St Albans City and District Council
Annual Status Report 2018

Bureau Veritas

December 2018

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2018 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the

Environment Act 1995

Local Air Quality Management

December, 2018

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Executive Summary: Air Quality in Our Area

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 and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas[1,2].

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion[3].

St Albans City and District Council is set within Hertfordshire to the north of Greater London. The District has an area of just over 60 square miles with its boundary lines extending from just south of the M25 to a northern point south of Luton. The District is mainly rural in nature but there are a number of urban areas located as towns such as St Albans, Harpenden and Wheathamstead.

The main source of air pollution within St Albans City and District Council is from vehicle emissions. The main pollutants of concern being Nitrogen Dioxide (NO_2), and Particulate Matter (PM_{10} and $PM_{2.5}$). A number of main roads pass through the District in addition to smaller roads serving the main population centres. 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.

The road network that serves the main population areas within the District, although smaller in size and in terms of traffic flow to the main roads, pass close to residential areas. The road network experiences more urban based driving conditions such as congestion, causing constant acceleration and deceleration. In addition, the siting of buildings close to these roads can entrap pollutants in urban canyon environments that lessen the effects of natural dispersal. This is apparent to the conditions experienced in St Albans town centre.

[1] Environmental equity, air quality, socioeconomic status and respiratory health, 2010

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

[3] Defra. Abatement cost guidance for valuing changes in air quality, May 2013

There are three designated Air Quality Management Areas (AQMAs) currently in force within the District. The AQMAs have been declared due to exceedances of the NO_2 annual mean AQS objective. All AQMA boundaries are either close to, or have busy roads within them, recognising the influence vehicle emissions have upon air quality.

The three AQMAs can be seen online at https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=254. Details of the AQMAs are provided in Table 2.1 and boundary maps are presented in Appendix D: Map(s) of Monitoring Locations and AQMAs.

An Air Quality Action Plan (AQAP) was completed in 2003 and the progress on the existing measures was last updated in last year's ASR. A further update 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 NO_2 thus improving air quality within the AQMAs and therefore the District as a whole. The AQAP is updated as measures are progressed and there are a number of projects that are ongoing that will provide a steer for the updated measures included.

Monitoring of NO_2 is completed within St Albans using a network of passive diffusion tubes. There are currently 45 diffusion tubes within the network including one triplicate site. In June and July 2017, 7 diffusion tube sites were closed and 2 were relocated to nearby sites. St. Albans and Frogmore were also allocated 4 new diffusion tubes in June 2017.

Results from monitoring completed in 2017 indicate that the annual mean Air Quality Objective (AQO) for NO_2 (40µg/m^3) was exceeded at locations SA136, SA137 and SA144, prior to distance correction. SA138, was also found to be in exceedance, however it is located at the façade of a pub and the nearest relevant exposure is located on the second floor of the building. As the distance correction calculator does not take variations in height into consideration, the site could not be distance corrected.

The SA136 monitoring location has reported 52.5µg/m^3 for 2017, however the location is situated 76m away from the nearest receptor and therefore is not considered to represent relevant exposure. Due to the distance it is also not feasible to accurately distance correct the measurement.

Monitoring location SA145 was reported to be within 10% of the objective at 37.4µg/m^3 before distance correction. SA136, SA137 and SA144 are located outside of the

AQMAs and SA138 is located within St Albans AQMA No.1. SA145 is located within AQMA No.7.

The NO_2 fall-off with distance calculator was used to estimate the NO_2 concentration for the diffusion tube locations SA137, SA144 and SA145 at relevant exposures. Details are presented in Appendix C. Following distance correction, SA137 fell below the annual mean NO_2 objective and SA144 reported at the objective level for 2017.

Annual mean concentrations were below 60µg/m^3 at all monitoring locations during 2017, therefore as per Defra guidance it is unlikely that the NO_2 1-hour objective of 200µg/m^3 was exceeded at any location.

NO_2 monitoring data for St Albans is presented from 2013 to 2017 (where available). The majority of the monitoring sites present an overall downward trend of annual mean NO_2 concentrations with peak concentrations experienced predominately in 2013 and 2014.

The only exceptions from this downward trend is the slight increases reported in comparison to the previous year at the urban background monitoring site SA113 and kerbside sites SA111 and SA136. SA136 was the only upward trending site with a reported exceedance of 52.5µg/m^3. The exceedance site, SA137, reported a lower exceedances than the previous year and fell well below the AQO following distance correction. Monitoring site SA138, despite falling 5.3µg/m^3 from the 2016 reported level, remained slightly above the AQO at 41.2µg/m^3 in 2017. In addition, one site remained at the same level as the previous reporting year, at SA120, reporting far below the NO_2 annual mean AQS objective.

This general trend in concentration reduction from 2013 to 2017 could be due to the continual commitment and progress made by the St Albans City and District Council to improve local air quality with the aim to revoke the declared AQMAs. The council has also introduced additional monitoring both within and outside of the existing AQMAs following recommendations upon appraisal of last year's ASR.

Actions to Improve Air Quality

The monitoring network within St Albans City and District is in place to constantly monitor NO_2 throughout the year to identify any increases at identified locations throughout the district. Due to the current AQMAs being designated as a result of elevated NO_2 emissions, the monitoring network is an essential part of Local Air Quality

Management (LAQM) that aids decision making on air quality issues and identifies where actions are required.

Efforts have been focussed on monitoring NO_2 concentrations in St Albans City and District due to the health effects and growing national concern surrounding this pollutant, illustrated in the Government's Air Quality Plan for NO_2. It is noted that PM_{10} concentrations haven't been ignored, as typically both NO_2 and PM_{10} share the same origin, therefore actions which target NO_2 levels simultaneously impact PM_{10} levels. Nonetheless, we will continue to act upon guidance issued by Defra, and will undertake supplementary monitoring if required. In 2017, the highest PM_{10} concentration within St Alban's City and District area, obtained from the Defra estimated background maps, was 17.3µg/m^3, which is well below the AQS objective of 40µg/m^3.

Real-time and historic air quality data across Hertfordshire and Bedfordshire can be viewed on the Herts and Beds Air Quality website; *www.airqualityhertsbeds.co.uk*. This allows the public to view current air quality concentrations, historical data and previously completed LAQM reports. Although there are no real-time automatic monitoring stations within St Albans City, the raw diffusion tube concentrations for St Albans are available for download from the St Albans City and District Council website - *https://www.stalbans.gov.uk/environmentandwaste/pollution/air-pollution/*.

Due to the main source of air pollutant emissions arising from vehicular sources within the District, alternative modes of transport to private internal combustion engine vehicles continue to be promoted. These 'Green Travel' alternatives are as follows:

- Cycling – A District wide cycling map continues to be available to help plan routes across the District with a planned revision in 2019, a free copy has been made available through a number of outlets and by email request. The Green Ring that encircles the city centre is a new continuous 9km cycling and walking route that will help reduce congestion, pollution and provides a valuable and easy way to exercise. Additional strategies include upgrading cycle paths, installation of Trixie mirrors at key junctions and early cycle release traffic lights;
- Public Transport – A well connected bus route serves St Albans city centre aims to reduce the use of private vehicles, there are services from North London, Welwyn Garden City, Hatfield, Luton and Watford in addition to routes to city suburbs and outlying shopping areas;

- The Anti-idling campaign during 2017 and 2018 raised awareness of the issue and urged car, van, lorry, bus and taxi drivers to switch off their engine 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. The following numbers were spoken to as part of the campaign: School engagement total 1,700; Community engagement 696
  Further plans will investigate the possibility of installing street signage to encourage drivers outside schools to turn off their engines when stationary;
- Car Sharing & Eco-Driving Tips – A number of car sharing websites are promoted on stalbans.gov.uk, such as *http://www.stalbans.gov.uk/environmentandwaste/greenerliving/greentravel/carsharing.aspx*; helping drivers link up with others who are willing to car share, reducing the number of cars helps alleviate problems such as congestion as well as reducing NO2 and PM10 emissions. Eco-Driving Tips are also provided on stalbans.gov.uk to not only reduce pollutant emissions but also to reduce fuel consumption and save the driver money; and
- Electric Vehicles – There are a growing number of electrical vehicle (EV) charging points within the District to promote the use of both pure EVs and plug-in hybrid EVs. Details of these points in addition to available grants and subsidies available for EVs are available at;

  https://www.stalbans.gov.uk/transport-and-streets/electricvehicles.aspx

A grant was submitted to DEFRA for a Clean Air Zone (CAZ) Feasibility study and funding of clean air zones. The feasibility study bid was in response to 2016's appraisal comments surrounding the support into new initiatives to develop the action plan and 2017's appraisal comments to further investigate CAZ feasibility following last year's bus gate proposal and bus based CAZ scenario. . The bid response is expected to be advised in 2019. An application for £1.3 million of funding was submitted to retrofit all pre-EURO 6 Arriva Southern Countries buses operating on routes running through all designated AQMAs within Hertfordshire however the funding was rejected.

The ongoing work in reference to the control of idling vehicles has continues into 2018 with an anti-idling campaign raising awareness at schools and for members of the public.

The Freight Management Plan Defra funded project has been put on hold as the measure may fall under the CAZ feasibility bid. The outcome of this bid is expected by March 2019.

Preliminary consideration of Clean Air Zone (CAZ) based interventions shows significant reductions in NO_x emissions and therefore NO_2 concentrations, but direct comparison to the base case and predicted scenarios, as highlighted within the Council's 2018 instantaneous emissions modelling report, available at *https://www.stalbans.gov.uk/environmentandwaste/pollution* is problematic given the assumed base year of 2020 and the limited emissions data available (i.e. only available for the instantaneous method). It has therefore not been possible to quantify the NO_2 concentration impacts of the CAZ feasibility scenarios. However, with respect to the available NO_x emissions data alone this would suggest that a CAZ with a focus comparable to the London Ultra Low Emission Zone (ULEZ) would bring forward the most significant reductions in NO_x emissions relative to a 2020 base scenario with a 40% reduction, whilst a Heavy Duty Vehicle (HDV) only focus would translate to a 18% reduction. A Bus only CAZ focus would give rise to a 9% reduction in NOx emissions. By way of comparison, introduction of the bus gating measure in 2020 will give rise to an estimated 6% reduction in NO_x emissions.

Further consideration to CAZ feasibility studies is therefore warranted as part of further work and is likely to bring forward more significant air quality improvements when compared to the more vigorously tested bus gating scenario.

Conclusions and Priorities

St Albans City and District is predominately rural in nature and the main source of air pollution within the District is from road traffic emissions. The city centre has a number of busy streets where canyon effects of pollution are apparent due to buildings being in close proximity to the road. In addition there are a number of main roads with a high volume of traffic that pass through the District including the M1, the M25 and the A414. The three AQMAs that are currently designated reflect these road conditions as two of the AQMAs are close to the areas of the M25 and the M1, and the third is located within

a congested central road within St Albans that is representative of street canyon conditions.

The priorities for the coming year include continuing to work with the Air Quality Action Plan (AQAP) measures, implementing the actions that are ready for completion and working with separate departments within St Albans City and District Council on measures benefitting air quality within the Climate Change Action Plan 2016, the council Green Travel Plan and the Hertfordshire County Council Local Transport Plan 2011 – 2031. The good work already undertaken in relation to the reduction of vehicle idling and to explore new options for promotion and enforcement of anti-idling will continue.

