
Bath & North East
Somerset Council

Improving People's Lives

2020 Air Quality Annual Status Report (ASR)

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

July, 2020

Bath & North East Somerset Council

Local Authority Officer	Dr Nicola Courthold Mr Robin Spalding
Department	Environmental Monitoring
Address	Bath & North East Somerset Council Lewis House Manvers Street Bath BA1 1JG
Telephone	01225 396622
E-mail	Environmental_Monitoring@bathnes.gov.uk
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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, particularly respiratory conditions. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas^{1,2}.

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion³.

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;

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

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

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

- 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 (NO₂), 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 at <http://www.bathnes.gov.uk/services/environment/pollution/air-quality/>.

There is no clear evidence of a safe level of exposure to particulate matter (PM) or NO₂ below which there is no risk of adverse health effects. This means that further reduction of PM or NO₂ concentrations below air quality standards is likely to bring additional health benefits⁴.

Bath and North East Somerset Council had 166 NO₂ monitoring sites and 4 particulate matter monitoring sites in 2019. 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 G.

Headlines from the 2019 continuous analysers are:

- Bath and North East Somerset Council has monitors at 5 locations in 2019, including 5 NO₂, 3 PM₁₀ and 1 PM_{2.5} analysers, detailed in Table A.1, Appendix A.

⁴ DEFRA, Air Quality: A Briefing for Directors of Public Health, 2017

- The AURN (Automatic Urban Road Network) affiliated site was moved in 2019 to a new location on the opposite side of road in a new roadside enclosure.
- NO₂ – all continuous analyser monitoring results were below the annual average objective of 40 µg/m³ and there were no exceedances of the 1-hour objective. Overall, NO₂ reduced by 8% compared to results in 2018; this is higher than the average 1% reduction across the AURN network, although there are local increases and decreases. For example, Bristol experienced a 4% drop at one location and a 11% drop at the other whilst Chepstow experienced an increase of 8%.
- PM₁₀ – all monitoring results were below the annual average objective of 40 µg/m³ and there were 5 exceedances of the 24-hour mean objective (35 exceedances allowed). The results were similar to 2018.
- PM_{2.5} – monitoring was below the annual average objective of 25 µg/m³. There was a 1 µg/m³ reduction compared with 2018 results.

A summary of NO₂ results from diffusion tubes across B&NES:

- Bath & North East Somerset Council has monitored NO₂ using diffusion tubes at 161 locations with 41 of these locations using triplicate diffusion tubes in 2019. A triplicate site is where 3 diffusion tubes are located at one site; this makes the data collection more robust as a fault with one tube (e.g. spider's nest in a tube, water ingress etc.) will not lead to a loss of data for the month.
- The average decrease across the long-term sites was 5% compared with 2018 monitoring data. (The average changes across the AURN network is a decrease of 1%).
- Bath – NO₂ concentrations reduced by an average of 5% across Bath compared with 2018. There was a slight increase at several sites and several sites with only slight changes. 6 sites remain above the annual average objective of 40 µg/m³ at the residential facades across Bath in 2019.
- Keynsham – Monitoring continues to show a reduction in the NO₂ concentrations following the start of the trial for a one-way system in Keynsham. All sites were below the objective of 40 µg/m³ in 2019.
- Saltford – All sites were below the objective of 40 µg/m³ in 2019.
- Temple Cloud – Monitoring remains above the objective of 40 µg/m³ at one location with concentrations reducing at all other locations. An Air Quality

Management Area (AQMA) was declared for this area in 2018 and a Consultation Draft Air Quality Action Plan (AQAP) is being consulted upon.

- Farrington Gurney – Monitoring results in Farrington Gurney were similar to 2018; a result of 38.8 $\mu\text{g}/\text{m}^3$ was recorded at a residential façade along the A37. Monitoring is continuing so that a trend can be established. An AQMA was declared for this area in 2018 and a draft AQAP is being consulted upon.
- Pensford – Monitoring in Pensford on the A37 has remained below the objective of 40 $\mu\text{g}/\text{m}^3$.
- Whitchurch – Monitoring in Whitchurch was below the objective of 40 $\mu\text{g}/\text{m}^3$. An AQMA is not being declared but monitoring is continuing at key locations.
- Batheaston/Bathampton – monitoring remains below 40 $\mu\text{g}/\text{m}^3$ at all locations.
- Radstock/Westfield - monitoring remains below 40 $\mu\text{g}/\text{m}^3$ at these locations.
- Chew Magna/Clutton/White Cross/Peasedown St John - New monitoring in Chew Magna, Clutton, White Cross and Peasedown St John was well below the objective of 40 $\mu\text{g}/\text{m}^3$. No further action is required.
- 1-hour objective – All sites in Bath & North East Somerset are below 60 $\mu\text{g}/\text{m}^3$ – 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 5 locations in 2019 using AQMesh indicative samplers. Results for each location included NO_2 , PM_{10} and $\text{PM}_{2.5}$ are shown in Appendix D.
 - Bath – George Street
 - Bath – Windsor Bridge
 - Bathampton High Street
 - Farrington Gurney
 - Westfield – Wells Road

Actions to Improve Air Quality

Key completed measures in 2019 are:

Bath Clean Air Plan

- Much like the previous reporting year of 2018, 2019 was dominated by progressing the Clean Air Plan. In 2019, the Full Business Case for a category C Charging Clean Air Zone with traffic management in Queen Square was finalised prior to publishing in early 2020 (it was subsequently agreed by Cabinet in January 2020). Some of the Implementation Fund has been received such that physical work had commenced on the installation of enforcement infrastructure by the end of 2019;
- In 2019 the Clean Air Plan funding requirement was identified with input from stakeholders as part of the continuous engagement approach for the following shortlisted 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 and servicing options for businesses;
 - Provide a sustainable travel and transport team to facilitate the use of mitigation schemes by the impacted groups
- The Clean Air Plan Early Measures Funding for reduced residents' parking permit charges for ultra-low emission vehicles enable commencement of a scheme on 1st April 2019 that reduced the cost of parking permits for zero emission vehicles.

Other measures

- Following the success of the Experimental One-way Scheme in Keynsham, 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 from the West of England Local Enterprise Partnership towards the cost of implementing the first phase of public realm improvements;

- Bath & North East Somerset Council launched an electronic Clean Air Schools Toolkit to support teachers with lessons and activities targeted to specific age groups in support of the National Curriculum;
- Following declaration of the AQMAs in Temple Cloud and Farrington Gurney in 2018, an Options and Feasibility Study was completed by consultants to inform the Consultation Draft Air Quality Action Plan that was issued for public consultation in early 2020;
- In partnership with Bristol City Council, Bath and North East Somerset Council were successful in a Clean Bus Technology Fund (CBTF) extension bid to DEFRA for £2.5million of bus retrofit funds. This has meant that buses operating between Bristol and Bath were all upgraded to Euro VI in 2019;
- A tender process was completed and an operator appointed to run an E-Cargo last mile freight delivery scheme;
- The Council commenced work on a 'Mobility as a Service' Pilot in 2019 and this led to a funding award of £27 million for The West of England Combined Authority (WECA) for the Future Transport Zone;
- The Local Cycling and Walking Investment Plan was drafted in 2019 in preparation for consultation and adoption in 2020. The Plan proposes investment of £411m by 2036 across the West of England Combined Authority area.
- Work commenced on the former Bath Transport Study (now the Bath Delivery Action Plan) in 2019. The first phase related to current status of transport issues was completed in 2019;



- The Public Realm and Movement Strategy access restrictions were in development for Kingsmead Square in 2019;
- Clean Air Day publicity campaign that included pledges from third parties; a ‘walk-through’ event on Kingsmead Square featuring electric cycle sellers; a demonstration hybrid electric rigid lorry; e-cargo bike demonstration; a TravelWest roadshow advising people how to change their travel to more active and sustainable options; EV charging infrastructure sellers and information and promotional material.
- Installation of a variable message signs on the southbound A46 approach and A367 northbound approach to Bath;

Conclusions and Priorities

In 2019, monitoring at existing locations showed a decrease in concentrations at most locations. There were 5 exceedances of the annual average NO₂ objective, these were all located within existing AQMAs. Draft Air Quality Action Plans were developed for Temple Cloud and Farrington Gurney and consultation began in February 2020. The Final Business Case for the Clean Air Plan project was completed and approved in January 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;
- Publish a Final AQAP for Farrington Gurney;
- Detailed Assessment of Keynsham and Saltford AQMAs with a view to revocation in 2021;
- ‘Liveable neighbourhoods’ based on the Low Traffic Neighbourhood schemes introduced in London are in development for introduction in 2020;
- The Clean Air Zone Full Business Case and associated Clean Air Fund and Implementation Funds will be agreed in 2020 with a revised commencement date expected to be scheduled for 2021 subject to instruction from and agreement with the Joint Air Quality Unit (DfT and Defra). The Clean Air Zone

Financial Assistance Scheme has over 400 vehicle operators registered and once the Full Business Case has been agreed and funding received, the funding made up of grants and interest free loans will be rolled out by the newly appointed sustainable travel and transport team;

- The development of an alternative electric cycle hire scheme including an electric Brompton cycle dock will be piloted;
- In response to Covid-19 and the Government's statutory guidance: 'Reallocating Roadspace in Response to Covid-19', work has commenced a number of areas to reserve roadspace for pedestrians and cyclists to enable safe social distancing;
- 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 as detailed above;
- The Future Transport Zone programme will test how new technologies can be used to make it radically easier for people to move around the region, planning and changing between different modes of transport on a single ticket to get to their destination;
- The Public Realm and Movement Strategy for Cheap St, Westgate St and Upper Borough Walls will go out to public consultation this year on the city centre security project; and





- The installation of electric vehicle charging infrastructure 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) is

programmed for 2020, although we are currently assessing the impact of Covid-19 on the delivery programme, in consultation with GULW partners and OLEV. Factors include council operations/decision-making and supply chain delays (capital equipment, contractors, District Network Operator etc).

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

- The Council Cabinet reaching agreement with the Joint Air Quality Unit (DfT and DEFRA) re the financial settlement and start date for the Clean Air Zone;
- The 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;
- Responding to the Covid-19 crisis related Statutory Guidance on reallocation of roadspace;
- Development of the Liveable Neighbourhoods initiative based on the Low Traffic Neighbourhoods scheme in London;
- Implementation of the WECA funded Future Transport Zones e-scooter trial;
- 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 decimated 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.

We recommend that people visit the 'Travel West' website (www.travelwest.info/), 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 <http://www.bathnes.gov.uk/bath-breathes-2021>. For further information on current and historic data on air quality levels visit the Council's website: www.bathnes.gov.uk/air-quality.

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1 Local Air Quality Management

This report provides an overview of air quality in Bath & North East Somerset during 2019. 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 can be found in Table G.1 in Appendix G.

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

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

A summary of AQMAs declared by Bath & North East Somerset Council can be found in Table 2.1. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at <http://www.bathnes.gov.uk/services/environment/pollution/air-quality/>. Alternatively, see Appendix E: Map(s) of Monitoring Locations and AQMAs, which provides for a map of air quality monitoring locations in relation to the AQMA(s).

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)		Action Plan (inc. date of publication)
						At Declaration	Now	
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	Bath	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 2019 – 53 µg/m ³	Bath Air Quality Action Plan (2011) - http://www.bathnes.gov.uk/sites/default/files/20110303_final_bath_air_quality_action_plan.pdf
The Bath London Road Air Quality Management Area - 2013	Declared 18 July 2013	NO ₂ 1 Hour Mean	Bath	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 2019 – 53 µg/m ³	Bath Air Quality Action Plan (2011) - http://www.bathnes.gov.uk/sites/default/files/20110303_final_bath_air_quality_action_plan.pdf
The Keynsham High Street Air Quality Management Area 2010	Declared 31 July 2010	NO ₂ Annual Mean	Keynsham	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 2019 – 29 µg/m ³ at façade	Air Quality Action Plans for Keynsham and Saltford (2016) - http://www.bathnes.gov.uk/sites/default/files/keynsham_and_saltford_air_quality_action_plans_2016_1.pdf
The Saltford Air Quality Management Area 2013	Declared 4 July 2013	NO ₂ Annual Mean	Saltford	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 2019 - 30 µg/m ³	Air Quality Action Plans for Keynsham and Saltford (2016) - http://www.bathnes.gov.uk/sites/default/files/keynsham_and_saltford_air_quality_action_plans_2016_1.pdf

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)		Action Plan (inc. date of publication)
						At Declaration	Now	
Temple Cloud Air Quality Management Area 2018	Declared 20 August 2018	NO ₂ Annual Mean	Temple Cloud	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 2019 – 56 µg/m ³	Consultation Draft - Farrington Gurney and Temple Cloud Air Quality Action Plan (Feb 2020) https://www.bathnes.gov.uk/sites/default/files/consultation_draft_aqap_for_temple_cloud_and_farrington_gurney.pdf
Temple Cloud Air Quality Management Area 2018	Declared 20 August 2018	NO ₂ 1 Hour Mean	Temple Cloud	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 2019 – 56 µg/m ³	Consultation Draft - Farrington Gurney and Temple Cloud Air Quality Action Plan (Feb 2020) https://www.bathnes.gov.uk/sites/default/files/consultation_draft_aqap_for_temple_cloud_and_farrington_gurney.pdf
Farrington Gurney Air Quality Management Area 2018	Declared 20 August 2018	NO ₂ Annual Mean	Farrington Gurney	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 2019 - 39 µg/m ³	Consultation Draft - Farrington Gurney and Temple Cloud Air Quality Action Plan (Feb 2020) https://www.bathnes.gov.uk/sites/default/files/consultation_draft_aqap_for_temple_cloud_and_farrington_gurney.pdf

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

2.2 Progress and Impact of Measures to address Air Quality in B&NES Council

Defra's appraisal of last year's ASR⁵ made the following conclusions; 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. Trends are clearly presented and discussed and a robust comparison with air quality objectives is provided.
2. The diffusion tube mapping is comprehensive and clearly demonstrates the monitoring network. AQMA boundaries are also clearly shown on the map.
3. Local bias adjustment factor was selected. This is encouraged as it will be more representative of the conditions within the AQMAs and is more conservative than the national bias adjustment factor.
4. Salford and Keynsham AQMAs have been beneath objective levels for 2 years now. The Council's decision to continue monitoring and then review the status of each AQMA at the end of 2019 is supported.

Monitoring continues to be below the objective levels, a detailed assessment will be carried out for each area in 2020 to be included in the 2021 ASR.

5. Monitoring strategy is constantly being reviewed, this is good to see as it is being linked to traffic management schemes in the area.
6. The report included measures to address PM_{2.5} and links to Public Health Outcomes Frameworks. This is encouraged to be continued in future ASRs.
7. The Bath Air Quality Action Plan is from 2011 and needs to be updated. An Action Plan also needs to be developed for the 2 newly declared AQMAs.

The Bath Clean Air Plan forms part of the review of the Bath Air Quality Action Plan. A Consultation Draft AQAP for Bath was written in 2017, but postponed when the Ministerial direction was issued to develop a Clean Air Plan. Once the Clean Air Plan is substantially implemented the Bath AQAP will be

⁵ Bath & North East Somerset Council – 2019 Air Quality Annual Status Report, June 2019

reviewed. A consultation on a draft AQAP for Temple Cloud and Farrington Gurney started in February 2020.

8. Comments from the previous appraisal are provided and responded to.
9. Actions expected to be implemented within the next reporting year are clearly outlined.
10. In Table 2.2 Planning/Implementation Phase and Estimated/Actual Completion date has been left blank for most measures from the Keynsham and Saltford Action Plans. This makes it less clear which measures are currently active.

Table 2.2 has been colour coded with more dates put in to show the measures that have been completed or aborted as well as those that are currently active.

Bath & North East Somerset Council has taken forward a number of direct measures during the current reporting year of 2019 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2.

More detail on these measures can be found in 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 later in 2020.

Key completed measures are:

Bath Clean Air Plan

- Much like the previous reporting year of 2018, 2019 was dominated by the Clean Air Plan. Having published the Strategic Outline Business Case in early 2018; the Outline Business Case was published in March 2019 following the Cabinet decision to implement a category C Charging Clean Air Zone with Traffic Management measures at Queen Square. By the end of 2019, the Full Business Case was being finalised prior to publishing in early 2020 (it was subsequently agreed by Cabinet in January 2020). The Clean Air Plan funding consists of the implementation fund (enforcement infrastructure and costs directly related to the operation of the Clean Air Zone); the Clean Air Fund (mitigating the impacts of the Clean Air Zone);

and the Revenue Reinvestment Fund (revenue received from charging of non-compliant vehicles entering the zone). Some of the Implementation Fund has been received such that physical work had commenced on the installation of enforcement cameras by the end of 2019.

- In 2019 the Clean Air Plan funding requirement was identified with input from stakeholders as part of the continuous engagement approach for the following shortlisted 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 and servicing options for businesses;
 - Provide a sustainable travel and transport team to facilitate the use of mitigation schemes by the impacted groups
- The Council was successful in its application for Clean Air Plan Early Measures Funding for reduced residents' parking permit charges for ultra-low emission vehicles and on 1st April 2019 a scheme was introduced to reduce the cost of parking permits for zero emission vehicles. Until 2021, substantial discounts on the standard permit prices will be available across a range of parking permit types.

Other measures

- Following the success of the Experimental One-Way Scheme in Keynsham that resulted in a reduction of NO₂ levels to below the national objective, and following positive feedback from the subsequent 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 towards the cost of implementing the first phase of public realm improvements which will focus on transforming the High Street between Charlton Road and Bath Hill. The money was secured from the West of England Local Enterprise Partnership (LEP) through the Local

Growth Fund (LGF), administered by the West of England Combined Authority (WECA).

- Bath & North East Somerset Council has produced an electronic Clean Air Schools Toolkit⁶ to support teachers with lessons and activities targeted to specific age groups in support of the National Curriculum and is designed to make young residents and parents or carers think about their actions and encourage others to do the same.
- Following declaration of the AQMA's in Temple Cloud and Farrington Gurney in 2018, an Options and Feasibility Study was completed by consultants to inform the Draft Air Quality Action Plan that was issued for public consultation in early 2020. The study was required specifically constraints that exist in both AQMAs.
- In partnership with Bristol City Council, Bath and North East Somerset Council were successful in a Clean Bus Technology Fund (CBTF) extension bid to DEFRA for £2.5million of bus retrofit funds. This has meant that buses operating between Bristol and Bath were all upgraded to Euro VI in 2019.
- A tender process was completed and an operator appointed to run an E-Cargo last mile freight delivery scheme.
- The Council commenced work on a Mobility as a Service Pilot in 2019 and this led to a funding award of £27 million for WECA for the Future Transport Zone. The programme will test how new technologies can be used to make it radically easier for people to move around the region, planning and changing between different modes of transport on a single ticket to get to their destination.
- The Local Cycling and Walking Investment Plan was drafted in 2019 in preparation for consultation and adoption in 2020. Route proposals and a network plan are due to be completed post adoption expanding on identified route improvements through central Bath, Bath's subcentres, residential areas and in Midsomer Norton and Keynsham. The Plan proposes investment of £411million by 2036 across the WECA area (Bath and North East Somerset, Bristol City, North Somerset and South

⁶ <http://thehub.bathnes.gov.uk/Page/11243#>

Gloucestershire), improving the environment for cyclists and pedestrians, focussing on 30 local high streets as well as improvements along 55 continuous cycle routes.

- Work commenced on what was called the Bath Transport Study (now the Bath Delivery Action Plan) in 2019. The first phase related to current status of transport issues was completed in 2019. Following a review of phase 1 in 2020 to take account of Covid-19 impact, further phases relating to options identification; consultation and development of business cases are scheduled to be undertaken in 2020.
- The Public Realm and Movement Strategy access restrictions were in development for Kingsmead Square in 2019 and a trial was scheduled to commence in Spring 2020, however this has been delayed due to the Covid-19 outbreak.
- Clean Air Day publicity campaign that included pledges from third parties; a 'walk-through' event on Kingsmead Square featuring electric cycle sellers; a demonstration hybrid electric rigid lorry; e-cargo bike demonstration; a TravelWest roadshow advising people how to change their travel to more active and sustainable options; EV charging infrastructure sellers and information and promotional material.

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

- Temple Cloud and Farrington Gurney Air Quality Action Plans
- 'Liveable neighbourhoods' based on the Low Traffic Neighbourhood schemes introduced in London are in development for introduction in 2020
- The Clean Air Zone Full Business Case and associated Clean Air Fund and Implementation Funds will be agreed in 2020 with a revised commencement date expected to be scheduled for 2021 following instruction from and agreement with the Joint Air Quality Unit. The Clean Air Zone Financial Assistance Scheme has over 400 vehicle operators registered and once the Full Business Case has been agreed and funding received, the funding made up of grants and interest free loans will be rolled out by the newly appointed sustainable travel and transport team.

- The development of an alternative electric cycle hire scheme including an electric Brompton cycle dock will be piloted
- In response to Covid-19 and the Government's statutory guidance: 'Reallocating Roadspace in Response to Covid-19', work has commenced in a number of areas in Bath to temporarily reserve roadspace for cyclists and pedestrians and enable social distancing.
- 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 as detailed above.
- Future Transport Zones: The programme will test how new technologies can be used to make it radically easier for people to move around the region, planning and changing between different modes of transport on a single ticket to get to their destination. These are globally significant demonstrators to trial new transport technologies which in our instance includes a data hub; the trial of mobility as a service and e-scooters
- The Public Realm and Movement Strategy for Cheap St, Westgate St and Upper Borough Walls will go out to public consultation this year on the city centre security project.
- The installation of electric vehicle charging infrastructure from the OLEV funded projects (Go Ultra Low West (GULW) and ULEV Taxi Infrastructure Scheme) is programmed for 2020, although we are currently assessing the impact of Covid-19 on the delivery programme, in consultation with GULW partners and OLEV. Factors include council operations/decision-making and supply chain delays (capital equipment, contractors, District Network Operator etc).

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

- Bath and North East Somerset Council's Cabinet reaching agreement with the Joint Air Quality Unit (DfT and DEFRA) re the financial settlement and Joint Air Quality Unit direction on the 2021 commencement date of the Clean Air Zone;

- The 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;
- Responding to the Covid-19 crisis related Statutory Guidance on reallocation of roadspace;
- Development of the Liveable Neighbourhoods initiative based on the Low Traffic Neighbourhoods scheme in London;
- Implementation of the WECA funded Future Transport Zones e-scooter trial;
- Completion of Detailed Assessments for the Keynsham and Saltford Air Quality Management Areas following 3 years of monitoring below objective levels; and
- 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;
- Budgetary constraints due to the Covid-19 crisis and specifically the shortfall caused on the Council's budget for the 2020/21 financial year by decimated income from Council owned tourist attractions and the commercial estate;
- The solvency of suppliers; public transport, fleet operators and contractors following the Covid-19 crisis.

Progress on the following measures has been slower than expected:

- The Bath Air Quality Action Plan review has been deferred until after the introduction of the Clean Air Zone.
- A Delivery and Servicing Plans pilot was not undertaken but is part of the Full Business Case for the Clean Air Zone and identified as one of the measures to receive an allocation from the Clean Air Fund.
- No tenders were received in response to an Invitation to Tender for an electric cycle hire scheme. A small pilot is now being considered for an electric Brompton cycle dock.
- The development of a shared management plan for the shared use river path to promote cycling and walking is on hold awaiting development of the Bath River Line.
- The Bath River Line (formerly River Avon park) relates to a newly designated linear park that includes the river, river path and a series of small pocket parks along the river's edge. WECA funding has been allocated to develop the Bath River Line, including upgrading the path and green spaces to encourage more use. A management plan was developed to manage the park including the path, benches, bins, play areas and ecology.
- 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.

