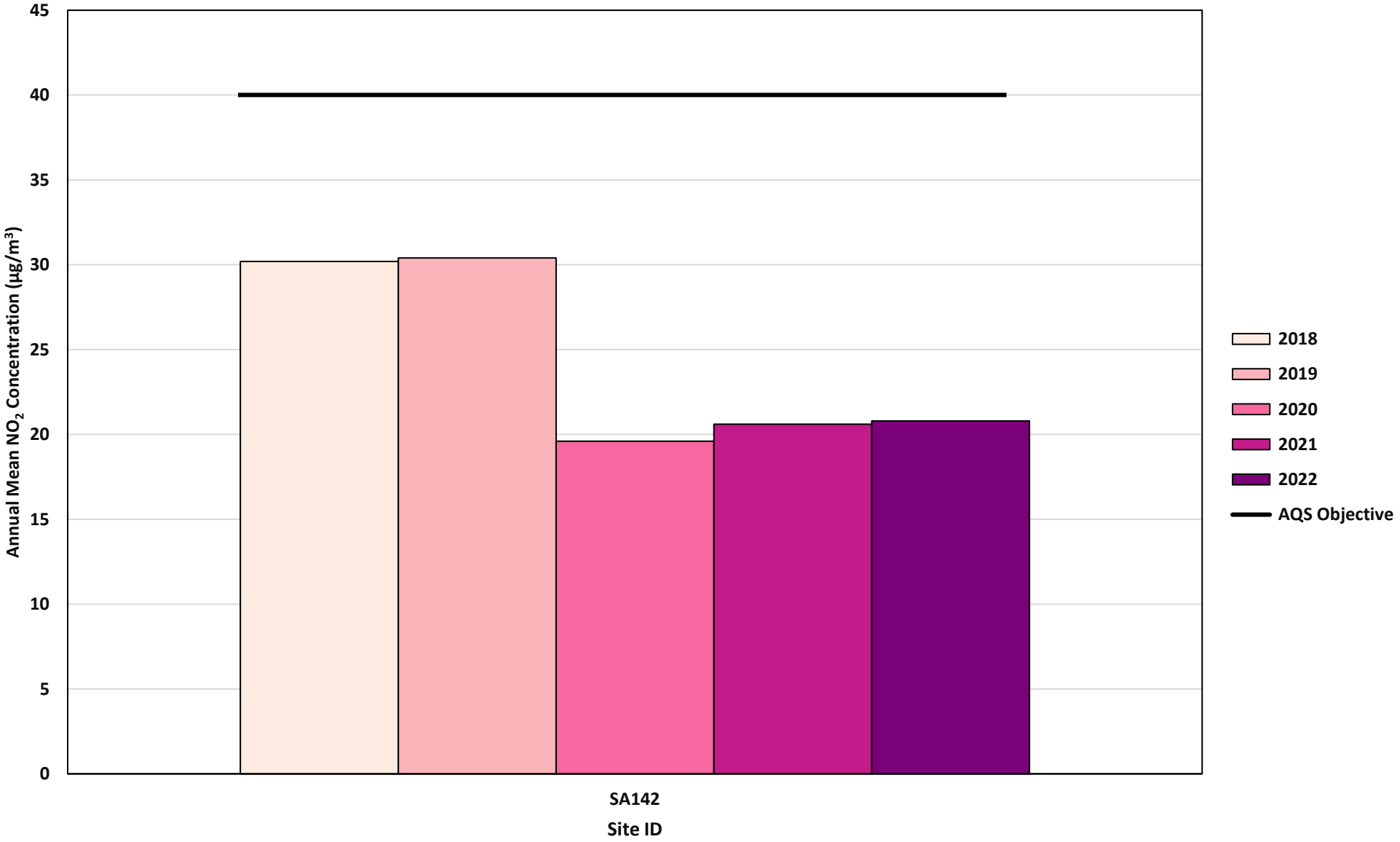


Figure A.3 – Trends in Annual Mean NO_2 Concentrations: Frogmore

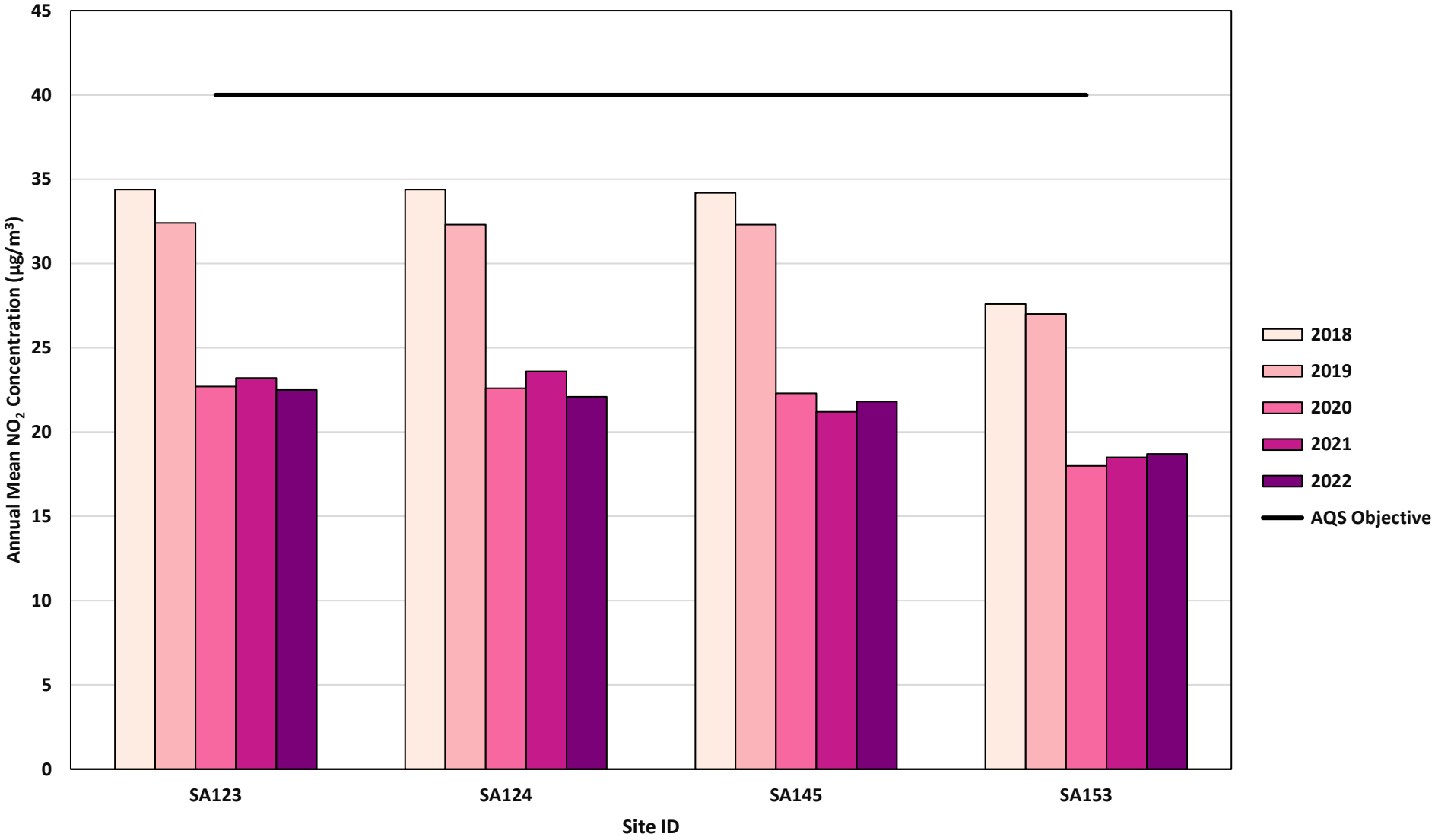


Figure A.4 – Trends in Annual Mean NO_2 Concentrations: Napsbury

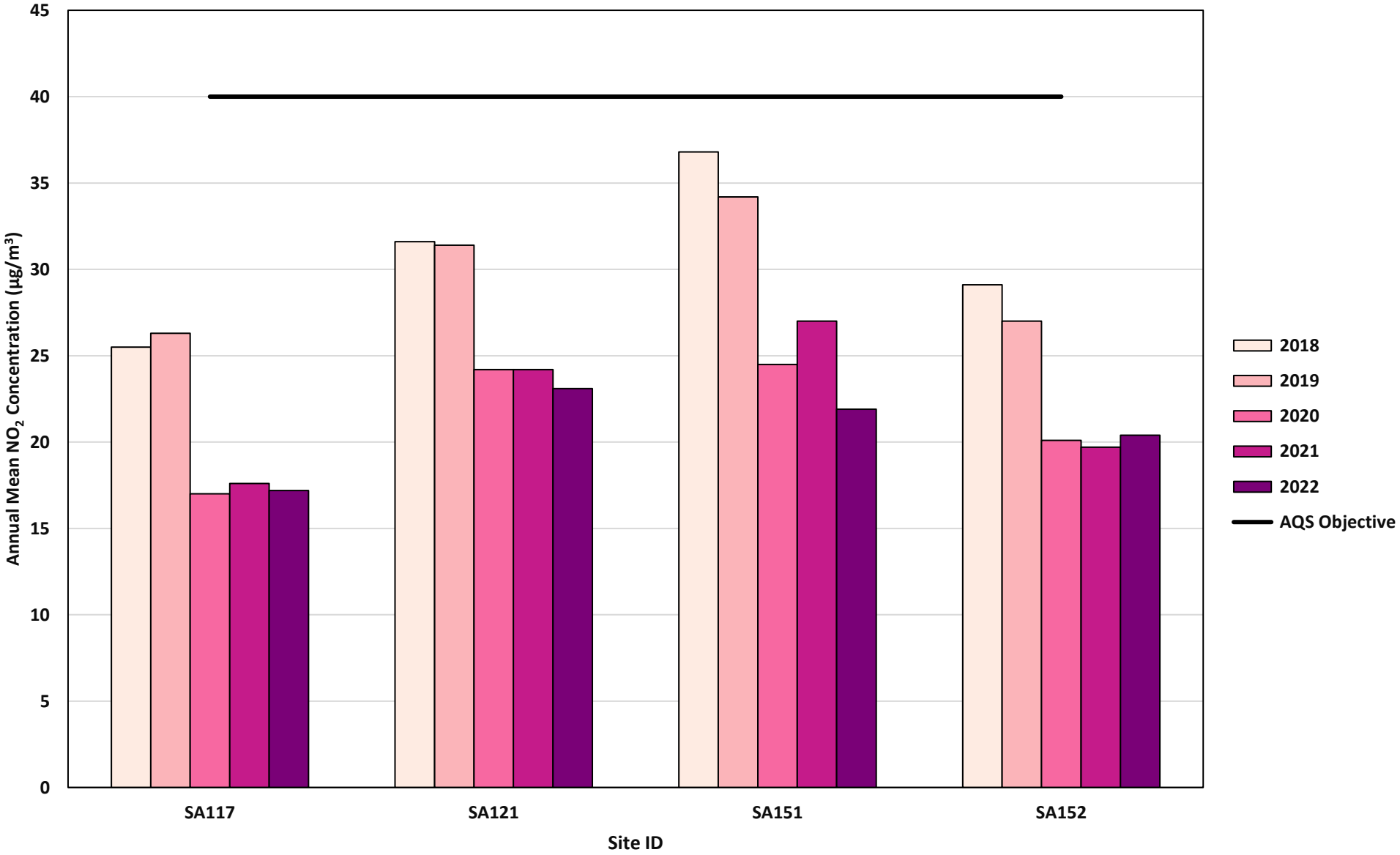