The 2017 monitoring network showed exceedances of the NO_2 annual mean Air Quality Strategy (AQS) objective at three locations once distance correction had been taken into consideration; SA136, which is located 76m from a relevant receptor and therefore not representative of exposure, SA138, which is situated at the façade of a pub within AQMA No. 1 and SA144, which is situated outside of an AQMA. It should be noted that there was only 58% data capture at SA144 as it was a newly installed diffusion tube and therefore further trend analysis over the following years is required to ascertain whether there is a problem at this location.

There is a 25% reduction on the number of exceedance sites in comparison to last year's ASR. The 2017 introduced AQMA No.7 monitoring site, SA145, was found to be within 10% of the objective following distance correction. The Council have introduced four new monitoring locations in 2017, with three locations positioned within each of the existing AQMAs (SA142, SA143 & SA145).

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 the District is vehicle emissions, changing the method of transport used can help reduce the amount of pollutant emissions released from vehicle sources. This can be due 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 – 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 for any long periods of time. 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.

During 2017 a number of queries were raised from members of the public in relation to air pollution from aircraft flying over the District. London Luton airport is located approximately 4 miles north of Harpenden with its aircraft constantly landing and taking off. Due to the aircraft being in flight over the District and the landing/taking off phase not being located within the District boundary pollutant concentrations within the District will not be significantly affected. The height at which the airplanes fly will enable any pollutants emitted to be dispersed through meteorological conditions experienced. London Luton Airport will complete pollutant monitoring close to the airport and if concentrations are not in exceedance of AQS objectives close to the airport, the airports operation will not have a significant effect at a greater distance away from the airport.

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. Also there are 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/environmentandwaste/pollution/air-pollution/*.

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1 Local Air Quality Management

This 2018 Annual Status Report (ASR) provides an overview of air quality in St Albans City and District Council during 2017, with reference to the results taken from the Council's 2017 ratified data capture. 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 and District Council to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England can be found in Table E.1 in Appendix E.

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

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

A summary of AQMAs declared by St Albans City and District can be found in Table 2.1. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at *https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=254*

We propose to keep the current three designated AQMAs in St Albans City and District Council (see monitoring section) and to review the NO_2 monitoring network surrounding these AQMAs.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)		Action Plan		
						At Declaration	Now	Name	Date of Publication	Link
St Albans AQMA No. 1	Declared 02/11/2004, and amended in 08/07/2009	NO_2 Annual Mean	St Albans	The area comprising of odd numbers 1-7 London Road, 1-11c Holywell Hill and even numbers 2-38 London Road, St Albans.	NO	61µg/m3	41.2µg/m3	Air Quality Action Plan for St Albans City and District Council	Dec-03	http://aqma.defra.gov.uk/action-plans/StADC%20AQAP%202003.pdf
		PM_{10} 24 Hour Mean				-	-			
St Albans AQMA No. 2	Declared 02/11/2004	NO_2 Annual Mean	St Albans	The area comprising of Beechtree Cottages, Hemel Hempstead Road, St Albans (adjacent to junction of M1 (J7) and M10).	YES	52µg/m3	36µg/m3	Air Quality Action Plan for St Albans City and District Council	Dec-03	http://aqma.defra.gov.uk/action-plans/StADC%20AQAP%202003.pdf
St Albans AQMA No. 7	Declared 21/09/2004	NO_2 Annual Mean	St Albans	An area encompassing a number of domestic properties in Frogmore on Radlett Road and Colney Street in the vicinity of the M25.	NO	44µg/m3	36µg/m3	Air Quality Action Plan for St Albans City and District Council	Dec-03	http://aqma.defra.gov.uk/action-plans/StADC%20AQAP%202003.pdf

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

Note: Each reported monitored concentration is taken from the monitoring site situated within each AQMA

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

Defra's appraisal of last year's ASR concluded that the main source of emissions were derived from vehicle traffic across the district. The report recognised that one exceedance was recorded inside an AQMA (AQMA 1) with two reported outside of the three declared AQMAs, following the application of distance correction. Substantial decreases in NO_2 over a five year reporting period (2012 – 2016) were also noted. The appraisal document highlights that the council does not undertake particulate monitoring, however the background concentrations estimate concentrations are well below air quality objective limits (AQO). Defra's appraisal document supports additional initiatives that investigate further potential measures for the Air Quality Action Plan (AQAP). The council explored initiatives and submitted a grant to DEFRA to undertake a CAZ feasibility study.

St Albans City and District Council has taken forward a number of direct measures during this ASR's reporting year of 2017 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2.

More detail on these measures can be found in the respective Council Action Plan available at *https://www.stalbans.gov.uk/environmentandwaste/pollution*. . Key completed measures are the Council's submission of a grant to Defra to investigate the feasibility of a Clean Air Zone, introduction of monitoring to AQMA 2, and review of the Council's monitoring network where several monitoring locations were relocated to areas of more relevant exposure.

The Licensing and Regulatory Committee resolved at its meeting on the 18th July 2017 to amend the council's policy to allow electric vehicles to be licensed as Private Hire and Hackney Carriage vehicles in line with the current conditions should applicants wish to do so. It also agreed to change the vehicle conditions so that electric vehicles could be added to the reduced fee list. On the 17th July 2018, Licensing and Regulatory committee considered their work programme and noted that 'Draft action plan from the Feasibility Study Task and Finish Group' should be removed as an agenda item from the 23th October 2018 meeting, and re-added to the work programme, subject to the outcome of the decision being made at the January 2019 meeting. A link to the minutes of that meeting is set out as follows;

http://stalbans.moderngov.co.uk/documents/g8537/Printed%20minutes%2017th-Jul-2018%2019.00%20Licensing%20and%20Regulatory%20Committee.pdf?T=1

St Albans City and District Council expects the following measures to be completed over the course of 2018-19: continue to review and enhance monitoring locations around St. Albans following the July 2018 network diffusion tube overhaul, and monitor the progress of the CAZ grant with Defra.

The principal barrier to implementation that St Albans City and District Council face is predominately the delay upon the bus fleet upgrade measure. Funding was not awarded to retrofit approximately 90 buses as part of the Hertfordshire and Bedfordshire bid application, therefore an alternative measure may need to be considered by the Council, possibly in line with the outcome of the CAZ study grant in 2019.

St Albans City and District Council anticipates that the measures stated above and in Table 2.2 will help to contribute towards the continued compliance in St Albans AQMAs 2 and 7 and achieve compliance in AQMA 1.

With the measures stated above and in Table 2.2, St Albans City and District Council anticipates that further additional measures not yet prescribed will be required in subsequent years to achieve compliance and enable the revocation of St Albans AQMA Number 1, 2 and 7. There were several approved planning applications in 2017 that may impact on several of the existing monitoring sites, however many are consisting of similar use renovations to existing buildings and so may not produce construction dust notable to next year’s monitoring data. The granted applications however will be reviewed in the next year’s ASR if any areas of concern are apparent, particularly if located within an AQMA.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated Completion Date	Comments / Barrier 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	Other	SADC/HCC	2017/18	2019	Parking restrictions in place	See note 1 at end of table	The Parking Team have been consulting on proposals to amend parking restrictions to improve traffic flows during 2019/20. Work on Belmont Hill has commenced. Loading restrictions are in place during peak traffic hours near the shops and these will continue to be enforced. This measure is within the ongoing work programme for new Traffic Regulation Orders being looked at annually.	2019/20	
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	SADC	NA	Annually	Number of inspection	See note 1 at end of table	All processes are risk rated annually and inspection frequency determined based upon risk. Programmed annual inspections to April 2018, are currently up to date. Processes operating without a permit are identified and appropriate enforcement action taken.	Continuous	
3	SADC will investigate complaints about nuisance (domestic and industrial emissions).	Public Information	Other	SADC	NA	On receipt	Time taken to resolve complaints	See note 1 at end of table	Complaints are investigated as and when received.	Continuous	
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	Other	SADC	2018	Continuous - Reviewed July 2018	Data capture	N/A	The details of diffusion tubes and continuous monitoring are recorded on http://www.stalbans.gov.uk/environmentandwaste/pollution/air-pollution/	Continuous	
5	To increase bus patronage and encourage modal shift from the car to public transport.	Transport Planning and Infrastructure	Bus route improvements	SADC/HCC		2017-19	Service numbers	See note 1 at end of table	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	Ongoing Meets twice yearly.	

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated Completion Date	Comments / Barrier to implementation
6	To investigate the feasibility of a Clean Air Zone	Promoting Low Emission Transport	Low Emission Zone (LEZ)	SADC / HCC	2018	NA	Vehicle counts	N/A	To investigate suitability and eligibility for funding for Clean Air Zones via DEFRA		An Air Quality Update report was considered at the CESSC meeting held on 6th September 2018. At this point DEFRA had not released their eligibility criteria, but advised that they would in October 2018. St Albans were eligible to apply and submitted a bid on 30th November 2018. Grant awards ought to be released by March 2019.
7	Pilot the Station Travel Plan.	Promoting Travel Alternatives	Other	HCC	2010		Usage figures	See note 1 at end of table	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. It has been decided to wait until the station development is completed before setting up the working group.		
8	Community Rail Partnership (CRP) The Abbey Line.	Promoting Travel Alternatives	Promote use of rail and inland waterways	SADC/HCC	2010	2011-2016	Usage figures	See note 1 at end of table	Community Rail Partnership (The Abbey Line) – the shuttle bus was found not to be commercially viable so has been withdrawn. The CRP is working closely with the new operator LNR to find ways to engage with communities along the line. This includes a campaign to recruit more station adopters and a primary school engagement programme.		
9	Investigate possibility of road signs to discourage through traffic.	Traffic Management	Other	HCC	2017/18	2018/19	Traffic counts	See note 1 at end of table	Variable Message Signs to be activated during city centre events to inform motorists of delays and parking options.	Continuous	
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	SADC	2019/20	2021/22	Usage figures	See note 1 at end of table	Further work on this measure is dependent on preferred service provision options arising from work on the procurement of the car parking contracts. Existing EV charge points in the District are owned and maintained by HCC. HCC is developing a strategy and guidance, together with a Framework to support local Councils proposing to extend existing capacity.	Continuous	

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated Completion Date	Comments / Barrier to implementation
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	SADC	2018/19	Following implementation of SLP and subject to discussions with Planning Dept. for inclusion in the detailed Local Plan	Installation figures	See note 1 at end of table	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. Electric Vehicle Charge Points to be installed in new Harpenden Sports and Leisure Centre	2019/20	
12	Consider an increase in car parking charges with the view to making bus travel a more attractive alternative.	Promoting Travel Alternatives	Other	SADC`	2018/19	2019/20	Car park volume figures	See note 1 at end of table	Annual review undertaken. Potential price increase in car park charging is under negotiation.	Continuous	
13	Continue the Trees Against Pollution project and explore green wall/hedging opportunities	Transport Planning and Infrastructure	Other	SADC	2017/18	2018/19	Number of trees planted: 600,000	See note 1 at end of table	Heartwood Forest – this is a new mixed native woodland on private land owned by the Woodland Trust to the north of Sandridge village. The planting of 600,000 trees (mainly as whips or forestry transplants) on approximately 370 hectares commenced in 2009 and was completed in 2017/18, planted entirely by volunteers. Woodland planting has been negotiated on BRE and Harperbury and we are in negotiation on the current Hanstead Wood Application. SADC have an annual programme of tree planting within parks and open spaces (currently £6Kpa). In addition, a special tree planting project was set up to run 2016-2019, value £25K.	Continuous	

