



St Albans City & District Council

2022 Annual Status Report

June 2022

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St Albans
City & District Council

2022 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act
1995 Local Air Quality Management

Date: June 2022

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Executive Summary: Air Quality in Our Area

Air Quality in St Albans City & 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 28,000 to 36,000 deaths at typical ages³, with a total estimated healthcare cost to the NHS and social care of £157 million in 2017⁴.

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 (NO₂). 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 414 (North Orbital Road) provides an interlink between the M25 and M1.

During 2021, 35 out of 43 passive monitoring locations recorded an increase in annual mean NO₂ concentrations from 2020. This is believed to be due to the impacts of the COVID-19 pandemic in 2020, whereby the UK Government enforced lockdowns and advised home working where possible. As such, traffic levels decreased, as did NO₂ concentrations, 2021

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

did not experience a near full year of government lockdown, therefore subject to increased levels of traffic volume from 2020. Despite this, there is still no reported exceedance of the annual mean NO₂ AQS (Air Quality Strategy) objective of 40µg/m³ within St Albans. Three passive monitoring sites reported concentrations within 10% of the NO₂ AGS, SA136, 140 and 160. SA136 (38.6 µg/m³) is not at a location of relevant exposure, and once fall-off with distance calculations have been carried out to predict the concentration at the nearest relevant receptor, the estimated concentration is 22.0µg/m³.

St Albans City & District Council currently has 3 declared Air Quality Management Areas (AQMA 1, 2 and 7) in force within the District. Details of these AQMAs can be found here: https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=254. All AQMAs have been declared due to exceedances of the NO₂ annual mean AQS objective and PM₁₀ 24 – hour AQS objective for AQMAs No.1 and 7. 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 2021 ASR. The most recent update of the AQAP measures is included within this report, see Table 2.2. Within the AQAP, measures are outlined to be completed in order to achieve the annual mean objective for NO₂ thus improving air quality within the AQMAs and therefore the District as a whole. The Council are still working towards to update the current 2003 AQAP, but currently waiting on recent developments of a Hertfordshire City Council Air Quality (HCC AQ) model which has been procured and commissioned to provide a County wide AQ model providing 1km granularity of NO₂, PM₁₀, PM_{2.5} and CO₂ which can be interrogated to inform various proposed interventions. 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. This development is expected to take place in the next 12-18months. An updated AQAP will follow.

St Albans City & District Council are currently under the process of revoking AQMA No.2 and 7 for NO₂ and PM₁₀. Compliance for the last 5 years in NO₂ monitoring data, combined with decreasing trends supports this revocation action. Based on the results for NO₂ and experience in reviewing other local authority ASRs it's not expected that the PM₁₀ 24-hour limit is being exceeded, therefore we intend to revoke. A summary of both AQMAs for the previous 5 years is shown below.

Site ID	Mean Annual NO ₂ concentrations				
	2017	2018	2019	2020	2021
AQMA No.2					
SA142	36.0	30.2	30.4	19.6	20.6
AQMA No.7					
SA123	-	34.4	32.4	22.7	23.2
SA124	33.7	34.4	32.3	22.6	23.6
SA145	37.4	34.2	32.3	22.3	21.2
SA153	-	27.6	27.0	18.0	18.5

St Alban City & District Council continue to monitor NO₂ through an extensive passive monitoring network comprising of 43 passive monitoring locations. There have been no changes in the network from 2020 and monitoring of NO₂ concentrations continues throughout St Alban City & District Council.

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 Strategy⁵ sets out the case for action, with goals to reduce exposure to harmful pollutants. The Road to Zero⁶ 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.

St Albans currently focus on monitoring and reporting NO₂ 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, project outline:

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

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

Clean Air Day promotion links to the project with an undiluted 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 sign post 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, 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 2021, there have been no exceedances of any of the relevant NO₂ 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 NO₂ 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 NO₂ diffusion tube monitoring network, in order to identify any areas which may require additional monitoring and to identify any potential areas of exceedances; and
- Complete the revocation of two Highway's Agency AQMA's (AQMA 2 & 7).

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 NO₂, PM₁₀ 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 St Albans City & District Council with the support and agreement of the following officers and departments:

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AQAP updates provided by Herts CC Officers:

Daniel Pearman – Strategy & Programme Manager (Highways Implementation & Strategy)

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

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

Further AQAP updates provided by St Albans DC Officers from Regulatory Services (Environmental Compliance, Parking, Licencing) Trees & Woodlands, Planning, & Infrastructure.

This ASR has been approved by:

Robin Ray – Head of Regulatory Services, 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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1 Local Air Quality Management

This report provides an overview of air quality in St Albans City & District 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 St Albans City & 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 12 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

A summary of AQMAs declared by St Albans City & District Council can be found in Table 2.1. The table presents a description of the 3 AQMAs that are currently designated within St Albans City & District Council. Appendix D: Map(s) of Monitoring Locations and AQMAs provides maps of AQMAs and also the air quality monitoring locations in relation to the AQMAs. The air quality objectives pertinent to the current AQMA designations are as follows:

- NO₂ annual mean;
- PM₁₀ 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	39.2	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 AQMA No. 2	Declared 02/11/2004	NO ₂ Annual Mean	The area comprising of Beechtree Cottages, Hemel Hempstead Road, St Albans (adjacent to junction of M1 (J7) and M10).	YES	52	20.6	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. 7	Declared 21/09/2004	NO ₂ Annual Mean	An area encompassing a number of domestic properties in Frogmore on Radlett Road and Colney Street in the vicinity of the M25.	YES	44	23.2	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. 7	Declared 21/09/2004	PM ₁₀ 24 Hour Mean	An area encompassing a number of domestic properties in Frogmore on Radlett Road and Colney Street in the vicinity of the M25.	YES	-	-		-

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

St Albans City & District Council confirm that all current AQAPs have been submitted to Defra.

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

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

- *Comments from last year's Appraisal have been mentioned and addressed. This is welcomed, and we encourage this to continue in future ASRs.*
- *The Council has included discussion and review of its AQMAs and identified where AQMAs could be revoked or amended. Progress on measures has been reported in detail outlining measures are expected to be completed in the coming year and measures that have been slower than expected. This level of detail should be maintained in all future reports.*
- *The Public Health Outcomes Framework was mentioned and has referred specifically to the fraction of mortality attributable to particulate air pollution indicator, providing comparison to the regional and national averages.*
- *Robust and accurate QA/QC procedures were applied. The method for calculating the bias adjustment factor was reported and detail on the version of national bias adjustment factor spreadsheet was included, but the Council should include a screen capture depicting the appropriate factor should be included.*
- *COVID-19 impacts have been discussed in Appendix F ([2021 ASR](#)) and we welcome the detailed information provided by the Council surrounding impacts of the pandemic on air quality. Constraints have been clearly stated and assigned an impact rating.*
- *The report includes thorough and detailed discussion throughout and contains the required content. The Council should continue their good work.*

St Albans City & District Council has taken forward a number of direct measures during the current reporting year of 2021 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 City & District Council have made during the reporting year of 2021 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

More detail on these measures can be found in their respective [Action Plan](#).

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 EV Charge Points in car parks at Hart Road, London Road, and Keyfield Terrace is due for completion in June 22.
- Action plan measure 15, has been implemented in 2020, and aims to enter phase 1 on 01/04/2022, for taxi vehicles to meet Euro 6 emissions standards on first application, with no renewal in respect of any licensed vehicle that does not meet or exceed Euro 5 emissions standards from 01/04/2022 onwards.

Progress on the following measures has been slower than expected:

- Action plan measure 6, DEFRA have rejected the Clean Air Zone feasibility investigation, if funding sources become available, reapplying would be considered. Further measures are currently being explored, and the council is working towards revocation of AQMA No.1 (Peahen Junction).
- Action plan measure 17, to improve Bus fleet/ lower pollutant emissions has been delayed because the pandemic has delayed investment by bus operators.

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 was completed in September 2019. In Holywell Hill there is already loading restrictions 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 to double yellow lines is still ongoing and is included in a review of existing resident zones M and N. Any changes will be made with traffic movements and environmental impact as a priority. This has not been fully agreed and is subject to further and more detailed consultations. An informal consultation has already been undertaken and further consultations are ongoing as of June 2021. Likely timescale for any changes to take affect are, financial year 2022/23.	
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 2022, are currently 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-services	
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, 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	Bus Services operated on a commercial basis

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
														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. HCC's final draft version of the Bus Services Improvement Plan (BSIP) was published. Further suggestions on the next iteration of the BSIP are welcome, as a reminder the BSIP is a live document.	
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 Travel Plan – the travel plan documents are very limited in scope, and it will require a Station Travel Plan working group to be established to take ownership of the plan and move towards achieving the objectives. GTR are in the process of developing a pilot which will involve working in partnership with HCC to work on improving sustainable and active travel to stations. It is hoped that St Albans will be part of this project. Still waiting to hear from GTR about the active travel pilot. Everything has been at a standstill while they wait to sign a new contract with the DfT. That should be any day now so hopefully HCC will hear something then, however it is likely that the Hertfordshire station chosen to be in the pilot will be one of the Sustainable Travel Towns, not St Albans.	
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	The Abbey Line CRP works closely with HCC, SADC, West Midlands Trains and other partners and stakeholders to promote the line as a sustainable transport option for journeys between St Albans and Watford. The CRP has engaged with the community to deliver projects to raise the profile of the line and improve facilities at stations on the line. The CRP remains the same. Obviously there have been no trains for a lot of the past 2 years so promotional work has been difficult but it will be ramping back up now.	

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
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 Permit prices changed to include emissions based charging to encourage cleaner car ownership. This has been done in a phased approach with more introduction of emissions based charging in 2023. In addition, all other vehicle type permits and	
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 3,500 trees planted at Council owned sites across the District in 2022. LSTF Grant claim successful as a joint SADC/HCC bid and projects mainly funded by SADC.	
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	<p>Cycling (2008) and Walking (2009) strategies in place. SADC Green Travel Plan sets out a range of actions to reduce emissions from staff travel. Staff cycle scheme relaunched in Spring 2019. • Implementation of the St Albans Green Ring route project. Improvements and investments in cycling and walking infrastructure include;</p> <ul style="list-style-type: none"> • Revised St Albans Cycling map launched Spring 2019. • Construction of cycle and walking paths in Verulamium Park. • Provision of secure cycle parking racks within the city centre and at rail stations. • Upgrading and resurfacing of the Alban Way Leisure path. • Installation of Trixie mirrors at key junctions in the city centre • Installation of new section of shared footpath/cyclepath London Road, St Albans. • Early cycle release traffic signals at Hatfield Road, St Albans • Improved access to Nicky Line in Harpenden. • New link from Alban Way to St Albans City Rail station. 	

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
														<ul style="list-style-type: none"> • 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 or a hybrid attracts a discount of £60. A new taxi licensing policy has been introduced in 2020 which includes an emission standard for engines in taxis and private hire vehicles. Currently at first application, vehicles must meet or exceed Euro 5 emissions standards. This changes from 01/04/2022, at first application vehicles must 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 permits. Since then, the work has been paused due to lack of staff resources. Engagement work paused during the pandemic will resume with HCC/CCSG Partners. Anti -idling Education & Comms focus on Clean Air day 17th June 22..	
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. The first public engagement period for the Hertfordshire to Essex Rapid Transit (HERT) closed on 28 January 2022. Findings are to be shared in Spring 22	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.PG16 (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.

St Albans City & District Council does not currently undertake any monitoring of PM₁₀ 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 NO₂ and PM₁₀ 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 NO₂ and particulate 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 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 1km² resolution based on measured concentrations from the AURN. St Albans has a 5.7% fraction of mortality calculated for 2020, which is above both the average for England overall (5.6%), and the Southwest Region (5.2%). The 2020 data is used as the 2021 dataset has not been made available at the time of writing.

The current Defra 2021 background maps for St Albans City & District Council (2018 based) show that all background concentrations of PM_{2.5} are far below the recommended 2021 annual mean AQS objective for PM_{2.5} of 20µg/m³ (9.8µg/m³). The highest concentration is predicted to be 11.1µg/m³ 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 2021 by St Albans City & District Council 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.

Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

There is currently no automatic monitoring undertaken by St Albans City & District Council in 2021.

3.1.2 Non-Automatic Monitoring Sites

St Albans City & District Council undertook non-automatic (i.e., passive) monitoring of NO₂ at 43 single diffusion tube sites during 2021. 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: Map(s) of Monitoring Locations and AQMAs. Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustments and any other adjustments applied (e.g., annualisation and/or distance correction), are included in Appendix C.

Individual Pollutants

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

3.1.3 Nitrogen Dioxide (NO₂)

Table A.2 in Appendix A compare the ratified and adjusted monitored NO₂ annual mean concentrations for the past five years with the air quality objective of 40µg/m³. Note that the concentration data presented represents the concentration at the location of the monitoring

site, following the application of bias adjustment and annualisation, as required (i.e., the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 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.

Site SA139 reported no results for the entire 2021 monitoring period, due to diffusion tubes being missing throughout the January – December period.

During 2021, all diffusion tube monitoring locations reported NO₂ values compliant with the NO₂ AQS objective, with no reported exceedances since 2019.

From 2020 – 2021, 35 sites recorded an increase in NO₂ concentrations. A slight increase can be expected due to 2020 concentrations being influenced by COVID-19, with traffic gradually returning to pre-pandemic levels throughout 2021. St Albans continues to be compliant against the AQS objective, with only 3 sites within 10% of the AQS objective (SA136, 148 and 160), the remaining sites are well below the 40 µg/m³ guideline.