Bath & North East Somerset Council anticipates that the measures stated above and in Table 2.2 will help to achieve compliance in Keynsham and Saltford Air Quality Management Areas.

Whilst the measures stated above and in Table 2.2 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 Temple Cloud.

Temple Cloud / Farrington Gurney

In 2019 Bath and North East Somerset Council's Environmental Monitoring team have been generating ideas for measures that could form part of the joint Farrington Gurney and Temple Cloud Air Quality Action Plan (AQAP) and result in the required air quality improvement within the areas.

Given the constraints that exist in both the AQMAs it was deemed appropriate to carry out an Options and Feasibility Study of the available measures. This involved a full technical assessment; measures were first assessed for feasibility and then underwent further assessment in terms of quantified air quality benefit, cost implications and other associated impacts if proven feasible ⁽⁷⁾.

The study informed the measures within the Consultation Draft Farrington Gurney and Temple Cloud Air Quality Action Plan⁽⁸⁾. The following measures were included in the Consultation Draft 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.

⁷ A37 Options Feasibility Study (2020). Jacobs for Bath and North East Somerset Council.

https://www.bathnes.gov.uk/sites/default/files/1_a37_options_and_feasibility_study.pdf

⁸ Consultation Draft Air Quality Action Plan for Temple Cloud and Farrington Gurney (2020). Bath and North East Somerset Council. <https://www.bathnes.gov.uk/services/environment/pollution-noise-nuisance/air-quality/temple-cloud-and-farrington-gurney-air#:~:text=A%20draft%20Air%20Quality%20Action,Somerset%20between%202020%20and%202025.>

Temple Cloud:-

- TC1-Implementation of 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 from Molly Close
- 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-Installation of 'pollution cleaning technology'
-

The monitored concentrations of NO₂ decreased from 2018 to 2019 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. B&NES Council will continue to monitor this trend in Farrington Gurney to establish if it is ongoing.

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.

The colour code is as follows:

Green: most effective

Amber: medium effectiveness

Red: least effective / difficult

Blue italics = forthcoming

Black italics = complete / aborted

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
Bath CAP 1	Reduced residents parking permit charges for ULEVs	Promoting Low Emission Transport	Other	April 2019	Bath and North East Somerset Council	Joint Air Quality Unit CAZ Early Measures Fund	Number of permits for ULEVs as %age of total	Not known	24 ULEV permits issued	2021	Uptake and affordability of ULEVs
Bath CAP 2	Commencement of Charging Clean Air Zone	Traffic Management	Emission based road user charging	In use in 2021	Bath and North East Somerset Council	Joint Air Quality Unit CAZ Implementation Fund	Number of charges and FPNs for non-payment	Tbc	Comes into operation 2021	2020 installation	Awaiting agreement re CAZ start date
Bath CAP 3	Retrofitting buses	Vehicle Fleet Efficiency	Vehicle Retrofitting programmes	2020	Bath and North East Somerset Council and bus operators	Joint Air Quality Unit CAZ Clean Air Fund	Overall NO2 emissions reduction	Tbc	2020 installation	2020 installation	Awaiting financial settlement
Bath CAP 4	Financial Assistance Scheme	Vehicle Fleet Efficiency	Other	2020	Bath and North East Somerset Council	Joint Air Quality Unit CAZ Clean Air Fund	Estimate overall NO2 emissions reduction	Tbc	2020 commencement	2020 commencement	Economic conditions and business solvency
Bath CAP 5	Support and facilities for alternative delivery and servicing options for businesses	Freight and Delivery Management	Delivery and Service Plans	2020	Bath and North East Somerset Council	Joint Air Quality Unit CAZ Clean Air Fund	Change in number of deliveries using Low Emission Transport	Tbc	2020 commencement	2020 commencement	
Bath CAP 6	Sustainable Travel and Transport Team	Promoting Low Emission Transport / Promoting Travel Alternatives	Other	2020	Bath and North East Somerset Council	Joint Air Quality Unit CAZ Clean Air Fund	Number of vehicle operators advised	Tbc	2020 commencement	2020 commencement	
Bath 1	Bath Transport Package	Traffic Management	Other	2015	Bath and North East Somerset Council	DfT	Park & Ride (P&R) bus patronage and vehicles using the P&R	Not known	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	Substantially Complete.	Planned relocation of Mineral Water Hospital needs to take place before next phase of vehicular restrictions are implemented. This is due to meeting the needs of disabled drivers & passengers.

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
									<p>the addition of new bus shelters. There are 10 city centre live car parking availability VMS, 7 VMS on the edge of the city and 6 VMS in the City Centre for parking info and P&R promotion. There are plans for a VMS on A46 southbound.</p> <p>Extension of 10am to 6pm traffic restrictions in Stall Street and Lower Borough Walls.</p> <p>Seven Dials shared space and cycle scheme. Closure of Saw Close car park (22 spaces).</p> <p>Central access restrictions are currently being assessed and an initial conclusion is expected on schemes that can be taken forward in the summer.</p>		
Bath 2	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	Local Authority Traffic Management and Network	Department for Transport	Measured NO2 levels.	n/a	<p>There is currently a temporary 18 tonne weight limit in place on Cleveland Bridge. This is in place to maintain the structural condition of the bridge, which is in need of refurbishment. The government has confirmed funding to repair the bridge, which was expected to have been undertaken through a full closure of the A36 in summer 2020. This is now on hold due to the Covid-19 emergency and a review of the programme is under way. Part of the diversion route for HGVs affected by the weight limit includes the A350 in Wiltshire, which is partly within an AQMA.</p>	TBC – possibly 2021	Project programme under review due to Covid-19 emergency. Timing of repairs may also be affected by other major highway and development works in Bath.
Bath 3	Low Carbon Bus Trial (CIVITAS 1.3)	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	2010	Local Authority Environmental Health, Local Authority Transport Dept.	Local Authority, Funding: Defra Air Quality Grant	Fuel usage / costs.	0.2 µg/m ³	Complete. As a result, 8 hybrid electric buses now in used on the 3 park and ride services.	Complete.	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 Transshipment (CIVITAS 7.2)	Freight and Delivery Management	Freight Consolidation Centre	2011	Bath and North East Somerset Council, DHL, Bristol City Council and retail outlets in Bath	Local Authority, Funding and CIVITAS (EU)	Number of deliveries transferred from LGV / HGV to E-cargo bike. Number of participating businesses. NOx emissions	Reduced vehicle emissions	See Bath 18: ECargo 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.	Complete (funding ceased).	High level of subsidy required and no funding available – replaced with new Ecargo 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	Bath and North East Somerset Council		HGV traffic flows. NO ₂ levels.	n/a		Complete.	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.
Bath 6	Bicycle Hire including Electric Bikes (CIVITAS 6.4 and 6.5)	Transport Planning and Infrastructure	Public Cycle Hire Scheme	2015	Bath and North East Somerset Council and 'Next Bike'	Local Sustainable Transport Fund and Access Fund	Vehicle mix (% bikes). No. of hires.		<p>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 will be tendered in 2019.</p> <p>Update 2020. No tenders were received in 2019, we are now considering an</p>	2018	Over 15,000 hires between June 2014 and June 2016. 877 users per month. Electric cycle hire scheme will be tendered in 2019. Original hire scheme cancelled because non-profitable. an e-bikes more suitable.

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
									option on a small pilot with Ebrompton dock for June 2020		
Bath 7	Electric Vehicle Recharging Points	Promoting Low Emission Transport	EV Recharging	2014	West of England authorities and charge point suppliers	Local Sustainable Transport Fund, Access Fund, OLEV GUL City Scheme & ULEV Taxi Infrastructure	Vehicle mix (count of electric vehicles). Number of charges p.a. Number of different users.	Not known	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. Update 13/05/20: Although our planned EV charging network improvements will not change we are currently assessing the impact of Covid-19 on our delivery programme, in consultation with GULW partners and OLEV. Factors include council operations/decision-making and supply chain delays (capital equipment, contractors, DNO etc).	2022	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	Bath and North East Somerset Council	n/a	Number of air quality assessments including spreadsheet tool.	n/a	No progress	Expired.	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	Bath and North East Somerset Council	n/a	Number of haulage operators & vehicles audited. HGV vehicle mix survey (number plate and engine standard).	n/a	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	Bath and North East Somerset Council	OLEV Go Ultra Low City Scheme	Euro engine standard survey	Not known	Review undertaken by Energy Saving Trust for successful Go Ultra Low City Scheme Bid. As a result the Council has pledged to change 25% of light duty fleet to ultra-low emission vehicles by 2021. 10 pure EVs already purchased and operating in B&NES plus 4 hired pool cars. Memorandum of agreement is in development with Emergency Service providers – already a high proportion of Euro 6 vehicles.	2021	MoU signed by emergency services as a roadmap for meeting Euro 6 compliance for all but cars by 2021. Council fleet also working towards compliance (Euro 6) to avoid £100 daily CAZ charge for all but cars.
Bath 11	Monitoring of Bus Fleet Quality	Vehicle Fleet Efficiency	Fleet efficiency and recognition schemes	AQAP from 2011 & CAP from 2017	Bath and North East Somerset Council and bus operators	CAP Clean Air Fund	Euro engine standard survey. Number of emissions abatement retrofit / original design.	Critical measure in delivering compliance according to Full Business Case for Clean Air Zone	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 Clean Air Plan 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.	2021	Full audit of fleet planned as part of Clean Air Zone proposals. Bus upgrade programme agreed with operators and is now subject to final funding agreement as part of the Clean Air Zone. Superseded by Bath CAP3.
Bath 12	Transport & Travel Information	Public Information	Other	2014	Bath and North East Somerset Council	DfT	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. Contribute to achieving an improvement in favourability recorded	Not known	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.	Complete.	Bus checker app implemented as part of LSTF West of England project and available via www.travelwest.info

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
							for B&NES within the West of England Bus Satisfaction Survey				
Bath 13	Alternative Exhaust Emissions Abatement	Vehicle Fleet Efficiency	Fleet efficiency and recognition schemes	2019 (as part of CAP)	Bath and North East Somerset Council	CAP Clean Air Fund 2020 (subject to award)	Number of retrofitted HGVs. Number of buses retrofitted.	Not known	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). Clean Air Plan CAF bid for 117 fully funded vehicle retrofits, 13 repowers and 26 CBTF Extension funded retrofits.	Nov 2020	Availability of CVRAS (Clean Vehicle Retrofit Accreditation Scheme) accredited retrofit solutions.
Bath 14	Rositer Road Traffic Management Measures	Traffic Management	Strategic highway improvements	2015	Bath and North East Somerset Council	DfT / B&NES Highways budget	Traffic flows. NO ₂ levels.	Moving traffic from receptors.	Completed 2015 and annual mean NO ₂ levels reduced from 49 in 2014 to 28 µg/m ³ in 2016 on Widcombe Parade.	Complete.	
Bath 15	Promotional Website	Public Information	Via the internet	2016	Bath and North East Somerset Council	Initially DEFRA AQ Grant, then B&NES budget and Clean Air Plan Implementation Fund	Number of hits	Not known	Live AQ dials added and launch of Bath Breathes 2021 website with Clean Air Plan funding.	2020.	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	Bath and North East Somerset Council	Council budget	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	Not known	Low emission pool cars provided at Keynsham and Bath offices. Managed corporate pool car fleet of 16 low emission pool cars including 4 Renault Zoe E.V (and additional third charging point), Auris and Yaris hybrids and 2 Polos and 5 Fiat 500's. In 2018/19 the pool cars replaced 79,496 grey fleet miles of which 15,241 (19%) were full E.V. Combined grey fleet and pool car Business mileage reduced by 7% SOV commuting reduced by 4%	2020.	Current plan covers 2015-2018 New CTP in development for 2020-2023
Bath 17	Clean Air Schools Kit	Promoting Travel Alternatives	School Travel Plans / Other	2019	Local Authority and Primary Schools	B&NES budget	School uptake numbers.	Not known	Launched in 2019 and being used by a number of schools.	2025 (anticipated lifecycle)	
Bath 18 (see also Bath 4)	e-cargo and ULEV delivery scheme	Freight and Delivery Management	Freight Partnerships for city centre deliveries	2020	Bath and North East Somerset Council and WeGo	OLEV GUL CITY SCHEME	Number of deliveries transferred from previous method	tbc	Contract awarded – now in development stage.	2025	
Bath 19	Future Transport Zone new technology trials (MaaS & e-scooters)	Transport Planning and Infrastructure	Other	2020	WECA and Bath and North East Somerset Council	WECA	Mobility as a Service & e-scooter technology uptake numbers	tbc	Trial scheduled for 2020	2025	
Bath 20	Bath Delivery Action Plan	Transport Planning and Infrastructure	Other	2020	WECA and Bath and North East Somerset Council	WECA	tbc	tbc	Current status of transport issues completed in 2019. Options identification, consultation and business cases 2020.	2021	
Bath 21	Public Realm and Movement Strategy	Traffic Management	Re-prioritising road space away from cars	2020	WECA and Bath and North East Somerset Council	WECA and Bath and North East Somerset Council	Active travel count on road space and vehicular ATC	tbc	The Public Realm and Movement Strategy access restrictions were in development for Kingsmead Square in 2019 and a trial was scheduled to commence in Spring 2020, however this has been delayed due to the Covid-19 outbreak.	2021	

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
Bath 22	Clean Air Day	Public Information	Leaflets, TV, internet, etc.	2018	Bath and North East Somerset Council and Global Action Plan	Bath and North East Somerset Council, and Global Action Plan	Number of pledges and interactions	Not known	Publicity campaign that included pledges from third parties; a 'walk-through' event on featuring electric cycle sellers; a demonstration hybrid electric rigid lorry; e-cargo bike; a TravelWest roadshow promoting active & sustainable options; EV charging infrastructure. Planning for autumn 2020.	Annual ongoing	
Bath 23	Liveable Neighbourhoods	Traffic Management	Re-prioritising road space away from cars	2020	WECA and Bath and North East Somerset Council	WECA and Bath and North East Somerset Council	Active travel count on road space and vehicular ATC	tbc	Planning stage based on Low Traffic Neighbourhood scheme in London		
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	Uptake number	tbc	Planning stage		
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	Bath and North East Somerset Council, Keynsham Town Council and WECA	West of England Local Enterprise Partnership (Local Growth Fund – WECA)	Reduction in nitrogen dioxide concentrations. Traffic Counts. Reduction in emissions of nitrogen oxides.	Measured NO ₂ concentrations now below the objective	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.	2018	
Keynsham 2	Targeted information campaign for the most vulnerable groups (i.e. asthmatics, Chronic Obstructive Pulmonary Disease etc.).	Public Information	Other	2019	B&NES Public Protection and Health Improvement, Public Health, Research and Intelligence Team, Clinical Commissioning Group, Sirona Care and Health.	B&NES	The number of hits on website. Number of initiatives delivered.	No reduction in concentration in Nitrogen Dioxide, however there would be an exposure reduction for residents.	Aborted due to low prioritisation / effectiveness and lack of resource.	2021	
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	Bath and North East Somerset Council Planning Department		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.	Not known	Placemaking Plan states that electric charging facilities will be sought where practical	Ongoing	
Keynsham 4	Increase public charging points through 'Ultra Low West' (Source West) EV charging infrastructure programme.	Promoting Low Emission Transport	EV Recharging	2016	Bath and North East Somerset Council, West of England Authorities and charge point providers	OLEV Go Ultra Low City Scheme	Number of charge points. Number of charging sessions per year.	Not known	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. Update 13/05/20: Although our planned EV charging network improvements will not change (1 public rapid charger, 1 taxi rapid charger, 1 fast charger) we are currently assessing the impact of Covid-19 on our delivery programme, in consultation with GULW partners and OLEV. Factors include council operations/decision-making and supply chain delays (capital equipment, contractors, DNO etc).	2021	

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
Keynsham 5	Recommend tree planting in future infrastructure programmes	Transport Planning and Infrastructure	Other	2016	Bath and North East Somerset Council	Bath and North East Somerset Council	Number of trees planted.	Not known	Keynsham High St Public Realm project currently on hold due to COVID-19 so no planting has taken place although scheme if implemented includes new tree planting.	2021	
Keynsham 6	Influence planning policy to encourage the provision of cycle parking for each new property.	Transport Planning and Infrastructure	Cycle network	2016	Bath and North East Somerset Council	Bath and North East Somerset Council	Number of new properties with cycle storage. Number of planning applications approved with cycle storage as advisory or required condition.	Not known	Placemaking plan adopted 2017 and standards require new development to now provide minimum parking (secured and covered).	2029	
Keynsham 7	Explore the promotion of an "Electric Zone".	Promoting Low Emission Transport	Other	2016	Public Protection and Health Improvement & Highways.	Bath and North East Somerset Council	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.	Not known	Aborted. Wider area charging network 'REVIVE' replaces this.	2021	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	B&NES Placemaking Plan / Planning DC.	Bath and North East Somerset Council	Number of approved planning applications with minimum 30 minute bus frequency in or adjacent to site (with 100 metre of the site).	Negligible	Placemaking Plan requires developments to facilitate walking, cycling and public transport	2016-2029	
Keynsham 9	Support the creation of a local "Air Quality Action Group".	Public Information	Other	Connecting Communities Forum			Established as part of the remit of existing of new group.	Not known	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	Bath and North East Somerset Council and WECA	WECA	Delivery of project. Number of cycle trips from annual surveys.	n/a	Local Cycling and Walking Investment Plan(LCWIP) consulted Feb 20 and due to be adopted June 2020	2023	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	Bath and North East Somerset Council	Bath and North East Somerset Council	Low emission vehicle journeys / miles.	Not known	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	Bath and North East Somerset Council	WECA	Audit of infrastructure completed. Recommendation will be integrated into this plan. Walking and cycling surveys		Accessibility and Cycling Officer led on LCWIP, consultation on this document closed on 15 th March 2020.	2023	
Keynsham 14	Identify and publicise priority cycling routes to support a cycling culture for all.	Promoting Travel Alternatives	Promotion of cycling and walking	2016	Bath and North East Somerset Council	WECA	Active travel counts	n/a	Network cycle maps plus a range of route maps available on the Council's website, supported by printed versions and cycling events. LCWIP in development and due for consultation in 2019. Update: Public promotion of leisure	Ongoing	

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
									cycle routes is on hold under Covid-19 Lockdown. Will restart once government guidance allows.		
Keynsham 15	Encourage low emission bus services in Keynsham	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	2016	Bath and North East Somerset Council	CAP Clean Air Fund 2020 (subject to award)	Number of bus routes serviced by a Low emission vehicle	Modelled in the Clean Air Plan Full Business Case Documents (2020)	Progressed indirectly through CBTF extension and Clean Air Plan retrofit upgrade (2020)	2021	The proposed Bath Clean Air Zone 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	Bath and North East Somerset Council	Bath and North East Somerset Council	Delivery of a public education campaign	Not known	<p>Air quality and health campaign focussed in Bath also benefits Keynsham – bus shelter and rear of lower emission bus advertising as part of the Clean Air Plan.</p> <p>The B&NES Clean Air Schools Toolkit was launched on Clean Air Day in June 2019 and has since be resent to schools and early years settings several times, includes additional anti-idling campaign materials. 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. The toolkit will continue to be promoted across B&NES and specifically by the Council's Sustainable Travel Officer when visiting organisations in Keynsham.</p>	2025	
Keynsham 17	Work with bus operators on improved services, ticketing and simplified fare structure.	Promoting Travel Alternatives	Other	2016	WECA and bus operators	WECA	B&NES area bus usage figures. Annually Bus Passenger Satisfaction surveys for B&NES (Transport Focus).	Not known	This work is now being carried out by the West of England Combined Authority, which will publish a Bus Strategy in 2020 setting out its plans to improve bus services and build on the established trend of growth in passenger journeys.	Ongoing	Now part of the Clean Air Plan 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			Project implementation. Rail patronage per service at Keynsham (annual rail survey).	Not known	DfT awarded £31million in April 2019. Development Consent Order Application was accepted for Phase 1 (Portishead Branchline) in December 2019	2021	On track to be delivered.
Salford 1	Targeted information campaign advice for the most vulnerable groups (i.e. asthmatics, Chronic Obstructive Pulmonary Disorder etc.).	Public Information	Other	2019	B&NES Public Protection and Health Improvement, Public Health, Research and Intelligence Team, Clinical Commissioning Group, Sirona Care and Health.	B&NES	The number of hits on website. Number of initiatives delivered.	No reduction in concentration in Nitrogen Dioxide, however there would be an exposure reduction for residents.	Aborted due to low prioritisation / effectiveness and lack of resource.		
Salford 2	Recommend tree planting in future infrastructure programmes	Transport Planning and Infrastructure	Other	2016	Bath and North East Somerset Council	Bath and North East Somerset Council	Number of trees planted.	Not known	JSP withdrawn, and no current funding or project for tree planting	Ongoing	

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
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	Number of hits on website	Not known	No progress		Limited resources and lowering of nitrogen dioxide concentrations resulted in it being a low priority.
Saltford 4	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	Bath and North East Somerset Council Planning Department	Bath and North East Somerset Council	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.	Not known	Placemaking Plan states that electric charging facilities will be sought where practical	Ongoing	
Saltford 5	Increase public charging points through 'Ultra Low West' (Source West) EV charging infrastructure programme.	Promoting Low Emission Transport	EV Recharging	2016	Bath and North East Somerset Council, West of England Authorities and charge point providers	OLEV Go Ultra Low City Scheme	Number of charge points. Number of charging sessions per year.	Not known	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. Update 13/05/20: Although our planned EV charging network improvements will not change (1 public rapid charger, 1 taxi rapid charger, 1 fast charger) we are currently assessing the impact of Covid-19 on our delivery programme, in consultation with GULW partners and OLEV. Factors include council operations/decision-making and supply chain delays (capital equipment, contractors, DNO etc).	Increase public charging points through 'Ultra Low West' (Source West) EV charging infrastructure programme.	2021
Saltford 6	Explore the promotion of an "Electric Zone".	Promoting Low Emission Transport	Other	2016	B&NES Public Protection and Health Improvement, & Highways.		Number of signs. Number of electric vehicles in peak hour on A4.	N/A	Aborted due to low prioritisation / effectiveness and lack of resource. Also superseded by 'Saltford 5' progress re charging network.		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	2016	Connecting Communities Forum and B&NES Public Protection and Health Improvement,		Established as part of the remit of existing of new group.	N/A	Aborted due to low prioritisation / effectiveness and lack of resource.		Build on good relationship with parish council.
Saltford 8	Influence planning policy to encourage the provision of cycle parking for each new property.	Transport Planning and Infrastructure	Cycle network	2016	Bath and North East Somerset Council	Bath and North East Somerset Council	Number of new properties with cycle storage. Number of planning applications approved with cycle storage as advisory or required condition.	Not known	Placemaking plan adopted 2017 and standards require new development to now provide minimum parking (secured and covered).	2029	
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	Bath and North East Somerset Council	Bath and North East Somerset Council	Low emission vehicle journeys / miles.	Not known	Aborted due to low prioritisation / effectiveness and lack of resource.		Lack of available funds and low impact on overall emissions.
Saltford 10	Encourage low emission bus services in Keynsham	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	2016	Bath and North East Somerset Council	CAP Clean Air Fund 2020 (subject to award)	Number of bus routes serviced by a Low emission vehicle	Not known	Progressed indirectly through CBTF extension and Clean Air Plan retrofit upgrade (2020)	2021	The proposed Bath Clean Air Zone will be framed such that Saltford AQMA will also benefit low emission vehicles.