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated Completion Date	Comments / Barrier to implementation
14	Cycling and walking strategy	Promoting Travel Alternatives	Promotion of cycling	SADC / HCC	2016/17	2018/19	Usage figures	See note 1 at end of table	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 to be relaunched in Spring 2019. Improvements and investments in cycling and walking infrastructure include; • Implementation of the St Albans Green Ring route project. • Production of revised St Albans Cycling map to be 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 within 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 Nickey Line in Harpenden. • New link from Alban Way to St Albans City Rail station. • Provision of way finding monoliths within the city centre.	Continuous	
15	Taxi emissions.	Promoting Low Emission Transport	Taxi Licensing conditions	SADC	2017/18	2018/19	Certificate of Compliance data	See note 1 at end of table	Emissions controlled through Certificate of Compliance at garage check. The frequency of checks is dependent upon the age of the vehicles; 1 – 5 years old; annually 5 – 7 years old; every 6 months Over 7 years old; every 4 months 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 The Licensing and Regulatory committee have commissioned a feasibility study into the infrastructure/technological and financial implications of supporting electric taxis across the district. A draft action plan from the feasibility study task and finish group is a Licensing and Regulatory committee agenda item for its January 2019 meeting following the submittal of the grant.	Continuous	

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated Completion Date	Comments / Barrier to implementation
16	Campaign to raise awareness of air quality and the impact on air quality, of idling engines (when parked)	Public Information	Via the Internet	SADC	2016/17	2018/19	Media coverage	See note 1 at end of table	The Anti-idling campaign was run during 2017 and 2018. This raised awareness of the issue and urged car, van, lorry, bus and taxi drivers to switch off their engine 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. The following numbers were spoken to as part of the campaign: School engagement total 1,700; Community engagement 696 In 2019 we are looking at the possibility of installing street signage to encourage drivers outside schools to turn off their engines when stationary.	2019	
17	Retrofitting of existing bus fleet to lower pollutant emissions	Promoting Low Emission Transport	Other	SADC/HCC		N/A	Number of buses retrofitted	See note 1 at end of table	St Albans were part of a Herts & Beds bid application to DEFRA to work with Arriva Southern Counties to retrofit all pre-Euro 6 buses operating on the bus routes running through the Hertfordshire AQMAs. Arriva Southern Counties operate bus routes through AQMAs within five Local Authority Areas within Hertfordshire: Dacorum Borough Council, East Hertfordshire District Council, North Hertfordshire District Council, St Albans City and District Council and Watford Borough Council. The bid was to retrofit approx. 90 buses costing approx. £1.4 million. Funding was not awarded.	Complete	
18	Freight Management Plan	Freight and Delivery Management	Other	SADC	2014/17	2018	Numbers of vehicles and routes taken	TBC	Project is on hold pending possibility of feeding into larger scale project (feasibility of CAZ) subject to funding stream being available. Outcome of bid application due by March 19.	Ongoing	
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.											

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

As detailed in Policy Guidance LAQM.PG(16) (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 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 also impact the emissions of PM_{10} and $PM_{2.5}$ due to the pollutants originating from the same sources. The main source of local air pollution concentrations within St Albans is from vehicle emissions, both NO_2 and particulates are released from vehicular sources, therefore measures focussing on changing the number of vehicles on the roads, and the type of vehicles being used will help reduce emissions of both pollutants.

The Public Health Outcomes Framework indicator[4] for the fraction of deaths attributable to $PM_{2.5}$ in St Albans is 5.6% (current available report ref. 2016), which is slightly above the regional average of 5.4% and the national average of 5.3%.

There is currently no ongoing monitoring of $PM_{2.5}$ within the District, and no specific measures in place to address $PM_{2.5}$ concentrations, as the air quality across the District is considered good. 2017 modelled concentrations of $PM_{2.5}$ using the Defra 2015 Background Maps tool identify that grid reference x511500, y203500 contains the highest $PM_{2.5}$ concentration across the district at a predicted 11.2µg/m^3. This area is located 1.5km west of Chiswell Green close to junction 21 M25 joining onto the M1.

Traffic emissions are the main cause of particulate emissions within the District, and as such, the implementation of the transport measures given in Table 2.2 will continue to contribute to the reduction of $PM_{2.5}$ concentrations experienced across the District.

The following measures to reduce pollutant emissions within St Albans including emissions of $PM_{2.5}$ are included within the existing AQAP:

[4] https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data#page/3/gid/1000043/pat/6/par/E12000006/ati/101/are/E07000143/iid/30101/age/230/sex/4

- Traffic management improvements, changes in parking restrictions, co-ordinating timing of goods deliveries and possible re-routing of HGVs;
- Changes to Public Transport, introduction of two new hybrid buses and retrofitting of 40 buses with new technology to produce less NO_x/NO_2 emissions;
- Promotion of Green Travel, reducing the number of journeys taken by car and using public transport, car-sharing, cycling or electric vehicles; and
- Promotion of energy efficiency measures across the District.

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

There is currently no continuous monitoring undertaken by St Albans City and District Council.

3.1.2 Non-Automatic Monitoring Sites

St Albans City and District Council undertook non-automatic (passive) monitoring of NO_2 at 42 separate locations during 2017, 42 single tube locations and 1 triplicate location. Table A.2 in Appendix A presents details of the current sites. Two of the diffusion tube sites, SA117 & SA141, were relocated part way through 2017 to new sites located 66m and 27m from their original locations, respectively. This relocation was to ensure that SA117 was relocated closer to relevant exposure and SA141 was removed from the renovation works carried out at the Town Hall in 2017, together with locating nearer to relevant exposure, as there is a residential flat located directly adjacent to the monitoring location. There is currently one historical diffusion tube monitoring site within an existing AQMA (SA138), with three monitoring locations introduced in 2017 located within the AQMAs (SA142, SA143 & SA145). A further diffusion tube was also introduced in 2017 (SA144) which is situated outside of the AQMAs. Although some diffusion tubes are close to the boundaries of AQMAs, currently all other monitoring locations are outside of the existing AQMAs.

Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix C. Maps showing the location of the monitoring sites are provided in Appendix D.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for annualisation and bias. Further details on the adjustments made are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Appendix A: Monitoring Results compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past 5 years with the air quality objective of 40µg/m^3.

For diffusion tubes, the full datasets of monthly mean values for 2017 are provided in Table B.1.

Table C 2 provides details of the St. Albans' monitoring sites requiring annualisation in 2017. There were sixteen sites reporting less than 75% data capture. The relocated site SA141 only reported two months' of monitoring data for 2017. Due to the low data capture at this site annualisation could not be carried out accurately and therefore proved an insufficient data set for the purposes of an annual mean trend analysis. It is anticipated to be presented in next year's ASR.

Following the application of bias adjustment and annualisation to the raw data, four exceedances of the AQS annual mean objective were identified in total for NO_2 at sites SA136, SA137, SA138 and SA144. Site SA145 was also found to be within 10% of reaching the exceedance threshold. Sites SA137, SA144 and SA145 have been distance corrected in

Table C 3 due to relevant exposure being at a greater distance from the kerb than where the monitoring sites are located. After distance correction of these monitoring sites, two fall well below the AQS annual mean objective with one site (SA144) reducing to reach the AQS annual mean objective of 40µg/m^3 for NO_2. Following distance correction, three exceedances of the AQS annual mean NO_2 objective remain. SA138 is located within AQMA No. 1 and is situated at the façade of a pub with a residential receptor located on the second floor, SA144 and SA136 are located outside of a declared AQMA. SA136 is 76m away from the nearest sensitive receptor and therefore does not represent a site of relevant exposure. SA144 only had 58% data capture for the year as it was a newly installed diffusion tube and therefore further trend analysis over the following years is required to ascertain whether there is a problem at this location.

Defra guidance states that exceedances of the NO_2 1-hour objective are unlikely to occur where the annual mean concentration is below 60µg/m^3. All diffusion tube 2017

annual mean NO_2 concentrations recorded are below 60µg/m^3 therefore it can be considered as per Defra guidance that there were no exceedances of the AQS 1-hour objective for NO_2.

Appendix A: Monitoring Results

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

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube collocated with a Continuous Analyser?	Inlet Height (m)
SA101	Museum Hatfield Road St Albans SA001	Roadside	515105	207476	NO_2	N	19m	2.5m	NO	2.35
SA102	Folly Lane St Albans SA041	Kerbside	514160	207694	NO_2	N	20m	2m	NO	2.33
SA103	Links View St Albans SA018	Kerbside	513988	208188	NO_2	N	12m	1m	NO	2.4
SA104	Ben Austin Redbourn SA005	Roadside	509002	211731	NO_2	N	12.5m	6m	NO	2.37
SA105	St Agnells Lybury Lane Redbourn SA023	Rural	509012	213678	NO_2	N	N/A	0.5m	NO	2.4
SA106	Lybury Lane Redbourn SA022	Rural	509668	212987	NO_2	N	N/A	5m	NO	1.2
SA107	Redbourn JMI Long Cutt Redbourn SA011	Background	510194	212526	NO_2	N	N/A	28m	NO	2.23
SA108	Redding Lane Redbourn SA024	Rural	509099	214068	NO_2	N	N/A	2m	NO	2.24
SA109	High Street Harpenden SA009	Kerbside	513345	214409	NO_2	N	22m	3m	NO	2.4
SA110	Crabtree JMI Crabtree Lane Harpenden SA0	Kerbside	514498	214382	NO_2	N	21m	2m	NO	2.7
SA111	Butterfield Road Wheathampstead SA014	Kerbside	517604	213349	NO_2	N	15m	1m	NO	2.4
SA112	High Street Wheathampstead SA013	Kerbside	517732	214117	NO_2	N	18m	3m	NO	2.65
SA113	Pondfield Crescent St Albans SA004	Background	516634	209085	NO_2	N	N/A	9m	NO	2.22
SA114	Fleetville 1 Royal Road St Albans SA020	Background	516549	207391	NO_2	N	N/A	20m	NO	2.45
SA115	Fleetville 2 Royal Road St Albans SA034	Background	516549	207391	NO_2	N	N/A	20m	NO	2.45
SA116	Fleetville 3 Royal Road St Albans SA035	Background	516549	207391	NO_2	N	N/A	20m	NO	2.45
SA117	Five Acres London Colney Roundabout SA01	Kerbside	517666	204828	NO_2	N	24m	1m	NO	2.46
SA117 (Reloc)	Five Acres London Colney Roundabout SA01	Kerbside	517712	204782	NO_2	N	9m	1m	NO	2.42
SA118	Ridgeview Hostel Barnet Rd London Colney	Background	518645	203435	NO_2	N	N/A	40m	NO	2.45

