Bath & North East Somerset Council

Improving People's Lives

2021 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

Date: June, 2021

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Executive Summary: Air Quality in Our Area

Air Quality in Bath & North East Somerset Council

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

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

Bath and North East Somerset is a mainly rural district with Bath as the major urban area, together with the small towns of Keynsham, Radstock and Midsomer Norton. The main pollutant source within the area is road traffic. This is exacerbated in Bath with the city being set in a valley surrounded by hills which can trap the pollution within the city.

As the source of air pollution in Bath and North East Somerset is overwhelmingly from traffic, the approach to improving air pollution is by traffic and transport improvement measures. There is a strong collaboration between the four West of England authorities in transport terms through the West of England Combined Authority and the Travel West brand, which acknowledges that commuters don't think in terms of authority boundaries.

In Bath, through traffic travels into the Air Quality Management Area (AQMA) on four main corridors:

a) M4 junction 18 to A36 south;
b) M4 junction 18 to A367;

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

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

[3] Defra. Air quality appraisal: damage cost guidance, July 2020

[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

c) A4 west (Bristol) to A36 south; and
d) A4 west to A4 east (with 7.5t weight limit).

The lack of alternative routes and a restricted number of River Avon crossing points means that the streets are often congested during peak periods, despite a very high proportion of employed Bath residents using sustainable modes for travel to work. The 2011 census indicated that only 25% of employed Bath residents working in the city, drive to work. This has been supported by substantial investments in cycling and walking infrastructure.

In Bath and North East Somerset, five Air Quality Management Areas (AQMAs) have been declared for nitrogen dioxide (NO_2), including the major road network within Bath, Keynsham High Street, a small section of the A4 in Saltford, and sections of the A37 in Temple Cloud and Farrington Gurney. Details of the AQMAs are given in Table 2.1 and maps of the AQMAs are in Appendix E. Details of the AQMAs can also be found on the Council's Air Quality Webpage.

There is no clear evidence of a safe level of exposure to particulate matter (PM) or NO_2 below which there is no risk of adverse health effects. This means that further reduction of PM or NO_2 concentrations below air quality standards is likely to bring additional health benefits[5].

Bath and North East Somerset Council had 165 NO_2 monitoring sites and 3 particulate matter monitoring sites in 2020. At the end of every year the Council reviews the information which it has collected throughout the year and applies a correction factor. Corrected data is then compared to the national air quality objectives which are detailed in Appendix E.

Headlines from the 2020 continuous analysers are:

- Bath and North East Somerset Council has monitors at 4 locations in 2020, including 4 NO_2, 2 PM_{10} and 1 $PM_{2.5}$ analysers, detailed in Table A.1, Appendix A.
- NO_2 – all continuous analyser monitoring results were below the annual average objective of 40 µg/m^3 and there was one exceedance of the 1-hour objective (18 exceedances allowed). NO_2 reduced by an average of 20% compared to results in 2019; this is not as low as the average 25% reduction in levels across the National AURN network.

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

- PM_{10} – all monitoring results were below the annual average objective of 40 µg/m^3 and there was one exceedance of the 24-hour mean objective (35 exceedances allowed). The results were slightly lower than in 2019.
- $PM_{2.5}$ – monitoring was below the annual average objective of 25 µg/m^3. The results were similar to 2019.

A summary of NO_2 results from diffusion tubes across B&NES:

- Bath & North East Somerset has monitored NO_2 at 161 locations with 50 of these locations using triplicate diffusion tubes in 2020. A triplicate site is where 3 diffusion tubes are located at one site, this makes the data more robust as a fault with one tube (e.g. spider's nest in a tube, water ingress etc.) will not lead to loss of monitoring data for the month.
- The average decrease across the long-term sites was 20% compared with 2019 monitoring data.
- Bath – despite the effects of the 2 lockdown periods in 2020, 3 sites remain above the annual average objective of 40 µg/m^3 across Bath in 2020 (DT198 – Walcot Parade, DT222 – Anglo Terrace Façade and DT224 – Walcot Parade 2).
- Keynsham – Monitoring continues to show a reduction in the NO_2 concentrations following the start of the trial for a one-way system in Keynsham. All sites were below the objective of 40 µg/m^3 in 2020.
- Saltford – All sites were below the objective of 40 µg/m^3 in 2020.
- Temple Cloud – Monitoring remains above the objective of 40 µg/m^3 at 2 locations with concentrations reducing at all other locations. Further monitoring was carried out to compare with modelled hotspots. Highest concentration remained at DT96 – Temple Cloud.
- Farrington Gurney – All sites were below the objective of 40 µg/m^3 in 2020.
- Pensford – Monitoring in Pensford on the A37 has remained below the objective of 40 µg/m^3.
- Whitchurch – Monitoring in Whitchurch was below the objective of 40 µg/m^3.
- Batheaston/Bathampton – monitoring remains below 40 µg/m^3 at all locations.
- Radstock/Westfield - monitoring remains below 40 µg/m^3 at these locations.
- Peasedown St John - New monitoring in Peasedown St John was well below the objective of 40 µg/m^3. No further action is required.
- 1-hour objective – All sites in Bath & North East Somerset are below 60 µg/m^3 – this suggests that the 1-hour NO_2 objective is unlikely to be exceeded.

Summary of the monitoring using AQMesh analysers:

- Bath & North East Somerset has monitored at 3 locations in 2020 using AQMesh indicative samplers. Results for each location included NO_2, PM_{10} and $PM_{2.5}$ are shown in Appendix G.
    - Bath – Windsor Bridge
    - Pensford
    - Temple Cloud

Covid-19 had a big influence on nitrogen dioxide concentrations in 2020, a large drop was seen after the national lockdown on 23 March 2020, this was followed by a gradual increase in pollution over the year peaking in September/October and then dipping with the tighter restrictions in November/December. This was a national trend. The dip in March was exaggerated due to weather influences with a sunny dry Spring with Easterly winds. More details on the impact of Covid-19 are given in Appendix F.

Actions to Improve Air Quality

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

The 2019 Clean Air Strategy[6] sets out the case for action, with goals even more ambitious than EU requirements to reduce exposure to harmful pollutants. The Road to Zero[7] 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.

[6] Defra. Clean Air Strategy, 2019

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

The core actions are:

Bath Clean Air Plan

- In early 2020, the Clean Air Plan was agreed by Bath and North East Somerset Council and the Joint Air Quality Unit (JAQU) and a commencement date was set at 4th November 2020. However, the Covid-19 pandemic resulted in a revised start date of 15th March 2021 in order to minimise the impact on local businesses and individuals and taking into consideration the effect of lockdown on temporarily lowering pollution levels. Preparatory work relating to the Clean Air Zone continued throughout 2020 including: installation of the enforcement infrastructure (cameras and signage); rollout of telematic devices to collect data on eligibility for vehicle operators applying for the Financial Assistance Scheme; and negotiating and completing agreements with bus operators for bus retrofit installations once the 2021 date was announced.

- In 2020 JAQU awarded the Implementation Fund and Clean Air Fund required to mitigate the impacts of the Clean Air Zone for the following measures;
    - Retrofitting for registered local bus services (Euro III/IV/V).
    - Financial support for replacing pre Euro 6 diesel and pre Euro 4 petrol with compliant vehicles.

- Provide support and facilities for alternative delivery through the E-cargo bikes only/last mile delivery scheme.
- Provide a sustainable travel and transport team to facilitate the use of mitigation schemes by the impacted groups.

- The reduced residents parking permit charges for ultra-low emission vehicles continued throughout 2020, providing substantial discounts on the standard permit prices across a range of parking permit types.

Other measures

- The West of England Combined Authority (WECA) coordinated 'Future Transport Zone' new technology trials included the launch of an E-scooter hire scheme on 29th October 2020 for a 12 month period. If successful they could become a permanent sustainable option for travel in the region.
- Last mile delivery is the final step of the delivery process, when a parcel is moved from a transportation hub to its final destination - in Bath, The Council have provided businesses with access to E-cargo bikes. Following the early success of the scheme, we have recently added 14 new electrically assisted e-cargo bikes to Bath's streets to support local businesses. E-cargo bikes offer sustainable delivery options for retailers and businesses, allowing them to make quick, clean and economical deliveries within the city centre. Since launch, the Grapes Freehouse, Bath BID, WeGo, Three Bags Full and 6 City View and the Council's parks team have incorporated e-cargo bikes into daily operations.

- The Loan Bike Scheme is funded by The Council and operated by local bike shops. Intended to help people swap from their car to a bike, the scheme lets people trial bikes before purchasing. It allows users to borrow both standard push bikes as well as electric bikes, which are very popular due to Bath's terrain.
- Liveable neighbourhoods are an important part of our plan to tackle the climate and ecological emergency and improve health across the area. A report was submitted to Cabinet in December 2020 recommending implementation of 3 elements for a minimum of 6 months for Low Traffic Neighbourhoods; Residents Parking Schemes; and an On-Street Electric Vehicle Charging Strategy.
- Consultation on the Draft Air Quality Action Plan for Temple Cloud and Farrington Gurney was completed in mid-2020. Although the Action Plan is yet to be adopted, work commenced on the actions in 2020 including; further feasibility work relating to possible width restrictions and road layout changes; improvements to the alternative footpath away from the main road; research and feasibility on pollution reduction devices; scoping work for implementation of a height sensitive vehicle activated sign displaying 'oncoming vehicles in the middle of the road' at either end of Temple Cloud to reduce emissions from stop-starting; and phase one of vegetation cutback to the line of the road to increase dispersion and reduce stop-starting.
- A consultation was launched at the end of 2020 for the Bath Transport Delivery Action Plan. The Council will be developing the transport options into a delivery plan for Bath up to 2030 and the Council shall set these out in the plan which they will again consult on in Summer of 2021. The plan will then be adopted and business cases for the options will be developed.
- The Local Cycling and Walking Investment Plan (LCWIP) was consulted on in Feb 2020 and the adopted plan was published in January 2021. The Plan includes infrastructural improvements on existing roads including on-road cycle lanes linking potential new development.

Conclusions and Priorities

In 2020, monitoring at existing locations showed a decrease in concentrations at most locations. There were 5 exceedances of the annual average NO_2 objective, these were all located within existing AQMAs. Consultation on Draft Air Quality Action Plans were

developed for Temple Cloud and Farrington Gurney was carried out in February-April 2020.

Bath and North East Somerset Council expects the following measures to be completed over the course of the next reporting year:

- Publish a Final AQAP for Temple Cloud and Farrington Gurney;
- Detailed Assessment of Keynsham and Saltford AQMAs with a view to revocation in 2021;
- Identification of the first 'Liveable Neighbourhoods' area based on the Low Traffic Neighbourhood schemes introduced in London are in development for introduction in 2021;

- Successful implementation of the Queen Square air quality and traffic management scheme as part of the Clean Air Zone associated measures;
- Setting up of the Clean Air Zone Monitoring and Evaluation Plan related measures and reporting for the assessment of the effectiveness of The Clean Air Zone following the commencement in March 2021;
- The E-scooter trial as part of the WECA Future Transport Zone;
- The Keynsham High Street One-way Scheme will be made permanent with funding awarded by WECA towards the cost of implementing the first phase of public realm improvements;
- The installation of eight electric vehicle charging infrastructure sites as part of the West of England 'Revive' network from the Office for Low Emission Vehicles (OLEV) funded projects (Go Ultra Low West (GULW) and the Ultra-Low Emission Vehicle [ULEV] Taxi Infrastructure Scheme) following a Covid-19 affected delivery programme;

Bath and North East Somerset's priorities for the coming year are:

- The continued rolling out of financial support for the upgrade of non-compliant vehicles as part of the Clean Air Plan, once the financial settlement has been made;
- Publication of the consultation report and the Air Quality Action Plan (AQAP) for Temple Cloud and Farrington Gurney;
- Commencement of work on the actions contained within the Temple Cloud and Farrington Gurney AQAPs including further vegetation cutback to the line of the road; the installation of a height sensor and vehicle activated sign to minimise stop-starting; advice to residents re planting and mitigating measures; and new surface for a footpath enabling avoidance of the main road for school children and residents;
- Development of the Liveable Neighbourhoods initiative based on the Low Traffic Neighbourhoods scheme in London;
- Working closely with Sustainability Team on the declared Climate Emergency and planned carbon neutrality by 2030 across the authority area.

The principal challenges and barriers to implementation that Bath and North East Somerset Council anticipates facing are:

- Covid-19 and its' impact on resources and delivery of measures including
    - the ability of fleet operators to upgrade vehicles to meet the forthcoming Clean Air Zone standards;
    - modal shifts associated with low public transport use and resulting expected increase in car use (especially through the winter) to maintain social distancing;
    - the ability of people and businesses to upgrade their vehicles;
- Budgetary constraints caused by the Covid-19 crisis due to significantly reduced income from Council owned tourist attractions and its' commercial estate;
- The solvency of suppliers; public transport, fleet operators and contractors following the Covid-19 crisis.

Local Engagement and How to get Involved

As the main source of air pollution in Bath and North East Somerset is from road sources, the Council wishes to encourage a greater amount of active travel across the district. The cycling infrastructure in Bath and North East Somerset is improving all the time and there are more opportunities to hire electric bikes being developed. There is also an ongoing e-Scooter trial.

We recommend that people visit the 'Travel West' website, as this provides live data on public transport (bus checker app) for journey planning as well as route information for walkers and cyclists; car clubs; traffic reports; electric vehicle charging infrastructure; and other information that simplifies travel choices. This site is administered by the West of England Local Enterprise Partnership.

Further information on what the Council is doing to improve air quality in Bath and North East Somerset as part of the National Air Quality Plan and local engagement events can be found at Clean Air Zone website. For further information on current and historic data on air quality levels visit the Council's Air Quality website.

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1 Local Air Quality Management

This report provides an overview of air quality in Bath & North East Somerset Council during 2020. 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 Bath & North East Somerset Council to improve air quality and any progress that has been made.

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

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

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

A summary of AQMAs declared by Bath & North East Somerset Council can be found in Table 2.1. The table presents a description of the 5 AQMAs that are currently designated within Bath & North East Somerset Council (2 AQMAs are for both NO_2 annual mean and hourly mean objectives, 3 are only for NO_2 annual mean objective). 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:

- NO_2 annual mean;
- NO_2 hourly mean;

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Name and Date of AQAP Publication	Web Link to AQAP
The Bath London Road Air Quality Management Area – 2013	Declared 1 February 2002, Amended v1 19 August 2005, Amended v2 30 July 2008, Amended v3 18 July 2013	NO_2 Annual Mean	The area covers the major road network in Bath, encompassing any buildings whose facades are within the area.	YES	London Road AURN 2001 - 57 µg/m^3	Walcot Parade 2 2020 – 42 µg/m^3	Bath Air Quality Action Plan (2011)	Visit the AQAP for Bath London Road AQMA
The Bath London Road Air Quality Management Area – 2013	Declared 18 July 2013	NO_2 1 Hour Mean	The area covers the major road network in Bath, encompassing any buildings whose facades are within the area.	YES	Lambridge - 2012 – 62 µg/m^3	Walcot Parade 2 2020 – 42 µg/m^3	Bath Air Quality Action Plan (2011)	Visit the AQAP for Bath London Road AQMA
The Keynsham High Street Air Quality Management Area 2010	Declared 31 July 2010	NO_2 Annual Mean	An area covers the town centre and extends along the High Street and Charlton Road encompassing the facades of the buildings within the area.	NO	Keynsham - High Street 2009 – 45 µg/m^3 at façade	Keynsham - High Street 2020 – 27 µg/m^3	Air Quality Action Plans for Keynsham and Saltford (2016)	Visit the AQAP for Keynsham AQMA
The Saltford Air Quality Management Area 2013	Declared 4 July 2013	NO_2 Annual Mean	An area which covers the Bath Road, Saltford, encompassing any buildings whose facades are within the area, extending from its junction with Beech Road until 150m south of the Glen	NO	Saltford - The Crown 2012 - 47 µg/m^3	Saltford - The Crown 2020 - 23 µg/m^3	Air Quality Action Plans for Keynsham and Saltford (2016)	Visit the AQAP for Saltford AQMA

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Name and Date of AQAP Publication	Web Link to AQAP
Temple Cloud Air Quality Management Area 2018	Declared 20 August 2018	NO_2 Annual Mean	The area starts approximately 245 metres north of the A37/Temple Inn Lane junction and runs along the A37 to approximately 150 metres south of the A37/Eastcourt Road junction.	NO	Temple Cloud 1 2017 – 67 µg/m^3	Temple Cloud 1 2020 – 45 µg/m^3	Consultation Draft - Farrington Gurney and Temple Cloud Air Quality Action Plan (Feb 2020)	Visit the draft AQAP for Temple Cloud AQMA
Temple Cloud Air Quality Management Area 2018	Declared 20 August 2018	NO_2 1 Hour Mean	The area starts approximately 245 metres north of the A37/Temple Inn Lane junction and runs along the A37 to approximately 150 metres south of the A37/Eastcourt Road junction.	NO	Temple Cloud 1 2017 – 67 µg/m^3	Temple Cloud 1 2020 – 45 µg/m^3	Consultation Draft - Farrington Gurney and Temple Cloud Air Quality Action Plan (Feb 2020)	Visit the draft AQAP for Temple Cloud AQMA
Farrington Gurney Air Quality Management Area 2018	Declared 20 August 2018	NO_2 Annual Mean	The area starts approximately 165 metres north of the A37/Church Lane junction and runs south along the A37 to the Bath and North East Somerset Council boundary, and additionally extends approximately 100 metres east along the A362 from the A37/A362 junction.	NO	Farrington Gurney 2 2017 - 52 µg/m^3	Farrington Gurney 2 2020 - 31 µg/m^3	Consultation Draft - Farrington Gurney and Temple Cloud Air Quality Action Plan (Feb 2020)	Visit the draft AQAP for Farrington Gurney AQMA

☒ **Bath & North East Somerset Council confirm the information on UK-Air regarding their AQMA(s) is up to date.**

☒ **Bath & North East Somerset Council confirm that all current AQAPs have been submitted to Defra.**

2.2 Progress and Impact of Measures to address Air Quality in Bath & North East Somerset Council

Defra's appraisal of last year's ASR concluded; the Council's responses are denoted in blue:

The report is well structured, detailed, and provides the information specified in the Guidance. The following comments are designed to help inform future reports.

1. The Council have provided a thorough report which contains the required content.
2. The maximum NO_2 concentration at relevant exposure within the Bath London Road AQMA is 53 µg/m^3, not 37 as stated within Table 2.1. Whilst the Council's intention to remain consistent by stating the concentration at the site for which the AQMA was declared is acknowledged, the requirement of Table 2.1 is to present the maximum concentration at relevant exposure recorded within the AQMA, which would be the distance corrected concentration from DT224. Please address and update to indicate the **highest recorded concentration at relevant exposure** in all AQMAs as applicable.

The highest concentration has been recorded this year.

3. Where distance correction has not been applied, please leave the relevant column in table B.1 blank. Currently it is difficult to identify which tubes have been corrected for relevant exposure (although this has been acknowledged in the councils Table C.2 (Façade adjustment)).

Column has been left blank where necessary this year.

4. Distance correction is only required where concentrations are greater than 36 ug/m3 and the site is not at a location of relevant exposure. This should be addressed in next year's ASR.

Only concentrations above 36 µg/m^3 have been adjusted this year.

5. It is encouraging to see the Council respond to comments raised during the previous appraisal.
6. Trends are clearly presented and discussed, and a robust comparison with air quality objectives is provided.

7. The introduction of additional monitoring sites during 2019 in response to public requests is commended, and the regular review of the monitoring regime is encouraged.
8. The monitoring location mapping clearly demonstrates the Council's monitoring network and AQMA boundaries.

Bath & North East Somerset Council has taken forward a number of direct measures during the current reporting year of 2020 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. 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 Plans Bath AQAP (2011) and AQAP's for Keynsham and Saltford (2016). Details of the proposed actions for Temple Cloud and Farrington Gurney are in the Draft AQAP for Temple Cloud and Farrington Gurney (2020). Officers are currently reviewing the consultation responses and a final plan will be published in 2021.

Key completed measures are:

Bath Clean Air Plan

- In early 2020, the Clean Air Plan dominated work relating to air quality and the Full Business Case (FBC) was agreed by Bath and North East Somerset Council cabinet in January 2020. The Joint Air Quality Unit (JAQU) approved the FBC shortly after and a Clean Air Zone (CAZ) commencement date was set at 4th November 2020. However, following the start of the Covid-19 pandemic, it was announced that the CAZ commencement would be delayed and in the autumn of 2020, a revised start date of 15th March 2021 was identified in order to minimise the impact on local businesses and individuals already negatively impacted by Covid-19 and taking into consideration the effect of lockdown on temporarily lowering pollution levels. Preparatory work relating to the CAZ continued throughout 2020 including: installation of the enforcement infrastructure (cameras and signage); rollout of telematic devices to collect data on eligibility for vehicle operators applying for the Financial Assistance Scheme; and negotiating and completing agreements with bus operators for bus retrofit installations once the 2021 date was announced.

- In 2020 JAQU awarded the Implementation Fund and Clean Air Fund required to mitigate the impacts of the CAZ for the following measures;
    - Retrofitting for registered local bus services (Euro III/IV/V)
    - Financial support for replacing pre Euro 6 diesel and pre Euro 4 petrol with compliant vehicles. This includes grants and or interest free loans to cover the difference in costs between an existing and comparable compliant vehicle. This applies to non-compliant HGVs, LGVs, coaches, Hackney Carriages and Private Hire Vehicles.
    - Provide support and facilities for alternative delivery through the e-cargo bikes only/last mile delivery scheme;
    - Provide a sustainable travel and transport team to facilitate the use of mitigation schemes by the impacted groups
- The reduced residents parking permit charges for ultra-low emission vehicles continued throughout 2020, providing substantial discounts on the standard permit prices across a range of parking permit types.

Other measures

- The West of England Combined Authority (WECA) coordinated 'Future Transport Zone new technology trials included the launch of an e-scooter hire scheme on 29 October 2020. The trial will continue for 12 months. The hop-on hop-off (also known as free floating) model, is a pay as you go (via Smartphone app) model where users can pick up an e-scooter from various locations across Bath. The Department for Transport (DfT) is fast tracking e-scooter trials across the UK as part of work to relieve pressure on public transport whilst social distancing is required. The 12-month trial will help understand any issues and challenges of legalising e-scooter use on the region's roads. If successful they could become a permanent sustainable option for travel in the region.
- Last mile delivery is the final step of the delivery process, when a parcel is moved from a transportation hub to its final destination - in Bath, this includes goods moving to and from retailers in the city centre. To reduce the environmental impact traditional delivery vehicles have when making deliveries, The Council have provided businesses with access to e-cargo bikes. This allows them to undertake the final stage of the delivery process by bike, rather than by

vehicle. Following the early success of the scheme, The Council have recently added 14 new electrically assisted e-cargo bikes to Bath's streets to support local businesses. E-cargo bikes offer sustainable delivery options for retailers and businesses, allowing them to make quick, clean and economical deliveries within the city centre. Since launch, the Grapes Freehouse, Bath BID, WeGo, Three Bags Full and 6 City View and the Council's parks team have incorporated e-cargo bikes into daily operations. This comes from a successful bid by The Council to the Energy Savings Trust earlier this year.

- The Loan Bike Scheme is funded by The Council and operated by local bike shops. Intended to help people swap from their car to a bike, the scheme lets people trial bikes before purchasing. It allows users to borrow both standard push bikes as well as electric bikes, which are very popular due to Bath's terrain.
- Liveable neighbourhoods (LN) are an important part of our plan to tackle the climate and ecological emergency and improve health across the area. A report was submitted to Cabinet in December 2020 recommending implementation of 3 elements for a minimum of 6 months for Low Traffic Neighbourhoods (LTN); Residents Parking Schemes; and an On-Street Electric Vehicle Charging Strategy. The aim is to reduce the dominance of vehicles in residential areas - particularly through-traffic - while maintaining vehicle access to homes and businesses. This can be done through a range of measures including vehicle restrictions, traffic calming, one-way streets and residents' parking zones.
- A consultation was launched at the end of 2020 for the Bath Transport Delivery Action Plan, that provided an opportunity for people to let The Council know what they feel the solutions are to Bath's transport issues. These suggestions will now be taken and using these and the evidence from the Phase 1 report[8], The Council will be developing the transport options into a delivery plan for Bath up to 2030 which will identify the measures in transport terms to get us to carbon neutrality by 2030. Once the measures have been identified these will be set out in the plan which will be consulted on in Summer of 2021. The plan will be adopted following that and business cases for the options will be developed.

[8] Transport Delivery Action Plan for Bath – Phase 1, Current and Future Report, April 2020 https://beta.bathnes.gov.uk/sites/default/files/Bath%20Report%20Aug%202020%20-%20Final%20edited.pdf

- The Local Cycling and Walking Investment Plan (LCWIP) was consulted on in Feb 2020 and the adopted plan was published in January 2021. The Plan includes infrastructural improvements on existing roads including on-road cycle lanes linking potential new development.

Bath & North East Somerset Council expects the following measures to be completed over the course of the next reporting year:

- Formal **adoption of the Temple Cloud and Farrington Gurney Air Quality Action Plans** and completion of some of the measures contained within the Draft action plans including:
    - Vegetation cutback to road line to reduce stop-starting and increase dispersion;
    - Advice to residents re what they can do to reduce or mitigate the impacts of air quality in relation to bespoke vegetation planting and ventilation;
    - Installation of a height sensitive Vehicle Activated Sign to display 'oncoming vehicle in the centre of the road' at either end of the straight in Temple Cloud and discourage stop-starting.

  Although these measures are difficult to quantify in terms of their impact on measured nitrogen dioxide, it is expected that continued natural fleet renewal and the incentives to renew with cleaner vehicles - provided by the existing Bath Clean Air Zone and proposed Bristol Clean Air Zone - will result in a lowering of emissions and continuing downward trend of nitrogen dioxide levels to meet the objectives in a shorter timescale than originally expected.
- Identification of the first areas for **'Liveable neighbourhoods**' based on the Low Traffic Neighbourhood schemes introduced in London. Given that the first areas have not been identified, the impact cannot yet be accurately quantified;
- Successful implementation of The **Clean Air Zone** (commenced on 15th March 2021) in terms of rollout of the Financial Assistance Scheme (circa 2,000 vehicles) consisting of grants and interest free loans; the completion of the CAZ **bus retrofit programme** resulting in 100% Euro VI compliance of public service buses; and the effective operation of the **Queen Square air quality and traffic signal UTMC Traffic Management Scheme**. The pre-Covid-19 modelling suggests that the Clean Air Zone should result in not exceeding 40 µg/m^3 NO_2 at all monitoring locations. However, the impact of Covid-19 on individuals and businesses travel patterns and ability to renew vehicles at a sufficient rate

means that there remains significant uncertainty as to the likelihood of this being achieved;

- The completion of the **Future Transport Zone e-scooter trial**. The potential impact of this trial is significant in that a successful trial in safety terms will provide confidence for a wider national roll-out of related measures and enable a behavioural change shift that includes a step drop in the use of cars for shorter journeys and the transition to e-scooters, cyclists and pedestrians becoming the dominant mode on the majority of Bath's streets;
- The completion of the permanent road layout for the **Keynsham High Street One-Way Scheme** will further improve the public realm, encourage pedestrians and cyclists and continue to reduce the air pollution from the compliant base level that was achieved with the trial;
- The completion of installation of **electric vehicle charging infrastructure** from the OLEV funded projects (Go Ultra Low West (GULW) and ULEV Taxi Infrastructure Scheme). The impact of an increase in the number of rapid chargers in central Bath in particular (beyond the two existing rapids) will provide an important incentive for those looking to adopt EVs but who are often restricted by a general lack of properties in Bath with off-street parking and therefore charging. It is expected that this will partially enable a steep growth in uptake of electric vehicles;
- The adoption of an **On-Street Electric Vehicle Charging Strategy** following consultation on the draft of 2020, that will have the impact of clarity for the many Bath residents who lack off-street parking and therefore struggle with charging options;
- **Detailed Assessment of Keynsham and Saltford AQMAs** with a view to revocation in 2021;
- **Monitoring and evaluation of the effectiveness of The Clean Air Zone** following the commencement in March 2021. This will enable adjustments to be made to ensure that compliance is met within the shortest time possible; and
- The continued roll-out of **financial support for vehicle upgrades** as part of the Clean Air Plan. This scheme provides grants and or 0% interest loans for replacement of non-compliant vehicles with compliant and has the impact of bringing forward fleet renewals and lowering tailpipe emissions. For the most extreme cases where businesses are not able to afford to upgrade their vehicles even with the financial assistance then a temporary two year exemption is given.

Bath & North East Somerset Council's priorities for the coming year are:

- Implementation of the **Clean Air Zone Monitoring and Evaluation** plan in order to ensure mitigation of impacts and identification of areas for improvement;
- Establishment of the effective operation of the **Queen Square air quality and traffic management scheme** to help ensure that the Clean Air Zone meets the NO_2 compliance values;
- Completion of **Detailed Assessments for the Keynsham and Saltford Air Quality Management Areas** following 3 years of monitoring below objective levels; and
- Close cooperation with the Sustainability Team on the declared **Climate Emergency** and planned carbon neutrality by 2030 across the authority area;
- Adoption of the **Temple Cloud and Farrington Gurney Air Quality Action Plans**;
- Upgrading of the **air quality webpages** as part of an authority wide upgrade to ensure user friendly air quality data visualisations including the relaunching of live air quality dials;
- Increase in **mobile automatic air quality monitoring** to respond to monitoring requests;
- Completion of a **Cleveland Bridge Closure Air Quality Monitoring Plan** to enable analysis of the impact of the closure on air quality and Clean Air Zone compliance;
- Review of the need for updating the **Bath Air Quality Action Plan** following implementation of the Clean Air Zone; and
- Development of an **Air Quality Strategy** and appropriate response should the Environment Act achieve Royal Assent in 2021.

The principal challenges and barriers to implementation that Bath & North East Somerset Council anticipates facing are:

- Covid-19 and its' impact on resources and delivery of measures including the ability of fleet operators to upgrade vehicles to meet the forthcoming Clean Air Zone standards; and
- Budgetary constraints due to the Covid-19 crisis and specifically the shortfall caused on the Council's budget for the 2020/21 and 2021/22 financial years by significantly reduced income from Council owned tourist attractions and the commercial estate.

Progress on the following measures has been slower than expected due to:

- The Bath Air Quality Action Plan review has been deferred until after the introduction of the Clean Air Zone and annual average air quality monitoring results are known in early 2022.
- A Delivery and Servicing Plans as part of the Clean Air Plan did not get approved for funding by the Joint Air Quality Unit and was therefore aborted.
- The development of a shared management plan for the shared use river path to promote cycling and walking was delayed due to awaiting development of the Bath River Line but at the time of writing in early 2021 a consultation was announced on the design of the path.
- Planning for the installation of electric vehicle charging infrastructure has continued for those funded by OLEV's Go Ultra Low West fund and the Ultra-Low Emission Taxi Fund, although no points had been installed due to Covid-19 infrastructure related delays.

Bath & North East Somerset Council anticipates that the measures stated above and in Table 2.2 will achieve compliance in Saltford, Keynsham and Bath.

Whilst the measures stated below will help to contribute towards compliance, Bath & North East Somerset Council anticipates that further additional measures not yet prescribed will be required in subsequent years to achieve compliance and enable the revocation of the Temple Cloud and Farrington Gurney AQMAs.

Temple Cloud / Farrington Gurney

In early 2020 Bath and North East Somerset Council's Environmental Monitoring team consulted on a draft Farrington Gurney and Temple Cloud AQAP. The consultation responses were considered, and a final draft is being prepared.

The following measures are being considered for inclusion in the final Air Quality Action Plans:

Farrington Gurney:-

- FG 1-Advice and information for residents
- FG 2-School travel plan (Modeshift STARS)
- FG 3-Clean Air Schools Toolkit

- FG 4-Influence planning decisions for any development within 200 metres of an AQMA boundary
- FG 5-Targeted information campaign for the most vulnerable groups
- FG 6-If necessary: Construction of an additional lane on the A37 southbound approach to the A37/A362 signals utilising the existing verge and possibly the existing footway or hatchway if required.

Temple Cloud:-

- TC1 - Determine Feasibility of a vehicle width restriction through Temple Cloud
- TC2 -Undertake significant ‘cutting back’ of the high hedge/vegetation on the eastern side of the narrow section to allow more effective use of the existing carriageway by HGVs.
- TC 3 - New public footpath link
- TC 4 - Advice and information for residents
- TC 5 - School travel plan (Modeshift STARS)
- TC 6 - Clean Air Schools Toolkit
- TC 7 - Influence planning decisions for any development within 200 metres of an AQMA boundary
- TC 8 - Targeted information campaign for the most vulnerable groups
- TC9 - Investigation of ‘pollution cleaning technology’
- TC10 - The use of Vehicle Activated Signs (VAS) to help smooth traffic flows and reduce emissions

The monitored concentrations of NO_2 decreased from 2018 to 2020 in both Farrington Gurney and Temple Cloud when the annual averages were compared. In Farrington Gurney this decrease resulted in no exceedances of the annual average objective at façade in 2019 and 2020. Bath & North East Somerset Council will continue to monitor this trend in Farrington Gurney to establish if it is ongoing. In Temple Cloud the modelling in the Options and Feasibility Study, pointed out some locations where there could be some exceedances, so in 2020 more diffusion tubes were introduced to monitor those locations. From the total of 9 locations 2 locations were above annual average of 40µg/m^3 at 45µg/m^3 at the façade and a third location achieving the concentration of 36µg/m^3.

Although there has been a delay in adopting the final action plan some actions have been progressed in 2020. The TC2 undertaking hedge and vegetation cutback was brought forward for worries of highway safety, the vegetation was “pushing” the vehicles to the middle of the road causing some vehicles to climb the pavement on the westside. This measure had a second and final intervention in February 2021 cutting back all the overhanging vegetation to the line of the road, to reduce the tunnel effect of that stretch of road and help with the dispersion of the pollutants.

Temple Cloud has seen the implementation of speed rumble strips to help warn drivers and reduce speed before the narrow stretch of road.

The measures in Table 2.2 below include those that were part of the 2011-2016 Air Quality Action Plan for Bath.

A replacement Action Plan was drafted in 2017 that was subsequently postponed due to a Ministerial Direction served on the Council to develop a Clean Air Plan in 2017. The Action Plan is not being renewed until after the Clean Air Plan has been substantially implemented. As such, Table 2.2 includes some older completed measures and some new and forthcoming measures relating to the Clean Air Plan and at the time of writing, the measures influenced or implemented in response to the Covid-19 virus crisis. Completed or aborted measures are written in black italics.

There are four sets of measure numbers, one for each Air Quality Action Plan or Clean Air Plan (CAP).

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
BATH CAP 1	Reduced residents parking permit charges for ULEVs	Promoting Low Emission Transport	Other	April 2019	2021	Bath and North East Somerset Council	Joint Air Quality Unit CAZ Early Measures Fund	No	Fully funded	£50-£100k	Implementation	Not known	Number of permits for ULEVS as %age of total	24 ULEV permits issued	EXPECTED MEDIUM EFFECTIVENESS. Uptake and affordability of ULEVs
BATH CAP 2	Charging Clean Air Zone	Traffic Management	Emission based road user charging	2021	2021	Bath and North East Somerset Council	Joint Air Quality Unit CAZ Implementation Fund	No	Fully funded	£1m-£10m	Planning (Implemented 2021)	4 µg/m^3 (at key locations)	Measured annual average concentrations of NO_2.	Came into operation 15th March 2021	EXPECTED HIGH EFFECTIVENESS. Start date was delayed due to Covid-19.
BATH CAP 3	Retrofitting buses	Vehicle Fleet Efficiency	Vehicle Retrofitting programmes	2020	2020 installation	Bath and North East Somerset Council; bus operators and Energy Saving Trust	Joint Air Quality Unit CAZ Clean Air Fund	No	Fully funded	£1m-£10m	Implementation	Tbc	Overall NO_2 emissions reduction	75% of installations complete at the time of writing	EXPECTED HIGH EFFECTIVENESS.
BATH CAP 4	Financial Assistance Scheme	Vehicle Fleet Efficiency	Other	2020	2021	Bath and North East Somerset Council	Joint Air Quality Unit CAZ Clean Air Fund	No	Partially funded.	£1m-£10m	Implementation	Tbc	Measured annual average concentrations of NO_2. Number of vehicles registered for the scheme. Number of vehicles fitted with telematics. Number of vehicles upgraded.	Approx.400 vehicle fitted with telematics devices recording eligibility (entering zone at least twice/week) by end of 2020. [290 vehicles of 1900 in the process upgraded by May 2021. 532 active telematics; 742 removed telematics]	EXPECTED HIGH EFFECTIVENESS. Economic conditions and business solvency. Private vehicle and campervans difficult to replace and often low number of journeys in zone to justify change.
BATH CAP 5	E-cargo bikes only/last mile delivery. Previously known as: 'Support and facilities for alternative delivery and servicing options for businesses'	Freight and Delivery Management	Delivery and Service Plans	2021	2023	Bath and North East Somerset Council	Joint Air Quality Unit CAZ Clean Air Fund	No	Fully funded.	£500k-£1m	Planning	Tbc	Number of deliveries made by e-cargo bikes – new journeys and those formerly by other couriers or methods.	2021 commencement	EXPECTED MEDIUM EFFECTIVENESS. Delivery and Service Plans aborted and replaced with only/last mile.
BATH CAP 6	Sustainable Travel and Transport Team	Promoting Low Emission Transport / Promoting Travel Alternatives	Other	2020	2025	Bath and North East Somerset Council	Joint Air Quality Unit CAZ Clean Air Fund	No	Fully funded.	£500k-£1m	Implementation	Tbc	Number of vehicle operators advised. KPI for Bath CAP 4	Approximately 2500 people spoken to at time of writing – approximately 750 in 2020.	EXPECTED HIGH EFFECTIVENESS. Difficult to measure impact. Not as important as Bath CAP 4.
BATH CAP 7	Weight restriction enforcement	Traffic Management	Other	2021	2025	Bath and North East Somerset Council	Joint Air Quality Unit CAZ Clean Air Fund	No	Fully funded.	£100-£500k	Planning	Tbc	Number of vehicles exceeding weight limit before and after.	2021 commencement	EXPECTED MEDIUM EFFECTIVENESS. Signage and ANPR cameras.
BATH CAP 8	Anti-idling enforcement.	Traffic Management	Anti-idling enforcement.	2021	2025	Bath and North East Somerset Council	Joint Air Quality Unit CAZ Clean Air Fund	No	Fully funded.	£100-£500k	Planning	Not known	Number of incidences of enforcement officer requests for engine switch-off. Number of PCNs issued.	2021 commencement	EXPECTED LOW EFFECTIVENESS. Difficult to measure impact. Engine and vehicle technology increasingly automatically switches engines off. Practically difficult to target effectively.