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
Saltford 11	Lobby government for incentivising uptake of non-diesel cars.	Other	Other	2016	Bath and North East Somerset Council	Bath and North East Somerset Council	Government response and changes to legislation.	In itself, no improvement, however, there is a reduction with each new ULEV introduced replaced a diesel vehicle	Submitted a consultation response (June 2017) to the DEFRA consultation: 'Improving air quality: national plan for tackling nitrogen dioxide in our towns and cities'	Complete	
Saltford 12	Increase public education messages which promote healthier choices for short journeys	Promoting Travel Alternatives	School Travel Plans / Other	2019	Bath and North East Somerset Council	Bath and North East Somerset Council	Delivery of a public education campaign	Not known	Air quality and health campaign focussed in Bath also benefits Keynsham – bus shelter and rear of lower emission bus advertising as part of the Clean Air Plan. The B&NES Clean Air Schools Toolkit was launched on Clean Air Day in June 2019 and has since been sent to schools and early years settings several times, includes additional anti-idling campaign materials. 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. The toolkit will continue to be promoted across B&NES and specifically by the Council's Sustainable Travel Officer when visiting organisations in Keynsham.	2025	Increase public education messages which promote healthier choices for short journeys
Saltford 13	Support the provision or improved lighting on cycle path.	Transport Planning and Infrastructure	Cycle network	2016	B&NES Property Services		Lighting provided to key locations at least	Not known	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	B&NES, First Group, Network Rail & MetroWest partners	Bath and North East Somerset Council	Completed feasibility study	Not known	GWR requested to undertake timetabling work to determine if an additional station is feasible within MetroWest phase 1 timetable.		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.PG16⁹ (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 pollution¹⁰ (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 4.7% (compared to 4.8% in 2013). This is similar to the values across the South West region of 4.4% and 5.2% 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)¹¹.

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 <http://www.bathnes.gov.uk/services/environment/pollution/smoke-control>. Within this area the Council works to ensure that only authorised fuels or appliances are used.

⁹ Local Air Quality Management – Policy Guidance (PG16), April 2016 (<https://laqm.defra.gov.uk/documents/LAQM-PG16-April-16-v1.pdf>)

¹⁰ <https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data#page/0/gid/1000043/pat/6/par/E1200009/ati/102/are/E06000022>

¹¹ Local Air Quality Management - Technical Guidance (TG16), April 2016 (<https://laqm.defra.gov.uk/documents/LAQM-TG16-April-16-v1.pdf>)

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

3.1 Summary of Monitoring Undertaken

This section sets out what monitoring has taken place and how it compares with objectives.

3.1.1 Automatic Monitoring Sites

Bath & North East Somerset Council undertook automatic (continuous) monitoring at 5 sites during 2019. Table A.1 in Appendix A shows the details of the sites.

Monitoring was carried out for NO₂ and PM₁₀ and a PM_{2.5} in 2019.

During 2019 the London Road site was moved from its location within a building to a new roadside enclosure on the opposite side of the road. The new site is closer to the road but further from the traffic signalled pedestrian crossing. Due to the move the site was closed between June and October. The new site is known as Bath A4 Roadside (CM8).

National monitoring results are available at <https://uk-air.defra.gov.uk/> (the London Road Continuous NO₂ 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 https://uk-air.defra.gov.uk/data/non-auto-data?uka_id=UKA00306&network=nahc&s=View+Site listed as Bath Roadside and details are also given in Appendix D.

Maps showing the location of the monitoring sites are provided in Appendix E. 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 (passive) monitoring of NO₂ at 161 sites during 2019. Table A.2 in Appendix A shows the details of the sites. 52 new sites were introduced in 2019, there were 44 sites as wider monitoring for the Clean Air Plan including 41 triplicate sites (sites with 3 tubes at each location, details are shown in Table C.2) and a further 8 monitors to respond to public requests and to check other key locations. These were:

- Bath Clean Air Plan
 - DT199 – Hensley Road
 - DT200 – Millmead Road
 - DT201 – The Hollow
 - DT202 – Charlcombe
 - DT206 – Park Lane
 - DT207 – Darlington Street
 - DT209 – Bellots Road
 - DT211 – St John’s Road
 - DT212 – Oldfield Road
 - DT213 – Marlborough Lane
 - DT214 – Marlborough Buildings
 - DT215 – Queen Parade Place
 - DT216 – Monmouth Place
 - DT217 – Cavendish Road
 - DT218 – Weston Road
 - DT219 – Morford Street
 - DT221 – Gay Street – façade
 - DT222 – Anglo Terrace façade
 - DT223 – Canton Place
 - DT224 – Walcot Parade 2
 - DT225 – Cleveland Terrace
 - DT226 – AURN
 - DT227 – Wells Road 3
 - DT228 – Lower Bristol Road 2
 - DT229 – Lower Bristol Road 3
 - DT230 – Upper Bristol Road 4
 - DT231 – Upper Bristol Road 5
 - DT232 – Lansdown Road 3
 - DT233 – Lansdown Road 4
 - DT234 – Gay Street 2
 - DT235 – Wells Road 4
 - DT236 – Pulteney Terrace
 - DT237 – Broad Street 2
 - DT238 – Broad Street 3
 - DT239 – Broad Street 4
 - DT240 – Bathwick Street 2
 - DT241 – Bathwick Street 3
 - DT242 – Charlotte Street 2
 - DT243 – Sydney Place
 - DT244 – Whiteway
 - DT245 – Whiteway 2
 - DT246 – Dorchester Street 2
 - DT247 – Monmouth Place 2
 - DT248 – Chapel Row 2
- Other sites
 - DT203 – Chew Magna
 - DT204 – Peasedown St John
 - DT205 – Clutton
 - DT220 – White Cross
 - DT208 – Widcombe 3
 - DT210 – Red Lion Roundabout
 - DT249 – Poolemead Road
 - DT250 – Newton Road

- Triplicate sites
 - DT020 – Wells Road
 - DT037 – Charlotte Street
 - DT052-DT054 – Walcot Terrace
 - DT090 – Anglo Terrace
 - DT096 – Temple Cloud
 - DT148 – Julian Road
 - DT172 – London Road 2
 - DT179 – Upper Bristol Road 3
 - DT180 – Wells Road 2
 - DT182 – Gay Street – Lower
 - DT198 – Walcot Parade
 - DT206 – Park Lane
 - DT213 – Marlborough Lane
 - DT214 – Marlborough Buildings
 - DT215 – Queen Parade Place
 - DT216 – Monmouth Place
 - DT217 – Cavendish Road
 - DT222 – Anglo Terrace façade
 - DT223 – Canton Place
 - DT224 – Walcot Parade 2
 - DT225 – Cleveland Terrace
 - DT226 – AURN
 - DT227 – Wells Road 3
 - DT228 – Lower Bristol Road 2
 - DT229 – Lower Bristol Road 3
 - DT230 – Upper Bristol Road 4
 - DT231 – Upper Bristol Road 5
 - DT232 – Lansdown Road 3
 - DT233 – Lansdown Road 4
 - DT234 – Gay Street 2
 - DT235 – Wells Road 4
 - DT236 – Pulteney Terrace
 - DT238 – Broad Street 3
 - DT239 – Broad Street 4
 - DT240 – Bathwick Street 2
 - DT241 – Bathwick Street 3
 - DT242 – Charlotte Street 2
 - DT243 – Sydney Place
 - DT246 – Dorchester Street 2
 - DT247 – Monmouth Place 2
 - DT248 – Chapel Row 2

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

3.1.3 Indicative Monitoring Sites

During 2019 Bath & North East Somerset also carried out monitoring at five locations using AQMesh samplers (Table A.2, Appendix A).

- Bath – George Street
- Bath – Windsor Bridge
- Bathampton High Street
- Farrington Gurney
- Westfield – Wells Road

These samplers are indicative and monitor NO₂ using electrochemical sensors, PM₁₀ and PM_{2.5} using optical particle count sensors giving real-time results every 15 minutes. Results are shown in Appendix D.

Monitoring of non-LAQM parameters including pollen and local meteorology which had previously been carried out by Bath & North East Somerset Council ceased in 2017 as the Council were unable to continue using the monitoring location.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias¹², “annualisation” (where the data capture falls below 75%), and distance correction¹³. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO₂)

Automatic Monitoring Data

Table A.3 and Figure A.1 in Appendix A compares the ratified and adjusted monitored NO₂ annual mean concentrations for the past 5 years with the air quality objective of 40µg/m³. Note that the concentration data presented in Table A.3 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).

Table A.4 in Appendix A compares the ratified continuous monitored NO₂ hourly mean concentrations for the past 5 years with the air quality objective of 200µg/m³, not to be exceeded more than 18 times per year.

The trend data shows that 2019 was not a peak year for NO₂, with monitoring results being lower than previous years at all sites (Figure A.1, Appendix A). The results from Windsor Bridge remain significantly lower than in the previous years of 2011-2013. During 2013 the site was relocated due to junction changes and the kerb has moved 2 m further from the monitor. The site is now a similar distance from the road to the residential properties which are located opposite the monitoring point.

The results from the new Bath A4 Roadside (CM8) site are lower than the London Road site (CM1). As this site has only been operational for a short period, it is unclear if this site will remain this much lower than the old London Road site. So far,

¹² <https://laqm.defra.gov.uk/bias-adjustment-factors/bias-adjustment.html>

¹³ Fall-off with distance correction criteria is provided in paragraph 7.77, LAQM.TG(16)

the monitoring results are higher than at the nearby Chelsea House (CM4) site which reflects its location closer to the roadside.

Diffusion Tube Monitoring Data

For diffusion tubes, the full 2019 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.3 and Figures A.2-A.20 in Appendix A compares the ratified and adjusted monitored NO₂ annual mean concentrations for the past 5 years with the air quality objective of 40µg/m³. Note that the concentration data presented in Table A.3 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). In 2019, the choice of bias factor was reviewed, and the national bias factor was chosen in preference to the local bias factor, with the clarification that using this factor will underestimate results from sites which are directly comparable with the co-located reference site on London Road, Bath. This was chosen as the co-location site was moved and there was less than 85% data capture, a detailed explanation for this is provided in Appendix C. Full details of all adjustments made are shown in Appendix C.

Bath

The results from monitoring sites in Bath show that in 2019 the annual average objective was exceeded at the following locations:

- DT020 - Wells Road
- DT042 - Dorchester Street
- DT055 - Lambridge
- DT060 - Victoria Buildings
- DT090 - Anglo Terrace
- DT172 - London Road 2
- DT182 – Gay Street Lower
- DT198 – Walcot Parade
- DT222 – Anglo Terrace Façade
- DT224 – Walcot Parade 2
- DT227 Wells Road 3
- DT231 Upper Bristol Road 5

Of these sites the six highlighted in red exceeded the 40 µg/m³ when adjusted to the closest building façade. All the existing monitoring sites which exceed the NO₂ annual average objective at the façade are within an AQMA.

In addition to the above sites, there are also 18 other sites in Bath (identified below) having levels which are between 36-40 $\mu\text{g}/\text{m}^3$. The monitoring sites shown in blue below are not within an AQMA. Monitoring will continue at all these locations to ensure concentrations do not increase above the objective.

- DT03 - Broad Street
- DT21 - Wells Road/Upper Oldfield Park
- DT43 - St James' Parade
- DT52-54 - Walcot Terrace
- DT62 - Argyle Terrace
- DT165 - Brassknocker Hill
- DT179 – Upper Bristol Road 3
- DT184 – Lansdown Road 2
- DT207 – Darlington Street
- DT221 – Gay Street façade
- DT223 – Canton Place
- DT225 – Cleveland Terrace
- DT234 – Gay Street 2
- DT235 – Wells Road 4
- DT239 – Broad Street 4
- DT246 – Dorchester Street 2
- DT248 – Chapel Row 2

The trends in diffusion tube monitoring since 2009 are shown in Figures A.2-A.20 in Appendix A. Overall, monitoring results of NO_2 in 2019 were lower than in 2018 by an average of 5% across the network. Results are showing a general downward trend at most locations. There was a slight increase at several sites compared with the 2018 data however the overall trend remains downwards at these sites.

Monitoring of NO_2 at Widcombe High Street (DT018) continues to show a significant drop in concentrations (around 15 $\mu\text{g}/\text{m}^3$). This is due to a new road layout being created to move through traffic out of the pedestrian centre and away from residential properties. This site is now below the objective and is expected to stay at this level. There are currently no plans to amend the AQMA to remove this small link.

No existing monitoring sites were at or above 60 $\mu\text{g}/\text{m}^3$, 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 E.7 in Appendix E). The results from 2019 show that levels at all locations were below 40 $\mu\text{g}/\text{m}^3$. Monitoring will continue in Batheaston and Bathampton as part of the Clean Air Plan.

Chew Magna

As part of the wider area monitoring at congested locations a monitoring site was added in Chew Magna for 3 months (Figure E.8 in Appendix E). The results from 2019 show that levels were below 40 µg/m³ and no further action is required. Monitoring has ended as the results were below the objective.

Clutton

As part of the wider A37 monitoring a monitoring site was added on the A37 in Clutton for 6 months (Figure E.9 in Appendix E). The results from 2019 show that levels were below 40 µg/m³ and no further action is required. Monitoring has ended as the results were below the objective.

Farrington Gurney

In 2019 monitoring continued at 3 key locations in Farrington Gurney. (Figure E.10 in Appendix E). The results in 2019 remained just below the objective of 40 µg/m³ at the residential façade at 38.8 µg/m³ along the A37. Monitoring is continuing to establish if this reduction is an ongoing trend.

Keynsham

As part of the Getting around Keynsham Transport Strategy, the Council trialed a one-way system in the centre of Keynsham, and a decision was made in 2019 to make the one-way system permanent. 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 E.11 in Appendix E. In 2019 the results show that all the monitoring locations after bias and annual corrections remain below 40 µg/m³.

Monitoring will continue in Keynsham. As the results have been below 40 µg/m³ 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 at congested locations a monitoring site was added in Peasedown St John for 3 months (Figure E.13 in Appendix E). The results from 2019 show that levels were below 40 µg/m³ and no further action is required. Monitoring has ended as the results were below the objective.

Further concern has been raised on concentrations close to the by-pass, so further work is being carried out at this location.

Pensford

Following high concentrations of NO₂ 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 E.12 in Appendix E).

The results for monitoring locations in Pensford in show that the levels in 2019 were below the objective. Monitoring in Pensford is continuing to identify if there are any hotspots of pollution.

Radstock/Westfield

Monitoring in Radstock and Westfield was carried out at 2 locations (Figure E.14 in Appendix E). The results from 2019 show that levels were below 40 µg/m³ and no further action is required. Monitoring continues in Radstock and Westfield as there is ongoing development nearby.

Saltford

In 2019 monitoring was carried out at 2 locations within Saltford. Figure E.15 in Appendix E is a map showing the locations of the monitoring sites. The results from 2019 show that levels at both locations were below 40 µg/m³ at the façade of properties. Monitoring will continue at 2 sites in Saltford. As the results have been below 40 µg/m³ 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 E.16 in Appendix E). 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.

The 2019 results show that the monitoring locations on the A37 exceeded the annual average objective after bias and annual corrections were applied. At the property facades, one site was above the annual average objective. In 2019 all sites were below $60 \mu\text{g}/\text{m}^3$, this indicates the 1-hour objective was not exceeded.

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 monitoring may not be including the highest concentrations of NO_2 . To confirm the model findings further monitoring locations were added in March 2020.

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 E.17 in Appendix E is a map showing the locations of the monitoring sites. The results from 2019 show that levels at all locations were below $40 \mu\text{g}/\text{m}^3$ at the façade of properties. Monitoring will continue at 4 sites in Whitchurch.

White Cross

As part of the wider A37 monitoring a monitoring site was added on the A37 in White Cross for 6 months (Figure E.18 in Appendix E). The results from 2019 show that levels were below $40 \mu\text{g}/\text{m}^3$ and no further action is required. Monitoring has ended as the results were below the objective.

3.2.2 Particulate Matter (PM₁₀)

Monitoring for PM₁₀ has been carried out at 3 sites during 2019 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.

Chelsea House (CM4) is located on the façade of a residential property and Windsor Bridge (CM3) is at a worse case location on the opposite side of the junction to the residential properties. In 2013 the Windsor Bridge (CM3) site was moved across the junction due to changes in the road layout. In September 2019 the PM₁₀ analyser was moved from Chelsea House (CM4) to the new Bath A4 Roadside enclosure (CM8) on London Road, this moved the analyser closer to the roadside.

Table A.5 in Appendix A compares the ratified and adjusted monitored PM₁₀ annual mean concentrations for the past 5 years with the air quality objective of 40µg/m³.

Table A.6 in Appendix A compares the ratified continuous monitored PM₁₀ daily mean concentrations for the past 5 years with the air quality objective of 50µg/m³, not to be exceeded more than 35 times per year.

The results show that the annual average objective was not exceeded during 2019 and the number of exceedances of the 24 hour objective (50 µg/m³) was below 35 at all sites. Figures A.21-A.23 shows that the levels of PM₁₀ are similar to previous years at Windsor Bridge (CM3) and Chelsea House (CM4). The new location on London Road (CM8) is higher than Chelsea House (CM4) which is expected as it is closer to the road traffic emissions.

There was one peak above the 24 hour objective in February 2019, this was due to weather conditions, wood burning and continental air. This was also seen in other areas of the UK¹⁴. A second peak was also seen in September.

¹⁴ <http://www.londonair.org.uk/london/asp/PublicEpisodes.asp>

3.2.3 Particulate Matter (PM_{2.5})

Bath & North East Somerset Council started monitoring PM_{2.5} in July 2015. Table A.7 and Figure A.24 in Appendix A presents the ratified and adjusted monitored PM_{2.5} annual mean concentrations for the past 5 years.

The results show a slight reduction the concentrations of PM_{2.5} over the last 3 years. The results show that moderate levels of PM_{2.5} occurred on 4 occasions in 2019, January, February, early and mid-April. In February and April moderate levels of PM_{2.5} were also seen at other locations across the UK and were due to a mix of local pollution and also air masses bringing PM_{2.5} from continental Europe¹².

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?	Monitoring Technique	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Inlet Height (m)
CM1	London Road	Roadside	375462	165844	NO ₂ Benzene	YES (Bath)	Chemiluminescent Pumped BTX tubes	0	3	2.6
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

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
	Bath									
DT003	Broad Street	Roadside	374992	165173	NO ₂	YES (Bath)	1.7	1.3	NO	2.6
DT004	George Street	Kerbside	374899	165159	NO ₂	YES (Bath)	3	1	NO	2.3
DT005	Gay Street – Top	Roadside	374797	165161	NO ₂	YES (Bath)	3	1	NO	2.6
DT008	Windsor Bridge	Roadside	373518	165124	NO ₂	YES (Bath)	0	3.5	NO	2.25
DT009	Upper Bristol Rd	Roadside	373993	165174	NO ₂	YES (Bath)	5	1	NO	2.6
DT014	Bathwick Street	Roadside	375602	165365	NO ₂	YES (Bath)	1	1	NO	2.5
DT015	Beckford Road	Roadside	375733	165414	NO ₂	YES (Bath)	7	1	NO	2.7
DT016	Warminster Road	Roadside	376063	165492	NO ₂	YES (Bath)	18	4	NO	2.4
DT017	Widcombe School	Roadside	375634	164406	NO ₂	YES (Bath)	5	1	NO	2.6
DT018	Widcombe High Street	Roadside	375414	164216	NO ₂	YES (Bath)	0	5	NO	2.5
DT020	Wells Road	Roadside	374760	164310	NO ₂	YES (Bath)	0	1.5	NO	2.25
DT021	Wells Road/Upper Oldfield Park	Roadside	374454	164202	NO ₂	YES (Bath)	3	1	NO	2.7
DT023	Alexandra Park	Urban Background	375105	163991	NO ₂	NO	N/A	N/A	NO	3.3
DT026	Upper Wellsway	Roadside	373576	161908	NO ₂	NO	0	3	NO	2

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
DT034	Newbridge Road	Roadside	373092	165106	NO ₂	YES (Bath)	5	1	NO	2.3
DT037	Charlotte Street	Roadside	374622	164994	NO ₂	YES (Bath)	3	1	NO	2.7
DT039	Manvers Street	Roadside	375247	164591	NO ₂	YES (Bath)	3	2	NO	2.3
DT042	Dorchester Street	Kerbside	375230	164383	NO ₂	YES (Bath)	2	0.5	NO	2.7
DT043	St James' Parade (new)	Kerbside	375053	164426	NO ₂	YES (Bath)	2.6	0.9	NO	2.87
DT043	St James' Parade	Roadside	375053	164418	NO ₂	YES (Bath)	2	1	NO	2.8
DT045	James Street West	Roadside	374697	164763	NO ₂	YES (Bath)	0	5	NO	2.7
DT052	Walcot Terrace	Roadside	375462	165843	NO ₂	YES (Bath)	0	3	YES	2.5
DT053	Walcot Terrace	Roadside	375462	165843	NO ₂	YES (Bath)	0	3	YES	2.5
DT054	Walcot Terrace	Roadside	375462	165843	NO ₂	YES (Bath)	0	3	YES	2.5
DT055	Lambridge	Roadside	376451	166502	NO ₂	YES (Bath)	-1.5	2.6	NO	2.6
DT060	Victoria Buildings	Roadside	374039	164760	NO ₂	YES (Bath)	2	2	NO	2.9
DT062	Argyle Terrace	Roadside	373211	164743	NO ₂	YES (Bath)	4	3	NO	2.8
DT084	Bear Flat	Roadside	374604	163806	NO ₂	NO	5.7	1.85	NO	2.25
DT085	RUH – North	Roadside	373073	165983	NO ₂	NO	7	1.5	NO	2.25
DT087	Oak Street	Roadside	374702	164414	NO ₂	YES (Bath)	0	2.65	NO	2.25

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
DT090	Anglo Terrace	Roadside	375288	165758	NO ₂	YES (Bath)	2.5	1.6	NO	2.25
DT142	Prior Park Road	Kerbside	375513	164194	NO ₂	NO	0.3	0.8	NO	2.5
DT143	Rackfield Place	Roadside	372647	164738	NO ₂	NO	0.3	3.6	NO	2.5
DT145	Lansdown Road	Kerbside	374930	165550	NO ₂	YES (Bath)	2.5	0.7	NO	2.45
DT147	Terrace Walk	Roadside	375195	164735	NO ₂	NO	0.3	1.7	NO	2.7
DT148	Julian Road	Roadside	375195	164735	NO ₂	NO	0.4	2.2	NO	2.5
DT149	Camden 3	Kerbside	375038	165838	NO ₂	NO	2	0.4	NO	2.55
DT150	Brougham Hayes	Roadside	373955	164590	NO ₂	NO	1.9	1.3	NO	2.6
DT151	Widcombe Hill	Kerbside	375598	164190	NO ₂	NO	3.9	0.8	NO	2.2
DT152	Bathwick Hill	Roadside	375800	164912	NO ₂	NO	2.0	1.0	NO	2.6
DT153	North Road	Roadside	376069	165356	NO ₂	NO	3	1.85	NO	2.4
DT154	Bradford Road	Roadside	375529	162389	NO ₂	NO	0.35	2.2	NO	2.35
DT155	Newbridge Hill 2	Roadside	372696	165488	NO ₂	NO	7	1.8	NO	2.45
DT156	Corn Street	Roadside	374827	164531	NO ₂	NO	2.4	2.6	NO	2.45
DT157	Charles Street	Roadside	374644	164815	NO ₂	NO	1.5	3.15	NO	2.4
DT158	Paragon 2	Roadside	375051	165350	NO ₂	YES (Bath)	5.4	1.1	NO	3.0
DT159	Walcot Street	Roadside	375075	165287	NO ₂	NO	3.0	2.5	NO	2.65
DT160	North Parade Road	Roadside	375284	164694	NO ₂	NO	6.3	1.3	NO	2.6
DT165	Brassknocker Hill	Kerbside	377960	162736	NO ₂	NO	7	0.8	NO	2.5