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Inlet Height (m)
SA119	Bowmans JMI Telford Rd London Colney SA0	Kerbside	517482	203881	NO_2	N	24m	1m	NO	2.4
SA120	Sleapcross Gardens Smallford SA037	Kerbside	520053	206618	NO_2	N	23m	1m	NO	2.3
SA121	Mount Drive Park Street SA033	Kerbside	514654	204546	NO_2	N	31m	1m	NO	2.45
SA122	Sycamore Drive Park Street SA032	Kerbside	514899	203857	NO_2	N	12m	2m	NO	2.52
SA123	Radlett Road Park Street SA031	Kerbside	515295	202765	NO_2	N	4m	0.25m	NO	2.45
SA124	Smug Oak Lane Bricket Wood SA030	Kerbside	515383	202528	NO_2	N	25m	1m	NO	2.5
SA125	Lye Lane Bricket Wood SA021	Kerbside	513308	202655	NO_2	N	33m	2m	NO	2.4
SA126	Five Acres Avenue Bricket Wood SA027	Kerbside	512689	202700	NO_2	N	5.5m	2m	NO	2.57
SA127	Oakwood Road Bricket Wood SA026	Kerbside	512570	202716	NO_2	N	8m	2m	NO	2.37
SA128	Waterdale Old Watford Rd Bricket Wd A405	Roadside	512004	202105	NO_2	N	0m	18m	NO	2.4
SA129	Ashridge Drive Bricket Wood SA012	Kerbside	512880	202238	NO_2	N	9m	1m	NO	2.35
SA130	Tippendell Lane Chiswell Green SA016	Kerbside	513569	204537	NO_2	N	13.5m	2.5m	NO	2.67
SA131	Farm Searches Lane Bedmond SA025	Rural	511351	203740	NO_2	N	N/A	1m	NO	2.4
SA132	Westminster Lodge Holywell Hill St Alban	Background	514317	206453	NO_2	N	N/A	1m	NO	2.27
SA133	Belmont Hill St Albans SA042	Kerbside	514606	206801	NO_2	N	22m	1.5m	NO	2.4
SA134	Albert Street St Albans SA043	Kerbside	514648	206919	NO_2	N	11.5m	2m	NO	2.6
SA135	Watsons Walk St Albans SA040	Kerbside	515096	206921	NO_2	N	18m	2m	NO	2.65
SA136	St Peters Street St Albans SA003	Kerbside	514883	207422	NO_2	N	76m	1m	NO	2.34
SA137	High Street St Albans SA039	Kerbside	514664	207125	NO_2	N	14m	1.5m	NO	2.12
SA138	Peahen PH Holywell Hill St Albans SA015	Kerbside	514701	207082	NO_2	Y	N/A	2m	NO	2.62
SA139	Civic Centre St Peters St Albans SA03	Background	514921	207391	NO_2	N	N/A	25m	NO	>3.00
SA140	Lattimore Road St Albans	Kerbside	515185	207070	NO_2	N	5m	3m	NO	2.48

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Inlet Height (m)
SA141	Town Hall St Albans	Background	514741	207245	NO_2	N	N/A	2m	NO	2.26
SA141 (Reloc)	Town Hall St Albans	Background	514722	207226	NO_2	N	N/A	2m	NO	2.64
SA142	Beech Tree Cottage St Albans (AL3 6AR)	Roadside	510754	206091	NO_2	Y	10m	4m	NO	2.25
SA143	The Maltings/London Road St Albans	Kerbside	514802	207074	NO_2	Y	0m	4m	NO	2.39
SA144	Forester House/St Peters Street St Albans	Kerbside	514833	207347	NO_2	N	4m	3m	NO	2.62
SA145	Moor Mill Lane Colney Street	Roadside	515257	202638	NO_2	Y	3m	16m	NO	2.32

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

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2017 (%) [2]	NO_2 Annual Mean Concentration (µg/m^3) [3]				
					2013	2014	2015	2016	2017
SA101	Roadside	Diffusion Tube	91.7%	91.7%	34	33.2	27.9	35.6	28.5
SA102	Kerbside	Diffusion Tube	100.0%	100.0%	28	29.4	24.8	26.8	26.5
SA103	Kerbside	Diffusion Tube	100.0%	41.7%	21.9	21.2	17.4	21.6	19.5
SA104	Roadside	Diffusion Tube	100.0%	100.0%	25.7	28	20.3	23.4	22.2
SA105	Rural	Diffusion Tube	91.7%	91.7%	20	24.6	17.4	20.8	15.6
SA106	Rural	Diffusion Tube	100.0%	41.7%	28.3	30.5	24	29.2	29.0
SA107	Urban Background	Diffusion Tube	66.7%	66.7%	24.2	22.6	20.3	24.1	20.7
SA108	Rural	Diffusion Tube	100.0%	41.7%	19	20.7	16.1	19.1	18.7
SA109	Kerbside	Diffusion Tube	100.0%	100.0%	32.8	29.3	30.9	33.4	31.7
SA110	Kerbside	Diffusion Tube	91.7%	91.7%	20.2	19.7	15.7	21.4	17.7
SA111	Kerbside	Diffusion Tube	100.0%	100.0%	20.7	22	16.8	19.7	19.8
SA112	Kerbside	Diffusion Tube	100.0%	100.0%	24.4	26.3	20.4	24.6	21.4
SA113	Urban Background	Diffusion Tube	100.0%	41.7%	17.6	20	14.8	17.7	18.1
SA114/5/6	Urban Background	Diffusion Tube	100.0%	61.1%	21.5	26.7	22.3	27.2	26.4
SA117	Kerbside	Diffusion Tube	100.0%	50.0%	24.5	29.1	18.1	28.1	26.6
SA117 (Reloc)	Kerbside	Diffusion Tube	100.0%	50.0%	-	-	-	-	23.0
SA118	Urban Background	Diffusion Tube	100.0%	100.0%	28.1	26.8	22.6	27.8	25.7
SA119	Kerbside	Diffusion Tube	100.0%	100.0%	27.5	29.6	22.1	24.9	24.1
SA120	Kerbside	Diffusion Tube	100.0%	100.0%	34.2	37.4	31.5	30.3	30.3
SA121	Kerbside	Diffusion Tube	83.3%	83.3%	**41.1**	**47**	35.3	36.0	35.0
SA122	Kerbside	Diffusion Tube	100.0%	100.0%	33.1	29.9	26.9	29.4	27.8
SA123	Kerbside	Diffusion Tube	100.0%	100.0%	35.1	38.4	32	37.6	35.1
SA124	Kerbside	Diffusion Tube	100.0%	100.0%	38.8	37.4	36.2	36.4	33.7
SA125	Kerbside	Diffusion Tube	91.7%	91.7%	34.8	28.2	23.9	29.1	26.2
SA126	Kerbside	Diffusion Tube	100.0%	100.0%	27.8	25.7	22.6	27.2	23.1
SA127	Kerbside	Diffusion Tube	91.7%	91.7%	31	30	26.2	31.4	25.9
SA128	Kerbside	Diffusion Tube	100.0%	100.0%	35.2	38.8	31	35.9	34.3
SA129	Kerbside	Diffusion Tube	100.0%	100.0%	29.1	28.3	23.5	26.2	25.1

SA130	Kerbside	Diffusion Tube	100.0%	100.0%	27.6	34.4	23.6	27.4	26.5
SA131	Rural	Diffusion Tube	100.0%	41.7%	32.6	33.5	22.3	27.5	25.6
SA132	Urban Background	Diffusion Tube	66.7%	66.7%	25	22.7	21.5	25.6	20.1
SA133	Kerbside	Diffusion Tube	83.3%	83.3%	**48.8**	30.9	33.9	37.9	34.1
SA134	Kerbside	Diffusion Tube	100.0%	100.0%	36	**42.3**	30.9	35.7	32.8
SA135	Kerbside	Diffusion Tube	100.0%	100.0%	**40.2**	**43.2**	30.9	**40.0**	35.9
SA136	Kerbside	Diffusion Tube	83.3%	83.3%	**62.9**	**60**	38.8	**51.0**	**52.5**
SA137	Kerbside	Diffusion Tube	100.0%	100.0%	**46.3**	**47.9**	**40.2**	**44.2**	**40.2**
SA138	Kerbside	Diffusion Tube	100.0%	100.0%	**48.8**	**55.5**	**42.4**	**46.5**	**41.2**
SA139	Urban Background	Diffusion Tube	100.0%	100.0%	24	26	28.5	25.1	24.4
SA140	Kerbside	Diffusion Tube	91.7%	91.7%	30	30	26.8	28.9	26.5
SA141	Urban Background	Diffusion Tube	0.0%	0.0%	29.6	30.8	22.1	24.0	-
SA141 (Reloc)	Urban Background	Diffusion Tube	40.0%	16.7%	-	-	-	-	-
SA142	Roadside	Diffusion Tube	85.7%	50.0%	-	-	-	-	36.0
SA143	Kerbside	Diffusion Tube	100.0%	58.3%	-	-	-	-	36.8
SA144	Kerbside	Diffusion Tube	71.4%	58.3%	-	-	-	-	**46.5**
SA145	Roadside	Diffusion Tube	100.0%	58.3%	-	-	-	-	37.4

☒ **National bias adjustment factor used**

☒ **Annualisation has been conducted where data capture is <75%**

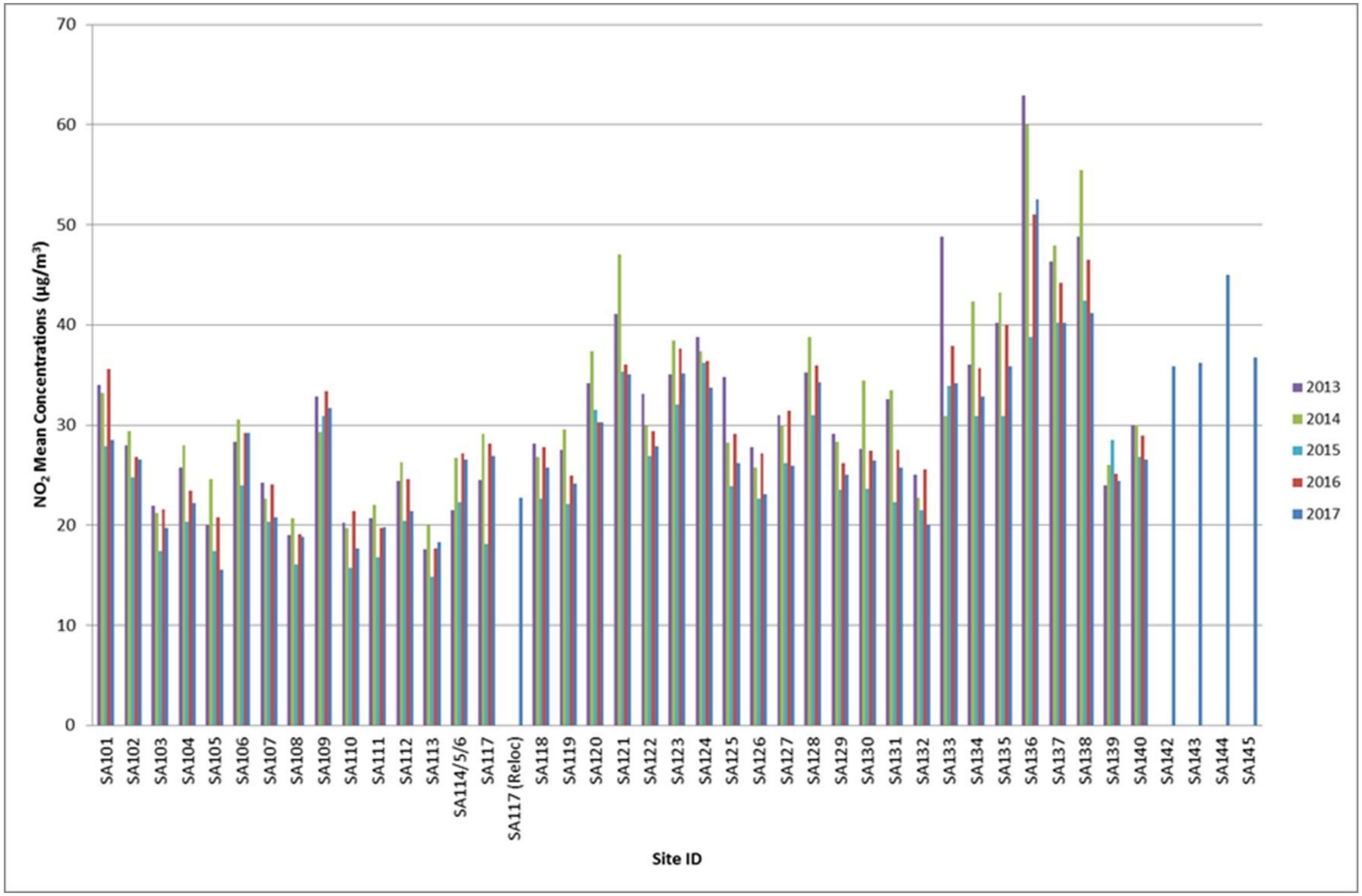
Notes: Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**. NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined.** Data represented by a hyphen (-) indicates where the diffusion tube was not operational or able to provide annual mean data.