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
BATH CAP 9	Queen Square Urban Traffic Management Control	Traffic Management	UTC	2021	-	Bath and North East Somerset Council	Joint Air Quality Unit CAZ Clean Air Fund	No	Fully funded.	£500k - £1m	Planning	4µg/m^3	Gay St NO_2	2021 commencement. Installed and operational at time of writing.	EXPECTED HIGH EFFECTIVENESS.
BATH 1	*Bath Transport Package*	*Traffic Management*	*Other*	*2015*	*Substantially Complete.*	*Bath and North East Somerset Council*	*DfT*	*No*	*Partially funded.*	*£1m - £10m*	*Completed*	*Not known*	*Park & Ride (P&R) bus patronage and vehicles using the P&R*	*890 additional P&R spaces between 2012 and 2015. Patronage at the 3 P&R sites overall grew by 16% between 2008/09-2016/17. 4 EV charging sockets installed at each P&R site. Bus infrastructure works included: Raised pavements at 375 stops to ease access on and off buses; 169 Real Time Passenger Information displays; Replacement of existing shelters and the addition of new bus shelters. There are live VMS, 7 on the edge of the city and 6 in the City Centre for parking info and P&R promotion. Extension of 10am to 6pm traffic restrictions in Stall Street and Lower Borough Walls. Seven Dials shared space and cycle scheme. Closure of Saw Close car park (22 spaces).*	*MEDIUM EFFECTIVENESS*
BATH 2	Cleveland Bridge area restrictions. (originally: Cleveland Bridge area restrictions feasibility study [& Low Emission Zone Feasibility Study])	Traffic Management	Strategic highway improvements, congestion management and traffic reduction.	2011 and new weight restrictions 2020	2021	Local Authority Traffic Management and Network	Department for Transport	No	Partially funded.	£1m - £10m	Implementation /Planning	n/a	Measured NO_2 levels.	A temporary 18 tonne weight limit was introduced Feb 2020. to maintain the structural condition of the bridge. The government has confirmed funding to repair the bridge and at the time of writing partial closure had commenced (May 2021) with a full closure for 12 weeks scheduled to commence in June.	EXPECTED MEDIUM EFFECTIVENESS.2020 works were delayed due to Covid-19. Effects of temporary closure being monitored for impact on air quality.
BATH 3	*Low Carbon Bus Trial (CIVITAS 1.3)*	*Vehicle Fleet Efficiency*	*Promoting Low Emission Public Transport*	*2010*	*Complete.*	*Local Authority Environmental Health, Local Authority Transport Dept.*	*Local Authority, Funding: Defra Air Quality Grant*	*No*	*Partially funded.*	*£100k - £1m*	*Completed.*	*0.2 µg/m^3*	*Fuel usage / costs.*	*Complete. As a result, 8 hybrid electric buses were in operation for 10 years on park and ride services. Now superseded by Bath CAP 3 (CAZ retrofitting).*	*LOW EFFECTIVENESS.39% improved fuel economy (mpg). 28% fuel saving (l/100km). Overall operating cost increase of £0.03/km (but due in part to prototype status). NO_x comparison unavailable. ORIGINAL MEASURE COMPLETE BUT NEW DEVELOPMENTS RE FIRST GAS FLEET AND CAZ FUNDED RETROFITTING*
BATH 4	*Urban Freight Transhipment (CIVITAS 7.2)*	*Freight and Delivery Management*	*Freight Consolidation Centre*	*2011*	*Complete (funding ceased).*	*Bath and North East Somerset Council, DHL, Bristol City Council and retail outlets in Bath*	*Local Authority, Funding and CIVITAS (EU)*	*No*	*Partially funded.*	*£100k - £1m*	*Aborted*	*Reduced vehicle emissions*	*Number of deliveries transferred from LGV / HGV to E-cargo bike. Number of participating businesses. NOx emissions*	*See Bath CAP 5 and Bath 18: E-Cargo Bike last-mile delivery service was appointed in 2019, WEGO have recruited and are now undertaking fleet reviews for potential businesses, these are on hold under Covid-19 Lockdown. Bath CAP 5*	*High level of subsidy required and no funding available – replaced with new E-cargo bike last-mile delivery (see 'Bath 18' below')*
BATH 5	*Improved Enforcement of TROs (CIVITAS 3.4 - Demand Management Strategies)*	*Freight and Delivery Management*	*Route Management Plans/ Strategic routing strategy for HGV's*	*2010*	*Complete.*	*Bath and North East Somerset Council*	*Bath and North East Somerset Council*	*No*	*Fully funded.*	*£10k – 50k*	*Complete*	*n/a*	*HGV traffic flows. NO_2 levels.*	*See Bath CAP 7*	*The trial indicated that identifying breaches of the 7.5 tonne weight limit and informally contacting the relevant operators led to a reduction in HGV volumes. For details see 2016 ASR.*

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BATH 6	*Bicycle Hire including Electric Bikes (CIVITAS 6.4 and 6.5)*	*Transport Planning and Infrastructure*	*Public Cycle Hire Scheme*	*2015*	*2018*	*Bath and North East Somerset Council and 'Next Bike'*	*Local Sustainable Transport Fund and Access Fund*	*No*	*Fully funded.*	*£100k - £1m*	*Complete/Aborted.*	*Not known.*	*Vehicle mix (% bikes). No. of hires.*	*Superseded by e-scooter hire – see BATH 19. New cycle hire facility launched 2014 with PAYG at 9 stations across Bath. 5 further hire stations added to total 14 in 2016. Contract expired in 2019 and a new electric cycle hire scheme was tendered in 2019 but no contract was awarded. The focus has now shifted to an e-scooter trial.*	*Over 15,000 hires between June 2014 and June 2016. 877 users per month. Electric cycle hire scheme was tendered in 2019. Original hire scheme cancelled because non-profitable.an e-bikes more suitable.*
BATH 7	Electric Vehicle Recharging Points	Promoting Low Emission Transport	EV Recharging	2014	2022	West of England authorities and charge point suppliers	Local Sustainable Transport Fund, Access Fund, OLEV GUL City Scheme & ULEV Taxi Infrastructure	No	Fully funded	£1m - £10m	Implementation.	Not known	Vehicle mix (count of electric vehicles). Number of charges p.a. Number of different users.	Charging sessions increase across West of England charge point commensurate with national uptake of ULEVs. 2nd wave of OLEV funded chargers in the planning stage following consultation with DNO and commercial partner. 8 sites with rapid and fast chargers were in design stage as at the end of 2020, with 1 site nearing completion of install at the time of writing in May 2021. Some delays were caused by Covid-19 supply chain issues.	EXPECTED MEDIUM EFFECTIVENESS The West of England GUL City Scheme outlines an increase in charge points sub-regionally from 200 to 400 points, including 'charging hubs'; further rapid chargers; demonstrator vehicles; and 100 council fleet vehicles converted to ULEVs by 2021 across the West of England.
BATH 8	*Improve Building Emission Assessments*	*Policy Guidance and Development Control*	*Other policy*	*n/a*	*n/a*	*Bath and North East Somerset Council*	*n/a*	No	*n/a*	*n/a*	*Aborted*	*n/a*	*Number of air quality assessments including spreadsheet tool.*	*No progress*	*Lack of resource and low priority due to low %age source apportionment.*
BATH 9	*ECO Stars Vehicle Recognition Scheme*	*Vehicle Fleet Efficiency*	*Fleet efficiency and recognition schemes*	*n/a*	*n/a*	*Bath and North East Somerset Council*	*n/a*	*No*	*n/a*	*n/a*	*Aborted*	*n/a*	*Number of haulage operators & vehicles audited. HGV vehicle mix survey (number plate and engine standard).*	*No progress*	*Low priority due to limited reported effectiveness and lack of resource.*
BATH 10	Review Council and Emergency Service Vehicle Fleet	Vehicle Fleet Efficiency	Fleet efficiency and recognition schemes	2016	2021	Bath and North East Somerset Council	OLEV Go Ultra Low City Scheme	No	n/a	n/a	Implementation	Not known	Euro engine standard survey	Review undertaken by Energy Saving Trust for successful GUL City Scheme Bid. The Council has pledged to change 25% of light duty fleet to ULEVs by 2021. 10 pure EVs already purchased and operating in B&NES plus 4 hired pool cars. An MoU has been signed by Emergency Service providers – already a high proportion of Euro 6 vehicles.	EXPECTED MEDIUM EFFECTIVENESS. MoU signed by emergency services as a roadmap for meeting Euro 6 compliance for all but cars by 2021. Council fleet also compliant.
BATH 11	*Monitoring of Bus Fleet Quality*	*Vehicle Fleet Efficiency*	*Fleet efficiency and recognition schemes*	*AQAP from 2011 & CAP from 2017*	*2021*	*Bath and North East Somerset Council and bus operators*	*CAP Clean Air Fund*	*No*	*n/a*	*n/a*	*Complete/ Implementation*	*Critical measure in delivering compliance according to Full Business Case for Clean Air Zone*	*Euro engine standard survey. Number of emissions abatement retrofit / original design.*	*Superseded by Bath CAP3. OLEV Low Emission Bus Scheme bid unsuccessful. Pre-CVRAS Clean Bus Technology Fund relatively ineffective with some retrofitting unable to meet certification requirements. The Clean Air Fund bid as part of the CAP and CBTF extension means that theoretically all public bus services will be upgraded to CVRAS Euro VI by the end of 2020. See 'Bath CAP 3.*	*Superseded by Bath CAP3. Full audit of fleet planned as part of CAZ proposals. Bus upgrade programme agreed with operators most retrofits completed at time of writing.*
BATH 12	*Transport & Travel Information*	*Public Information*	*Other*	*2014*	*Complete.*	*Bath and North East Somerset Council*	*DfT*	*No*	*n/a*	*n/a*	*Complete*	*Not known*	*Number of signs. Contribute to achieving a target increase in bus passenger journeys per annum of 3% on a 2001/2 base level of 9.184m.*	*248 real time bus passenger information displays installed across B&NES. Overall bus passenger satisfaction in 2016 stood at 41% very satisfied and 47% fairly satisfied, in 2016.*	*Bus checker app implemented as part of LSTF West of England project and available via the Travel West website.*

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BATH 13	*Alternative Exhaust Emissions Abatement*	*Vehicle Fleet Efficiency*	*Fleet efficiency and recognition schemes*	*2019 (as part of CAP)*	*Nov 2020*	*Bath and North East Somerset Council*	*CAP Clean Air Fund 2020 (subject to award)*	*No*	*n/a*	*n/a*	*Complete*	*Not known*	*Number of retrofitted HGVs. Number of buses retrofitted.*	*Superseded by BATH CAP 3. Clean Bus Technology Fund used for retrofitting of 35 buses across the West of England to Euro 5/6. Also Clean Vehicle Technology Fund award (joint bid) enabled Thermal Management Technology (TMT) to 42 buses across the West of England fitted as standard with Selective Catalytic Reduction (SCR). CAP CAF bid for 117 fully funded vehicle retrofits, 13 repowers and 26 CBTF Extension funded retrofits.*	*Availability of CVRAS (Clean Vehicle Retrofit Accreditation Scheme) accredited retrofit solutions.*
BATH 14	*Rossiter Road Traffic Management Measures*	*Traffic Management*	*Strategic highway improvements*	*2015*	*Complete.*	*Bath and North East Somerset Council*	*DfT / B&NES Highways budget*	*No*	*n/a*	*n/a*	*Complete*	*Moving traffic from receptors.*	*Traffic flows. NO_2 levels.*	*Completed 2015 and annual mean NO_2 levels reduced from 49 in 2014 to 28 µg/m^3 in 2016 on Widcombe Parade.*	*HIGH EFFECTIVENESS*
BATH 15	Promotional Website	Public Information	Via the internet	2016	2020	Bath and North East Somerset Council	Initially DEFRA AQ Grant, then B&NES budget and Clean Air Plan Implementation Fund	Yes	Fully funded.	£6,5k original budget.	Implementation	Not known	Number of hits	New Power BI visualisation added showing annual data from 2014 to 2019. Live dials taken down following server change and awaiting new wider Council website.	LOW EFFECTIVENESS Original work DEFRA grant complete, but further developments re online mapping and monitoring values in progress.
BATH 16	B&NES Corporate Travel Plan	Vehicle Fleet Efficiency	Fleet efficiency and recognition schemes	2015	2020	Bath and North East Somerset Council	Council budget	No	Fully funded.	n/a	Implementation	Not known	Business mileage. Modal shift (e.g. number of employees transferred from private car to bike, walking or public transport bus and reduction in Single Occupant Vehicles (S.O.V.) commuting	Covid-19 related drop in mileage due to working from home increase. Business miles reduced by 50%. Managed corporate pool car fleet of low emission pool cars including 4 EVs, 2 hybrids and 7 Euro 6 petrols. For April to March 2019/20 (pre Covid19 response): 93.3k miles were transferred from grey fleet (plus a notional 25% [23.2k] miles not driven). 8.7 tonnes of CO_2 saved with avg. grey fleet car. Utilisation (0800-1800, M-F) 48.14%. For April to February 2020/21 (Covid19 response): 34.8k miles transferred (plus a notional 25% [8.7k] miles removed). 3.4 tonnes of CO_2 saved.	MEDIUM EFFECTIVNESS. We had to reduce the 16 cars to 13 and ringfence 3 of them for the Peasedown communities HUB. New CTP in development for 2021-2024
BATH 17	Clean Air Schools Kit	Promoting Travel Alternatives	School Travel Plans / Other	2019	2025 (anticipated lifecycle)	Local Authority and Primary Schools	B&NES budget	No	Fully funded.	n/a	Implementation	Not known	School uptake numbers.	Launched in 2019 and being used by a number of schools.	LOW EFFECTIVENESS. Despite low immediate effect, a necessary component part of a suite of measures to nudge long term change.
Bath 18	e-cargo and ULEV delivery scheme	Freight and Delivery Management	Freight Partnerships for city centre deliveries	2020	2025	Bath and North East Somerset Council and WeGo	OLEV GUL CITY SCHEME	No	Partially funded	£100k - £500k	Implementation	tbc	Number of deliveries transferred from previous method	Contract awarded – now in development stage. Related to BATH CAP 5 and following on from Bath 4.	EXPECTED HIGH EFFECTIVENESS. Real focus on only-mile in terms of funding. To subsidise delivery to discourage regular courier. Big impact for some businesses.

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BATH 19	Future Transport Zone new technology trials (MaaS & e-scooters)	Transport Planning and Infrastructure	Other	2020	2021	WECA; DfT Bath and North East Somerset Council; and VOI	WECA & DfT	No	Partially funded	£1m - £10m	Implementation	Not known	Mobility as a Service & e-scooter technology uptake numbers	The 12 month trial launched on 29 October 2020. A PAYG scheme where users can pick up an e-scooter from various locations across Bath. The DfT is fast tracking e-scooter trials across the UK. A long-term rental model is also being trialled where residents of Bristol City, B&NES, and South Gloucestershire are able to lease an e-scooter for longer periods of time.	EXPECTED HIGH EFFECTIVENESS. Experimental. Short-trip replacement only. Safety concerns and difficulty enforcing against use on pedestrian only footways. The use of privately-owned e-scooters on public land remains illegal.
BATH 20	Bath Delivery Action Plan	Transport Planning and Infrastructure	Other	2020	2021	WECA and Bath and North East Somerset Council	WECA & DfT	No	Fully funded.	tbc	Planning	tbc	tbc	At the time of writing The Council is analysing consultation responses from the 1st consultation that ended on 1st March 2021. The suggestions for solutions to Bath's transport problems will be taken with the evidence from the Phase 1 report into a delivery plan for Bath up to 2030 which will identify the measures in transport terms to get us to carbon neutrality by 2030. A plan will be consulted on in summer of 2021.	EXPECTED HIGH EFFECTIVENESSS.
BATH 21	Public Realm and Movement Strategy	Traffic Management	Re-prioritising road space away from cars	2020	2021	WECA and Bath and North East Somerset Council	WECA and Bath and North East Somerset Council	No	Fully funded.	tbc	Planning/ Implementation	tbc	Active travel count on road space and vehicular ATC	An experimental scheme was due to be implemented in spring 2020 but this was postponed due to Covid-19 and a temporary social distancing scheme has been installed instead. The Council is currently working on plans to introduce the previously planned experimental scheme in summer 2021.	EXPECTED HIGH EFFECTIVENESS.
BATH 22	Clean Air Day	Public Information	Leaflets, TV, internet, etc.	2018	Annual ongoing	Bath and North East Somerset Council and Global Action Plan	Bath and North East Somerset Council, and Global Action Plan	No	Not funded	tbc	Aborted	Not known	Number of pledges and interactions	This was aborted in 2020 due to Covid-19 lockdown.	EXPECTED LOW EFFECTIVENESS. Impossible to measure effectiveness.
BATH 23	Liveable Neighbourhoods	Traffic Management	Re-prioritising road space away from cars	2020	tbc	WECA and Bath and North East Somerset Council	WECA and Bath and North East Somerset Council (Transport Improvement Programme & Council Capital Programme)	No	Fully funded	£1m - £10m	Planning	tbc	Active travel count on road space and vehicular ATC	A report was submitted to Cabinet in December 2020 recommending implementation of 3 elements relating to LNs for a minimum of 6 months; Low Traffic Neighbourhoods; Residents' Parking Schemes; and an On-Street Electric Vehicle Charging Strategy. The LNs will include modal filters; expansion of residents' car parking to reduce free all-day commuter parking; school streets; strategic corridor improvements encourage walking, cycling and public transport use and investment in on-street electric vehicle charging. The aim is to reduce the dominance of vehicles in residential areas - particularly through-traffic - while maintaining vehicle access. Between 78% and 85% of consultation respondents either agreeing or strongly agreeing with the proposed key principles.	EXPECTED HIGH EFFECTIVENESS Possible improvements in residential streets with potential worsening on main routes.

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
BATH 24	*Electric-Brompton hire scheme*	*Transport Planning and Infrastructure*	*Public (e)Cycle Hire Scheme*	*2020*		*WECA and Bath and North East Somerset Council*	*WECA and Bath and North East Somerset Council*				*Aborted*	*tbc*	*Uptake number*	*Aborted*	
BATH 25	Milsom St access restrictions	Traffic Management	Re-prioritising road space away from cars	2020	2021	Bath and North East Somerset Council	Bath and North East Somerset Council	No	Fully funded	£10k - £50k	Implementation	tbc	Pedestrian footfall.	Milsom Street has been under restrictions since 6th July 2020 which mean only buses are allowed to use the road from the junction with George Street up to Quiet Street between 10am and 6pm. All vehicles are also prohibited from parking, loading and waiting except for in the authorised and designated loading bays between the hours of 6pm and 10am. The measures were put in place to allow for easier social distancing following the Covid-19 lockdown and keep pedestrians and cyclists safe in the city, with a temporary barrier erected across the entry to the road.	EXPECTED MEDIUM EFFECTIVENESS.
Keynsham 1	*Quantify the benefits from the one way system pilot for the High Street including monitoring and modelling of air quality impacts.*	*Traffic Management*	*Re-prioritising road space away from cars*	*2017*	*2018*	*Bath and North East Somerset Council, Keynsham Town Council and WECA*	*West of England Local Enterprise Partnership (Local Growth Fund – WECA)*	*No*	*Fully funded.*	*n/a*	*Complete*	*Measured NO_2 concentrations now below the objective*	*Reduction in nitrogen dioxide concentrations. Traffic Counts. Reduction in emissions of nitrogen oxides.*	*COMPLETE. Trial commenced in May 2017. The reduction in monitored concentrations is between 3 to 27% when comparing similar periods before and after the introduction of the one-way system. Following positive feedback from the public consultation, in February 2019 the Council's Cabinet took the decision to make the arrangements permanent. In June 2019, the Council successfully secured £1.5 million.*	*HIGH EFFECTIVENESS.*
Keynsham 2	*Targeted information campaign for the most vulnerable groups (i.e. asthmatics, Chronic Obstructive Pulmonary Disease etc.).*	*Public Information*	*Other*	*2019*	*2021*	*B&NES Public Protection and Health Improvement, Public Health, Research and Intelligence Team, Clinical Commissioning Group, Sirona Care and Health.*	*B&NES*	*No*	*Not funded.*	*n/a*	*Aborted*	*No reduction in concentration in Nitrogen Dioxide, however there would be an exposure reduction for residents.*	*The number of hits on website. Number of initiatives delivered.*	*Aborted due to low prioritisation / effectiveness and lack of resource.*	
Keynsham 3	Influencing planning policy to require electric vehicle charge points for each new property.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2016	Ongoing	Bath and North East Somerset Council Planning Department	n/a	No	Not funded	n/a	Planning	Not known	Number of properties where a power spur for an electric vehicle charge point is installed. Number of planning applications approved with a vehicle charge point as an advisory or required condition.	Options developed in 2020 for 2021 consultation on the Local Plan (Core Strategy and Placemaking Plan) Partial Update: active or passive charging infrastructure in all residential developments including for potential on-street charging where off-street parking unavailable.	EXPECTED LOW EFFECTIVENESS. Limited in scope to new properties.
Keynsham 4	Increase 'REVIVE' (WECA) public charging points.	Promoting Low Emission Transport	EV Recharging	2016	2021	Bath and North East Somerset Council, West of England Authorities and charge point providers	OLEV Go Ultra Low City Scheme	No	Fully funded	£100k - £500k	Planning	Not known	Number of charge points. Number of charging sessions per year.	2 public charge points and 2 charge points for council fleet installed. Further installations are in the planning stage following a successful consultation with the DNO. 1 public rapid charger, 1 taxi rapid charger & 1 fast charger at design stage following Covid-19 related delay and scheduled for 2021 install.	EXPECTED MEDIUM EFFECTIVENESS

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
Keynsham 5	Recommend tree planting in future infrastructure programmes	Transport Planning and Infrastructure	Other	2016	2021	Bath and North East Somerset Council	Bath and North East Somerset Council	No	Not funded.	Not known	Planning	Not known	Number of trees planted.	Progress on the Phase 1 Public Realm works on the 'core' Keynsham High Street have been delayed as a consequence of the Covid 19 Pandemic. Work restarted in early Autumn 2020 to include into the design comments resulting from consultation events that were held prior to March 2020 and it is anticipated that construction works will now commence in April 2021 with an intended completion by Spring 2022.	EXPECTED LOW EFFECTIVENESS
Keynsham 6	*Influence planning policy to encourage the provision of cycle parking for each new property.*	*Transport Planning and Infrastructure*	*Cycle network*	*2016*	*2029*	*Bath and North East Somerset Council*	*Bath and North East Somerset Council*	*No*	*Not funded*	*N/a*	*Complete*	*Not known*	*Number of new properties with cycle storage. Number of planning applications approved with cycle storage as advisory or required condition.*	*Placemaking plan adopted 2017 and standards require new development to now provide minimum parking (secured and covered).*	*EXPECTED LOW EFFECTIVENESS*
Keynsham 7	*Explore the promotion of an "Electric Zone".*	*Promoting Low Emission Transport*	*Other*	*2016*	*2021*	*Public Protection and Health Improvement & Highways.*	*Bath and North East Somerset Council*	*No*	*Not funded*	*n/a*	*Aborted*	*Not known*	*Number of signs erected. Number of electric vehicles in peak hours on High Street/Ashton Way with a manual traffic count. Number of charging sessions.*	*Aborted. Wider area charging network 'REVIVE' replaces this.*	*Partly dependent on emerging GUL programme and outcome of one-way trial for certainty over any on-street installations.*
Keynsham 8	Influence the design of developments to improve access to public transport, cycling and walking routes.	Transport Planning and Infrastructure	Other	2016	2016-2029	B&NES Placemaking Plan / Planning DC.	Bath and North East Somerset Council	No	Not funded	n/a	Implementation	Negligible	Number of approved planning applications with minimum 30 minute bus frequency in or adjacent to site (with 100 metre of the site).	Placemaking Plan requires developments to facilitate walking, cycling and public transport	EXPECTED LOW EFFECTIVENESS
Keynsham 9	*Support the creation of a local "Air Quality Action Group".*	*Public Information*	*Other*	*Connecting Communities Forum*	*n/a*	*n/a*	*n/a*	*No*	*Not funded*	*n/a*	*Aborted*	*Not known*	*Established as part of the remit of existing of new group.*	*Aborted due to low prioritisation / effectiveness and lack of resource.*	
Keynsham 10	Keynsham Greenway links to National Cycle Network 4, Wellsway School and riverside path into Bristol and S Glos with new bridge over River Avon.	Transport Planning and Infrastructure	Cycle Network	2020	2029	Bath and North East Somerset Council and WECA	WECA	No	Partially funded	Not known	Implementation	n/a	Delivery of project. Number of cycle trips from annual surveys.	LCWIP consulted Feb 2020 the adopted plan was published in January 2021. Plan includes no new routes but some infrastructural improvements on existing roads including on-road cycle lanes linking potential new development.	EXPECTED MEDIUM EFFECTIVENESS Sufficient contributions to cover final cost and delivery of housing.
Keynsham 11	*Work with Community Transport to promote the use of Low emission dial-a-ride vehicles.*	*Promoting Low Emission Transport*	*Public Vehicle Procurement - Prioritising uptake of low emission vehicles*	*2016*	*n/a*	*Bath and North East Somerset Council*	*Bath and North East Somerset Council*	*No*	*Not funded*	*n/a*	*Aborted*	*Not known*	*Low emission vehicle journeys / miles.*	*Aborted due to low prioritisation / effectiveness and lack of resource.*	*Appropriate vehicle availability, plus budget and fleet renewal programme.*
Keynsham 12	*Identify, influence and publicise pedestrian and cycling facility improvements*	*Promoting Travel Alternatives*	*Promotion of cycling and walking*	*2016*	*2023*	*Bath and North East Somerset Council*	*WECA*	*No*	*Not funded*	*n/a*	*Complete*	*Not known*	*Audit of infrastructure completed. Recommendation will be integrated into this plan. Walking and cycling surveys*	*Complete as LCWIP adopted and published in January 2021.*	*EXPECTED LOW EFFECTIVENESS*
Keynsham 14	Identify and publicise priority cycling routes to support a cycling culture for all.	Promoting Travel Alternatives	Promotion of cycling and walking	2016	Ongoing	Bath and North East Somerset Council	WECA	No	Not funded	n/a	Planning	n/a	Active travel counts	Dependent on completion of infrastructure as identified in Keynsham 12.	EXPECTED LOW EFFECTIVENESS

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Keynsham 15	*Encourage low emission bus services in Keynsham*	*Vehicle Fleet Efficiency*	*Promoting Low Emission Public Transport*	*2016*	*2021*	*Bath and North East Somerset Council*	*CAP Clean Air Fund 2020*	*No*	*Fully funded*	*£2m*	*Complete*	*Modelled in the Clean Air Plan Full Business Case Documents (2020)*	*Proportion of vehicles operating as minimum Euro 6 standard (CAZ compliant).*	*Progressed indirectly through CBTF extension and CAP bus retrofits -agreements for which were being finalised in 2020 and at the time of writing >80% of retrofits were complete.*	*EXPECTED HIGH EFFECTIVENESS The proposed Bath CAZ will be framed such that Keynsham AQMA will also benefit low emission vehicles.*
Keynsham 16	*Increase public education messages which promote healthier choices for short journeys*	*Promoting Travel Alternatives*	*School Travel Plans / Other*	*2019*	*2025*	*Bath and North East Somerset Council*	*Bath and North East Somerset Council*	*No*	*Fully funded*	*n/a*	*Complete*	*Not known*	*Delivery of a public education campaign*	*Air quality and health campaign focussed in Bath also benefited Keynsham – bus shelter and rear of lower emission bus advertising as part of the CAP. The B&NES Clean Air Schools Toolkit was launched on CAD in June 2019. The toolkit offers a number of resources for primary schools and other community settings including: lesson plans, posters, Modeshift Stars, stickers, pledge cards, a musical rap/song, Bikeability, and advice on setting up a walking bus and anti-idling campaigns. A number of schools are already actively using the toolkit.*	*EXPECTED LOW EFFECTIVENESS*
Keynsham 17	Work with bus operators on improved services, ticketing and simplified fare structure.	Promoting Travel Alternatives	Other	2016	Ongoing	WECA and bus operators	WECA	No	Fully funded	n/a	Planning / Implementation	Not known	B&NES area bus usage figures. Annually Bus Passenger Satisfaction surveys for B&NES (Transport Focus).	WECA adopted a bus strategy in June 2020. The bus strategy includes; simplified ticketing; transfer of more highway space to buses; bikes and pedestrians; an aim of doubling patronage by 2036. In March 2021, the government launched a National Bus Strategy 'Bus Back Better' that supersedes the WECA strategy and laid out a requirement for LTAs to pursue Enhanced Partnerships (by April 2022) under the Bus Services Act, even if they are implementing bus franchising. All LTAs must introduce a Local Bus Service Improvement Plan by October 2021 that will include: journey time targets; identify bus priority measures; set targets for passenger growth; multi-operator ticketing; and commit to a Bus Passenger Charter. This will form part of a bid for a share of £3billion Transformation Funding.	Now part of the CAP project.
Keynsham 19	Advocate increased rail service via "MetroWest" - resulting in increase from hourly to half-hourly rail service.	Promoting Travel Alternatives	Promote use of rail	2017	2021	WECA	DfT	No	Fully funded	n/a	Planning / Implementation	Not known	Project implementation. Rail patronage per service at Keynsham (annual rail survey).	DfT awarded £31million in April 2019. Development Consent Order Application was accepted for Phase 1 (Portishead Branch Line) in December 2019. The Development Consent Order (DCO) Examination period began in October 2020 and ended in April 2021.	EXPECTED HIGH EFFECTIVENESS. On track to be delivered.

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Saltford 1	*Targeted information campaign for the most vulnerable groups (i.e. asthmatics, Chronic Obstructive Pulmonary Disease etc.).*	*Public Information*	*Other*	*2019*	*2021*	*B&NES Public Protection and Health Improvement, Public Health, Research and Intelligence Team, Clinical Commissioning Group, Sirona Care and Health.*	*B&NES*	*No*	*Not funded.*	*n/a*	*Aborted*	*No reduction in concentration in Nitrogen Dioxide, however there would be an exposure reduction for residents.*	*The number of hits on website. Number of initiatives delivered.*	*Aborted due to low prioritisation / effectiveness and lack of resource.*	
Saltford 2	Recommend tree planting in future infrastructure programmes	Transport Planning and Infrastructure	Other	2016	2021	Bath and North East Somerset Council	Bath and North East Somerset Council	No	Not funded.	Not known	Planning	Not known	Number of trees planted.	JSP withdrawal delayed opportunity for a project but then the Tree and Woodland Plan project commenced in 2020 providing a potential opportunity for planting.	EXPECTED LOW EFFECTIVENESS
Saltford 3	Advice to land owners on planting that can help to protect their properties from air pollution.	Transport Planning and Infrastructure	Other	2016		Bath and North East Somerset Council	Bath and North East Somerset Council	No	Not funded.	£1k	Planning	Not known	Number of hits on website	No progress. At time of writing work has commenced on collating an advice to residents package for residents in areas of higher air pollution.	Limited resources and lowering of nitrogen dioxide concentrations resulted in it being a low priority.
Saltford 4	*Influence planning policy to encourage the provision of cycle parking for each new property.*	*Transport Planning and Infrastructure*	*Cycle network*	*2016*	*2029*	*Bath and North East Somerset Council*	*Bath and North East Somerset Council*	*No*	*Not funded*	*N/a*	*Complete*	*Not known*	*Number of new properties with cycle storage. Number of planning applications approved with cycle storage as advisory or required condition.*	*Placemaking plan adopted 2017 and standards require new development to now provide minimum parking (secured and covered).*	*EXPECTED LOW EFFECTIVENESS*
Saltford 5	Increase 'REVIVE' (WECA) public charging points.	Promoting Low Emission Transport	EV Recharging	2016	2021	Bath and North East Somerset Council, West of England Authorities and charge point providers	OLEV Go Ultra Low City Scheme	No	Fully funded	£100k - £500k	Planning	Not known	Number of charge points. Number of charging sessions per year.	2 public charge points and 2 charge points for council fleet installed. Further installations are in the planning stage following a successful consultation with the DNO. 1 public rapid charger, 1 taxi rapid charger & 1 fast charger at design stage following Covid-19 related delay and scheduled for 2021 install.	EXPECTED MEDIUM EFFECTIVENESS
Saltford 6	*Explore the promotion of an "Electric Zone".*	*Promoting Low Emission Transport*	*Other*	*2016*	*2021*	*Public Protection and Health Improvement & Highways.*	*Bath and North East Somerset Council*	*No*	*Not funded*	*n/a*	*Aborted*	*Not known*	*Number of signs erected. Number of electric vehicles in peak hours on the A4 Saltford with a manual traffic count. Number of charging sessions.*	*Aborted. Wider area charging network 'REVIVE' replaces this.*	*Partly dependent on emerging GUL programme and outcome of one-way trial for certainty over any on-street installations.*
Saltford 7	*Support the creation of a local "Air Quality Action Group".*	*Public Information*	*Other*	*Connecting Communities Forum*	*n/a*	*n/a*	*n/a*	*No*	*Not funded*	*n/a*	*Aborted*	*Not known*	*Established as part of the remit of existing of new group.*	*Aborted due to low prioritisation / effectiveness and lack of resource.*	
Saltford 8	*Influence planning policy to encourage the provision of cycle parking for each new property.*	*Transport Planning and Infrastructure*	*Cycle network*	*2016*	*2029*	*Bath and North East Somerset Council*	*Bath and North East Somerset Council*	*No*	*Not funded*	*N/a*	*Complete*	*Not known*	*Number of new properties with cycle storage. Number of planning applications approved with cycle storage as advisory or required condition.*	*Placemaking plan adopted 2017 and standards require new development to now provide minimum parking (secured and covered).*	*EXPECTED LOW EFFECTIVENESS*
Saltford 9	*Work with Community Transport to promote the use of Low emission dial-a-ride vehicles.*	*Promoting Low Emission Transport*	*Public Vehicle Procurement - Prioritising uptake of low emission vehicles*	*2016*	*n/a*	*Bath and North East Somerset Council*	*Bath and North East Somerset Council*	*No*	*Not funded*	*n/a*	*Aborted*	*Not known*	*Low emission vehicle journeys / miles.*	*Aborted due to low prioritisation / effectiveness and lack of resource.*	*Appropriate vehicle availability, plus budget and fleet renewal programme.*

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Saltford 10	Encourage low emission bus services in Keynsham	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	2016	2021	Bath and North East Somerset Council	CAP Clean Air Fund 2020	No	Fully funded	£2m	Complete	Modelled in the CAP Full Business Case Documents (2020)	Proportion of vehicles operating as minimum Euro 6 standard (CAZ compliant).	Progressed indirectly through CBTF extension and CAP bus retrofits -agreements for which were being finalised in 2020 and at the time of writing >80% of retrofits were complete.	EXPECTED HIGH EFFECTIVENESS. The proposed Bath CAZ will be framed such that Saltford AQMA will also benefit low emission vehicles.
Saltford 11	*Lobby government for incentivising uptake of non-diesel cars.*	*Other*	*Other*	*2016*	*Complete*	*Bath and North East Somerset Council*	*Bath and North East Somerset Council*	*No*	***n/a***	n/a	Complete	*In itself, no improvement, however, there is a reduction with each new ULEV introduced replaced a diesel vehicle*	*Government response and changes to legislation.*	*Submitted a consultation response (June 2017) to the DEFRA consultation: 'Improving air quality: national plan for tackling nitrogen dioxide in our towns and cities'*	
Saltford 12	*Increase public education messages which promote healthier choices for short journeys*	*Promoting Travel Alternatives*	*School Travel Plans / Other*	*2019*	*2025*	*Bath and North East Somerset Council*	*Bath and North East Somerset Council*	*No*	*Fully funded*		*Complete*	*Not known*	*Delivery of a public education campaign*	*Air quality and health campaign focussed in Bath also benefited Saltford – bus shelter and rear of lower emission bus advertising as part of the CAP. The B&NES Clean Air Schools Toolkit was launched on CAD in June 2019. The toolkit offers a number of resources for primary schools and other community settings including: lesson plans, posters, Modeshift Stars, stickers, pledge cards, a musical rap/song, Bikeability, and advice on setting up a walking bus and anti-idling campaigns. A number of schools are already actively using the toolkit.*	*EXPECTED LOW EFFECTIVENESS*
Saltford 13	*Support the provision or improved lighting on cycle path.*	*Transport Planning and Infrastructure*	*Cycle network*	*2016*		*B&NES Property Services*		*No*	*Not funded.*	*n/a*	*Aborted*	*Not known*	*Lighting provided to key locations at least*	*Aborted due to low prioritisation / effectiveness and lack of resource.*	*Concerns about effects on bat corridor, which may be offset by 'bat hat' option.*
Saltford 14	Continue feasibility work on reopening Saltford Station.	Transport Planning and Infrastructure	Public transport improvements-interchanges stations and services	2016	2024	B&NES, First Group, Network Rail & MetroWest partners	Bath and North East Somerset Council	No	Partially funded (subject to successful bid)	n/a	Planning	Not known	Completed feasibility study	GWR requested to undertake timetabling work to determine if an additional station is feasible within MetroWest phase 1 timetable. WECA has bid to the DfT's "Restoring Your Railway (RYR)" fund for £50,000 towards the cost of £70,000 to develop the business and feasibility case for opening a station at Saltford as part of the MetroWest project. The Saltford Station Study will establish whether the station is feasible, and what the next steps in its development should be.	EXPECTED MEDIUM EFFECTIVENESS Supported by West of England Authorities, but not part of MetroWest phases 1 and 2. Awaiting results of GWR timetabling work.

2.3 $PM_{2.5}$ – 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.

The Public Health England 'Public Health Outcomes Framework' indicator '3.01 Fraction of mortality attributable to particulate air pollution[9] (particulates under 2.5 micrometres in diameter as opposed to nitrogen dioxide)' for Bath & North East Somerset Council in 2019 (the most recent year available) is 4.4% (compared to 4.8% in 2013). This is similar to the values across the South West region of 4.1% and 5.1% nationally.

In 2015 Bath & North East Somerset Council started to monitor $PM_{2.5}$ at Chelsea House, London Road, Bath (CM4), this a roadside site set 15 m back from the road. Monitoring from this location shows a slight reduction in $PM_{2.5}$ over the last 3 years. Due to its small size $PM_{2.5}$ can travel large distances in the air. 40-50% of $PM_{2.5}$ levels can be from sources outside the local authority boundary (LAQM.TG16)[10].

Bath & North East Somerset Council is working on a Clean Air Plan which includes introducing a Clean Air Zone to tackle the worst polluting vehicles. These measures will also address $PM_{2.5}$ including BATH CAP 2 (Charging Clean Air Zone), BATH CAP 3 (Retrofitting Buses) and BATH CAP 8 (anti-idling).

Within Bath and North East Somerset the area depicted by the city of Bath is a smoke control area. Details of this area can be found at Bath & North East Somerset Council Smoke Control Website. Within this area the Council works to ensure that only authorised fuels or appliances are used.

[9] Public Health Outcomes Framework

[10] Local Air Quality Management - Technical Guidance (TG16), April 2021

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

This section sets out the monitoring undertaken within 2020 by Bath & North East Somerset Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2016 and 2020 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Bath & North East Somerset Council undertook automatic (continuous) monitoring at 4 sites during 2020. Table A.1 in Appendix A shows the details of the automatic monitoring sites. Monitoring was carried out for NO_2 and PM_{10} and a $PM_{2.5}$ in 2020.

The Bath & North East Somerset Council, Air Quality Data - Live webpage presents automatic monitoring results for Bath & North East Somerset Council, with automatic monitoring results also available through the UK-Air website (the London Road Continuous NO_2 analysers is listed as Bath Roadside (until June 2019) and Bath A4 Roadside (from October 2019)).

Local authorities do not have to report annually on the following pollutants: 1,3 butadiene, benzene, carbon monoxide and lead, unless local circumstances indicate there is a problem. Whilst we are fully compliant with the national air quality objective with respect to benzene, Bath & North East Somerset Council has a benzene monitor which is part of the national non-automatic hydrocarbon network located at the London Road continuous site (CM1) until June 2019 and then moved to Bath A4 Roadside (CM8) in October 2019. Results from this site are available at UK-AIR Non Automatic Hydrocarbon Website listed as Bath A4 Roadside and details are also given in Appendix G.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

3.1.2 Non-Automatic Monitoring Sites

Bath & North East Somerset Council undertook non-automatic (i.e. passive) monitoring of NO_2 at 161 sites during 2020 (with 50 of these locations using triplicate diffusion tubes). Table A.2 in Appendix A presents the details of the non-automatic sites. 7 new sites were introduced in 2020, 5 sites were in Temple Cloud to compare with modelling results and a further 2 monitors to respond to public requests and to check other key locations, one site which was previously a single tube was made into a triplicate site. These were:

- Temple Cloud (all triplicate sites)
  - DT111 – Temple Cloud 5 (reinstalling at previous site)
  - DT252 – Temple Cloud 9
  - DT253 – Temple Cloud 10
  - DT254 – Temple Cloud 11
  - DT255 – Temple Cloud 12
  - DT256 – Temple Cloud 13
- Other sites
  - DT257 – Farrington Gurney 7
  - DT251 – Peasedown St John 2
- Triplicate sites
  - DT017 – Widcombe School (previously only a single tube)

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

An interactive map showing diffusion tube locations and monitoring trends is available at Bath & North East Somerset Council Air Quality Data – Long Term Website.

3.1.3 Indicative Monitoring Sites

During 2020 Bath & North East Somerset also carried out monitoring at three locations using AQMesh samplers (Appendix G).

- Bath – Windsor Bridge (co-location)
- Pensford
- Temple Cloud

These samplers are indicative and monitor NO_2 using electrochemical sensors, PM_{10} and $PM_{2.5}$ using optical particle count sensors giving real-time results every 15 minutes. Results are shown in Appendix G.

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO_2)

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

For diffusion tubes, the full 2020 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

Table A.5 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

Automatic Monitoring Data

The trend data shows that 2020 was not a peak year for NO_2, with monitoring results being lower than previous years at all sites (Figure A.1, Appendix A). All continuous analyser monitoring results were below the annual average objective of 40 µg/m^3 and there was one exceedance of the 1-hour objective (18 exceedances allowed).

NO_2 reduced by an average of 20% compared to results in 2019; this is not as low as the average 25% reduction in levels across the National AURN network. The large decrease compared to 2019 is mainly due to the impacts of the Covid-19 restrictions causing significant reductions on traffic volumes during March and April. Traffic volumes began to increase as restrictions eased but remained below average for the remainder of 2020.

Diffusion Tube Monitoring Data

Bath

The results from monitoring sites in Bath show that in 2020 the annual average objective was exceeded at the following locations:

- DT198 – Walcot Parade
- DT222 – Anglo Terrace – façade
- DT224 – Walcot Parade 2

Of these sites the DT224 exceeded the 40 µg/m^3 when adjusted to the closest building façade. All the monitoring sites which exceed the NO_2 annual average objective at the façade are within an AQMA.

In addition to the above sites, there are also 4 other sites in Bath (identified below) having levels which are between 36-40 µg/m^3. These monitoring sites are within the Bath AQMA. Monitoring will continue at all these locations to ensure concentrations do not increase above the objective.

- DT020 – Wells Road
- DT042 – Dorchester Street
- DT060 - Victoria Buildings
- DT090 – Anglo Terrace

The trends in diffusion tube monitoring since 2016 are shown in Figure A.2-A.20 in Appendix A. Monitoring results of NO_2 in 2020 were lower than in 2019 by an average of 20% across the network, as for the automatic data, this is mainly due to Covid restrictions. Results are showing a general downward trend at most locations.

No existing monitoring sites were at or above 60 µg/m^3, indicating the 1-hour objective has been met. There are currently no plans to amend the AQMA to remove the 1-hour objective from the Bath AQMA.

Bathampton/Batheaston

Monitoring continued along Bathampton High Street and London Road West in Batheaston. As part of the wider Clean Air Plan monitoring further sites were also added on the A4 in Batheaston, A36 in Bathampton and on the Toll Bridge linking the 2 villages (Figure D.7 in Appendix D). The results from 2020 show that levels at all locations were

below 40 µg/m^3. Monitoring will continue in Batheaston and Bathampton as part of the Clean Air Plan.

Farrington Gurney

In 2020 monitoring continued at 3 key locations in Farrington Gurney (Figure D.8 in Appendix D). Following the draft AQAP consultation, a further site was added on the A362 on the edge of the village. The results in 2020 remained just below the objective of 40 µg/m^3. As Covid-19 restrictions impacted on monitored concentrations, monitoring is continuing to establish if this reduction is an ongoing trend.

Keynsham

As part of the Getting around Keynsham Transport Strategy, the Council trialled a one-way system in the centre of Keynsham, and a decision was made in 2019 to make the one-way system permanent. In addition to this in June 2020, the High Street was closed between 9am and 5pm to allow for social distancing. To monitor the effects of the scheme, 5 additional diffusion tubes have been located in the town. The diffusion tubes were installed in September 2016 for pre-trial monitoring. The trial began in May 2017. Locations of the monitoring sites are shown in Figure D.9 in Appendix D. In 2020 the results show that all the monitoring locations after bias and annual corrections remain below 40 µg/m^3.

Monitoring will continue in Keynsham. As the results have been below 40 µg/m^3 for 3 years the Council will carry out a more detailed assessment with a view to removing the AQMA in 2021.

Peasedown St John

As part of the wider area monitoring a monitoring site was added in Peasedown St John for 3 months at a residential property close to the bypass (Figure D.11 in Appendix D). The results from 2020 show that levels were below 40 µg/m^3 and no further action is required. Monitoring has ended as the results were below the objective.

Pensford

Following high concentrations of NO_2 being identified in Temple Cloud in 2016, other potential areas along the A37 were investigated including Pensford. In 2017 two monitoring sites were included, one in the street canyon section of the hill on the A37 and the second close to the primary school. In 2018 the site in the street canyon was moved to investigate pollution levels further along the road (Figure D.10 in Appendix D).

The results for monitoring locations in Pensford in show that the levels in 2020 were below the objective. Monitoring in Pensford is continuing as changes to the road layout have raised concerns over increasing pollution concentrations which may have been impacted by Covid-19 restrictions.

Radstock/Westfield

Monitoring in Radstock and Westfield was carried out at 2 locations (Figure D.12 in Appendix D). The results from 2020 show that levels were below 40 µg/m^3 and no further action is required.

Monitoring continues in Radstock and Westfield at other locations to ensure no hot spots have been missed.

Saltford

In 2020 monitoring was carried out at 2 locations within Saltford. Figure D.13 in Appendix D is a map showing the locations of the monitoring sites. The results from 2020 show that levels at both locations were below 40 µg/m^3 at the façade of properties. Monitoring will continue at 2 sites in Saltford. As the results have been below 40 µg/m^3 for 3 years the Council will carry out a more detailed assessment with a view to revoking the AQMA in 2021.

Temple Cloud

Following a request from Cameley Parish Council a diffusion tube was installed in May 2016 on the A37 in at Temple Cloud in a narrow section of road, which also included a street canyon (Figure D.14 in Appendix D). The initial results from this monitored suggested that concentrations at this section of the A37 may be high. A further 4 monitoring sites were added in September 2016 and a further 3 monitoring sites were added in May 2017 to understand the extent of the high levels. In 2018 monitoring was reduced to 3 key locations on the A37. As part of the AQAP development a feasibility study was carried out for Temple Cloud. This included modelling the air quality along the A37. This modelling showed that the locations being monitored may not be including the highest concentrations of NO_2. To confirm the model findings further monitoring locations were added in March 2020 at 6 locations.

The 2020 results show that 2 monitoring locations on the A37 exceeded the annual average objective (DT96 – Temple Cloud and DT253 – Temple Cloud 10). In 2020 all sites were below 60 µg/m^3, this indicates the 1-hour objective was not exceeded.

The additional monitoring carried out close to the modelled hot spots showed high concentrations, with one site (DT253) above the annual average objective. Due to the impacts of the Covid-19 restrictions direct comparison with modelled outputs was not possible. Monitoring will continue at 4 of these locations.in 2021.

At one location a site was put on the closest façade to the road (DT255) and also closer to the front door of the property (DT256). The results showed a significant reduction in the concentration between the road (36 µg/m^3) and the door (14 µg/m^3). This was a combination of the distance from the road and the effect of a large hedge at the edge of the garden shielding the garden/property and increasing the dispersion distance.

Further monitoring is being carried out on the Eastern side of the A37 in 2021 to ensure the concentrations remain low following the vegetation cutback.

Whitchurch

Following a high result in 2015 at the Whitchurch site monitoring site a wider study was commissioned. A further 5 monitoring locations in Whitchurch were added to the network in May 2016 and one on the school façade was added in January 2017. In 2018 this was reduced to 4 key locations. Figure D.15 in Appendix D is a map showing the locations of the monitoring sites. The results from 2020 show that levels at all locations were below 40 µg/m^3 at the façade of properties. Monitoring will continue at 4 sites in Whitchurch.

3.2.2 Particulate Matter (PM_{10})

Table A.6 in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past five years with the air quality objective of 40µg/m^3.

Table A.7 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past five years with the air quality objective of 50µg/m^3, not to be exceeded more than 35 times per year.

Monitoring for PM_{10} has been carried out at 2 sites during 2020 using BAM1020 analysers. The data has been corrected to Gravimetric equivalent by dividing by 1.2 and annualised where appropriate. QA/QC procedures are described in Appendix C.

Windsor Bridge (CM3) is at a worst case location on the opposite side of the junction to the residential properties. Bath A4 Roadside enclosure (CM8) is located on London Road, this moved from Chelsea House (CM4) in September 2019. The analyser is closer to the road than when it was located at Chelsea House.

The results show that the annual average objective was not exceeded during 2020 and the number of exceedances of the 24 hour objective (50 µg/m^3) was below 35 at all sites. Figure A.21 and Figure A.22 shows that the levels of PM_{10} are similar to previous years.

There was one peak above the 24 hour objective in August 2020, this was due to weather conditions, with imported air mixing with local sources and calm conditions limiting dispersion. This was also seen in other areas of the UK[11].

3.2.3 Particulate Matter ($PM_{2.5}$)

Bath & North East Somerset Council started monitoring $PM_{2.5}$ in July 2015 at Chelsea House (CM4). Table A.8 in Appendix A presents the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past five years.