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
DT167	Weston High Street	Roadside	372587	166629	NO ₂	NO	0.4	1.0	NO	2.5
DT168	Englishcombe Lane	Roadside	373207	163339	NO ₂	NO	3.4	1.6	NO	2.45
DT169	Eastbourne Avenue	Roadside	357667	166369	NO ₂	NO	5.1	2.0	NO	2.45
DT171	Frome Road/Upper Bloomfield	Roadside	373706	162411	NO ₂	NO	0.4	4.2	NO	2.4
DT172	London Road 2	Roadside	375374	165813	NO ₂	YES (Bath)	0.45	3.7	NO	2.0
DT173	Upper Bristol Road 2	Roadside	374362	165016	NO ₂	YES (Bath)	0.6	2.2	NO	2.35
DT179	Upper Bristol Road 3	Roadside	373299	165093	NO ₂	YES (Bath)	0	1.5	NO	2.0
DT180	Wells Road 2	Roadside	374537	163968	NO ₂	NO	0.7	1.7	NO	2.4
DT181	Wellsway	Roadside	374618	163494	NO ₂	NO	15	1.2	NO	2.5
DT182	Gay Street – Lower	Roadside	374796	165122	NO ₂	YES (Bath)	3.7	1.1	NO	2.3
DT183	Chapel Row	Roadside	374712	164916	NO ₂	NO	0	2.1	NO	2.45
DT184	Lansdown Road 2	Kerbside	374949	165320	NO ₂	YES (Bath)	3.5	0.9	NO	2.4
DT185	Greenway Lane	Kerbside	374712	163417	NO ₂	NO	0.5	0.7	NO	2.4
DT186	Coronation Avenue	Roadside	373170	163416	NO ₂	NO	3.3	1.4	NO	2.35
DT187	Stanley Road West	Roadside	373835	164438	NO ₂	NO	0.2	1.7	NO	2.3
DT188	Moorland Road	Roadside	373696	164343	NO ₂	NO	0.5	3.4	NO	2.6
DT189	Old Newbridge Hill	Roadside	372251	165686	NO ₂	NO	10	2.1	NO	2.5
DT190	Church Street	Kerbside	375814	164027	NO ₂	NO	0	0.9	NO	2.5

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
DT192	Fairfield Road	Roadside	375505	166428	NO ₂	NO	3.6	1.3	NO	2.5
DT193	Granville Road	Roadside	374260	167661	NO ₂	NO	4.5	1.5	NO	2.5
DT194	Brooklyn Road	Roadside	376096	166878	NO ₂	NO	3.5	1.0	NO	2.6
DT195	Lansdown Lane	Roadside	372537	167235	NO ₂	NO	11	1.9	NO	2.5
DT196	Oakley	Kerbside	377133	164045	NO ₂	NO	2	0.8	NO	2.5
DT197	Rush Hill	Roadside	372703	162983	NO ₂	NO	5.5	2.0	NO	2.35
DT198	Walcot Parade	Kerbside	375240	165739	NO ₂	YES (Bath)	0.4	1.0	NO	3.4
DT199	Hensley Road	Roadside	374353	163504	NO ₂	NO	8	1.1	NO	2.4
DT200	Millmead Road	Roadside	373375	164307	NO ₂	NO	3.4	1.6	NO	2.4
DT201	The Hollow	Roadside	373003	164250	NO ₂	NO	1.3	2.4	NO	2.45
DT202	Charlcombe	Kerbside	374636	166701	NO ₂	NO	5	0.35	NO	2.5
DT206	Park Lane	Roadside	373742	165305	NO ₂	NO	0.5	1.8	NO	2.5
DT207	Darlington Street	Roadside	375630	165132	NO ₂	NO	4	1.1	NO	2.5
DT208	Widcombe 3	Roadside	375602	164387	NO ₂	NO	0	7	NO	2.2
DT209	Bellots Road	Roadside	373490	164804	NO ₂	NO	3.5	1.5	NO	2.45
DT210	Red Lion Roundabout	Roadside	373895	162254	NO ₂	NO	0.4	1.5	NO	2.35
DT211	St John's Road	Roadside	375218	165290	NO ₂	NO	0	2	NO	2.45
DT212	Oldfield Road	Roadside	374356	163985	NO ₂	NO	5	1.75	NO	2.4

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
DT213	Marlborough Lane	Roadside	374262	165127	NO ₂	NO	6	3	NO	2.5
DT214	Marlborough Buildings	Roadside	374354	165448	NO ₂	NO	2.55	1	NO	2.45
DT215	Queen Parade Place	Roadside	374758	165096	NO ₂	NO	0.3	2.6	NO	2.55
DT216	Monmouth Place	Roadside	374574	164958	NO ₂	YES (Bath)	0.25	1.5	NO	2.37
DT217	Cavendish Road	Roadside	374335	165990	NO ₂	NO	1.2	1	NO	2.4
DT218	Weston Road	Roadside	373668	165697	NO ₂	NO	3	1.4	NO	2.5
DT219	Morford Street	Roadside	374872	165570	NO ₂	NO	0	1.5	NO	2.45
DT221	Gay Street - façade	Roadside	374793	165119	NO ₂	NO	0.2	4.4	NO	2.65
DT222	Anglo Terrace façade	Roadside	375231	165778	NO ₂	YES (Bath)	0.5	1.8	NO	2.35
DT223	Canton Place	Roadside	375322	165759	NO ₂	YES (Bath)	2.4	4	NO	2.3
DT224	Walcot Parade 2	Roadside	375207	165726	NO ₂	YES (Bath)	0.35	1.1	NO	2.4
DT225	Cleveland Terrace	Kerbside	375203	165708	NO ₂	YES (Bath)	2.8	0.7	NO	2.4
DT226	AURN	Roadside	375394	165824	NO ₂	YES (Bath)	3.5	3.5	YES	1.9
DT227	Wells Road 3	Kerbside	374580	163979	NO ₂	NO	1.1	0.4	NO	2.25
DT228	Lower Bristol Road 2	Roadside	374002	164754	NO ₂	YES (Bath)	1.4	3	NO	2.35
DT229	Lower Bristol Road 3	Kerbside	373936	164779	NO ₂	YES (Bath)	10.8	0.2	NO	2.45

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
DT230	Upper Bristol Road 4	Roadside	373439	165098	NO ₂	YES (Bath)	3.65	1.2	NO	2.35
DT231	Upper Bristol Road 5	Kerbside	373480	165125	NO ₂	YES (Bath)	4.7	0.25	NO	2.35
DT232	Lansdown Road 3	Kerbside	374942	165391	NO ₂	YES (Bath)	4.3	0.55	NO	2.35
DT233	Lansdown Road 4	Kerbside	374956	165359	NO ₂	YES (Bath)	6.7	0.9	NO	2.5
DT234	Gay Street 2	Kerbside	374806	165084	NO ₂	YES (Bath)	2.15	0.45	NO	2.35
DT235	Wells Road 4	Roadside	374694	164288	NO ₂	YES (Bath)	6	1.3	NO	2.4
DT236	Pulteney Terrace	Roadside	375668	164493	NO ₂	NO	4.7	1.6	NO	2.35
DT237	Broad Street 2	Roadside	375000	165179	NO ₂	YES (Bath)	0.5	1.5	NO	2.4
DT238	Broad Street 3	Roadside	375001	165140	NO ₂	YES (Bath)	0.15	2.2	NO	2.35
DT239	Broad Street 4	Kerbside	375008	165145	NO ₂	YES (Bath)	1.9	0.35	NO	2.35
DT240	Bathwick Street 2	Roadside	375489	165450	NO ₂	YES (Bath)	2.55	1.7	NO	2.4
DT241	Bathwick Street 3	Roadside	375520	165446	NO ₂	YES (Bath)	2	1.75	NO	2.45
DT242	Charlotte Street 2	Roadside	374583	164974	NO ₂	YES (Bath)	2.05	1.7	NO	2.4
DT243	Sydney Place	Roadside	375625	165312	NO ₂	YES (Bath)	7.8	1.05	NO	2.4
DT244	Whiteway	Roadside	372494	163165	NO ₂	NO	3	1.5	NO	2.25
DT245	Whiteway 2	Roadside	372401	163212	NO ₂	NO	0.5	1.4	NO	2.35

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
DT246	Dorchester Street 2	Roadside	375186	164372	NO ₂	YES (Bath)	23	4.85	NO	2.35
DT247	Monmouth Place 2	Roadside	374627	164924	NO ₂	YES (Bath)	0.3	1.1	NO	2.55
DT248	Chapel Row 2	Roadside	374711	164931	NO ₂	NO	0.35	1.6	NO	2.35
DT249	Poolemead Road	Kerbside	372050	164460	NO ₂	NO	11	0.55	NO	2.3
DT250	Newton Road	Roadside	372041	164787	NO ₂	NO	18	2.1	NO	2.35
	Bathampton									
DT091	Bathampton High Street	Roadside	377683	166408	NO ₂	NO	0	1.1	NO	2.3
DT166	Bathampton – A36	Roadside	377543	165924	NO ₂	NO	23	1.2	NO	2.4
	Batheaston									
DT058	Batheaston – London Road West A	Roadside	377643	167365	NO ₂	NO	0	1	NO	2.5
DT094	Batheaston London Road West B	Roadside	377290	167097	NO ₂	NO	0	1.25	NO	2.5
DT130	Batheaston -London Road West C	Roadside	377802	167456	NO ₂	NO	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	1.0	NO	2.5
	Chew Magna									
DT203	Chew Magna	Kerbside	357596	163154	NO ₂	NO	3.35	0.6	NO	2.8

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
	Clutton									
DT205	Clutton	Roadside	361925	158987	NO ₂	NO	3.1	1.7	NO	2.4
	Farrington Gurney									
DT134	Farrington Gurney 2	Roadside	362891	155485	NO ₂	YES (Farrington Gurney)	0	4.5	NO	2.5
DT136	Farrington Gurney 3	Roadside	362884	155790	NO ₂	YES (Farrington Gurney)	0	1.2	NO	2.08
DT138	Farrington Gurney 5	Roadside	362983	155459	NO ₂	YES (Farrington Gurney)	3	1.9	NO	2.5
	Keynsham									
DT033	Keynsham - Kelston Road	Urban Centre	364803	168237	NO ₂	NO	8	1	NO	2.6
DT063	Keynsham – Station Road	Roadside	365409	168846	NO ₂	YES (Keynsham)	3	1	NO	2.7
DT064	Keynsham – Charlton Rd B	Roadside	365305	168657	NO ₂	YES (Keynsham)	4	1	NO	2.8
DT065	Keynsham - Charlton Rd A	Roadside	365399	168701	NO ₂	YES (Keynsham)	3	1	NO	2.7
DT066	Keynsham – High Street A	Roadside	365360	168815	NO ₂	YES (Keynsham)	1	1	NO	2.5
DT067	Keynsham - Somerfield	Roadside	365457	168496	NO ₂	YES (Keynsham)	2	1	NO	2.8
DT068	Keynsham - Temple St	Roadside	365489	168363	NO ₂	NO	0	3	NO	2.8
DT069	Keynsham – Rock Road	Roadside	365428	168435	NO ₂	NO	0	2	NO	3

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
DT070	Keynsham – Bath Hill	Roadside	365496	168521	NO ₂	YES (Keynsham)	1	4	NO	2.3
DT107	Keynsham - Bath Hill South	Roadside	365710	168339	NO ₂	NO	0	1.3	NO	2.45
DT112	Keynsham - Ashton Way	Roadside	365375	168594	NO ₂	NO	35	1.5	NO	2.55
DT113	Keynsham - West View Road	Roadside	365217	168505	NO ₂	NO	4.5	1.5	NO	2.55
DT114	Keynsham - Victoria Church	Kerbside	365414	168684	NO ₂	YES (Keynsham)	11.5	0.5	NO	2.65
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	2.25
DT141	Keynsham - A4	Roadside	366921	168096	NO ₂	NO	13	1.4	NO	2.4
	Peasedown St John									
DT204	Peasedown St John	Kerbside	370331	157481	NO ₂	NO	5.4	0.7	NO	2.45
	Pensford									
DT174	Pensford 3	Roadside	361769	164034	NO ₂	NO	2.7	1.25	NO	2.5
	Radstock									
DT176	Radstock – Wells Road 2	Roadside	368763	154818	NO ₂	NO	0	2.2	NO	2.5
	Saltford									
DT075	Saltford - The Crown	Roadside	368375	166988	NO ₂	YES (Saltford)	0	3	NO	2.6

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
DT077	Saltford - Bath Road	Roadside	368778	166687	NO ₂	YES (Saltford)	0	2	NO	2.2
	Temple Cloud									
DT096	Temple Cloud 1	Roadside	362219	157923	NO ₂	Yes (Temple Cloud)	0	1.5	NO	2.4
DT108	Temple Cloud 2	Roadside	362179	158055	NO ₂	Yes (Temple Cloud)	6.2	1.25	NO	2.58
DT109	Temple Cloud 3	Roadside	362344	157658	NO ₂	Yes (Temple Cloud)	2	1.67	NO	2.55
	Westfield									
DT175	Westfield 3	Roadside	367416	153974	NO ₂	NO	2.7	1.9	NO	2.5
	Whitchurch									
DT032	Whitchurch	Roadside	361242	167652	NO ₂	NO	2.7	2.1	NO	2.25
DT098	Whitchurch 2	Roadside	361276	167555	NO ₂	NO	0	1.3	NO	2.3
DT100	Whitchurch 4	Roadside	361326	167606	NO ₂	NO	6	1.6	NO	2.26
DT101	Whitchurch 5	Roadside	361235	167824	NO ₂	NO	4	1.6	NO	2.5
	White Cross									
DT220	White Cross	Roadside	362924	156855	NO ₂	NO	3.5	1.9	NO	2.3

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
AQMesh analysers										
AQM15	Westfield	Roadside	367416	153974	NO ₂ , PM ₁₀ , PM _{2.5}	NO	2.7	1.9	NO	2.5
AQM16	Bathampton High Street	Roadside	377685	166408	NO ₂ , PM ₁₀ , PM _{2.5}	NO	0	1.1	NO	2.3
AQM17	Farrington Gurney	Roadside	362891	155462	NO ₂ , PM ₁₀ , PM _{2.5}	YES (Farrington Gurney)	2.8	2.4	NO	2.5
AQM18	Bath – George St	Kerbside	374812	165135	NO ₂ , PM ₁₀ , PM _{2.5}	YES (Bath)	3.1	0.5	NO	2.45
AQM19	Bath – Windsor Bridge	Roadside	373593	164861	NO ₂ , PM ₁₀ , PM _{2.5}	YES (Bath)	2	4	NO	2

Notes:

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

(2) N/A if not applicable.

Table A.3 – Annual Mean NO₂ Monitoring Results

Site ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2019 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
								2015	2016	2017	2018	2019
	Continuous											
CM1	London Road	375462	165844	Roadside	Automatic	98	43	54	48	45	38	37
CM2	Guildhall	375111	164857	Roadside	Automatic	99.3	99.3	34	34	30	29	27
CM3	Windsor Bridge	373593	164861	Roadside	Automatic	93.7	93.7	33	33	33	30	29
CM4	Chelsea House	375419	165853	Roadside	Automatic	94.1	94.1	31	29	29	26	22
CM8	Bath A4 Roadside	375394	165824	Roadside	Automatic	99	19	-	-	-	-	29
	Bath											
DT003	Broad Street	374992	165173	Roadside	Diffusion Tube	100	100	-	-	-	36	37
DT004	George Street	374899	165159	Roadside	Diffusion Tube	83	83	42	39	36	30	30
DT005	Gay Street – Top	374797	165161	Roadside	Diffusion Tube	100	100	40.4	41	36	32	31
DT008	Windsor Bridge	373518	165124	Roadside	Diffusion Tube	92	92	38	37	34	31	28
DT009	Upper Bristol Rd	373993	165174	Roadside	Diffusion Tube	92	92	46	47	40	33	31
DT014	Bathwick Street	375602	165365	Roadside	Diffusion Tube	100	100	51	45	44	36	33
DT015	Beckford Road	375733	165414	Roadside	Diffusion Tube	100	100	35	37	34	30	27
DT016	Warminster Road	376063	165492	Roadside	Diffusion Tube	92	92	37	39.6	36	33	31
DT017	Widcombe School	375634	164406	Roadside	Diffusion Tube	92	92	39	38	35	31	29
DT018	Widcombe High Street	375414	164216	Roadside	Diffusion Tube	100	100	31	28	28	24	23
DT020	Wells Road	374760	164310	Roadside	Diffusion Tube	92	92	62	55	52	49	49
DT021	Wells Road/Upper Oldfield Park	374454	164202	Roadside	Diffusion Tube	100	100	44	47	43	43	37
DT023	Alexandra Park	375105	163991	Urban Background	Diffusion Tube	100	100	15	14	13	12	11
DT026	Upper Wellsway	373576	161908	Roadside	Diffusion Tube	100	100	39	39	32	31	27
DT034	Newbridge Road	373092	165106	Roadside	Diffusion Tube	100	100	42	40.2	38	33	31
DT037	Charlotte Street	374622	164994	Roadside	Diffusion Tube	92	92	44	46	38	33	30

Site ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2019 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
								2015	2016	2017	2018	2019
DT039	Manvers Street	375247	164591	Roadside	Diffusion Tube	92	92	50	44	38	29	33
DT042	Dorchester Street	375230	164383	Kerbside	Diffusion Tube	83	83	73	67	58	45	48
DT043	St James' Parade	375053	164426	Roadside	Diffusion Tube	-	-	58	57	44	-	
DT043	St James' Parade (new)	375053	164418	Kerbside	Diffusion Tube	92	92	-	-	46	40	39
DT045	James Street West	374697	164763	Roadside	Diffusion Tube	100	100	43	44	40	31	28
DT052	Walcot Terrace	375462	165843	Roadside	Diffusion Tube	100	100	54	47	44	37	36
DT055	Lambridge	376451	166502	Roadside	Diffusion Tube	100	100	65	60	46	39.7	36
DT060	Victoria Buildings	374039	164760	Roadside	Diffusion Tube	92	92	50	52	46	41	44
DT062	Argyle Terrace	373211	164743	Roadside	Diffusion Tube	100	100	49	48	45	39	37
DT084	Bear Flat	374604	163806	Roadside	Diffusion Tube	100	100	43	45	33	35	30
DT085	RUH – North	373073	165983	Roadside	Diffusion Tube	92	92	36	36	32	28	26
DT087	Oak Street	374702	164414	Roadside	Diffusion Tube	100	100	43	38	33	31	29
DT090	Anglo Terrace	375288	165758	Roadside	Diffusion Tube	92	92	73	69	57	56	45
DT142	Prior Park Road	375513	164194	Kerbside	Diffusion Tube	100	100	-	-	41	34	33
DT143	Rackfield Place	372647	164738	Roadside	Diffusion Tube	92	92	-	-	32	27	26
DT145	Lansdown Road	374930	165550	Kerbside	Diffusion Tube	100	100	-	-	33	31	26
DT147	Terrace Walk	375195	164735	Roadside	Diffusion Tube	92	92	-	-	34	29	29
DT148	Julian Road	375195	164735	Roadside	Diffusion Tube	100	100	-	-	-	27	24
DT149	Camden 3	375038	165838	Kerbside	Diffusion Tube	100	100	-	-	-	31	25
DT150	Brougham Hayes	373955	164590	Roadside	Diffusion Tube	75	75	-	-	-	27	29
DT151	Widcombe Hill	375598	164190	Kerbside	Diffusion Tube	100	100	-	-	-	32	27
DT152	Bathwick Hill	375800	164912	Roadside	Diffusion Tube	92	92	-	-	-	26	25
DT153	North Road	376069	165356	Roadside	Diffusion Tube	100	100	-	-	-	19	17
DT154	Bradford Road	375529	162389	Roadside	Diffusion Tube	92	92	-	-	-	30	28
DT155	Newbridge Hill 2	372696	165488	Roadside	Diffusion Tube	92	92	-	-	-	19	18
DT156	Corn Street	374827	164531	Roadside	Diffusion Tube	100	100	-	-	-	28	28

Site ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2019 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
								2015	2016	2017	2018	2019
DT157	Charles Street	374644	164815	Roadside	Diffusion Tube	100	100	-	-	-	29	27
DT158	Paragon 2	375051	165350	Roadside	Diffusion Tube	92	92	-	-	-	33	32
DT159	Walcot Street	375075	165287	Roadside	Diffusion Tube	100	100	-	-	-	27	26
DT160	North Parade Road	375284	164694	Roadside	Diffusion Tube	100	100	-	-	-	31	34
DT165	Brassknocker Hill	377960	162736	Kerbside	Diffusion Tube	100	100	-	-	-	40.2	37
DT167	Weston High Street	372587	166629	Roadside	Diffusion Tube	100	100	-	-	-	24	22
DT168	Englishcombe Lane	373207	163339	Roadside	Diffusion Tube	92	92	-	-	-	16	14
DT169	Eastbourne Avenue	357667	166369	Roadside	Diffusion Tube	100	100	-	-	-	26	23
DT171	Frome Road/ Upper Bloomfield	373706	162411	Roadside	Diffusion Tube	100	100	-	-	-	32	27
DT172	London Road 2	375374	165813	Roadside	Diffusion Tube	83	83	-	-	-	47	48
DT173	Upper Bristol Rd 2	374362	165016	Roadside	Diffusion Tube	83	83	-	-	-	37	33
DT179	Upper Bristol Rd 3	373299	165093	Roadside	Diffusion Tube	92	92	-	-	-	35	37
DT180	Wells Road 2	374537	163968	Roadside	Diffusion Tube	83	83	-	-	-	35	34
DT181	Wellsway	374618	163494	Roadside	Diffusion Tube	100	100	-	-	-	36	33
DT182	Gay Street – Lower	374796	165122	Roadside	Diffusion Tube	100	100	-	-	-	42	41
DT183	Chapel Row	374712	164916	Roadside	Diffusion Tube	100	100	-	-	-	30	30
DT184	Lansdown Road 2	374949	165320	Kerbside	Diffusion Tube	58	58	-	-	-	39	36
DT185	Greenway Lane	374712	163417	Kerbside	Diffusion Tube	92	92	-	-	-	19	16
DT186	Coronation Avenue	373170	163416	Roadside	Diffusion Tube	100	100	-	-	-	20	20
DT187	Stanley Road West	373835	164438	Roadside	Diffusion Tube	100	100	-	-	-	24	23
DT188	Moorland Road	373696	164343	Roadside	Diffusion Tube	100	100	-	-	-	25	22
DT189	Old Newbridge Hill	372251	165686	Roadside	Diffusion Tube	100	100	-	-	-	29	29
DT190	Church Street	375814	164027	Kerbside	Diffusion Tube	92	92	-	-	-	14	13
DT192	Fairfield Road	375505	166428	Roadside	Diffusion Tube	92	92	-	-	-	20	16
DT193	Granville Road	374260	167661	Roadside	Diffusion Tube	100	100	-	-	-	11	9