Within each AQMA during 2021, all 3 AQMA's report increases in NO₂ concentrations compared to 2020. AQMA No.1 saw an increase at 3 sites (SA138, 143 160) by ~2 – 7% and a reduction of ~3% (SA161). AQMA No.2 saw an increase at SA142 by ~5% and AQMA No.7 increases at SA123 and 124 by ~2 – 4%, and a reduction by 5% at site SA145.

Figure A.1 – Figure A.10 presents a graph showing the annual mean NO₂ concentrations from 2017 – 2021. There is a general trend of increase in NO₂ concentrations over the 5-year period of monitoring results for all monitoring sites from 2020. During 2020, reduced road traffic across the UK as a result of the COVID-19 pandemic caused decreased concentrations across St Albans AQMA's, 2021 shows minimal increases in all AQMA's passive monitoring from 2020. Despite this, 2021 did not experience a near full year of government lockdown, therefore subject to increased levels of traffic volume from 2020. Both Figure A.2 and Figure A.3 show NO₂ trends in AQMA No.2 and 7 for the past 5 years, with a consistent decline and complete compliance to the NO₂ objective, this supports the council's decision to begin the revocation process for both AQMA areas. 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 NO₂ concentrations in monitoring locations outside and within AQMA areas, despite the increase from 2020 – 2021.

As annual mean concentrations were well below $60\mu\text{g}/\text{m}^3$ at all sites, according to Defra guidance, it is unlikely that any exceedances of the 1-hour mean objective has occurred at any sites.

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 St Albans	Roadside	515105	207476	NO ₂	N	9.3	1.6	No	2.7
SA107	Redbourn JMI Long Cutt Redbourn (RELOCATED July 2018)	Urban Background	510138	212525	NO ₂	N	11.3	2.2	No	2.6
SA109	High Street Harpenden (RELOCATED July 2018)	Kerbside	513427	214308	NO ₂	N	6.3	0.1	No	2.6
SA110	Crabtree JMI Crabtree Lane Harpenden SA0 (RELOCATED July 2018)	Kerbside	514438	214353	NO ₂	N	7.5	1.5	No	2.6
SA112	High Street Wheathampstead (RELOCATED July 2018)	Kerbside	517727	214041	NO ₂	N	16.3	1.7	No	2.6
SA114	Fleetville 1 Royal Road St Albans	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

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)
SA123	Radlett Road Park Street SA031 (RELOCATED July 2018)	Kerbside	515311	202730	NO ₂	Y – AQMA No.7	4.4	0.3	No	2.4
SA124	Smug Oak Lane Bricket Wood	Kerbside	515383	202528	NO ₂	Y – AQMA No.7	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
SA128	Waterdale Old Watford Rd Bricket Wd A405	Roadside	512004	202105	NO ₂	N	1.0	25.0	No	2.4
SA133	Belmont Hill St Albans	Kerbside	514606	206801	NO ₂	N	13.8	2.5	No	2.4
SA134	Albert Street St Albans	Kerbside	514648	206919	NO ₂	N	5.0	2.2	No	2.6
SA135	Watsons Walk St Albans SA040 (RELOCATED July 2018)	Kerbside	515060	206866	NO ₂	N	3.8	1.2	No	2.5
SA136	St Peter's Street St Albans	Kerbside	514883	207422	NO ₂	N	34.3	1.1	No	2.3
SA137	High Street St Albans (RELOCATED July 2018)	Kerbside	514684	207105	NO ₂	N	4.3	1.6	No	2.5
SA138	Peahen PH Holywell Hill St Albans	Kerbside	514701	207082	NO ₂	Y – AQMA No.1	15.6	2.6	No	2.6
SA139	Civic Centre St Peter's St, St Albans	Urban Background	514921	207391	NO ₂	N	73.1	2.4	No	3.0
SA140	Lattimore Road St Albans	Kerbside	515185	207070	NO ₂	N	6.3	2.5	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)
SA141	Town Hall St Albans	Urban Background	514722	207226	NO ₂	N	1.9	1.5	No	2.6
SA142	Beech Tree Cottage St Albans (AL3 6AR)	Roadside	510754	206091	NO ₂	Y – AQMA No.2	20.2	0.0	No	2.3
SA143	London Road West St Albans (RELOCATED July 2018)	Kerbside	514752	207094	NO ₂	Y – AQMA No.1	0.6	2.8	No	2.6
SA144	Forester House 1 St Peter's Street St Albans	Kerbside	514833	207347	NO ₂	N	9.3	1.2	No	2.6
SA145	Moor Mill Lane Colney Street	Roadside	515257	202638	NO ₂	Y – AQMA No.7	12.5	1.6	No	2.3
SA146	Forrester House 2 St Peter's Street St Albans (NEW July 2018)	Urban Background	514856	207353	NO ₂	N	5.6	21.9	No	2.6
SA147	Shops St Peter's Street St Albans (NEW July 2018)	Urban Background	514818	207357	NO ₂	N	47.5	15.6	No	2.5
SA148	Chequer Street St Albans (NEW July 2018)	Kerbside	514705	207119	NO ₂	N	3.1	0.7	No	2.4
SA149	London Road East St Albans (NEW July 2018)	Roadside	515067	206946	NO ₂	N	5.6	2.5	No	2.6
SA150	Hatfield/Royal Road St Albans (NEW July 2018)	Kerbside	516590	207276	NO ₂	N	7.5	1.8	No	2.3
SA151	Thamesdale London Colney (NEW July 2018)	Roadside	518782	203507	NO ₂	N	4.4	1.5	No	2.3
SA152	Shenley Lane/Kings Road London	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)
	Colney (NEW July 2018)									
SA153	Watling Street Park Street (NEW July 2018)	Kerbside	515275	202794	NO ₂	N	12.0	1.4	No	2.4
SA154	Mount Pleasant Lane Bricket Wood (NEW July 2018)	Roadside	512776	202050	NO ₂	N	21.9	2.0	No	2.5
SA155	Westminster Court St Albans (NEW July 2018)	Kerbside	514346	206329	NO ₂	N	27.5	1.8	No	2.4
SA156	Folly Lane East St Albans (NEW July 2018)	Roadside	514602	207674	NO ₂	N	2.5	1.6	No	2.4
SA157	Catherine Street St Albans (NEW July 2018)	Kerbside	514840	207613	NO ₂	N	1.3	0.5	No	2.4
SA158	High Street Redbourn (NEW July 2018)	Roadside	510818	212167	NO ₂	N	2.5	1.7	No	2.6
SA159	Marford Road Wheathampstead (NEW July 2018)	Roadside	517727	213901	NO ₂	N	2.5	2.0	No	2.6
SA160	Hollywell Hill St Albans (NEW July 2018)	Roadside	514682	207060	NO ₂	Y – AQMA No.1	2.5	2.5	No	2.4
SA161	London Road Centre St Albans (NEW July 2018)	Kerbside	514787	207069	NO ₂	Y – AQMA No.1	1.9	0.5	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 NO₂ Monitoring Results: Non-Automatic Monitoring (µg/m³)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2021 (%) ⁽²⁾	2017	2018	2019	2020	2021
SA101	515105	207476	Roadside	90.4	90.4	28.5	28.3	29.1	19.3	21.3
SA107	510138	212525	Urban Background	100	100.0	-	20.9	20.9	14.7	14.6
SA109	513427	214308	Kerbside	92.3	92.3	-	25.0	26.9	15.9	18.0
SA110	514438	214353	Kerbside	100	100.0	-	21.0	21.2	12.3	12.9
SA112	517727	214041	Kerbside	100	100.0	-	26.7	26.1	19.6	20.6
SA114	516549	207391	Urban Background	100	100.0	26.4	26.3	27.2	20.7	23.1
SA117	517712	204782	Kerbside	100	100.0	23.0	25.5	26.3	17.0	17.6
SA120	520053	206618	Kerbside	100	100.0	30.3	29.3	29.8	20.2	20.7
SA121	514654	204546	Kerbside	90.4	90.4	35.0	31.6	31.4	24.2	24.2
SA123	515311	202730	Kerbside	100	100.0	-	34.4	32.4	22.7	23.2
SA124	515383	202528	Kerbside	100	100.0	33.7	34.4	32.3	22.6	23.6
SA125	513308	202655	Kerbside	100	100.0	26.2	25.8	24.5	18.0	19.2
SA127	512570	202716	Kerbside	100	100.0	25.9	26.6	27.1	17.9	18.5
SA128	512004	202105	Roadside	100	90.4	34.3	34.7	34.4	23.8	24.0
SA133	514606	206801	Kerbside	100	100.0	34.1	31.8	33.4	21.5	25.2
SA134	514648	206919	Kerbside	100	100.0	32.8	34.8	36.4	20.9	23.0
SA135	515060	206866	Kerbside	100	100.0	-	34.3	32.8	20.1	23.0
SA136	514883	207422	Kerbside	100	92.3	52.5	48.5	45.6	35.3	38.6
SA137	514684	207105	Kerbside	100	100.0	-	-	41.8	25.7	24.8
SA138	514701	207082	Kerbside	100	100.0	41.2	45.2	43.6	27.5	29.5
SA139	514921	207391	Urban Background	0	0	24.4	22.4	21.8	15.0	-
SA140	515185	207070	Kerbside	100	100.0	26.5	27.3	26.3	17.3	18.3
SA141	514722	207226	Urban Background	100	82.7	-	26.8	-	15.2	16.1
SA142	510754	206091	Roadside	100	92.3	36.0	30.2	30.4	19.6	20.6
SA143	514752	207094	Kerbside	100	100.0	-	42.4	40.8	25.6	26.2
SA144	514833	207347	Kerbside	100	90.4	46.5	39.7	38.2	28.7	30.4
SA145	515257	202638	Roadside	100	100.0	37.4	34.2	32.3	22.3	21.2
SA146	514856	207353	Urban Background	100	92.3	-	30.6	29.6	19.0	21.6
SA147	514818	207357	Urban Background	100	100.0	-	35.2	39.7	24.4	25.7
SA148	514705	207119	Kerbside	100	100.0	-	52.7	49.0	35.8	38.4
SA149	515067	206946	Roadside	100	100.0	-	32.3	30.0	20.2	21.6
SA150	516590	207276	Kerbside	100	100.0	-	-	31.5	21.9	20.5
SA151	518782	203507	Roadside	100	100.0	-	36.8	34.2	24.5	27.0
SA152	517091	204114	Roadside	100	100.0	-	29.1	27.0	20.1	19.7
SA153	515275	202794	Kerbside	100	100.0	-	27.6	27.0	18.0	18.5

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
SA154	512776	202050	Roadside	100	100.0	-	29.3	26.8	18.7	18.9
SA155	514346	206329	Kerbside	100	100.0	-	31.3	29.4	20.2	21.4
SA156	514602	207674	Roadside	100	100.0	-	37.1	35.9	24.9	26.9
SA157	514840	207613	Kerbside	100	100.0	-	46.2	40.8	29.1	32.1
SA158	510818	212167	Roadside	100	100.0	-	25.4	20.5	15.8	15.6
SA159	517727	213901	Roadside	100	100.0	-	29.7	28.8	19.4	21.1
SA160	514682	207060	Roadside	100	100.0	-	59.3	54.7	36.7	39.2
SA161	514787	207069	Kerbside	100	100.0	-	-	38.7	23.9	23.1

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 $\mu\text{g}/\text{m}^3$.

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

NO₂ annual means exceeding $60\mu\text{g}/\text{m}^3$, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.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 NO₂ Concentrations: AQMA No.1 and St Albans Centre