The results show similar concentrations of $PM_{2.5}$ to 2019. The results show that there were no moderate (24 hour average concentrations >35 µg/m^3) levels of $PM_{2.5}$ in Bath & North East Somerset in 2020.

[11] London Air Quality Network Pollution Episodes

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
CM2	Guildhall	Roadside	375111	164857	NO_2	YES (Bath)	Chemiluminescent	1	2	1.3
CM3	Windsor Bridge	Roadside	373593	164861	NO_2 , PM_{10}	YES (Bath)	Chemiluminescent BAM1020	2	4	2.0
CM4	Chelsea House	Roadside	375419	165853	NO_2 , PM_{10}, $PM_{2.5}$	YES (Bath)	Chemiluminescent BAM1020 BAM1020 (smart heated)	0	15	2.0
CM8	Bath A4 Roadside	Roadside	375394	165824	NO_2 Benzene PM_{10}	YES (Bath)	Chemiluminescent Pumped BTX tubes BAM1020	3.5	3.5	1.9

Notes:

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

(2) N/A if not applicable

Table A.2 – Details of Non-Automatic Monitoring Sites

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
DT003	Bath - Broad St	Roadside	374992	165173	NO_2	Yes (Bath)	1.7	1.3	No	2.6
DT004	Bath - George St	Kerbside	374899	165159	NO_2	Yes (Bath)	3.0	1.0	No	2.3
DT005	Bath - Gay St - Top	Roadside	374797	165161	NO_2	Yes (Bath)	3.0	1.0	No	2.6
DT008	Bath - Windsor Bridge	Roadside	373518	165124	NO_2	Yes (Bath)	0.0	3.5	No	2.3
DT009	Bath - Upper Bristol Rd	Roadside	373993	165174	NO_2	Yes (Bath)	5.0	1.0	No	2.6
DT014	Bath - Bathwick St	Roadside	375602	165365	NO_2	Yes (Bath)	1.0	1.0	No	2.5
DT015	Bath - Beckford Rd	Roadside	375733	165414	NO_2	Yes (Bath)	7.0	1.0	No	2.7
DT016	Bath - Warminster Rd	Roadside	376063	165492	NO_2	Yes (Bath)	18.0	4.0	No	2.4
DT017a, DT017b, DT017c	Bath - Widcombe School	Roadside	375634	164406	NO_2	Yes (Bath)	5.0	1.0	No	2.6
DT018	Bath - Widcombe High St	Roadside	375414	164216	NO_2	Yes (Bath)	0.0	5.0	No	2.5
DT020a, DT020b, DT020c	Bath - Wells Rd	Roadside	374760	164310	NO_2	Yes (Bath)	0.0	1.5	No	2.3
DT021	Bath - Wells Rd /Upper Oldfield Park	Roadside	374454	164202	NO_2	Yes (Bath)	3.0	1.0	No	2.7
DT023	Bath - Alexandra Park	Urban Background	375105	163991	NO_2	No			No	3.3
DT026	Bath - Upper Wellsway	Roadside	373576	161908	NO_2	No	0.0	3.0	No	2.0
DT034	Bath - Newbridge Rd	Roadside	373092	165106	NO_2	Yes (Bath)	5.0	1.0	No	2.3

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)
DT037a, DT037b, DT037c	Bath - Charlotte St	Roadside	374622	164994	NO_2	Yes (Bath)	3.0	1.0	No	2.7
DT039	Bath - Manvers St	Roadside	375247	164591	NO_2	Yes (Bath)	3.0	2.0	No	2.3
DT042	Bath - Dorchester St	Kerbside	375230	164383	NO_2	Yes (Bath)	1.5	1.0	No	2.4
DT043	Bath - St. James Parade	Kerbside	375053	164426	NO_2	Yes (Bath)	2.6	0.9	No	2.9
DT045	Bath - James St West	Roadside	374697	164763	NO_2	Yes (Bath)	0.0	5.0	No	2.7
DT052, DT053, DT054	Bath - WalcotTerrace	Roadside	375462	165843	NO_2	Yes (Bath)	0.0	3.0	No	2.5
DT055	Bath - Lambridge	Roadside	376451	166502	NO_2	Yes (Bath)	0.0	4.0	No	2.6
DT060	Bath - Victoria Buildings	Roadside	374039	164760	NO_2	Yes (Bath)	2.0	2.0	No	2.5
DT062	Bath - Argyle Terrace	Roadside	373211	164743	NO_2	Yes (Bath)	4.0	3.0	No	2.8
DT084	Bath - Bear Flat	Roadside	374604	163806	NO_2	No	5.7	1.9	No	2.3
DT085	Bath - RUH – North	Roadside	373073	165983	NO_2	No	7.0	1.5	No	2.3
DT087	Bath - Oak Street	Roadside	374702	164414	NO_2	Yes (Bath)	0.0	2.7	No	2.3
DT090a, DT090b, DT090c	Bath - Anglo Terrace	Roadside	375288	165758	NO_2	Yes (Bath)	2.5	1.6	No	2.3
DT142	Bath - Prior Park Road	Kerbside	375513	164194	NO_2	No	0.3	0.8	No	2.5
DT143	Bath - Rackfield Place	Roadside	372644	164738	NO_2	No	0.3	3.6	No	2.6
DT145	Bath - Lansdown Road	Kerbside	374930	165550	NO_2	Yes (Bath)	2.5	0.7	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)
DT147	Bath - Terrace Walk	Roadside	375195	164735	NO_2	No	0.3	1.7	No	2.7
DT148a, DT148b, DT148c	Bath - Julian Road	Roadside	374573	165523	NO_2	No	0.4	2.2	No	2.5
DT149	Bath - Camden 3	Kerbside	375038	165838	NO_2	No	2.0	0.4	No	2.6
DT150	Bath - Brougham Hayes	Roadside	373955	164590	NO_2	No	1.9	1.3	No	2.6
DT151	Bath - Widcombe Hill	Kerbside	375598	164190	NO_2	No	3.9	0.8	No	2.2
DT152	Bath - Bathwick Hill	Roadside	375800	164912	NO_2	No	2.0	1.0	No	2.6
DT153	Bath - North Road	Roadside	376069	165356	NO_2	No	3.0	1.9	No	2.4
DT154	Bath - Bradford Road	Roadside	375529	162389	NO_2	No	0.4	2.2	No	2.4
DT155	Bath - Newbridge Hill 2	Roadside	372696	165488	NO_2	No	7.0	1.8	No	2.5
DT156	Bath - Corn Street	Roadside	374827	164531	NO_2	No	2.4	2.6	No	2.5
DT157	Bath - Charles Street	Roadside	374664	164815	NO_2	No	1.5	3.2	No	2.4
DT158	Bath - Paragon 2	Roadside	375051	165350	NO_2	Yes (Bath)	5.4	1.1	No	3.0
DT159	Bath - Walcot Street	Roadside	375075	165287	NO_2	No	3.0	2.5	No	2.7
DT160	Bath - North Parade Road	Roadside	375284	164694	NO_2	No	6.3	1.3	No	2.6
DT165	Bath - Brassknocker Hill	Kerbside	377960	162736	NO_2	No	7.0	0.8	No	2.5
DT167	Bath - Weston High Street	Roadside	372587	166629	NO_2	No	0.4	1.0	No	2.5
DT168	Bath - Englishcombe Lane	Roadside	373207	163339	NO_2	No	3.4	1.6	No	2.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
DT169	Bath - Eastbourne Avenue	Roadside	375667	166369	NO_2	No	5.1	2.0	No	2.5
DT171	Bath - Frome Rd/Upper Bloomfield	Roadside	373706	162411	NO_2	No	0.4	4.2	No	2.4
DT172a, DT172b, DT172c	Bath - London Road 2	Roadside	375374	165813	NO_2	Yes (Bath)	0.6	3.6	No	2.5
DT173	Bath - Upper Bristol Road	Roadside	374362	165016	NO_2	Yes (Bath)	0.6	2.2	No	2.4
DT179a, DT179b, DT179c	Bath - Upper Bristol Road 3	Roadside	373299	165093	NO_2	Yes (Bath)	0.0	1.5	No	2.0
DT180a, DT180b, DT180c	Bath - Wells Road 2	Roadside	374537	163968	NO_2	No	0.7	1.7	No	2.4
DT181	Bath - Wellsway	Roadside	374618	163494	NO_2	No	15.0	1.2	No	2.5
DT182a, DT182b, DT182c	Bath - Gay Street - Lower	Roadside	374796	165123	NO_2	Yes (Bath)	3.7	1.1	No	2.3
DT183	Bath - Chapel Row	Roadside	374712	164913	NO_2	No	0.0	2.1	No	2.5
DT185	Bath - Greenway Lane	Kerbside	374712	163417	NO_2	No	0.5	0.7	No	2.4
DT186	Bath - Coronation Avenue	Roadside	373170	163416	NO_2	No	3.3	1.4	No	2.4
DT187	Bath - Stanely Road West	Roadside	373835	164438	NO_2	No	0.2	1.7	No	2.3
DT188	Bath - Moorland Road	Roadside	373696	164343	NO_2	No	0.5	3.4	No	2.6
DT189	Bath - Old Newbridge Hill	Roadside	372251	165686	NO_2	No	10.0	2.1	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)
DT190	Bath - Church Street	Kerbside	375814	164027	NO_2	No	0.0	0.9	No	2.5
DT192	Bath - Fairfield Road	Roadside	375505	166428	NO_2	No	3.6	1.3	No	2.5
DT193	Bath - Granville Road	Roadside	374260	167661	NO_2	No	4.5	1.5	No	2.5
DT194	Bath - Brooklyn Road	Roadside	376096	166878	NO_2	No	3.5	1.0	No	2.6
DT195	Bath - Lansdown Lane	Roadside	372537	167235	NO_2	No	11.0	1.9	No	2.5
DT196	Bath - Oakley	Kerbside	377133	164045	NO_2	No	2.0	0.8	No	2.5
DT197	Bath - Rush Hill	Roadside	372703	162983	NO_2	No	5.5	2.0	No	2.4
DT198a, DT198b, DT198c	Bath - Walcot Parade	Kerbside	375240	165739	NO_2	Yes (Bath)	0.4	1.0	No	3.3
DT199	Bath - Hensley Road	Roadside	374353	163504	NO_2	No	8.0	1.1	No	2.4
DT200	Bath - Millmead Road	Roadside	373375	164307	NO_2	No	3.4	1.6	No	2.4
DT201	Bath - The Hollow	Roadside	373003	164250	NO_2	No	1.3	2.4	No	2.5
DT202	Bath - Charlcombe	Kerbside	374636	166701	NO_2	No	5.0	0.4	No	2.5
DT206a, DT206b, DT206c	Bath - Park Lane	Roadside	373742	165305	NO_2	No	0.5	1.8	No	2.5
DT207	Bath - Darlington Street	Roadside	375630	165132	NO_2	No	4.0	1.1	No	2.5
DT209	Bath - Bellots Road	Roadside	373490	164804	NO_2	No	3.5	1.5	No	2.5
DT210	Bath - Red Lion Roundabout	Roadside	373895	162254	NO_2	No	0.4	1.5	No	2.4
DT211	Bath - St John's Road	Roadside	375218	165290	NO_2	No	0.0	2.0	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)
DT212	Bath - Oldfield Road	Roadside	374356	163985	NO_2	No	5.0	1.8	No	2.4
DT213a, DT213b, DT213c	Bath - Marlborough Lane	Roadside	374262	165127	NO_2	No	6.0	3.0	No	2.5
DT214a, DT214b, DT214c	Bath - Marlborough Buildings	Roadside	374354	165448	NO_2	No	2.6	1.0	No	2.5
DT215a, DT215b, DT215c	Bath - Queen Parade Place	Roadside	374758	165096	NO_2	No	0.3	2.6	No	2.6
DT216a, DT216b, DT216c	Bath - Monmouth Place	Roadside	374574	164958	NO_2	Yes (Bath)	0.3	1.5	No	2.4
DT217a, DT217b, DT217c	Bath - Cavendish Road	Roadside	374335	165990	NO_2	No	1.2	1.0	No	2.4
DT218	Bath - Weston Road	Roadside	373668	165697	NO_2	No	3.0	1.4	No	2.5
DT219	Bath - Morford Street	Roadside	374872	165570	NO_2	No	0.0	1.5	No	2.5
DT221	Bath - Gay Street - façade	Roadside	374793	165119	NO_2	No	0.2	4.4	No	2.7
DT222a, DT222b, DT222c	Bath - Anglo Terrace façade	Roadside	375231	165778	NO_2	Yes (Bath)	0.5	1.8	No	2.4
DT223a, DT223b, DT223c	Bath - Canton Place	Roadside	375322	165759	NO_2	Yes (Bath)	2.4	4.0	No	2.3
DT224a, DT224b, DT224c	Bath - Walcot Parade 2	Roadside	375207	165726	NO_2	Yes (Bath)	0.4	1.1	No	2.4

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
DT225a, DT225b, DT225c	Bath - Cleveland Terrace	Kerbside	375203	165708	NO_2	Yes (Bath)	2.8	0.7	No	2.4
DT226a, DT226b, DT226c	Bath - AURN	Roadside	375394	165824	NO_2	Yes (Bath)	3.5	3.5	Yes	1.9
DT227a, DT227b, DT227c	Bath - Wells Road 3	Kerbside	374580	163979	NO_2	No	1.1	0.4	No	2..25
DT228a, DT228b, DT228c	Bath - Lower Bristol Road 2	Roadside	374002	164754	NO_2	Yes (Bath)	1.4	3.0	No	2.4
DT229a, DT229b, DT229c	Bath - Lower Bristol Road 3	Kerbside	373936	164779	NO_2	Yes (Bath)	10.8	0.2	No	2.5
DT230a, DT230b, DT230c	Bath - Upper Bristol Road 4	Roadside	373439	165098	NO_2	Yes (Bath)	3.7	1.2	No	2.4
DT231a, DT231b, DT231c	Bath - Upper Bristol Road 5	Kerbside	373480	165125	NO_2	Yes (Bath)	4.7	0.3	No	2.4
DT232a, DT232b, DT232c	Bath - Lansdown Road 3	Kerbside	374942	165391	NO_2	Yes (Bath)	4.3	0.6	No	2.4
DT233a, DT233b, DT233c	Bath - Lansdown Road 4	Kerbside	374956	165359	NO_2	Yes (Bath)	6.7	0.9	No	2.5
DT234a, DT234b, DT234c	Bath - Gay Street 2	Kerbside	374806	165084	NO_2	Yes (Bath)	2.2	0.5	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)
DT235a, DT235b, DT235c	Bath - Wells Road 4	Roadside	374694	164288	NO_2	Yes (Bath)	6.0	1.3	No	2.4
DT236a, DT236b, DT236c	Bath - Pulteney Terrace	Roadside	375668	164493	NO_2	No	4.7	1.6	No	2.4
DT237	Bath - Broad Street 2	Roadside	375000	165179	NO_2	Yes (Bath)	0.5	1.5	No	2.4
DT238a, DT238b, DT238c	Bath - Broad Street 3	Roadside	375001	165140	NO_2	Yes (Bath)	0.2	2.2	No	2.4
DT239a, DT239b, DT239c	Bath - Broad Street 4	Kerbside	375008	165145	NO_2	Yes (Bath)	1.9	0.4	No	2.4
DT240a, DT240b, DT240c	Bath - Bathwick Street 2	Roadside	375489	165450	NO_2	Yes (Bath)	2.6	1.7	No	2.4
DT241a, DT241b, DT241c	Bath - Bathwick Street 3	Roadside	375520	165446	NO_2	Yes (Bath)	2.0	1.8	No	2.5
DT242a, DT242b, DT242c	Bath - Charlotte Street 2	Roadside	374583	164974	NO_2	Yes (Bath)	2.1	1.7	No	2.4
DT243a, DT243b, DT243c	Bath - Sydney Place	Roadside	375625	165312	NO_2	Yes (Bath)	7.8	1.1	No	2.4
DT244	Bath - Whiteway	Roadside	372494	163165	NO_2	No	3.0	1.5	No	2.3
DT245	Bath - Whiteway 2	Roadside	372401	163212	NO_2	No	0.5	1.4	No	2.4
DT246a, DT246b, DT246c	Bath - Dorchester Street 2	Roadside	375186	164372	NO_2	Yes (Bath)	23.0	4.9	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)
DT247a, DT247b, DT247c	Bath - Monmouth Place 2	Roadside	374627	164924	NO_2	Yes (Bath)	0.3	1.1	No	2.6
DT248a, DT248b, DT248c	Bath - Chapel Row 2	Roadside	374711	164931	NO_2	No	0.4	1.6	No	2.4
DT091	Bathampton High Street	Roadside	377683	166408	NO_2	No	0.0	1.1	No	2.3
DT166	Bathampton, A36	Roadside	377543	165924	NO_2	No	23.0	1.2	No	2.4
DT058	Batheaston – London Road West A	Roadside	377643	167365	NO_2	No	0.0	1.0	No	2.5
DT094	Batheaston - London Road West B	Roadside	377290	167097	NO_2	No	0.0	1.3	No	2.5
DT130	Batheaston - London Road West C	Roadside	377802	167456	NO_2	No	0.0	1.4	No	2.5
DT163	Batheaston, A4 Box Road	Roadside	378911	167259	NO_2	No	2.4	1.8	No	2.4
DT191	Batheaston - Mill Lane	Roadside	377339	167065	NO_2	No	4.0	1.0	No	2.5
DT134	Farrington Gurney 2	Roadside	362891	155485	NO_2	Yes (Farrington Gurney)	0.0	4.5	No	2.5
DT136	Farrington Gurney 3	Roadside	362884	155790	NO_2	Yes (Farrington Gurney)	0.0	1.2	No	2.1
DT138	Farrington Gurney 5	Roadside	362983	155459	NO_2	Yes (Farrington Gurney)	3.0	1.9	No	2.5
DT257	Farrington Gurney 7	Roadside	363931	155313	NO_2	No	1.0	1.5	No	2.3

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)
DT033	Keynsham	Urban Background	364803	168237	NO_2	No	8.0	1.0	No	2.6
DT063	Keynsham – Station Road	Roadside	365409	168846	NO_2	Yes (Keynsham)	3.0	1.0	No	2.7
DT064	Keynsham – Charlton Road B	Roadside	365305	168657	NO_2	Yes (Keynsham)	4.0	1.0	No	2.8
DT065	Keynsham - Charlton Rd A	Roadside	365399	168701	NO_2	Yes (Keynsham)	3.0	1.0	No	2.7
DT066	Keynsham – High Street A	Roadside	365360	168815	NO_2	Yes (Keynsham)	1.0	1.0	No	2.5
DT067	Keynsham - Somerfield	Roadside	365457	168496	NO_2	Yes (Keynsham)	2.0	1.0	No	2.8
DT068	Keynsham - Temple St	Roadside	365489	168363	NO_2	No	0.0	3.0	No	2.8
DT069	Keynsham – Rock Road	Roadside	365428	168435	NO_2	No	0.0	2.0	No	3.0
DT070	Keynsham – Bath Hill	Roadside	365496	168521	NO_2	Yes (Keynsham)	1.0	4.0	No	2.3
DT107	Keynsham - Bath Hill South	Roadside	365710	168339	NO_2	No	0.0	1.3	No	2.5
DT112	Keynsham - Ashton Way	Roadside	365375	168594	NO_2	No	35.0	1.5	No	2.6
DT113	Keynsham - West View Road	Roadside	365217	168505	NO_2	No	4.5	1.5	No	2.6
DT114	Keynsham - Victoria Church	Kerbside	365414	168684	NO_2	Yes (Keynsham)	11.5	0.5	No	2.7
DT115	Keynsham - High Street B	Roadside	365447	168586	NO_2	Yes (Keynsham)	1.8	1.1	No	2.4
DT116	Keynsham - Fish Bar	Kerbside	365462	168533	NO_2	Yes (Keynsham)	5.3	0.8	No	2.3
DT141	Keynsham A4	Roadside	366921	168096	NO_2	No	13.0	1.4	No	2.4

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
DT251	Peasedown St John 2	Suburban	369986	156962	NO_2	No	-3.0	19.0	No	1.5
DT174	Pensford 3	Roadside	361769	164034	NO_2	No	2.7	1.3	No	2.5
DT176	Radstock, Wells Road 2	Roadside	368763	154818	NO_2	No	0.0	2.2	No	2.5
DT075	Saltford - The Crown	Roadside	368375	166988	NO_2	Yes (Saltford)	0.0	3.0	No	2.6
DT077	Saltford - Bath Road	Roadside	368778	166687	NO_2	Yes (Saltford)	0.0	2.0	No	2.2
DT096a, DT096b, DT096c	Temple Cloud 1	Roadside	362219	157923	NO_2	Yes (Temple Cloud)	0.0	1.5	No	2.4
DT108a, DT108b, DT108c	Temple Cloud 2	Roadside	362179	158055	NO_2	Yes (Temple Cloud)	6.2	1.3	No	2.6
DT109a, DT109b, DT109c	Temple Cloud 3	Roadside	362344	157658	NO_2	Yes (Temple Cloud)	2.0	1.7	No	2.6
DT111a, DT111b, DT111c	Temple Cloud 5	Roadside	362234	157880	NO_2	Yes (Temple Cloud)	0.0	1.0	No	2.4
DT252a, DT252b, DT252c	Temple Cloud 9	Roadside	362195	158007	NO_2	Yes (Temple Cloud)	0.0	1.1	No	2.4
DT253a, DT253b, DT253c	Temple Cloud 10	Roadside	362243	157846	NO_2	Yes (Temple Cloud)	-2.1	3.6	No	2.3
DT254a, DT254b, DT254c	Temple Cloud 11	Roadside	362262	157799	NO_2	Yes (Temple Cloud)	2.9	1.6	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)
DT255a, DT255b, DT255c	Temple Cloud 12	Roadside	362284	157741	NO_2	Yes (Temple Cloud)	0.0	1.2	No	2.2
DT256a, DT256b, DT256c	Temple Cloud 13	Roadside	362283	157735	NO_2	No	-3.8	5.0	No	1.8
DT175	Westfield 3	Roadside	367416	153974	NO_2	No	2.7	1.9	No	2.4
DT032	Whitchurch	Roadside	361242	167652	NO_2	No	2.7	2.1	No	2.3
DT098	Whitchurch 2	Roadside	361276	167555	NO_2	No	0.0	1.3	No	2.3
DT100	Whitchurch 4	Roadside	361326	167606	NO_2	No	6.0	1.6	No	2.3
DT101	Whitchurch 5	Roadside	361235	167824	NO_2	No	4.0	1.6	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.3 – Annual Mean NO_2 Monitoring Results: Automatic Monitoring (µg/m^3)

Site ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
CM2	Guildhall	375111	164857	Roadside	91.9	91.9	34	30	29	27	19
CM3	Windsor Bridge	373593	164861	Roadside	99.0	99.0	33	33	30	29	23
CM4	Chelsea House	375419	165853	Roadside	99.1	99.1	29	29	26	22	20
CM8	Bath A4 Roadside	375394	165824	Roadside	98	98	-	-	-	29	28

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

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

Notes:

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

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

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

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

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

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

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

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2020 (%) [2]	2016	2017	2018	2019	2020
DT003	Bath - Broad St	374992	165173	Roadside	82.1	82.1	-	-	36	37	27
DT004	Bath - George St	374899	165159	Kerbside	84.6	84.6	39	36	30	30	22
DT005	Bath - Gay St - Top	374797	165161	Roadside	92.3	92.3	**41**	36	32	31	22
DT008	Bath - Windsor Bridge	373518	165124	Roadside	92.3	92.3	37	34	31	28	23
DT009	Bath - Upper Bristol Rd	373993	165174	Roadside	92.3	92.3	**47**	**40.2**	33	31	26
DT014	Bath - Bathwick St	375602	165365	Roadside	84.6	84.6	**45**	**44**	36	33	29
DT015	Bath - Beckford Rd	375733	165414	Roadside	92.3	92.3	37	34	30	27	22
DT016	Bath - Warminster Rd	376063	165492	Roadside	92.3	92.3	39.6	36	33	31	24
DT017a, DT017b, DT017c	Bath - Widcombe School	375634	164406	Roadside	92.3	92.3	38	35	31	29	23
DT018	Bath - Widcombe High St	375414	164216	Roadside	92.3	92.3	28	28	24	23	18
DT020a, DT020b, DT020c	Bath - Wells Rd	374760	164310	Roadside	92.3	92.3	**55**	**52**	**49**	**49**	39.7
DT021	Bath - Wells Rd/Upper Oldfield Park	374454	164202	Roadside	77.2	77.2	**47**	**43**	**43**	37	26
DT023	Bath - Alexandra Park	375105	163991	Urban Background	92.3	92.3	14	13	12	11	8
DT026	Bath - Upper Wellsway	373576	161908	Roadside	92.3	92.3	39	32	31	27	21
DT034	Bath - Newbridge Rd	373092	165106	Roadside	92.3	92.3	**40.2**	38	33	31	23
DT037a, DT037b, DT037c	Bath - Charlotte St	374622	164994	Roadside	92.3	92.3	**46**	38	33	30	26

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2020 (%) [2]	2016	2017	2018	2019	2020
DT039	Bath - Manvers St	375247	164591	Roadside	92.3	92.3	**44**	38	29	33	24
DT042	Bath - Dorchester St	375230	164383	Kerbside	92.3	92.3	**67**	**58**	**45**	**48**	36
DT043	Bath - St. James Parade	375053	164426	Kerbside	92.3	92.3	-	**46**	**40.3**	39	31
DT045	Bath - James St West	374697	164763	Roadside	82.7	82.7	**44**	39.9	31	28	22
DT052, DT053, DT054	Bath - Walcot Terrace	375462	165843	Roadside	92.3	92.3	**47**	**44**	37	36	29
DT055	Bath - Lambridge	376451	166502	Roadside	82.1	82.1	**60**	**46**	39.7	36	29
DT060	Bath - Victoria Buildings	374039	164760	Roadside	92.3	92.3	**52**	**46**	**41**	**44**	38
DT062	Bath - Argyle Terrace	373211	164743	Roadside	84.6	84.6	**48**	**45**	39	37	33
DT084	Bath - Bear Flat	374604	163806	Roadside	92.3	92.3	**45**	33	35	30	23
DT085	Bath - RUH – North	373073	165983	Roadside	82.1	82.1	36	32	28	26	23
DT087	Bath - Oak Street	374702	164414	Roadside	84.9	84.9	38	33	31	29	23
DT090a, DT090b, DT090c	Bath - Anglo Terrace	375288	165758	Roadside	92.3	92.3	**69**	**57**	**56**	**45**	37
DT142	Bath - Prior Park Road	375513	164194	Kerbside	84.6	84.6	-	**41**	34	33	27
DT143	Bath - Rackfield Place	372644	164738	Roadside	75.0	75.0	-	32	27	26	22
DT145	Bath - Lansdown Road	374930	165550	Kerbside	84.6	84.6	-	33	31	26	21
DT147	Bath - Terrace Walk	375195	164735	Roadside	92.3	92.3	-	34	29	29	20
DT148a, DT148b, DT148c	Bath - Julian Road	374573	165523	Roadside	92.3	92.3	-	-	27	24	20
DT149	Bath - Camden 3	375038	165838	Kerbside	82.7	82.7	-	-	31	25	21

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2020 (%) [2]	2016	2017	2018	2019	2020
DT150	Bath - Brougham Hayes	373955	164590	Roadside	82.1	82.1	-	-	27	29	23
DT151	Bath - Widcombe Hill	375598	164190	Kerbside	84.6	84.6	-	-	32	27	21
DT152	Bath - Bathwick Hill	375800	164912	Roadside	92.3	92.3	-	-	26	25	19
DT153	Bath - North Road	376069	165356	Roadside	92.3	92.3	-	-	19	17	13
DT154	Bath - Bradford Road	375529	162389	Roadside	92.3	92.3	-	-	30	28	21
DT155	Bath - Newbridge Hill 2	372696	165488	Roadside	82.7	82.7	-	-	19	18	12
DT156	Bath - Corn Street	374827	164531	Roadside	84.6	84.6	-	-	28	28	21
DT157	Bath - Charles Street	374664	164815	Roadside	92.3	92.3	-	-	29	27	22
DT158	Bath - Paragon 2	375051	165350	Roadside	92.3	92.3	-	-	33	32	24
DT159	Bath - Walcot Street	375075	165287	Roadside	82.1	82.1	-	-	27	26	20
DT160	Bath - North Parade Road	375284	164694	Roadside	92.3	92.3	-	-	31	34	23
DT165	Bath - Brassknocker Hill	377960	162736	Kerbside	92.3	92.3	-	-	**40.2**	37	28
DT167	Bath - Weston High Street	372587	166629	Roadside	92.3	92.3	-	-	24	22	17
DT168	Bath - Englishcombe Lane	373207	163339	Roadside	92.3	92.3	-	-	16	14	11
DT169	Bath - Eastbourne Avenue	375667	166369	Roadside	92.3	92.3	-	-	26	23	18
DT171	Bath - Frome Rd/Upper Bloomfield	373706	162411	Roadside	84.9	84.9	-	-	32	27	22
DT172a, DT172b, DT172c	Bath - London Road 2	375374	165813	Roadside	69.8	69.8	-	-	**47**	**48**	35
DT173	Bath - Upper Bristol Road	374362	165016	Roadside	84.6	84.6	-	-	37	33	28
DT179a, DT179b, DT179c	Bath - Upper Bristol Rd 3	373299	165093	Roadside	84.6	84.6	-	-	35	37	27

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2020 (%) [2]	2016	2017	2018	2019	2020
DT180a, DT180b, DT180c	Bath - Wells Road 2	374537	163968	Roadside	84.6	84.6	-	-	35	34	31
DT181	Bath - Wellsway	374618	163494	Roadside	92.3	92.3	-	-	36	33	27
DT182a, DT182b, DT182c	Bath - Gay Street - Lower	374796	165123	Roadside	92.3	92.3	-	-	**42**	**41**	30
DT183	Bath - Chapel Row	374712	164913	Roadside	92.3	92.3	-	-	30	30	22
DT185	Bath - Greenway Lane	374712	163417	Kerbside	92.3	92.3	-	-	19	16	12
DT186	Bath - Coronation Avenue	373170	163416	Roadside	84.6	84.6	-	-	20	20	16
DT187	Bath - Stanely Road West	373835	164438	Roadside	84.6	84.6	-	-	24	23	19
DT188	Bath - Moorland Road	373696	164343	Roadside	92.3	92.3	-	-	25	22	19
DT189	Bath - Old Newbridge Hill	372251	165686	Roadside	92.3	92.3	-	-	29	29	23
DT190	Bath - Church Street	375814	164027	Kerbside	92.3	92.3	-	-	14	13	11
DT192	Bath - Fairfield Road	375505	166428	Roadside	92.3	92.3	-	-	20	16	14
DT193	Bath - Granville Road	374260	167661	Roadside	92.3	92.3	-	-	11	9	7
DT194	Bath - Brooklyn Road	376096	166878	Roadside	82.7	82.7	-	-	18	16	13
DT195	Bath - Lansdown Lane	372537	167235	Roadside	92.3	92.3	-	-	20	21	17
DT196	Bath - Oakley	377133	164045	Kerbside	92.3	92.3	-	-	32	28	20
DT197	Bath - Rush Hill	372703	162983	Roadside	92.3	92.3	-	-	25	24	19
DT198a, DT198b, DT198c	Bath - Walcot Parade	375240	165739	Kerbside	92.3	92.3	-	-	**56**	**49**	**41**
DT199	Bath - Hensley Road	374353	163504	Roadside	92.3	92.3	-	-	-	13	10

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2020 (%) [2]	2016	2017	2018	2019	2020
DT200	Bath - Millmead Road	373375	164307	Roadside	84.6	84.6	-	-	-	15	13
DT201	Bath - The Hollow	373003	164250	Roadside	84.6	84.6	-	-	-	24	21
DT202	Bath - Charlcombe	374636	166701	Kerbside	92.3	92.3	-	-	-	14	11
DT206a, DT206b, DT206c	Bath - Park Lane	373742	165305	Roadside	92.3	92.3	-	-	-	28	23
DT207	Bath - Darlington Street	375630	165132	Roadside	92.3	92.3	-	-	-	38	32
DT209	Bath - Bellots Road	373490	164804	Roadside	84.6	84.6	-	-	-	19	15
DT210	Bath - Red Lion Roundabout	373895	162254	Roadside	92.3	92.3	-	-	-	33	28
DT211	Bath - St John's Road	375218	165290	Roadside	92.3	92.3	-	-	-	21	16
DT212	Bath - Oldfield Road	374356	163985	Roadside	92.3	92.3	-	-	-	19	14
DT213a, DT213b, DT213c	Bath - Marlborough Lane	374262	165127	Roadside	92.3	92.3	-	-	-	21	18
DT214a, DT214b, DT214c	Bath - Marlborough Buildings	374354	165448	Roadside	92.3	92.3	-	-	-	19	18
DT215a, DT215b, DT215c	Bath - Queen Parade Place	374758	165096	Roadside	92.3	92.3	-	-	-	18	14
DT216a, DT216b, DT216c	Bath - Monmouth Place	374574	164958	Roadside	92.3	92.3	-	-	-	27	26
DT217a, DT217b, DT217c	Bath - Cavendish Road	374335	165990	Roadside	84.6	84.6	-	-	-	17	16
DT218	Bath - Weston Road	373668	165697	Roadside	92.3	92.3	-	-	-	19	17

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2020 (%) [2]	2016	2017	2018	2019	2020
DT219	Bath - Morford Street	374872	165570	Roadside	92.3	92.3	-	-	-	21	19
DT221	Bath - Gay Street - façade	374793	165119	Roadside	92.3	92.3	-	-	-	36	25
DT222a, DT222b, DT222c	Bath - Anglo Terrace façade	375231	165778	Roadside	92.3	92.3	-	-	-	**49**	**41**
DT223a, DT223b, DT223c	Bath - Canton Place	375322	165759	Roadside	67.3	67.3	-	-	-	37	33
DT224a, DT224b, DT224c	Bath - Walcot Parade 2	375207	165726	Roadside	92.3	92.3	-	-	-	**55**	**44**
DT225a, DT225b, DT225c	Bath - Cleveland Terrace	375203	165708	Kerbside	92.3	92.3	-	-	-	37	32
DT226a, DT226b, DT226c	Bath - AURN	375394	165824	Roadside	92.3	92.3	-	-	-	32	29
DT227a, DT227b, DT227c	Bath - Wells Road 3	374580	163979	Kerbside	92.3	92.3	-	-	-	**40.3**	31
DT228a, DT228b, DT228c	Bath - Lower Bristol Rd 2	374002	164754	Roadside	84.6	84.6	-	-	-	28	27
DT229a, DT229b, DT229c	Bath - Lower Bristol Rd 3	373936	164779	Kerbside	92.3	92.3	-	-	-	36	28
DT230a, DT230b, DT230c	Bath - Upper Bristol Rd 4	373439	165098	Roadside	92.3	92.3	-	-	-	35	35
DT231a, DT231b, DT231c	Bath - Upper Bristol Rd 5	373480	165125	Kerbside	92.3	92.3	-	-	-	**41**	33

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2020 (%) [2]	2016	2017	2018	2019	2020
DT232a, DT232b, DT232c	Bath - Lansdown Road 3	374942	165391	Kerbside	92.3	92.3	-	-	-	29	24
DT233a, DT233b, DT233c	Bath - Lansdown Road 4	374956	165359	Kerbside	92.3	92.3	-	-	-	23	22
DT234a, DT234b, DT234c	Bath - Gay Street 2	374806	165084	Kerbside	82.1	82.1	-	-	-	37	32
DT235a, DT235b, DT235c	Bath - Wells Road 4	374694	164288	Roadside	92.3	92.3	-	-	-	37	32
DT236a, DT236b, DT236c	Bath - Pulteney Terrace	375668	164493	Roadside	92.3	92.3	-	-	-	30	23
DT237	Bath - Broad Street 2	375000	165179	Roadside	92.3	92.3	-	-	-	35	25
DT238a, DT238b, DT238c	Bath - Broad Street 3	375001	165140	Roadside	92.3	92.3	-	-	-	34	26
DT239a, DT239b, DT239c	Bath - Broad Street 4	375008	165145	Kerbside	84.9	84.9	**48**	**48**	-	37	26
DT240a, DT240b, DT240c	Bath - Bathwick Street 2	375489	165450	Roadside	92.3	92.3	-	-	-	30	23
DT241a, DT241b, DT241c	Bath - Bathwick Street 3	375520	165446	Roadside	92.3	92.3	-	-	-	24	18
DT242a, DT242b, DT242c	Bath - Charlotte Street 2	374583	164974	Roadside	92.3	92.3	-	-	-	24	21

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2020 (%) [2]	2016	2017	2018	2019	2020
DT243a, DT243b, DT243c	Bath - Sydney Place	375625	165312	Roadside	92.3	92.3	-	-	-	30	25
DT244	Bath - Whiteway	372494	163165	Roadside	92.3	92.3	-	-	-	18	16
DT245	Bath - Whiteway 2	372401	163212	Roadside	92.3	92.3	-	-	-	25	20
DT246a, DT246b, DT246c	Bath - Dorchester Street 2	375186	164372	Roadside	92.3	92.3	-	-	-	39	30
DT247a, DT247b, DT247c	Bath - Monmouth Place 2	374627	164924	Roadside	92.3	92.3	-	-	-	30	27
DT248a, DT248b, DT248c	Bath - Chapel Row 2	374711	164931	Roadside	84.6	84.6	-	-	-	38	29
DT091	Bathampton High Street	377683	166408	Roadside	92.3	92.3	31	29	26	23	17
DT166	Bathampton, A36	377543	165924	Roadside	92.3	92.3	-	-	30	28	21
DT058	Batheaston – London Rd West A	377643	167365	Roadside	82.7	82.7	32	29	26	25	20
DT094	Batheaston - London Rd West B	377290	167097	Roadside	82.1	82.1	34	31	28	25	20
DT130	Batheaston - London Rd West C	377802	167456	Roadside	92.3	92.3	-	32	26	26	21
DT163	Batheaston, A4 Box Road	378911	167259	Roadside	84.9	84.9	-	-	24	23	18
DT191	Batheaston - Mill Lane	377339	167065	Roadside	84.6	84.6	-	-	22	19	15
DT134	Farrington Gurney 2	362891	155485	Roadside	100.0	100.0	-	**52**	39	39	31
DT136	Farrington Gurney 3	362884	155790	Roadside	100.0	100.0	-	**42**	39.6	37	28
DT138	Farrington Gurney 5	362983	155459	Roadside	100.0	100.0	-	39	38	36	27

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2020 (%) [2]	2016	2017	2018	2019	2020
DT257	Farrington Gurney 7	363931	155313	Roadside		67.9					19
DT033	Keynsham	364803	168237	Urban Background	100.0	100.0	16	16	13	12	10
DT063	Keynsham – Station Road	365409	168846	Roadside	100.0	100.0	34	30	27	25	20
DT064	Keynsham – Charlton Road B	365305	168657	Roadside	92.0	92.0	38	31	28	28	24
DT065	Keynsham - Charlton Rd A	365399	168701	Roadside	100.0	100.0	35	32	29	27	21
DT066	Keynsham – High Street A	365360	168815	Roadside	100.0	100.0	**46**	**40.3**	33	32	27
DT067	Keynsham - Somerfield	365457	168496	Roadside	100.0	100.0	**40.0**	37	32	31	24
DT068	Keynsham - Temple St	365489	168363	Roadside	100.0	100.0	24	22	21	19	15
DT069	Keynsham – Rock Road	365428	168435	Roadside	100.0	100.0	26	26	25	22	19
DT070	Keynsham – Bath Hill	365496	168521	Roadside	100.0	100.0	31	29	25	23	18
DT107	Keynsham - Bath Hill South	365710	168339	Roadside	100.0	100.0	39.8	37	35	33	29
DT112	Keynsham - Ashton Way	365375	168594	Roadside	90.1	90.1	26	26	23	21	19
DT113	Keynsham - West View Road	365217	168505	Roadside	100.0	100.0	21	18	17	15	12
DT114	Keynsham - Victoria Church	365414	168684	Kerbside	100.0	100.0	35	30	23	23	18
DT115	Keynsham - High Street B	365447	168586	Roadside	100.0	100.0	33	31	22	21	13
DT116	Keynsham - Fish Bar	365462	168533	Kerbside	75.3	75.3	28	28	25	22	17
DT141	Keynsham A4	366921	168096	Roadside	100.0	100.0	-	36	33	31	23
DT251	Peasedown St John 2	369986	156962	Suburban	100.0	32.1	-	-	-	-	9
DT174	Pensford 3	361769	164034	Roadside	100.0	100.0	-	-	37	35	31

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2020 (%) [2]	2016	2017	2018	2019	2020
DT176	Radstock - Wells Road 2	368763	154818	Roadside	47.5	47.5	-	-	29	22	22
DT075	Saltford - The Crown	368375	166988	Roadside	100.0	100.0	**40.5**	37	31	30	23
DT077	Saltford - Bath Road	368778	166687	Roadside	100.0	100.0	36	33	28	26	21
DT096a, DT096b, DT096c	Temple Cloud 1	362219	157923	Roadside	100.0	100.0	**90**	**67**	**59.5**	**56**	**45**
DT108a, DT108b, DT108c	Temple Cloud 2	362179	158055	Roadside	100.0	100.0	**48**	**50**	**40.1**	39	30
DT109a, DT109b, DT109c	Temple Cloud 3	362344	157658	Roadside	100.0	100.0	**46**	**45**	**40.0**	36	28
DT111a, DT111b, DT111c	Temple Cloud 5	362234	157880	Roadside	100.0	85.2	-	-	-	-	32
DT252a, DT252b, DT252c	Temple Cloud 9	362195	158007	Roadside	100.0	85.2	-	-	-	-	32
DT253a, DT253b, DT253c	Temple Cloud 10	362243	157846	Roadside	100.0	85.2	-	-	-	-	37
DT254a, DT254b, DT254c	Temple Cloud 11	362262	157799	Roadside	100.0	85.2	-	-	-	-	36
DT255a, DT255b, DT255c	Temple Cloud 12	362284	157741	Roadside	100.0	85.2	-	-	-	-	36
DT256a, DT256b, DT256c	Temple Cloud 13	362283	157735	Roadside	100.0	85.2	-	-	-	-	14
DT175	Westfield 3	367416	153974	Roadside	100.0	100.0	-	-	26	24	19

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
DT032	Whitchurch	361242	167652	Roadside	100.0	100.0	**47**	39	33	33	28
DT098	Whitchurch 2	361276	167555	Roadside	100.0	100.0	**43**	35	33	30	23
DT100	Whitchurch 4	361326	167606	Roadside	92.3	92.3	37	29	27	25	20
DT101	Whitchurch 5	361235	167824	Roadside	100.0	100.0	**50**	**46**	37	36	30

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

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

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

Notes:

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

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

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

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

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

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

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

Figure A.1 – Trends in Annual Mean NO_2 Concentrations Measured at the Automatic Monitoring Sites