Site ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2019 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
								2015	2016	2017	2018	2019
DT194	Brooklyn Road	376096	166878	Roadside	Diffusion Tube	100	100	-	-	-	18	16
DT195	Lansdown Lane	372537	167235	Roadside	Diffusion Tube	100	100	-	-	-	20	21
DT196	Oakley	377133	164045	Kerbside	Diffusion Tube	100	100	-	-	-	32	28
DT197	Rush Hill	372703	162983	Roadside	Diffusion Tube	92	92	-	-	-	25	24
DT198	Walcot Parade	375240	165739	Kerbside	Diffusion Tube	92	92	-	-	-	56	49
DT199	Hensley Road	374353	163504	Roadside	Diffusion Tube	100	100	-	-	-	-	13
DT200	Millmead Road	373375	164307	Roadside	Diffusion Tube	100	100	-	-	-	-	15
DT201	The Hollow	373003	164250	Roadside	Diffusion Tube	100	100	-	-	-	-	24
DT202	Charlcombe	374636	166701	Kerbside	Diffusion Tube	100	100	-	-	-	-	14
DT206	Park Lane	373742	165305	Roadside	Diffusion Tube	100	100	-	-	-	-	28
DT207	Darlington Street	375630	165132	Roadside	Diffusion Tube	100	100	-	-	-	-	38
DT208	Widcombe 3	375602	164387	Roadside	Diffusion Tube	100	25	-	-	-	-	17
DT209	Bellots Road	373490	164804	Roadside	Diffusion Tube	100	100	-	-	-	-	19
DT210	Red Lion Roundabout	373895	162254	Roadside	Diffusion Tube	100	100	-	-	-	-	33
DT211	St John's Road	375218	165290	Roadside	Diffusion Tube	100	100	-	-	-	-	21
DT212	Oldfield Road	374356	163985	Roadside	Diffusion Tube	83	83	-	-	-	-	19
DT213	Marlborough Lane	374262	165127	Roadside	Diffusion Tube	100	75	-	-	-	-	21
DT214	Marlborough Buildings	374354	165448	Roadside	Diffusion Tube	88	67	-	-	-	-	19
DT215	Queen Parade Place	374758	165096	Roadside	Diffusion Tube	100	75	-	-	-	-	18
DT216	Monmouth Place	374574	164958	Roadside	Diffusion Tube	100	75	-	-	-	-	27
DT217	Cavendish Road	374335	165990	Roadside	Diffusion Tube	100	75	-	-	-	-	17
DT218	Weston Road	373668	165697	Roadside	Diffusion Tube	100	75	-	-	-	-	19
DT219	Morford Street	374872	165570	Roadside	Diffusion Tube	100	75	-	-	-	-	21
DT221	Gay Street - façade	374793	165119	Roadside	Diffusion Tube	100	50	-	-	-	-	36
DT222	Anglo Terrace façade	375231	165778	Roadside	Diffusion Tube	100	42	-	-	-	-	49
DT223	Canton Place	375322	165759	Roadside	Diffusion Tube	100	42	-	-	-	-	37

Site ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2019 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
								2015	2016	2017	2018	2019
DT224	Walcot Parade 2	375207	165726	Roadside	Diffusion Tube	100	42	-	-	-	-	55
DT225	Cleveland Terrace	375203	165708	Kerbside	Diffusion Tube	100	42	-	-	-	-	37
DT226	AURN	375394	165824	Roadside	Diffusion Tube	100	25	-	-	-	-	32
DT227	Wells Road 3	374580	163979	Kerbside	Diffusion Tube	100	42	-	-	-	-	40
DT228	Lower Bristol Road 2	374002	164754	Roadside	Diffusion Tube	100	42	-	-	-	-	28
DT229	Lower Bristol Road 3	373936	164779	Kerbside	Diffusion Tube	100	42	-	-	-	-	36
DT230	Upper Bristol Road 4	373439	165098	Roadside	Diffusion Tube	80	33	-	-	-	-	35
DT231	Upper Bristol Road 5	373480	165125	Kerbside	Diffusion Tube	100	42	-	-	-	-	41
DT232	Lansdown Road 3	374942	165391	Kerbside	Diffusion Tube	100	42	-	-	-	-	29
DT233	Lansdown Road 4	374956	165359	Kerbside	Diffusion Tube	100	42	-	-	-	-	23
DT234	Gay Street 2	374806	165084	Kerbside	Diffusion Tube	100	42	-	-	-	-	37
DT235	Wells Road 4	374694	164288	Roadside	Diffusion Tube	100	42	-	-	-	-	37
DT236	Pulteney Terrace	375668	164493	Roadside	Diffusion Tube	100	42	-	-	-	-	30
DT237	Broad Street 2	375000	165179	Roadside	Diffusion Tube	100	42	-	-	-	-	35
DT238	Broad Street 3	375001	165140	Roadside	Diffusion Tube	100	42	-	-	-	-	34
DT239	Broad Street 4	375008	165145	Kerbside	Diffusion Tube	100	42	57	48	48	-	37
DT240	Bathwick Street 2	375489	165450	Roadside	Diffusion Tube	100	42	-	-	-	-	30
DT241	Bathwick Street 3	375520	165446	Roadside	Diffusion Tube	100	42	-	-	-	-	24
DT242	Charlotte Street 2	374583	164974	Roadside	Diffusion Tube	100	42	-	-	-	-	24
DT243	Sydney Place	375625	165312	Roadside	Diffusion Tube	100	42	-	-	-	-	30
DT244	Whiteway	372494	163165	Roadside	Diffusion Tube	100	42	-	-	-	-	18
DT245	Whiteway 2	372401	163212	Roadside	Diffusion Tube	100	42	-	-	-	-	25
DT246	Dorchester Street 2	375186	164372	Roadside	Diffusion Tube	100	42	-	-	-	-	39
DT247	Monmouth Place 2	374627	164924	Roadside	Diffusion Tube	100	42	-	-	-	-	30
DT248	Chapel Row 2	374711	164931	Roadside	Diffusion Tube	100	42	-	-	-	-	38
DT249	Poolemead Road	372050	164460	Kerbside	Diffusion Tube	100	42	-	-	-	-	15

Site ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2019 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
								2015	2016	2017	2018	2019
DT250	Newton Road	372041	164787	Roadside	Diffusion Tube	100	42	-	-	-	-	17
	Bathampton											
DT091	Bathampton High St	377683	166408	Roadside	Diffusion Tube	100	100	-	31	29	26	23
DT166	Bathampton – A36	377543	165924	Roadside	Diffusion Tube	100	100	-	-	-	30	28
	Batheaston											
DT058	Batheaston – London Road West A	377643	167365	Roadside	Diffusion Tube	92	92	35	32	29	26	25
DT094	Batheaston – London Road West B	377290	167097	Roadside	Diffusion Tube	100	100	-	34	31	28	25
DT130	Batheaston – London Road West C	377802	167456	Roadside	Diffusion Tube	83	83	-	-	32	26	26
DT163	Batheaston – A4 Box Road	378911	167259	Roadside	Diffusion Tube	100	100	-	-	-	24	23
DT191	Batheaston – Mill Lane	377339	167065	Roadside	Diffusion Tube	100	100	-	-	-	22	19
	Chew Magna											
DT203	Chew Magna	357596	163154	Kerbside	Diffusion Tube	100	25	-	-	-	-	17
	Clutton											
DT205	Clutton	361925	158987	Roadside	Diffusion Tube	100	50	-	-	-	-	25
	Farrington Gurney											
DT134	Farrington Gurney 2	362891	155485	Roadside	Diffusion Tube	100	100	-	-	52	39	39
DT136	Farrington Gurney 3	362884	155790	Roadside	Diffusion Tube	92	92	-	-	42	39.6	37
DT138	Farrington Gurney 5	362983	155459	Roadside	Diffusion Tube	92	92	-	-	39	38	36
	Keynsham											
DT033	Keynsham - Kelston Road	364803	168237	Urban Background	Diffusion Tube	100	100	16	16	16	13	12
DT063	Keynsham – Station Road	365409	168846	Roadside	Diffusion Tube	92	92	34	34	30	27	25
DT064	Keynsham – Charlton Rd B	365305	168657	Roadside	Diffusion Tube	100	100	37	38	31	28	28

Site ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2019 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
								2015	2016	2017	2018	2019
DT065	Keynsham - Charlton Rd A	365399	168701	Roadside	Diffusion Tube	92	92	35	35	32	29	27
DT066	Keynsham – High Street A	365360	168815	Roadside	Diffusion Tube	100	100	47	46	40	33	32
DT067	Keynsham - Somerfield	365457	168496	Roadside	Diffusion Tube	92	92	42	40	37	32	31
DT068	Keynsham - Temple St	365489	168363	Roadside	Diffusion Tube	100	100	26	24	22	21	19
DT069	Keynsham – Rock Rd	365428	168435	Roadside	Diffusion Tube	100	100	25	26	26	25	22
DT070	Keynsham – Bath Hill	365496	168521	Roadside	Diffusion Tube	100	100	33	31	29	25	23
DT107	Keynsham - Bath Hill South	365710	168339	Roadside	Diffusion Tube	92	92	-	39.8	37	35	33
DT112	Keynsham - Ashton Way	365375	168594	Roadside	Diffusion Tube	100	100	-	26	26	23	21
DT113	Keynsham - West View Rd	365217	168505	Roadside	Diffusion Tube	100	100	-	21	18	17	15
DT114	Keynsham - Victoria Church	365414	168684	Kerbside	Diffusion Tube	92	92	-	35	30	23	23
DT115	Keynsham - High Street B	365447	168586	Roadside	Diffusion Tube	92	92	-	33	31	22	21
DT116	Keynsham - Fish Bar	365462	168533	Roadside	Diffusion Tube	92	92	-	28	28	25	22
DT141	Keynsham A4	366921	168096	Roadside	Diffusion Tube	100	100	-	-	36	33	31
	Peasedown St John											
DT204	Peasedown St John	370331	157481	Kerbside	Diffusion Tube	100	25	-	-	-	-	14
	Pensford											
DT174	Pensford 3	361769	164034	Roadside	Diffusion Tube	100	100	-	-	-	37	35
	Radstock											
DT176	Radstock – Wells Rd 2	368763	154818	Roadside	Diffusion Tube	67	67	-	-	-	29	22
	Saltford											
DT075	Saltford - The Crown	368375	166988	Roadside	Diffusion Tube	100	100	43	40.5	37	31	30
DT077	Saltford - Bath Road	368778	166687	Roadside	Diffusion Tube	100	100	39	36	33	28	26
	Temple Cloud											
DT096	Temple Cloud 1	362219	157923	Roadside	Diffusion Tube	100	100	-	90	67	59.5	56
DT108	Temple Cloud 2	362179	158055	Roadside	Diffusion Tube	100	100	-	48	50	40.1	39
DT109	Temple Cloud 3	362344	157658	Roadside	Diffusion Tube	100	100	-	46	45	40.0	36

Site ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2019 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
								2015	2016	2017	2018	2019
	Westfield											
DT175	Westfield 3	367416	153974	Roadside	Diffusion Tube	92	92	-	-	-	26	24
	Whitchurch											
DT032	Whitchurch	361242	167652	Roadside	Diffusion Tube	100	100	52	47	39	33	33
DT098	Whitchurch 2	361276	167555	Roadside	Diffusion Tube	100	100	-	43	35	33	30
DT100	Whitchurch 4	361326	167606	Roadside	Diffusion Tube	92	92	-	37	29	27	25
DT101	Whitchurch 5	361235	167824	Roadside	Diffusion Tube	100	100	-	50	46	37	36
	White Cross											
DT220	White Cross	362924	156855	Roadside	Diffusion Tube	100	50	-	-	-	-	31

Diffusion tube data has been bias corrected

Annualisation has been conducted where data capture is <75%

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 adjustment

Notes:

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

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

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

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

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

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

Figure A.1 – Trends in Annual Mean NO₂ Concentrations Measured at Automatic Monitoring Sites

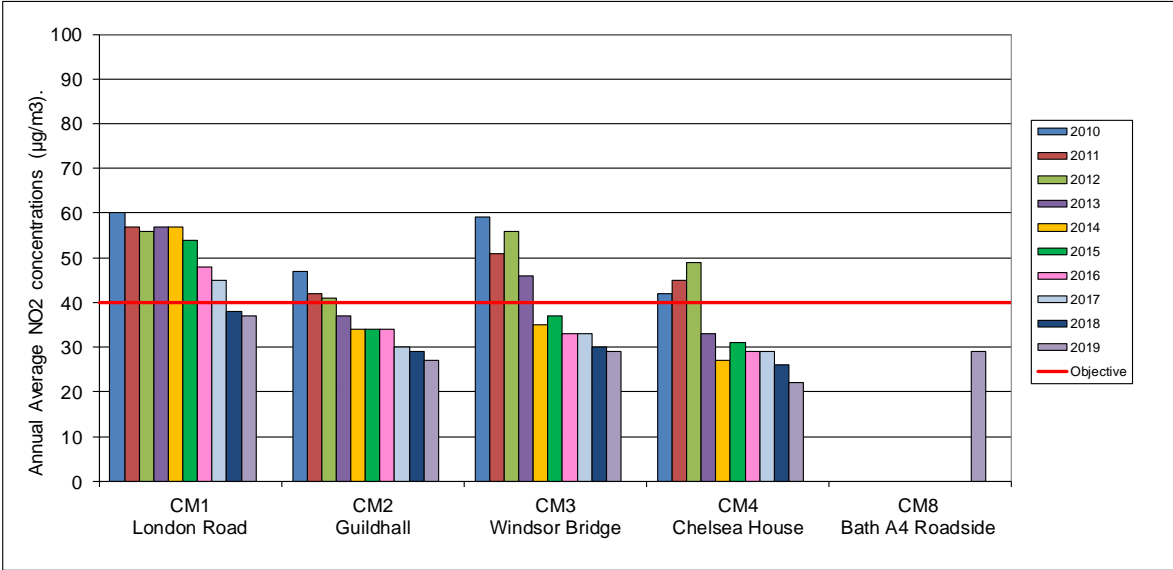


Figure A.2 – Trends in Annual Mean NO₂ Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Widcombe and Lyncombe (1)

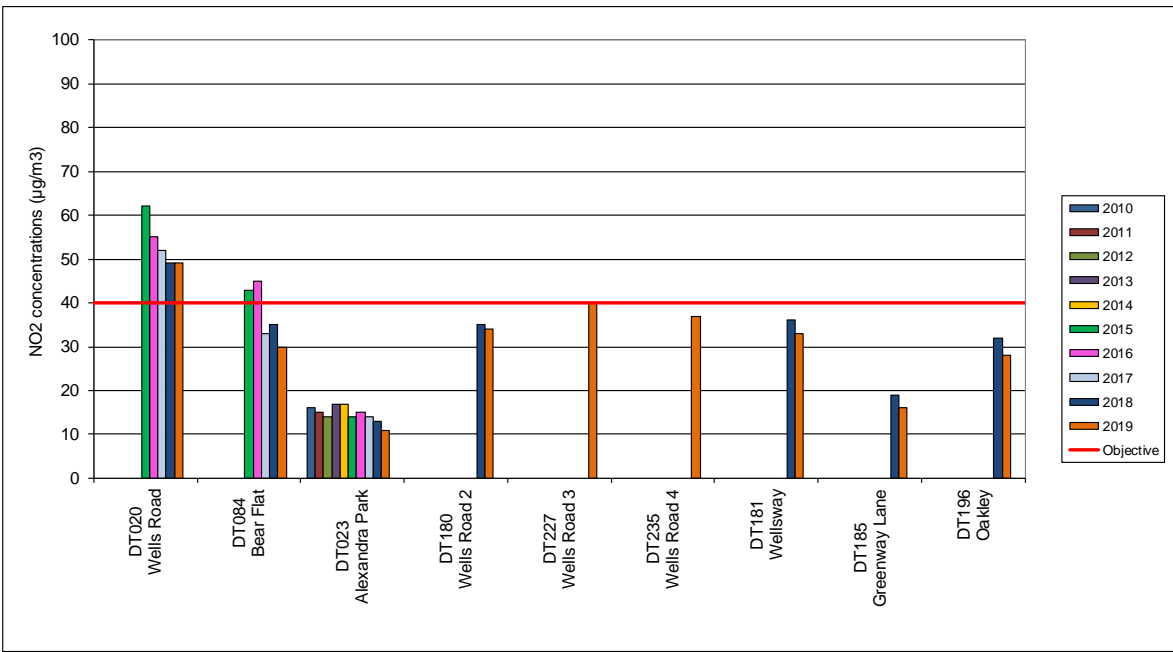


Figure A.3 – Trends in Annual Mean NO₂ Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Widcombe and Lyncombe (2)

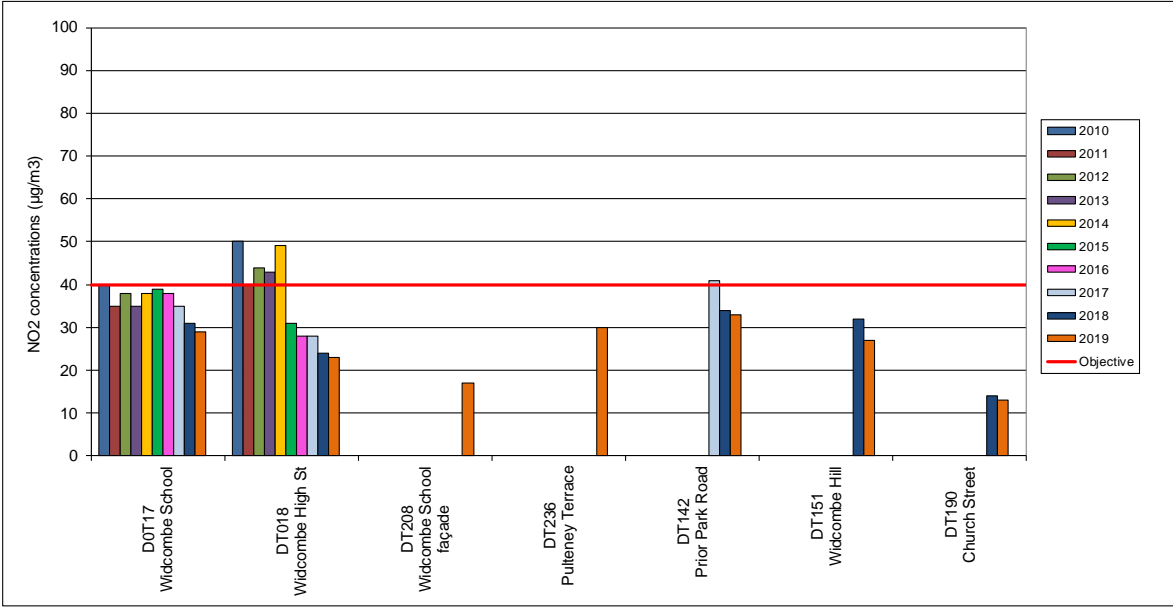


Figure A.4 – Trends in Annual Mean NO₂ Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Combe Down, Odd Down, Bathavon South and Moorlands

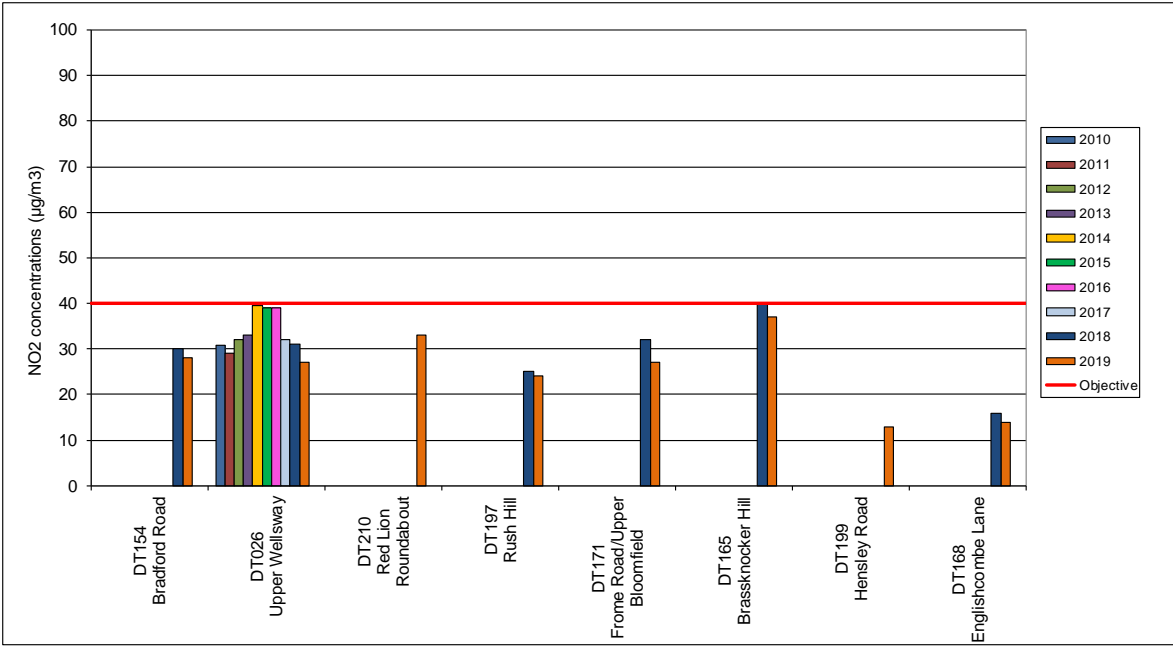


Figure A.5 – Trends in Annual Mean NO₂ Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Oldfield Park, Southdown and Twerton

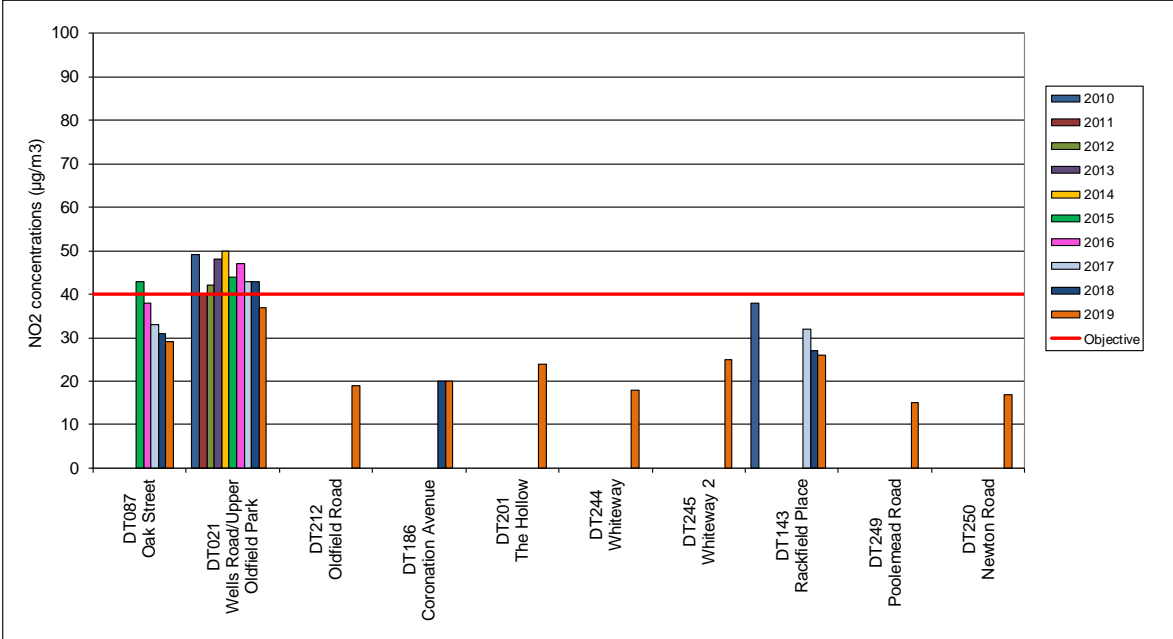


Figure A.6 – Trends in Annual Mean NO₂ Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Westmoreland