(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%).

(3) Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Figure A1 - Trends in Annual Mean NO2 Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2017

Table B.1– NO_2 Monthly Diffusion Tube Results - 2017

Site ID	NO_2 Mean Concentrations (µg/m^3)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.87) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
SA101	55.5		35.5	34.1	15.7	42.1	27.0	26.3	26.2	30.5	37.0	30.8	32.8	28.5	
SA102	58.1	32.0	29.6	28.2	13.0	32.0	24.8	27.3	29.4	27.9	35.2	28.4	30.5	26.5	
SA103	41.6	27.3	23.0	16.6	9.6								23.6	19.5	
SA104	42.5	32.6	24.4	21.7	10.5	24.9	19.1	21.2	22.5	25.0	32.6	28.9	25.5	22.2	
SA105	40.9	29.1	13.0	14.8	10.4		13.0	12.8	15.4	14.1	15.9	17.6	17.9	15.6	
SA106	57.3	38.1	32.6	35.2	11.8								35.0	29.0	
SA107	45.4	26.6		21.7		22.9			21.8	23.7	27.7	25.1	26.9	20.7	
SA108	37.1	31.8	19.2	13.9	10.9								22.6	18.7	
SA109	65.4	40.9	36.2	35.2	18.8	42.5	28.9	31.3	34.4	31.9	39.6	32.4	36.5	31.7	
SA110	42.1	9.9	22.5	15.7	8.2		24.9	16.1	19.1	21.3	19.2	24.6	20.3	17.7	
SA111	49.8	27.8	22.1	16.9	8.6	15.7	25.1	19.3	20.9	19.8	23.1	23.8	22.8	19.8	
SA112	43.8	30.3	27.2	21.7	12.5	27.4	18.6	16.5	20.4	23.9	28.9	23.7	24.6	21.4	
SA113	40.3	26.5	21.6	13.3	7.9								21.9	18.1	
SA114	56.3	40.4	29.0	23.0	12.0	24.6	15.7	17.2	24.9	30.7	32.4	36.3	28.5	24.8	
SA115	58.5	38.1	30.9	24.4	13.2								33.0	27.3	
SA116	52.3	39.2	32.8	23.8	13.7								32.4	26.8	
SA117	58.5	31.8	29.6	26.2	12.9	27.5							31.1	26.6	
SA117 (Reloc)							20.3	20.1	24.6	26.1	35.5	29.0	25.9	23.0	
SA118	53.1	37.0	32.9	25.9	13.9	30.3	23.3	23.3	26.6	26.3	29.2	32.9	29.6	25.7	
SA119	51.3	42.3	29.9	20.9	11.7	27.4	20.2	22.5	23.1	26.1	29.8	27.6	27.7	24.1	
SA120	53.1	38.0	37.4	24.1	17.4	41.6	29.3	28.8	47.3	34.7	33.2	33.1	34.8	30.3	
SA121	55.1	37.0	37.6	34.7		46.0	33.8	31.1	50.7	35.3	41.1		40.3	35.0	
SA122	53.6	44.0	33.0	26.5	13.5	33.5	24.0	26.4	30.7	29.9	38.7	30.4	32.0	27.8	

Site ID	NO_2 Mean Concentrations (µg/m^3)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.87) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
SA123	60.0	33.6	42.5	34.4	19.5	46.5	33.9	32.8	52.1	40.3	51.8	37.4	40.4	35.1	
SA124	65.2	40.8	42.3	22.8	22.1	39.9	38.1	32.4	52.8	30.5	39.9	37.7	38.7	33.7	
SA125	51.7	30.3	26.8	32.4	17.4	32.0	21.2	24.3	43.7		26.7	24.3	30.1	26.2	
SA126	42.5	30.6	26.2	27.0	11.5	27.6	19.3	23.4	40.1	23.1	19.7	27.9	26.6	23.1	
SA127	49.5		27.4	30.7	11.8	34.3	23.1	26.0	27.7	28.3	37.2	31.7	29.8	25.9	
SA128	62.3	40.5	41.2	43.9	18.4	48.0	30.8	34.2	38.4	38.4	41.0	35.9	39.4	34.3	
SA129	52.4	36.5	26.3	40.1	11.9	25.3	19.2	22.2	28.3	25.7	28.4	29.4	28.8	25.1	
SA130	55.3	36.4	34.2	27.1	13.2	29.2	19.8	24.7	29.4	31.5	32.3	32.0	30.4	26.5	
SA131	48.3	36.9	30.7	21.6	17.0								30.9	25.6	
SA132	40.6			16.5		20.7		19.5	23.5	22.9	29.8	26.5	25.0	20.1	
SA133	57.2		43.8	34.4	29.9	51.8	31.1	32.8	32.3		42.4	36.5	39.2	34.1	
SA134	51.5	46.4	40.1	35.2	21.5	52.4	33.8	31.6	37.5	34.9	35.2	32.7	37.7	32.8	
SA135	67.2	44.3	43.4	37.0	22.2	56.0	32.0	32.5	36.1	36.7	46.8	40.3	41.2	35.9	
SA136	71.0	55.7		42.1	35.0	65.1		42.4	45.2	43.8	43.2	39.4	60.4	**52.5**	
SA137	69.5	51.7	46.0	46.3	26.0	75.2	35.9	35.3	45.9	39.5	43.8	39.5	46.2	**40.2**	28.3
SA138	69.2	62.9	55.9	47.8	30.6	35.5	43.3	43.2	49.1	44.8	49.5	35.8	47.3	**41.2**	
SA139	47.8	30.6	27.0	24.8	12.4	39.7	19.9	22.0	27.0	26.1	31.1	28.8	28.1	24.4	
SA140	53.2	37.5	30.8	27.5	14.6		20.6	24.9	24.3	29.7	36.4	35.7	30.5	26.5	
SA141 (Reloc)									*27.6*	*26.5*			*27.1*		
SA142						46.4	29.9	31.5	35.8	35.7		40.9	36.7	36.0	
SA143						53.3	32.6	31.1	37.5	34.8	47.6	43.2	40.0	36.8	
SA144						67.2	42.4	39.9	46.2		40.7		47.3	**46.5**	**40.0**
SA145						58.5	24.0	35.1	35.9	40.8	44.2	45.8	40.6	37.4	36.4

☒ **National bias adjustment factor used** ☒ **Annualisation has been conducted where data capture is <75%** ☒ **Where applicable, data has been distance corrected for relevant exposure.**

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.**(1) See Appendix C for details on bias adjustment and annualisation.(2) Distance corrected to nearest relevant public exposure.**Tube Missing** **Site Closed** **Not Reported**

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

Diffusion Tube Bias Adjustment Factors

It is stated within the LAQM section of https://uk-air.defra.gov.uk/ that diffusion tubes are affected by several sources of interference which can cause substantial under or overestimation (bias) compared to a chemiluminescent analyser (the reference method). This can prove to be a problem in any situation where diffusion tube results are compared with the AQS objectives. As a result, local authorities are required to quantify the bias of their diffusion tube measurements and apply an appropriate bias adjustment factor if required.

The bias adjustment factor, which is an estimate of the difference between diffusion tube concentration and continuous monitoring, the latter assumed to be a more accurate method of monitoring has been used to factor the results. LAQM.TG(16) 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.

With regard to the application of a bias adjustment factor for diffusion tubes, the Defra Technical Guidance LAQM.TG(16) and the LAQM Helpdesk[5] recommend the use of a local bias adjustment factor where available and relevant to diffusion tube sites.

St Albans City and District Council does not operate any continuous monitors within the District and therefore a co-location study is not available to derive a local bias factor, thus the national bias adjustment factor spreadsheet[6] has been used.

Diffusion tube data for St Albans City and District Council is supplied and analysed by Gradko International Ltd, the tubes were prepared using the 20% TEA in water

[5] Laqm.defra.gov.uk

[6] National Diffusion Tube Bias Adjustment Factor Spreadsheet, version 09/18 published in September 2018

preparation method. The 2017 national bias adjustment factor for Gradko 20% TEA in water is 0.87 (based on 39 studies, version 09/18) as derived from the national bias adjustment factor spreadsheet.

The bias adjustment factors used for 2013 to 2017 are shown in Table C 1.

Table C 1 – Bias Adjustment Factors

Year of Data	Bias Adjustment Factor
2013	0.95 – National factor
2014	0.92 – National factor
2015	0.91 – National factor
2016	0.92 – National factor
2017	0.87 – National Factor

QA/QC of Diffusion Tube Monitoring

The diffusion tubes are supplied and analysed by Gradko International Limited utilising the 20% Triethanolamine (TEA) in acetone 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 (AIR-PT) 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 Laboratory (NPL), alongside laboratory data from the monthly NPL Field Inter-Comparison Exercise.

In the 2017 AIR-PT results, AIR-PT AR0018 (January to February 2017), AIR-PT AR019 (April to May 2017), AR021 (July to August 2017) and AR022 (September to October 2017), Gradko scored 100%. The percentage score reflects the results deemed to be satisfactory based upon the z-score of $< \pm 2$.

Short-term to Long-term Data Adjustment

For the 2017 diffusion tubes, annualisation was required at sixteen sites due to data capture being below 75%. Annualisation has been completed in line with Defra Technical Guidance LAQM.TG(16) Box 7.10 and full working details are provided in Table C 2.

A number of diffusion tube relocations were carried out in 2017, resulting in the requirement for annualisation. In completing the annualisation procedure, data has been taken from three automatic monitoring stations that are within 50 miles of the sites to be annualised: Haringey Priory Park South, London Bloomsbury and London N. Kensington. These sites form part of the national AURN network and are background monitoring sites. As such, they are not influenced by local sources of air pollution, such as road traffic emissions at roadside monitoring sites. The details of the annualisation have been provided in Table C 2. Monitoring site SA141 was closed then relocated in September 2017, as such, the site only reported 2 months (17%) of data and was therefore deemed insufficient for the annual mean reporting.