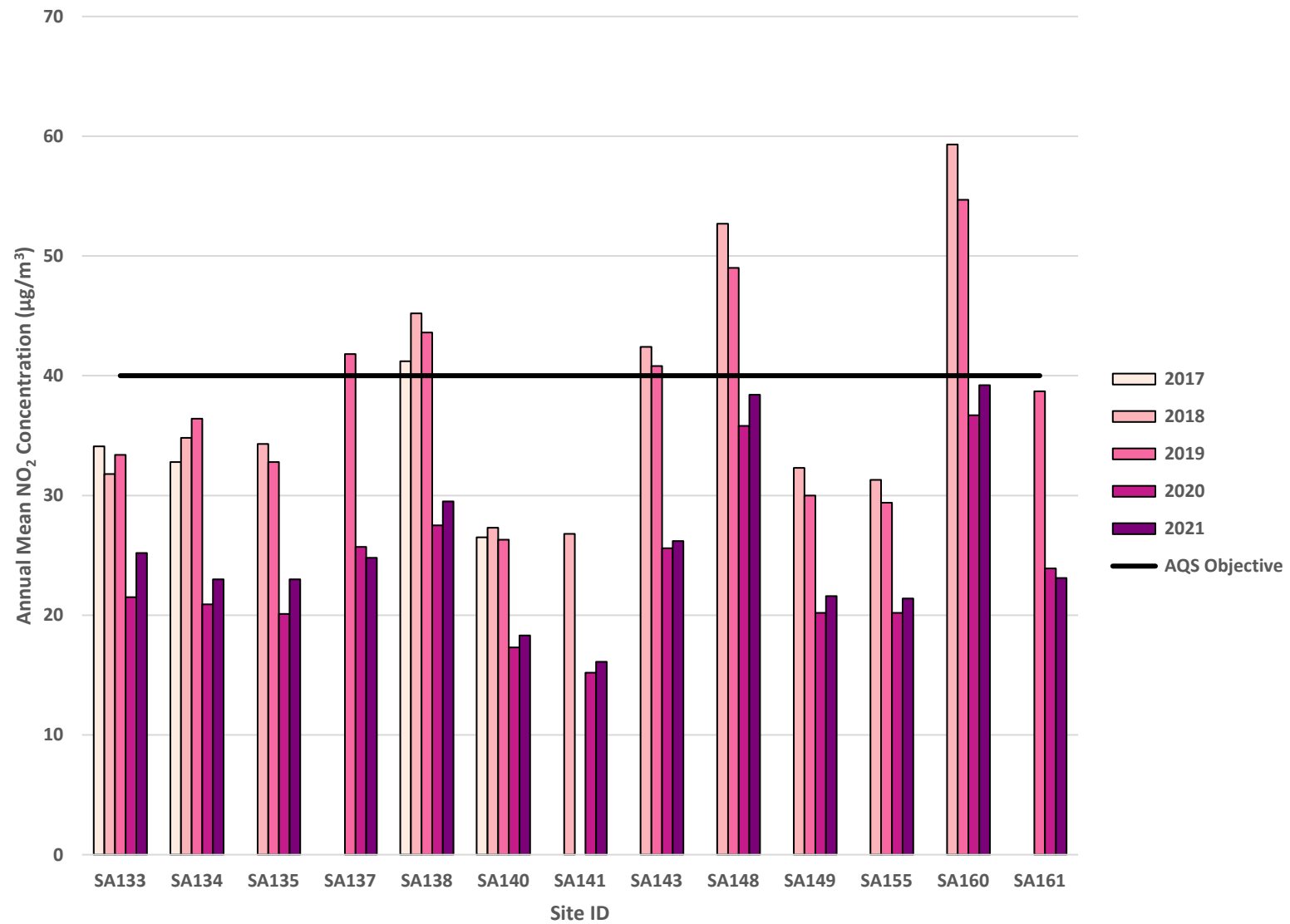


Figure A.2 – Trends in Annual Mean NO₂ Concentrations: AQMA No.2

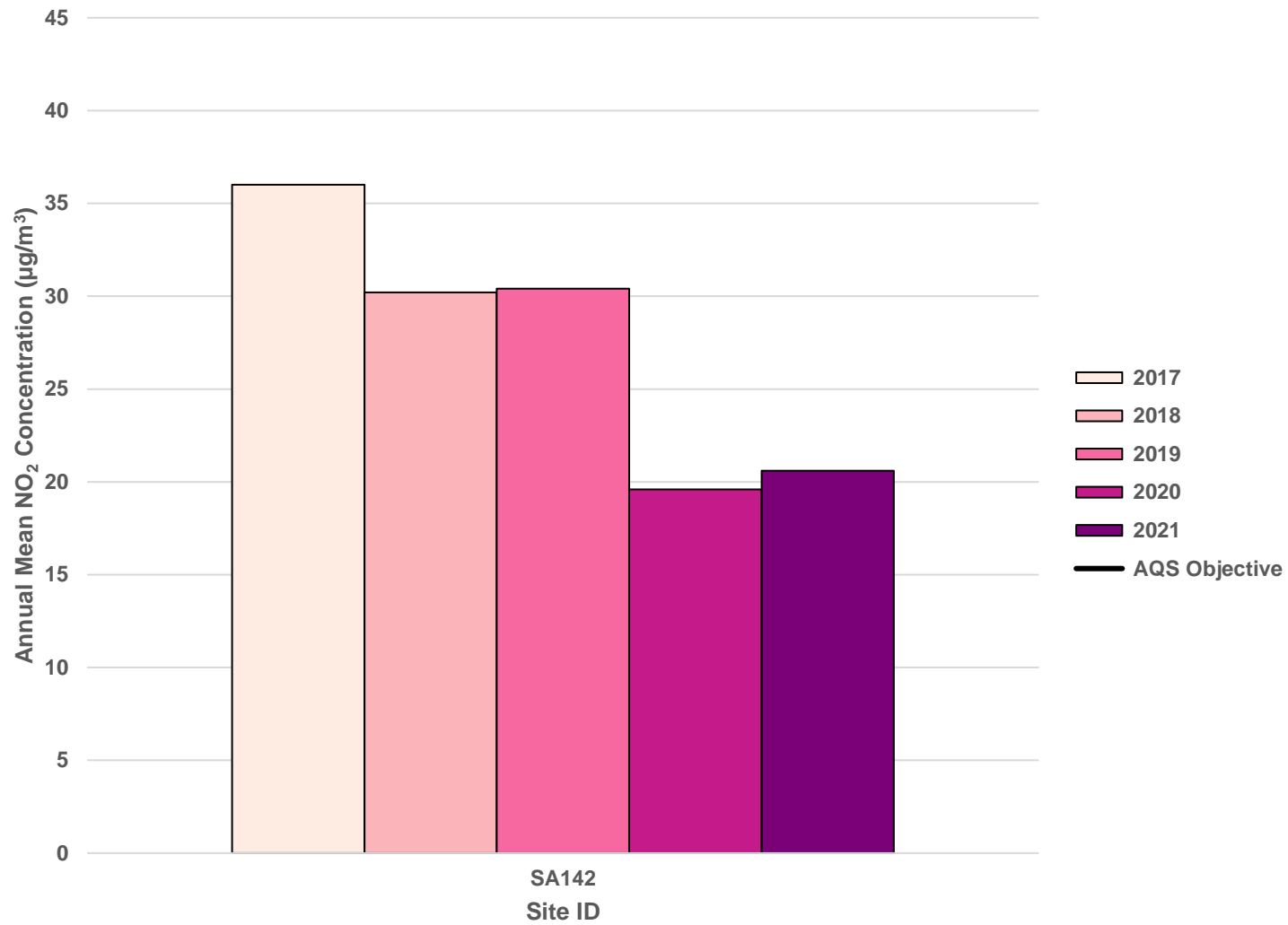


Figure A.3 – Trends in Annual Mean NO₂ Concentrations: AQMA No.7

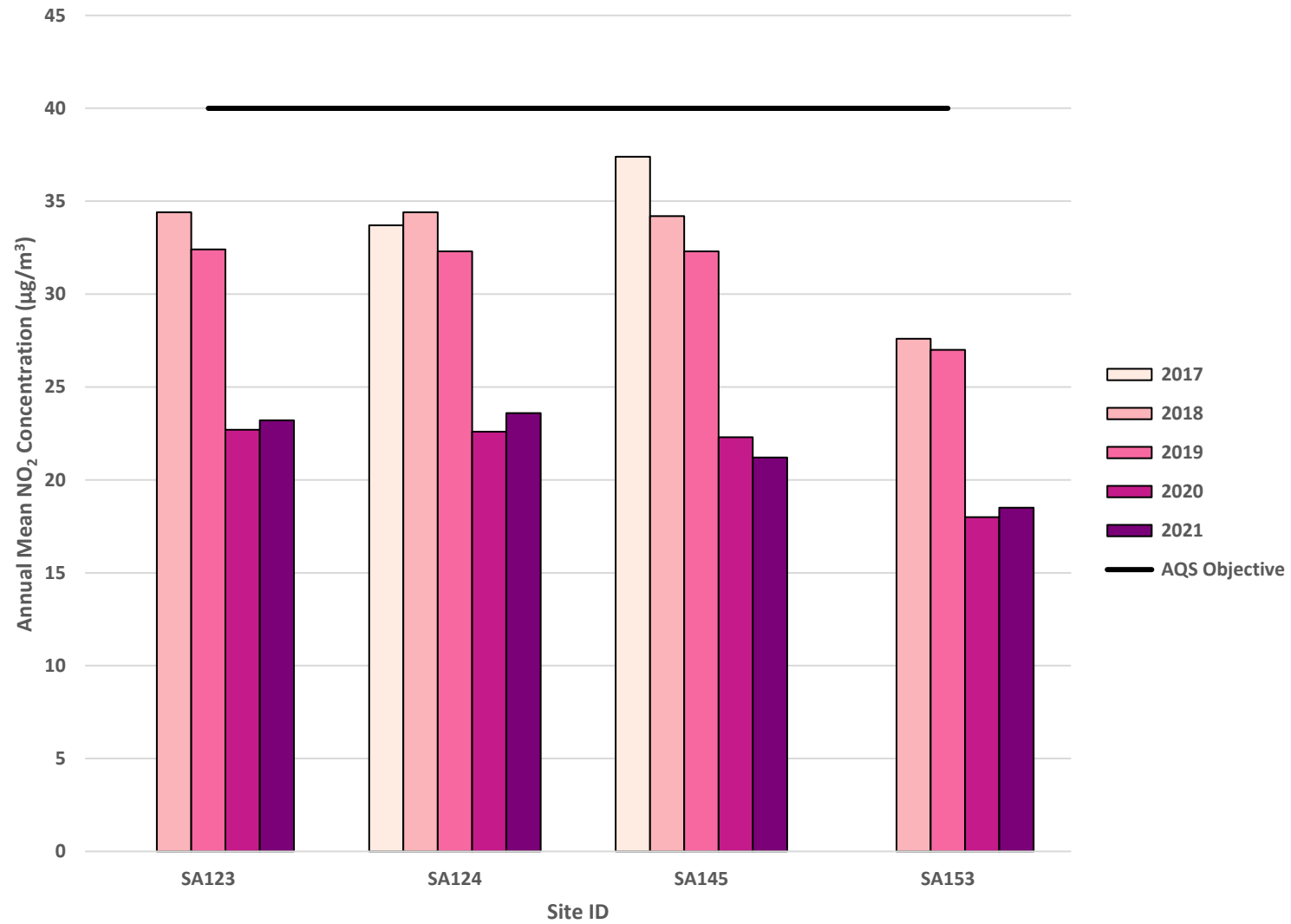


Figure A.4 – Trends in Annual Mean NO₂ Concentrations: Napsbury

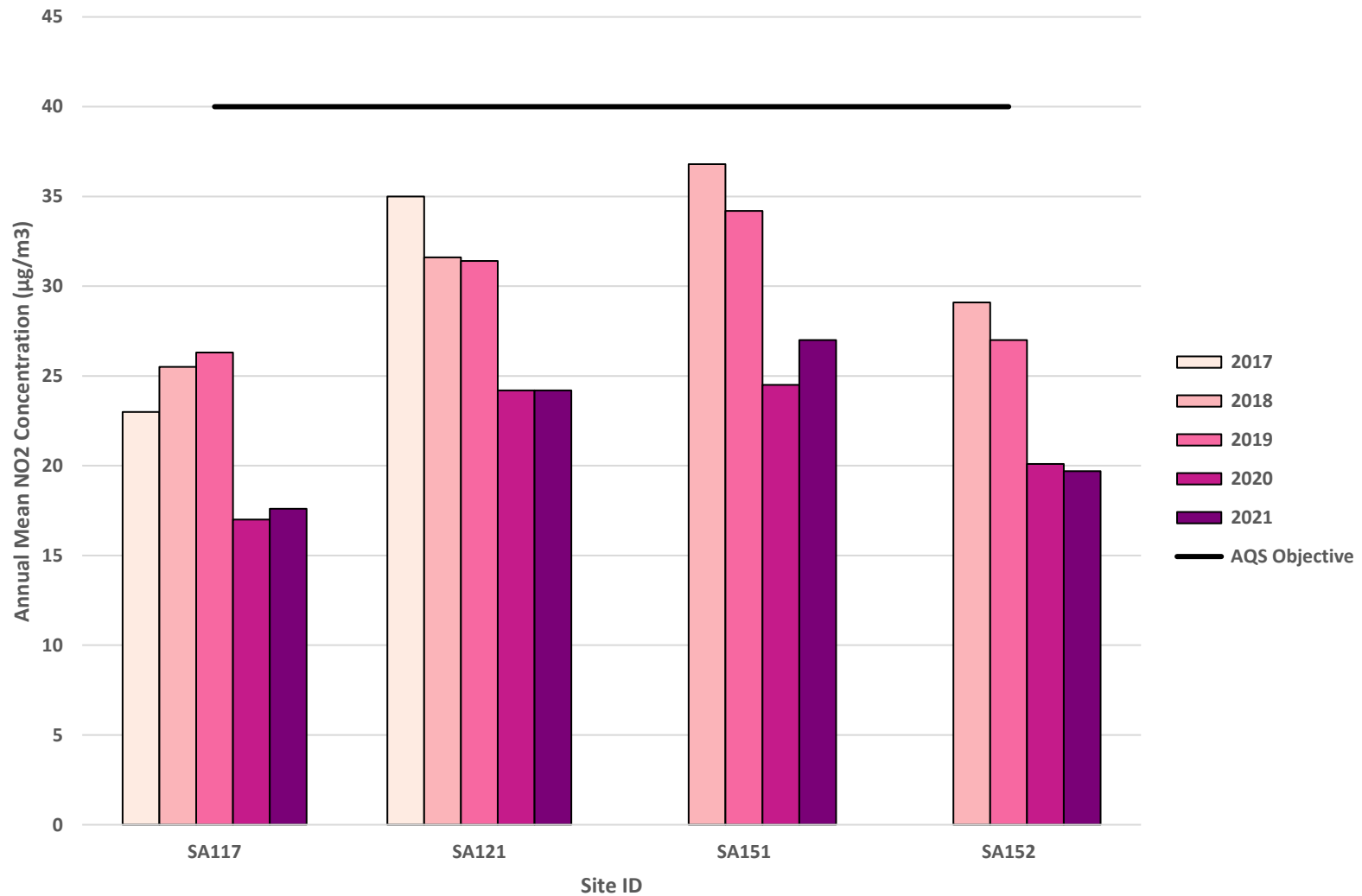


Figure A.5 – Trends in Annual Mean NO₂ Concentrations: St Albans East

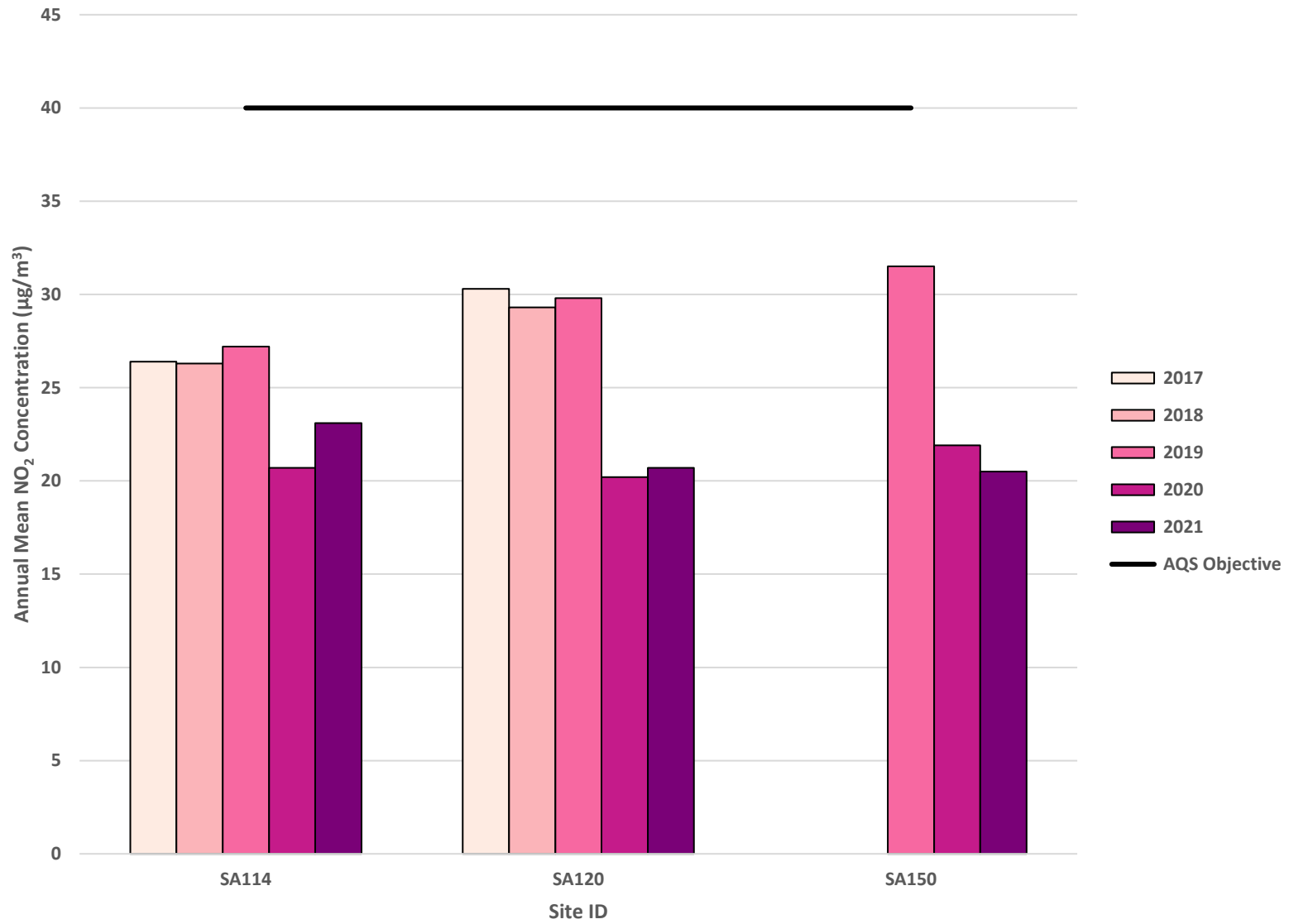


Figure A.6 – Trends in Annual Mean NO₂ Concentrations: St Albans North

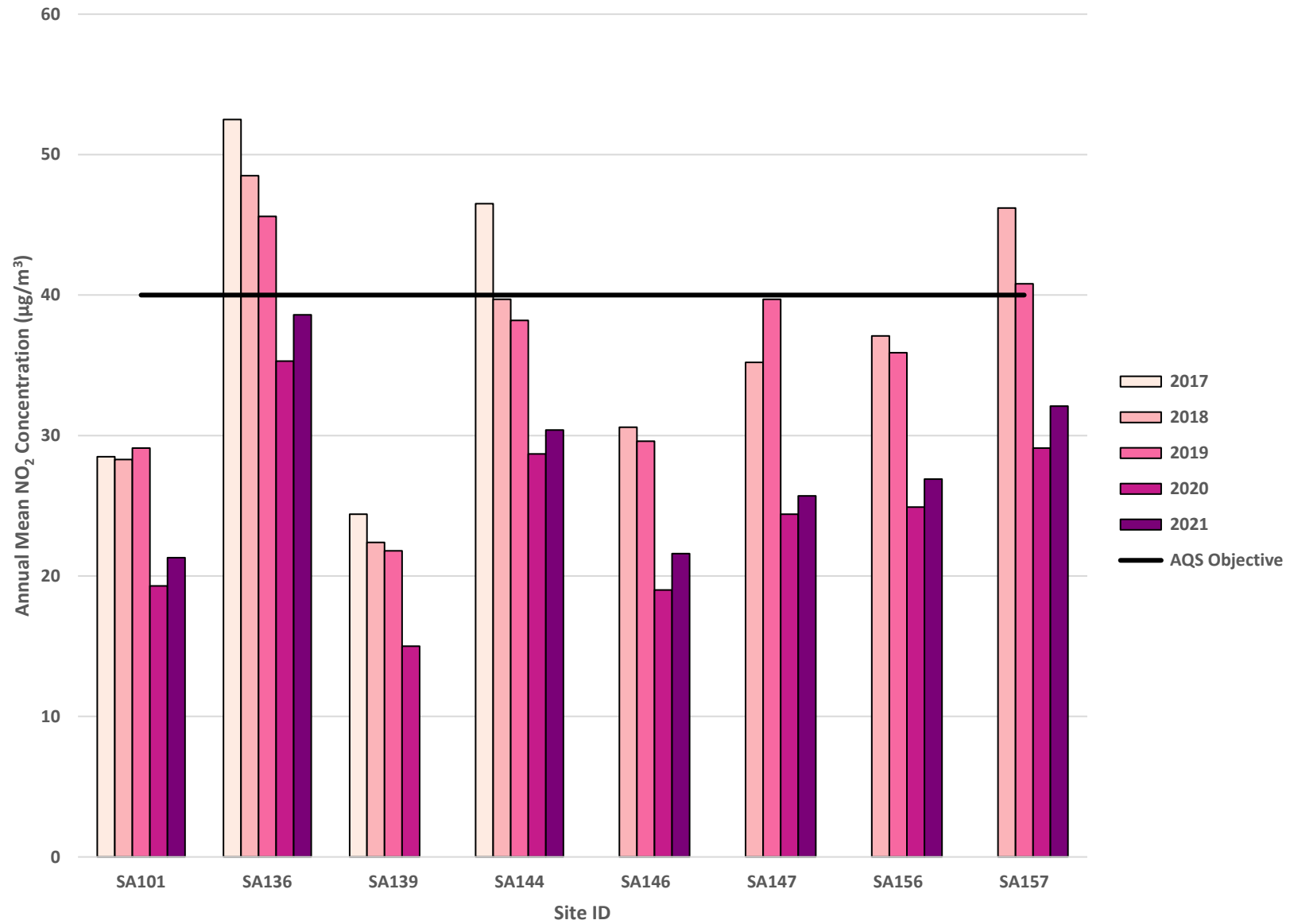


Figure A.7 – Trends in Annual Mean NO₂ Concentrations: Harpenden

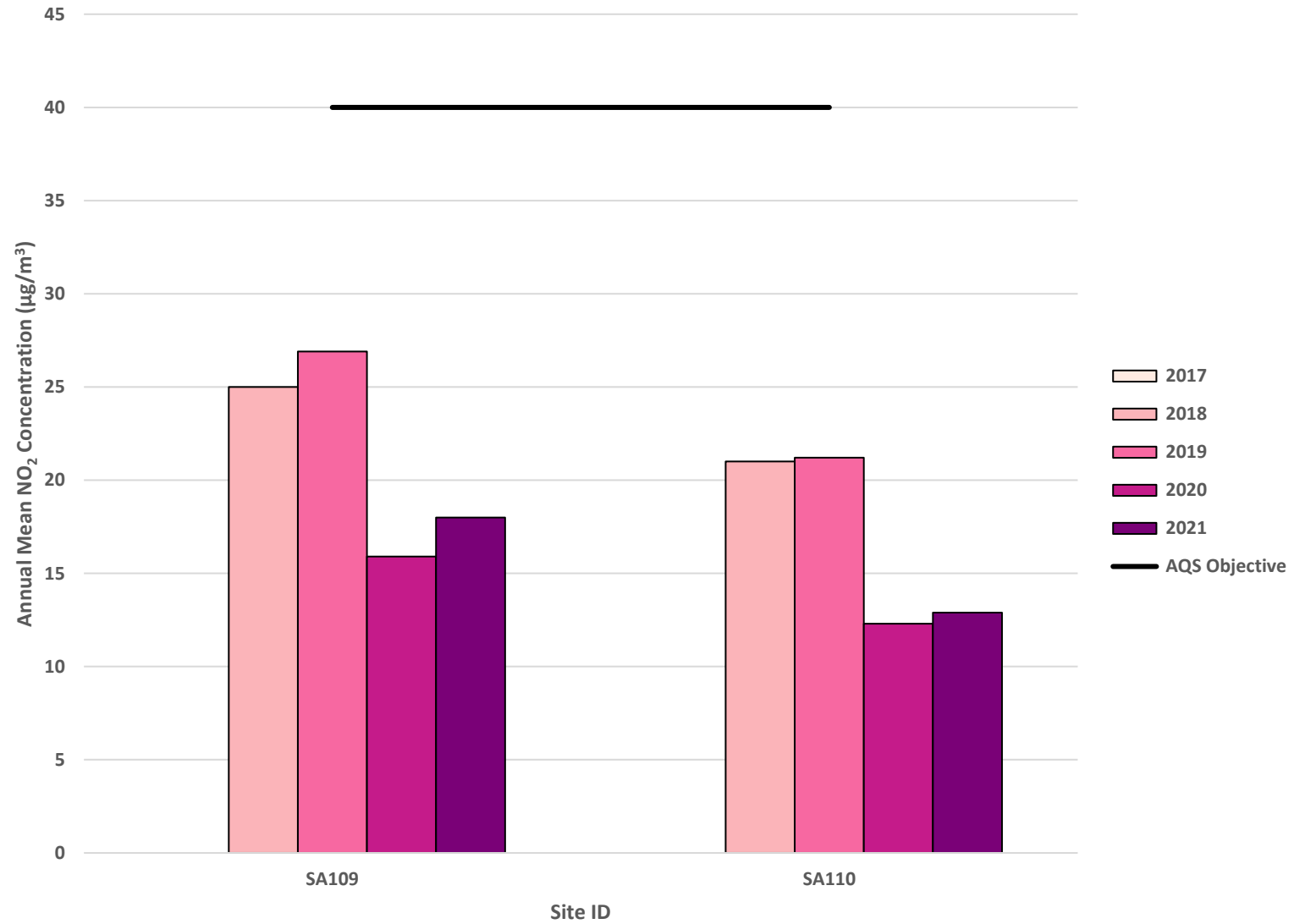


Figure A.8 – Trends in Annual Mean NO₂ Concentrations: Redbourn

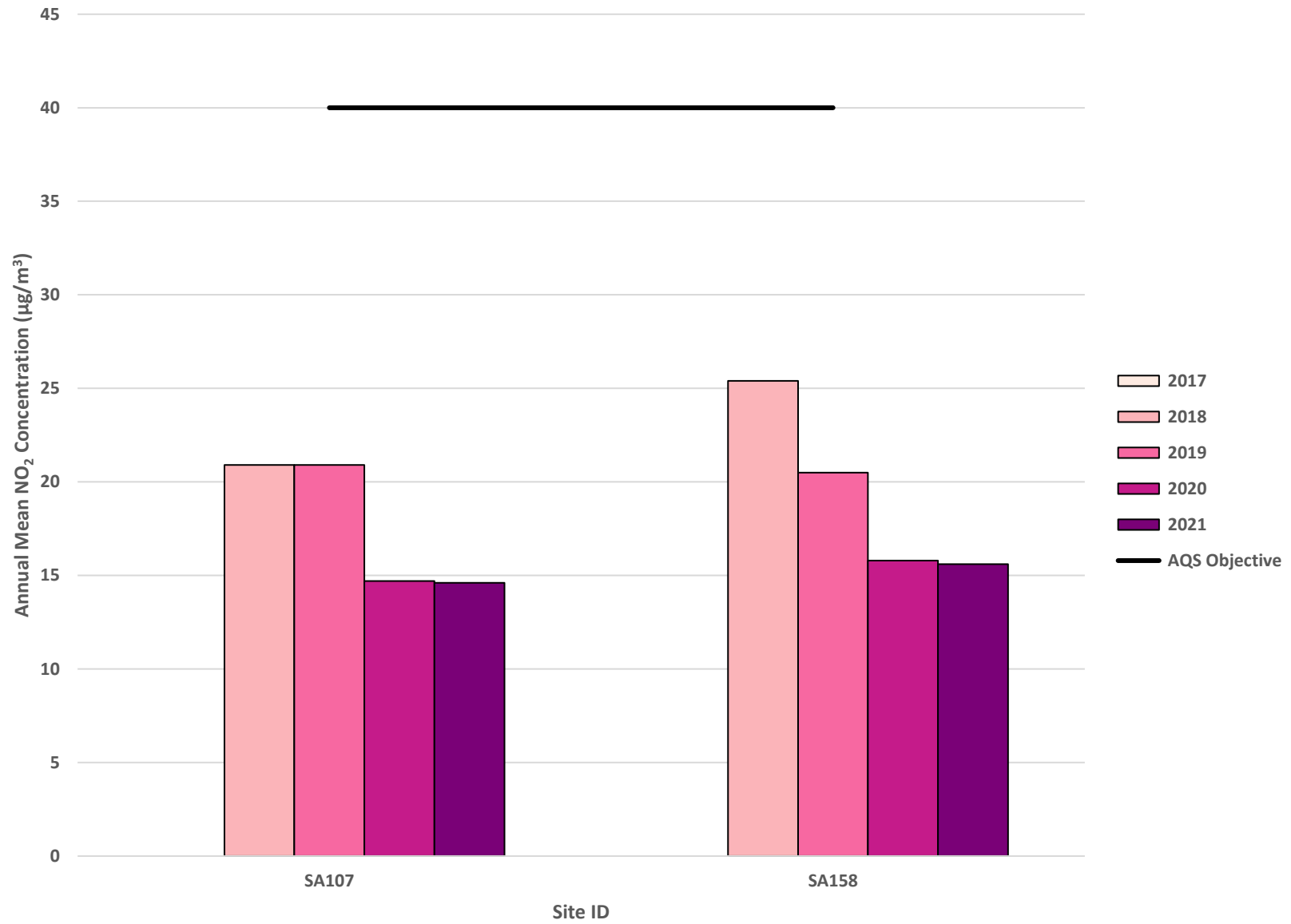


Figure A.9 – Trends in Annual Mean NO₂ Concentrations: Wheathampstead

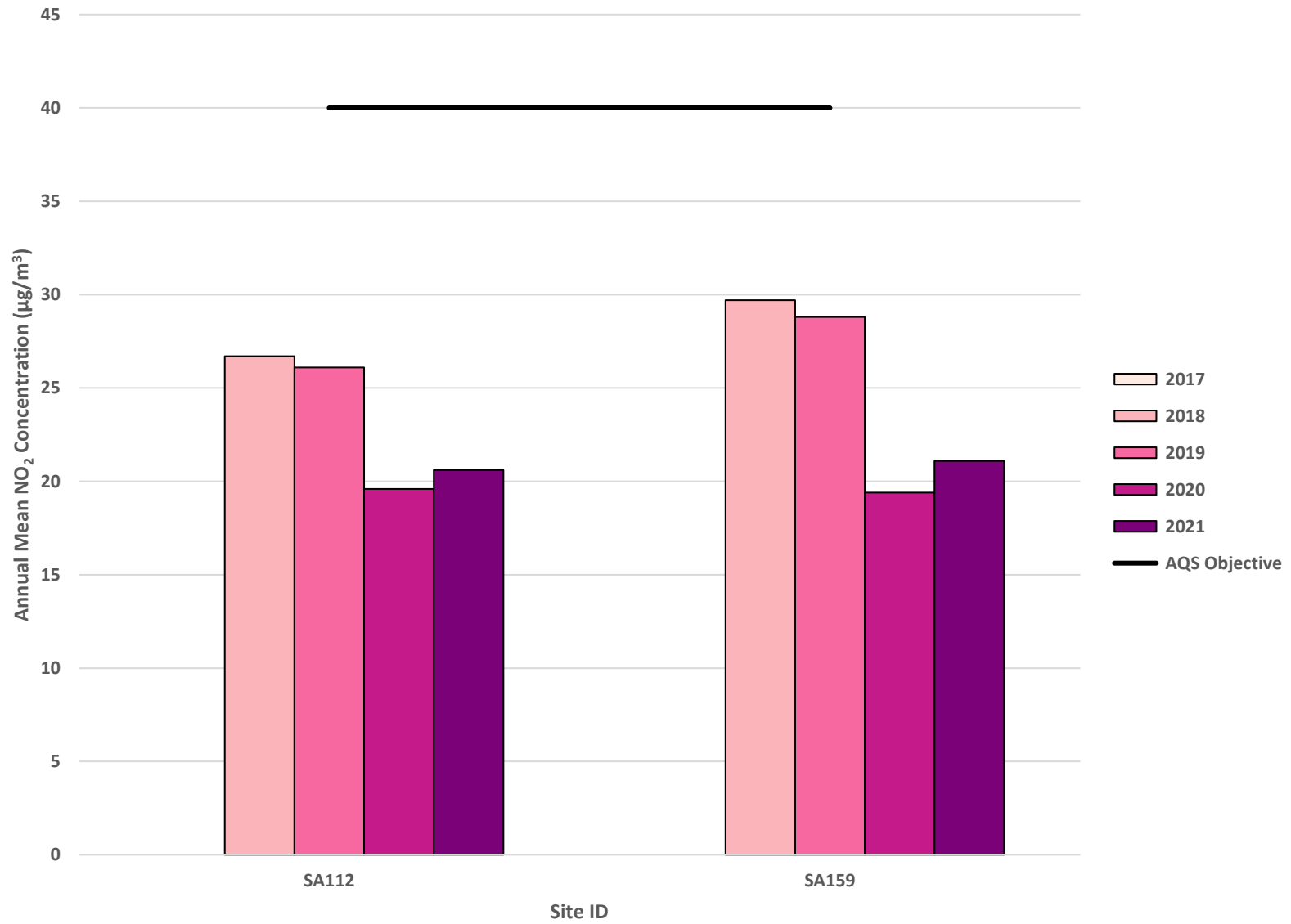
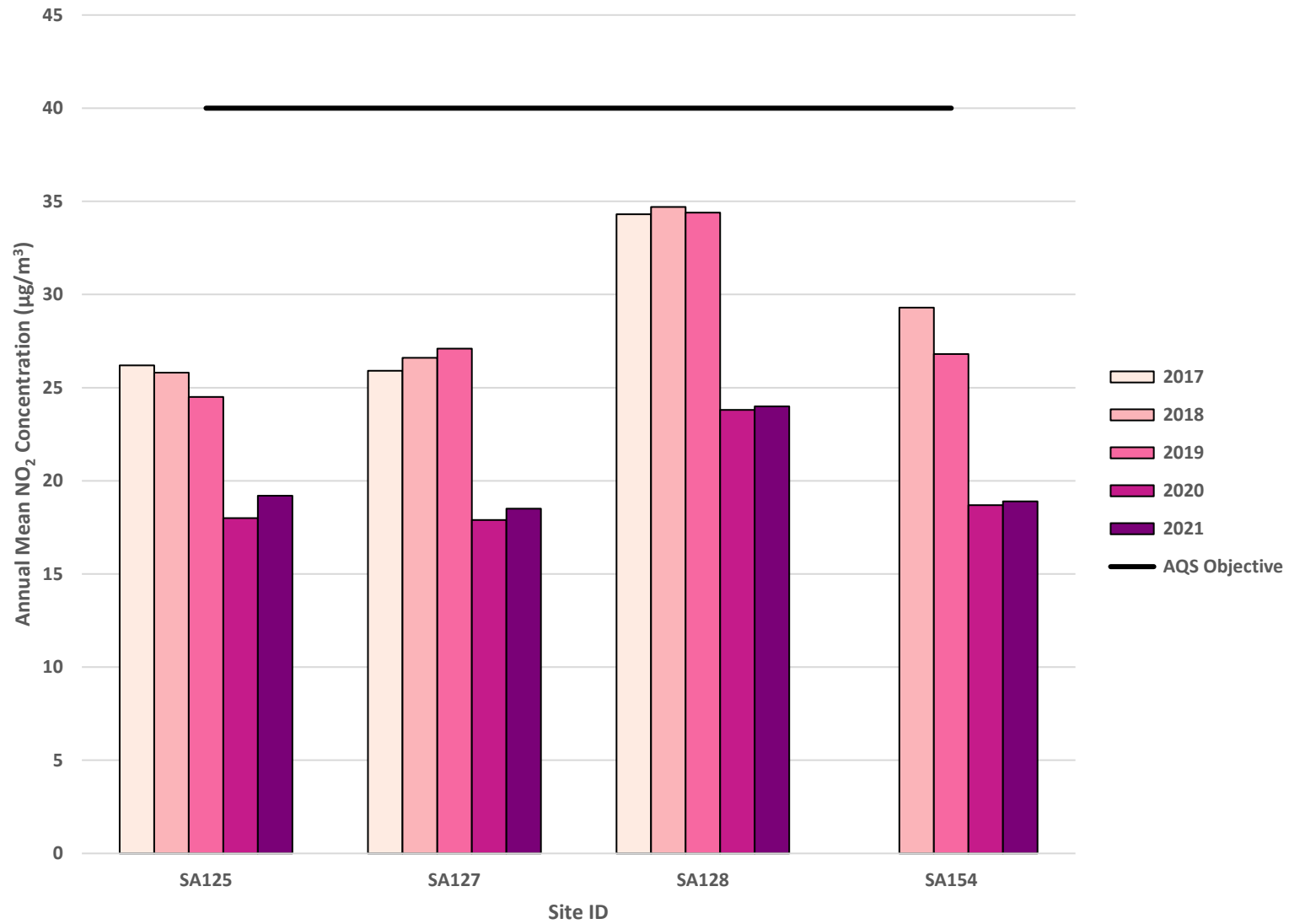


Figure A.10 – Trends in Annual Mean NO₂ Concentrations: Bricket Wood



Appendix B: Full Monthly Diffusion Tube Results for 2021

Table B.1 – NO₂ 2021 Diffusion Tube Results (µg/m³)

DT ID	X OS Grid Ref (Eastin g)	Y OS Grid Ref (Northin g)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.84)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
SA101	515105	207476	24.9	24.8	28.5	25.7	25.8	24.4	22.6	20.5	28.1	-	27.6	26.3	25.4	21.3		
SA107	510138	212525	20.8	21.4	19.9	12.8	16.3	11.8	13.8	9.8	15.6	21.3	24.6	21.1	17.4	14.6		
SA109	513427	214308	26.4	22.4	23.6	18.5	19.0	-	17.3	14.0	23.0	22.8	24.8	24.0	21.4	18.0		
SA110	514438	214353	20.1	18.8	17.9	11.9	13.5	10.8	11.3	9.5	15.1	18.0	20.4	17.1	15.4	12.9		
SA112	517727	214041	27.4	29.1	25.6	21.8	25.1	21.9	20.4	18.2	25.2	26.7	24.7	28.8	24.6	20.6		