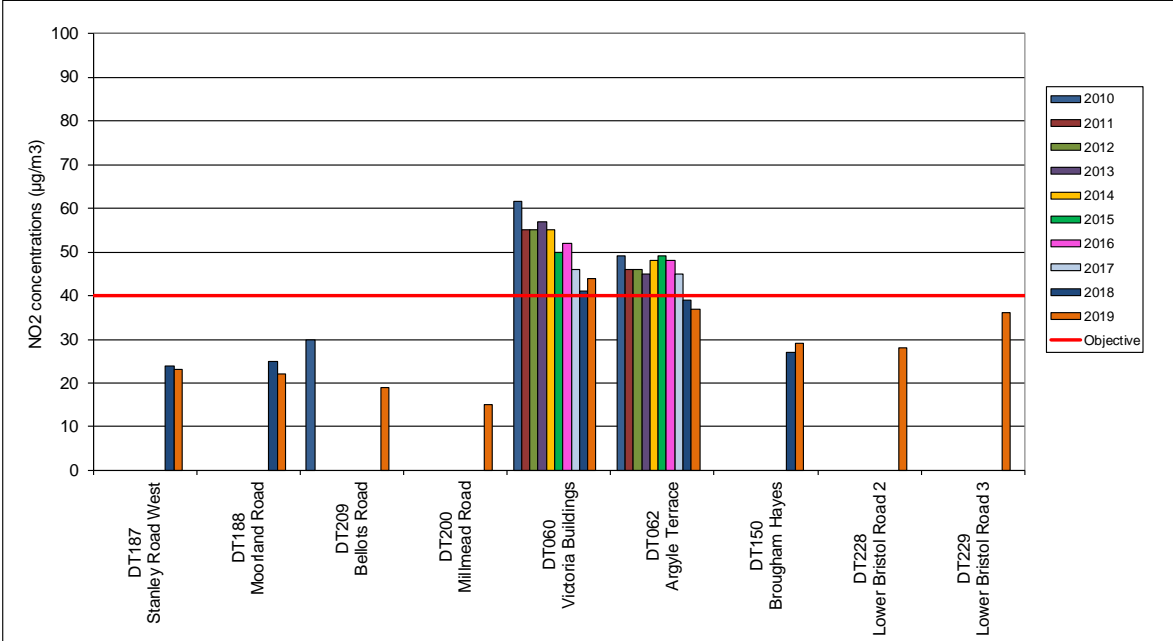


Figure A.7 – Trends in Annual Mean NO₂ Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Newbridge and Kingsmead

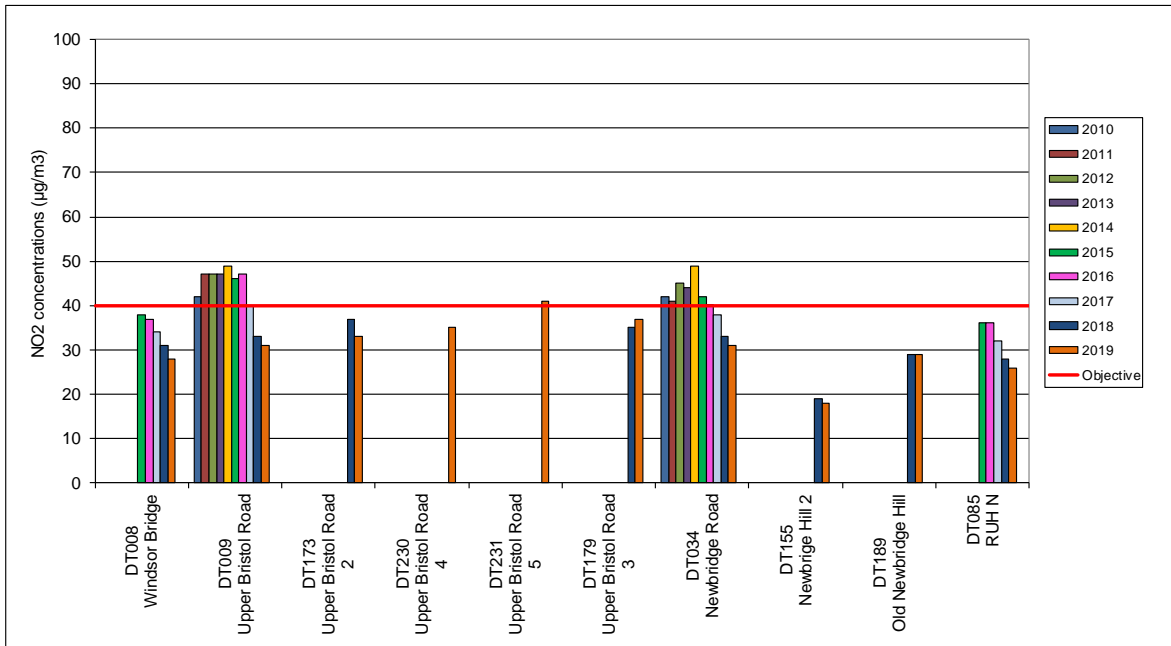


Figure A.8 – Trends in Annual Mean NO₂ Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Weston and Kingsmead

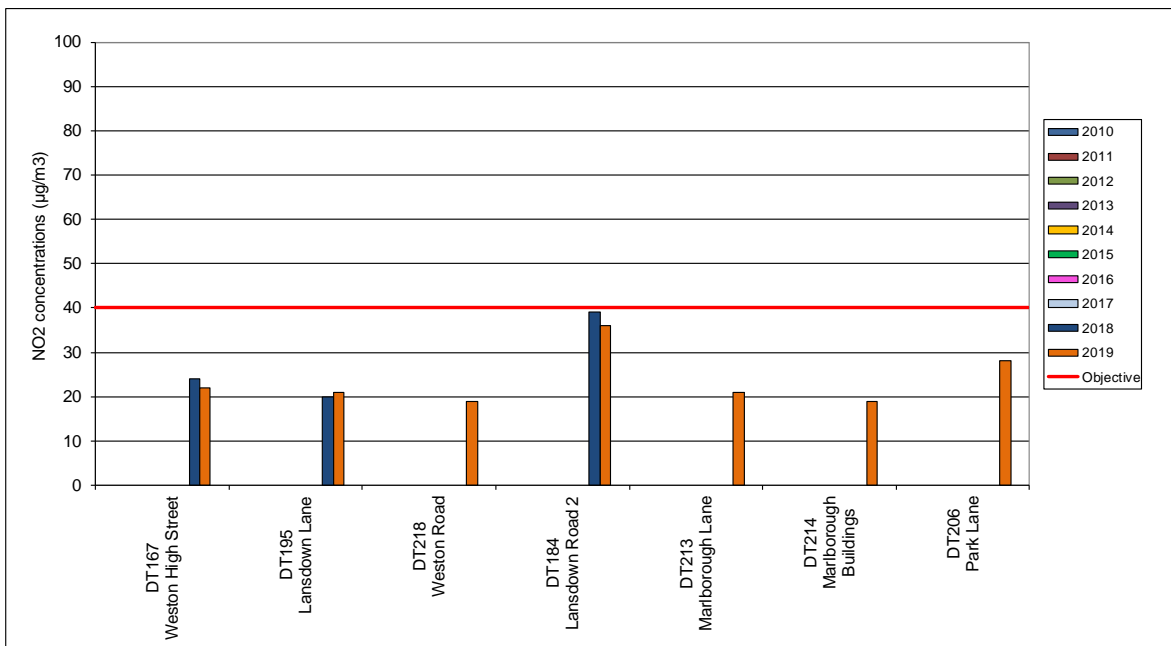


Figure A.9 – Trends in Annual Mean NO₂ Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Lansdown and Lambridge

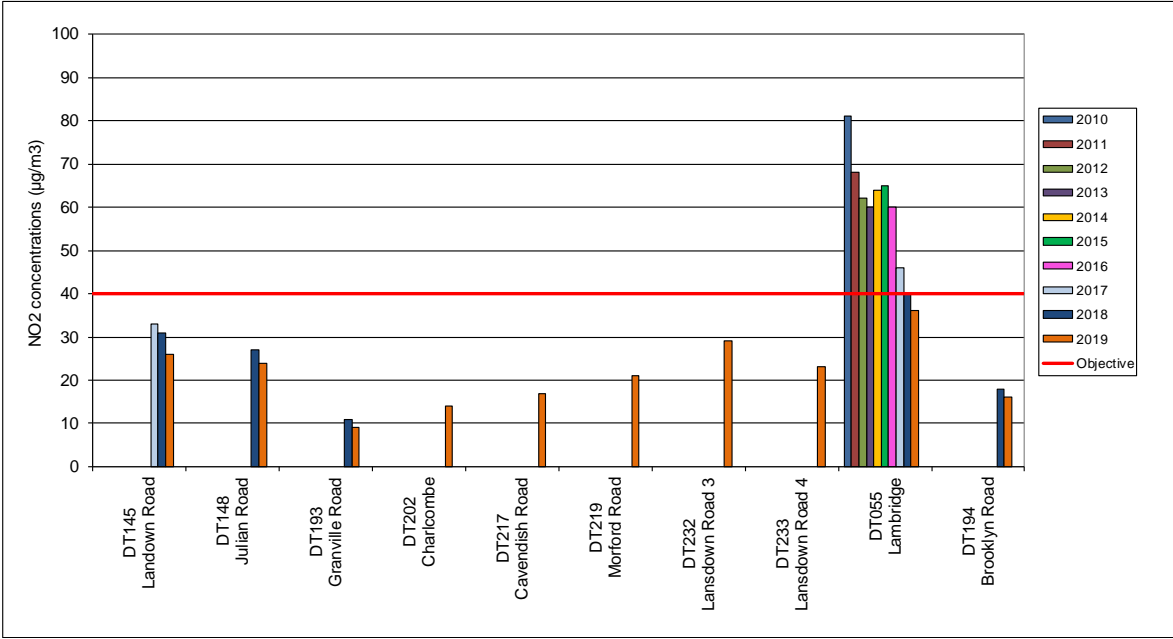


Figure A.10 – Trends in Annual Mean NO₂ Concentrations Measured at Diffusion Tube Monitoring Sites – Walcot

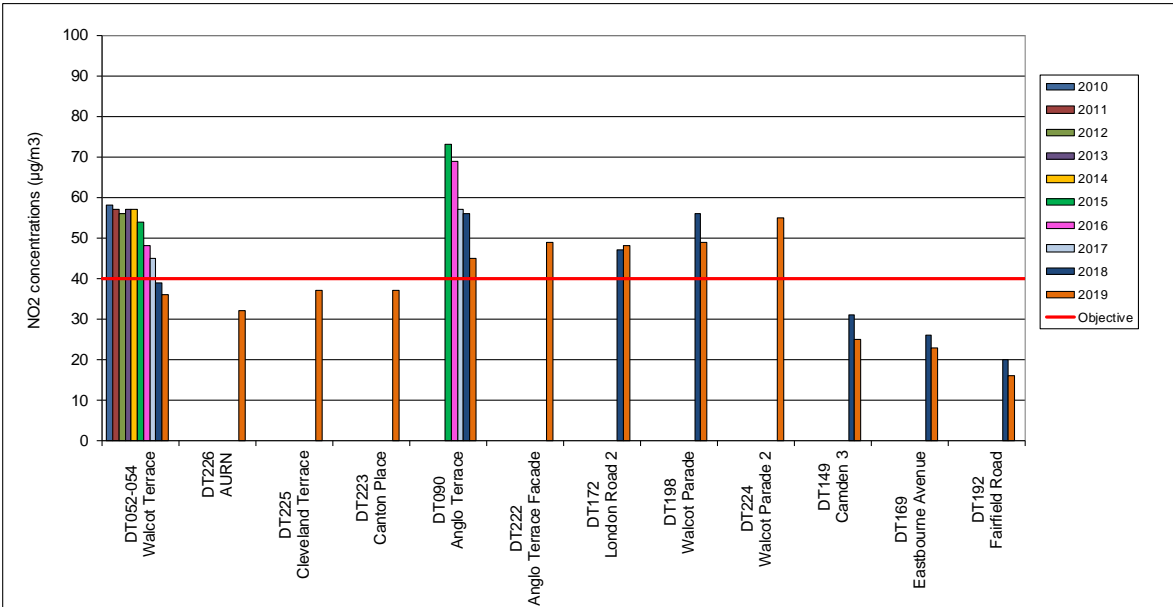


Figure A.11 – Trends in Annual Mean NO₂ Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Bathwick

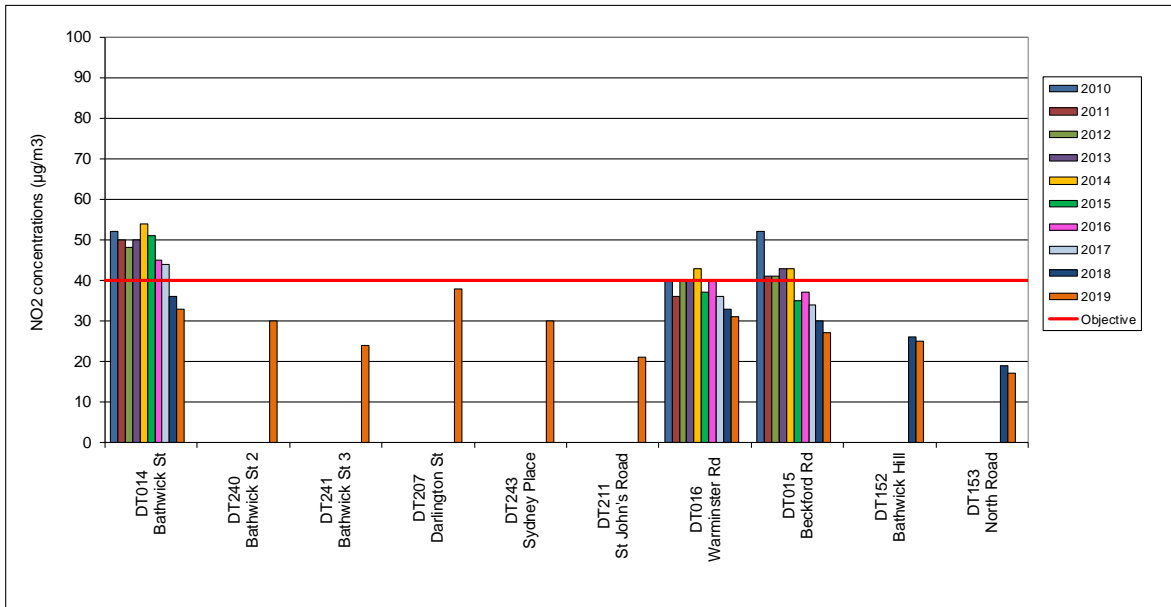


Figure A.12 – Trends in Annual Mean NO₂ Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Kingsmead (South)

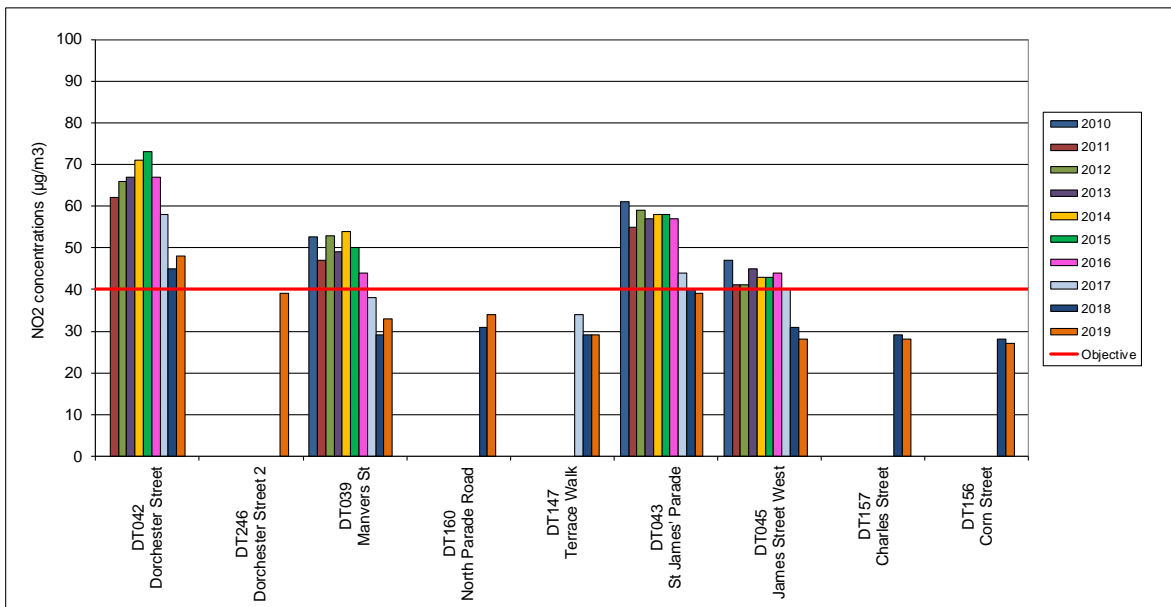


Figure A.13 – Trends in Annual Mean NO₂ Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Kingsmead (North West)

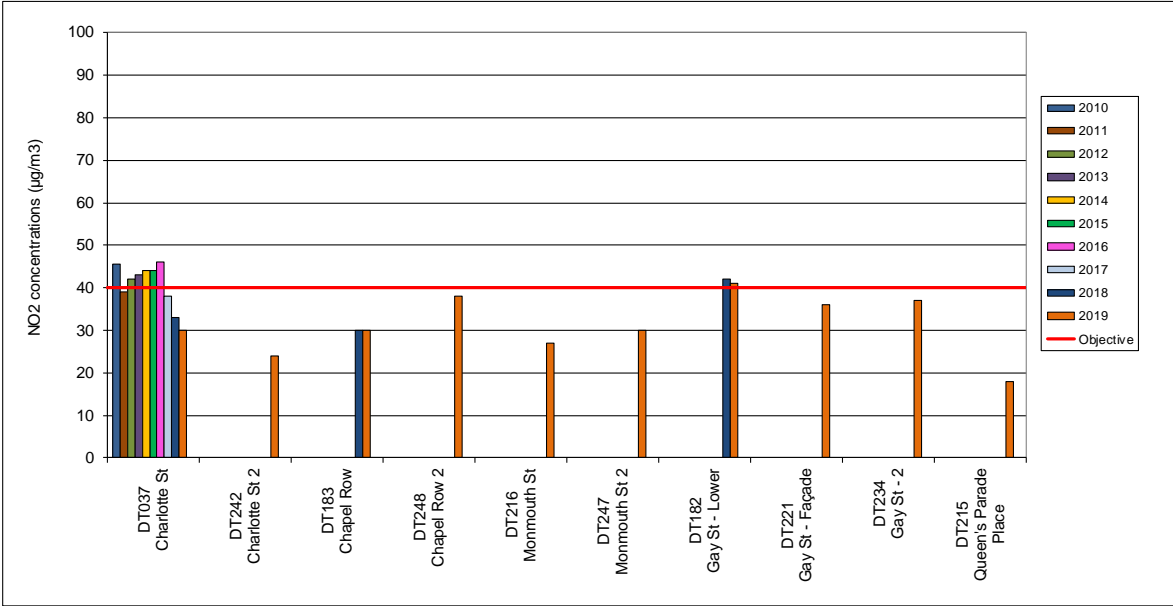


Figure A.14 – Trends in Annual Mean NO₂ Concentrations Measured at Diffusion Tube Monitoring Sites – Bath, Kingsmead (North East)

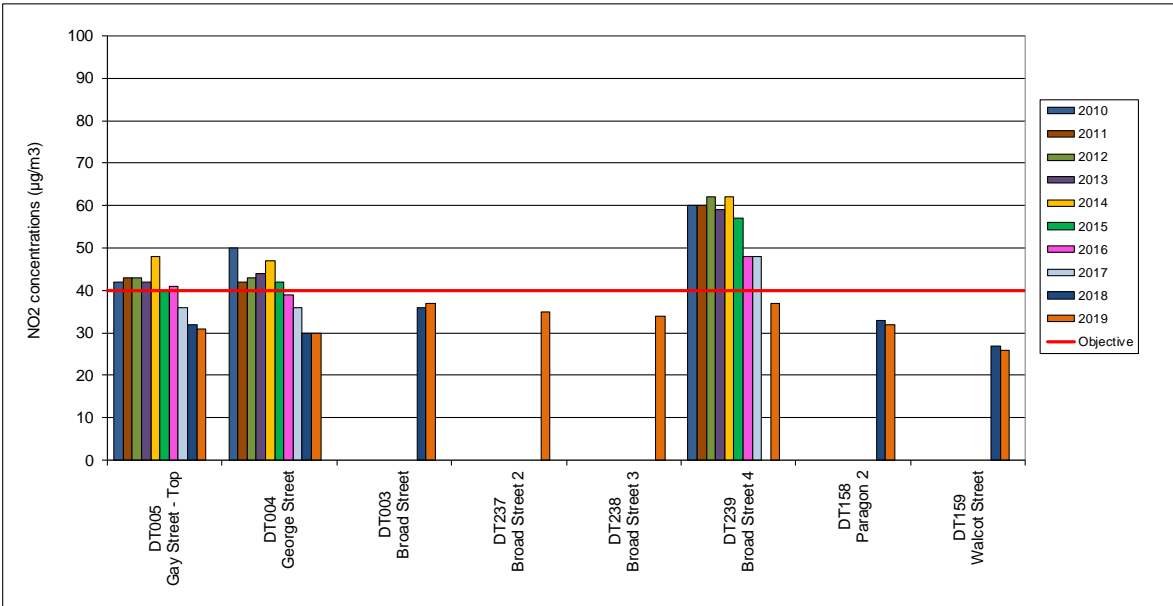


Figure A.15 – Trends in Annual Mean NO₂ Concentrations Measured at Diffusion Tube Monitoring Sites – Westfield, Radstock, Peasedown St John, Whitecross, Clutton and Chew Magna

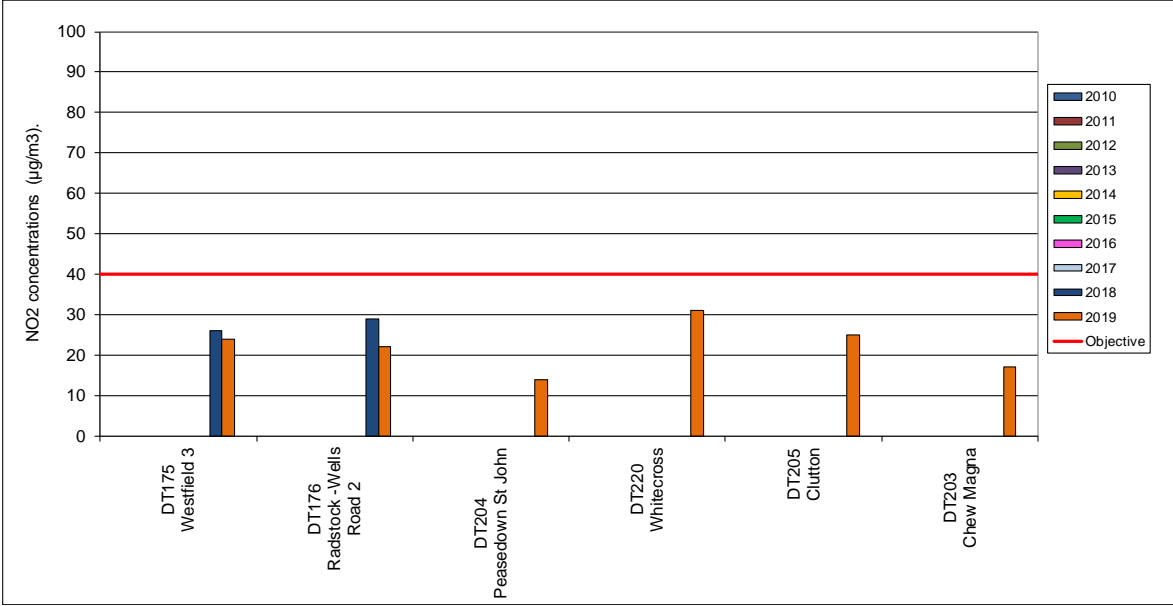


Figure A.16 – Trends in Annual Mean NO₂ Concentrations Measured at Diffusion Tube Monitoring Sites – Farrington Gurney and Temple Cloud