Figure A.5 – Trends in Annual Mean NO_2 Concentrations: St Albans East

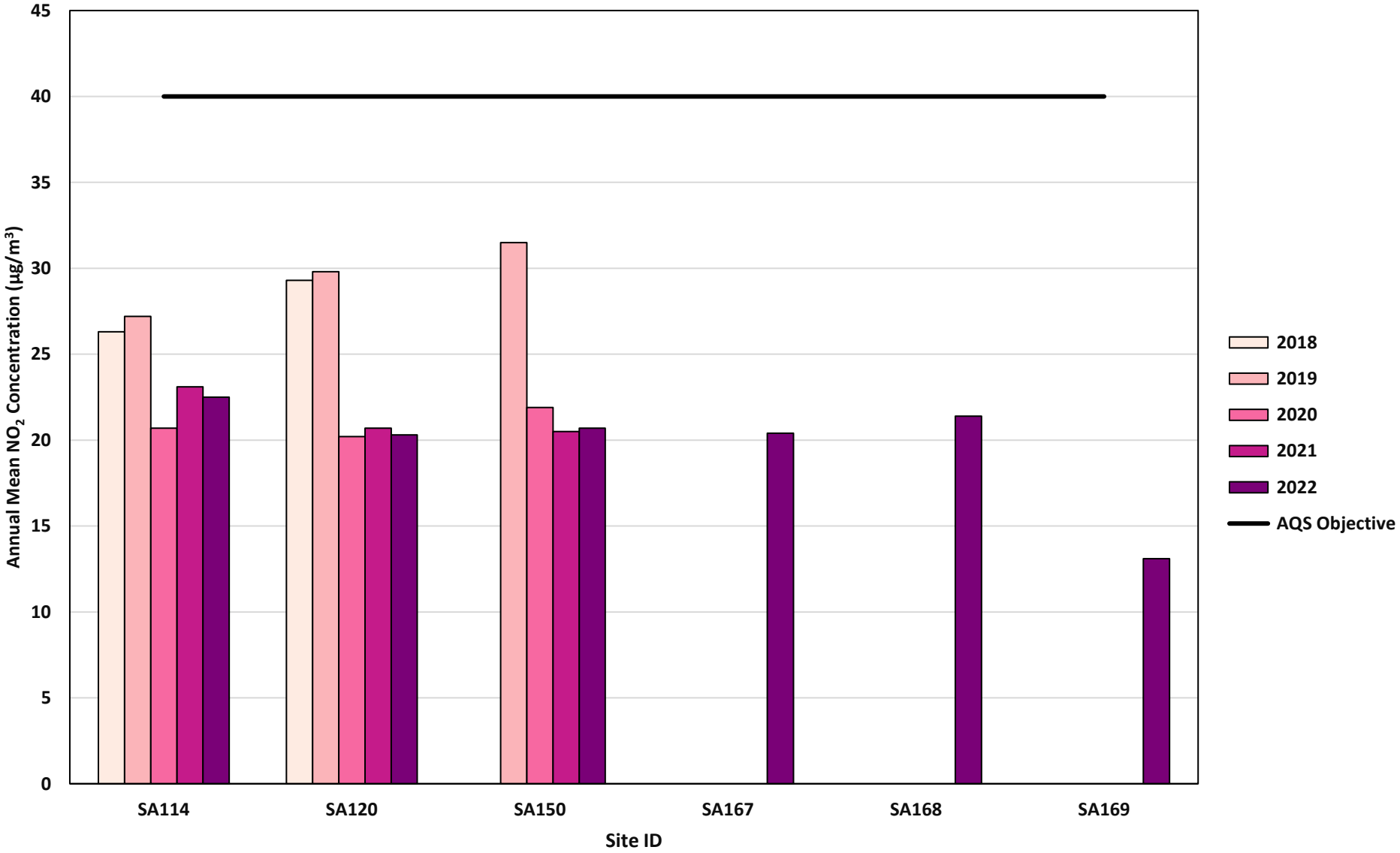


Figure A.6 – Trends in Annual Mean NO_2 Concentrations: St Albans North

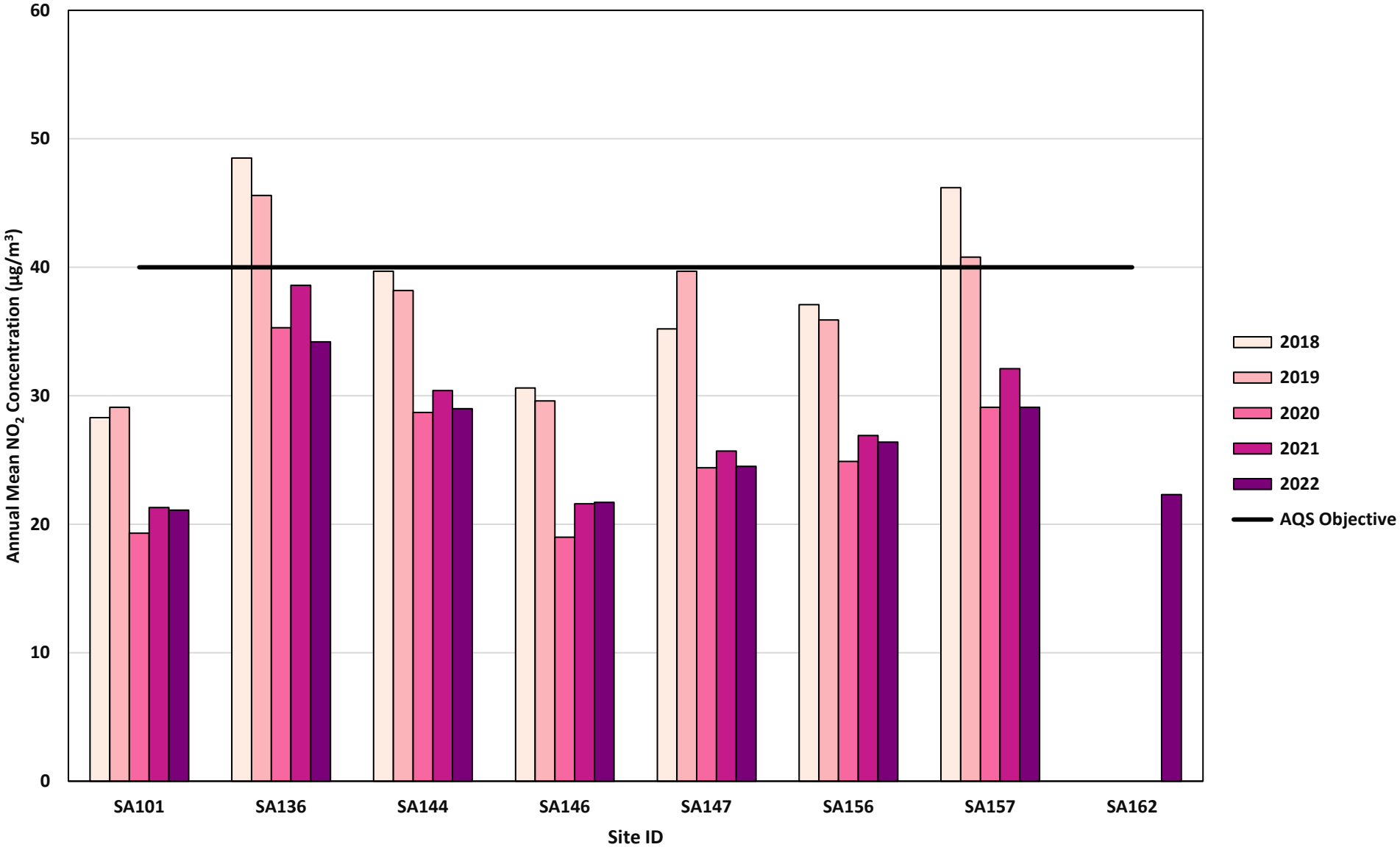


Figure A.7 – Trends in Annual Mean NO_2 Concentrations: Harpenden