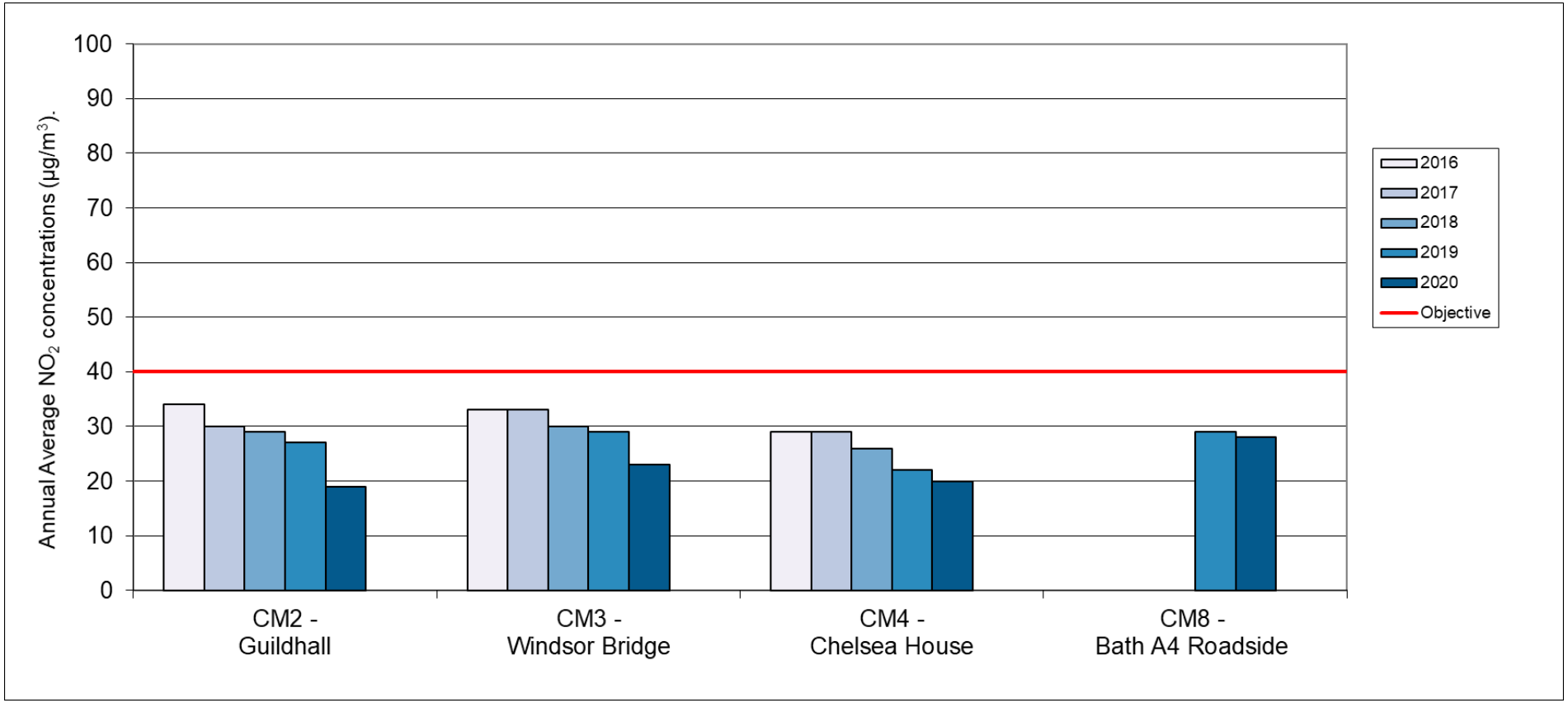


Figure A.2 – Trends in Annual Mean NO_2 Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Widcombe and Lyncombe (1)

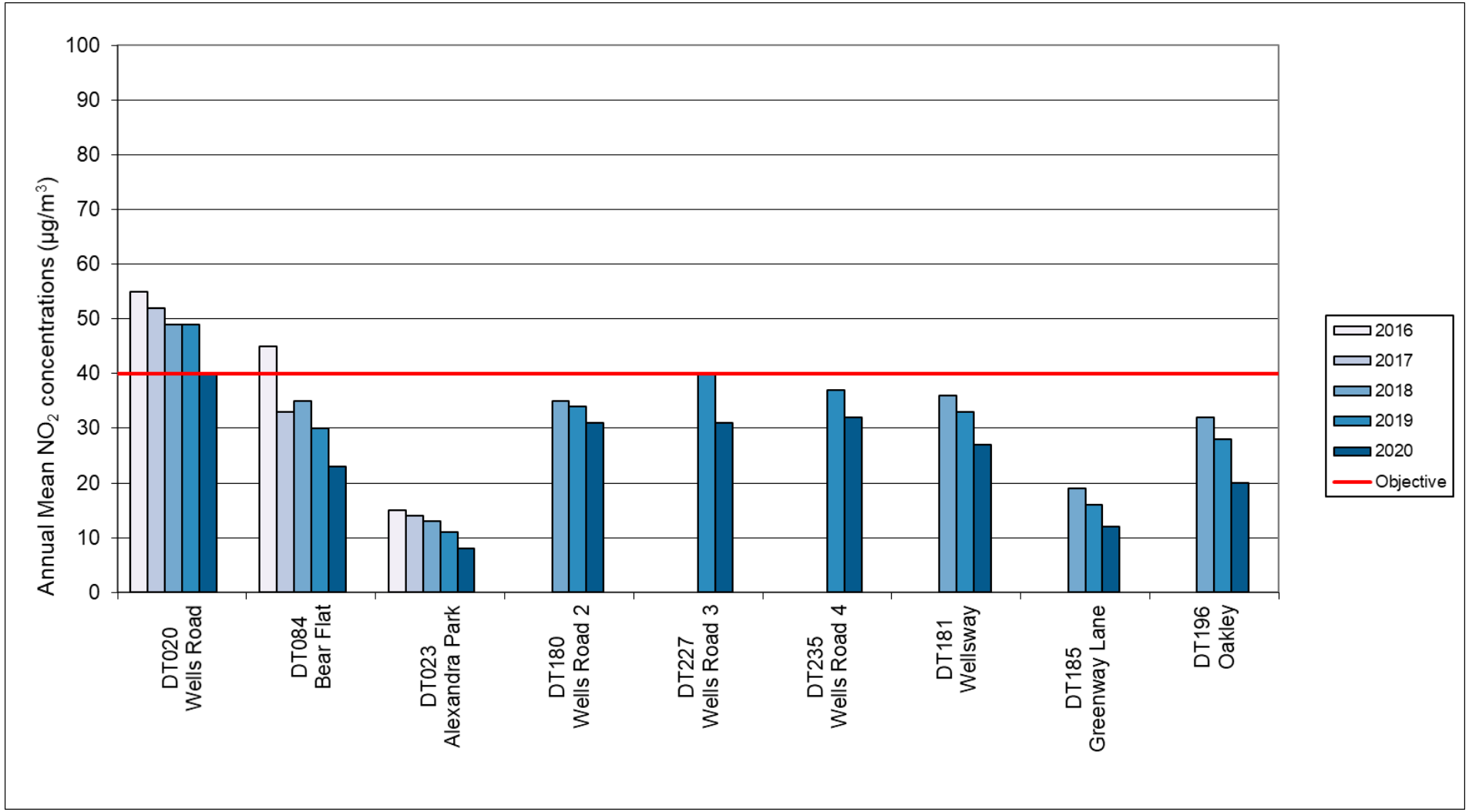


Figure A.3 – Trends in Annual Mean NO_2 Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Widcombe and Lyncombe (2)

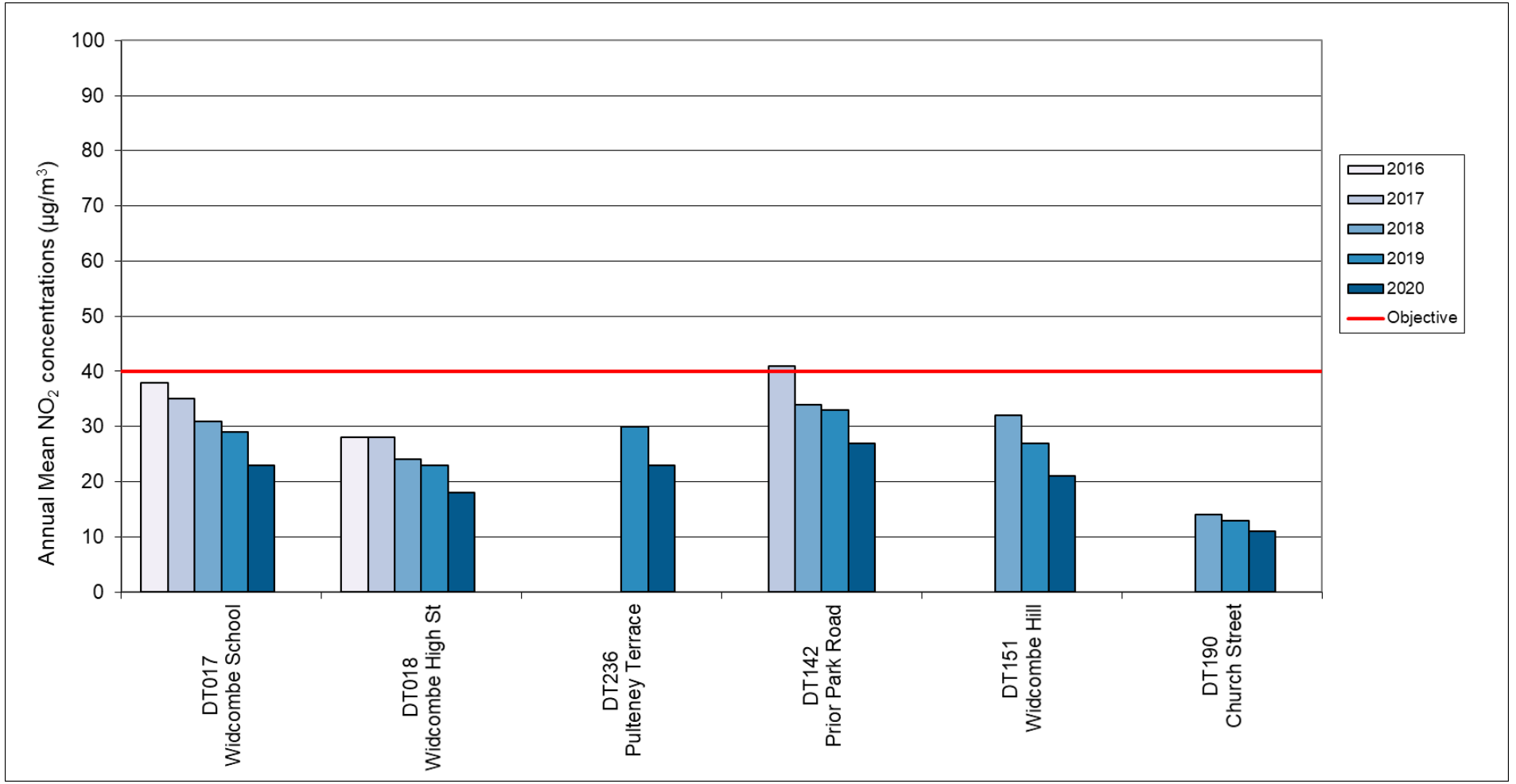


Figure A.4 – Trends in Annual Mean NO_2 Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Combe Down, Odd Down, Bathavon South and Moorlands

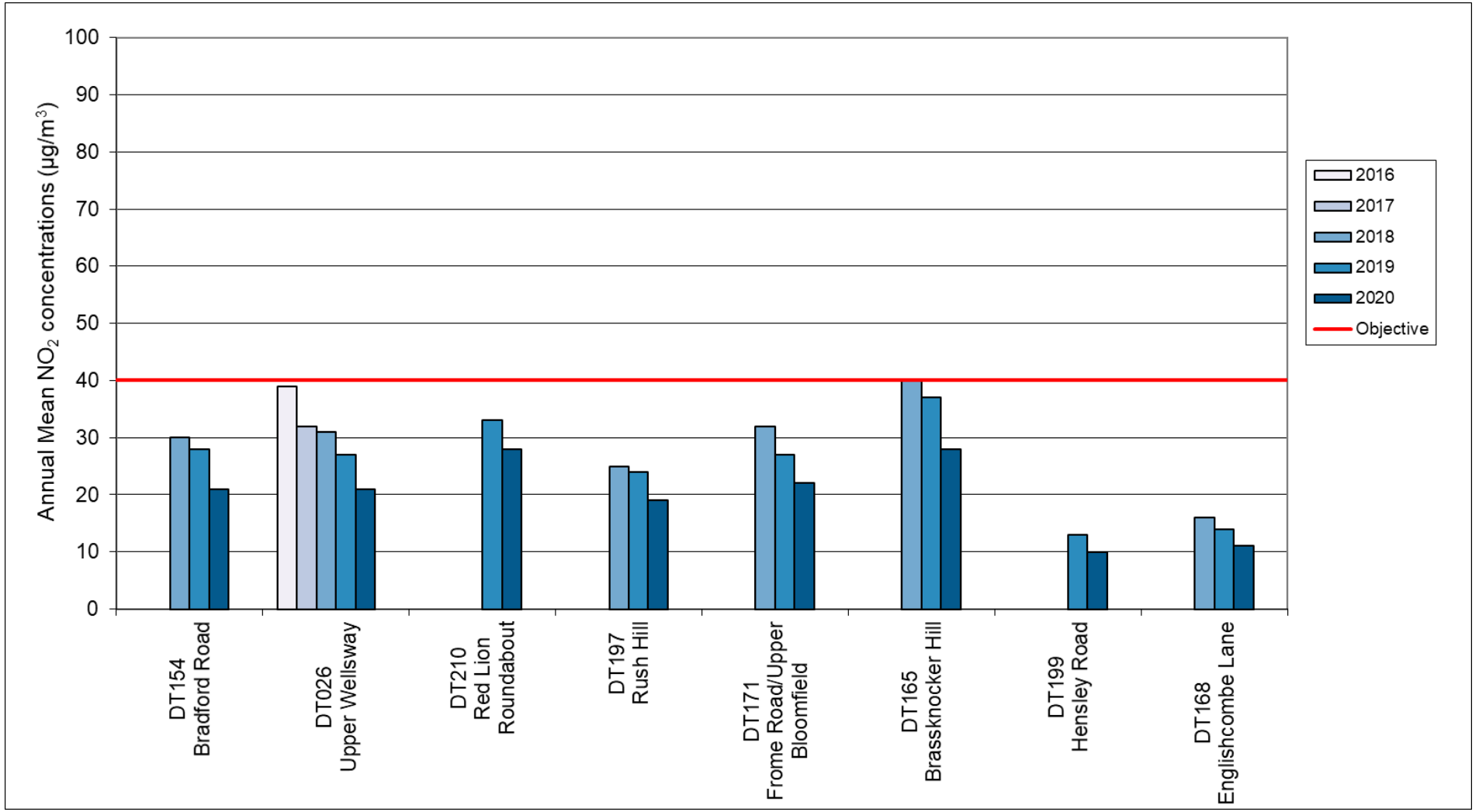


Figure A.5 – Trends in Annual Mean NO_2 Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Oldfield Park, Southdown and Twerton

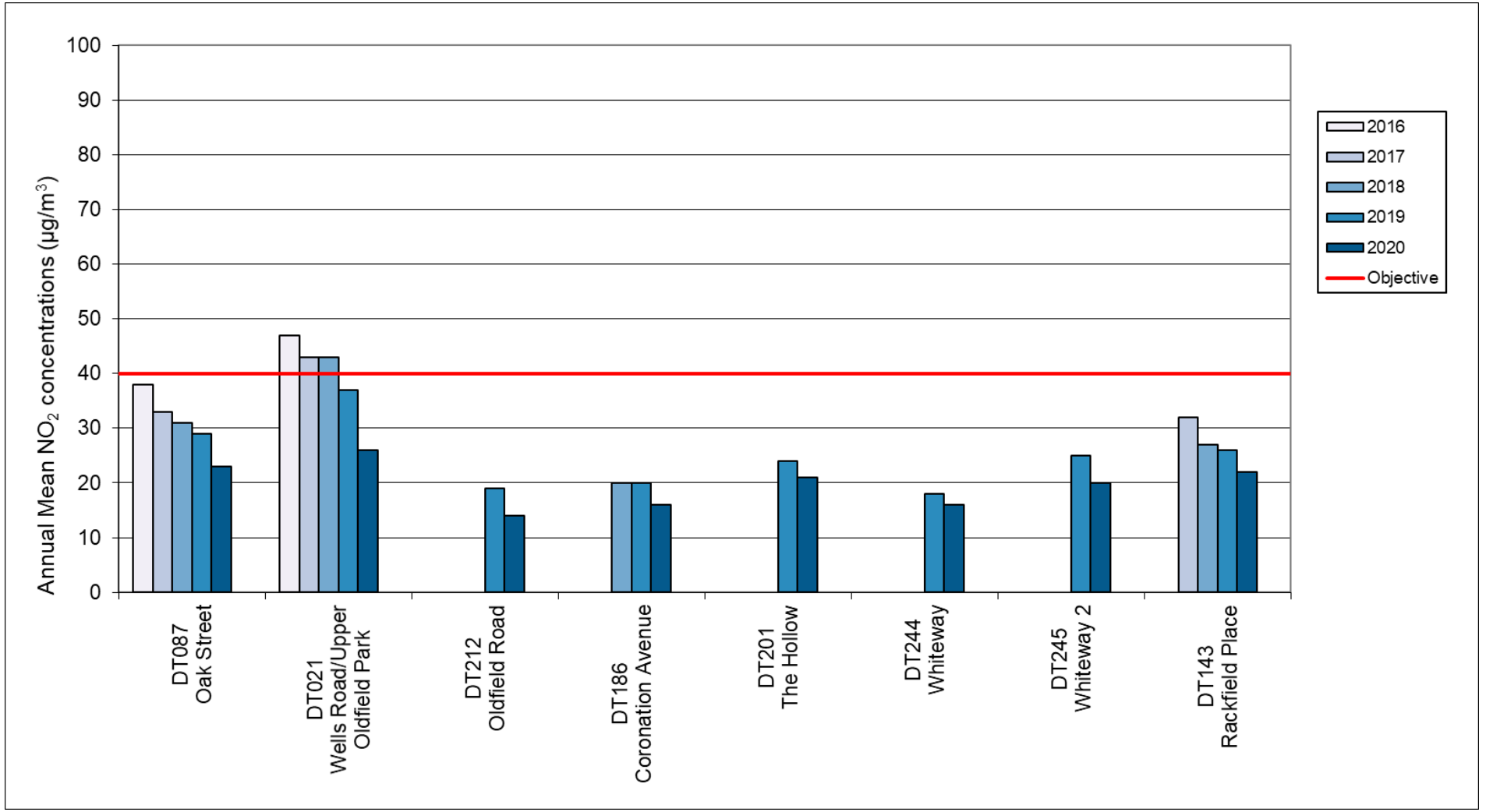


Figure A.6 – Trends in Annual Mean NO_2 Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Westmoreland

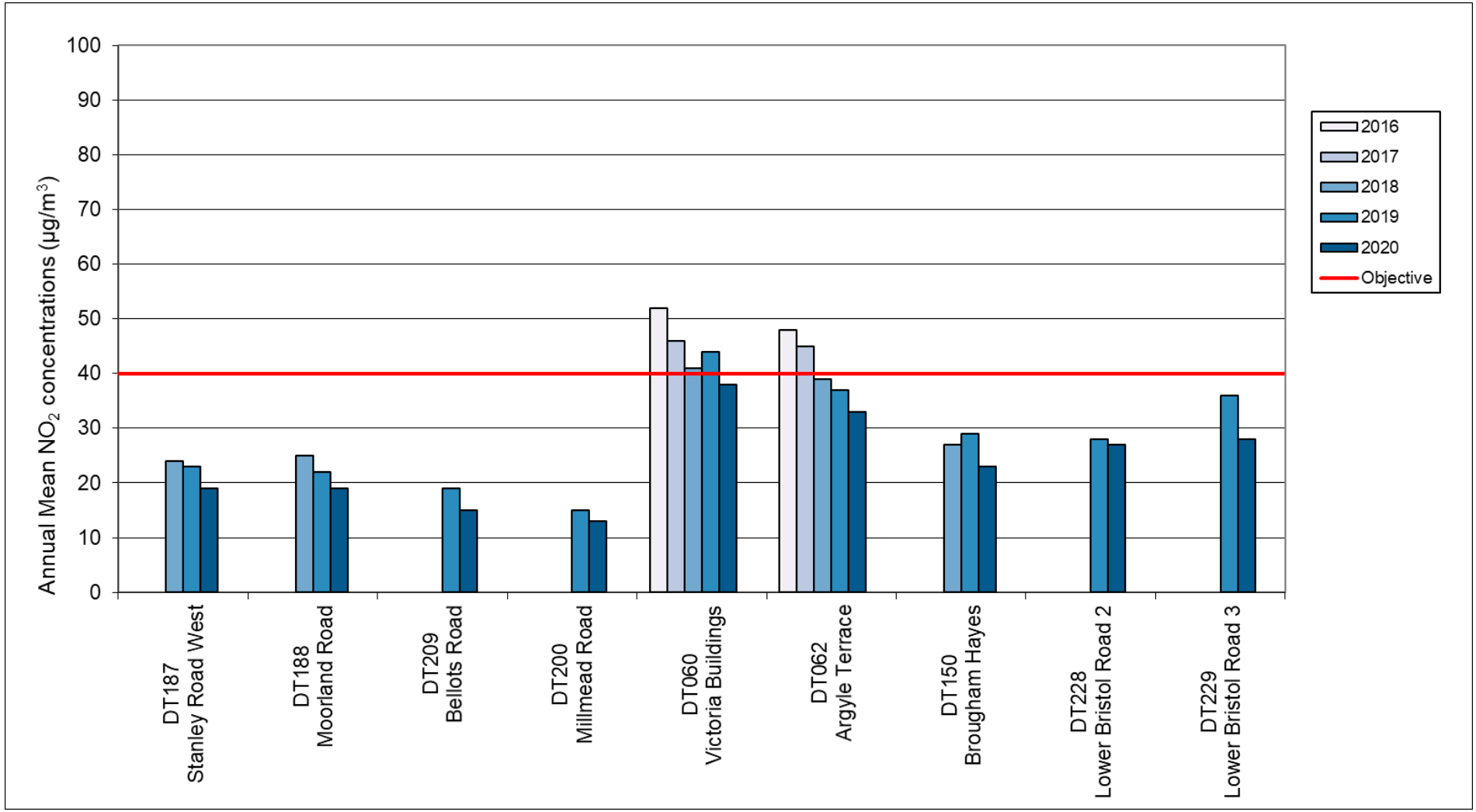


Figure A.7 – Trends in Annual Mean NO_2 Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Newbridge and Kingsmead

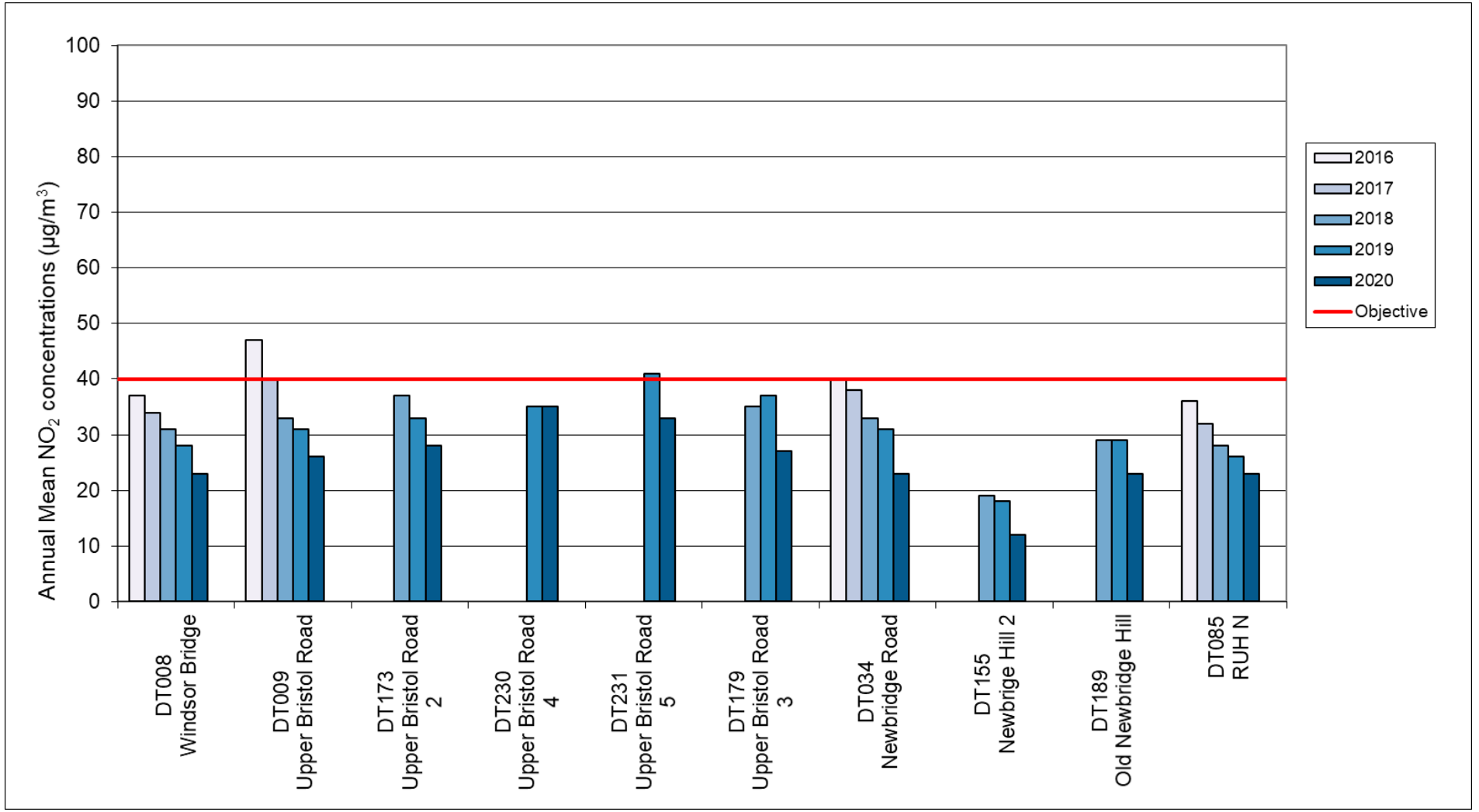


Figure A.8 – Trends in Annual Mean NO_2 Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Weston and Kingsmead

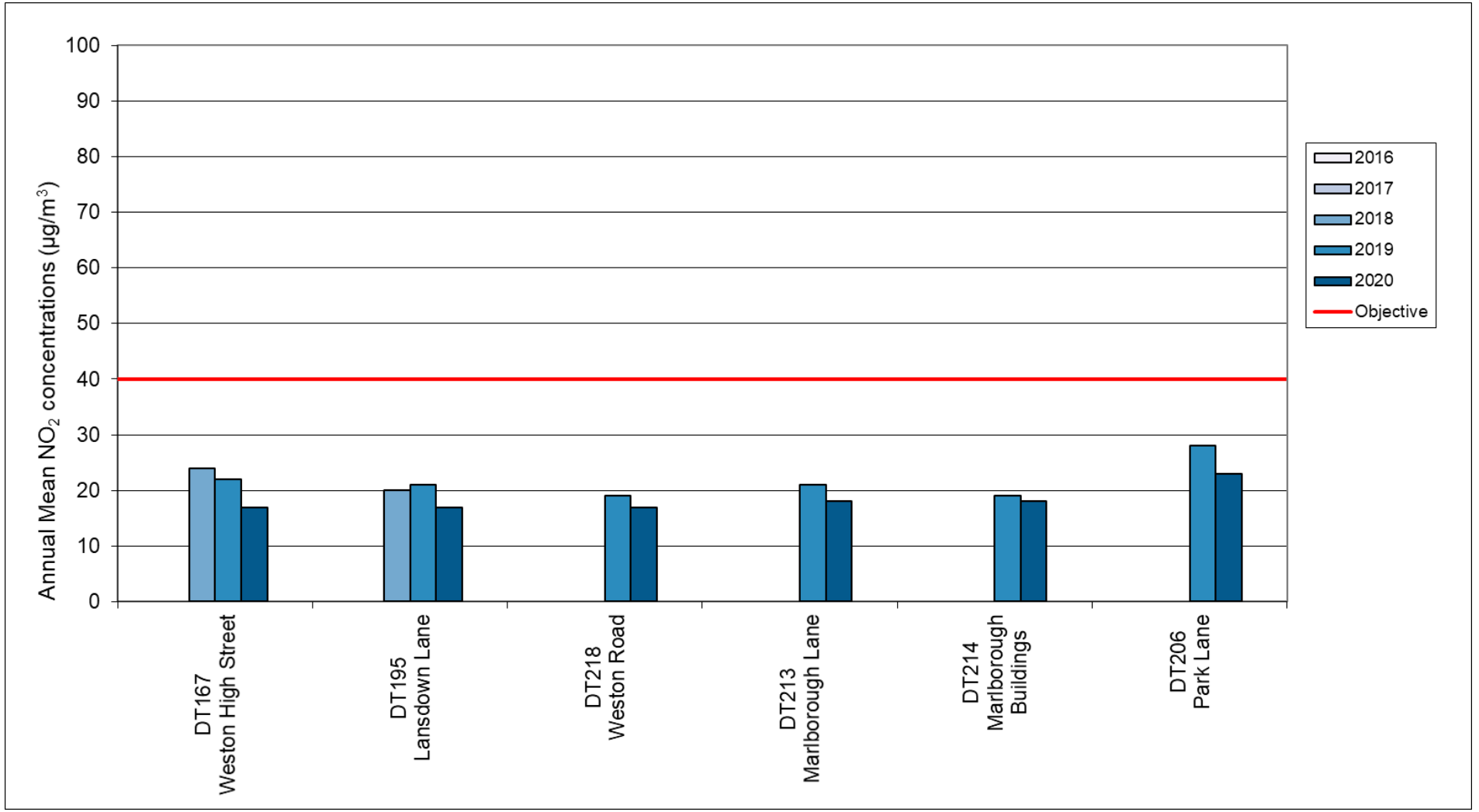


Figure A.9 – Trends in Annual Mean NO_2 Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Lansdown and Lambridge

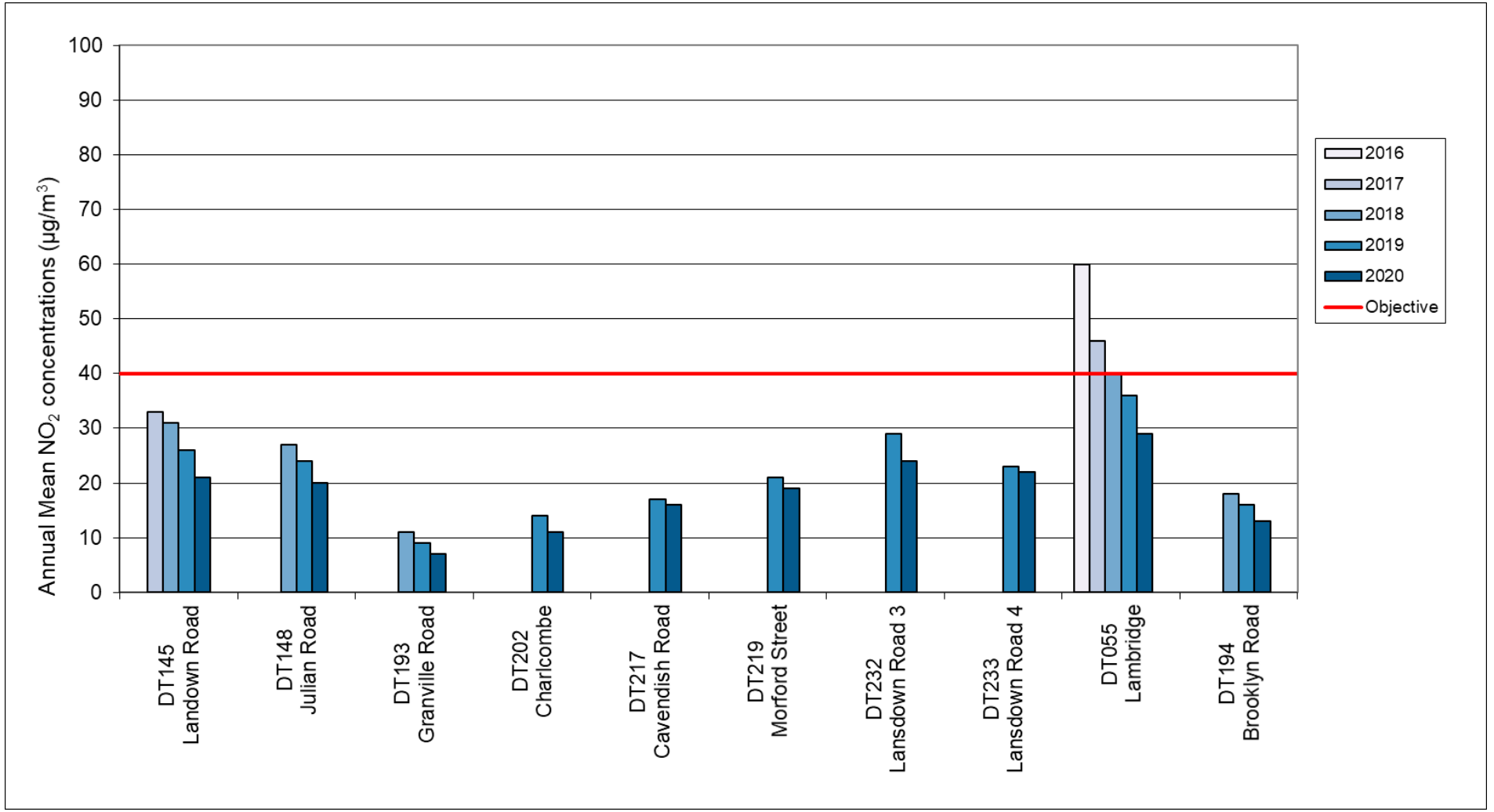


Figure A.10 – Trends in Annual Mean NO_2 Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Walcot

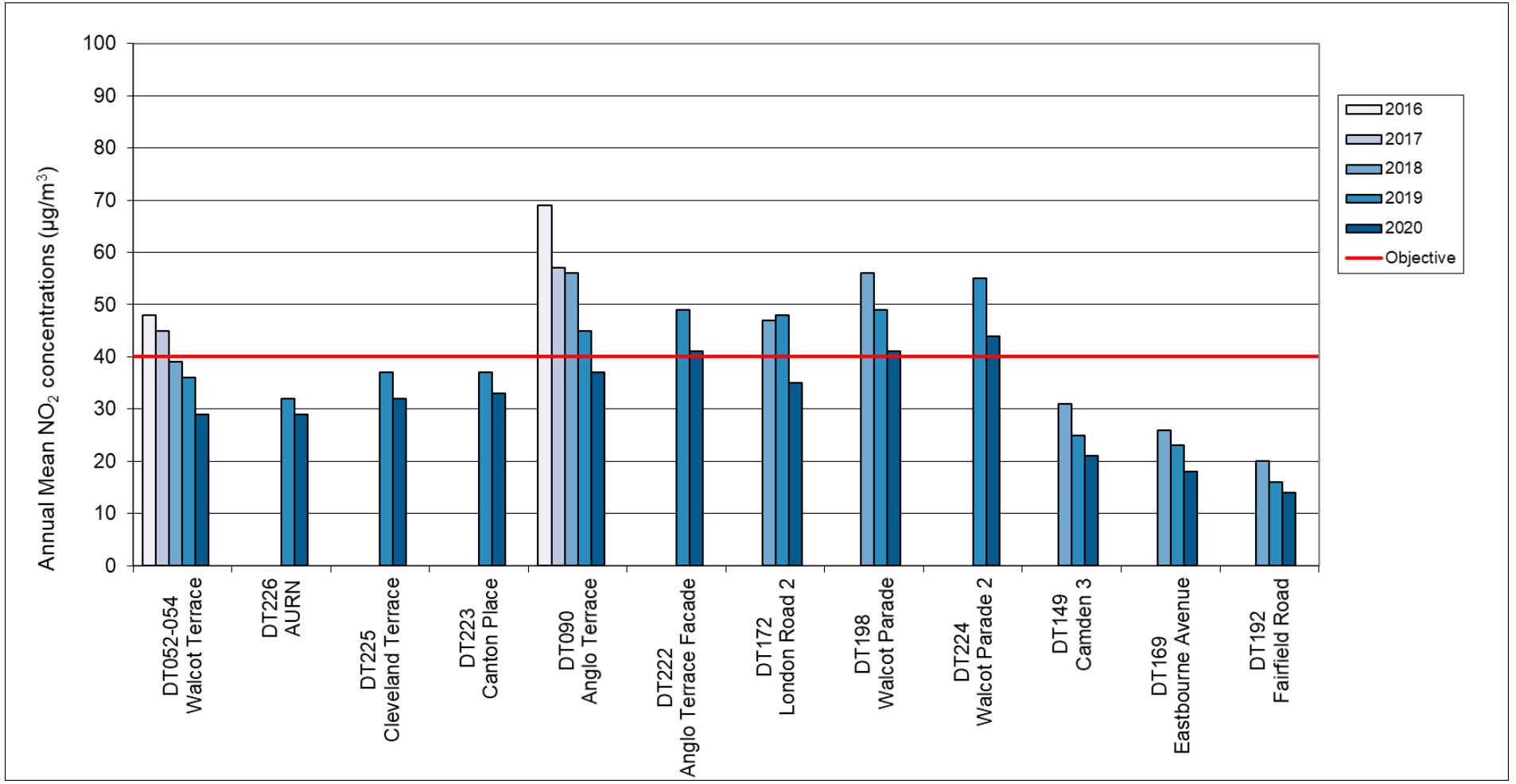


Figure A.11 – Trends in Annual Mean NO_2 Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Bathwick

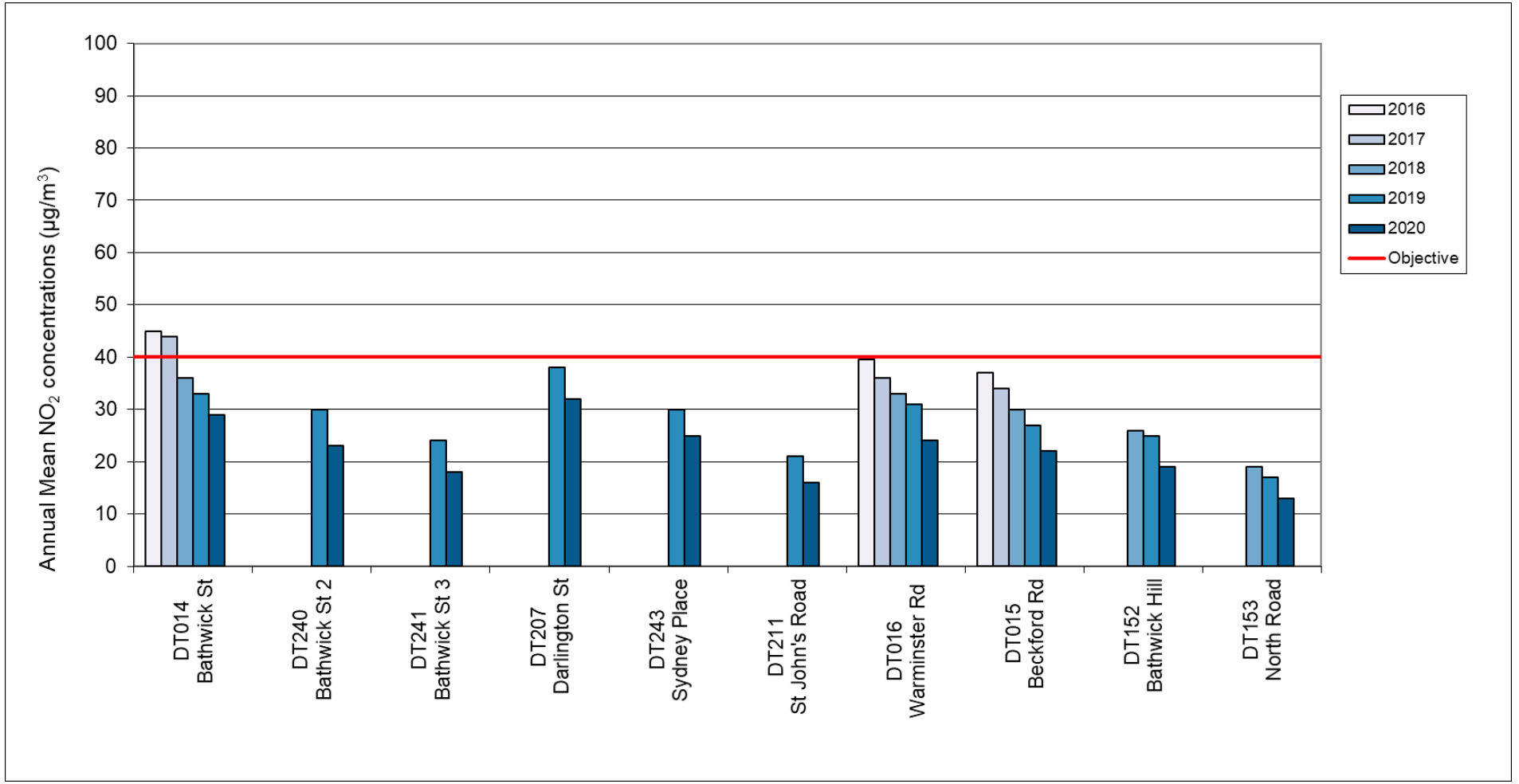


Figure A.12 – Trends in Annual Mean NO_2 Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Kingsmead (South)

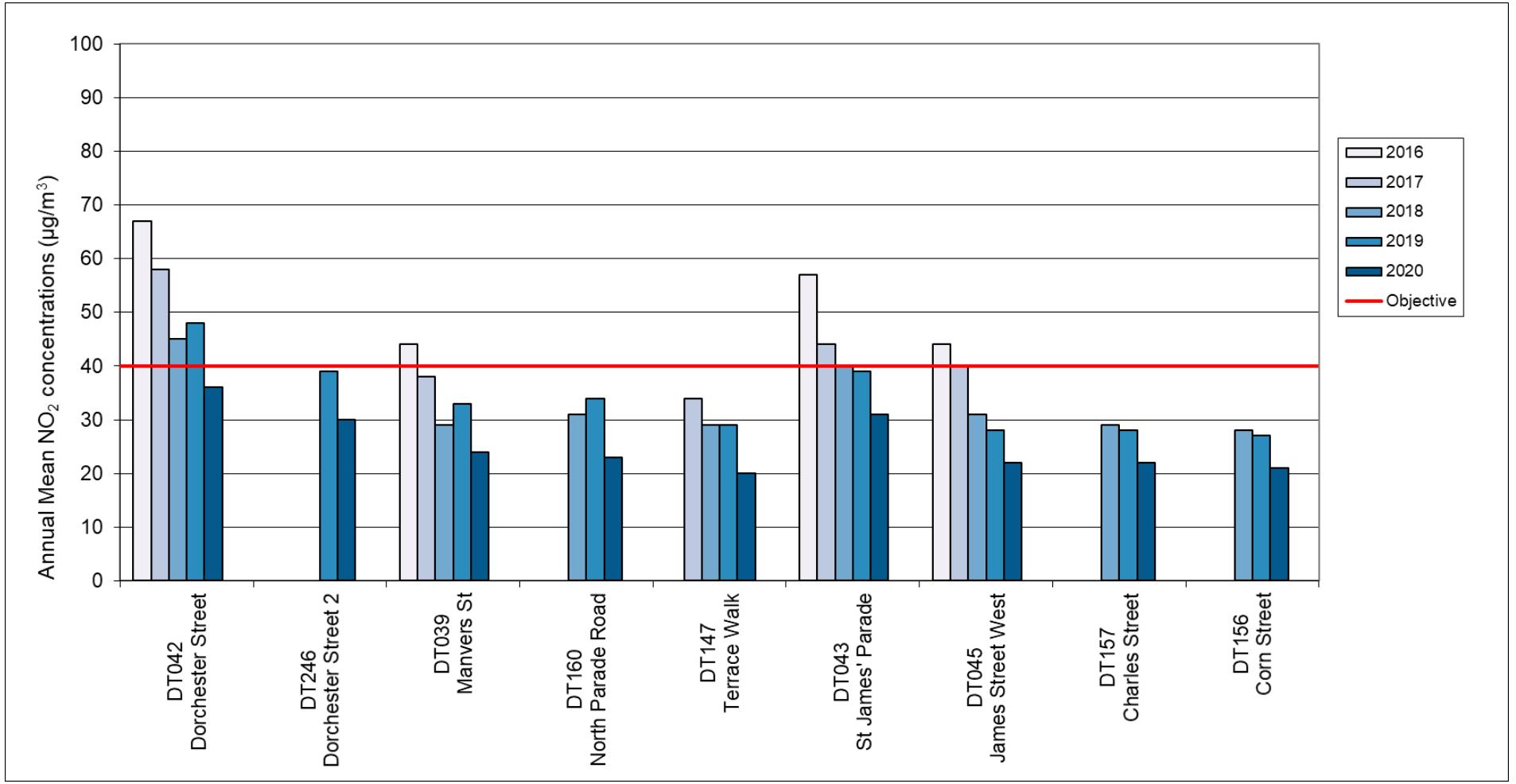


Figure A.13 – Trends in Annual Mean NO_2 Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Kingsmead (North West)