SA114	516549	207391	43.0	37.1	28.4	17.2	18.9	23.3	25.1	21.9	30.0	31.0	25.1	28.6	27.5	23.1		
SA117	517712	204782	27.7	26.2	21.9	20.9	18.9	14.6	17.7	14.2	21.3	20.7	24.1	23.7	21.0	17.6		
SA120	520053	206618	27.4	28.9	26.0	17.7	23.4	18.2	22.5	19.0	28.3	30.1	26.6	27.5	24.6	20.7		
SA121	514654	204546	29.6	32.4	31.9	26.4	29.4	26.7	25.5	23.4	31.4	-	32.6	27.1	28.8	24.2		
SA123	515311	202730	33.5	33.6	28.2	21.0	25.4	21.2	23.3	20.8	31.1	28.5	32.8	32.4	27.6	23.2		
SA124	515383	202528	29.2	30.4	30.4	26.8	27.1	26.9	26.9	21.4	30.3	27.6	33.3	27.2	28.1	23.6		
SA125	513308	202655	26.2	27.3	27.5	26.3	22.3	19.8	20.1	15.7	25.9	18.5	22.7	22.1	22.9	19.2		
SA127	512570	202716	24.5	25.0	25.9	21.8	18.2	18.8	19.5	15.8	24.3	21.1	27.5	22.5	22.1	18.5		
SA128	512004	202105	31.4	31.5	30.1	26.0	29.2	25.3	25.8	23.1	32.4	28.4	31.3	-	28.6	24.0		
SA133	514606	206801	30.2	33.3	31.4	30.2	26.6	28.8	30.3	25.1	36.6	27.5	28.6	30.8	29.9	25.2		
SA134	514648	206919	27.3	32.3	27.6	23.6	27.5	25.3	25.3	21.1	31.0	29.3	30.8	27.7	27.4	23.0		
SA135	515060	206866	30.9	27.9	26.9	22.8	26.7	24.7	23.1	21.1	29.7	29.5	33.6	31.9	27.4	23.0		
SA136	514883	207422	42.8	51.3		49.6	45.8	48.9	51.9	40.2	54.6	45.2	37.1	37.8	45.9	38.6	22.0	
SA137	514684	207105	30.5	35.3	29.4	23.5	28.7	23.1	26.3	22.5	34.0	32.9	31.9	35.4	29.5	24.8		
SA138	514701	207082	34.0	39.7	34.9	31.4	35.2	35.7	35.6	27.7	43.2	34.6	34.8	34.5	35.1	29.5		
SA139	514921	207391																Missing diffusion tube
SA140	515185	207070	26.9	25.1	22.7	19.7	20.1	17.5	18.0	15.2	24.0	20.7	26.1	26.0	21.8	18.3		
SA141	514722	207226	21.6	23.8	19.2	18.1	17.4	15.1	17.5	12.9	22.4			23.3	19.1	16.1		
SA142	510754	206091	29.8	30.2		16.0	24.1	19.5	20.9	17.6	25.6	29.3	28.6	27.5	24.5	20.6		