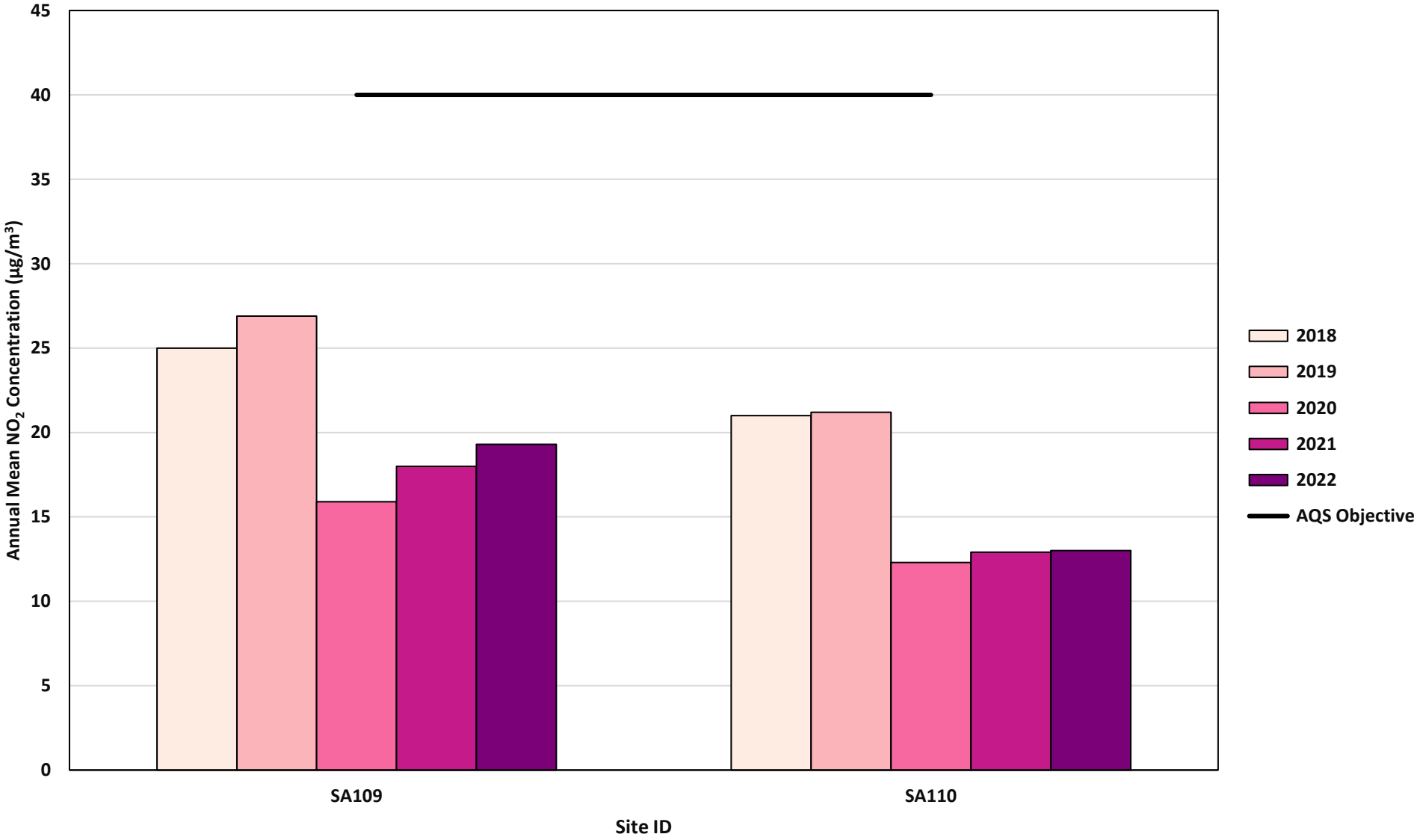


Figure A.8 – Trends in Annual Mean NO_2 Concentrations: Redbourn

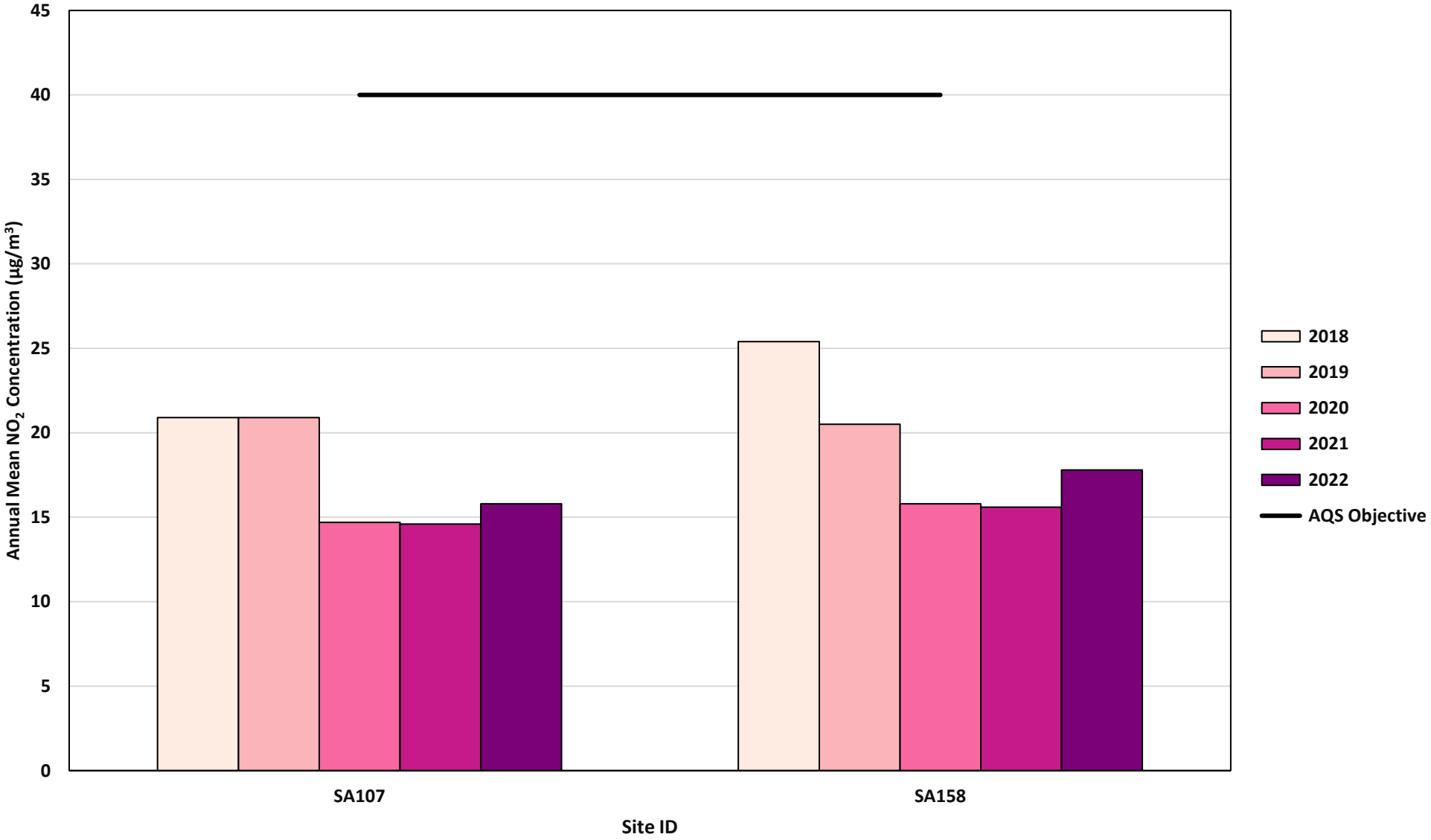


Figure A.9 – Trends in Annual Mean NO_2 Concentrations: Wheathampstead

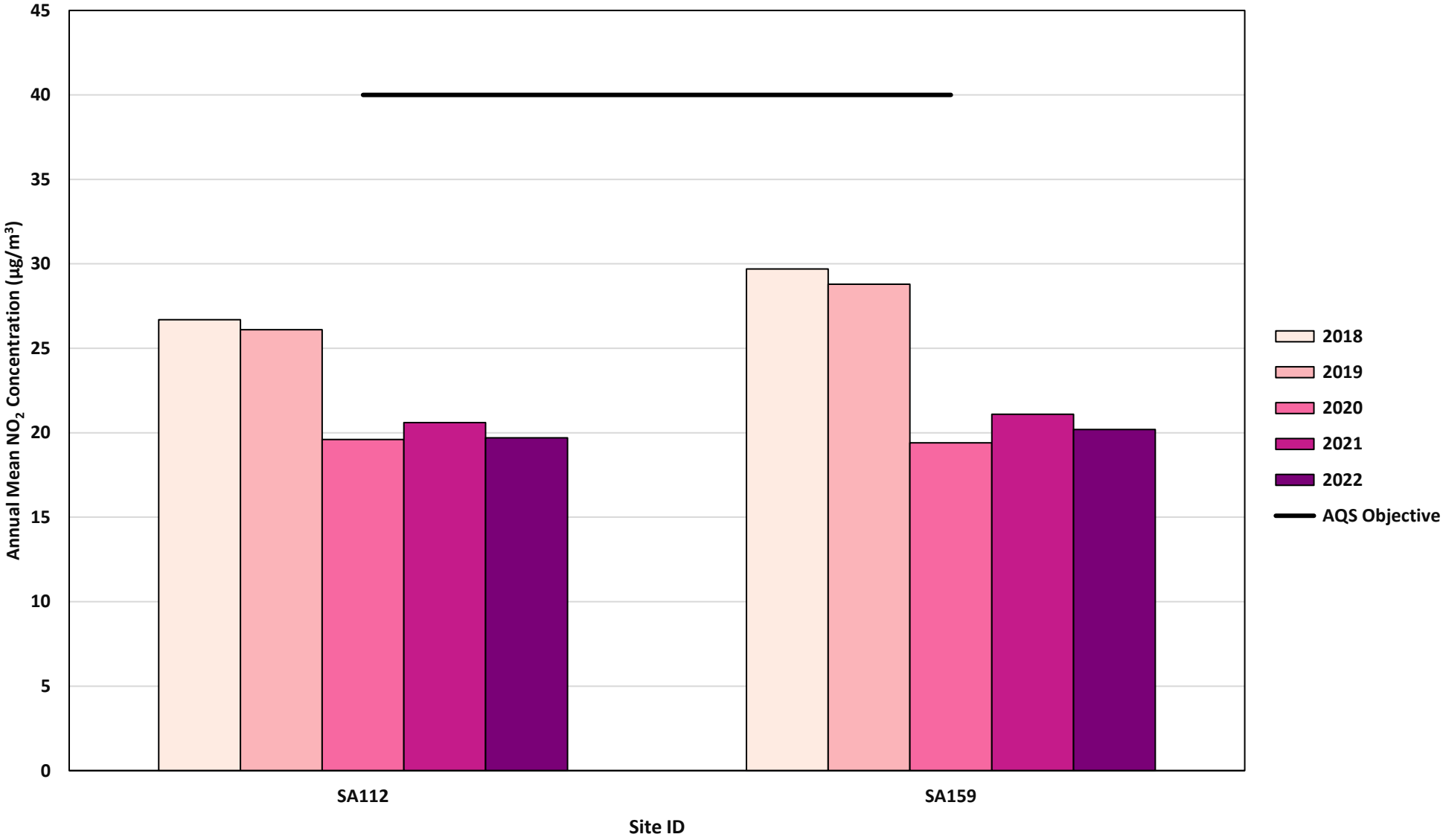
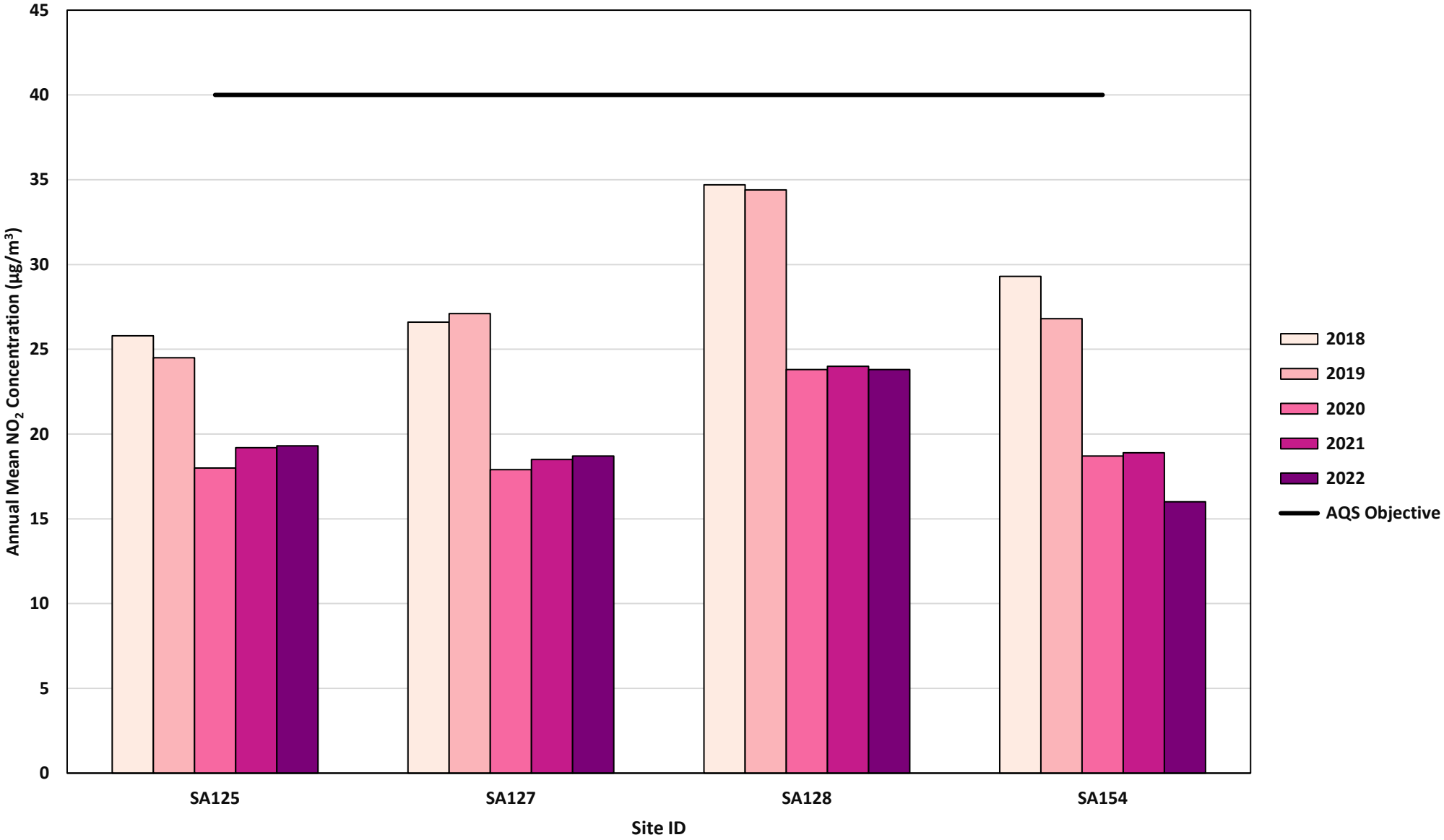