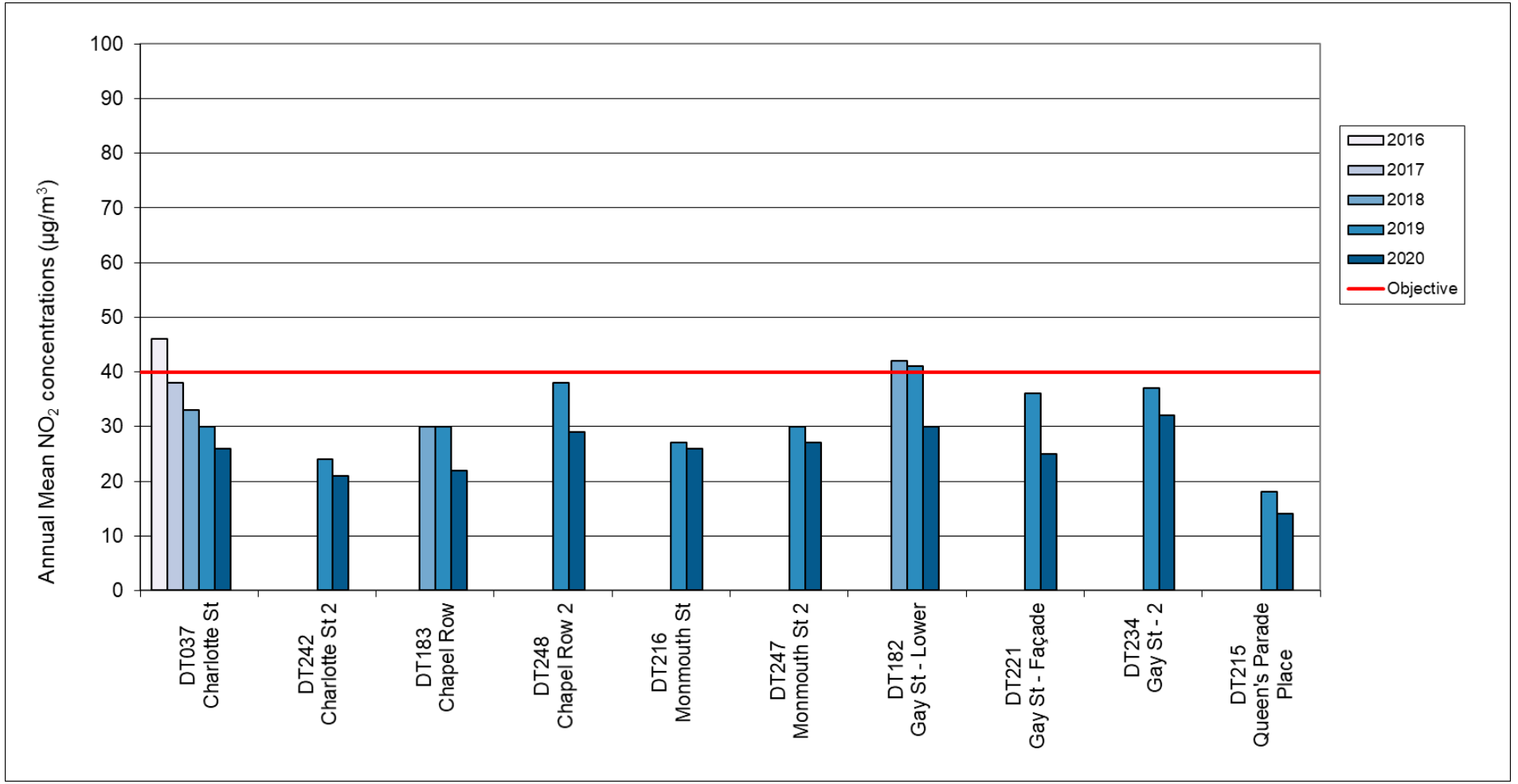


Figure A.14 – Trends in Annual Mean NO_2 Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Kingsmead (North East)

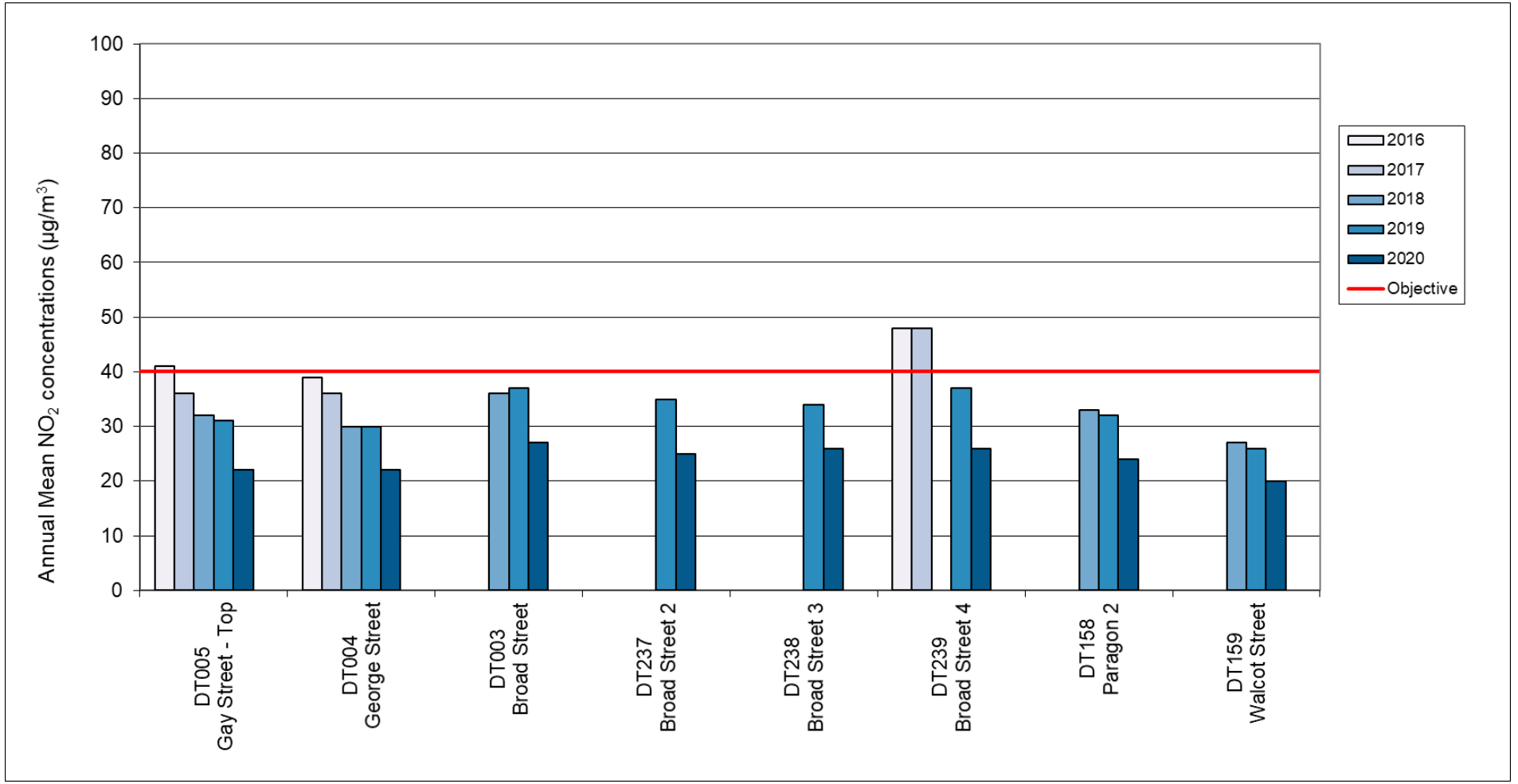


Figure A.15 – Trends in Annual Mean NO_2 Concentrations Measured at Diffusion Tube Monitoring Sites – Batheaston and Bathampton

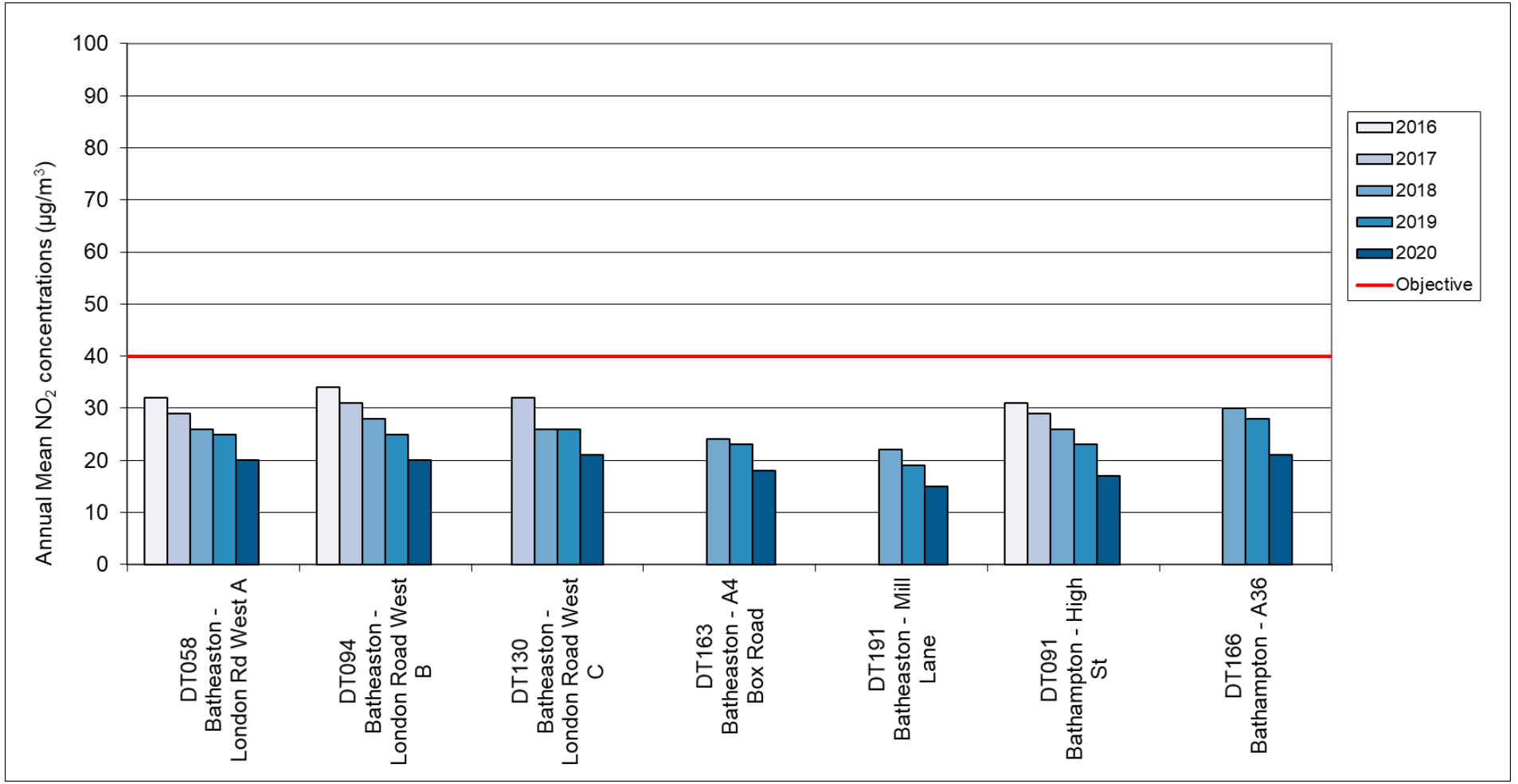


Figure A.16 – Trends in Annual Mean NO_2 Concentrations Measured at Diffusion Tube Monitoring Sites – Westfield, Radstock, Peasedown St John and Farrington Gurney

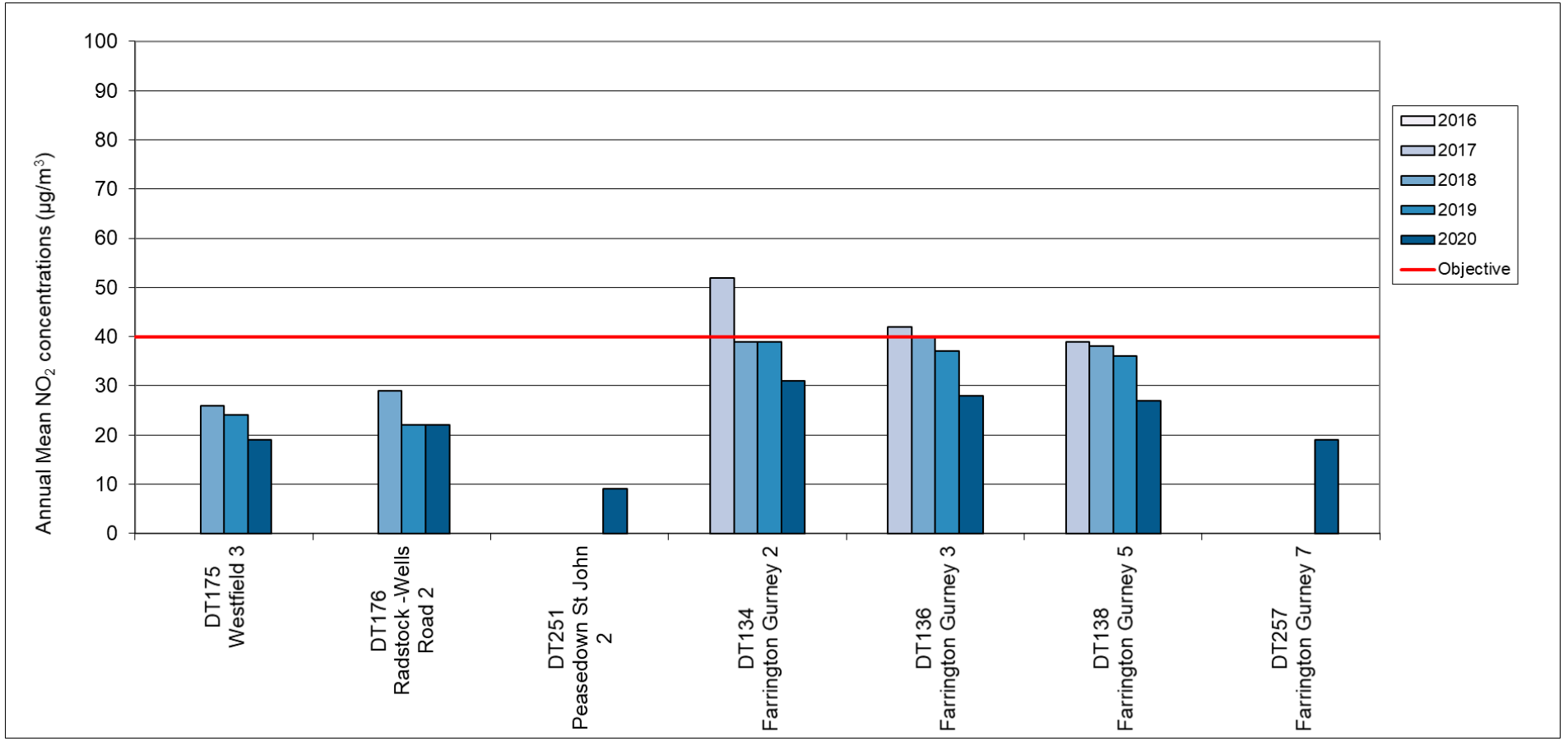


Figure A.17 – Trends in Annual Mean NO_2 Concentrations Measured at Diffusion Tube Monitoring Sites – Keysham (1)

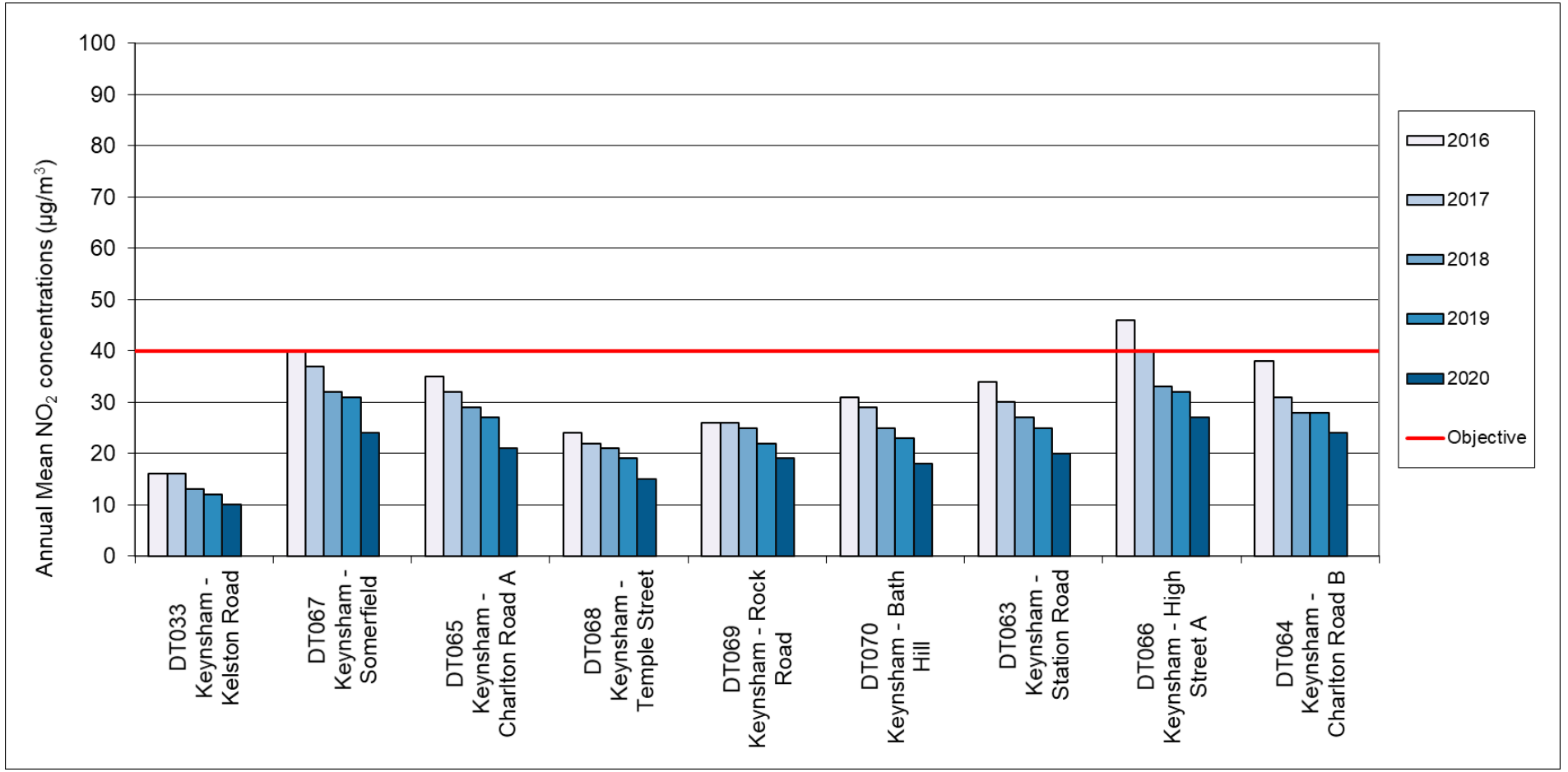


Figure A.18 – Trends in Annual Mean NO_2 Concentrations Measured at Diffusion Tube Monitoring Sites – Keysham (2)

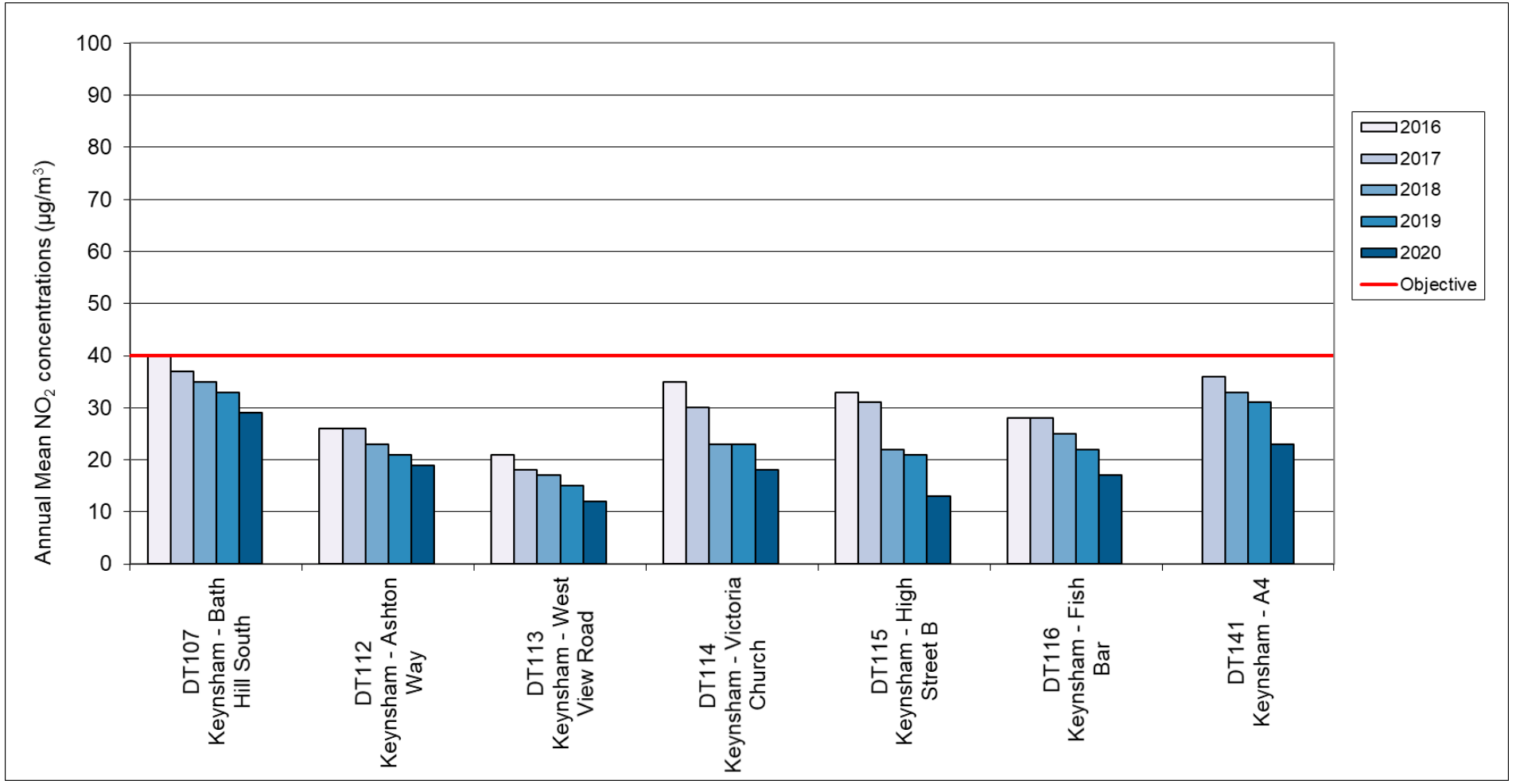


Figure A.19 – Trends in Annual Mean NO_2 Concentrations Measured at Diffusion Tube Monitoring Sites – Whitchurch, Pensford and Saltford

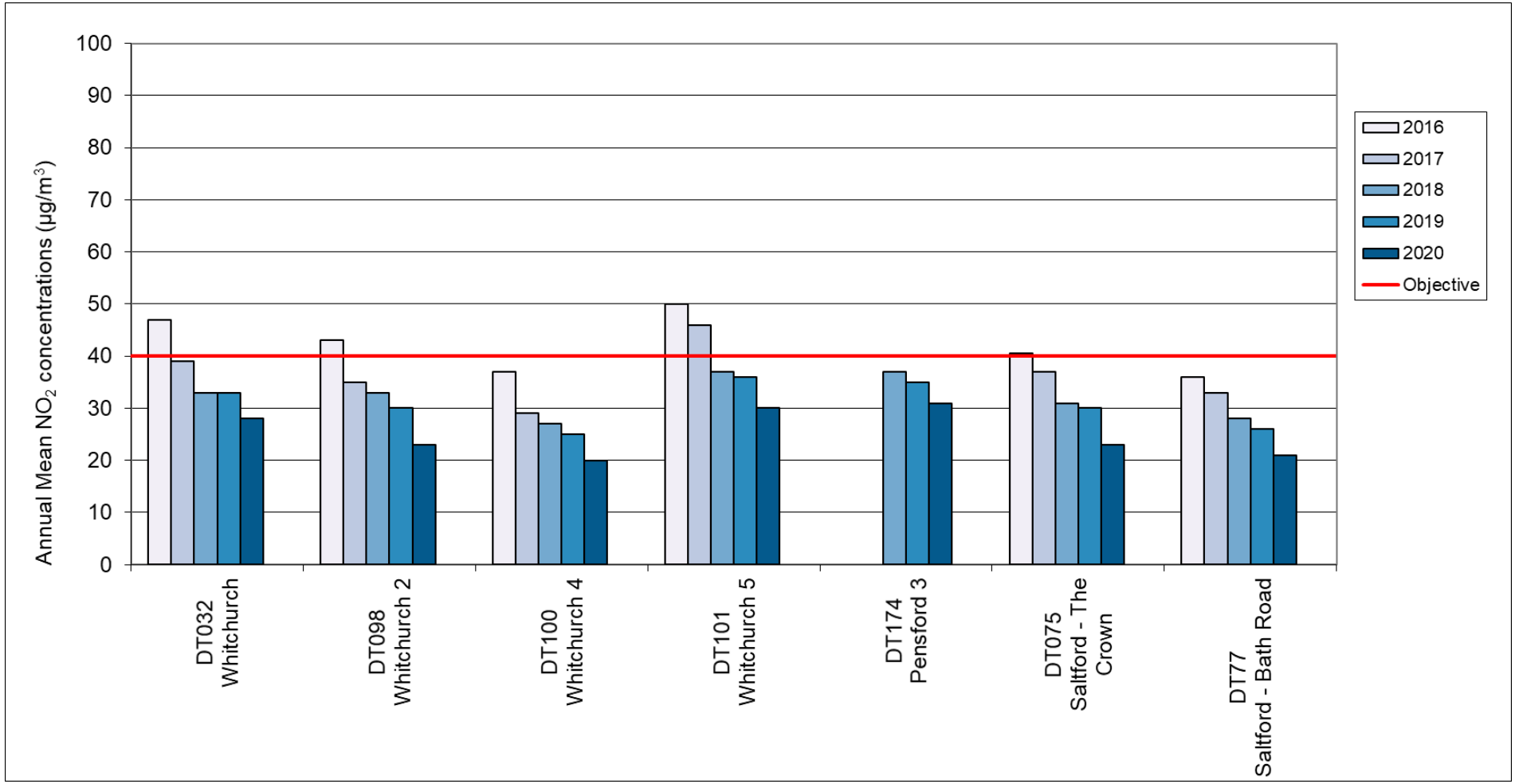


Figure A.20 – Trends in Annual Mean NO_2 Concentrations Measured at Diffusion Tube Monitoring Sites –Temple Cloud

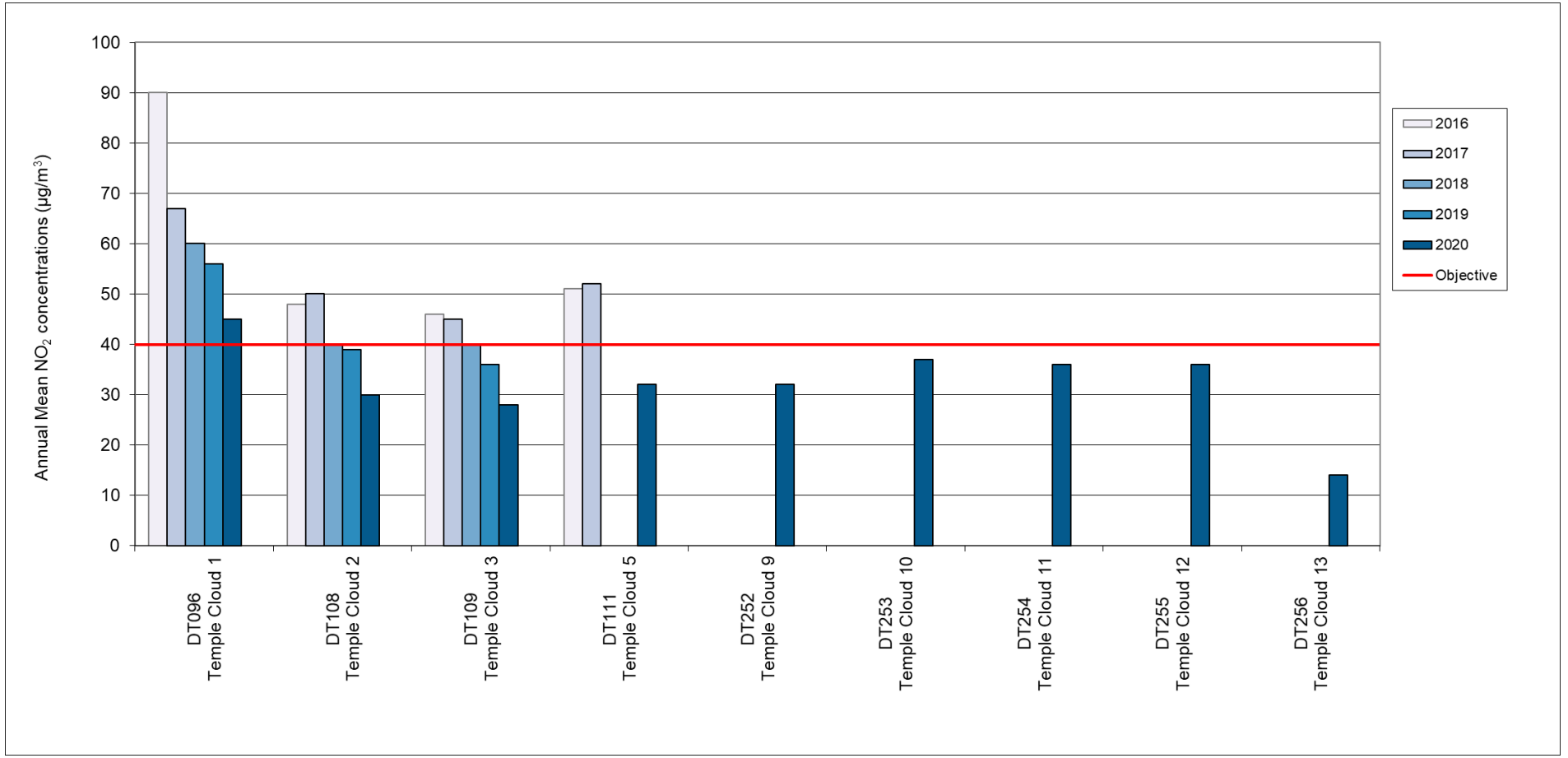


Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
CM2	Guildhall	375111	164857	Roadside	91.9	91.9	0	0 (96)	0	0	0
CM3	Windsor Bridge	373593	164861	Roadside	99.0	99.0	0	0	0	0	0
CM4	Chelsea House	375419	165853	Roadside	99.1	99.1	0	0	0	0	0
CM8	Bath A4 Roadside	375394	165824	Roadside	98	98	-	-	-	1 (125)	1

Notes:

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

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

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

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

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

Table A.6 – Annual Mean PM_{10} Monitoring Results (µg/m^3)

Site ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
CM3	Windsor Bridge	373593	164861	Roadside	96.6	96.6	23	24	24	22	19
CM8	Bath A4 Roadside	375394	165824	Roadside	92.1	92.1	-	-	-	21	18

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

Notes:

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

Exceedances of the PM_{10} annual mean objective of 40µg/m^3 are shown in **bold**.

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

(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.21 – Trends in Annual Mean PM_{10} Concentrations

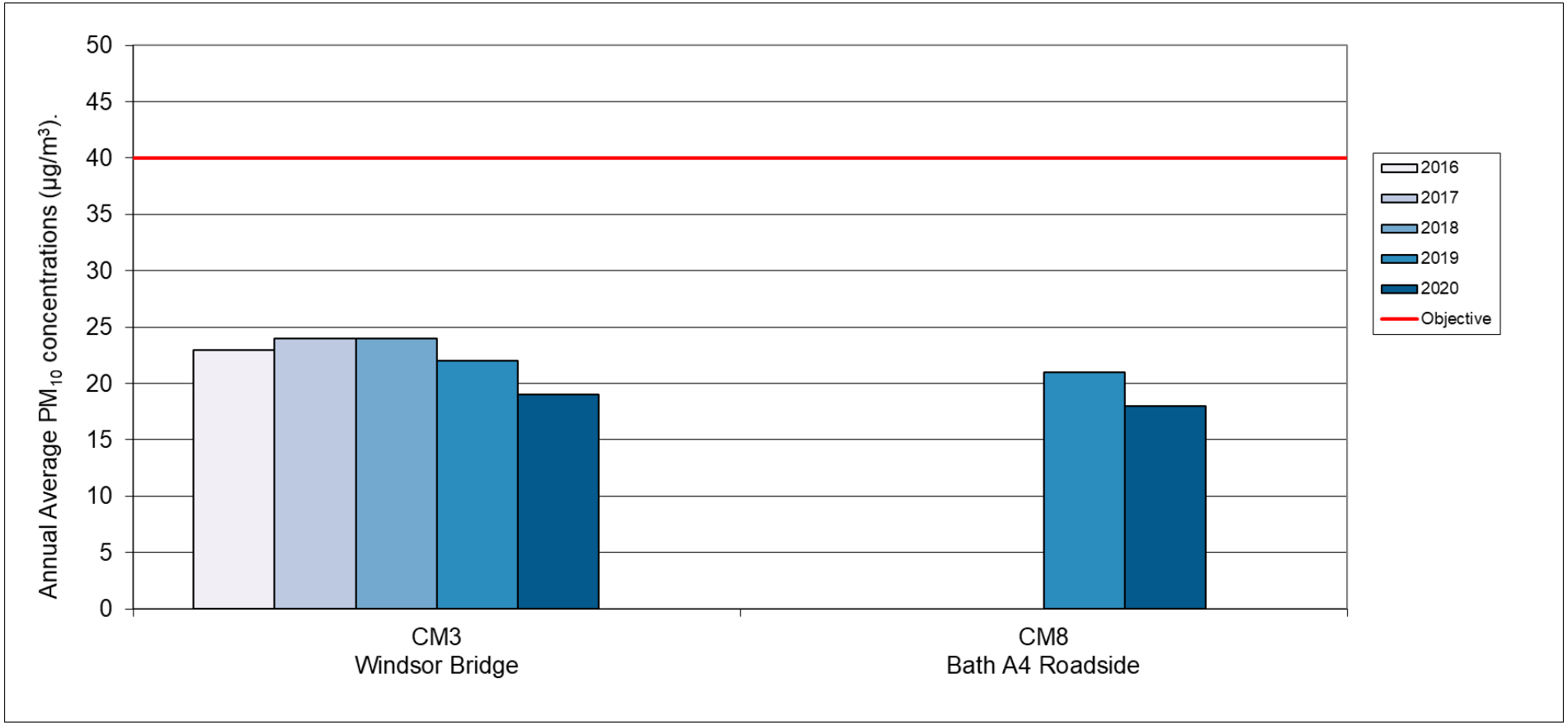


Table A.7 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

Site ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
CM3	Windsor Bridge	373593	164861	Roadside	96.6	96.6	5	3	1	5	1
CM8	Bath A4 Roadside	375394	165824	Roadside	92.1	92.1	-	-	-	0 (26)	1

Notes:

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

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

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

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

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

Figure A.22 – Trends in Number of 24-Hour Mean PM_{10} Results > 50µg/m³

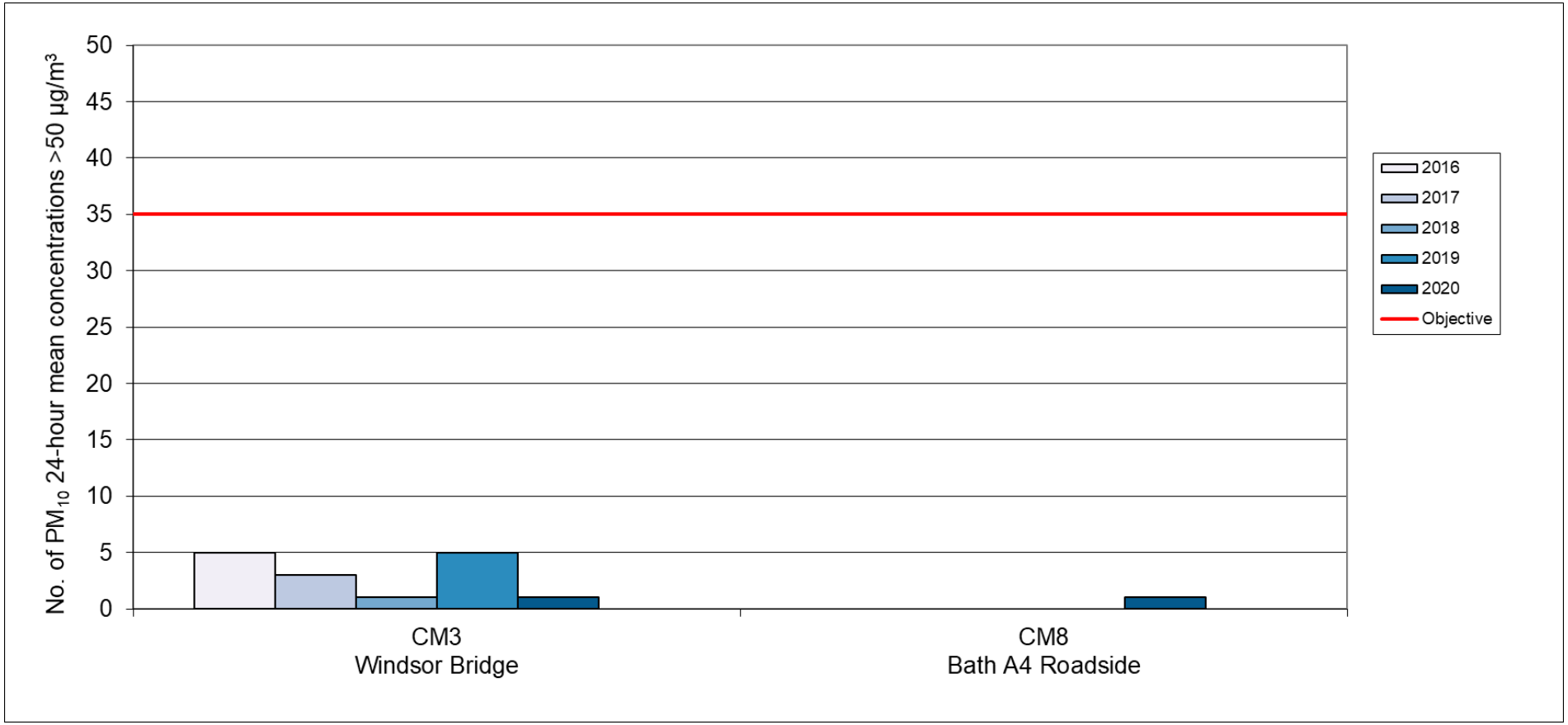


Table A.8 – Annual Mean $PM_{2.5}$ Monitoring Results ($\mu g/m^3$)

Site ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
CM4	Chelsea House	375419	165853	Roadside	97.3	97.3	11	12	11	10	10

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

Notes:

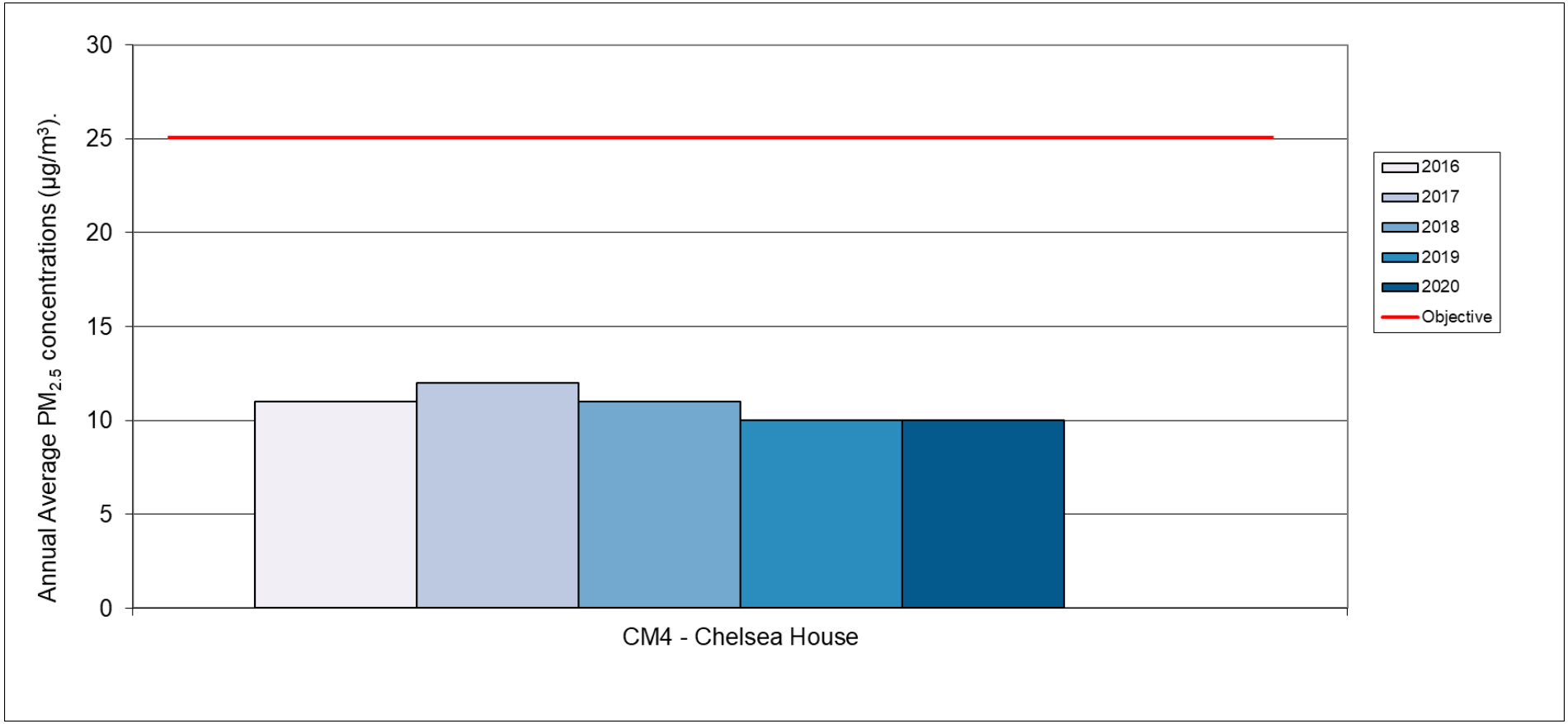
The annual mean concentrations are presented as $\mu g/m^3$.

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.