Table C 2– Annualisation data, St. Albans City and District Council

Site ID	Unadjusted Diffusion Tube Mean (µg/m^3)	AF London Haringey Priory Park South	AF London Bloomsbury	AF London N. Kensington	Average AF	Annualised & Bias Adjusted (0.87) Concentration (µg/m^3)
SA103	23.6	0.9431	0.980	0.942	0.951	19.5
SA106	35.0	0.931	0.980	0.942	0.951	29.0
SA107	26.9	0.862	0.911	0.880	0.884	20.7
SA108	22.6	0.931	0.980	0.942	0.951	18.7
SA113	21.9	0.931	0.980	0.942	0.951	18.1
SA115	33.0	0.931	0.980	0.942	0.951	27.3
SA116	32.4	0.931	0.980	0.942	0.951	26.8
SA117	31.1	0.971	0.998	0.982	0.984	26.6
SA117 (Reloc)	25.9	1.035	1.003	1.021	1.020	23.0
SA131	30.9	0.931	0.980	0.942	0.951	25.6

SA132	25.0	0.917	0.937	0.910	0.922	20.1
SA141	*27.1 (2 month's data)*	*Insufficient Data*	*Insufficient Data*	*Insufficient Data*	*N/A*	*N/A*
SA142	36.7	1.146	1.091	1.127	1.121	36.0
SA143	40.0	1.071	1.019	1.058	1.049	36.8
SA144	47.3	1.155	1.062	1.131	1.116	**46.5**
SA145	40.6	1.071	1.019	1.058	1.049	37.4

Fall-off Distance Correction of Sites Exceeding the NO_2 Annual Mean Objective

The NO_2 fall-off with distance calculator was used to estimate the NO_2 concentration at the nearest locations relevant for exposure for the diffusion tubes with annual mean concentrations above 36µg/m^3. As the nearest relevant exposure sites to diffusion tube locations SA133 and SA135 are on the other side of the road, distance correction could not be carried out for these two sites. Furthermore, the closest relevant exposure to SA138 is located on the second floor of the building façade. As height is not considered in the distance correction calculator no adjustment could be made to account for the first floor exposure. SA138 is therefore representative of worst case exposure as concentrations are likely to decrease with height. Lastly, SA136 is located 76m from relevant exposure and as a consequence is outside the capabilities of the fall off with distance calculator.

Therefore, the NO_2 fall-off with distance correction calculations are only completed for the sites SA137, SA144 and SA145 as shown in

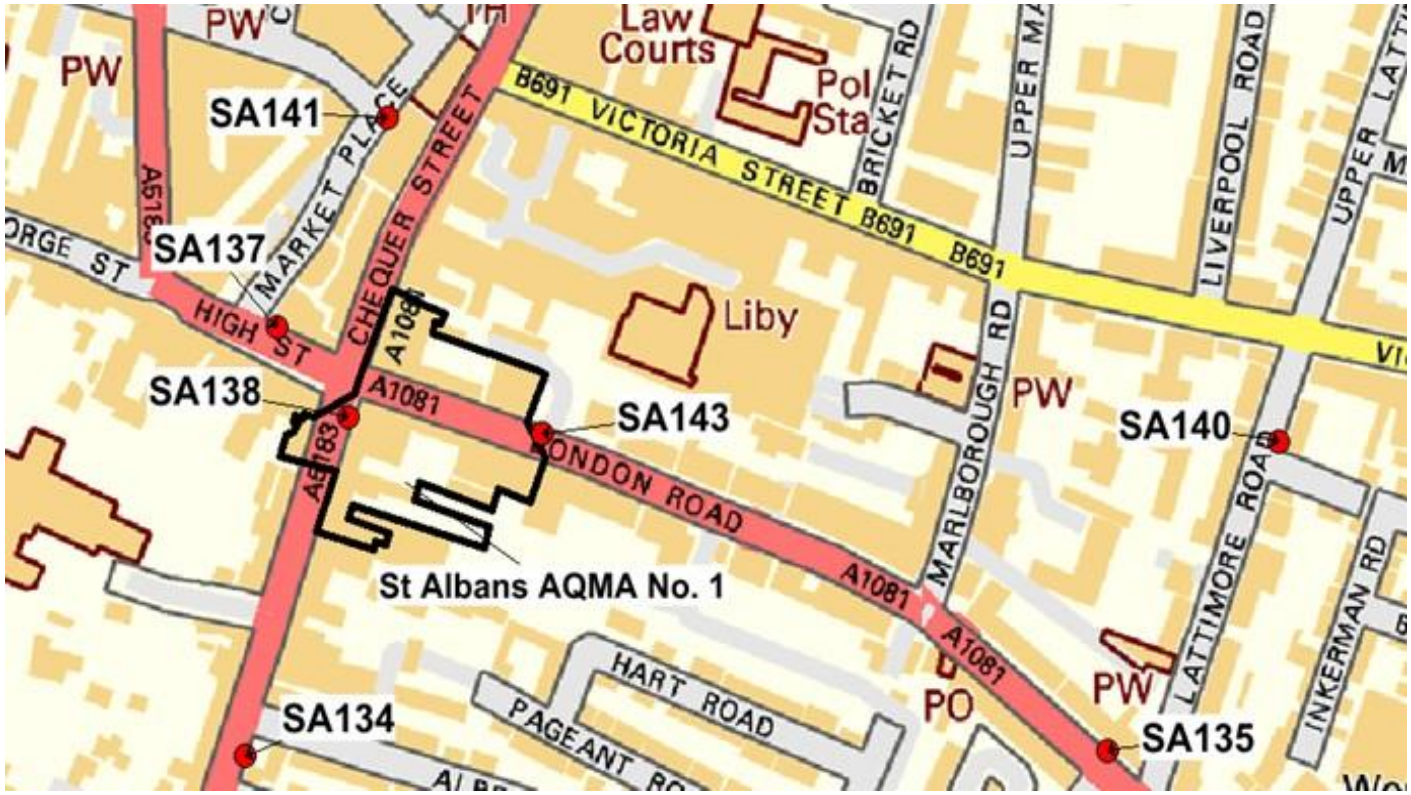
Table C 3. The monitoring location SA144 reports at the AQO with 40µg/m^3, following distance correction. SA144 is located outside of an AQMA, however, it is a new site with only 56% data capture for 2017. Further trend analysis will be required to understand the annual mean NO_2 concentration at this site and whether it is likely to be an issue in the future. The monitoring location SA145 reports within 10% of the AQO following distance correction and is currently located within AQMA No.7.

Table C 3– Fall-off Distance Correction of Sites Exceeding the NO_2 Annual Mean Objective (2017)

Site ID	Site Name	Distance to kerb	Distance from relevant exposure to kerb	Bias Adjusted and Annualised Annual Mean (µg/m^3)	Distance Corrected Annual Mean (µg/m^3)
SA137	High Street St Albans SA039	1.5	15.5	40.2	28.3
SA144	Forester House/St Peters Street St Albans	3.0	7.0	46.5	**40.0**
SA145	Moor Mill Lane Colney Street	16.0	24.6	37.4	36.4

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

Figure D 1 - Map of Current Air Quality Management Area Boundaries and 2017 Monitoring Locations – St Albans



Legend

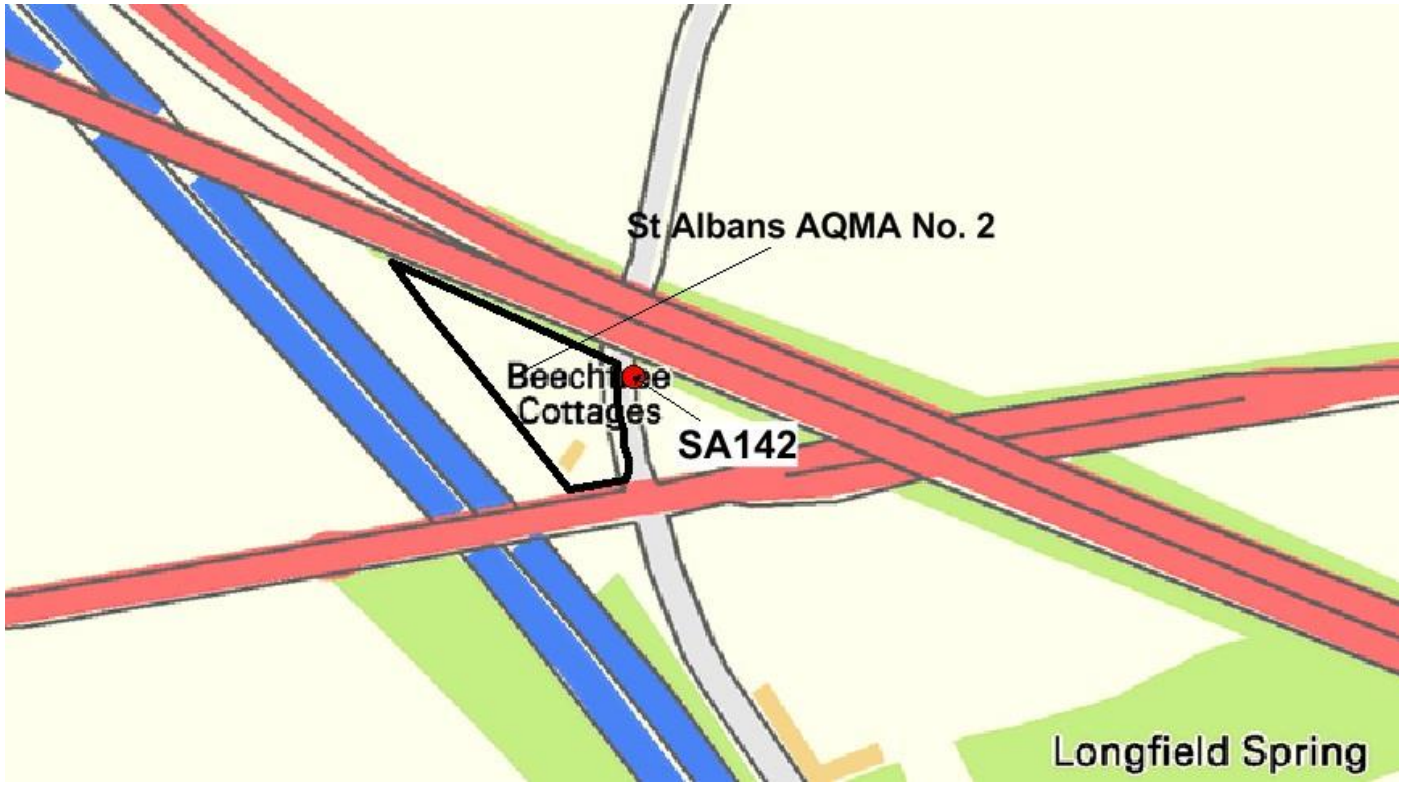
Diffusion Tube Locations

AQMA Boundary

Air Quality Bureau Veritas Atlas Business Park 2nd Floor Atlantic House Manchester M22 5PR

Location	**St Albans and City and District Council**
Title	**St Albans AQMA No. 1**
By JD	**Approved** JC
Scale Not To Scale	**Job Ref** 6482603
Date November 2018	**Figure No.** **D.1**

Figure D 2 - Map of Current Air Quality Management Area Boundaries and 2017 Monitoring Locations – Beechtree Cottages



Legend

Diffusion Tube Locations

AQMA Boundary

Air Quality Bureau Veritas Atlas Business Park 2nd Floor Atlantic House Manchester M22 5PR