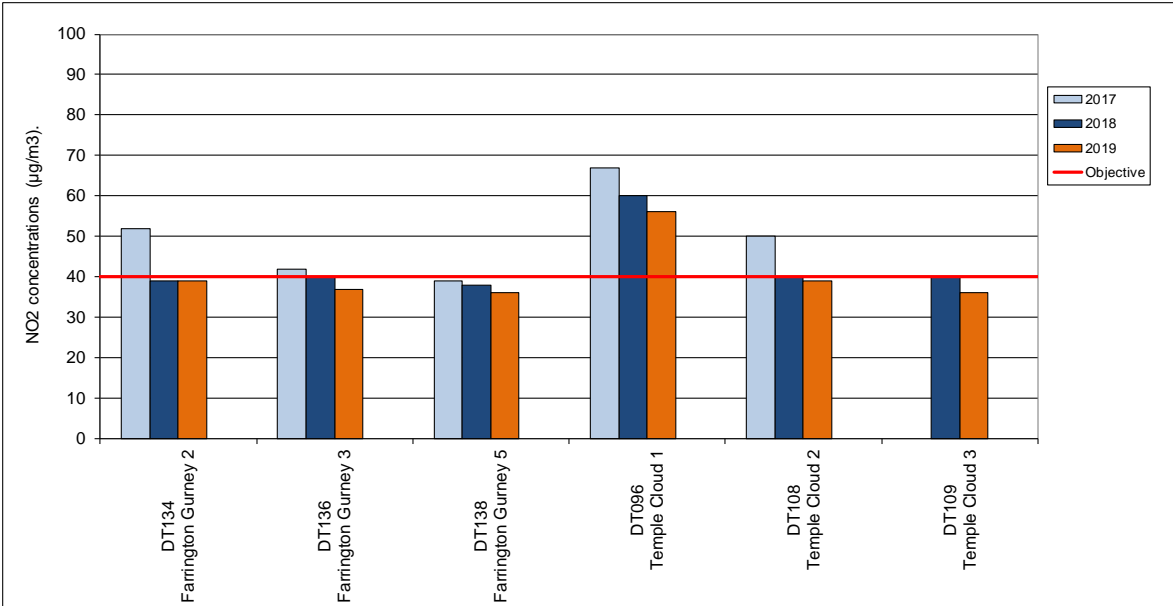


Figure A.17 – Trends in Annual Mean NO₂ Concentrations Measured at Diffusion Tube Monitoring Sites – Batheaston and Bathampton

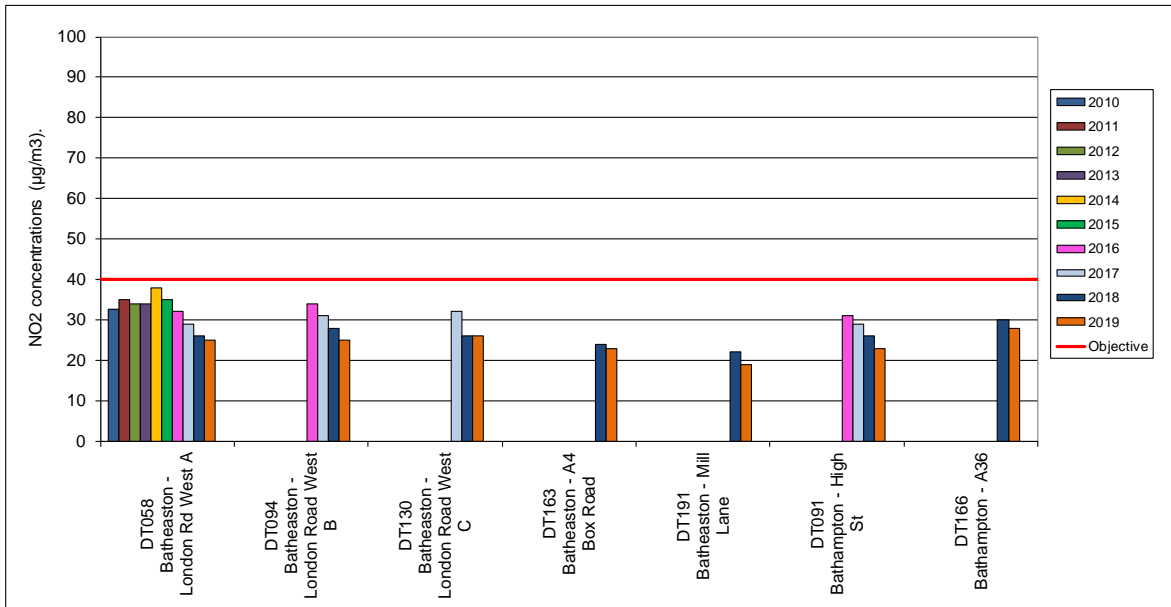


Figure A.18 – Trends in Annual Mean NO₂ Concentrations Measured at Diffusion Tube Monitoring Sites – Keynsham (1)

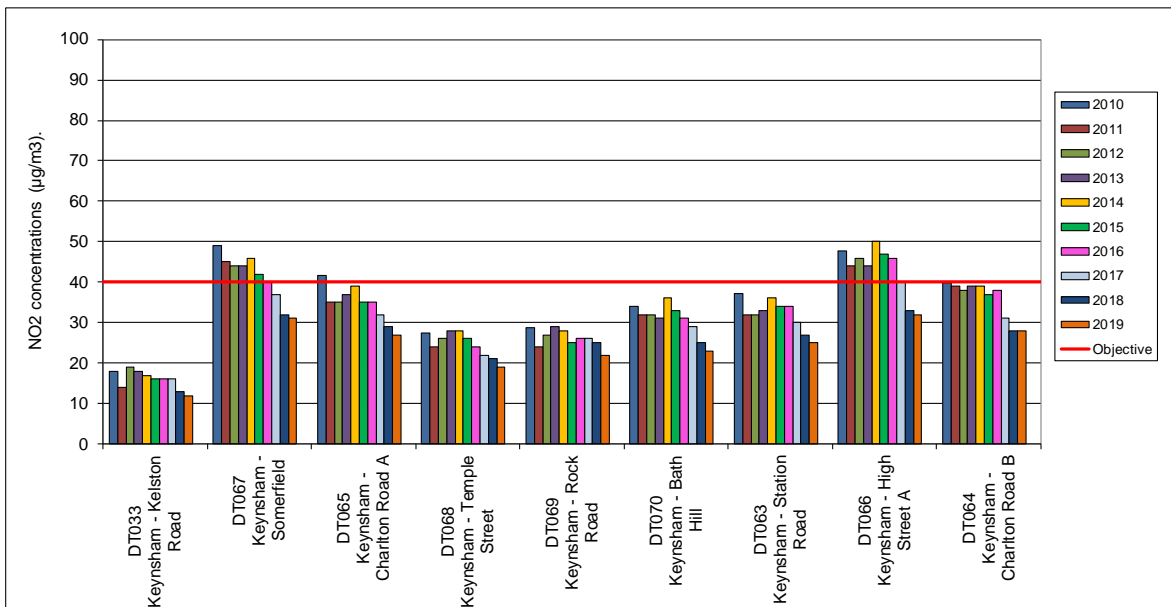


Figure A.19 – Trends in Annual Mean NO₂ Concentrations Measured at Diffusion Tube Monitoring Sites – Keynsham (2)

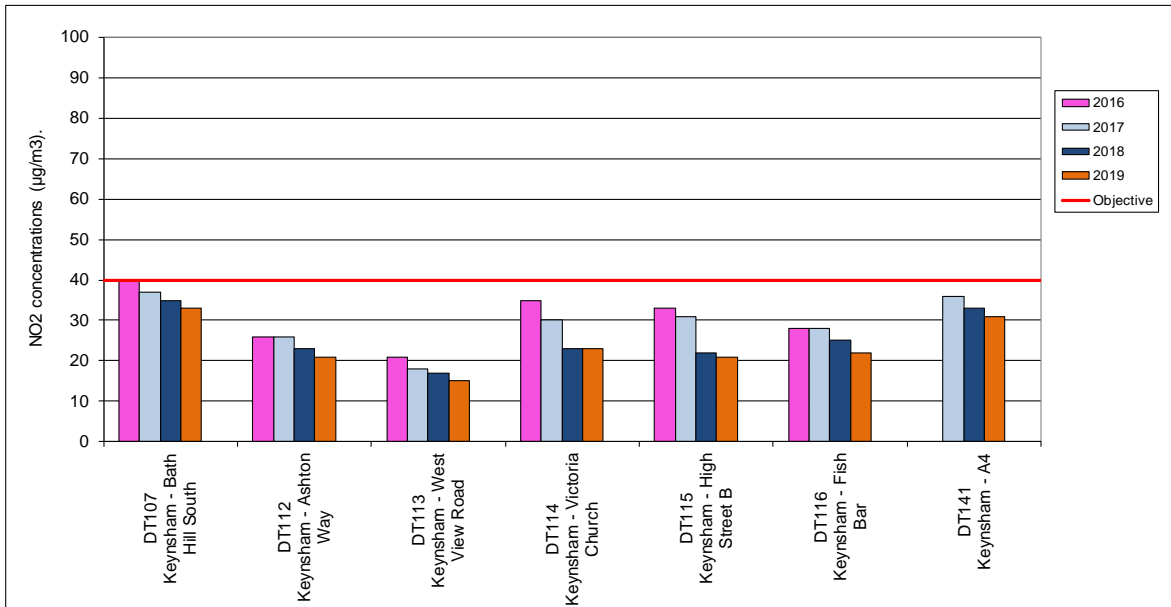


Figure A.20 – Trends in Annual Mean NO₂ Concentrations Measured at Diffusion Tube Monitoring Sites – Whitchurch and Saltford

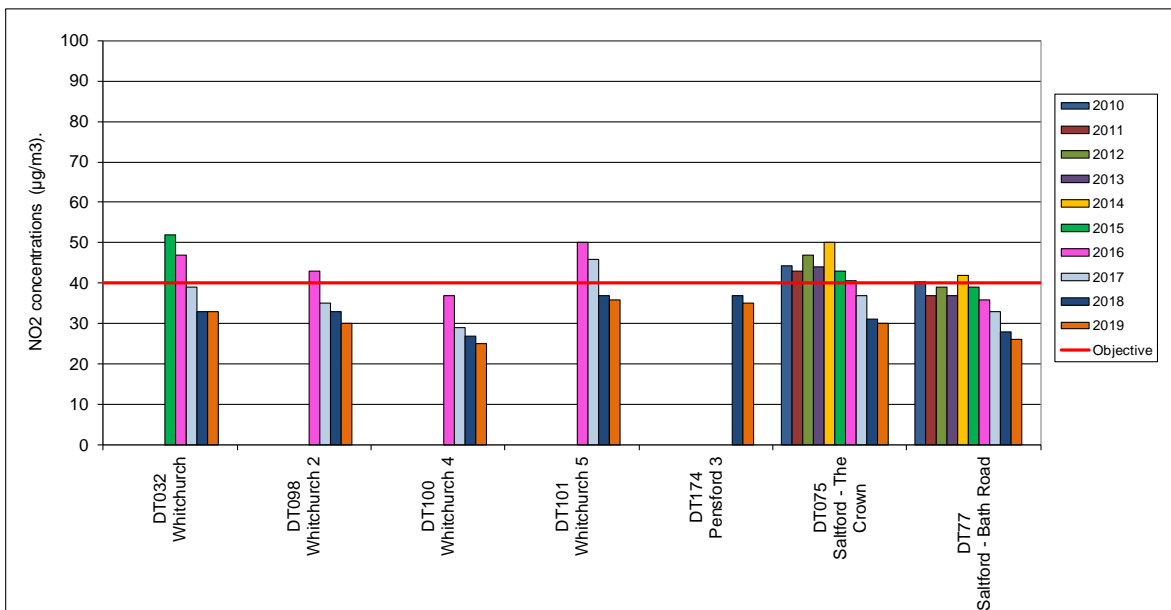


Table A.4 – 1-Hour Mean NO₂ Monitoring Results

Site ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2019 (%) ⁽²⁾	NO ₂ 1-Hour Means > 200µg/m ³ ⁽³⁾					
								2015	2016	2017	2018	2019	
CM1	London Road	375462	165844	Roadside	Automatic	98	43	1	0	0	0	0	0 (112)
CM2	Guildhall	375111	164857	Roadside	Automatic	99.3	99.3	0	0	0 (96)	0	0	0
CM3	Windsor Bridge	373593	164861	Roadside	Automatic	93.7	93.7	0 (105)	0	0	0	0	0
CM4	Chelsea House	375419	165853	Roadside	Automatic	94.1	94.1	1	0	0	0	0	0
CM8	Bath A4 Roadside	375394	165824	Roadside	Automatic	99	19	-	-	-	-	-	1 (125)

Notes:

Exceedances of the NO₂ 1-hour mean objective (200µg/m³ not to be exceeded more than 18 times/year) are shown in **bold**.

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

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

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

Table A.5 – Annual Mean PM₁₀ Monitoring Results

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 2019 (%) ⁽²⁾	PM ₁₀ Annual Mean Concentration (µg/m ³) ⁽³⁾				
							2015	2016	2017	2018	2019
CM3	Windsor Bridge	373593	164861	Roadside	90.7	90.7	22	23	24	24	22
CM4	Chelsea House	375419	165853	Roadside	97	69.4	22	18	16	16	16
CM8	Bath A4 Roadside	375394	165824	Roadside	99	18.7	-	-	-	-	21

Annualisation has been conducted where data capture is <75%

Notes: Exceedances of the PM₁₀ annual mean objective of 40µg/m³ are shown in **bold**.

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

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

(3) All means have been “annualised” as per Boxes 7.9 and 7.10 in LAQM.TG16, valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Table A.6 – 24-Hour Mean PM₁₀ Monitoring Results

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 2019 (%) ⁽²⁾	PM ₁₀ 24-Hour Means > 50µg/m ³ ⁽³⁾				
							2015	2016	2017	2018	2019
CM3	Windsor Bridge	373593	164861	Roadside	90.7	90.7	6	5	3	1	5
CM4	Chelsea House	375419	165853	Roadside	97	69.4	13	0	0	0	0 (26)
CM8	Bath A4 Roadside	375394	165824	Roadside	99	18.7	-	-	-	-	0 (26)

Notes: Exceedances of the PM₁₀ 24-hour mean objective (50µg/m³ not to be exceeded more than 35 times/year) are shown in **bold**.

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

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

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

Figure A.21 – Trends in annual mean PM₁₀ and Number of 24-Hour Mean PM₁₀ Results >50µg/m³ at Windsor Bridge (CM3)

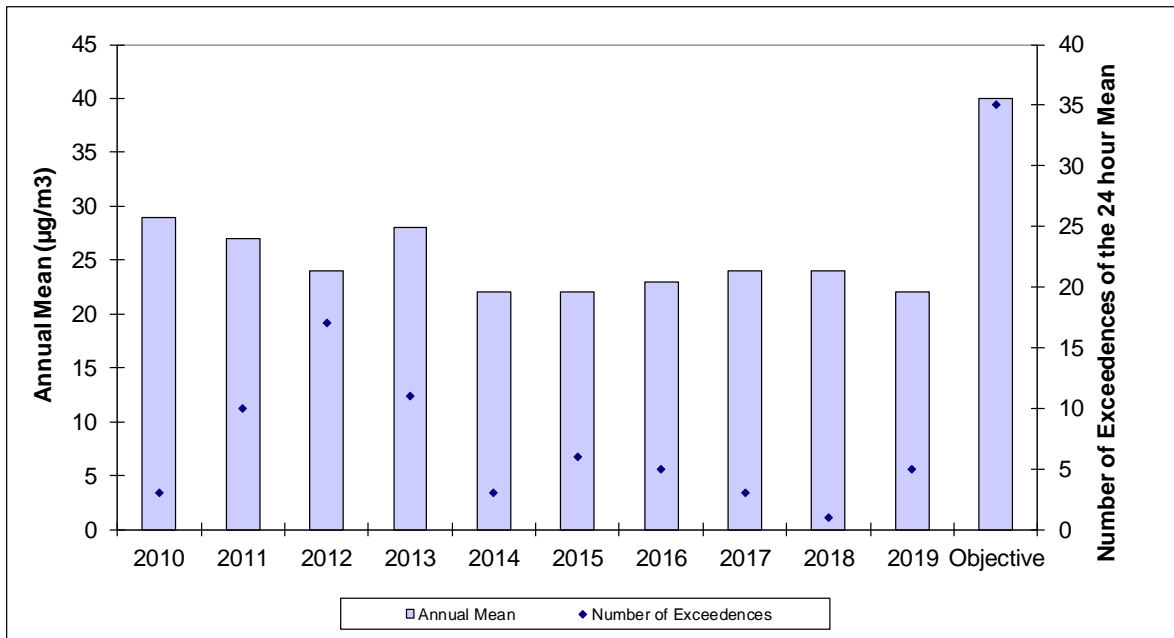


Figure A.22 – Trends in annual mean PM₁₀ and Number of 24-Hour Mean PM₁₀ Results >50µg/m³ at Chelsea House (CM4)

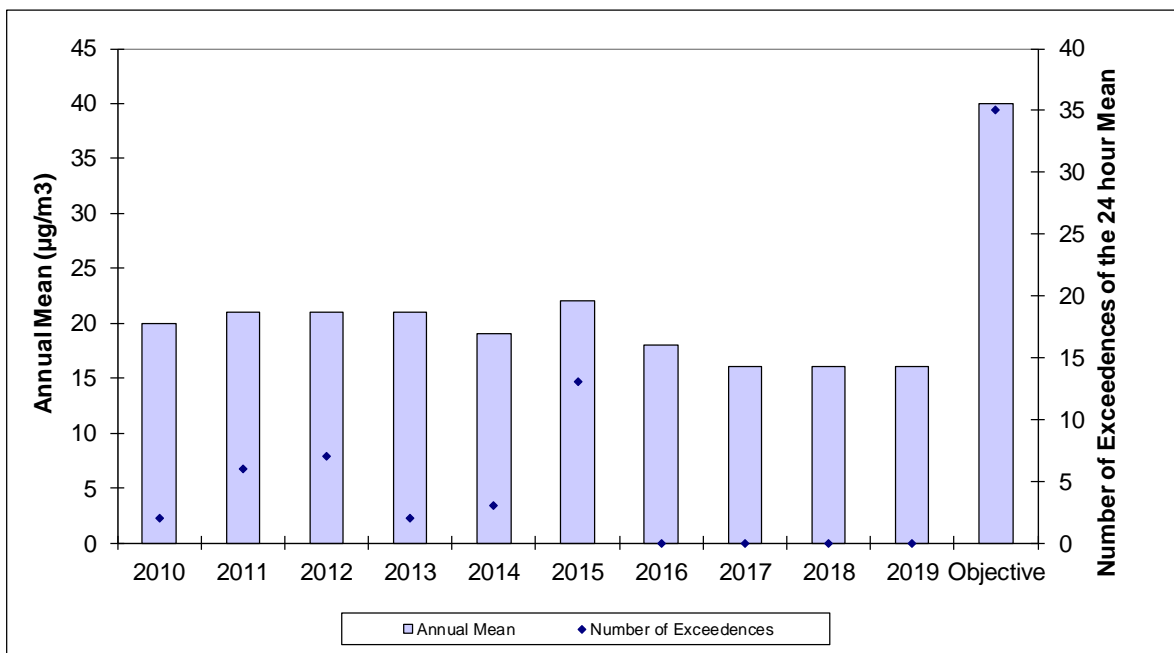


Figure A.23 – Trends in annual mean PM₁₀ and Number of 24-Hour Mean PM₁₀ Results >50µg/m³ at Bath A4 Roadside (CM8)

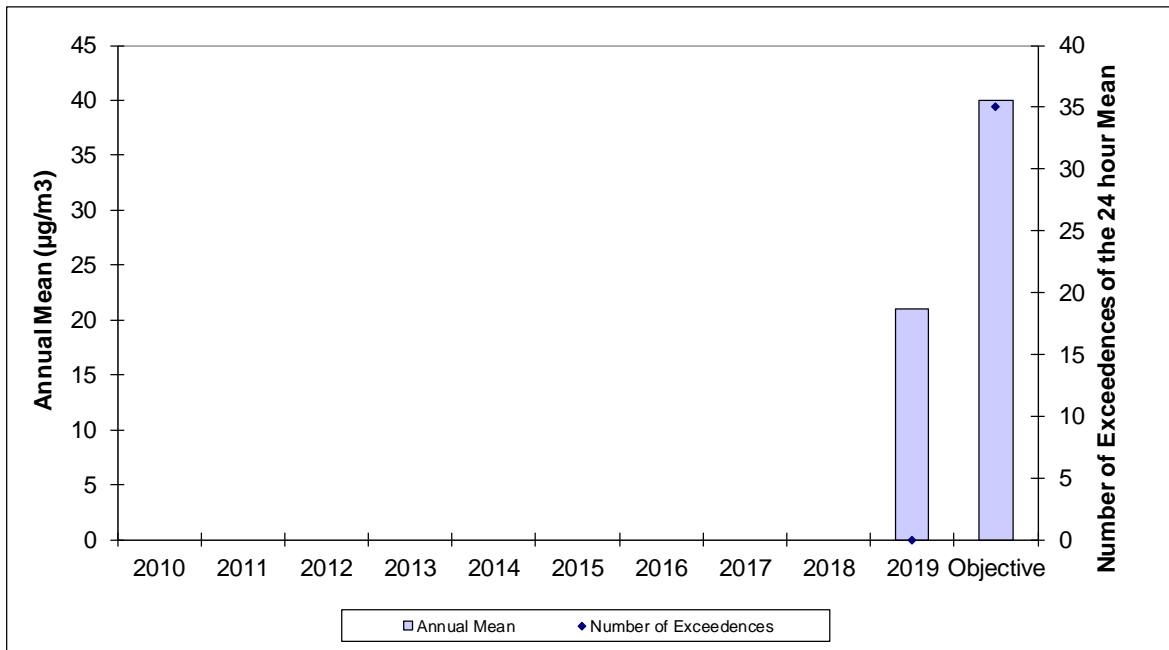


Table A.7 – PM_{2.5} Monitoring Results

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 2019 (%) ⁽²⁾	PM _{2.5} Annual Mean Concentration (µg/m ³) ⁽³⁾				
							2015	2016	2017	2018	2019
CM4	Chelsea House	375419	165853	Roadside	97.5	97.5	12	11	12	11	10