(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.23 – Trends in Annual Mean $PM_{2.5}$ Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2020

Table B.1 – NO_2 2020 Diffusion Tube Results ($\mu g/m^3$)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.89)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT003	374992	165173	44.3	41.7	28.2		15.7	22.1	13.7	31.2	31.9		37.4	37.0	30.3	27.0	-	
DT004	374899	165159	34.0	27.5	20.7		13.4	17.0		25.7	26.8	26.6	30.4	28.7	25.1	22.3	-	
DT005	374797	165161	38.2	30.8	24.6		14.5	18.0	8.4	23.0	22.8	27.7	32.8	30.3	24.6	21.9	-	
DT008	373518	165124	40.6	31.3	26.7		14.0	17.8	15.9	20.8	24.7	26.6	33.8	29.9	25.7	22.8	-	
DT009	373993	165174	42.6	34.7	26.3		14.9	20.9	19.8	29.2	31.5	31.5	35.8	30.9	28.9	25.7	-	
DT014	375602	165365	43.8	39.1	25.8			23.3	23.5	29.1	31.1	32.4	36.5	35.8	32.1	28.5	-	
DT015	375733	165414	34.2	27.3	24.8		15.5	18.0	14.9	23.8	25.6	30.0	27.4	27.0	24.4	21.7	-	
DT016	376063	165492	39.1	30.9	25.2		18.9	21.6	17.0	28.3	30.1	26.8	30.2	30.4	27.1	24.2	-	
DT017a	375634	164406	36.6	31.1	24.8		14.2	19.0	21.3		29.2	26.4	28.6	30.2	-	-	-	Triplicate Site with DT017a, DT017b and DT017c - Annual data provided for DT017c only
DT017b	375634	164406	38.7	31.2	22.4		14.9	18.0	22.4	23.3	30.0	31.1	27.3	33.2	-	-	-	Triplicate Site with DT017a, DT017b and DT017c - Annual data provided for DT017c only
DT017c	375634	164406	37.0	30.8	23.8		14.9	18.5	19.7	21.4	28.4	31.5	30.9	32.1	26.2	23.3	-	Triplicate Site with DT017a, DT017b and DT017c - Annual data provided for DT017c only
DT018	375414	164216	29.3	25.1	19.4		10.0	13.1	16.5	15.9	19.6	22.2	24.3	25.4	20.1	17.9	-	
DT020a	374760	164310		47.4	39.6		26.5	37.1	36.1	46.4	49.7	48.2	51.6	50.7	-	-	-	Triplicate Site with DT020a, DT020b and DT020c - Annual data provided for DT020c only
DT020b	374760	164310	55.4	47.3	43.4		27.5		40.2	43.1	49.7	46.2	59.5	53.2	-	-	-	Triplicate Site with DT020a, DT020b and DT020c - Annual data provided for DT020c only
DT020c	374760	164310	54.0	48.6	36.1			35.8	35.8	47.2	49.9	45.7	54.0	48.8	44.6	39.7	-	Triplicate Site with DT020a, DT020b and DT020c - Annual data provided for DT020c only
DT021	374454	164202	37.4		30.0			24.6	13.4	28.2	29.8	28.0	36.1	34.9	29.2	25.9	-	
DT023	375105	163991	15.0	8.0	9.6		5.9	6.0	5.4	7.8	9.7	9.7	13.1	13.9	9.5	8.4	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.89)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT026	373576	161908	32.3	21.9	23.5		16.7	22.1	12.6	25.1	25.8	16.8	35.9	24.3	23.4	20.8	-	
DT034	373092	165106	36.6	31.8	26.6		14.8	19.4	15.8	21.3	25.6	27.6	35.8	32.5	26.1	23.3	-	
DT037a	374622	164994	35.4	38.3	27.7		24.4	25.8	13.5	30.0	29.1	29.1	33.6	33.1	-	-	-	Triplicate Site with DT037a, DT037b and DT037c - Annual data provided for DT037c only
DT037b	374622	164994	35.4	37.8	28.1		24.6	26.8	12.2	31.0	30.8	27.0	31.0	33.2	-	-	-	Triplicate Site with DT037a, DT037b and DT037c - Annual data provided for DT037c only
DT037c	374622	164994	37.0	36.9	29.5		24.2	26.2	11.9	30.6	29.9	30.1	33.4	31.8	29.1	25.9	-	Triplicate Site with DT037a, DT037b and DT037c - Annual data provided for DT037c only
DT039	375247	164591	38.0	38.6	23.5		12.5	17.0	12.5	25.9	27.9	30.2	33.6	34.8	26.8	23.8	-	
DT042	375230	164383	54.6	64.9	36.2		19.7	29.8	25.7	40.2	47.4	42.5	44.1	42.7	40.7	36.2	31.1	
DT043	375053	164426	45.1	44.9	33.9		18.4	26.4	12.0	33.8	39.7	41.6	41.4	46.4	34.9	31.0	-	
DT045	374697	164763	36.3	35.7	24.9		10.5	16.2	8.9	21.3	27.4	29.7	34.1		24.5	21.8	-	
DT052	375462	165843	48.0	43.8	30.3		18.8	27.1	11.0	32.4	33.5	33.5	38.2	35.9	-	-	-	Triplicate Site with DT052, DT053 and DT054 - Annual data provided for DT054 only
DT053	375462	165843	46.8	43.6	32.4		19.2	27.2	13.6	32.4	33.8	35.9	38.2	36.9	-	-	-	Triplicate Site with DT052, DT053 and DT054 - Annual data provided for DT054 only
DT054	375462	165843	47.5	42.1	31.3		18.8	26.2	16.7	31.4	34.4	35.8	39.0	36.7	32.5	28.9	-	Triplicate Site with DT052, DT053 and DT054 - Annual data provided for DT054 only
DT055	376451	166502	40.3	36.8	30.3		23.9	26.2	29.8	37.1	37.9		36.0	32.1	33.0	29.4	33.9	
DT060	374039	164760	55.8	40.5	32.0		27.6	33.5	35.5	39.1	46.9	48.8	47.7	56.1	42.1	37.5	32.8	
DT062	373211	164743	42.0	39.9	33.2		22.9	27.0		32.7	37.0	43.4	47.7	41.9	36.8	32.7	-	
DT084	374604	163806	34.5	23.5	24.3		17.7	20.4	15.5	25.5	28.0	27.4	35.3	33.2	25.9	23.1	-	
DT085	373073	165983	34.1	26.8	21.7		16.5	22.4	22.2	26.9	26.9		31.6	30.7	26.0	23.1	-	
DT087	374702	164414	36.8	29.0	23.5		14.4	18.5	17.9	20.8		26.6	32.1	34.8	25.4	22.6	-	
DT090a	375288	165758	53.6	48.2	32.8		32.1	35.5	19.5	44.8	48.9	47.4	43.7	51.7	-	-	-	Triplicate Site with DT090a, DT090b and DT090c - Annual data provided for DT090c only
DT090b	375288	165758	53.2	47.5	42.8		31.8	35.6		46.6	49.6		47.5	52.7	-	-	-	Triplicate Site with DT090a, DT090b and DT090c - Annual data provided for DT090c only

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.89)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT090c	375288	165758	51.9	45.8	38.6		30.4	32.1		42.8	49.1	47.4	47.8	52.5	42.1	37.5	31.4	Triplicate Site with DT090a, DT090b and DT090c - Annual data provided for DT090c only
DT142	375513	164194	50.9	33.0	23.8			22.0	18.1	25.6	27.5	29.6	34.0	33.2	29.8	26.5	-	
DT143	372644	164738	32.4	25.1			15.2	16.3		19.4	23.8	26.9	30.9	31.0	24.6	21.9	-	
DT145	374930	165550	30.4	27.3	21.2			17.3	13.8	22.2	23.4	23.4	29.2	28.0	23.6	21.0	-	
DT147	375195	164735	41.7	40.2	28.1		10.0	11.2	6.4	15.9	20.0	22.1	23.3	27.9	22.4	20.0	-	
DT148a	374573	165523	31.8	24.1	19.6		13.8	15.7	15.0	20.7	26.8	25.3	29.8	30.3	-	-	-	Triplicate Site with DT148a, DT148b and DT148c - Annual data provided for DT148c only
DT148b	374573	165523	34.1	23.9	19.8		13.4	15.8	15.2	20.3	28.0	24.3	29.6	28.6	-	-	-	Triplicate Site with DT148a, DT148b and DT148c - Annual data provided for DT148c only
DT148c	374573	165523	34.2	24.8	18.7		13.5	16.0	15.2	21.8	27.7	24.3	28.8	27.4	23.0	20.4	-	Triplicate Site with DT148a, DT148b and DT148c - Annual data provided for DT148c only
DT149	375038	165838	34.3	31.2	22.7		11.7	14.8	14.1	21.3	25.0	26.1	31.3		23.2	20.7	-	
DT150	373955	164590	35.4	28.4	24.3		15.8	17.9	17.5	21.8	27.2		34.2	30.3	25.3	22.5	-	
DT151	375598	164190	30.5	24.7	22.9			14.6	16.5	19.3	25.7	21.9	28.9	27.9	23.3	20.7	-	
DT152	375800	164912	33.7	27.6	21.0		10.9	13.9	13.0	18.9	21.3	23.4	25.6	25.2	21.3	19.0	-	
DT153	376069	165356	26.7	19.6	15.1		6.7	8.3	7.2	10.9	14.1	16.8	21.5	17.9	15.0	13.3	-	
DT154	375529	162389	34.4	27.7	21.9		16.0	20.5	14.1	22.6	24.3	24.0	31.3	25.1	23.8	21.2	-	
DT155	372696	165488	20.4	16.4	14.6		7.8	8.4	7.5	10.8	14.5	16.6	22.4		14.0	12.4	-	
DT156	374827	164531	29.6	23.9	25.8			15.0	7.9	20.6	23.7	26.6	31.7	31.9	23.7	21.1	-	
DT157	374664	164815	36.2	27.6	23.4		12.8	17.4	8.2	22.7	24.6	26.1	32.9	34.6	24.2	21.6	-	
DT158	375051	165350	37.1	30.5	23.6		17.2	21.1	8.4	26.4	24.6	29.2	33.6	45.2	27.0	24.0	-	
DT159	375075	165287	33.5	30.3	19.8		9.2	13.7	9.2	20.0	22.4		30.7	35.5	22.4	20.0	-	
DT160	375284	164694	46.5	44.0	28.4		9.4	13.0	9.3	22.6	27.0	30.3	28.6	28.9	26.2	23.3	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.89)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT165	377960	162736	42.5	37.5	27.4		18.8	27.2	29.0	29.8	36.4	32.9	34.9	29.9	31.5	28.0	-	
DT167	372587	166629	31.2	18.7	18.3		12.4	14.8	9.3	16.2	19.9	19.0	27.5	27.6	19.6	17.4	-	
DT168	373207	163339	18.7	13.0	13.3		7.5	8.3	7.3	9.7	12.7	14.1	19.9	16.4	12.8	11.4	-	
DT169	375667	166369	31.1	23.5	18.5		11.3	11.9	12.4	16.3	21.6	22.1	28.8	26.9	20.4	18.1	-	
DT171	373706	162411	30.9	18.9	22.5		20.1	23.8	16.8	25.7		26.9	32.2	31.7	24.9	22.2	-	
DT172a	375374	165813		57.2	33.2		23.2	29.3		38.8		44.6	47.2	47.4	-	-	-	Triplicate Site with DT172a, DT172b and DT172c - Annual data provided for DT172c only
DT172b	375374	165813		46.4	35.6			27.8		37.9		43.4	46.5	45.9	-	-	-	Triplicate Site with DT172a, DT172b and DT172c - Annual data provided for DT172c only
DT172c	375374	165813		41.7	35.8			28.2		39.3		44.8	48.0	44.7	38.9	34.8	-	Triplicate Site with DT172a, DT172b and DT172c - Annual data provided for DT172c only
DT173	374362	165016	46.7	39.9	27.4		13.0	18.4		27.5	33.5	32.9	39.3	34.4	31.3	27.9	-	
DT179a	373299	165093	41.9	26.3	29.1		20.1	21.5		25.0	32.5	29.0	37.7	35.2	-	-	-	Triplicate Site with DT179a, DT179b and DT179c - Annual data provided for DT179c only
DT179b	373299	165093	46.0	27.3	29.0		20.9	20.9		25.3	35.1	31.4	36.1	38.8	-	-	-	Triplicate Site with DT179a, DT179b and DT179c - Annual data provided for DT179c only
DT179c	373299	165093	44.7	27.6	33.1		22.8	20.3		23.3	31.4	27.3	34.7	34.8	30.3	27.0	-	Triplicate Site with DT179a, DT179b and DT179c - Annual data provided for DT179c only
DT180a	374537	163968	61.7	31.0	27.5			29.6	27.3	30.7	36.0	34.4	41.3	35.1	-	-	-	Triplicate Site with DT180a, DT180b and DT180c - Annual data provided for DT180c only
DT180b	374537	163968	49.2	30.5	30.3				26.9	32.5		34.6	40.5	37.2	-	-	-	Triplicate Site with DT180a, DT180b and DT180c - Annual data provided for DT180c only
DT180c	374537	163968	48.8	30.6	27.7				27.0	32.5	35.8	36.0	37.2	44.4	35.1	31.2	-	Triplicate Site with DT180a, DT180b and DT180c - Annual data provided for DT180c only
DT181	374618	163494	44.8	36.5	26.7		18.6	22.7	22.5	28.4	30.6	26.6	37.0	33.8	29.8	26.5	-	
DT182a	374796	165123	47.4	43.6	29.6		22.7	25.8	13.3	38.6	38.3	39.5	37.4	39.3	-	-	-	Triplicate Site with DT182a, DT182b and DT182c - Annual data provided for DT182c only
DT182b	374796	165123	47.3	41.1	26.9		23.2	27.5	15.8	38.5	35.6	41.9	37.7	38.9	-	-	-	Triplicate Site with DT182a, DT182b and DT182c - Annual data provided for DT182c only
DT182c	374796	165123	54.0	41.0	26.0		23.0	28.6	14.2	37.1	37.6	39.1	38.3	38.7	34.2	30.4	-	Triplicate Site with DT182a, DT182b and DT182c - Annual data provided for DT182c only

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.89)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT183	374712	164913	35.3	31.8	21.3		12.1	18.0	10.6	22.9	24.4	26.2	30.4	32.9	24.2	21.5	-	
DT185	374712	163417	22.7	14.7	12.7		6.7	7.9	7.7	9.5	13.3	13.7	17.9	17.9	13.2	11.7	-	
DT186	373170	163416	25.2	15.5	18.0			13.6	8.0	15.4	18.1	19.5	25.3	22.6	18.1	16.1	-	
DT187	373835	164438	30.6	20.2	20.3			13.6	12.3	16.1	21.2	23.7	30.6	27.8	21.6	19.3	-	
DT188	373696	164343	30.9	22.7	20.6		11.3	14.1	11.5	17.8	20.5	30.7	29.4	29.4	21.7	19.3	-	
DT189	372251	165686	32.3	26.1	24.6		18.8	20.5	20.3	21.2	29.8	28.2	33.8	33.6	26.3	23.4	-	
DT190	375814	164027	17.3	13.6	13.9		7.2	7.2	7.2	8.4	10.9	12.7	18.0	16.2	12.0	10.7	-	
DT192	375505	166428	26.0	18.6	13.9		7.0	12.9	8.4	11.2	15.0	16.8	23.4	21.1	15.8	14.1	-	
DT193	374260	167661	12.4	9.0	7.7		4.6	5.3	4.3	6.3	7.2	8.9	13.6	9.8	8.1	7.2	-	
DT194	376096	166878	23.0	17.4	13.8		8.2	9.1	8.4	12.8	14.6	15.4	19.2		14.2	12.6	-	
DT195	372537	167235	30.0	18.6	15.9		11.8	12.6	10.1	13.5	21.1	19.9	25.8	24.6	18.5	16.5	-	
DT196	377133	164045	33.5	28.5	20.6		10.2	15.5	15.1	27.6	26.3	24.3	25.7	22.6	22.7	20.2	-	
DT197	372703	162983	31.1	22.8	19.1		13.4	17.5	13.8	19.3	22.0	22.6	30.3	25.4	21.6	19.2	-	
DT198a	375240	165739	54.2	51.4	38.6		30.8	35.4	21.0	51.5	53.0	40.7	53.2	58.6	-	**-**	-	Triplicate Site with DT198a, DT198b and DT198c - Annual data provided for DT198c only
DT198b	375240	165739	47.8	55.1	42.7		31.8	35.3	22.9	54.4	58.3	53.1	47.0	54.5	-	**-**	-	Triplicate Site with DT198a, DT198b and DT198c - Annual data provided for DT198c only
DT198c	375240	165739	60.4	53.9	45.5		30.7	34.8	22.1	51.3	57.0	52.3	49.9	55.2	45.6	**40.6**	38.4	Triplicate Site with DT198a, DT198b and DT198c - Annual data provided for DT198c only
DT199	374353	163504	18.1	10.2	11.3		6.2	6.7	5.8	8.0	10.6	11.6	17.2	17.1	11.2	9.9	-	
DT200	373375	164307	19.7	12.8	14.7		8.2	8.3		10.9	13.7	14.0	22.9	19.7	14.5	12.9	-	
DT201	373003	164250	30.4	22.2	20.6		15.1	15.6		21.5	25.3	25.0	30.0	32.3	23.8	21.2	-	
DT202	374636	166701	20.1	13.7	12.0		6.8	8.6	6.6	10.1	13.4	13.9	18.5	16.0	12.7	11.3	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.89)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT206a	373742	165305	41.3	34.4	24.8		16.3	22.0	17.3	15.6	30.5	29.2	30.7	29.0	-	-	-	Triplicate Site with DT206a, DT206b and DT206c - Annual data provided for DT206c only
DT206b	373742	165305	39.1	32.7	22.8		17.1	21.2	18.7	15.6	28.3	28.2	30.8	28.7	-	-	-	Triplicate Site with DT206a, DT206b and DT206c - Annual data provided for DT206c only
DT206c	373742	165305	41.2	32.9	23.0		17.2	21.8	17.1	15.3	29.5	28.2	32.2	28.6	26.1	23.2	-	Triplicate Site with DT206a, DT206b and DT206c - Annual data provided for DT206c only
DT207	375630	165132	50.9	45.5	34.7		21.7	18.0	29.1	37.4	38.2	39.7	40.2	38.6	35.8	31.9	-	
DT209	373490	164804	25.1	16.7	15.6		8.7	10.0		13.7	17.2	18.6	24.3	23.2	17.3	15.4	-	
DT210	373895	162254	41.7	36.2	27.8		22.5	29.7	27.7	32.1	34.7	32.1	35.9	29.5	31.8	28.3	-	
DT211	375218	165290	28.5	22.9	17.1		8.8	8.8	8.5	14.5	16.2	18.9	23.7	24.8	17.5	15.6	-	
DT212	374356	163985	22.0	12.9	17.2		10.3	9.0	8.8	13.1	16.7	17.7	20.0	22.8	15.5	13.8	-	
DT213a	374262	165127	27.8	20.5	18.4		10.8	14.9	15.0	23.7	23.3	20.6	26.9	24.4	-	-	-	Triplicate Site with DT213a, DT213b and DT213c - Annual data provided for DT213c only
DT213b	374262	165127	27.7	21.2	17.7		11.2	14.9	15.3	24.9	21.8	19.7	26.7	25.2	-	-	-	Triplicate Site with DT213a, DT213b and DT213c - Annual data provided for DT213c only
DT213c	374262	165127	28.5	21.7	17.4		12.9	15.1	15.1	25.0	21.3	21.6	28.0	26.2	20.8	18.5	-	Triplicate Site with DT213a, DT213b and DT213c - Annual data provided for DT213c only
DT214a	374354	165448	31.1	22.8	17.7		9.3	11.3	13.3	18.0		20.9	27.0	25.4	-	-	-	Triplicate Site with DT214a, DT214b and DT214c - Annual data provided for DT214c only
DT214b	374354	165448	30.5	23.8	17.3		9.1	10.6	13.2	18.7	19.1	21.9	28.6	26.5	-	-	-	Triplicate Site with DT214a, DT214b and DT214c - Annual data provided for DT214c only
DT214c	374354	165448	30.5	23.2	18.0		8.2	10.2	13.2	17.4	18.0	20.8	27.0	28.0	19.7	17.5	-	Triplicate Site with DT214a, DT214b and DT214c - Annual data provided for DT214c only
DT215a	374758	165096	24.1	18.3	15.2		8.5	10.2	6.4	14.2	17.8	17.5	23.0	21.3	-	-	-	Triplicate Site with DT215a, DT215b and DT215c - Annual data provided for DT215c only
DT215b	374758	165096	24.5	18.0	15.5		9.3	10.8	6.7	13.8	17.6	18.8	22.0	21.6	-	-	-	Triplicate Site with DT215a, DT215b and DT215c - Annual data provided for DT215c only
DT215c	374758	165096	24.4	18.3	14.5		9.3	9.9	7.3	14.4	17.3	18.5	23.8	22.3	16.2	14.4	-	Triplicate Site with DT215a, DT215b and DT215c - Annual data provided for DT215c only
DT216a	374574	164958	36.2	42.9	26.1		17.3	20.9	15.1	29.0	30.2	32.4	37.9	37.2	-	-	-	Triplicate Site with DT216a, DT216b and DT216c - Annual data provided for DT216c only
DT216b	374574	164958	38.6	35.7	27.3		15.9	21.5	11.0	30.0	30.5	30.1	39.0	37.3	-	-	-	Triplicate Site with DT216a, DT216b and DT216c - Annual data provided for DT216c only

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DT216c	374574	164958	34.5	34.6	26.6		16.0	20.0	12.3	28.2	29.5	31.3	35.2	39.1	28.8	25.6	-	Triplicate Site with DT216a, DT216b and DT216c - Annual data provided for DT216c only
DT217a	374335	165990	25.1	19.2	14.6			12.9	9.1	16.3	16.8	18.6	24.5	22.7	-	-	-	Triplicate Site with DT217a, DT217b and DT217c - Annual data provided for DT217c only
DT217b	374335	165990	24.7	17.1	13.6			12.7	8.5	16.2	18.0	15.2	25.0	21.3	-	-	-	Triplicate Site with DT217a, DT217b and DT217c - Annual data provided for DT217c only
DT217c	374335	165990	24.6	16.6	15.7			12.4	8.2	15.4	17.1	15.2	25.1	20.7	17.4	15.5	-	Triplicate Site with DT217a, DT217b and DT217c - Annual data provided for DT217c only
DT218	373668	165697	31.1	24.0	17.3		8.8	13.5	11.3	16.1	17.0	18.8	26.0	24.5	18.9	16.9	-	
DT219	374872	165570	31.2	22.5	20.1		12.7	13.8	9.9	18.4	21.1	21.7	28.9	28.7	20.8	18.5	-	
DT221	374793	165119	38.4	34.8	23.8		20.2	23.6	11.6	30.8	29.7	31.7	31.9	32.4	28.1	25.0	-	
DT222a	375231	165778	64.5	55.4	47.4		32.0	34.7	19.4	50.0	50.3	51.2	45.3	55.0	-	-	-	Triplicate Site with DT222a, DT222b and DT222c - Annual data provided for DT222c only
DT222b	375231	165778	57.8	57.9	39.6		30.0	36.8	16.6	51.8	50.3	56.3	55.5	62.9	-	-	-	Triplicate Site with DT222a, DT222b and DT222c - Annual data provided for DT222c only
DT222c	375231	165778	57.2	58.5	40.8		31.0	38.1	23.2	50.0	51.3	48.6	56.3	58.1	46.5	**41.4**	39.5	Triplicate Site with DT222a, DT222b and DT222c - Annual data provided for DT222c only
DT223a	375322	165759	47.1	41.7	33.5		24.0	31.5	16.0	35.3				41.1	-	-	-	Triplicate Site with DT223a, DT223b and DT223c - Annual data provided for DT223c only
DT223b	375322	165759	45.8	44.4	30.8		23.3	31.7	17.2	36.2					-	-	-	Triplicate Site with DT223a, DT223b and DT223c - Annual data provided for DT223c only
DT223c	375322	165759	48.8	44.4	33.2		23.5	29.8	18.0						34.0	33.2	-	Triplicate Site with DT223a, DT223b and DT223c - Annual data provided for DT223c only
DT224a	375207	165726	61.5	60.2	45.2		30.9	35.4	25.8	54.1	57.2	57.5	56.8	62.6	-	-	-	Triplicate Site with DT224a, DT224b and DT224c - Annual data provided for DT224c only
DT224b	375207	165726	60.6	60.9	37.7		29.9	35.9	17.5	58.1	61.1	62.5	53.9	61.9	-	-	-	Triplicate Site with DT224a, DT224b and DT224c - Annual data provided for DT224c only
DT224c	375207	165726	60.0	61.9	47.5		31.1	34.8	23.5	54.9	57.9	60.8	57.5	60.3	49.6	**44.2**	**42.1**	Triplicate Site with DT224a, DT224b and DT224c - Annual data provided for DT224c only
DT225a	375203	165708	44.1	49.1	33.1		23.8	30.0	20.1	36.9	44.3	40.3	40.7	39.6	-	-	-	Triplicate Site with DT225a, DT225b and DT225c - Annual data provided for DT225c only
DT225b	375203	165708	47.6	49.4	32.8		26.3	27.2	15.5	34.6	43.2	43.0	37.1	43.1	-	-	-	Triplicate Site with DT225a, DT225b and DT225c - Annual data provided for DT225c only
DT225c	375203	165708	46.7	48.4	35.8		24.3	27.7	13.1	35.6	41.7	41.6	42.4	43.8	36.4	32.4	-	Triplicate Site with DT225a, DT225b and DT225c - Annual data provided for DT225c only

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DT226a	375394	165824	42.4	38.9	33.2		20.2	23.6	20.8	33.4	35.0	36.3	38.4	38.7	-	-	-	Triplicate Site with DT226a, DT226b and DT226c - Annual data provided for DT226c only
DT226b	375394	165824	41.6	40.0	31.4		21.4	23.9	17.6	30.9	34.6	37.1	31.6	37.0	-	-	-	Triplicate Site with DT226a, DT226b and DT226c - Annual data provided for DT226c only
DT226c	375394	165824	41.0	40.7	32.2		20.3	23.7	15.2	33.2	36.0	37.7	37.6	39.3	32.3	28.7	-	Triplicate Site with DT226a, DT226b and DT226c - Annual data provided for DT226c only
DT227a	374580	163979	41.4	36.8	27.9		21.9	26.0	29.1	35.7	38.5	42.2	42.9	47.0	-	-	-	Triplicate Site with DT227a, DT227b and DT227c - Annual data provided for DT227c only
DT227b	374580	163979	42.5	34.5	31.4		20.8	27.8	29.9	32.3	40.3	42.1	42.2	47.5	-	-	-	Triplicate Site with DT227a, DT227b and DT227c - Annual data provided for DT227c only
DT227c	374580	163979	41.5	39.1	30.0		19.4	27.4	28.7	33.8	39.1	37.1	43.4	42.6	35.2	31.4	-	Triplicate Site with DT227a, DT227b and DT227c - Annual data provided for DT227c only
DT228a	374002	164754	38.6	34.5	29.1			21.0	23.1	26.5	30.7	35.2	36.6	36.4	-	-	-	Triplicate Site with DT228a, DT228b and DT228c - Annual data provided for DT228c only
DT228b	374002	164754	39.4	35.5	26.4			20.6	21.1	21.0	29.3	31.7	34.9	36.6	-	-	-	Triplicate Site with DT228a, DT228b and DT228c - Annual data provided for DT228c only
DT228c	374002	164754	37.4	32.4	24.3			20.6	24.8	26.0	29.6	30.8	39.4	38.5	30.4	27.1	-	Triplicate Site with DT228a, DT228b and DT228c - Annual data provided for DT228c only
DT229a	373936	164779	38.7	32.5	29.8		21.3	24.3	21.2	29.6	33.9	36.6	38.0	39.4	-	-	-	Triplicate Site with DT229a, DT229b and DT229c - Annual data provided for DT229c only
DT229b	373936	164779	41.5	32.2	28.9		21.8	22.6	22.8	28.6	33.7	37.0	39.3	39.4	-	-	-	Triplicate Site with DT229a, DT229b and DT229c - Annual data provided for DT229c only
DT229c	373936	164779	39.5	32.9	29.0		20.6	24.5	21.6	29.4	34.7	38.4	38.7	35.4	31.4	28.0	-	Triplicate Site with DT229a, DT229b and DT229c - Annual data provided for DT229c only
DT230a	373439	165098	56.4	40.2	38.7		26.3	32.8	24.7	37.0	41.8	40.6	47.2	44.1	-	-	-	Triplicate Site with DT230a, DT230b and DT230c - Annual data provided for DT230c only
DT230b	373439	165098	56.5	40.1	40.5		26.1	32.9	25.2	39.1	41.4	38.6	45.5	42.0	-	-	-	Triplicate Site with DT230a, DT230b and DT230c - Annual data provided for DT230c only
DT230c	373439	165098	61.2	40.8	38.0		25.7	32.2	25.3	36.4	41.4	35.1	46.8	42.3	38.9	34.6	-	Triplicate Site with DT230a, DT230b and DT230c - Annual data provided for DT230c only
DT231a	373480	165125	53.4	41.5	34.0		22.7			37.1	41.9	37.9	45.0	40.3	-	-	-	Triplicate Site with DT231a, DT231b and DT231c - Annual data provided for DT231c only
DT231b	373480	165125	55.9	41.8	35.2		22.2		30.8	36.6		35.5	44.6	43.3	-	-	-	Triplicate Site with DT231a, DT231b and DT231c - Annual data provided for DT231c only
DT231c	373480	165125	51.1	39.3	36.0		24.0	27.0	31.1	34.5	42.9	42.5	43.6	40.9	37.6	33.4	-	Triplicate Site with DT231a, DT231b and DT231c - Annual data provided for DT231c only

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DT232a	374942	165391	39.6	35.0	24.6		15.1	18.2	12.3	25.8	28.6	29.4	35.7	33.0	-	-	-	Triplicate Site with DT232a, DT232b and DT232c - Annual data provided for DT232c only
DT232b	374942	165391	39.4	34.2			15.9	16.5	15.1	25.5	27.5	26.5	35.7	33.9	-	-	-	Triplicate Site with DT232a, DT232b and DT232c - Annual data provided for DT232c only
DT232c	374942	165391	39.5	31.7			16.4	16.9	12.0	25.7	28.0	28.5	36.1	33.2	26.8	23.9	-	Triplicate Site with DT232a, DT232b and DT232c - Annual data provided for DT232c only
DT233a	374956	165359		25.8	23.3		13.2	18.3	9.5	25.8	26.9	24.9	33.0	30.5	-	-	-	Triplicate Site with DT233a, DT233b and DT233c - Annual data provided for DT233c only
DT233b	374956	165359	35.2	26.2	23.6		14.1	18.3	9.0	26.5	26.7	26.6	34.8	29.2	-	-	-	Triplicate Site with DT233a, DT233b and DT233c - Annual data provided for DT233c only
DT233c	374956	165359	38.0	25.9	22.7		13.4	19.5	10.3	25.4	26.5		33.5	30.5	24.5	21.8	-	Triplicate Site with DT233a, DT233b and DT233c - Annual data provided for DT233c only
DT234a	374806	165084	49.0	44.7	34.6		26.7	31.4	17.2	37.8	39.0		37.4	40.9	-	-	-	Triplicate Site with DT234a, DT234b and DT234c - Annual data provided for DT234c only
DT234b	374806	165084	45.3		32.2		26.3	30.5	16.7	39.5	37.4		42.4	41.1	-	-	-	Triplicate Site with DT234a, DT234b and DT234c - Annual data provided for DT234c only
DT234c	374806	165084	49.1	45.2	33.9		26.1	32.2	22.8	37.1	35.8		41.2	41.7	36.0	32.0	-	Triplicate Site with DT234a, DT234b and DT234c - Annual data provided for DT234c only
DT235a	374694	164288	41.9	39.7	32.1		21.2	28.8	24.1	37.5		39.8	44.5	36.9	-	-	-	Triplicate Site with DT235a, DT235b and DT235c - Annual data provided for DT235c only
DT235b	374694	164288	43.0	41.2	34.9		22.1	31.6	25.1	37.2	38.2	41.1	45.7	42.8	-	-	-	Triplicate Site with DT235a, DT235b and DT235c - Annual data provided for DT235c only
DT235c	374694	164288	43.3	41.2	33.7		21.3	31.1	23.9	36.0	39.4	38.7	44.1	45.2	35.9	32.0	-	Triplicate Site with DT235a, DT235b and DT235c - Annual data provided for DT235c only
DT236a	375668	164493	38.9	31.5			14.3	17.1	18.0	22.4	27.3	31.1	30.5	32.2	-	-	-	Triplicate Site with DT236a, DT236b and DT236c - Annual data provided for DT236c only
DT236b	375668	164493	40.5	29.6	24.3		14.2	17.8	17.7	22.5	25.3	29.7	32.3	33.8	-	-	-	Triplicate Site with DT236a, DT236b and DT236c - Annual data provided for DT236c only
DT236c	375668	164493	39.4	32.4	25.6		13.9	16.4	17.8	22.4	27.4	29.6	33.6	31.8	26.3	23.4	-	Triplicate Site with DT236a, DT236b and DT236c - Annual data provided for DT236c only
DT237	375000	165179	43.4	30.3	26.2		16.6	22.4	10.7	32.5	31.5	29.1	33.5	36.3	28.4	25.3	-	
DT238a	375001	165140	40.8	41.3	28.0		13.0	20.2	13.6	26.8	31.5	33.5	32.9	34.1	-	-	-	Triplicate Site with DT238a, DT238b and DT238c - Annual data provided for DT238c only
DT238b	375001	165140	43.9	38.3	26.7		13.6	19.7	14.4	29.9	32.0	34.6	33.7	35.9	-	-	-	Triplicate Site with DT238a, DT238b and DT238c - Annual data provided for DT238c only

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DT238c	375001	165140	42.3	36.0	26.4		13.2	19.6	11.9	29.3	30.5	35.3	34.2	33.3	28.8	25.6	-	Triplicate Site with DT238a, DT238b and DT238c - Annual data provided for DT238c only
DT239a	375008	165145	45.4	43.4	29.0		15.2	20.6	13.7	30.9		34.9	32.7	36.1	-	-	-	Triplicate Site with DT239a, DT239b and DT239c - Annual data provided for DT239c only
DT239b	375008	165145	45.7	41.7	29.2		14.9	21.1	13.0	30.5		35.3	32.6	35.2	-	-	-	Triplicate Site with DT239a, DT239b and DT239c - Annual data provided for DT239c only
DT239c	375008	165145	44.3	41.6	29.8		15.1	21.1	12.3	31.1		31.4	32.5	32.9	29.8	26.5	-	Triplicate Site with DT239a, DT239b and DT239c - Annual data provided for DT239c only
DT240a	375489	165450	39.7	32.0	22.2		12.9	17.6	11.9	25.9	26.0	29.0	31.3	30.1	-	-	-	Triplicate Site with DT240a, DT240b and DT240c - Annual data provided for DT240c only
DT240b	375489	165450	37.9	30.6	22.6		13.8	16.7	10.5	27.6	26.0	27.1	31.1	31.9	-	-	-	Triplicate Site with DT240a, DT240b and DT240c - Annual data provided for DT240c only
DT240c	375489	165450	38.8	30.4	24.0		13.4	17.4	17.6	27.3	25.8	26.7	27.8	32.3	25.3	22.5	-	Triplicate Site with DT240a, DT240b and DT240c - Annual data provided for DT240c only
DT241a	375520	165446	32.8	26.9	19.2		10.3	12.7	12.0	17.9	20.9	22.5	24.5	26.0	-	-	-	Triplicate Site with DT241a, DT241b and DT241c - Annual data provided for DT241c only
DT241b	375520	165446	34.0	26.3	18.8		11.3	12.2	12.4	18.0	21.2	22.2	29.3	26.3	-	-	-	Triplicate Site with DT241a, DT241b and DT241c - Annual data provided for DT241c only
DT241c	375520	165446	32.9	26.1	19.0		10.9	13.0	11.7	16.9	20.3	21.5	25.0	26.6	20.7	18.4	-	Triplicate Site with DT241a, DT241b and DT241c - Annual data provided for DT241c only
DT242a	374583	164974	31.5	28.9	21.1		17.5	20.8	11.5	24.6	22.0	24.7	27.9	28.0	-	-	-	Triplicate Site with DT242a, DT242b and DT242c - Annual data provided for DT242c only
DT242b	374583	164974	30.3	27.9	23.7		17.0	21.8	10.9	24.2	21.3	25.5	27.2	27.4	-	-	-	Triplicate Site with DT242a, DT242b and DT242c - Annual data provided for DT242c only
DT242c	374583	164974	31.0	28.6	23.3		17.3	22.0	8.2	24.3	22.1	25.4	27.9	28.8	23.5	20.9	-	Triplicate Site with DT242a, DT242b and DT242c - Annual data provided for DT242c only
DT243a	375625	165312	41.7	35.1	26.2		18.3	19.2	20.4	27.2	30.5	30.3	27.1	33.7	-	-	-	Triplicate Site with DT243a, DT243b and DT243c - Annual data provided for DT243c only
DT243b	375625	165312	39.8	34.7	24.8		18.0	20.0	20.4	26.3	29.0	28.0	29.8	31.9	-	-	-	Triplicate Site with DT243a, DT243b and DT243c - Annual data provided for DT243c only
DT243c	375625	165312	40.6	34.1	24.6		18.6	19.3	20.2	26.8	28.9	28.8	30.9	31.3	27.8	24.7	-	Triplicate Site with DT243a, DT243b and DT243c - Annual data provided for DT243c only
DT244	372494	163165	24.8	14.9	16.2		12.2	15.5	13.0	17.8	19.6	18.9	24.6	21.6	18.1	16.1	-	
DT245	372401	163212	33.2	18.3	20.1		13.9	18.8	17.3	21.4	23.9	21.7	31.6	26.1	22.4	19.9	-	
DT246a	375186	164372	47.7	50.8	29.9		16.3	25.5	12.3	32.6	37.3	38.4	37.7	38.3	-	-	-	Triplicate Site with DT246a, DT246b and DT246c - Annual data provided for DT246c only

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.89)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT246b	375186	164372	48.6	52.0	32.7		17.0	23.9	12.8	31.1		38.0	41.4	40.4	-	-	-	Triplicate Site with DT246a, DT246b and DT246c - Annual data provided for DT246c only
DT246c	375186	164372	48.0	53.6	35.0		16.8	24.5	17.4	29.2	35.9	35.2	41.6	38.8	33.8	30.1	-	Triplicate Site with DT246a, DT246b and DT246c - Annual data provided for DT246c only
DT247a	374627	164924	39.5	41.3	31.5		25.3	25.7	14.1	31.3	32.2	31.3	36.7	33.3	-	-	-	Triplicate Site with DT247a, DT247b and DT247c - Annual data provided for DT247c only
DT247b	374627	164924	36.9	42.6	31.0		20.4	24.9	12.9	30.4	29.6	31.6	35.5	36.7	-	-	-	Triplicate Site with DT247a, DT247b and DT247c - Annual data provided for DT247c only
DT247c	374627	164924	35.0	43.8	28.7		20.4	26.3	13.5	30.5	28.6	30.2	34.0	36.3	30.4	27.0	-	Triplicate Site with DT247a, DT247b and DT247c - Annual data provided for DT247c only
DT248a	374711	164931	54.6	38.9	16.8			16.9	13.8	26.1	35.6	40.7	39.8	45.7	-	-	-	Triplicate Site with DT248a, DT248b and DT248c - Annual data provided for DT248c only
DT248b	374711	164931	52.7	40.7	17.4			17.4	12.4	27.6	35.6		39.0	45.4	-	-	-	Triplicate Site with DT248a, DT248b and DT248c - Annual data provided for DT248c only
DT248c	374711	164931	48.7	37.5	17.1			16.7	12.1	27.0	35.9	39.3	41.5	45.4	32.6	29.0	-	Triplicate Site with DT248a, DT248b and DT248c - Annual data provided for DT248c only
DT091	377683	166408	29.2	21.2	17.9		11.4	12.9	12.7	14.7	20.2	20.7	23.2	24.0	18.9	16.8	-	
DT166	377543	165924	34.3	30.3	20.6		12.5	18.5	16.2	21.0	23.2	23.8	30.8	26.3	23.4	20.8	-	
DT058	377643	167365	34.7	27.3	21.4		12.1	16.1	14.3	20.1	21.7	25.1	29.7		22.3	19.8	-	
DT094	377290	167097	32.1	28.1	19.5		16.0	17.5	18.7	20.3	22.8		27.1	25.5	22.8	20.3	-	
DT130	377802	167456	35.0	28.5	22.6		13.1	17.2	17.3	23.1	23.8	26.5	31.7	26.9	24.1	21.5	-	
DT163	378911	167259	31.4	24.8	17.4		11.1	12.2	14.0	13.7	19.3	29.5		24.2	19.8	17.6	-	
DT191	377339	167065	23.5	19.2	14.2			11.5	10.7	12.9	16.5	16.0	20.1	20.5	16.5	14.7	-	
DT134	362891	155485	47.3	40.1	24.8		31.0	31.1	36.1	36.5	41.0	34.8	38.0	36.5	34.9	31.1	-	
DT136	362884	155790	41.8	30.4	22.3		28.5	29.9	31.8	34.6	39.2	31.7	34.4	31.3	31.4	27.9	-	
DT138	362983	155459	39.5	32.4	23.9		29.2	27.4	32.4	33.7	34.0	32.3	32.3	26.5	30.5	27.1	-	
DT257	363931	155313					14.2	17.1	12.9	20.4	22.7	20.9	26.6	22.5	19.8	18.6	-	
DT033	364803	168237	18.0	10.2	9.0		7.1	6.7	7.6	8.0	9.8	11.1	16.3	17.6	10.8	9.7	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.89)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT063	365409	168846	32.7	24.0	18.2		16.8	19.0	13.9	19.8	23.4	20.8	27.9	33.0	22.3	19.8	-	
DT064	365305	168657	36.2	27.5	20.6		20.3		18.8	26.6	31.2	30.0	31.6	34.8	27.1	24.2	-	
DT065	365399	168701	31.8	25.7	17.2		16.9	18.6	19.2	23.9	27.4	27.3	26.0	34.3	23.9	21.3	-	
DT066	365360	168815	45.8	38.3	22.0		19.8	23.7	22.9	29.8	31.0	34.6	33.1	38.4	30.1	26.8	-	
DT067	365457	168496	41.3	32.1	18.5		19.3	21.5	19.9	23.9	28.2	31.2	34.3	36.2	27.0	24.1	-	
DT068	365489	168363	25.0	17.3	12.3		10.7	13.8	12.3	16.5	19.4	18.7	23.2	25.9	17.3	15.4	-	
DT069	365428	168435	29.1	20.1	17.0		15.5	17.2	14.0	20.0	20.7	22.3	28.0	30.7	21.1	18.7	-	
DT070	365496	168521	29.0	23.1	15.9		15.0	16.1	13.8	19.3	21.1	21.7	23.6	28.3	20.3	18.0	-	
DT107	365710	168339	42.2	38.0	25.1		24.3	29.5	27.1	34.2	33.3	35.6	36.0	39.8	32.6	29.0	-	
DT112	365375	168594	31.1	20.3	16.0		11.8	14.9	15.0		21.3	23.8	27.2	30.2	20.8	18.5	-	
DT113	365217	168505	22.7	13.5	11.7		9.2	9.8	5.8	11.1	13.8	14.1	20.4	21.6	13.8	12.3	-	
DT114	365414	168684	30.3	24.1	14.3		12.8	15.5	15.9	19.2	20.1	21.7	23.7	28.4	20.0	17.8	-	
DT115	365447	168586	8.6	19.2	14.0		11.4	14.0	9.2	13.0	13.9	16.0	20.8	22.6	14.9	13.2	-	
DT116	365462	168533	28.5	21.9			12.9	14.3	12.0	16.3		20.7	21.8	27.3	19.6	17.4	-	
DT141	366921	168096	37.8	29.2	18.6		20.2	21.3	20.8	26.7	28.9	28.1	30.1	34.6	26.2	23.4	-	
DT251	369986	156962	15.2	11.6	9.3										11.2	8.9	9.1	
DT174	361769	164034	42.6	35.7	26.3		27.3	32.2	29.5	36.1	36.6	40.5	39.8	38.2	34.3	30.6	-	
DT176	368763	154818	34.6				19.9	22.9			28.9		32.5	29.3	28.0	21.8	-	
DT075	368375	166988	40.6	27.6	19.2		18.5	23.3	15.5	24.8	27.0	27.7	33.7	36.4	26.1	23.3	-	
DT077	368778	166687	32.8	29.8	18.4		16.6	21.7	19.7	23.9	25.9	25.8	25.6	25.2	23.6	21.0	-	
DT096a	362219	157923	70.9	52.2	35.6		46.3	49.3	42.0	59.1	56.7	49.8	49.2	47.4	-	-	-	Triplicate Site with DT096a, DT096b and DT096c - Annual data provided for DT096c only

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.89)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT096b	362219	157923	74.1	60.9			46.7	48.0	44.4	59.8	62.1	55.5	55.3	47.5	-	**-**	-	Triplicate Site with DT096a, DT096b and DT096c - Annual data provided for DT096c only
DT096c	362219	157923	69.2	51.0	39.4		45.2	46.5	42.5	53.2	56.7	54.4	50.0	46.6	50.3	**44.8**	-	Triplicate Site with DT096a, DT096b and DT096c - Annual data provided for DT096c only
DT108a	362179	158055	50.5	42.5	24.6		23.3	31.8	27.1	36.8	33.0	37.7	40.8	36.9	-	**-**	-	Triplicate Site with DT108a, DT108b and DT108c - Annual data provided for DT108c only
DT108b	362179	158055			25.5		25.2	31.3	29.0	37.1	36.6	37.7	40.8	32.8	-	**-**	-	Triplicate Site with DT108a, DT108b and DT108c - Annual data provided for DT108c only
DT108c	362179	158055			24.4		24.0	30.9	31.5	36.1	36.7	33.2	38.6	34.4	34.0	30.3	-	Triplicate Site with DT108a, DT108b and DT108c - Annual data provided for DT108c only
DT109a	362344	157658	39.8	36.1	29.2		27.1	29.1	28.0	30.7	33.6	32.9	30.7	32.9	-	**-**	-	Triplicate Site with DT109a, DT109b and DT109c - Annual data provided for DT109c only
DT109b	362344	157658			25.9		26.8	26.4	24.0	30.0	34.7	32.9	33.4	36.2	-	**-**	-	Triplicate Site with DT109a, DT109b and DT109c - Annual data provided for DT109c only
DT109c	362344	157658			27.5		24.9	25.8	28.6	31.5	35.3	29.5	35.4	36.0	31.3	27.9	-	Triplicate Site with DT109a, DT109b and DT109c - Annual data provided for DT109c only
DT111a	362234	157880			28.2		30.0	38.5	29.5	42.7		39.0	45.7	35.6	-	**-**	-	Triplicate Site with DT111a, DT111b and DT111c - Annual data provided for DT111c only
DT111b	362234	157880			27.5		38.0	37.2	31.8	44.3	43.1	37.4	39.5	34.1	-	**-**	-	Triplicate Site with DT111a, DT111b and DT111c - Annual data provided for DT111c only
DT111c	362234	157880			25.1		35.7	33.5	31.0	38.9	40.9	39.3	42.0	33.8	35.5	31.6	-	Triplicate Site with DT111a, DT111b and DT111c - Annual data provided for DT111c only
DT252a	362195	158007			28.7		32.0	40.8	31.8	43.7	43.7	41.8	42.6	23.6	-	**-**	-	Triplicate Site with DT252a, DT252b and DT252c - Annual data provided for DT252c only
DT252b	362195	158007			27.6		32.3	38.4	31.7	45.7	40.7		44.7	35.2	-	**-**	-	Triplicate Site with DT252a, DT252b and DT252c - Annual data provided for DT252c only
DT252c	362195	158007			29.2		32.8	34.3	32.0	30.4	43.8	43.4	41.4	39.5	36.0	32.1	-	Triplicate Site with DT252a, DT252b and DT252c - Annual data provided for DT252c only
DT253a	362243	157846			29.6		36.5	40.3	40.5	44.1	46.4	46.0	42.3	39.0	-	**-**	-	Triplicate Site with DT253a, DT253b and DT253c - Annual data provided for DT253c only
DT253b	362243	157846			35.1		38.7	42.0	46.4	47.6	50.5	51.5	50.4	44.4	-	**-**	-	Triplicate Site with DT253a, DT253b and DT253c - Annual data provided for DT253c only
DT253c	362243	157846			31.9		39.2	41.8	42.4	43.9	48.6	50.3	44.3	43.2	41.8	37.2	**44.6**	Triplicate Site with DT253a, DT253b and DT253c - Annual data provided for DT253c only
DT254a	362262	157799			33.4		36.6	41.7	35.3	49.5	51.2	41.6	40.9	38.2	-	**-**	-	Triplicate Site with DT254a, DT254b and DT254c - Annual data provided for DT254c only

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.89)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT254b	362262	157799			34.4		37.2	42.9	38.0	51.7	51.2	39.9	45.9	39.4	-	-	-	Triplicate Site with DT254a, DT254b and DT254c - Annual data provided for DT254c only
DT254c	362262	157799			34.0		38.0	42.1	33.6		47.4	40.6	44.2	40.8	40.8	36.3	29.1	Triplicate Site with DT254a, DT254b and DT254c - Annual data provided for DT254c only
DT255a	362284	157741			30.1		34.0	38.5	43.1	41.5	49.4	41.2	44.6	40.5	-	-	-	Triplicate Site with DT255a, DT255b and DT255c - Annual data provided for DT255c only
DT255b	362284	157741			31.2		35.4	46.3	40.5	43.1	49.8	47.9	47.0	42.6	-	-	-	Triplicate Site with DT255a, DT255b and DT255c - Annual data provided for DT255c only
DT255c	362284	157741			32.1		35.6	39.6	39.5	47.8	48.2	47.2	43.4	45.2	40.7	36.2	-	Triplicate Site with DT255a, DT255b and DT255c - Annual data provided for DT255c only
DT256a	362283	157735			13.4		13.0	15.0	10.6	16.3	16.6	16.3	19.7	18.5	-	-	-	Triplicate Site with DT256a, DT256b and DT256c - Annual data provided for DT256c only
DT256b	362283	157735			12.9		13.5	14.7	10.9	16.7	16.9	16.8	20.0	18.7	-	-	-	Triplicate Site with DT256a, DT256b and DT256c - Annual data provided for DT256c only
DT256c	362283	157735			12.2		13.3	15.5	10.6	15.7	18.0	16.8	19.7	18.8	15.4	13.7	17.2	Triplicate Site with DT256a, DT256b and DT256c - Annual data provided for DT256c only
DT175	367416	153974	33.0	23.7	18.5		16.9	18.3	11.7	18.7	21.9	22.2	29.9	24.6	21.4	19.0	-	
DT032	361242	167652	42.2	35.2	24.6		23.9	25.8	24.9	30.3	30.6	34.0	39.7	39.3	31.3	27.8	-	
DT098	361276	167555	35.7	25.0	19.2		22.5	25.1	20.0	29.5	29.2	27.5	31.6	29.4	26.1	23.3	-	
DT100	361326	167606	34.2	22.1	15.2		15.2	16.7		21.5	25.2	23.4	28.5	26.3	22.0	19.6	-	
DT101	361235	167824	48.0	26.4	23.5		25.0	28.1	32.7	37.2	40.0	43.0	40.7	40.9	34.2	30.5	-	

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

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

☒ **Local bias adjustment factor used .**

☐ **National bias adjustment factor used.**

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

☒ **Bath & North East Somerset Council confirm that all 2020 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Bath & North East Somerset Council During 2020

Bath & North East Somerset Council has not identified any new sources relating to air quality within the reporting year of 2020.