Location

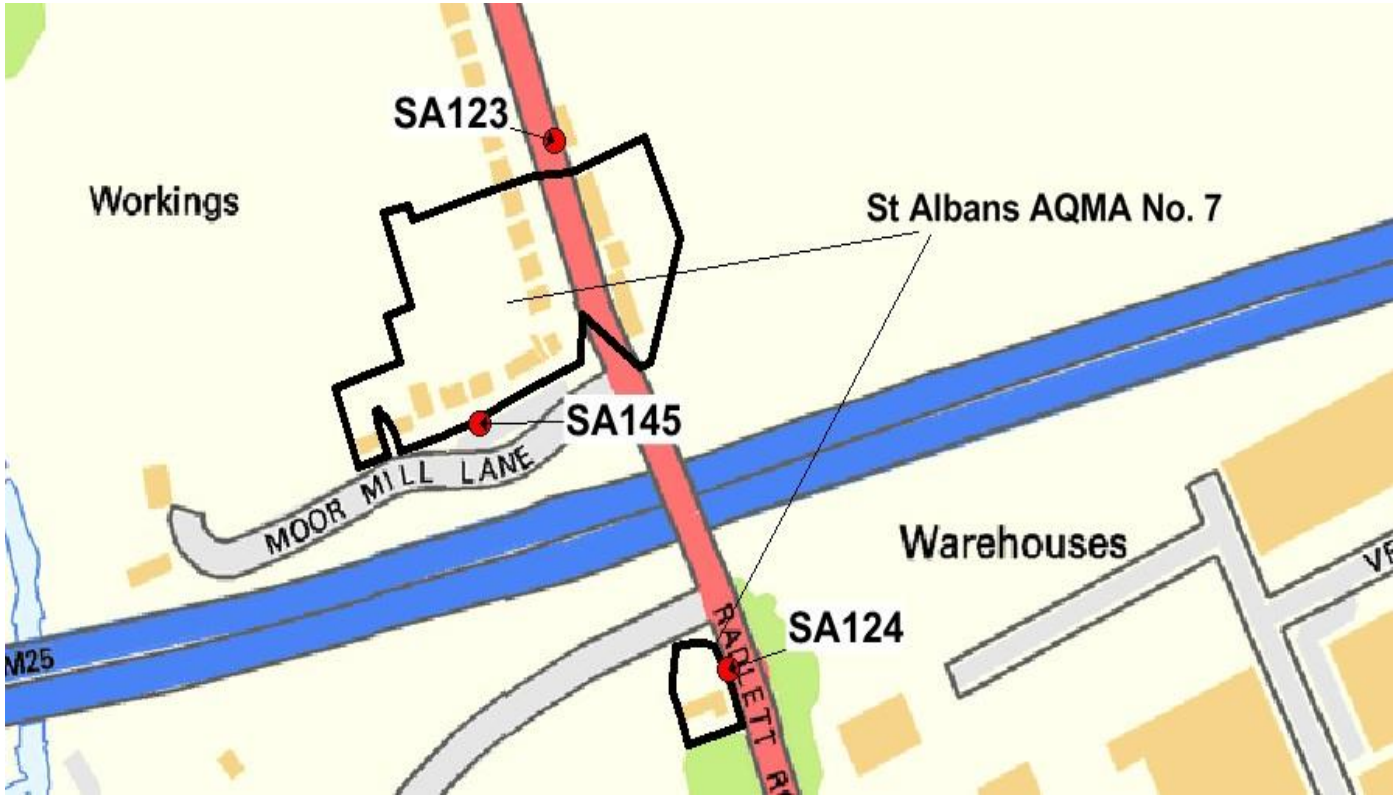
St Albans and City and District Council

Title

St Albans AQMA No. 2

By	**Approved**
JD	JC
Scale	**Job Ref**
Not To Scale	6482603
Date	**Figure No.**
November 2018	**D.2**

Figure D 3 - Map of Current Air Quality Management Area Boundaries - Frogmore



Legend

Diffusion Tube Locations

AQMA Boundary

Air Quality Bureau Veritas Atlas Business Park 2nd Floor Atlantic House Manchester M22 5PR

Location

St Albans and City and District Council

Title

St Albans AQMA No. 7

By	Approved
JD	JC
Scale	**Job Ref**
Not To Scale	6482603
Date	**Figure No.**
November 2018	**D.3**

Figure D 4 - Diffusion Tube Locations – Redbourn

Legend

Diffusion Tube Locations

Air Quality Bureau Veritas Atlas Business Park 2nd Floor Atlantic House Manchester M22 5PR

Location

St Albans and City and District Council

Title

Diffusion Tube Locations – Redbourn

By	Approved
JD	JC
Scale	**Job Ref**
Not To Scale	6482603
Date	**Figure No.**
November 2018	**D.4**

Figure D 5 - Diffusion Tube Locations - St. Albans

Legend

Diffusion Tube Locations

AQMA Boundary

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Air Quality Bureau Veritas Atlas Business Park 2nd Floor Atlantic House Manchester M22 5PR

Location

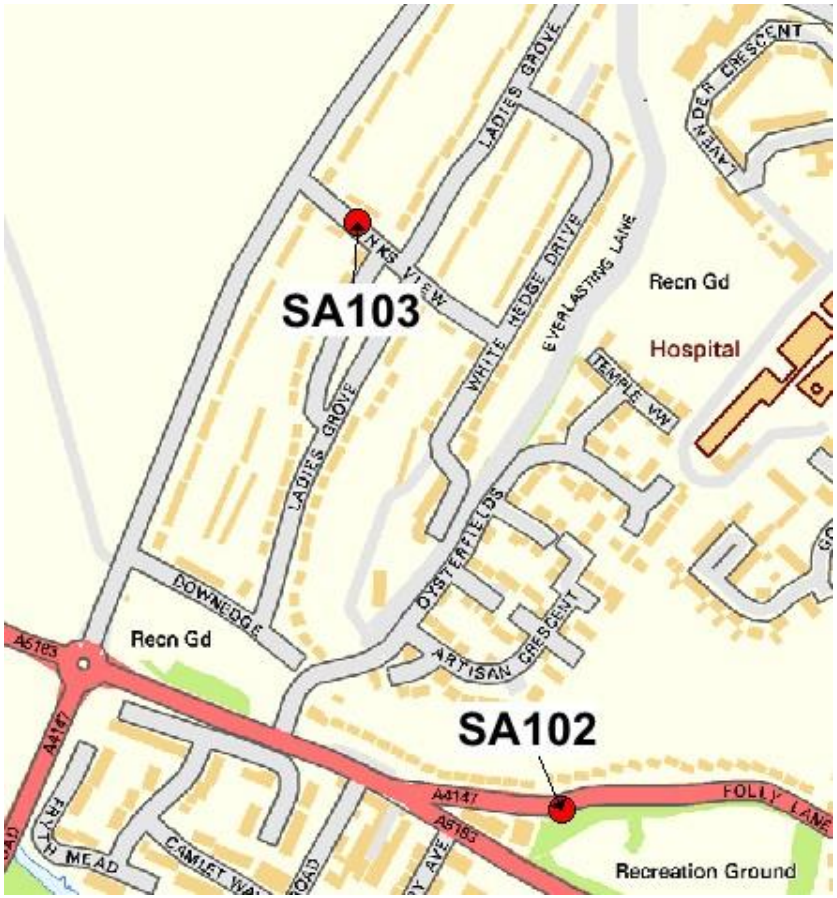
St Albans and City and District Council

Title

Diffusion Tube Locations – St Albans

By	**Approved**
JD	JC
Scale	**Job Ref**
Not To Scale	6482603
Date	**Figure No.**
November 2018	**D.5**

Figure D 6 - Diffusion Tube Locations - St Albans North



Legend

Diffusion Tube Locations

Air Quality

Bureau Veritas
Atlas Business Park 2nd Floor
Atlantic House
Manchester M22 5PR

Location

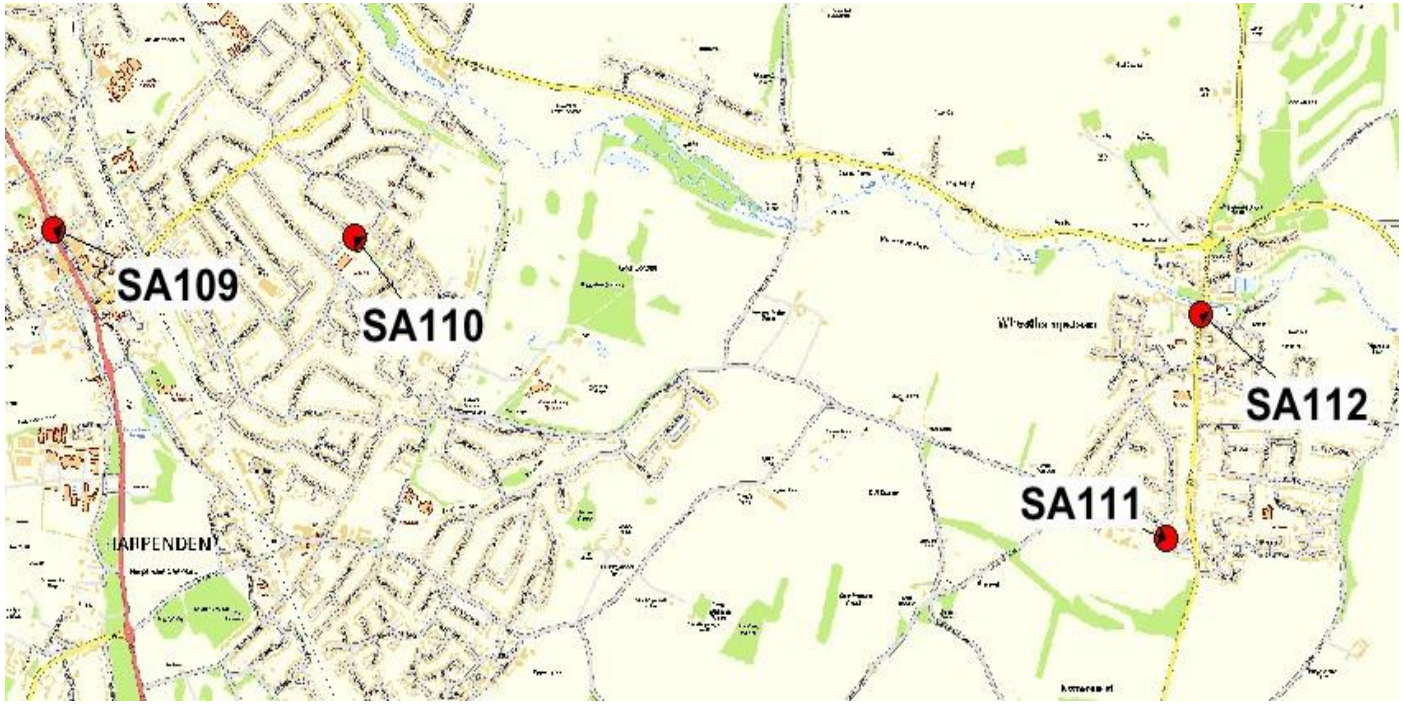
St Albans and City and District Council

Title

Diffusion Tube Locations – St Albans North

By	**Approved**
JD	JC
Scale	**Job Ref**
Not To Scale	6482603
Date	**Figure No.**
November 2018	**D.6**

Figure D 7 - Diffusion Tube Locations - Harpenden/Wheathampstead



Legend

Diffusion Tube Locations

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Air Quality Bureau Veritas Atlas Business Park 2nd Floor Atlantic House Manchester M22 5PR