Figure A.10 – Trends in Annual Mean NO_2 Concentrations: Bricket Wood



Appendix B: Full Monthly Diffusion Tube Results for 2022

Table B.1 – NO_2 2022 Diffusion Tube Results ($\mu g/m^3$)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.83)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
SA101	515105	207476	32.7	-	27.4	23.2	21.5	19.7	22.7	20.6	25.9	25.4	29.0	31.2	25.4	21.1	-	
SA107	510138	212525	26.6	19.5	18.7	12.8	13.9	14.1	13.8	12.4	17.6	20.5	32.1	26.6	19.1	15.8	-	
SA109	513427	214308	27.6	20.4	31.3	19.7	17.0	17.8	19.6	20.9	23.2	24.0	26.0	31.8	23.3	19.3	-	
SA110	514438	214353	26.0	14.3	18.4	12.1	11.0	10.4	11.5	10.7	15.1	17.2	18.9	22.8	15.7	13.0	-	
SA112	517727	214041	30.3	22.6	27.6	17.7	18.1	-	19.7	18.6	21.7	26.7	29.2	29.5	23.8	19.7	-	
SA114	516549	207391	32.9	27.0	30.7	23.0	26.4	25.2	27.0	22.0	26.3	29.9	23.5	31.1	27.1	22.5	-	
SA117	517712	204782	29.9	17.2	27.2	20.5	15.4	13.9	15.8	17.4	20.6	21.4	22.9	26.9	20.7	17.2	-	
SA120	520053	206618	28.9	22.7	28.2	19.8	20.1	23.4	21.2	20.7	24.0	30.3	29.9	-	24.5	20.3	-	
SA121	514654	204546	35.1	20.7	28.5	23.5	24.6	24.8	26.9	25.5	29.2	32.0	31.3	32.1	27.9	23.1	-	
SA123	515311	202730	32.3	28.3	32.4	22.7	22.3	23.8	23.0	21.9	24.9	29.3	31.7	32.1	27.1	22.5	-	
SA124	515383	202528	30.5	21.2	34.6	26.3	21.9	23.0	25.0	27.3	28.1	25.2	27.6	29.4	26.7	22.1	-	
SA125	513308	202655	27.7	13.5	30.6	24.0	-	-	21.8	24.9	24.9	21.7	16.9	26.8	23.3	19.3	-	
SA127	512570	202716	30.3	21.3	27.2	20.0	18.8	17.4	19.6	19.6	22.1	21.7	23.6	28.6	22.5	18.7	-	
SA128	512004	202105	37.1	27.6	30.0	23.8	25.4	23.8	26.3	26.1	29.2	29.7	31.6	33.6	28.7	23.8	-	
SA133	514606	206801	33.2	24.7	35.8	30.0	25.3	27.0	28.4	30.8	33.3	27.2	32.4	34.6	30.2	25.1	-	
SA134	514648	206919	34.7	25.5	36.2	25.0	23.0	24.0	24.1	27.3	31.6	29.6	31.6	32.6	28.8	23.9	-	
SA135	515060	206866	34.8	25.6	31.3	23.5	21.2	22.5	22.8	18.5	27.8	29.5	32.2	35.5	27.1	22.5	-	
SA136	514883	207422	39.3	28.6	57.1	51.2	36.4	37.8	36.0	45.8	43.0	39.3	38.9	41.1	41.2	34.2	-	
SA137	514684	207105	43.1	37.6	42.4	26.7	33.0	33.9	37.3	35.2	38.4	40.2	43.4	42.9	37.9	31.4	-	
SA138	514701	207082	39.6	30.6	47.9	36.9	32.6	35.2	34.1	42.8	39.9	38.6	41.4	37.3	38.1	31.6	-	
SA140	515185	207070	28.0	19.6	29.1	18.7	14.9	15.1	16.1	16.8	21.0	24.3	27.6	30.4	21.8	18.1	-	
SA141	514722	207226	28.0	16.6	28.9	19.2	14.1	14.2	16.1	17.9	-	-	22.7	27.2	20.5	17.0	-	
SA142	510754	206091	34.1	26.0	26.7	14.0	22.8	21.1	23.2	18.9	23.7	29.8	31.3	28.9	25.0	20.8	-	
SA143	514752	207094	44.3	28.9	37.4	33.1	28.2	29.5	32.0	34.0	38.2	33.3	35.4	-	34.0	28.2	-	
SA144	514833	207347	37.2	-	36.1	28.9	34.3	-	38.1	18.4	38.6	-	41.2	41.2	34.9	29.0	-	
SA145	515257	202638	33.5	30.0	29.3	19.7	20.1	20.7	21.5	-	20.2	29.4	32.5	32.0	26.3	21.8	-	
SA146	514856	207353	35.7	25.6	25.9	-	22.4	20.3	22.2	17.5	26.7	27.9	29.7	33.9	26.2	21.7	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.83)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
SA147	514818	207357	37.5	26.7	31.6	27.5	27.4	25.0	28.5	21.8	32.8	31.5	29.7	34.7	29.5	24.5	-	
SA148	514705	207119	53.5	39.0	43.9	39.6	39.0	40.5	44.7	28.6	46.3	42.8	45.1	51.1	42.8	35.6	-	
SA149	515067	206946	32.3	24.3	33.6	24.0	19.9	20.2	20.2	43.3	25.9	30.5	30.8	35.5	28.4	23.5	-	
SA150	516590	207276	42.5	35.8	28.5	18.6	15.3	14.9	11.6	22.9	16.5	26.5	33.8	31.9	24.9	20.7	-	
SA151	518782	203507	37.4	26.9	37.0	25.8	27.5	23.7	25.4	10.6	29.5	34.1	30.8	8.2	26.4	21.9	-	
SA152	517091	204114	32.5	23.4	28.6	19.5	20.7	18.7	19.9	25.0	22.3	26.4	27.9	29.8	24.6	20.4	-	
SA153	515275	202794	30.9	21.7	27.6	19.0	18.0	16.3	17.8	17.9	20.5	24.6	27.0	29.7	22.6	18.7	-	
SA154	512776	202050	30.8	22.2	24.7	17.1	18.9	18.1	-	17.2	-	-	-	10.1	19.9	16.0	-	
SA155	514346	206329	29.5	25.8	32.1	22.3	22.9	24.6	25.6	16.1	24.7	29.3	31.1	30.3	26.2	21.7	-	
SA156	514602	207674	53.1	-	35.7	32.3	25.2	23.2	25.0	24.5	31.4	28.5	33.1	37.7	31.8	26.4	-	
SA157	514840	207613	49.6	27.2	45.1	30.4	27.4	28.8	31.8	28.0	38.8	38.0	38.9	36.2	35.0	29.1	-	
SA158	510818	212167	25.7	19.9	23.7	-	13.6	14.6	16.7	31.5	18.1	21.1	23.7	27.0	21.4	17.8	-	
SA159	517727	213901	30.8	23.7	28.3	20.8	21.2	-	-	17.2	-	19.8	28.7	28.6	24.4	20.2	-	
SA160	514682	207060	59.0	54.2	48.7	46.9	48.1	52.4	49.1	19.5	50.4	45.8	45.5	50.4	47.5	39.4	35.2	
SA161	514787	207069	40.6	32.4	32.2	24.3	28.4	27.9	27.9	49.6	31.1	35.2	38.5	35.8	33.7	27.9	-	
SA162	514596	207338	-	-	-	-	18.0	18.3	20.5	25.0	-	27.1	28.4	33.0	24.3	22.3	-	
SA163	514646	206942	-	-	-	-	33.5		36.8	-	45.0	44.6	46.6	49.4	42.7	36.1	31.0	
SA164	515024	207071	-	-	-	-	17.1	17.1	17.1	39.2	22.7	26.8	27.2	29.5	24.6	22.5	-	
SA165	515316	206719	-	-	-	-	-	25.2	29.6	16.8	-	32.3	35.2	32.6	28.6	25.1	-	
SA166	515144	206984	-	-	-	-	15.9	15.1	14.7	29.2	21.8	26.3	30.1	30.4	22.9	20.9	-	
SA167	515990	207769	-	-	-	-	12.9	17.7	19.8	15.0	24.7	27.6	29.6	31.6	22.4	20.4	-	
SA168	516144	207318	-	-	-	-	14.6	20.0	21.8	17.8	24.9	27.6	-	31.9	22.6	21.4	-	
SA169	516887	207702	-	-	-	-	6.9	9.3	10.2	9.6	12.9	17.8	21.5	26.8	14.4	13.1	-	

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

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

☐ **Local bias adjustment factor used.**

☒ **National bias adjustment factor used.**

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

☒ **St Albans District Council confirm that all 2022 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within St Albans District Council During 2022

The Council has identified one planning applications approved through 2022 which may have an impact on air quality concentrations. These planning applications relate to residential developments, including the following:

5/2022/2084 – 22-24 Grove Road Harpenden Hertfordshire, AL5 1PX

Submission of reserved matters (appearance and landscaping) following outline permission 5/2018/2000 dated 04/09/2019 for Demolition of existing and construction of three blocks creating 39 dwellings with associated underground and surface level parking, amenity space and associated works

Decision

Granted

Additional Air Quality Works Undertaken by St Albans District Council During 2022

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

QA/QC of Diffusion Tube Monitoring

St Albans City & District Council's diffusion tubes are supplied and analysed by Gradko International Limited utilising the 20% Triethanolamine (TEA) in water preparation method. Gradko International Ltd is a UKAS accredited laboratory and participates in laboratory performance and proficiency testing schemes. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO_2 concentrations reported are of a high calibre. The laboratory follows the procedures set out in the Harmonisation Practical Guidance and participates in the AIR proficiency-testing (AIRPT) scheme. Defra and the

Devolved Administrations advise that diffusion tubes used for LAQM should be obtained from laboratories that have demonstrated satisfactory performance in the AIR-PT scheme. Laboratory performance in the AIR-PT is also assessed by the National Physical.