Additional Air Quality Works Undertaken by Bath & North East Somerset Council During 2020

Bath & North East Somerset Council has not completed any additional works within the reporting year of 2020.

QA/QC of Diffusion Tube Monitoring

The diffusion tubes were analysed by Gradko in 2017-2020, and by Somerset Scientific Services in 2012-2016. The method of analysis is 20% triethanolamine (TEA) in water. Gradko is UKAS accredited for the analysis of the diffusion tubes and all the laboratories participate in the AIR-PT scheme formally the Workplace Analysis Scheme for Proficiency (WASP). The latest AIR-PT report for nitrogen dioxide for the laboratory indicates a performance classification as satisfactory for all periods.

In 2020 there was a deviation from the monitoring calendar in April and May, this was due to the Lockdown and Covid restrictions. In April the samples were collected in Bath, Batheaston and Bathampton but no new tubes were exposed. In the rest of the district the diffusion tubes were exposed for an additional month. In May the diffusion tubes were put out/changed one week late. This was due to the laboratory closing in April due to restrictions.

Diffusion Tube Annualisation

During 2020 9 diffusion tubes (5 sites) had data capture less than 75%. To estimate the annual mean from the short-term monitoring period the Diffusion Tube Processing Tool

was used. Four sites were selected from the national network within 50 miles of Bath and greater that 85% data capture; Charlton Mackrell (97% data capture, 27miles from Bath), Swindon Walcot (98% data capture, 28miles from Bath), Bristol St Paul's (96% data capture, 11 miles from Bath) and Chilbolton Observatory (99% data capture, 43 miles from Bath). Table C.2 shows the adjustment factors and which locations they are applied to.

Diffusion Tube Bias Adjustment Factors

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

Bath & North East Somerset Council have applied a local bias adjustment factor of 0.89 to the 2020 monitoring data. This was calculated from a co-located triplicate site at the Bath A4 Roadside site (CM8), details of the calculation are in Table C.3. A summary of bias adjustment factors used by Bath & North East Somerset Council over the past five years is presented in Table C.1.

A local bias factor is where this represents local conditions, and previously in Bath and North East Somerset this has been calculated using co-located diffusion tubes at the London Road site (CM1). The national bias factor is a combined factor which averages a number of local bias factor studies for the analytical laboratory and diffusion tube preparation method. Guidance on the choice of bias factor is given in LAQM.TG16 (Box 7.11) and includes consideration on diffusion tube locations compared with the co-location site, exposure period and number of studies contributing to the national bias factor.

The guidance in the LAQM.TG16 tends to suggest that the choice of a single bias correction factor is required for all diffusion tubes from the local authority. However, the bias correction factor chosen will only be appropriate for locations where similar traffic characteristics, street geometry, and distance from kerbside are repeatable. If a bias factor from a co-located site that is closer to a background location is used, the application of its bias factor to roadside locations will be likely to provide an underestimate of true concentrations and vice-versa for using a bias factor, derived from a roadside or kerbside

site, that is applied to monitoring locations, further away from the kerb, the results are likely to be overestimated.

In 2020 Bath & North East Somerset Council have used the local bias factor as this better represents the diffusion tubes in the Bath AQMA. The national bias factor for 2020 was lower and therefore the local bias factor represents a worst case result at locations which are less representative of the local bias. In 2016-18 the local bias adjustment factors were used to correct the diffusion tube data as they were the same as or higher than the national bias factor leading to a worse case result. In 2019 the national bias factor was used as there was no local factor available due to the co-location site being moved resulting in low data capture. The choice of factor will be reviewed annually.

Table C.1 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2020	Local	-	0.89
2019	National	06/20	0.92
2018	Local	-	0.96
2017	Local	-	1.00
2016	Local	-	0.99

NO_2 Fall-off with Distance from the Road

Wherever possible, local authorities should ensure that monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure should be estimated using the Diffusion Tube Data Processing Tool/NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO_2 concentrations corrected for distance are presented in Table B.1.

For diffusion tube sites which have been located in roadside locations with concentrations above 36 µg/m^3, the distance adjustment has been calculator using the Diffusion Tube Data Processing Tool. A local background of 8.4 µg/m^3 was used in Bath (from Alexandra Park, DT23) and a background concentration taken from the background maps was used for sites outside of Bath. Table C.4 below shows the distances used in the calculator, background concentrations and the concentration at the façade for these sites. Urban centre, urban background and sites at the building façade have not been adjusted.

In Bath & North East Somerset 8 sites with concentrations above 36 µg/m^3 were distanced adjusted; DT042, DT060, DT090, DT198, DT222, DT224, DT253 and DT254. A further 3 sites were adjusted as the site was located further from the road (e.g. on the side of a building) than the nearest façade to ensure they were not above 36 µg/m^3 (DT055, DT251 and DT256).

Precision check for triplicate tubes

The precision of a diffusion tube is the ability of the measurements to be reproduced. Precision cannot be corrected for but can be improved by careful handling of the diffusion tubes in the laboratory and in the field. For triplicate sites (3 diffusion tubes at one location) it is possible to check the precision of the results using a spreadsheet tool[12] Diffusion tubes are considered to have "good" precision where the coefficient of variation of triplicate diffusion tubes for eight or more periods during the year is less than 20%, and the average coefficient of variation of all monitoring periods is less than 10%.

In 2020 there were 50 triplicate sites in Bath & North East Somerset. Three triplicate sites in Bath and North East Somerset showed poor precision for individual periods in July (DT052, DT225 and DT240) and DT252 showed poor precision in August and December. All other sites showed good precision on individual periods. The average coefficient of variation was <10% (good) at all sites.

QA/QC of Automatic Monitoring

The Council's continuous analysers follow a QA/QC programme; the Bath A4 Roadside NO_2 (CM8) site site is an AURN affiliated site and are managed as part of that network. The Guildhall (CM2), Windsor Bridge (CM3), Chelsea House (CM4) and Bath A4 Roadside PM_{10} (CM8) sites follow the QA/QC programme below.

- There are daily checks on the data to ensure analysers and communications are working and faults are reported as soon as possible.
- The sites are inspected and calibrated checks are made once a month by a member of the Environmental Quality Team at Bristol City Council, using certified

[12] Local Bias adjustment tool website.

traceable gases. The sites are also visited by a trained AURN Local Site Operator (LSO) to change the filters and check the analysers.

- The analysers are also serviced and re-calibrated at six monthly intervals by the equipment suppliers.
- The results of all service, maintenance and calibration checks are held and used for ratification and scaling of the data.

In 2016-2020 the continuous data for Guildhall, Windsor Bridge, Chelsea House and Bath A4 Roadside PM_{10} was corrected by Air Quality Data Management (AQDM).

Recent live data can be viewed on the Council's Air Quality Data – Live website.

PM_{10} and $PM_{2.5}$ Monitoring Adjustment

The PM_{10} measurements are made using an unheated BAM1020 and have been corrected by dividing by 1.2 as recommended in the LAQM.TG16. The $PM_{2.5}$ measurements are made using a heated BAM1020 and are not corrected.

Automatic Monitoring Annualisation

All automatic monitoring locations within Bath & North East Somerset Council recorded data capture of greater than 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.

NO_2 Fall-off with Distance from the Road

No automatic NO_2 monitoring locations within Bath & North East Somerset Council required distance correction during 2020.

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

Site ID	Annualisation Factor Bristol St Paul's	Annualisation Factor Swindon Walcot	Annualisation Factor Charlton Mackrell	Annualisation Factor Chilbolton Observatory	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
DT172a	0.9787	0.9914	1.0385	1.0155	1.0060	-	-	*Triplicate Site with DT172a, DT172b and DT172c - Annual data provided for DT172c only*
DT172b	0.9787	0.9914	1.0385	1.0155	1.0060	-	-	*Triplicate Site with DT172a, DT172b and DT172c - Annual data provided for DT172c only*
DT172c	0.9787	0.9914	1.0385	1.0155	1.0060	38.9	39.1	*Triplicate Site with DT172a, DT172b and DT172c - Annual data provided for DT172c only*
DT223a	1.0615	1.0864	1.1336	1.1155	1.0993	-	-	*Triplicate Site with DT223a, DT223b and DT223c - Annual data provided for DT223c only*
DT223b	1.0615	1.0864	1.1336	1.1155	1.0993	-	-	*Triplicate Site with DT223a, DT223b and DT223c - Annual data provided for DT223c only*
DT223c	1.0615	1.0864	1.1336	1.1155	1.0993	34.0	37.3	*Triplicate Site with DT223a, DT223b and DT223c - Annual data provided for DT223c only*
DT257	1.0671	1.0629	1.0700	1.0329	1.0582	19.8	20.9	
DT251	0.8822	0.8899	0.8751	0.9359	0.8958	11.2	10.0	
DT176	0.8556	0.8645	0.8752	0.9078	0.8758	28.0	24.5	

Table C.3 – Local Bias Adjustment Calculation

	Local Bias Adjustment Input 1	Local Bias Adjustment Input 2	Local Bias Adjustment Input 3	Local Bias Adjustment Input 4	Local Bias Adjustment Input 5
Periods used to calculate bias	11				
Bias Factor A	0.89 (0.82 - 0.96)				
Bias Factor B	13% (4% - 22%)				
Diffusion Tube Mean (µg/m^3)	32.3				
Mean CV (Precision)	4.4%				
Automatic Mean (µg/m^3)	28.6				
Data Capture	98%				
Adjusted Tube Mean (µg/m^3)	29 (26 - 31)				

Notes:

A single local bias adjustment factor has been used to bias adjust the 2020 diffusion tube results.

Table C.4 – NO_2 Fall off With Distance Calculations (concentrations presented in µg/m^3)

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted	Background Concentration	Concentration Predicted at Receptor	Comments
DT042	1.0	2.5	36.2	8.4	31.1	
DT055	2.6	1.1	29.4	8.4	33.9	
DT060	2.0	4.0	37.5	8.4	32.8	
DT090a, DT090b, DT090c	1.6	4.1	37.5	8.4	31.4	
DT198a, DT198b, DT198c	1.0	1.4	40.6	8.4	*38.4*	*Predicted concentration at Receptor within 10% the AQS objective.*
DT222a, DT222b, DT222c	1.8	2.3	41.4	8.4	*39.5*	*Predicted concentration at Receptor within 10% the AQS objective.*
DT224a, DT224b, DT224c	1.1	1.5	44.2	8.4	**42.1**	*Predicted concentration at Receptor above AQS objective.*
DT251	19.0	16.0	8.9	6.2	9.1	*Warning: your monitor is more than 10m further from the kerb than your receptor - treat result with caution.*
DT253a, DT253b, DT253c	3.6	1.5	37.2	5.5	**44.6**	*Predicted concentration at Receptor above AQS objective.*
DT254a, DT254b, DT254c	1.6	4.5	36.3	5.5	29.1	
DT256a, DT256b, DT256c	5.0	1.2	13.7	5.5	17.2	

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

Figure D.1 – Map of the AQMAs in Bath

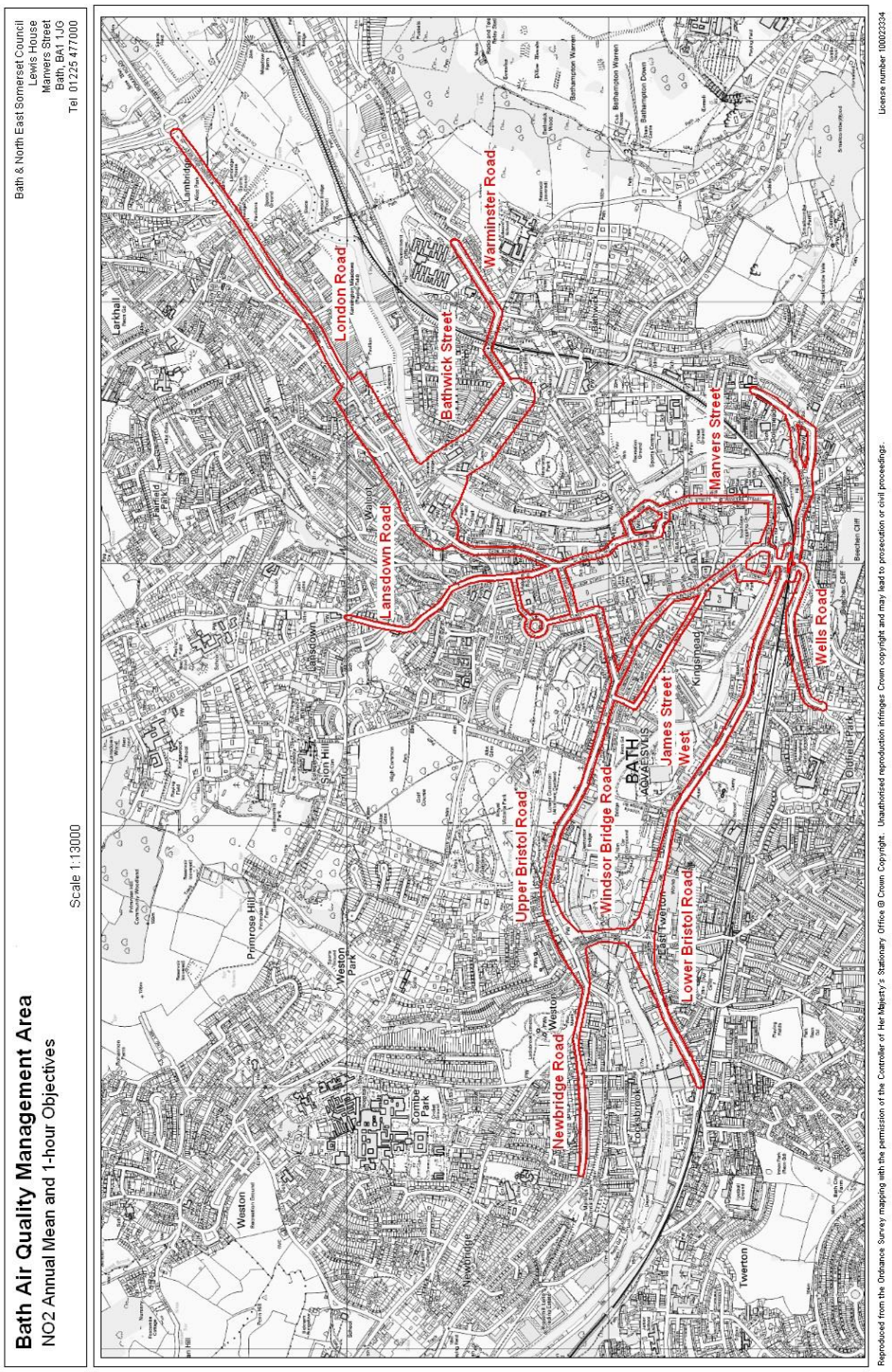


Figure D.2 – Map of the automatic monitoring locations

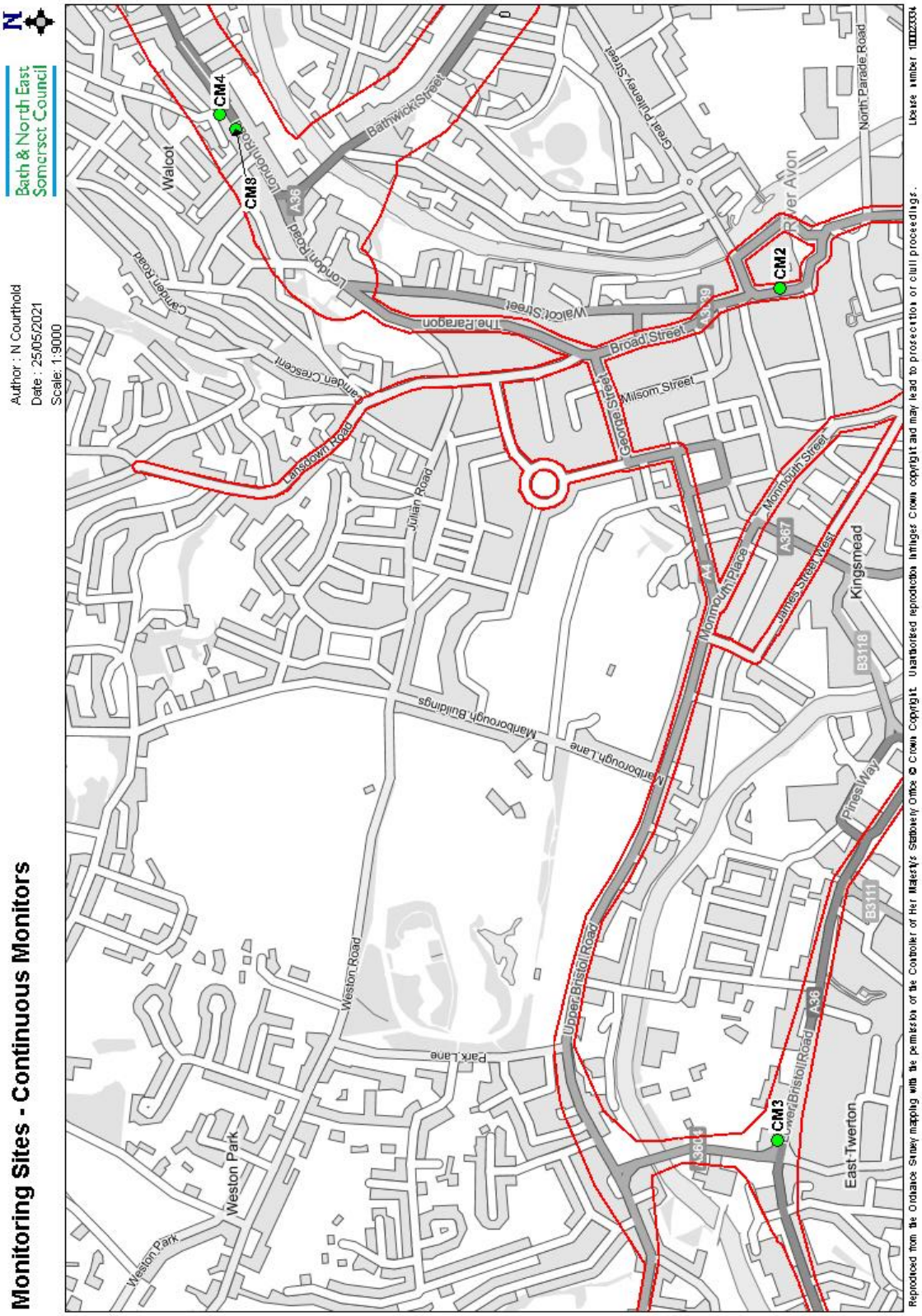


Figure D.3 – Map of the non-automatic monitoring sites and AQMA – Bath – Centre

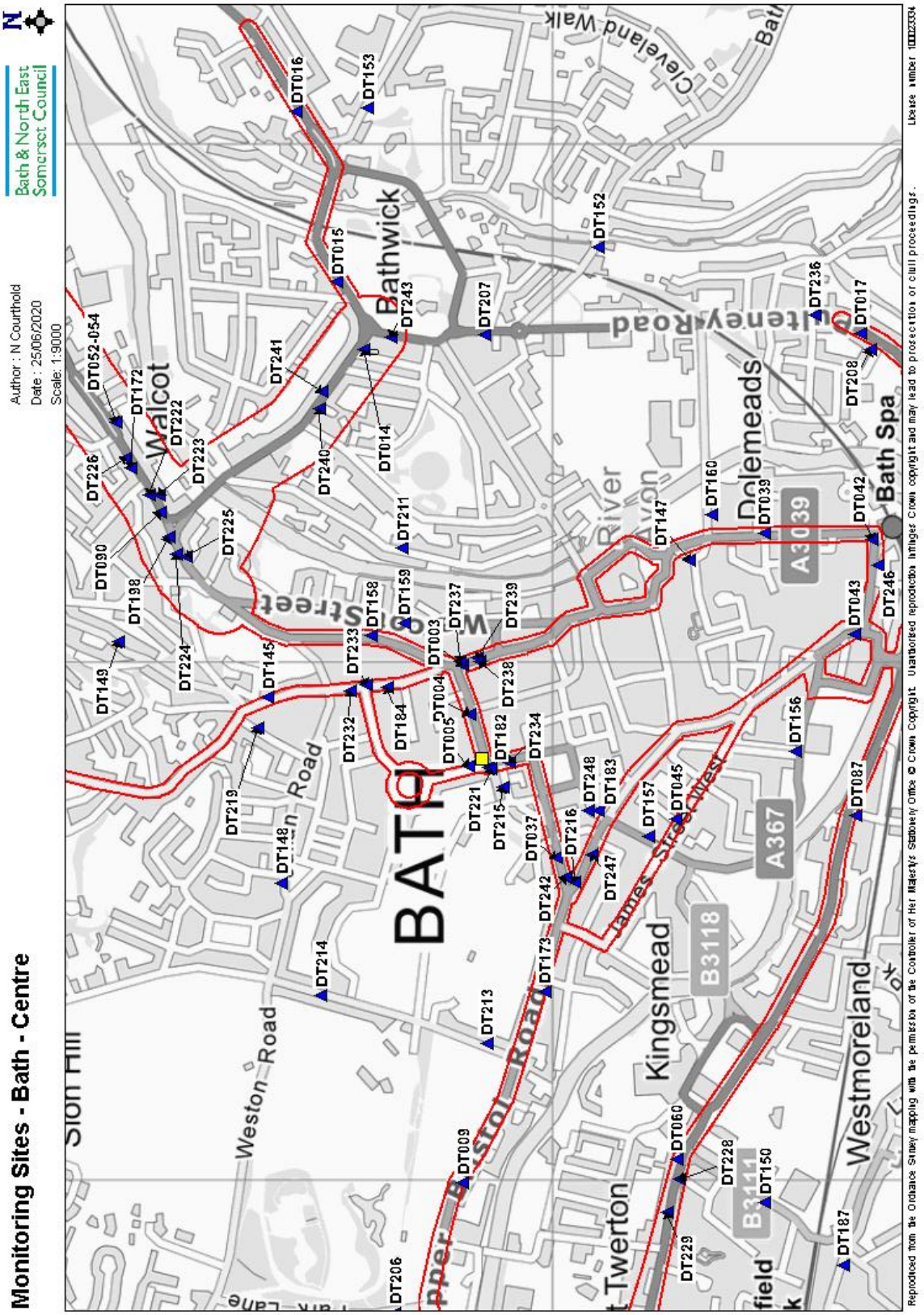


Figure D.4 – Map of the non-automatic monitoring sites and AQMA – Bath – North

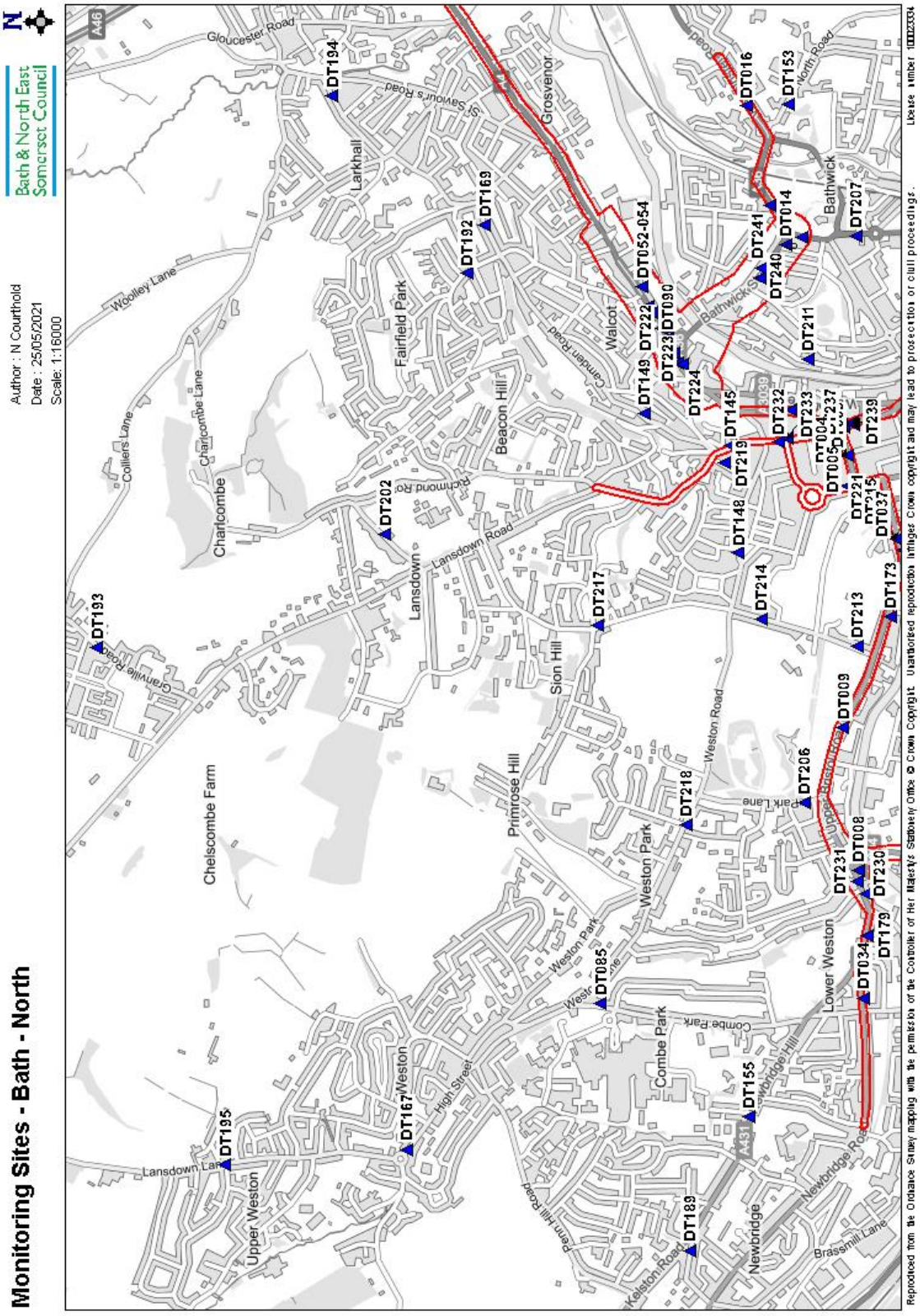


Figure D.5 – Map of the non-automatic monitoring sites and AQMA – Bath – South East

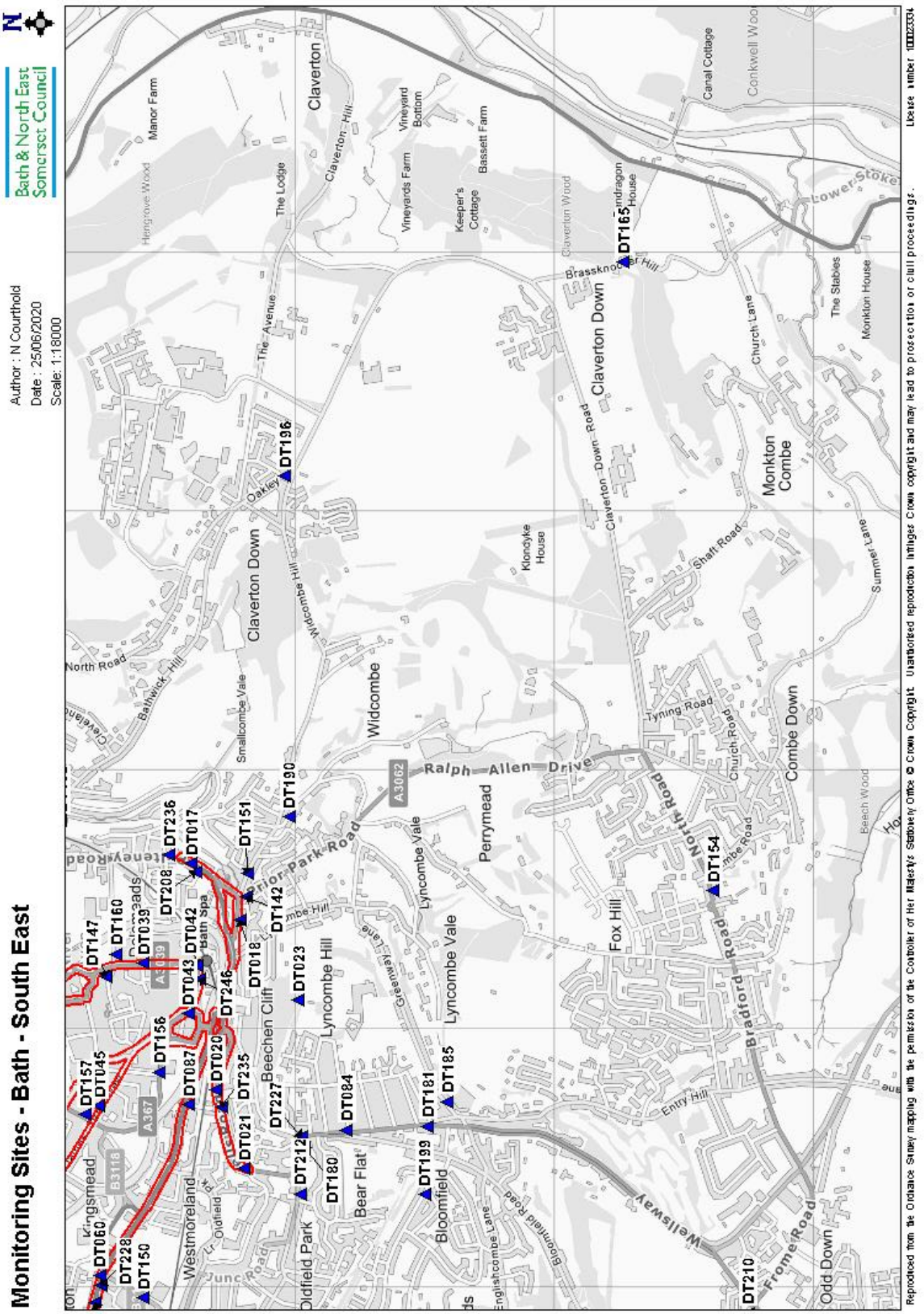


Figure D.6 – Map of the non-automatic monitoring sites and AQMA – Bath – South West

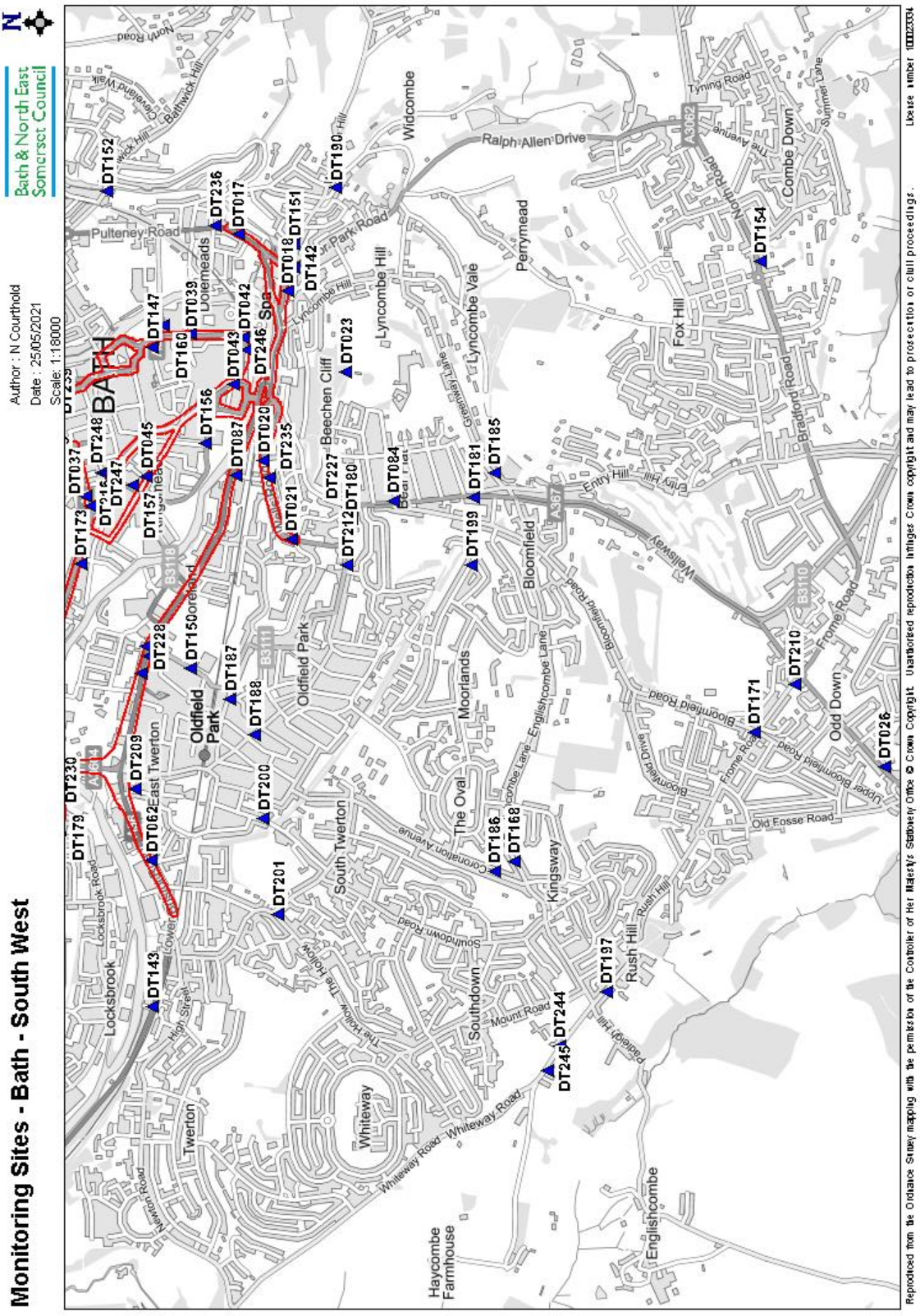


Figure D.7 – Map of the non-automatic monitoring sites and AQMA – Bathampton, Batheaston and Lambridge

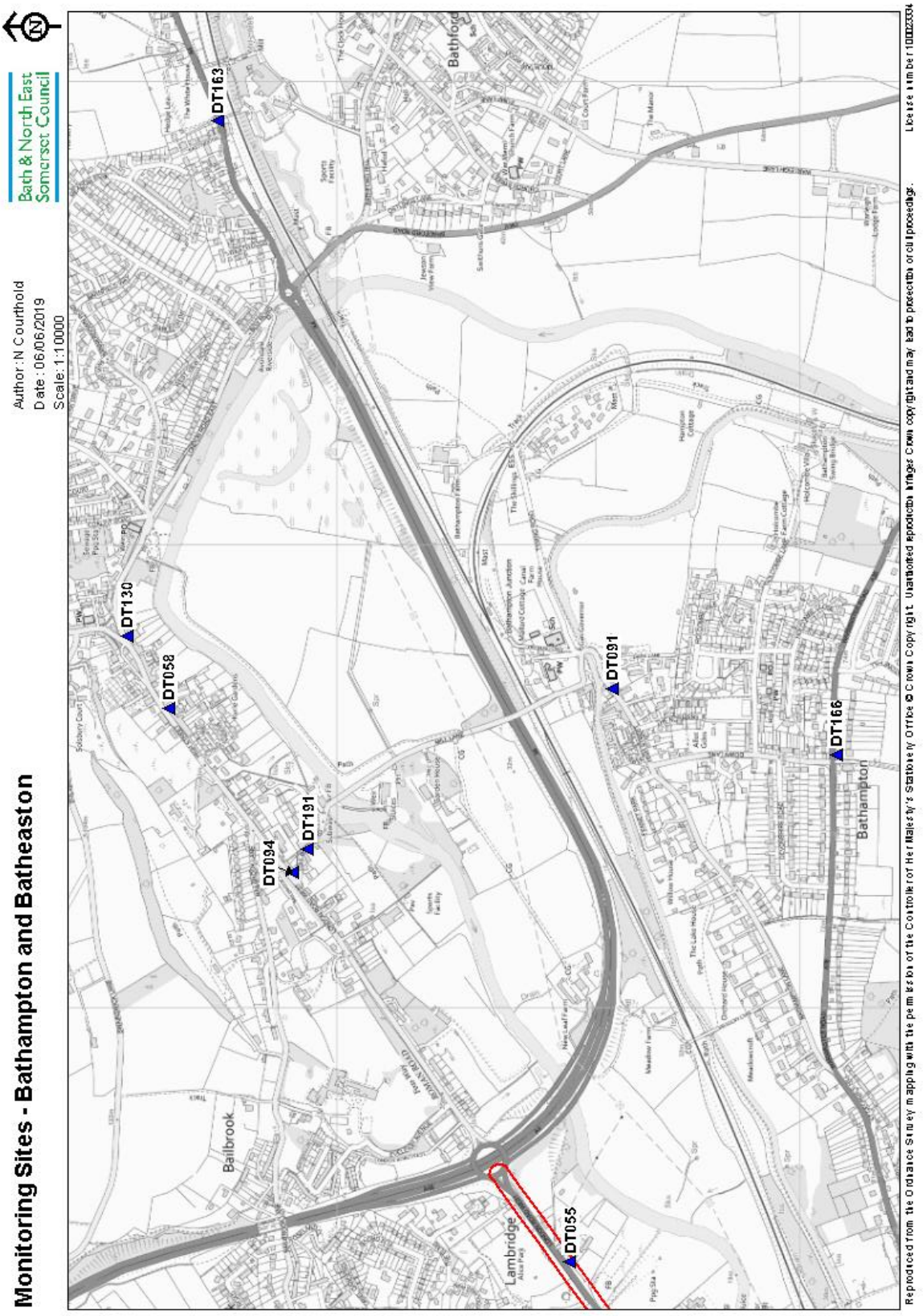


Figure D.8 – Map of the non-automatic monitoring sites and AQMA – Farrington Gurney