SA143	514752	207094	36.8	30.5	33.8	28.3	29.6	27.6	29.1	26.7	34.7	30.5	38.0	28.5	31.2	26.2		
SA144	514833	207347	38.1	39.7	35.0	29.6	32.5	36.9	34.9	34.4	39.4	40.5	37.1	-	36.2	30.4		
SA145	515257	202638	33.3	31.9	27.4	18.9	23.9	18.0	16.1	20.7	24.0	29.0	28.3	31.6	25.3	21.2		
SA146	514856	207353	-	29.3	26.4	20.4	22.2	25.4	23.1	24.7	22.2	28.1	32.2	29.1	25.7	21.6		
SA147	514818	207357	31.6	31.0	31.8	28.3	29.1	32.6	31.3	26.7	33.8	29.3	35.8	25.6	30.6	25.7		
SA148	514705	207119	45.8	44.1	47.2	42.3	44.2	46.9	46.3	40.3	49.8	46.3	49.6	45.3	45.7	38.4	31.1	
SA149	515067	206946	31.3	29.9	25.6	23.5	24.1	19.9	23.3	14.6	28.9	25.6	31.6	29.8	25.7	21.6		
SA150	516590	207276	29.3	29.9	26.1	20.6	25.6	14.9	16.0	14.4	22.7	26.7	32.8	33.7	24.4	20.5		
SA151	518782	203507	40.2	37.6	33.0	27.8	30.4	26.7	28.4	24.3	35.0	33.0	34.9	34.1	32.1	27.0		
SA152	517091	204114	28.5	26.8	26.5	20.4	21.2	19.0	19.7	17.3	23.7	26.6	29.3	22.5	23.5	19.7		
SA153	515275	202794	27.2	25.4	24.1	18.5	18.8	17.4	19.0	16.2	23.9	22.9	26.9	23.7	22.0	18.5		
SA154	512776	202050	28.2	26.2	22.5	20.5	18.6	17.1	21.9	16.0	23.5	23.9	28.7	23.2	22.5	18.9		
SA155	514346	206329	29.1	31.1	25.1	20.2	26.1	22.3	25.5	16.9	27.9	28.0	22.9	30.0	25.4	21.4		
SA156	514602	207674	37.2	30.2	34.0	36.2	32.1	35.2	31.7	26.4	31.9	27.5	35.0	26.6	32.0	26.9		
SA157	514840	207613	42.6	37.7	39.5	38.9	39.2	39.9	38.8	29.4	41.4	32.6	40.4	37.7	38.2	32.1		
SA158	510818	212167	23.9	22.0	20.6	15.6	15.2	14.0	15.4	13.3	17.8	19.2	25.9	20.5	18.6	15.6		
SA159	517727	213901	29.4	26.6	26.3	22.8	26.1	21.9	19.3	18.3	25.5	26.5	31.1	27.1	25.1	21.1		
SA160	514682	207060	46.5	43.3	45.9	42.6	45.5	51.1	49.1	42.4	49.1	43.8	57.9	43.5	46.7	39.2	35.1	
SA161	514787	207069	32.9	27.2	28.9	19.8	26.5	23.9	23.8	21.4	31.3	30.8	32.1	31.1	27.5	23.1		