Monitoring in 2022 was completed in adherence with the 2022 Diffusion Tube Monitoring Calendar, whereby most changeovers were completed within ±2 days of the specified date.

St Albans City & District Council have applied a national bias adjustment factor of 0.83 (based on 27 studies, version 03/23) to the 2022 monitoring data. A summary of bias adjustment factors used by St Albans City & District Council over the past five years is presented in Table C.2. As no co-location with a continuous monitor is present within the LA, the national bias adjustment factor was used.

Diffusion Tube Annualisation

LAQM.TG(22) states that annualisation is required for any site which has a data capture of less than 75%, but greater than 25%. Passive monitoring sites SA154 (67.3%), SA162 (59.6%), SA163 (51.9%), SA164 (67.3), SA165 (50.0%), SA166 (67.3%), SA167 (67.3%), SA168 (59.6%) and SA169 (67.3%) recorded data captures below 75% in 2022, therefore required annualisation. Annualisation was completed using version 3.0 of the 'Diffusion Tube Data Processing Tool'. Four continuous background monitoring locations were used:

- Borehamwood Meadow Park;
- London Haringey Priory Park South;
- London Bloomsbury; and
- London North Kensington

Four continuous background monitoring sites were applicable to use as they all had >85% data capture and therefore could be used for annualisation. Table C.1 presents the annualisation summary, taken from the 'Diffusion Tube Data Processing Tool_v3'.

Table C.1 – Annualisation Summary (concentrations presented in µg/m^3)

Site ID	Annualisation Factor Borehamwood Meadow Park	Annualisation Factor London Haringey Priory Park South	Annualisation Factor London Bloomsbury	Annualisation Factor London N. Kensington	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
SA154	1.0121	0.9755	0.9579	0.9455	0.9728	19.9	19.3
SA162	1.0394	1.1046	1.1270	1.1506	1.1054	24.3	26.9
SA163	0.9515	1.0321	1.0426	1.0527	1.0197	42.7	43.5
SA164	1.0466	1.1023	1.0973	1.1559	1.1006	24.6	27.1
SA165	0.9769	1.0598	1.0925	1.1020	1.0578	28.6	30.3

Site ID	Annualisation Factor Borehamwood Meadow Park	Annualisation Factor London Haringey Priory Park South	Annualisation Factor London Bloomsbury	Annualisation Factor London N. Kensington	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
SA166	1.0466	1.1023	1.0973	1.1559	1.1006	22.9	25.2
SA167	1.0466	1.1023	1.0973	1.1559	1.1006	22.4	24.6
SA168	1.1000	1.1383	1.1193	1.2003	1.1395	22.6	25.8
SA169	1.0466	1.1023	1.0973	1.1559	1.1006	14.4	15.8

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2023 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

St Albans District Council have applied a national bias adjustment factor of 0.83 to the 2022 monitoring data. A summary of bias adjustment factors used by St Albans District Council over the past five years is presented in Table C.2.

Table C.2 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2022	National	03/23	0.83
2021	National	05/21	0.84
2020	National	03/21	0.81
2019	National	09/20	0.93
2018	National	06/19	0.92

NO2 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.

Fall-off with distance calculations were required at 2 diffusion tube locations (SA160 and SA163), where annual mean concentrations were greater than 36 µg/m^3. This was completed using the Diffusion Tube Data Processing Tool version 3.0, in line with the methodology outlined in LAQM.TG(22). Details of this calculation are presented in Table C.3. After fall off with distance calculations both diffusion sites reported concentrations below 10% the NO_2 AQS objective.

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
SA160	2.5	5.0	39.4	14.7	35.2
SA163	1.1	3.5	36.1	14.7	31.0

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

Figure D.1 – Map of Non-Automatic Monitoring Sites: St Albans Centre and AQMA No.1