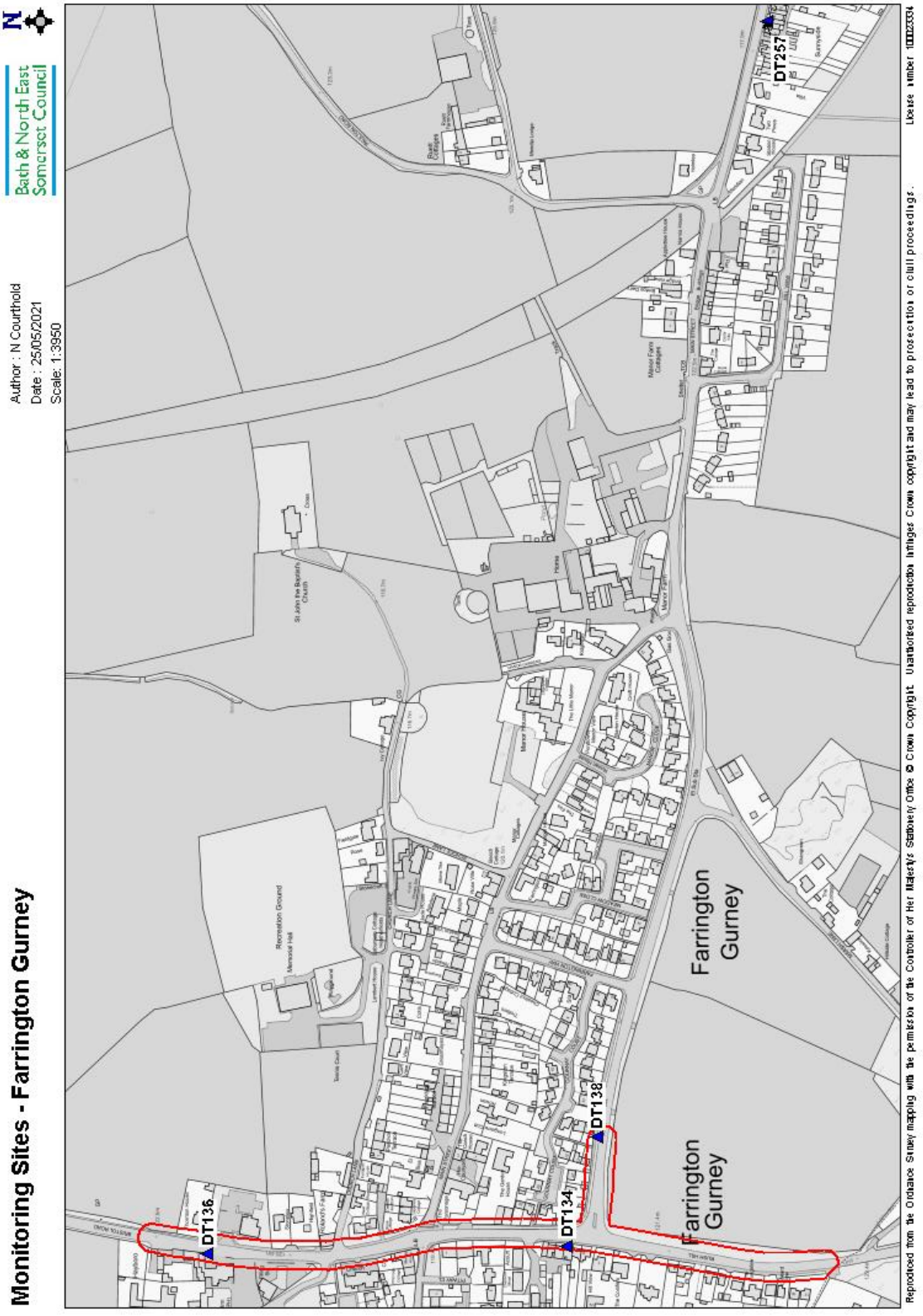


Figure D.9 – Map of the non-automatic monitoring sites and AQMA – Keynsham

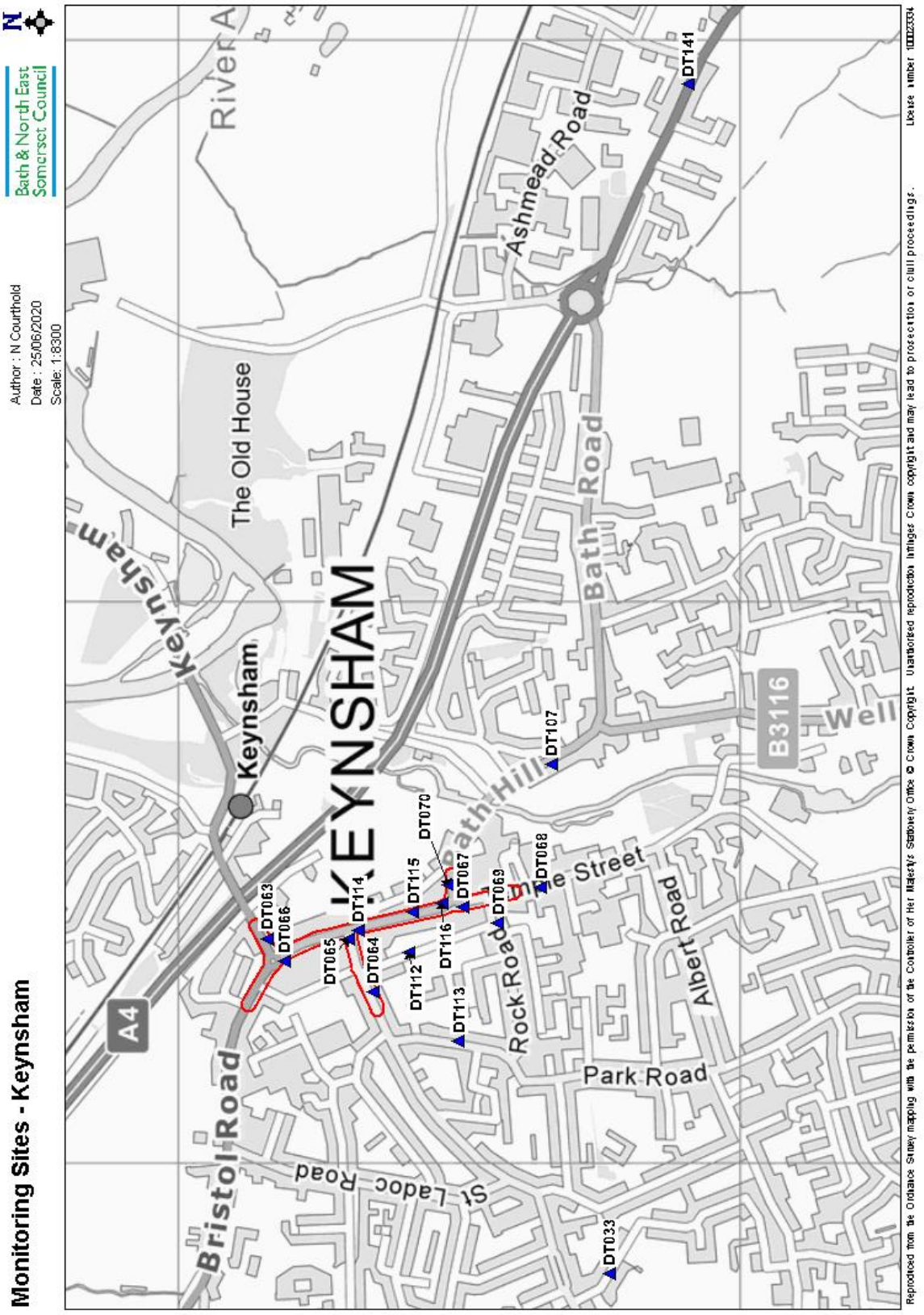


Figure D.10 – Map of the non-automatic monitoring site – Pensford

Figure D.11 – Map of the non-automatic monitoring site – Peasedown St John

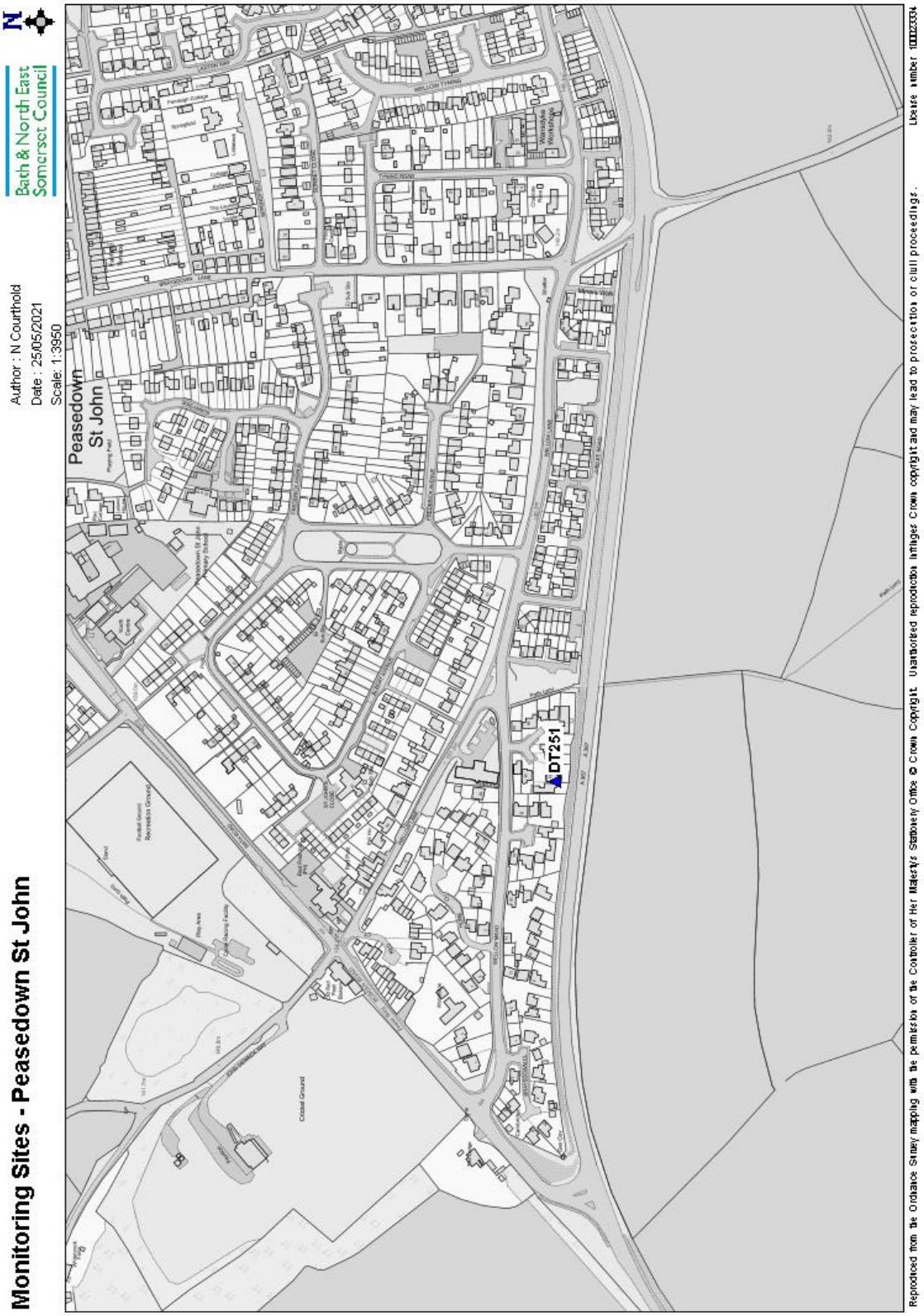


Figure D.12 – Map of the non-automatic monitoring sites– Radstock and Westfield

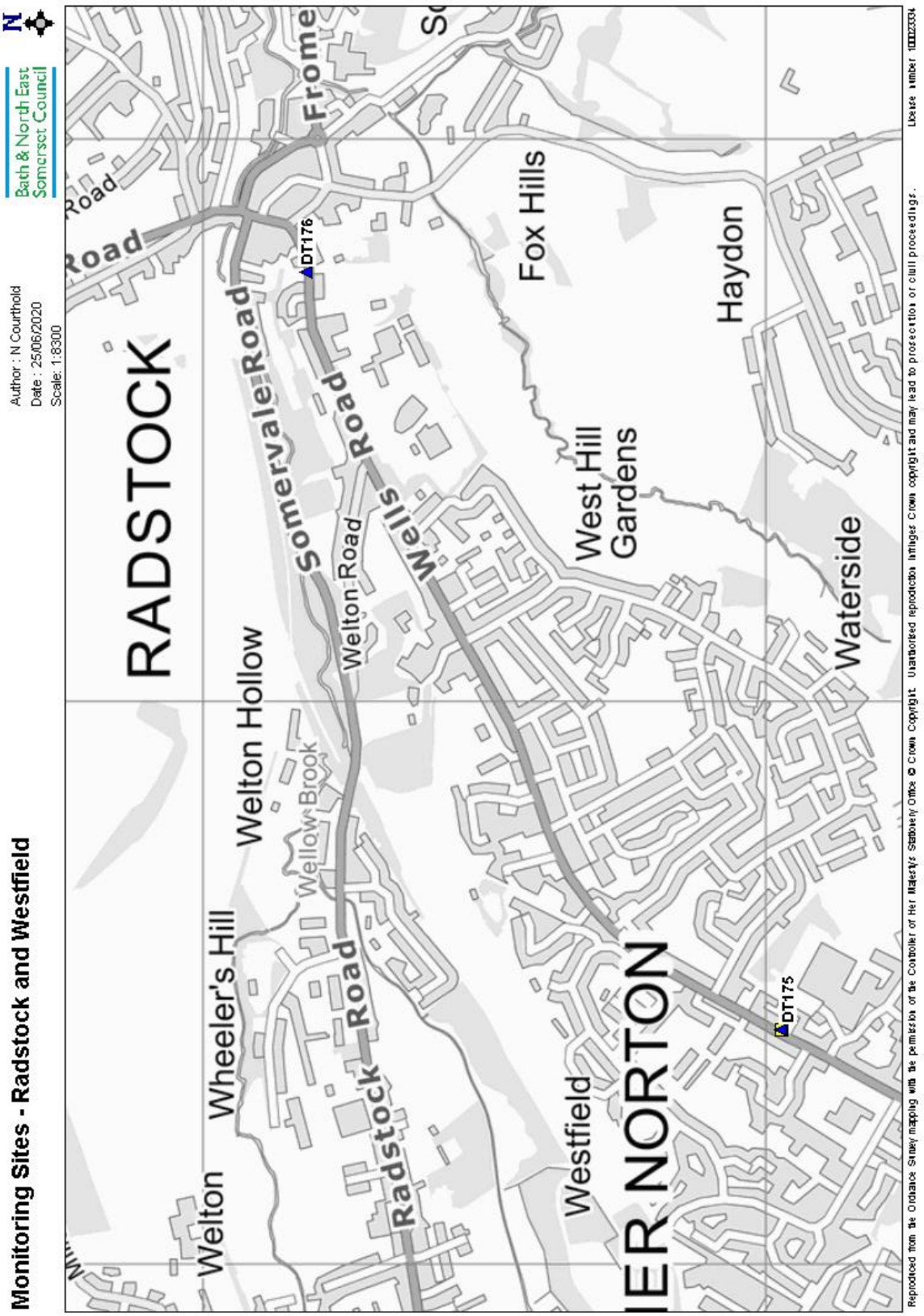


Figure D.13 – Map of the non-automatic monitoring sites and AQMA – Saltford

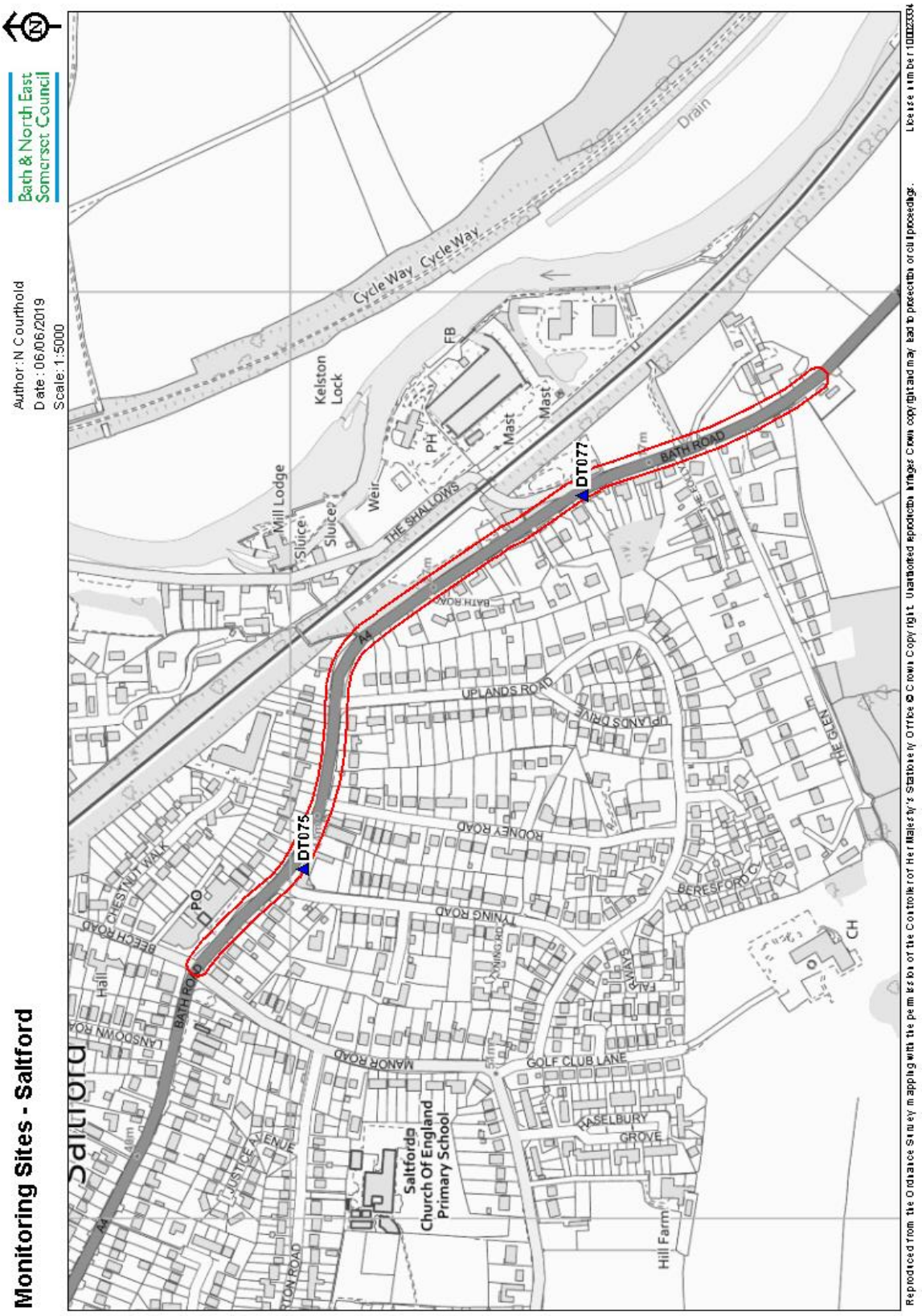


Figure D.14 – Map of the non-automatic monitoring sites and AQMA – Temple Cloud

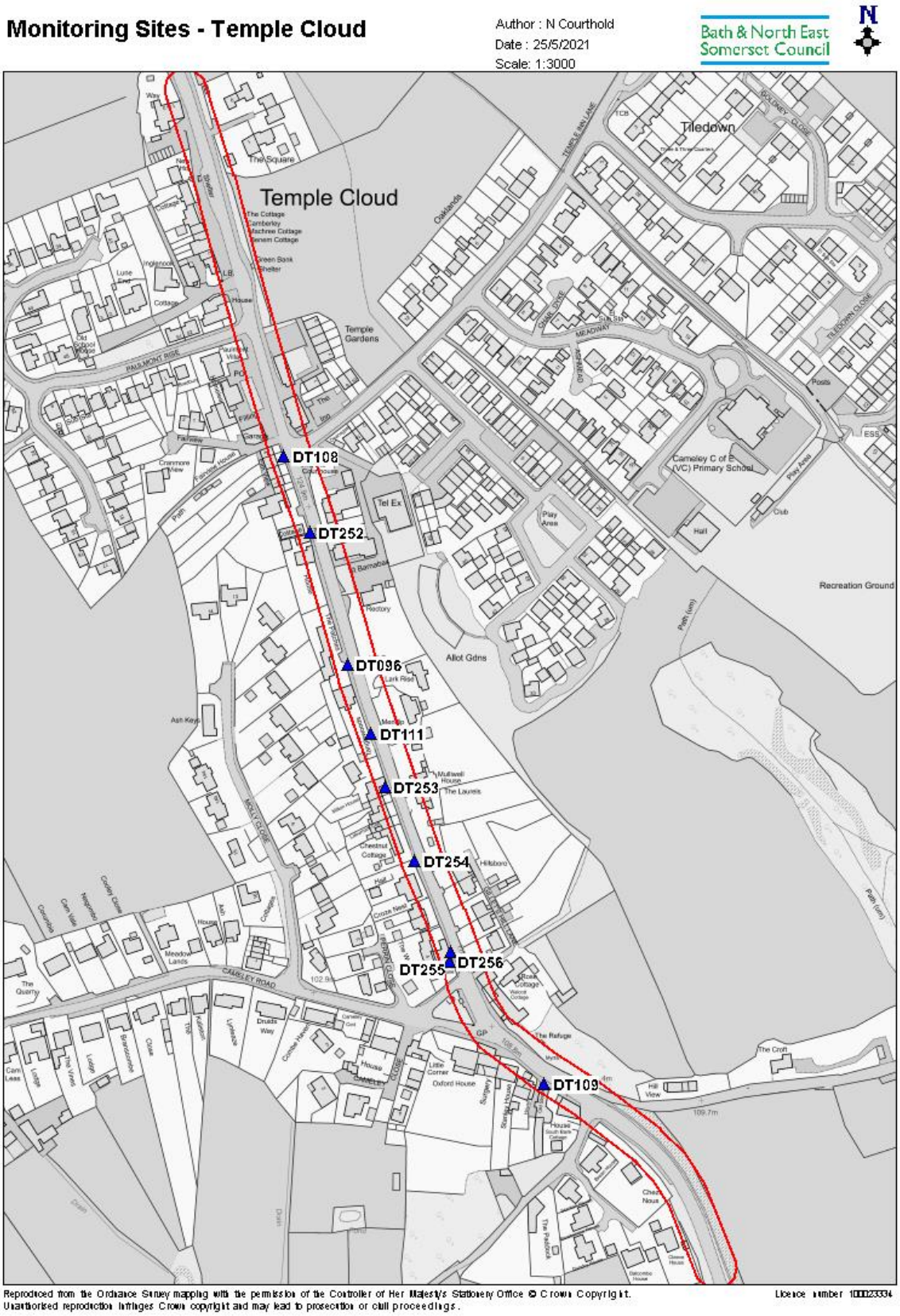
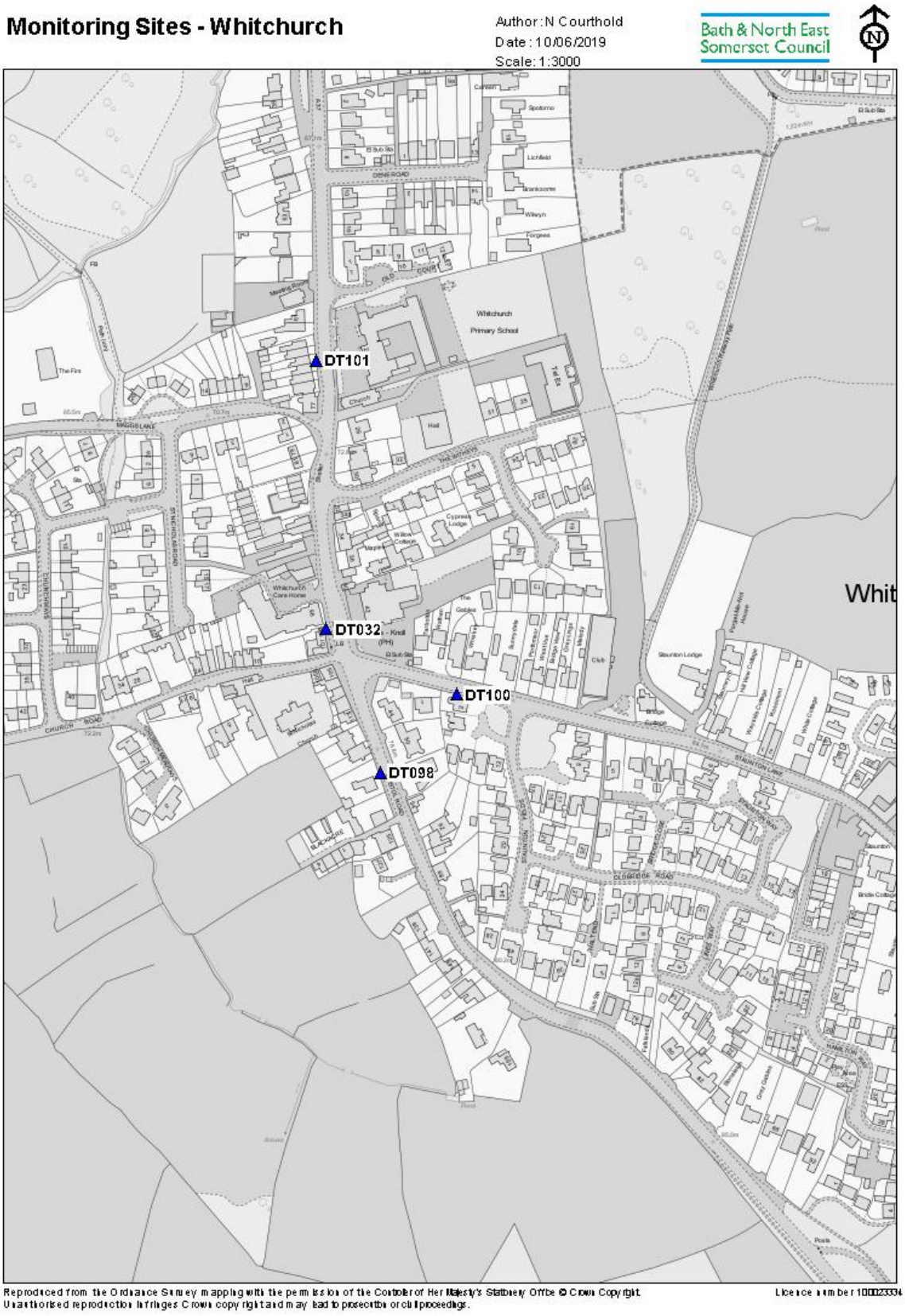


Figure D.15 – Map of the non-automatic monitoring sites – Whitchurch



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[13]

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

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

Appendix F: Impact of COVID-19 upon LAQM

COVID-19 has had a significant impact on society. Inevitably, COVID-19 has also had an impact on the environment, with implications to air quality at local, regional and national scales.

COVID-19 has presented various challenges for Local Authorities with respect to undertaking their statutory LAQM duties in the 2021 reporting year. Recognising this, Defra provided various advice updates throughout 2020 to English authorities, particularly concerning the potential disruption to air quality monitoring programmes, implementation of Air Quality Action Plans (AQAPs) and LAQM statutory reporting requirements. Defra has also issued supplementary guidance for LAQM reporting in 2021 to assist local authorities in preparing their 2021 ASR. Where applicable, this advice has been followed.

Despite the challenges that the pandemic has given rise to, the events of 2020 have also provided Local Authorities with an opportunity to quantify the air quality impacts associated with wide-scale and extreme intervention, most notably in relation to emissions of air pollutants arising from road traffic. The vast majority (>95%) of AQMAs declared within the UK are related to road traffic emissions, where attainment of the annual mean objective for nitrogen dioxide (NO_2) is considered unlikely. On 23rd March 2020, the UK Government released official guidance advising all members of public to stay at home, with work-related travel only permitted when absolutely necessary. During this initial national lockdown (and to a lesser extent other national and regional lockdowns that followed), marked reductions in vehicle traffic were observed; Department for Transport (DfT) data[14] suggests reductions in vehicle traffic of up to 70% were experienced across the UK by mid-April, relative to pre COVID-19 levels.

This reduction in travel in turn gave rise to a change of air pollutant emissions associated with road traffic, i.e. nitrous oxides (NO_x), and exhaust and non-exhaust particulates (PM). The Air Quality Expert Group (AQEG)[15] has estimated that during the initial lockdown period in 2020, within urbanised areas of the UK reductions in NO_2 annual mean concentrations were between 20 and 30% relative to pre-pandemic levels, which

[14] Prime Minister's Office, COVID-19 briefing on the 31st of May 2020

[15] Air Quality Expert Group, Estimation of changes in air pollution emissions, concentrations and exposure during the COVID-19 outbreak in the UK, June 2020

represents an absolute reduction of between 10 to 20µg/m^3 if expressed relative to annual mean averages. During this period, changes in $PM_{2.5}$ concentrations were less marked than those of NO_2. $PM_{2.5}$ concentrations are affected by both local sources and the transport of pollution from wider regions, often from well beyond the UK. Through analysis of AURN monitoring data for 2018-2020, AQEG have detailed that $PM_{2.5}$ concentrations during the initial lockdown period are of the order 2 to 5µg/m^3 lower relative to those that would be expected under business-as-usual conditions.

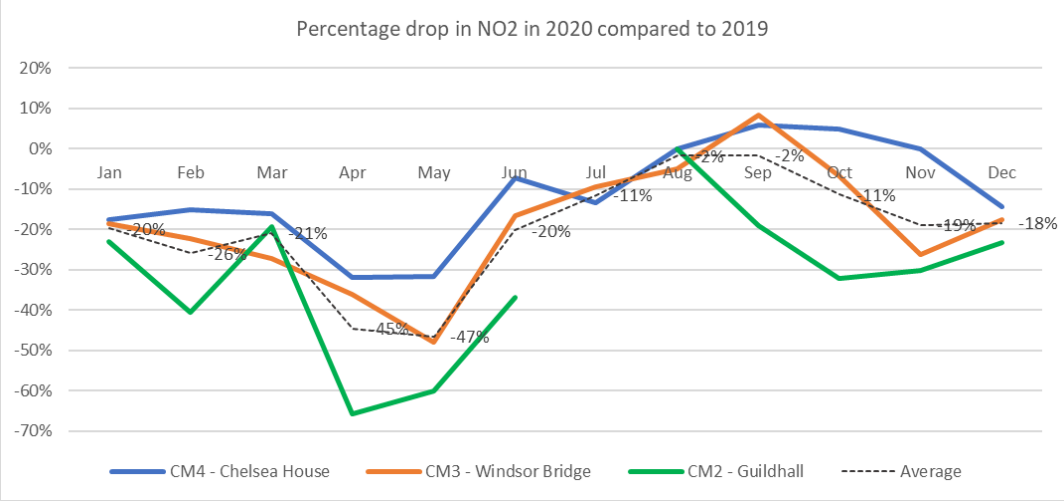
As restrictions are gradually lifted, the challenge is to understand how these air quality improvements can benefit the long-term health of the population.

Impacts of COVID-19 on Air Quality within Bath & North East Somerset

Covid-19 had a big influence on nitrogen dioxide concentrations in 2020, a large drop was seen after the national lockdown on 23 March 2020, this was followed by a gradual increase in pollution over the year peaking in Sept/Oct and then dipping with the tighter restrictions in Nov/Dec (Figure F.1). This was a national trend. The dip in March was exaggerated due to weather influences with a sunny dry Spring with Easterly winds.

Overall the annual average concentrations across the national network dropped by around 25% compared with 2019, increasing to a reduction of 32% at roadside locations. Across the Bath sites concentrations dropped by approximately 20%.

Figure F.1– A graph showing the percentage drop in NO_2 at the automatic monitoring sites compared to 2019



Opportunities Presented by COVID-19 upon LAQM within Bath and North East Somerset

There were two significant opportunities as a result of lower traffic during lockdowns:

- Future Transport Zones – the reduced traffic levels in the centre of Bath provided the perfect opportunity for the commencement of a year long E-scooter hire scheme as part of the West of England Combined Authority (WECA) new technology trial, as detailed in section 2 above and as Bath 19 in Table 2.2.
- Public Realm Strategy and Milsom Street closure – experimental schemes were introduced giving more roadspace to pedestrians for social distancing and Milsom Street was closed with a barrier – see Bath 21 and Bath 25 in Table 2.2.

Challenges and Constraints Imposed by COVID-19 upon LAQM within Bath & North East Somerset

- During 2020, the laboratory used for the diffusion tubes was closed and there was no supply of tubes in April and a delay of the changeover in May. Therefore, it was not possible to maintain diffusion tube exposure periods for April and May in line with the national monitoring calendar for a number of sites. This has affected data capture within 2020. **Small Impact**
- An AQAP is being developed for Temple Cloud and Farrington Gurney AQMAs. The development and implementation of the final AQAP has been delayed. Current estimates are that the final AQAP will be adopted in 2021. Although there has been a delay in adopting the final action plan some actions have been progressed in 2020. **Small Impact**
- The pandemic impacted on resources and the delivery of measures including the ability of fleet operators to upgrade their vehicles. **Medium Impact**
- The Clean Air Zone (Bath CAP 2 in Table 2.2) was delayed from commencing in November 2020 to March 2021. **Small Impact**
- Covid-19 has impacted the delivery of bus engine emission abatement retrofits (Bath CAP 3 in Table 2.2) with supply chain issues relating to electrical components and raw materials in addition to lockdowns and workforce illness causing manufacturing delays. **Small Impact**

- Electric Vehicle Charge Point (Bath 7 in Table 2.2) Installations were delayed in part by Covid-19 affected supply chain issues. **Small Impact**
- Public Realm improvements (Bath 21 in Table 2.2) planned for 2020 were delayed. **Medium Impact**

The impacts as presented above are aligned with the criteria as defined in Table F 1, with professional judgement considered as part of their application.

Table F 1 – Impact Matrix

Category	Impact Rating: None	Impact Rating: Small	Impact Rating: Medium	Impact Rating: High
Automatic Monitoring – Data Capture (%)	More than 75% data capture	50 to 75% data capture	25 to 50% data capture	Less than 25% data capture
Automatic Monitoring – QA/QC Regime	Adherence to requirements as defined in LAQM.TG16	Routine calibrations taken place frequently but not to normal regime. Audits undertaken alongside service and maintenance programmes	Routine calibrations taken place infrequently and service and maintenance regimes adhered to. No audit achieved	Routine calibrations not undertaken within extended period (e.g. 3 to 4 months). Interruption to service and maintenance regime and no audit achieved
Passive Monitoring – Data Capture (%)	More than 75% data capture	50 to 75% data capture	25 to 50% data capture	Less than 25% data capture
Passive Monitoring – Bias Adjustment Factor	Bias adjustment undertaken as normal	<25% impact on normal number of available bias adjustment colocation studies (2020 vs 2019)	25-50% impact on normal number of available bias adjustment studies (2020 vs 2019)	>50% impact on normal number of available bias adjustment studies (2020 vs 2019) and/or applied bias adjustment factor studies not considered representative of local regime
Passive Monitoring – Adherence to Changeover Dates	Defra diffusion tube exposure calendar adhered to	Tubes left out for two exposure periods	Tubes left out for three exposure periods	Tubes left out for more than three exposure periods
Passive Monitoring – Storage of Tubes	Tubes stored in accordance with laboratory guidance and analysed promptly.	Tubes stored for longer than normal but adhering to laboratory guidance	Tubes unable to be stored according to be laboratory guidance but analysed prior to expiry date	Tubes stored for so long that they were unable to be analysed prior to expiry date. Data unable to be used
AQAP – Measure Implementation	Unaffected	Short delay (<6 months) in implementation of measures, but has been progressed to a degree	Long delay (>6 months) in implementation of measures, but has been progressed to a long degree	No progression in implementation of measures
AQAP – New AQAP Development	Unaffected	Short delay (<6 months) in development of a new AQAP, but is on-going	Long delay (>6 months) in development of a new AQAP, but is on-going	No progression in development of a new AQAP

Appendix G: Other monitoring

Benzene

Whilst we are fully compliant with the national air quality objective with respect to benzene, Bath & North East Somerset Council has a benzene monitor which is part of the national non-automatic hydrocarbon network. This measures the benzene concentration using a pumped Benzene tube (a benzene tube which has a fixed amount of air being drawn through it). Until June 2019 the site was located at the London Road continuous site (CM1), due to the site closing the monitor was relocated to a roadside new roadside enclosure on the London Road (Bath A4 Roadside, CM8) in October 2019.

Monitoring results for benzene are shown in Table G.1 and Figure G.1. The results show that there are no exceedances of the benzene objectives during 2020.

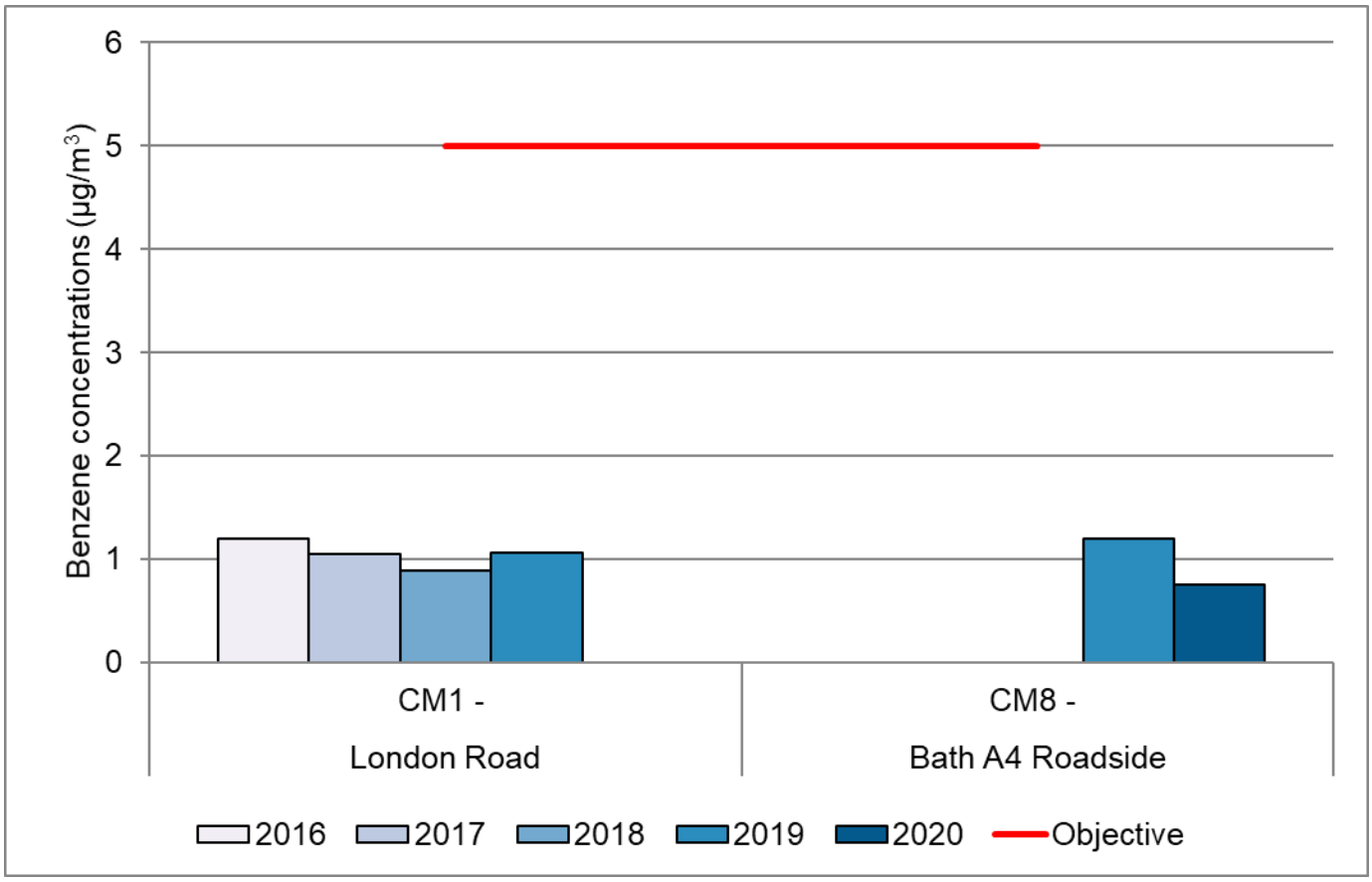
Trends in benzene show that levels are gradually decreasing. 2019 was slightly higher, this may be due to the low data capture (Figure G.1).

Table G.1 – Annual Mean Results: Benzene Monitoring (µg/m3)

Site ID	Site Name	Data Capture for 2020 (%)	2016	2017	2018	2019	2020
CM1	London Road	-	1.2	1.1	0.9	1.1	-
CM8	Bath A4 Roadside	100	-	-	-	1.2	0.8

Note: Benzene Annual Mean Objective is 5 µg/m^3

Figure G.1 – Trends in Benzene Monitoring



AQMesh Monitoring

The AQMesh analyser is an indicative analyser which uses electrochemical sensors to measure NO_2 concentrations and optical sensors to monitor particulates. As an 'indicative' monitor, the monitor is used to identify the timing of peaks and troughs, changes in concentrations due to e.g. a traffic scheme being implemented and approximate values. If high concentrations are indicated further investigations will take place. It is possible that co-locating with our more accurate 'reference method' analysers (e.g. CM3 Windsor Bridge) will improve the accuracy (not precision) of the data by providing a local calibration factor that can be applied to the data retrospectively. It is also noted that the limit of detection of the NO_2 sensor is 10 µg/m^3. In areas where the background concentrations are low and NO_2 concentrations are often likely to fall below 10µg/m^3 e.g. overnight, there is a higher uncertainty in the results.

In 2020 the AQMesh analysers were located at Bath – Windsor Bridge (AQM20) (co-located with a continuous analyser [CM3]), Pensford (AQM21) and Temple Cloud (AQM23). During 2020 the gas sensors were replaced as this was recommended by the manufacturer. There was also a fault on the PM_{10} at Windsor Bridge and Temple Cloud. The results from these locations are shown in Table G.2 (NO_2).and Table G.3 (PM_{10} and $PM_{2.5}$).

Notes from AQDM on the AQMesh data in 2020 were:

- The NO, NO_2, $PM_{2.5}$, PM_{10} and Ozone results from the AQMesh have similar profiles to the reference instruments.
- There are large artificial baselines for the AQMesh results.

The AQMesh analysers were compared to the continuous analysers at Windsor Bridge, for AQM21 this was carried out in late 2019 and early 2021. For AQM23 this was AQM20. There was generally poor correlation between the AQMesh sensors and the continuous analysers. For AQM21, the correlation on the new gas sensors (early 2021) the correlation improved. Scaling has been carried out for the NO_2 concentrations as there was a large offset on the raw data. This was done using the gradient and offset from the best fit line when the sensors were co-located at Windsor Bridge. No scaling has been carried out on the PM_{10} results. Due to a persisting fault on the PM sensors for AQM23/AQM20 no results have been presented.

The results in Table G.2 show whilst the AQMesh analysers were at Temple Cloud the NO_2 concentrations were lower than the co-located diffusion tube. The results indicate the

uncertainty in the AQMesh NO_2 concentrations. The results from Pensford are also likely to be more uncertain due to its more rural location.

Table G.2 – NO_2 Monitoring Results: AQMesh analysers

Site	Period	Mean NO_2 ($\mu g/m^3$)	NO_2 1-Hour Means > 200$\mu g/m^3$ (2)	Data Capture 2020 (%) (1)
AQM21 – Pensford	2020	23	0	96
AQM23 – Temple Cloud	Nov-Dec	18	0 (58)	19 (100)
Co-located DT254	Nov-Dec	37	-	-
AQM20 – Windsor Bridge	Jan-Mar	32	60	17 (100)
CM3 Windsor Bridge	Jan-Mar	32	90	17 (100)
AQM20 – Windsor Bridge (new sensors)	July-Oct	23	59	25 (100)
CM3 Windsor Bridge	July-Oct	23	71	25 (100)

Notes:

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

(1) 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%), data capture for the period is shown in brackets.

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

Table G.3 – PM Monitoring Results: AQMesh analysers

Site	Period	Annual Mean PM_{10} ($\mu g/m^3$)	PM_{10} 24- hour Means >50 $\mu g/m^3$ (2)	Annual Mean $PM_{2.5}$ ($\mu g/m^3$)	Data Capture 2020 (%) (1)
AQM21 – Pensford	2020	7	0	5	100

Notes:

(1) 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%), data capture for the period is shown in brackets.

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

Glossary of Terms

Abbreviation	Description
ANPR	Automatic Number Plate Recognition
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
AURN	Automatic Urban and Rural Network
ATC	Automatic Traffic Count
BAM1020	Beta Attenuation Monitor
CAD	Clean Air Day
CAP	Clean Air Plan
CAZ	Clean Air Zone
CBTF	Clean Bus Technology Fund
CM	Continuous Monitori
CVRAS	Clean Vehicle Retrofit Accreditation Scheme
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DT	Diffusion Tube
EU	European Union
EV	Electric Vehicle
GULW	Go Ultra Low West
HGV	Heavy Goods Vehicle
JAQU	Joint Air Quality Unit
LAQM	Local Air Quality Management
LCWIP	Local Cycling and Walking Investment Plan
LGV	Light Goods Vehicle
LSO	Local Site Operator

Abbreviation	Description
LTN	Low Traffic Neighbourhood
MoU	Memorandum of Understanding
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
OLEV	Office for Low Emission Vehicles
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
P&R	Park and Ride
PAYG	Pay as you go
PCN	Penalty Charge Notice
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide
SCR	Selective Catalytic Reduction
TG16	Technical Guidance (Local Air Quality Management)
TMT	Thermal Management Technology
TRO	Traffic Regulation Order
$\mu g/m^3$	Microgrammes per cubic metre
ULEV	Ultra-Low Emission Vehicles
UTMC	Urban Traffic Management Control
VMS	Variable Message Sign
WECA	West of England Combined Authority

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