Location

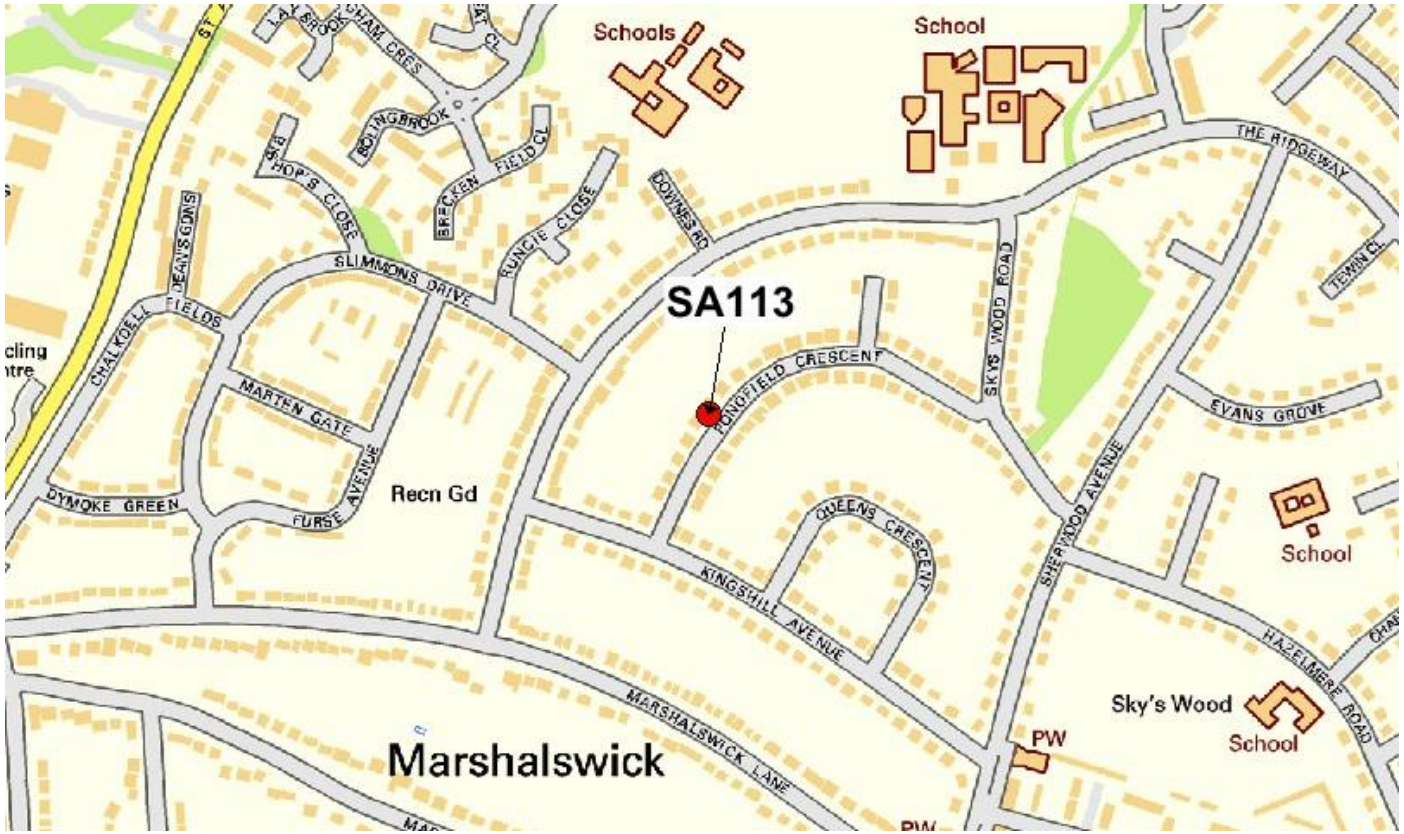
St Albans and City and District Council

Title

Diffusion Tube Locations – Harpenden/Wheathampstead

By	**Approved**
JD	JC
Scale	**Job Ref**
Not To Scale	6482603
Date	**Figure No.**
November 2018	**D.7**

Figure D 8 - Diffusion Tube Locations - Marshalswick



Legend

Diffusion Tube Locations

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Air Quality Bureau Veritas Atlas Business Park 2nd Floor Atlantic House Manchester M22 5PR

Location

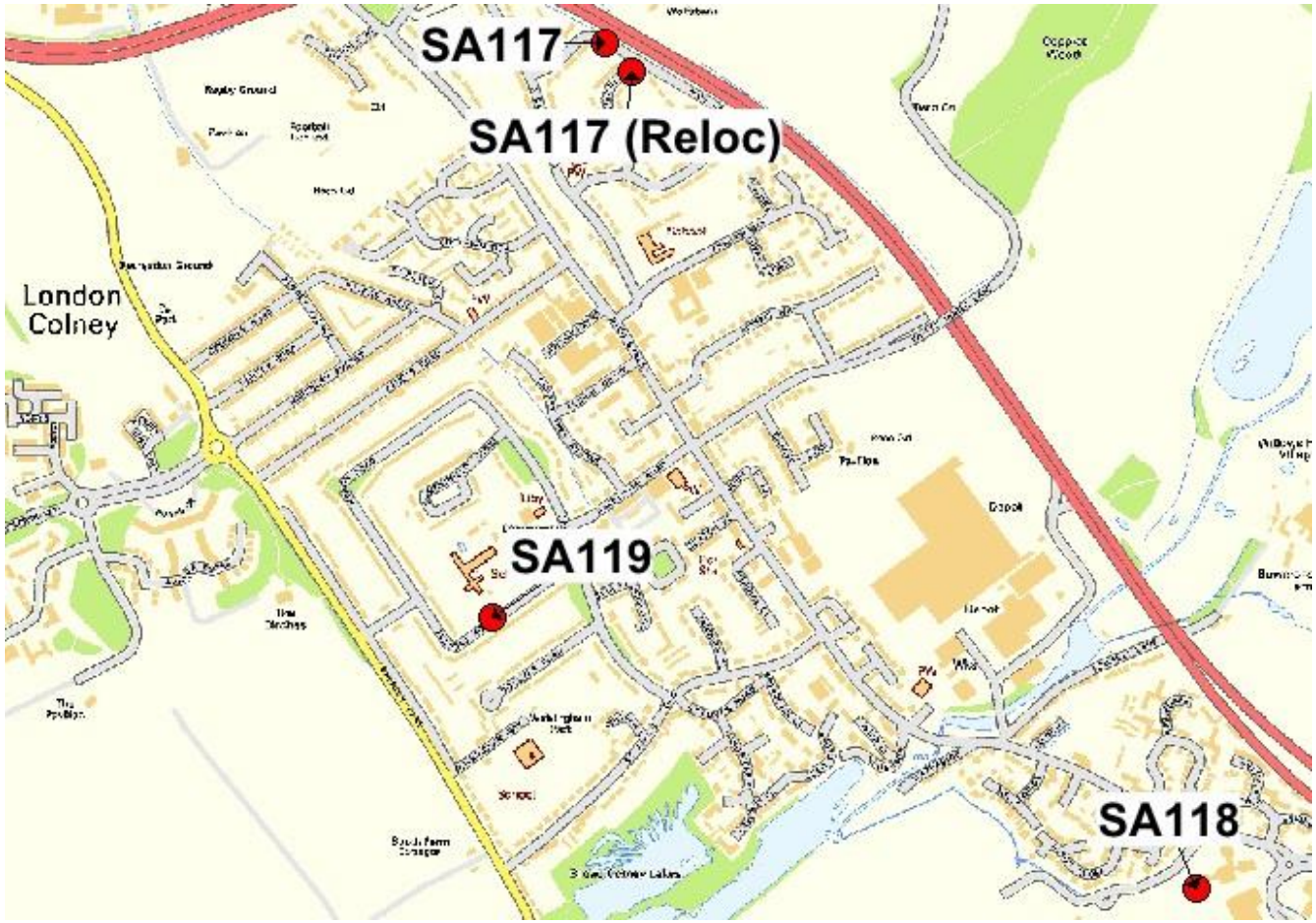
St Albans and City and District Council

Title

Diffusion Tube Locations – Marshalswick

By	**Approved**
JD	JC
Scale	**Job Ref**
Not To Scale	6482603
Date	**Figure No.**
November 2018	**D.8**

Figure D 9 - Diffusion Tube Locations - London Colney



Legend

Diffusion Tube Locations

Air Quality Bureau Veritas Atlas Business Park 2nd Floor Atlantic House Manchester M22 5PR

Location

St Albans and City and District Council

Title

Diffusion Tube Locations – London Colney

By	**Approved**
JD	JC
Scale	**Job Ref**
Not To Scale	6482603
Date	**Figure No.**
November 2018	**D.9**

Figure D 10 - Diffusion Tube Locations - Sleapshyde

Legend

Diffusion Tube Locations

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Air Quality Bureau Veritas Atlas Business Park 2nd Floor Atlantic House Manchester M22 5PR

Location

St Albans and City and District Council

Title

Diffusion Tube Locations – Sleappshyde

By	**Approved**
JD	JC
Scale	**Job Ref**
Not To Scale	6482603
Date	**Figure No.**
November 2018	**D.10**

Figure D 11 - Diffusion Tube Locations - Bricket Wood & Smug Oak

Legend

Diffusion Tube Locations

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Air Quality Bureau Veritas Atlas Business Park 2nd Floor Atlantic House Manchester M22 5PR

Location

St Albans and City and District Council

Title

Diffusion Tube Locations – Bricket Wood & Smug Oak

By	**Approved**
JD	JC
Scale	**Job Ref**
Not To Scale	6482603
Date	**Figure No.**
November 2018	**D.11**

Figure D 12 - Diffusion Tube Locations - Park Street

Legend

Diffusion Tube Locations

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Air Quality Bureau Veritas Atlas Business Park 2nd Floor Atlantic House Manchester M22 5PR

Location

St Albans and City and District Council

Title

Diffusion Tube Locations – Park Street

By	**Approved**
JD	JC
Scale	**Job Ref**
Not To Scale	6482603
Date	**Figure No.**
November 2018	**D.12**

Figure D 13 - Diffusion Tube Locations - Frogmore

Legend

Diffusion Tube Locations

AQMA Boundary

Air Quality Bureau Veritas Atlas Business Park 2nd Floor Atlantic House Manchester M22 5PR

Location

St Albans and City and District Council

Title

Diffusion Tube Locations – Frogmore

By	Approved
JD	JC
Scale	**Job Ref**
Not To Scale	6482603
Date	**Figure No.**
November 2018	**D.13**

Figure D 14 - Diffusion Tube Locations - Beechtree Cottage/Searches Lane

Legend

Diffusion Tube Locations

AQMA Boundary

Air Quality Bureau Veritas Atlas Business Park 2nd Floor Atlantic House Manchester M22 5PR

Location

St Albans and City and District Council

Title

Diffusion Tube Locations – Beechtree Cottage/Searches Lane

By	**Approved**
JD	JC
Scale	**Job Ref**
Not To Scale	6482603
Date	**Figure No.**
November 2018	**D.14**

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective[7]	
	Concentration	Measured as
Nitrogen Dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m^3	Annual mean
Particulate Matter (PM_{10})	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

[7] The units are in micrograms 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	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
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 (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide

References

- Local Air Quality Management Technical Guidance LAQM.TG(16). Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
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