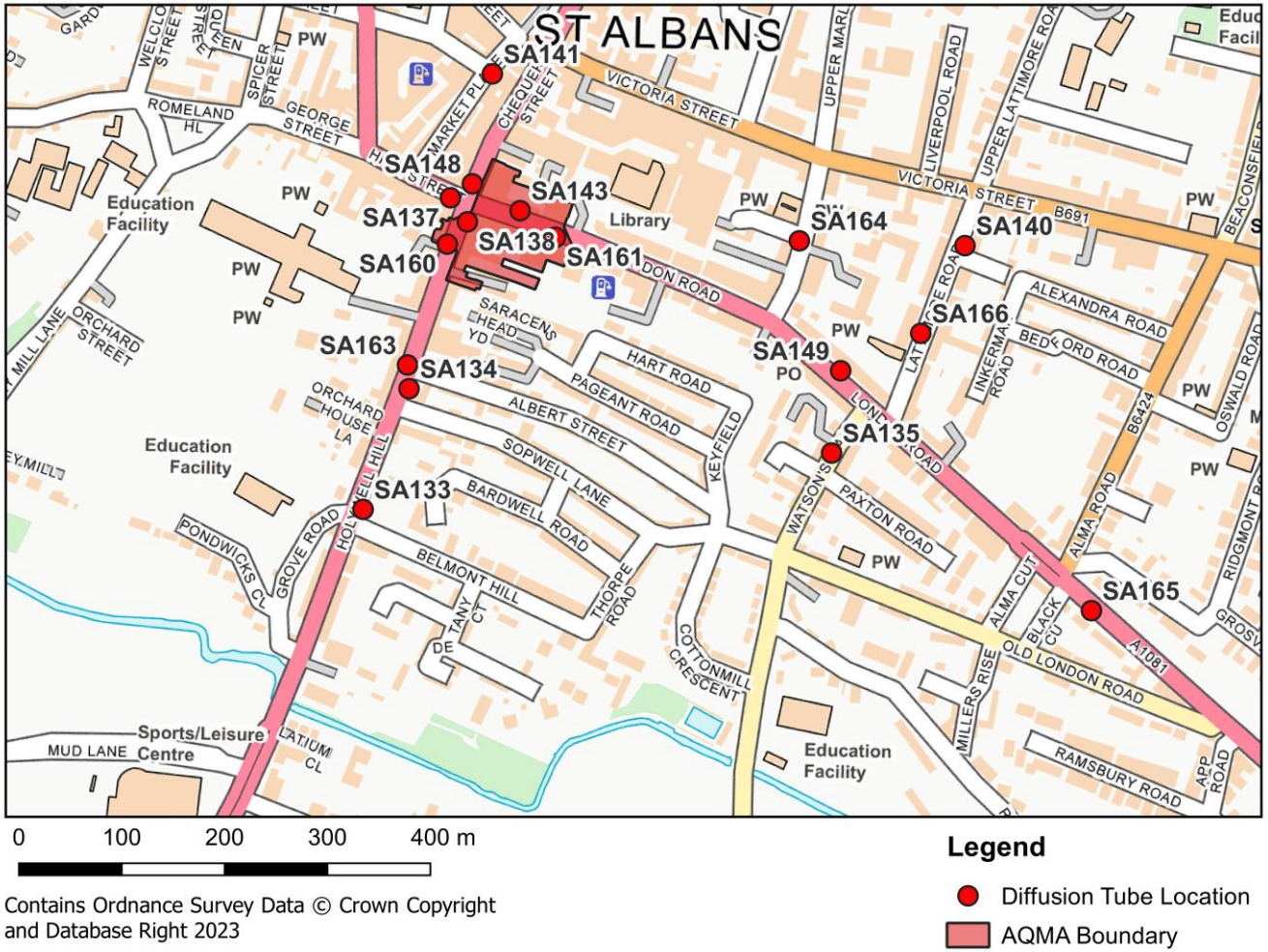


Figure D.2 – Map of Non-Automatic Monitoring Sites: Potters Crouch

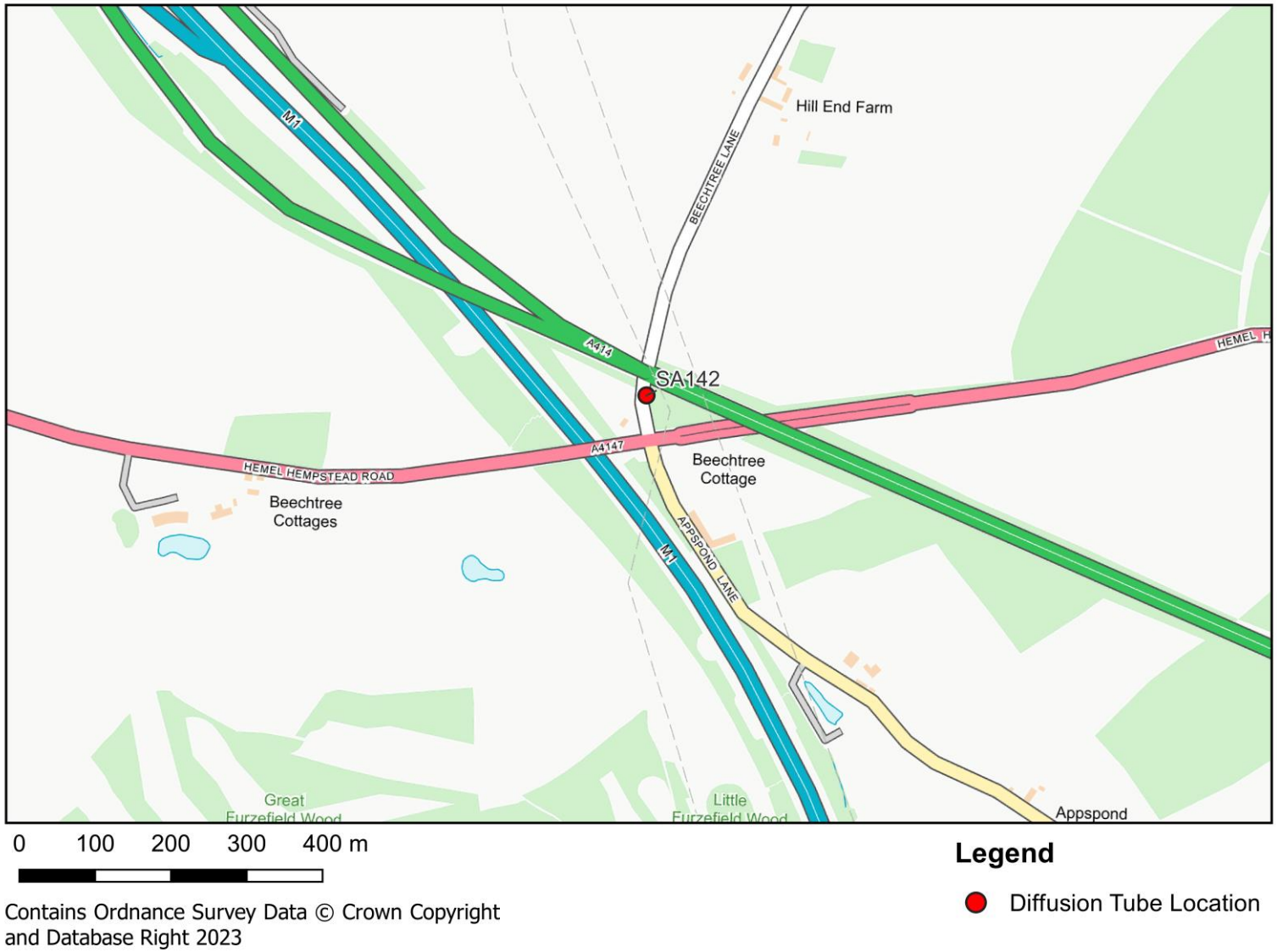


Figure D.3 – Map of Non-Automatic Monitoring Sites: Frogmore

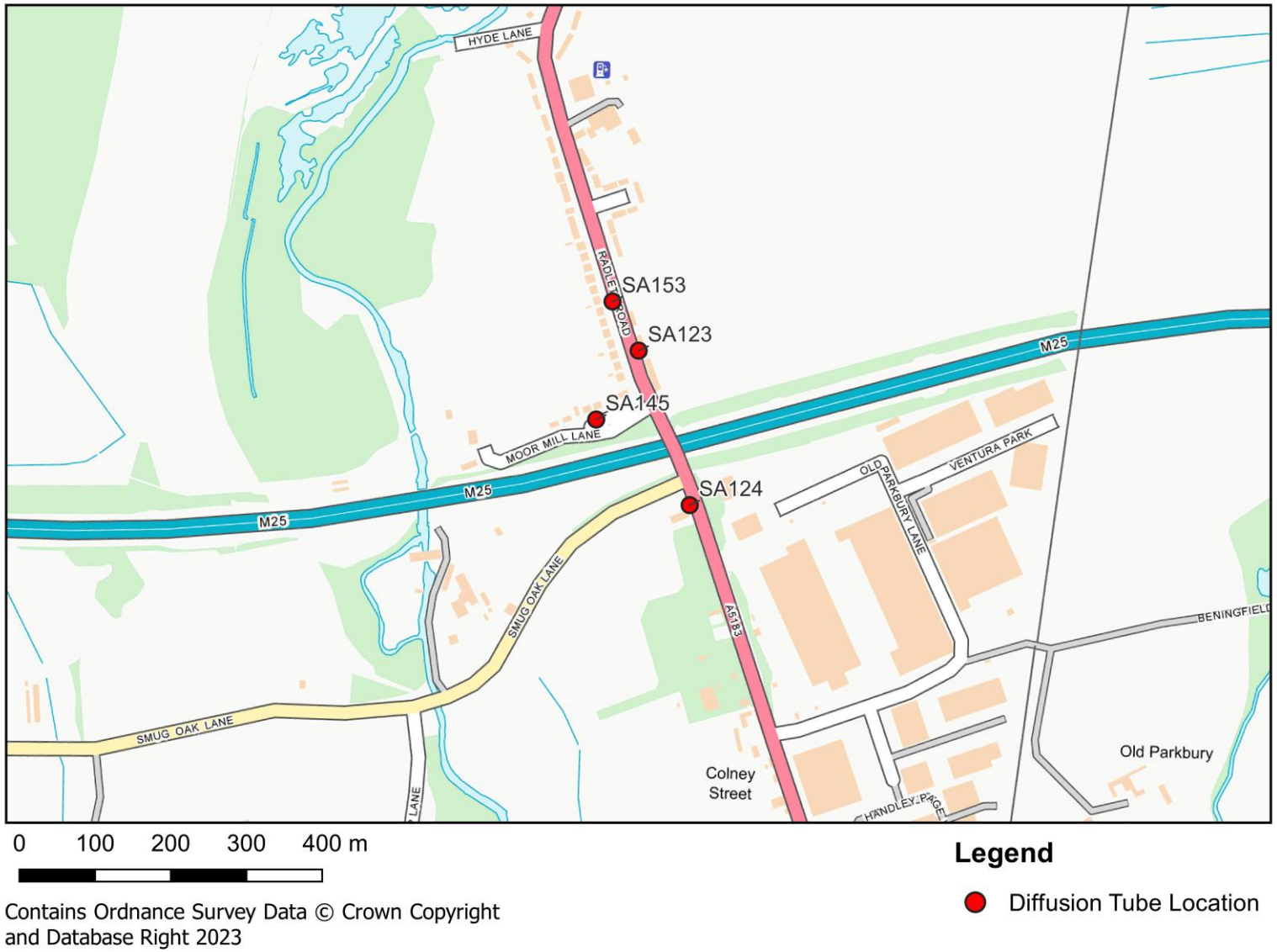


Figure D.4 – Map of Non-Automatic Monitoring Sites: Napsbury

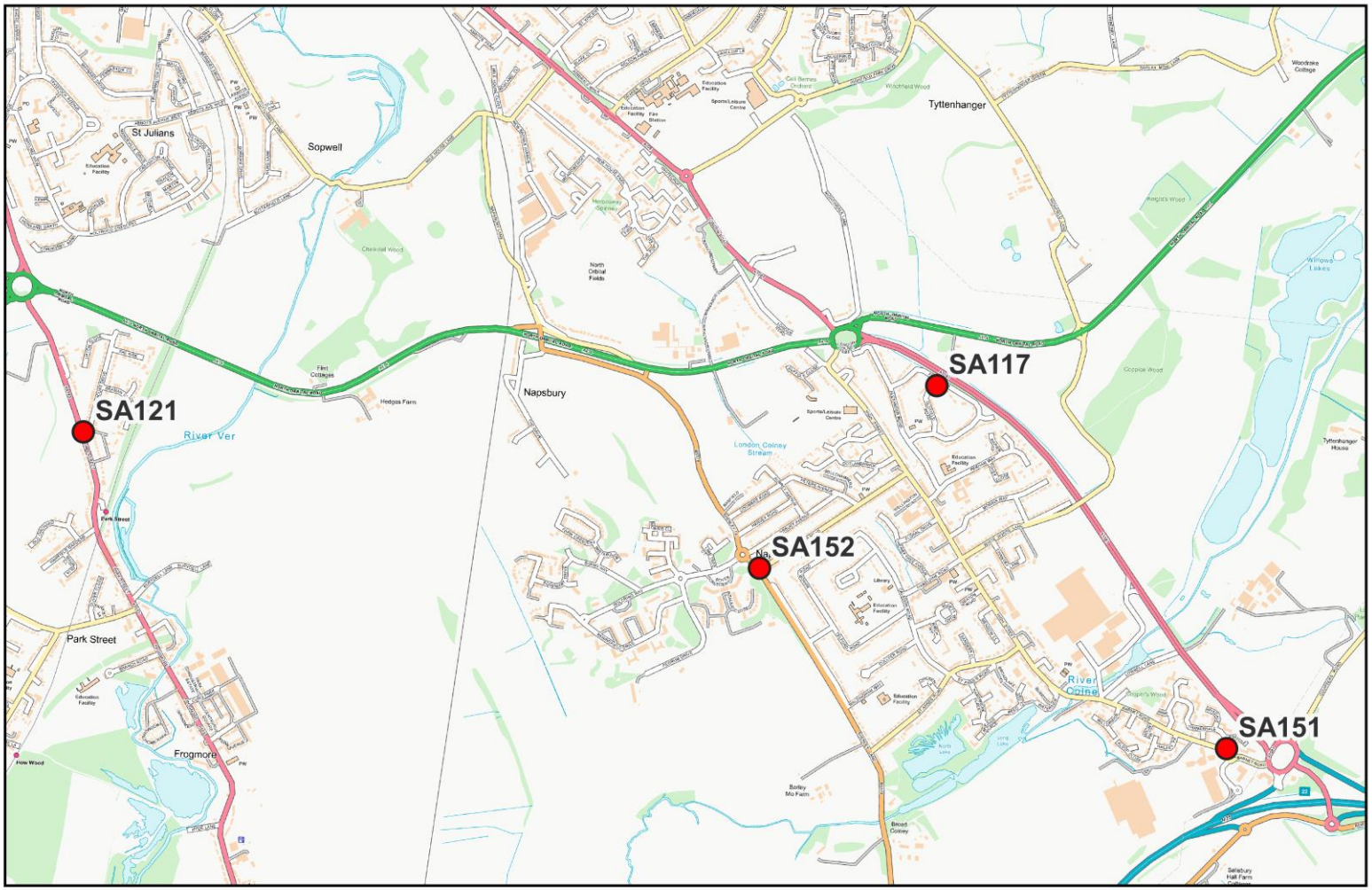


Figure D.5 – Map of Non-Automatic Monitoring Sites: St Albans East

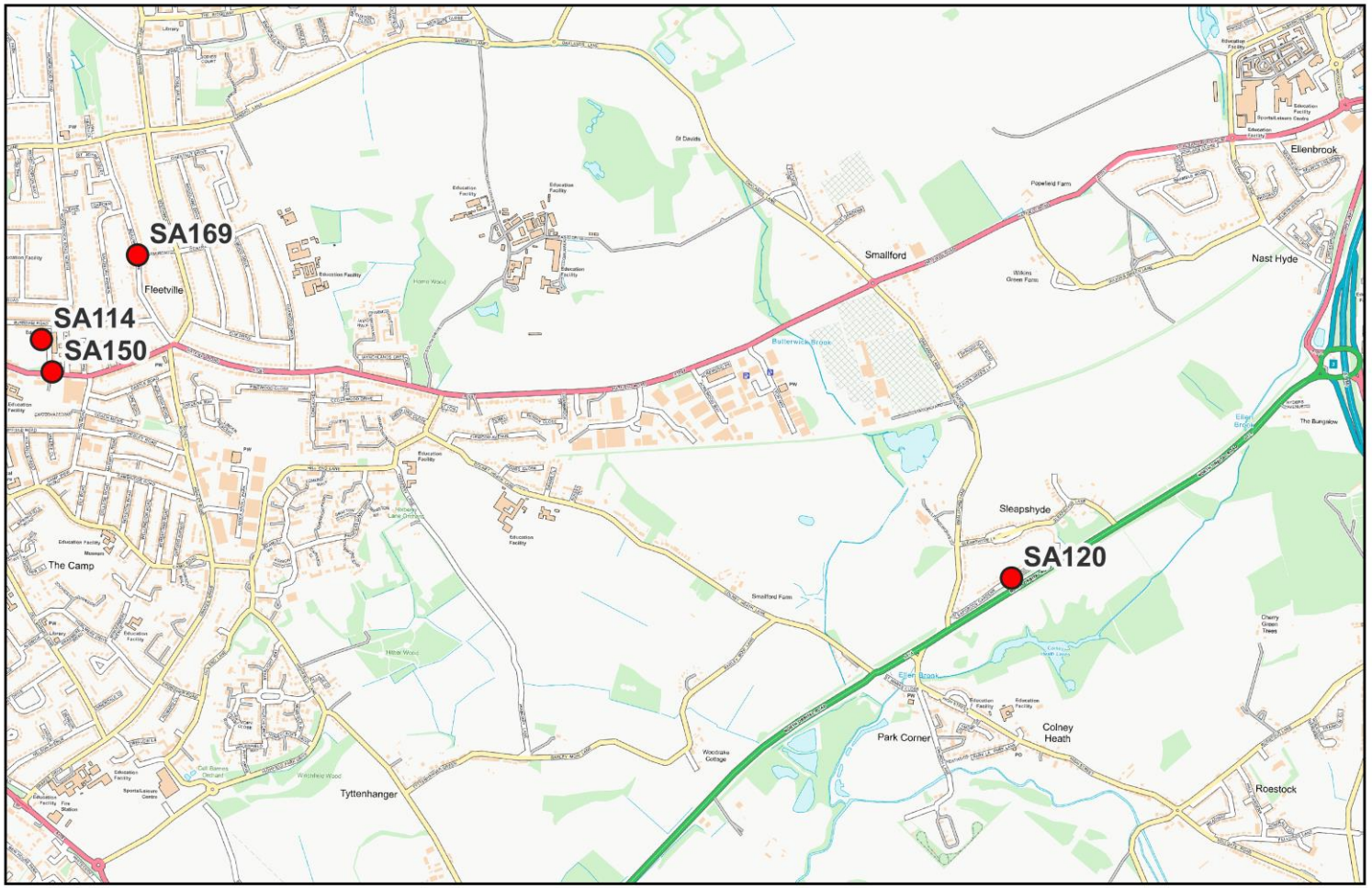