All erroneous data has been removed from the NO₂ diffusion tube dataset presented in Table B.1.

Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.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.
- St Albans City & District Council confirm that all 2021 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

Notes:

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

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within St Albans City & District Council During 2021

St Albans City & District Council have identified 5 planning applications. Of the 5 applications, three have been DC3 Conditional Permission, and two with decisions pending:

- **5/2020/1773 – Civic Centre Opportunity Site (South) Victoria Street St Albans Hertfordshire** – A mixed-use scheme comprising 93 units of Class C3 accommodation, approximately 6,200m² of flexible commercial floorspace and associated plant, landscaping including public realm, car and cycle parking and access works - DC3 Conditional Permission - 28/01/2021
- **5/2021/1435 – York House Guildford Road & 130 Ashley Road St Albans Hertfordshire A11 5Jx** – Demolition of existing buildings and the construction of four storey building consisting of 25 apartments with associated car parking, access, amenity space and ancillary works (resubmission following withdrawal of 5/2020/2698) - DC3 Conditional Permission - 16/11/2021
- **5/2021/3194** – Outline application (access sought) for demolition of existing buildings, and the building of up to 330 discounted affordable homes for Key Workers, including military personnel, the creation of open space and the construction of new accesses and highway works including new foot and cycle path and works to junctions – DECISION PENDING
- **5/2021/2376** – Southdown Industrial Estate- Demolition of existing buildings and the construction of eight new units totalling 5947 sq. m for use within Class E (formerly Class B1), B2 and B8 of the Use Classes Order; builders merchant, trade counter (Sui Generis); together with car and HGV parking etc- DECISION PENDING
- **5/2021/0423 – Harpenden Road** – Up to 150 dwellings – DC3 Conditional Permission 12/01/22

Additional Air Quality Works Undertaken by St Albans City & District Council During 2021

St Albans City & District Council has developed measures within 2021. These include:

- 3 HCC Traffic management schemes – High street closure. And junction improvements measures to promote a Low Traffic Neighbourhood (Fleetville) & the creation of dedicated on road space for cyclists (Marlborough Road).
- HCC & AQ Group members – comms project.
- St Albans are additionally partners in an Iknaiia lead bid to InnUK Smart Grant (with other local authorities and the University of Hertfordshire) for mobile sensor monitoring on specific routes (waste collection vehicles).

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 NO₂ 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.

The passive monitoring network station changeover was aligned with the DEFRA calendar for the 2021 reporting year.

Diffusion Tube Annualisation

All diffusion tube monitoring locations within St Albans City & District Council recorded data capture of 75% therefore it was not required to annualise any monitoring data. 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/NO₂ continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

St Albans City & District Council have applied a national bias adjustment factor of 0.84 (based on 32 studies, version 03/22) to the 2021 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.1.

Table C.1 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2021	National	05/21	0.84
2020	National	03/21	0.81
2019	National	09/20	0.93
2018	National	06/19	0.92
2017	National	09/18	0.87

NO₂ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO₂ concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO₂ fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO₂ concentrations corrected for distance are presented in Table B.1.

Fall-off with distance calculations were required at 3 diffusion tube locations (SA136, SA140 and SA160), where annual mean concentrations were greater than 36µg/m³. This was completed using the Diffusion Tube Data Processing Tool version 1.1, in line with the methodology outlined in LAQM.TG(16). Details of this calculation are presented in Table C.2.

Table C.2 – NO₂ Fall off With Distance Calculations (concentrations presented in µg/m³)

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
SA136	1.1	35.4	38.6	15.3	22.0	Warning: this receptor is more than 20m further from the kerb than the monitor - treat result with caution.
SA148	0.7	3.9	38.4	15.3	31.1	
SA160	2.5	5.0	39.2	15.3	35.1	