Figure D.6 – Map of Non-Automatic Monitoring Sites: St Albans North

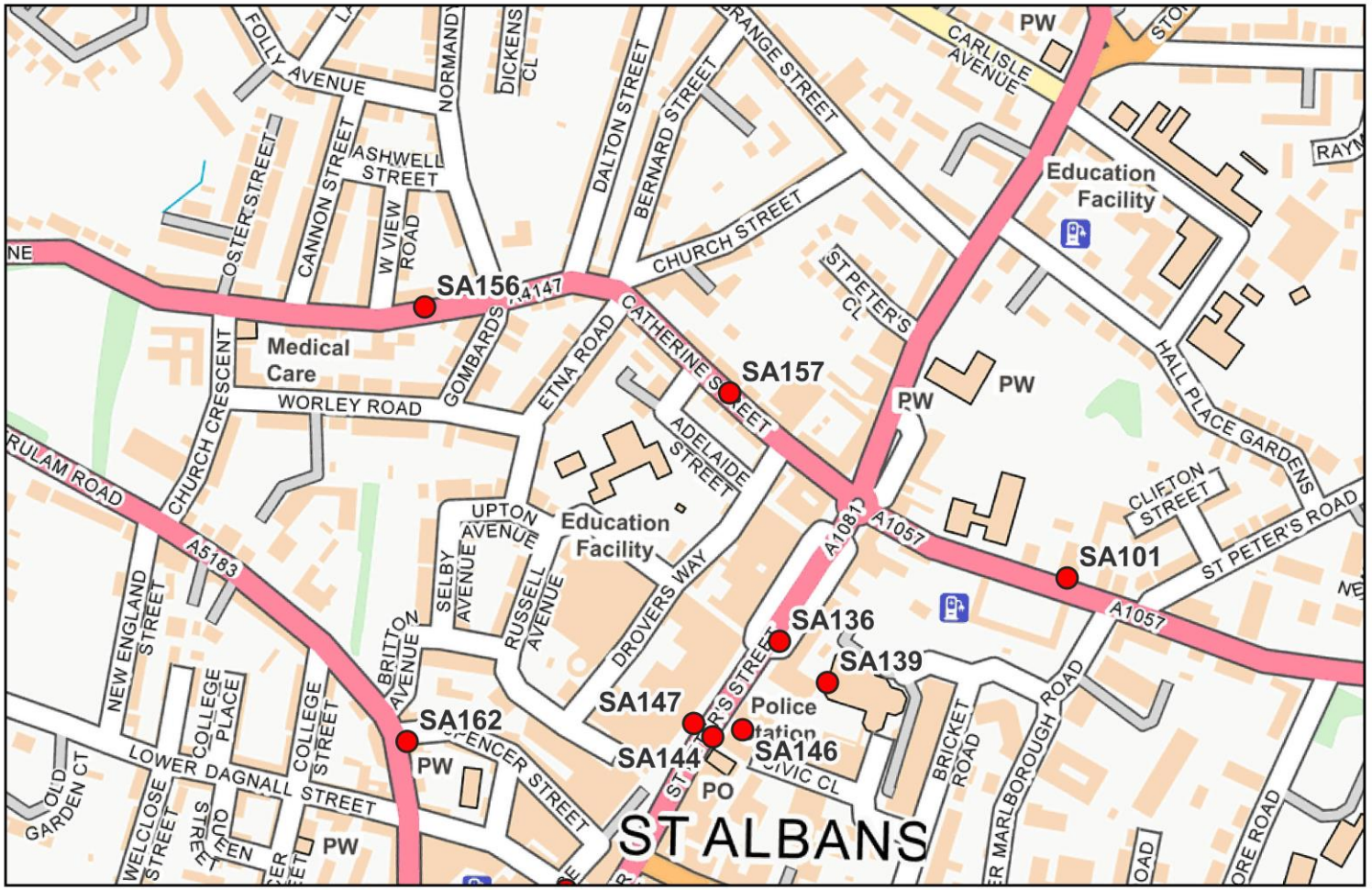


Figure D.7 – Map of Non-Automatic Monitoring Sites: Harpenden

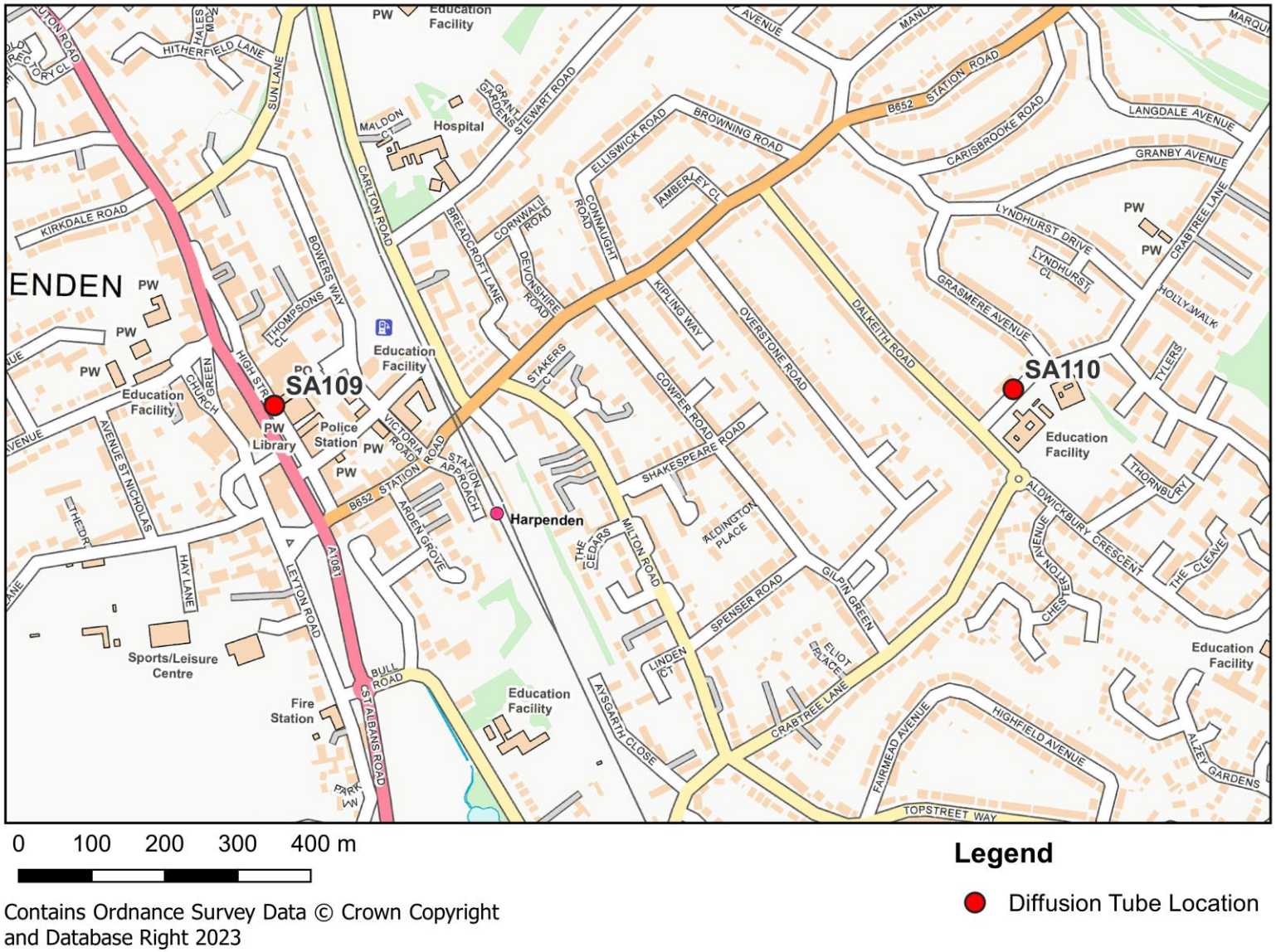


Figure D.8 – Map of Non-Automatic Monitoring Sites: Redbourn

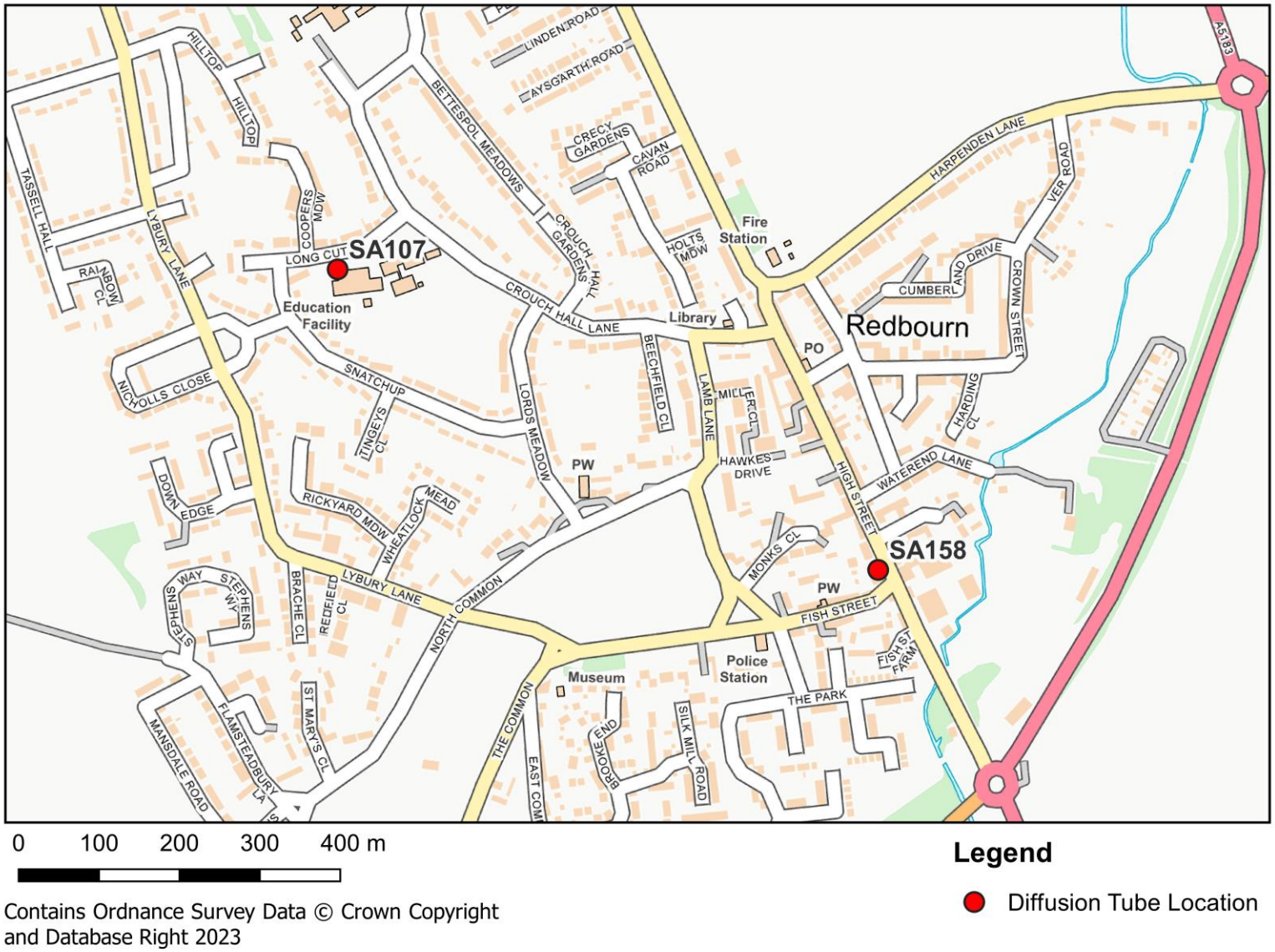


Figure D.9 – Map of Non-Automatic Monitoring Sites: Wheathampstead

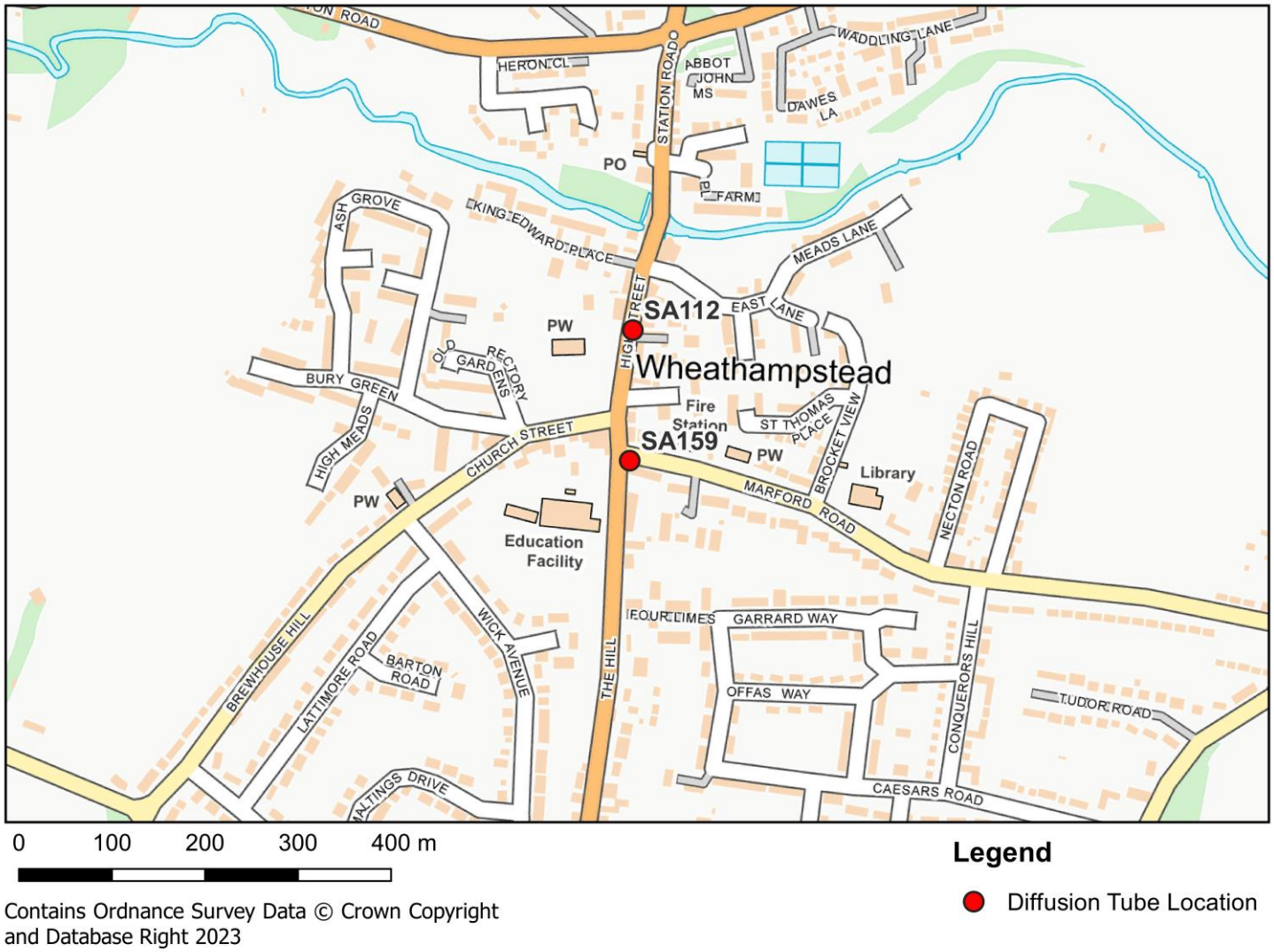
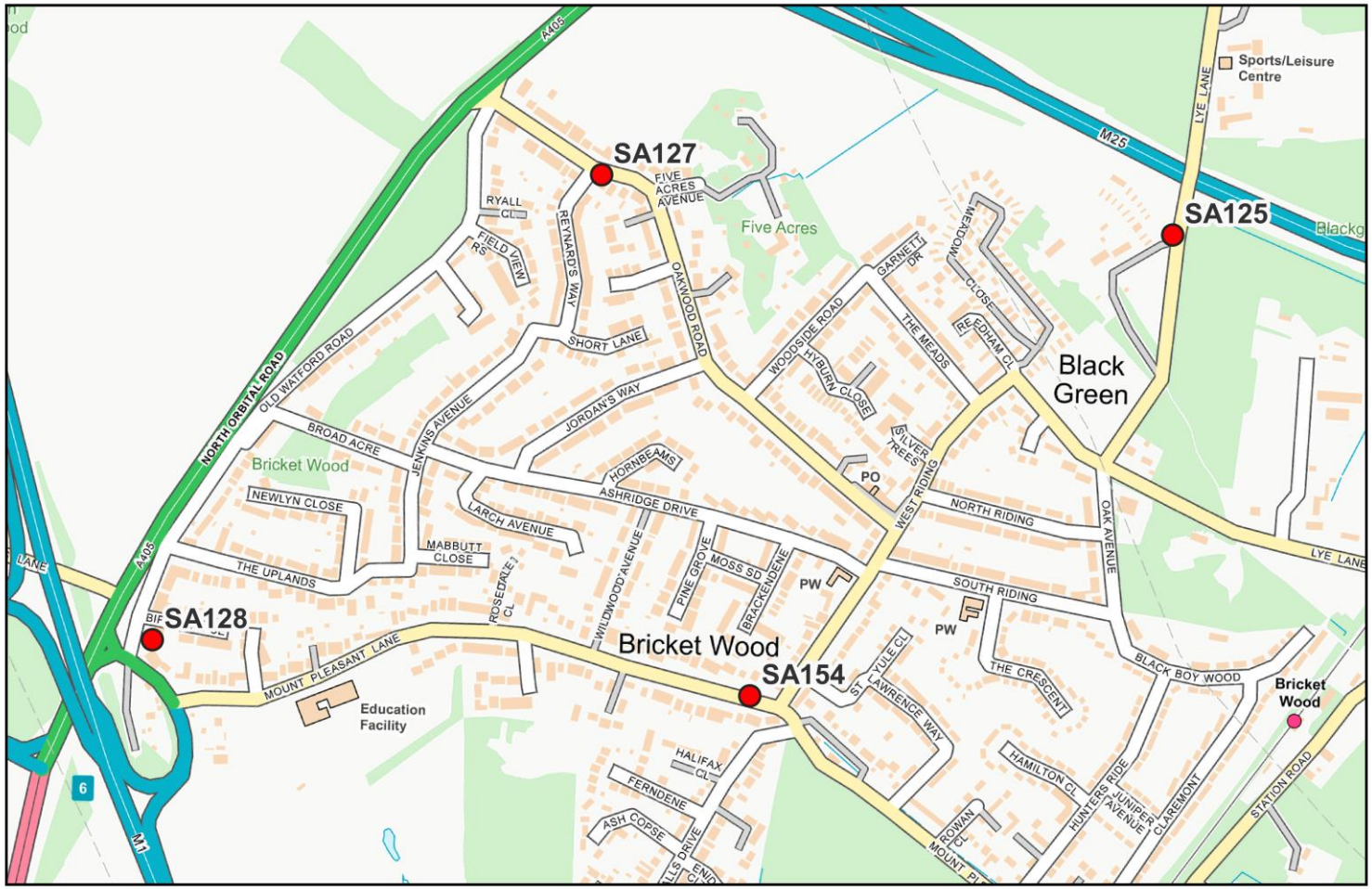


Figure D.10 – Map of Non-Automatic Monitoring Sites: Bricket Wood



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[8]

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

[8] 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
AQS	Air Quality Standard

References

- Local Air Quality Management Technical Guidance LAQM.TG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Local Air Quality Management Policy Guidance LAQM.PG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.