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

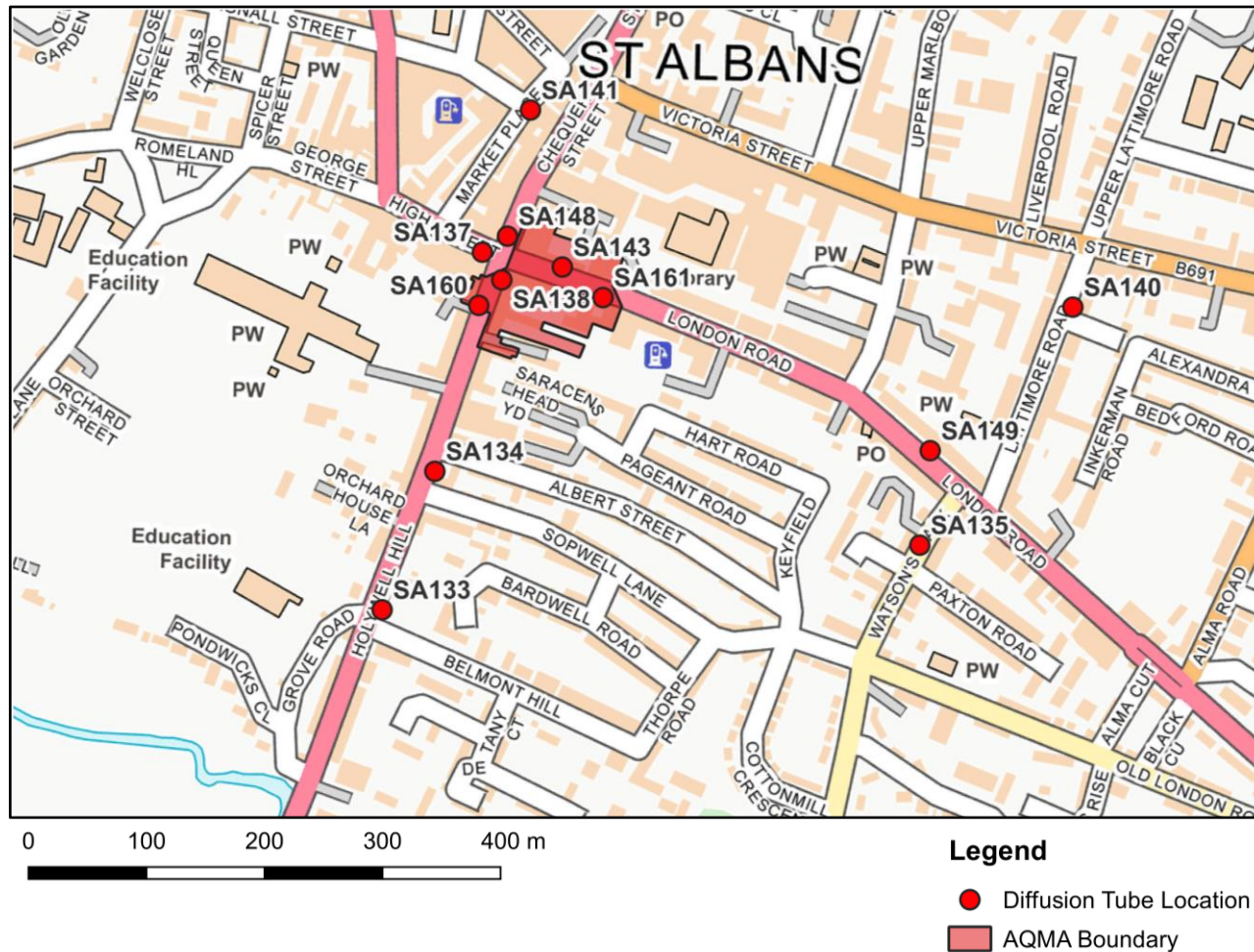


Figure D.2 – Map of Non-Automatic Monitoring Sites: AQMA No.2

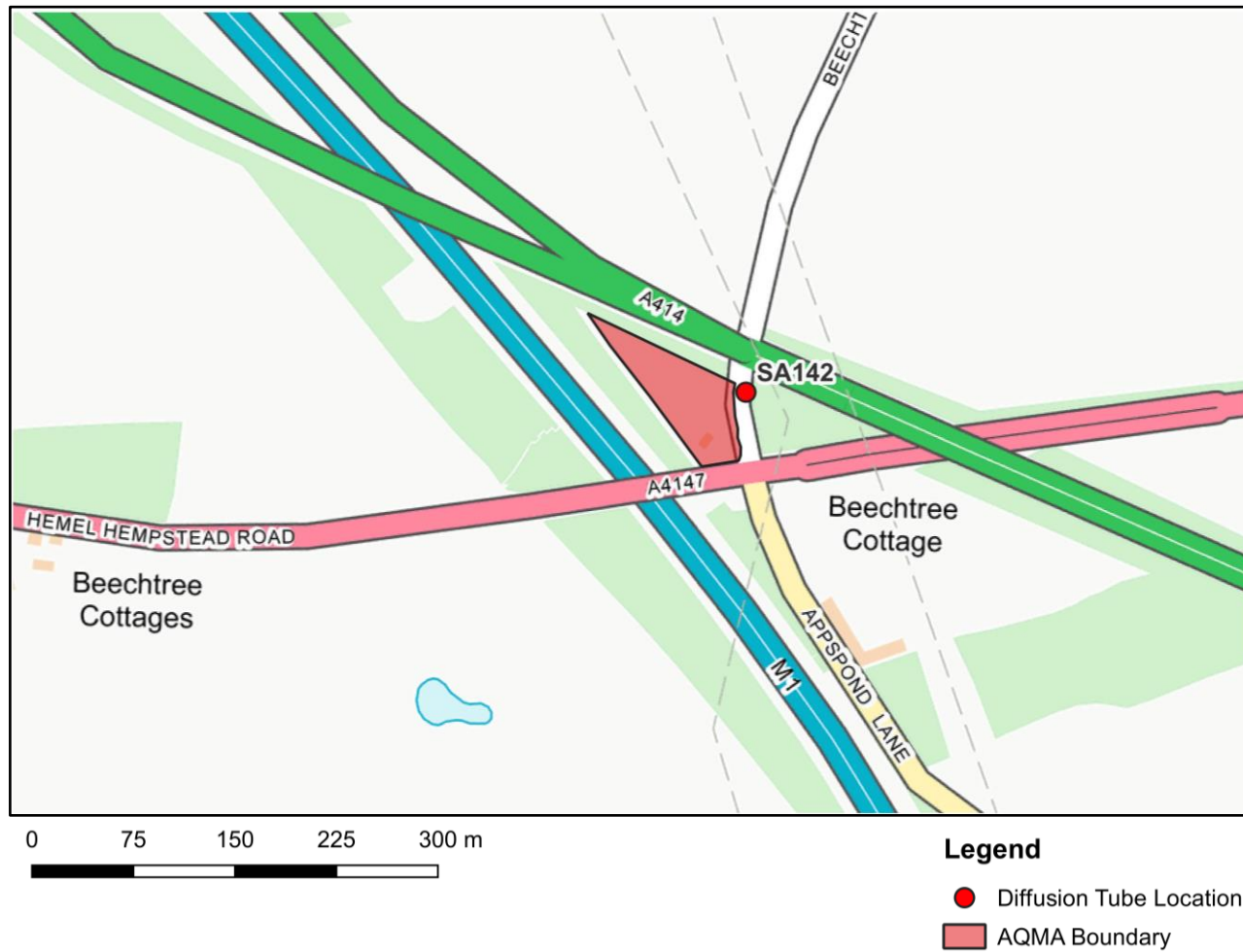


Figure D.3 – Map of Non-Automatic Monitoring Sites: AQMA No.7



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

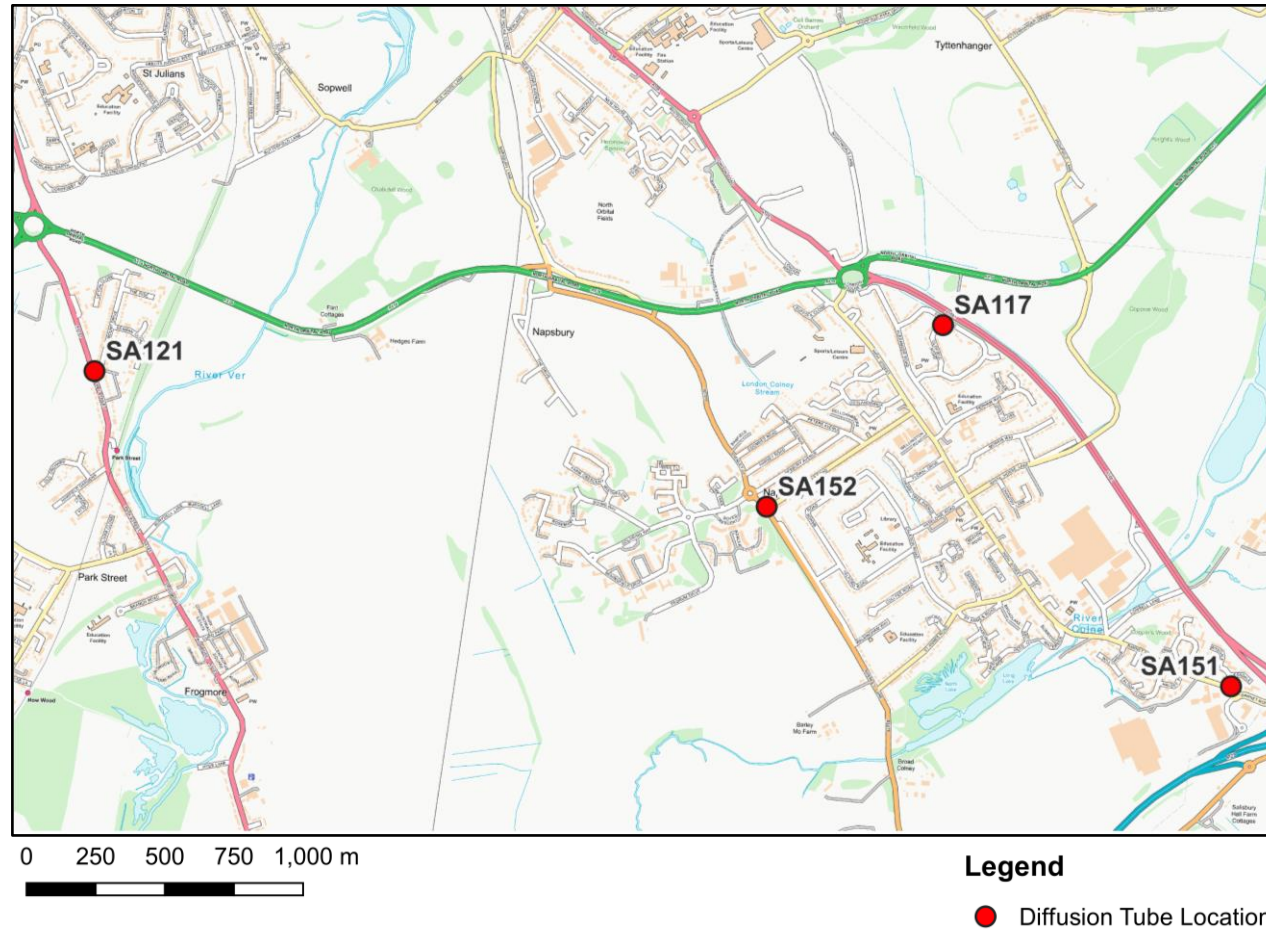


Figure D.5 – Map of Non-Automatic Monitoring Sites: St Albans East

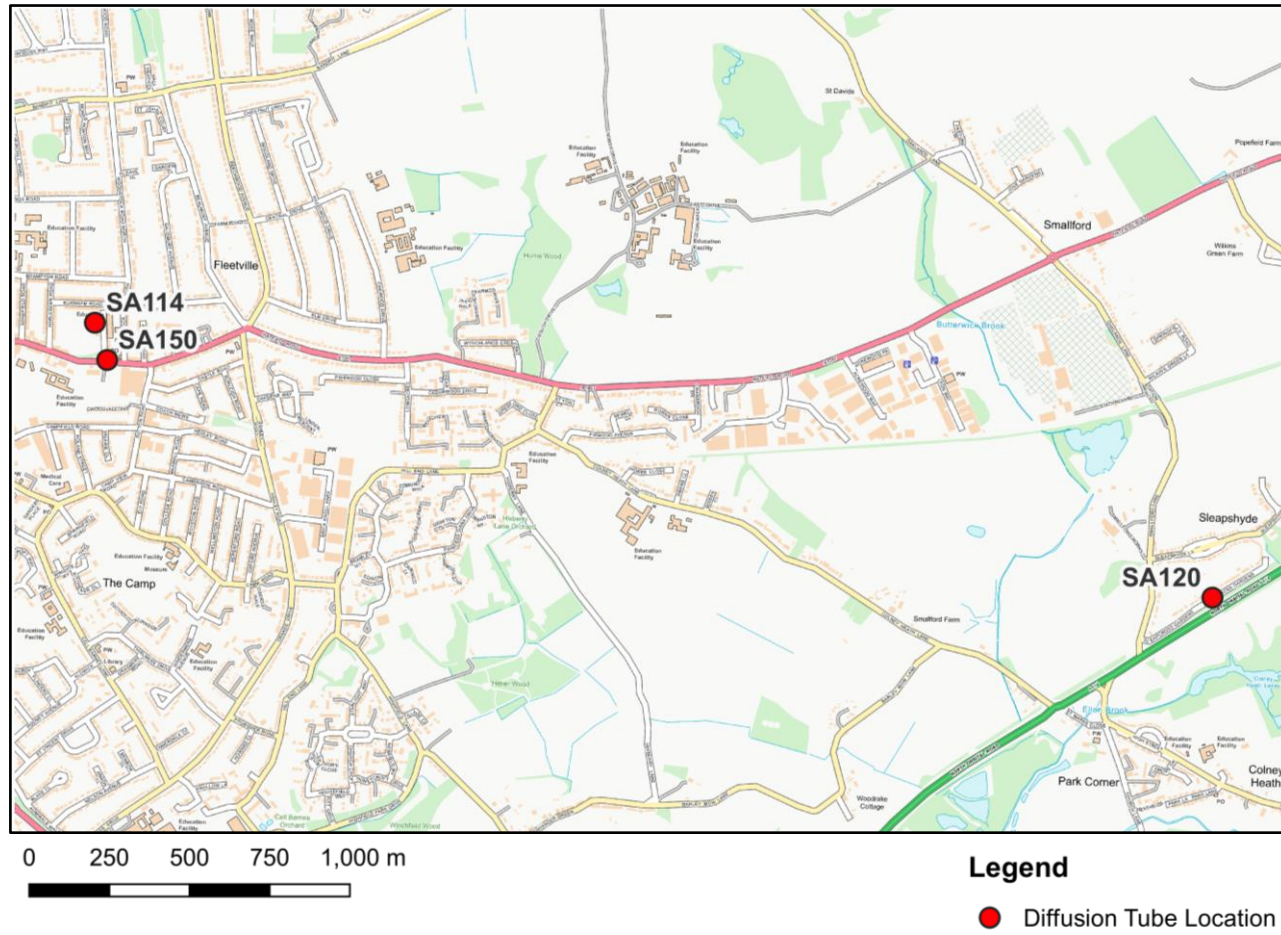


Figure D.6 – Map of Non-Automatic Monitoring Sites: St Albans North

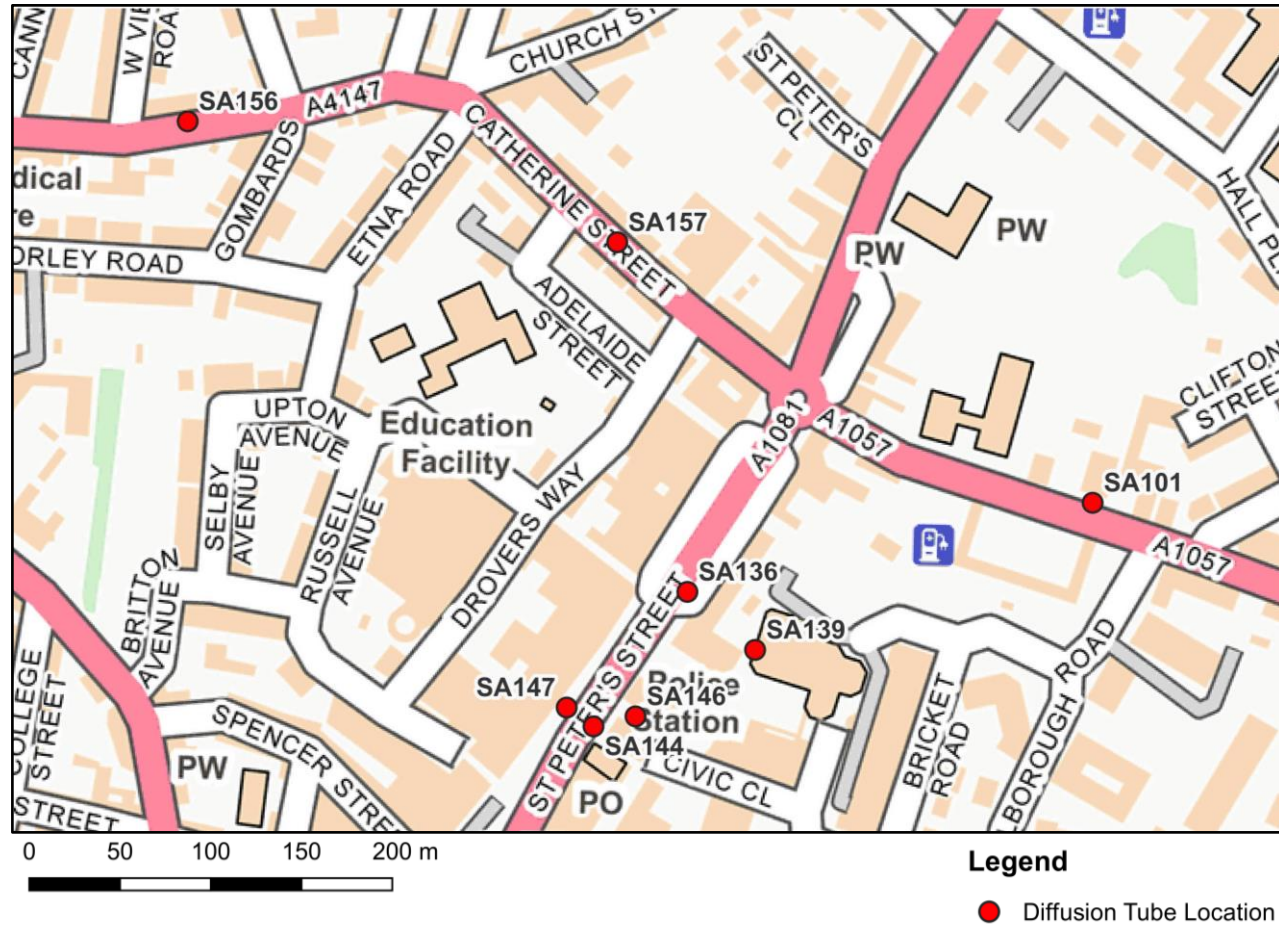


Figure D.7 – Map of Non-Automatic Monitoring Sites: Harpenden

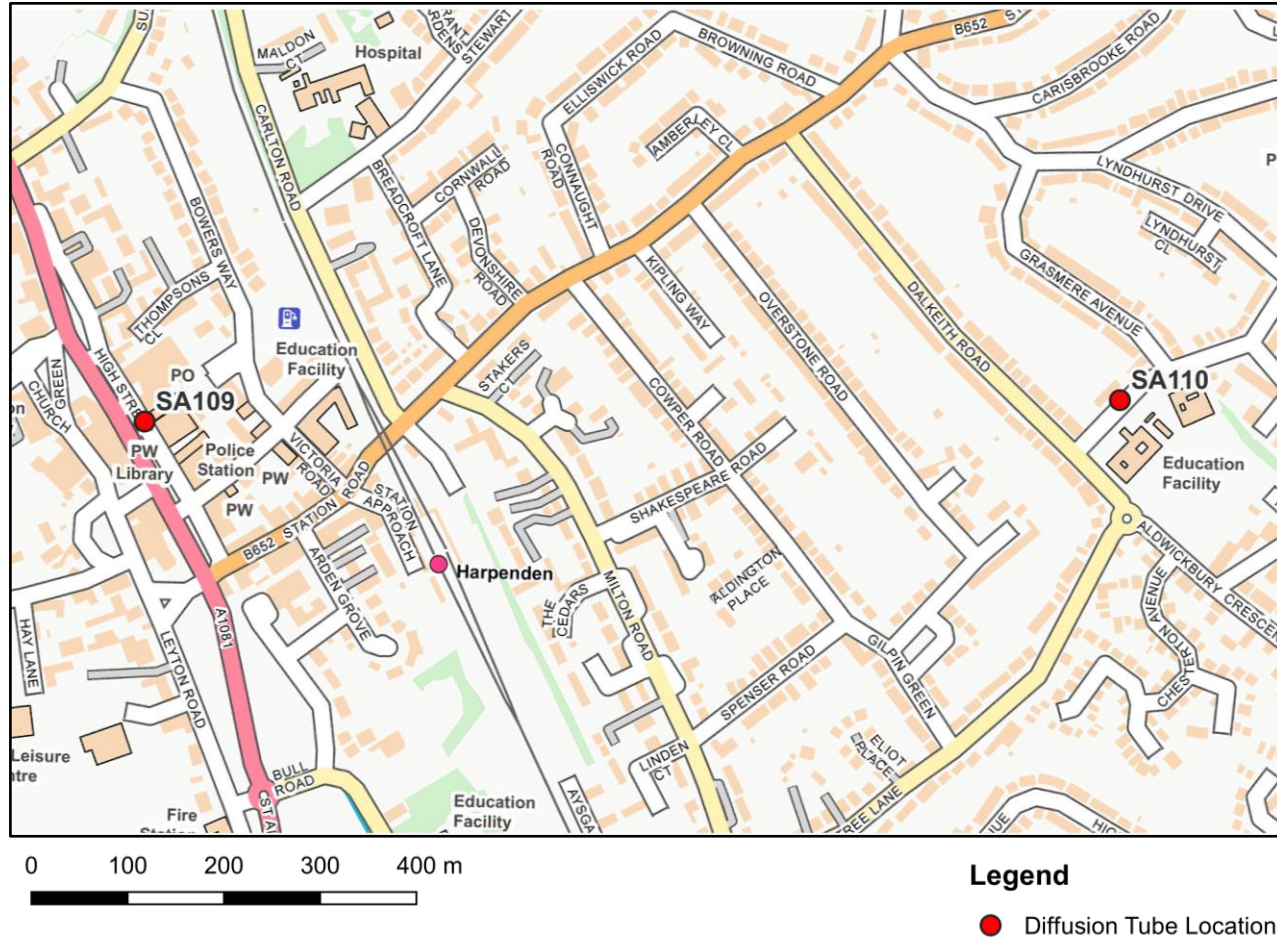


Figure D.8 – Map of Non-Automatic Monitoring Sites: Redbourn

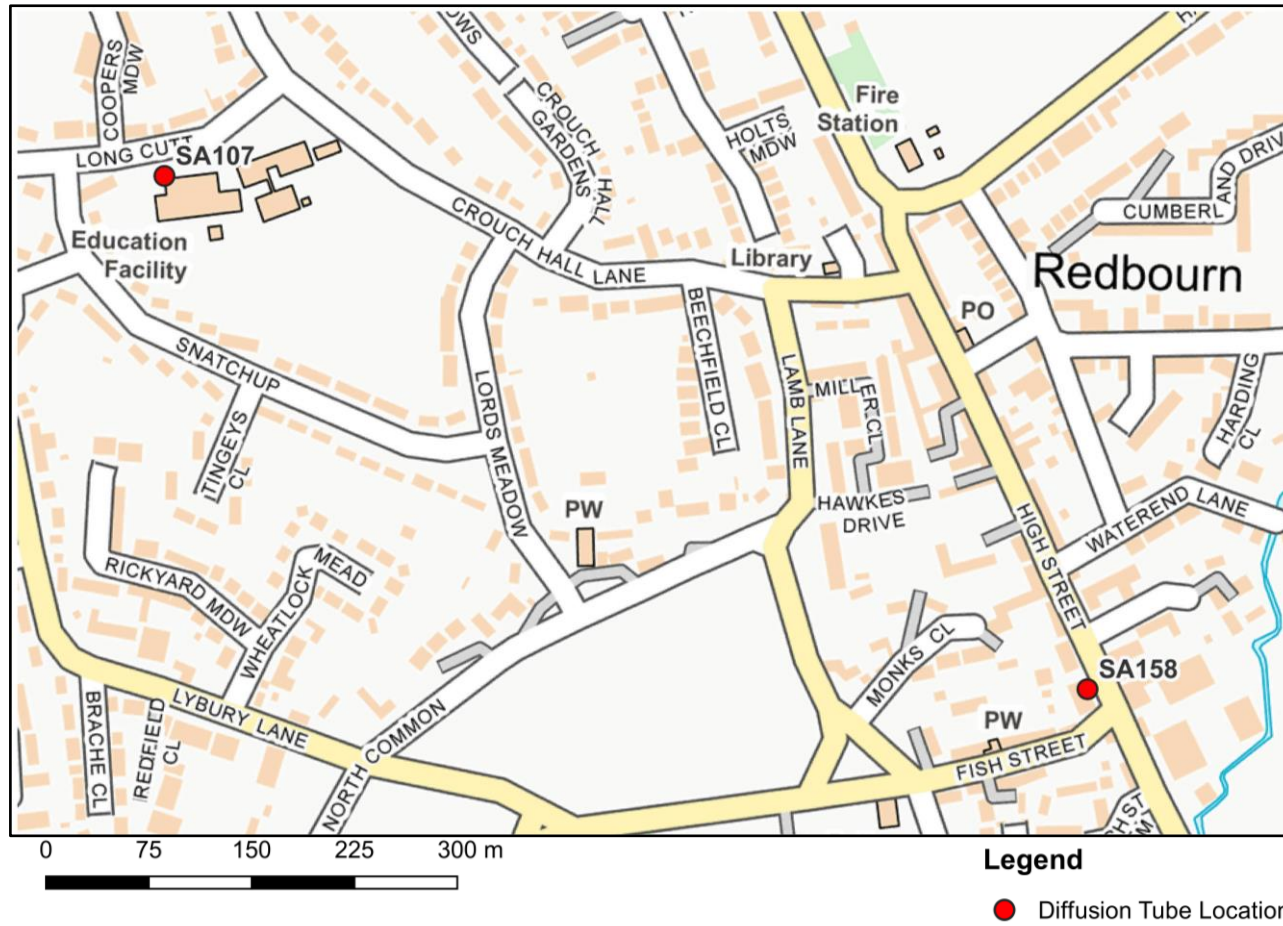


Figure D.9 – Map of Non-Automatic Monitoring Sites: Wheathampstead

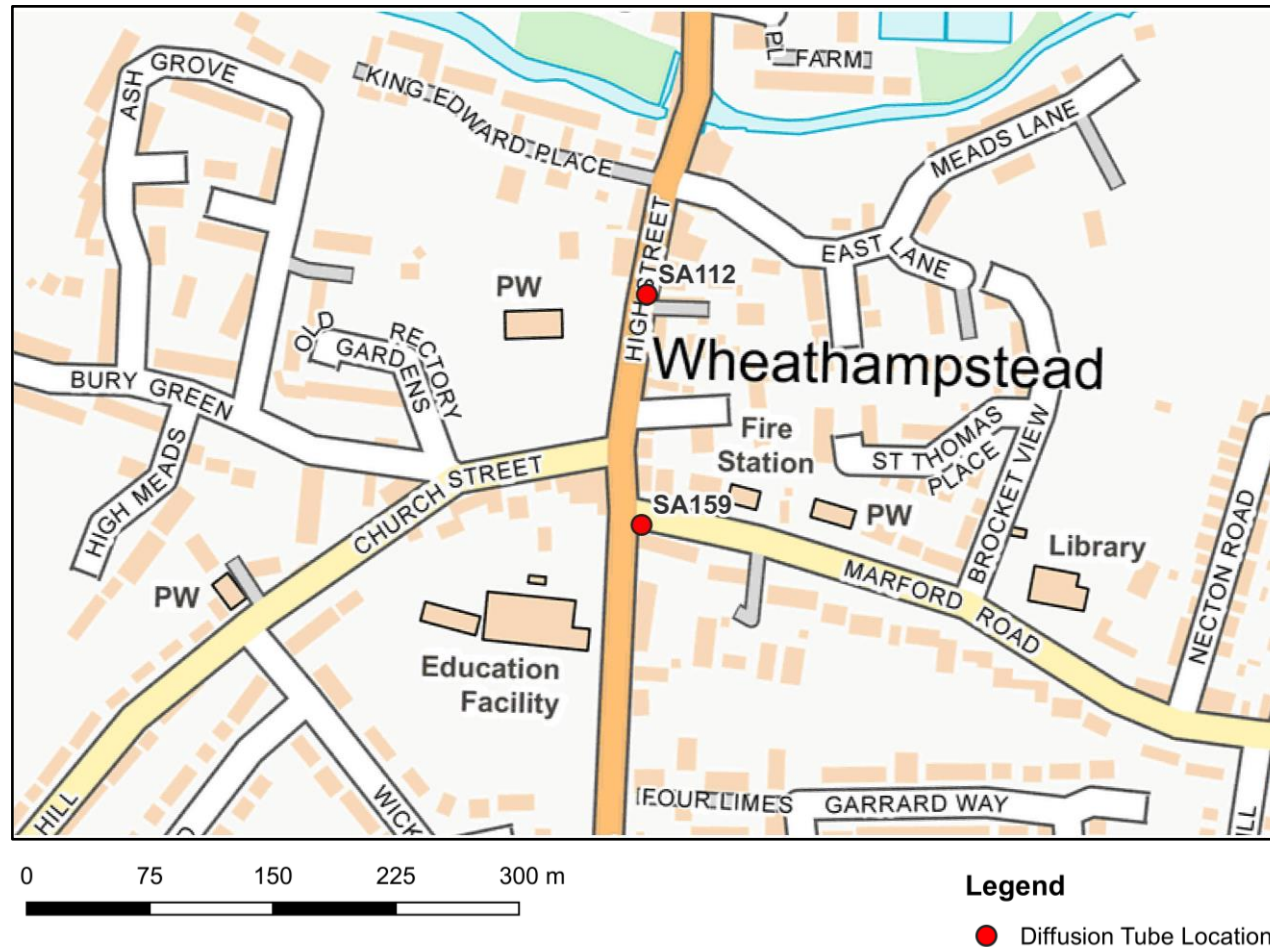
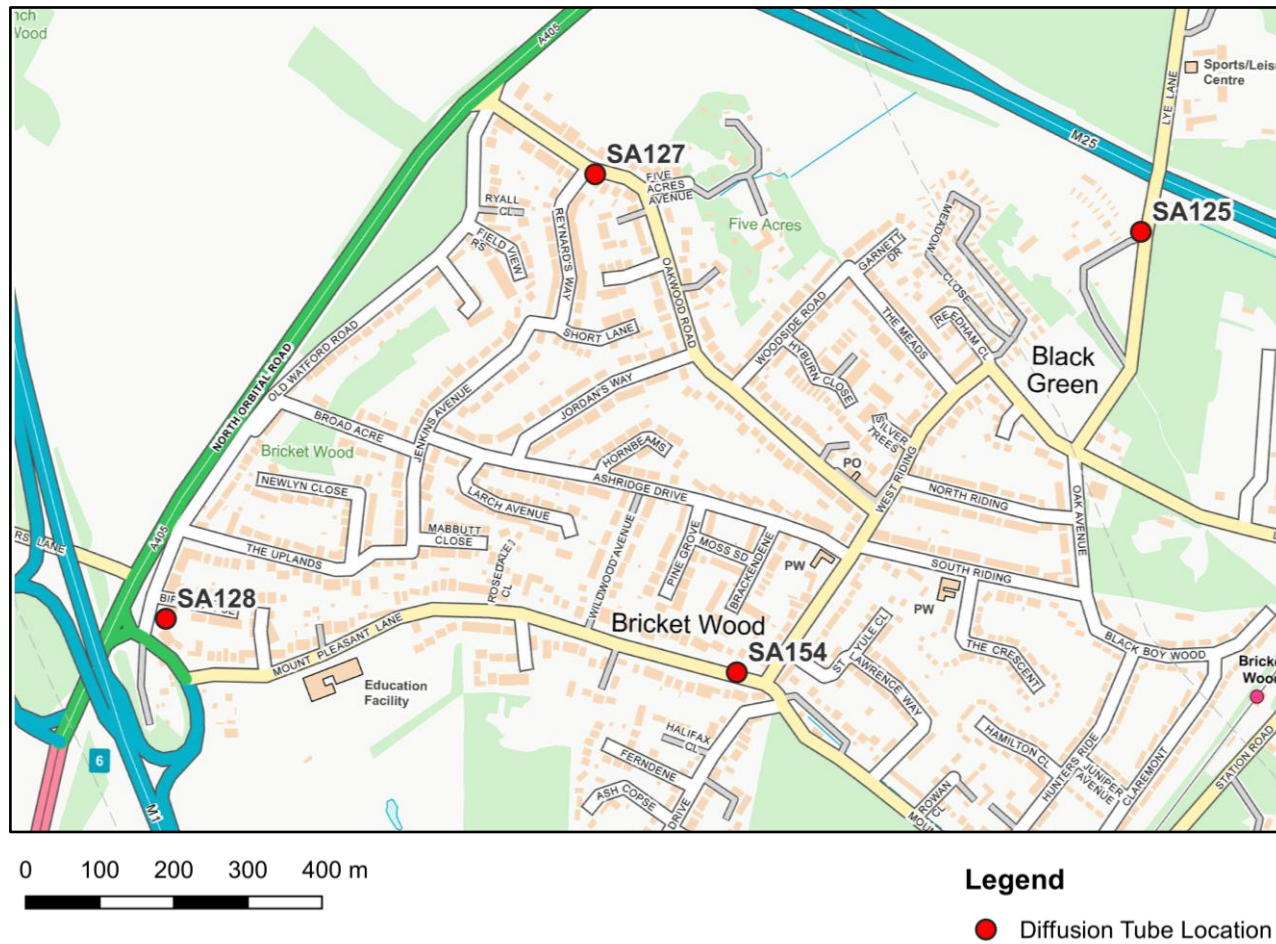


Figure D.10 – Map of Non-Automatic Monitoring Sites: Bricket Wood



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

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

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
AQS	Air Quality Strategy

References

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