Annualisation has been conducted where data capture is <75%

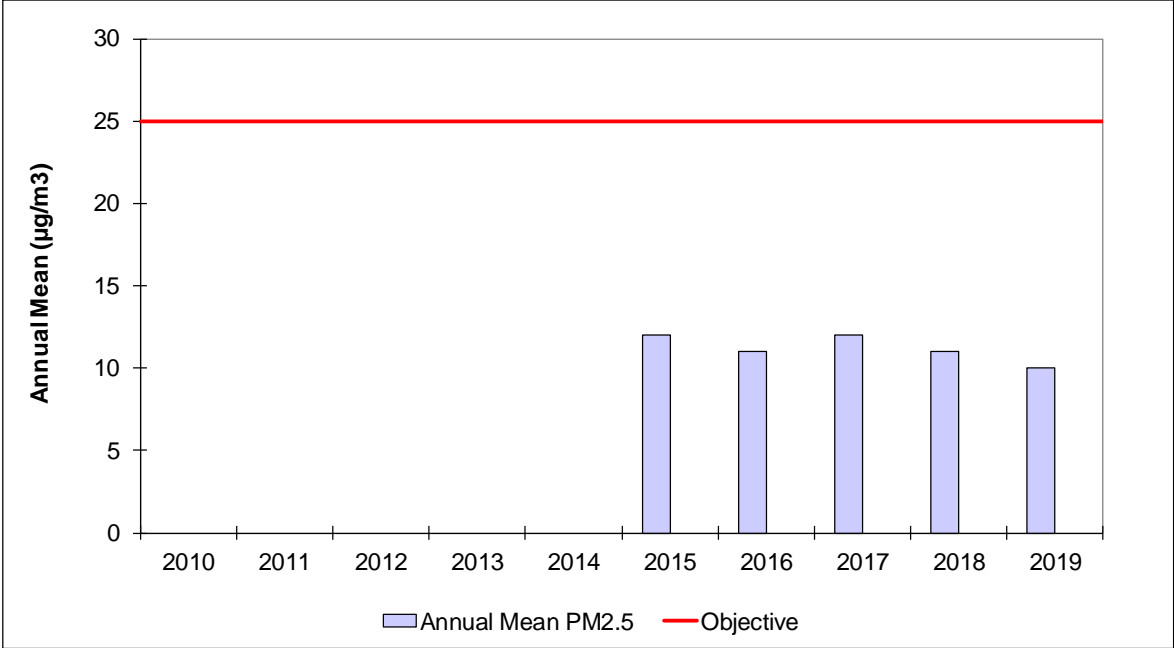
Notes:

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

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

(3) All means have been “annualised” as per Boxes 7.9 and 7.10 in LAQM.TG16, valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Figure A.24 – Trends in Annual Mean PM_{2.5} Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2019

Table B.1 - NO₂ Monthly Diffusion Tube Results – 2019

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO ₂ Mean Concentrations (µg/m ³)														Annual Mean		
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾		
	Bath																			
DT003	Broad Street	374992	165173	56	45	49	34	33	34	29	38	36	38	36	61	41	37	33		
DT004	George Street	374899	165159	47	31	33	33	28			24	28	32	36	31	32	30	25		
DT005	Gay Street – Top	374797	165161	47	32	35	40	28	26	24	21	29	32	53	33	33	31	25		
DT008	Windsor Bridge	373518	165124	43	31	32	36	26	19		25	29	21	36	37	31	28	28		
DT009	Upper Bristol Rd	373993	165174	39	36	36	40	31		20	19	34	30	39	41	33	31	24		
DT014	Bathwick Street	375602	165365	45	40	38	31	32	33	32	34	34	31	39	41	36	33	30		
DT015	Beckford Road	375733	165414	37	33	32	33	26	26	26	23	29	26	36	31	30	27	21		
DT016	Warminster Road	376063	165492	42	33	34	32		26	30	31	34	36	40	33	34	31	22		
DT017	Widcombe School	375634	164406	40	37	35	26	26	29		27	26	34	36	35	32	29	23		
DT018	Widcombe High Street	375414	164216	33	28	28	21	21	20	20	20	24	24	34	29	25	23	23		
DT020	Wells Road (TA)	374760	164310														49	49		
DT020	Wells Road	374760	164310	52	49	54	47	48	37	48	47	44	47	55		48	44	44		
DT020b	Wells Road	374760	164310								41	55	62	60		54	52	52		
DT020c	Wells Road	374760	164310								45	45	59	64		53	51	51		

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO ₂ Mean Concentrations (µg/m ³)															Annual Mean		
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾			
DT021	Wells Road/Upper Oldfield Park	374454	164202	50	37	37	46	47	42	41	29	39	37	46	34	40	37	30			
DT023	Alexandra Park	375105	163991	20	13	13	13	10	10	8	6	10	13	19	11	12	11				
DT026	Upper Wellsway	373576	161908	31	32	28	38	24	28	26	20	28	32	39	26	29	27	27			
DT034	Newbridge Road	373092	165106	47	34	34	37	27	29	27	29	33	35	39	37	34	31	24			
DT037	Charlotte Street (TA)	374622	164994														30	24			
DT037	Charlotte Street	374622	164994	52		36	39	29	28	25	23	29	30	41	35	33	31	25			
DT037b	Charlotte Street	374622	164994								25	32	34	38	38	33	30	25			
DT037c	Charlotte Street	374622	164994								23	32	30	36	32	31	28	23			
DT039	Manvers Street	375247	164591	53	39	39		28	27	28	26	35	36	44	34	35	33	28			
DT042	Dorchester Street	375230	164383	61	51	68	51	51			42	52	46	49	52	52	48	41			
DT043	St James' Parade (new)	375053	164418	46	41	45	52	37	34		37	43	44	45	39	42	39	33			
DT045	James Street West	374697	164763	47	29	34	35	27	18	26	23	28	32	36	34	31	28	28			
DT052	Walcot Terrace (TA)	375462	165843														36	36			
DT052	Walcot Terrace	375462	165843	47	48	41	39	35	37	34	40	37	34	35	41	39	36	36			
DT053	Walcot Terrace	375462	165843	49	44	45	36	37	36	34	38	38	31	38	44	39	36	36			
DT054	Walcot Terrace	375462	165843	46	51	43	37	33	37	35	39	39	34	39	46	40	37	37			
DT055	Lambridge	376451	166502	47	42	40	44	41	39	40	36	39	38	29	38	39	36	36			
DT060	Victoria Buildings	374039	164760	66	53	54	49	45	40	44	34	45	45	51		48	44	32			
DT062	Argyle Terrace	373211	164743	50	47	43	42	30	34	35	31	38	45	49	42	40	37	32			

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO ₂ Mean Concentrations (µg/m ³)															Annual Mean		
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾			
DT084	Bear Flat	374604	163806	40	35	33	40	28	29	31	23	34	34	41	30	33	30	24			
DT085	RUH – North	373073	165983	39	33	28	30	22		25	22	27	26	33	30	29	26	21			
DT087	Oak Street	374702	164414	44	33	36	31	28	24	26	26	30	33	37	32	32	29	29			
DT090	Anglo Terrace (TA)	375288	165758														45	38			
DT090	Anglo Terrace	375288	165758	66	54	59	63	53	52	48	45	53	47		48	53	49	41			
DT090b	Anglo Terrace	375288	165758								47	44	47		51	47	37	32			
DT090c	Anglo Terrace	375288	165758								41	53	54	58		52	49	41			
DT142	Prior Park Road	375513	164194	43	41	33	31	30	30	29	24	33	48	47	38	36	33	31			
DT143	Rackfield Place	372647	164738	39	33		31	23	23	22	20	24	28	38	32	28	26	26			
DT145	Lansdown Road	374930	165550	38	34	34	35	25	19	24	20	28	20	36	29	29	26	22			
DT147	Terrace Walk	375195	164735	44	33	36	26	29		24	27	33	30	32	36	32	29	29			
DT148	Julian Road (TA)	375195	164735														24	23			
DT148	Julian Road	375195	164735	42	27	32	30	22	26	23	22	27	28	32	28	28	26	25			
DT148b	Julian Road	375195	164735										30	31	29	30	23	22			
DT148c	Julian Road	375195	164735										25	36	28	29	22	22			
DT149	Camden 3	375038	165838	37	31	32	29	23	21	20	20	24	25	33	32	27	25	21			
DT150	Brougham Hayes	373955	164590	44	38	33		29		26	21	27	34		35	32	29	26			
DT151	Widcombe Hill	375598	164190	37	24	34	28	26	25	16	20	28	30	51	29	29	27	21			
DT152	Bathwick Hill	375800	164912	35	32	29	23	21	20	24		25	28	33	31	27	25	22			

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				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾			
DT153	North Road	376069	165356	29	23	20	15	13	14	15	14	18	16	19	21	18	17	15			
DT154	Bradford Road	375529	162389	41	38	33	33	26		22	14	28	33	36	30	30	28	27			
DT155	Newbridge Hill 2	372696	165488	33	20	19	20	15	14	13		16	20	29	21	20	18	16			
DT156	Corn Street	374827	164531	39	25	32	37	27	25	23	22	29	38	38	25	30	28	25			
DT157	Charles Street	374644	164815	43	32	27	40	26	23	23	20	27	32	34	29	30	27	26			
DT158	Paragon 2	375051	165350	46	42	35	43	21	30	26	25		37	41	35	35	32	24			
DT159	Walcot Street	375075	165287	38	32	29	29	23	22	20	21	25	30	33	32	28	26	23			
DT160	North Parade Road	375284	164694	51	40	39	37	28	31	26	29	41	45	41	38	37	34	26			
DT165	Brassknocker Hill	377960	162736	45	39	42	37	39	37	39	39	38	40	43	41	40	37	26			
DT167	Weston High Street	372587	166629	31	27	20	33	21	23	18	15	20	26	35	23	24	22	22			
DT168	Englishcombe Lane	373207	163339	23	17	17		13	12	11	9	13	9	22	16	15	14	13			
DT169	Eastbourne Avenue	357667	166369	36	28	26	21	21	21	19	17	23	25	34	27	25	23	19			
DT171	Frome Road/Upper Bloomfield	373706	162411	35	29	32	38	26	28	25	18	29	29	40	22	29	27	26			
DT172	London Road 2 (TA)	375374	165813														48	46			
DT172	London Road 2	375374	165813	55	51	49	46	46	44	45	37	42	36			45	42	40			
DT172b	London Road 2	375374	165813								41	47	40			43	52	50			
DT172c	London Road 2	375374	165813								39	44	41			41	50	49			
DT173	Upper Bristol Road 2	374362	165016	48			33	32	29	29	33	37	36	41	42	36	33	32			
DT179	Upper Bristol Road 3 (TA)	373299	165093														37	37			

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO ₂ Mean Concentrations (µg/m ³)															Annual Mean		
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾			
DT179	Upper Bristol Road 3	373299	165093	50	38	35	54	36	37	29	25		38	50	37	39	36	36			
DT179b	Upper Bristol Road 3	373299	165093								27	39	44	60	44	43	39	39			
DT179c	Upper Bristol Road 3	373299	165093								25	39	40	51	41	39	36	36			
DT180	Wells Road 2 (TA)	374537	163968														34	32			
DT180	Wells Road 2	374537	163968		44	39	37	36		38	37	37	33	41	39	38	35	33			
DT180b	Wells Road 2	374537	163968								34	37	38	42	32	37	33	32			
DT180c	Wells Road 2	374537	163968								34	37	34	43	36	37	34	32			
DT181	Wellsway	374618	163494	44	44	39	31	27	35	32	34	36	33	36	41	36	33	22			
DT182	Gay Street – Lower (TA)	374796	165122														41	32			
DT182	Gay Street – Lower	374796	165122	63	42	52	44	45	42	42	40	46	44	47	43	46	42	33			
DT182b	Gay Street – Lower	374796	165122								36	48	42	45	51	44	40	31			
DT182c	Gay Street – Lower	374796	165122								43	48	45	42	48	45	41	32			
DT183	Chapel Row	374712	164916	42	33	34	37	31	30	27	24	29	28	35	37	32	30	30			
DT184	Lansdown Road 2	374949	165320	48	42	44	38	35	37	30						39	36	28			
DT185	Greenway Lane	374712	163417	26	22	19	15	14	14	13	13	15	18	26		18	16	16			
DT186	Coronation Avenue	373170	163416	28	26	20	29	16	19	17	12	18	25	31	22	22	20	18			
DT187	Stanley Road West	373835	164438	38	32	24	30	21	20	18	15	22	24	36	25	25	23	23			
DT188	Moorland Road	373696	164343	37	30	23	29	19	19	15	16	19	26	30	27	24	22	22			
DT189	Old Newbridge Hill	372251	165686	44	23	36	36	26	21	23	24	33	37	48	33	32	29	22			

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				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾			
DT190	Church Street	375814	164027	26	16	15	14	11		8	8	11	14	22	16	15	13	14			
DT192	Fairfield Road	375505	166428	27		19	16	15	14	9	12	15	19	24	23	17	16	15			
DT193	Granville Road	374260	167661	14	13	9	11	8	8	8	6	8	11	16	11	10	9				
DT194	Brooklyn Road	376096	166878	22	20	19	18	14	16	14	12	16	16	21	21	18	16	15			
DT195	Lansdown Lane	372537	167235	31	25	21	27	21	16	17	15	19	21	32	26	23	21	17			
DT196	Oakley	377133	164045	44	35	36	27	25	26	27	21	32	30	38	27	31	28	20			
DT197	Rush Hill	372703	162983	35	28	30	27	22	22	22	19	26		35	27	27	24	20			
DT198	Walcot Parade (TA)	375240	165739														49	46			
DT198	Walcot Parade	375240	165739	68	58	62	59	52	49	42	48	51		61	61	56	51	49			
DT198b	Walcot Parade	375240	165739								47	48	46	53	62	51	47	44			
DT198c	Walcot Parade	375240	165739								46	53	51	57	59	53	48	46			
DT199	Hensley Road	374353	163504	24	17	14	14	10	10	9	8	12	14	21	15	14	13	12			
DT200	Millmead Road	373375	164307	26	19	16	19	13	12	11	9	14	18	26	18	17	15	14			
DT201	The Hollow	373003	164250	36	35	26	29	21	21	21	16	21	26	31	26	26	24	22			
DT202	Charlcombe	374636	166701	22	20	15	13	12	13	12	10	14	16	21	17	15	14	13			
DT206	Park Lane (TA)	373742	165305														28	27			
DT206	Park Lane	373742	165305	44	37	39	32	28	32	28	30	29	31	35	36	34	31	30			
DT206b	Park Lane	373742	165305								31	31		35	38	34	24	23			
DT206c	Park Lane	373742	165305								31	32	33	34	36	33	30	29			

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO ₂ Mean Concentrations (µg/m ³)															Annual Mean		
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾			
DT207	Darlington Street	375630	165132	48	46	42	34	42	38	38	40	45	33	47	42	41	38	30			
DT208	Widcombe 3	375602	164387	26	22	21										23	17	17			
DT209	Bellots Road	373490	164804	34	23	20	20	14	14	15	13	18	22	30	22	20	19	17			
DT210	Red Lion Roundabout	373895	162254	41	24	42	39	29	32	37	33	32	37	44	35	35	33	32			
DT211	St John's Road	375218	165290	31	26	22	21	19	19	15	16	22	22	33	28	23	21	21			
DT212	Oldfield Road	374356	163985	31	22	18	24	15		14		16	21	33	19	21	19	17			
DT213	Marlborough Lane (TA)	374262	165127														21	18			
DT213	Marlborough Lane	374262	165127				27	21	21	17	18	23	24	23	25	22	20	18			
DT213b	Marlborough Lane	374262	165127								17	23	22	29	25	23	21	19			
DT213c	Marlborough Lane	374262	165127								18	21	24	31	26	24	22	19			
DT214	Marlborough Buildings (TA)	374354	165448														19	17			
DT214	Marlborough Buildings	374354	165448				19	13		15	16	19	22	28	29	20	16	15			
DT214b	Marlborough Buildings	374354	165448								15	19	23	29	28	23	21	18			
DT214c	Marlborough Buildings	374354	165448								15	19	22	28	27	22	20	18			
DT215	Queen Parade Place (TA)	374758	165096														18	18			
DT215	Queen Parade Place	374758	165096				23	16	17	14	14	18	20	26	24	19	18	17			
DT215b	Queen Parade Place	374758	165096								14	18	22	28	23	21	19	19			
DT215c	Queen Parade Place	374758	165096								14	18	20	26	24	21	19	19			
DT216	Monmouth Place (TA)	374574	164958														27	27			

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				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾			
DT216	Monmouth Place	374574	164958				35	13	28	24	23	30	31	39	33	29	26	26			
DT216b	Monmouth Place	374574	164958								22	28	31	42	34	31	29	28			
DT216c	Monmouth Place	374574	164958								18	27	32	38	35	30	27	27			
DT217	Cavendish Road (TA)	374335	165990														17	16			
DT217	Cavendish Road	374335	165990				19	18	18	15	11	18	22	30	20	19	17	17			
DT217b	Cavendish Road	374335	165990								11	18	19	26	21	19	17	16			
DT217c	Cavendish Road	374335	165990								10	17	19	28	15	18	16	15			
DT218	Weston Road	373668	165697				22	19	19	18	14	20	19	30	26	21	19	17			
DT219	Morford Street	374872	165570				26	23	23	17	15	22	22	36	25	23	21	21			
DT221	Gay Street - façade	374793	165119							37	29	39	34	40	38	36	36	36			
DT222	Anglo Terrace façade (TA)	375231	165778														49	47			
DT222	Anglo Terrace façade	375231	165778								49	52	46	62	57	53	49	46			
DT222b	Anglo Terrace façade	375231	165778								48	56	49	63	60	55	50	48			
DT222c	Anglo Terrace façade	375231	165778								52	55	47	56	53	53	48	46			
DT223	Canton Place (TA)	375322	165759														37	34			
DT223	Canton Place	375322	165759								38	40	35	41	48	40	37	33			
DT223b	Canton Place	375322	165759								35	42	41	44	47	42	38	35			
DT223c	Canton Place	375322	165759								38	41	36	44	47	41	37	34			
DT224	Walcot Parade 2 (TA)	375207	165726														55	53			

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO ₂ Mean Concentrations (µg/m ³)															Annual Mean		
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾			
DT224	Walcot Parade 2	375207	165726								53	60	52	67	65	59	54	52			
DT224b	Walcot Parade 2	375207	165726								54	59	60	77	62	62	57	54			
DT224c	Walcot Parade 2	375207	165726								53	57	56	65	67	60	54	52			
DT225	Cleveland Terrace (TA)	375203	165708														37	29			
DT225	Cleveland Terrace	375203	165708								34	41	33	45	48	40	37	29			
DT225b	Cleveland Terrace	375203	165708								37	41	42	48	47	43	39	31			
DT225c	Cleveland Terrace	375203	165708								35	41	33	45	46	40	36	29			
DT226	AURN (TA)	375394	165824														32	28			
DT226	AURN	375394	165824											44	43	42	43	33	29		
DT226b	AURN	375394	165824											44	41	39	41	31	28		
DT226c	AURN	375394	165824											41	42	41	41	31	28		
DT227	Wells Road 3 (TA)	374580	163979														40	34			
DT227	Wells Road 3	374580	163979								40	42	42	48	44	43	40	33			
DT227b	Wells Road 3	374580	163979								40	41	45	53	43	45	41	34			
DT227c	Wells Road 3	374580	163979								40	41	42	57	42	45	41	34			
DT228	Lower Bristol Road 2 (TA)	374002	164754														28	26			
DT228	Lower Bristol Road 2	374002	164754								27	29	32	37	32	31	29	27			
DT228b	Lower Bristol Road 2	374002	164754								24	30	33	41	33	32	29	28			
DT228c	Lower Bristol Road 2	374002	164754											30	37	32	33	25	24		

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO ₂ Mean Concentrations (µg/m ³)															Annual Mean		
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾			
DT229	Lower Bristol Road 3 (TA)	373936	164779															36	21		
DT229	Lower Bristol Road 3	373936	164779								28	37	41	55	38	40		36	21		
DT229b	Lower Bristol Road 3	373936	164779								26	38	39	50	45	40		36	21		
DT229c	Lower Bristol Road 3	373936	164779								28	38	38	50	40	39		35	21		
DT230	Upper Bristol Road 4 (TA)	373439	165098															35	28		
DT230	Upper Bristol Road 4	373439	165098								34	47	52		54	47		37	29		
DT230b	Upper Bristol Road 4	373439	165098								39	50			47	45		34	27		
DT230c	Upper Bristol Road 4	373439	165098								38	47	47		51	46		36	29		
DT231	Upper Bristol Road 5 (TA)	373480	165125															41	27		
DT231	Upper Bristol Road 5	373480	165125								39	48	46	44	48	45		41	27		
DT231b	Upper Bristol Road 5	373480	165125								38	49	45	52	44	46		42	27		
DT231c	Upper Bristol Road 5	373480	165125								41	47	39	50	47	45		41	27		
DT232	Lansdown Road 3 (TA)	374942	165391															29	22		
DT232	Lansdown Road 3	374942	165391								27	33	26	41	35	32		30	22		
DT232b	Lansdown Road 3	374942	165391								27	32	29	41	34	33		30	23		
DT232c	Lansdown Road 3	374942	165391								29	31	27	37	32	31		29	22		
DT233	Lansdown Road 4 (TA)	374956	165359															23	18		
DT233	Lansdown Road 4	374956	165359								22			27	37	29	29	19	16		
DT233b	Lansdown Road 4	374956	165359								22			31	42	33	32	21	17		

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO ₂ Mean Concentrations (µg/m ³)															Annual Mean		
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾			
DT233c	Lansdown Road 4	374956	165359								21	30	31	43	33	32	29	21			
DT234	Gay Street 2 (TA)	374806	165084														37	29			
DT234	Gay Street 2	374806	165084								42	48	38	55	50	47	42	33			
DT234b	Gay Street 2	374806	165084								41	40		44	50	44	30	24			
DT234c	Gay Street 2	374806	165084								44	46	36	38	45	42	38	30			
DT235	Wells Road 4 (TA)	374694	164288														37	27			
DT235	Wells Road 4	374694	164288								39	39	35	47	42	40	37	27			
DT235b	Wells Road 4	374694	164288								40	42	40	44	46	42	38	28			
DT235c	Wells Road 4	374694	164288								39	39	35	41	40	39	35	26			
DT236	Pulteney Terrace (TA)	375668	164493														30	24			
DT236	Pulteney Terrace	375668	164493								25	29	35	45	36	34	31	25			
DT236b	Pulteney Terrace	375668	164493								24	27	33	42	34	32	29	24			
DT236c	Pulteney Terrace	375668	164493								24	31	31	39	33	32	29	24			
DT237	Broad Street 2	375000	165179								27	38	40	47	41	39	35	34			
DT238	Broad Street 3 (TA)	375001	165140														34	33			
DT238	Broad Street 3	375001	165140								33	37	38	38	39	37	34	33			
DT238b	Broad Street 3	375001	165140								35	38	39	36	40	38	34	34			
DT238c	Broad Street 3	375001	165140								34	34	36	37	42	36	33	33			
DT239	Broad Street 4 (TA)	375008	165145														37	29			

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO ₂ Mean Concentrations (µg/m ³)															Annual Mean		
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾			
DT239	Broad Street 4	375008	165145								32	42	39	46	42	40	37	29			
DT239b	Broad Street 4	375008	165145								33	39	42	50	44	42	38	30			
DT239c	Broad Street 4	375008	165145								35	36	41	42	40	39	35	28			
DT240	Bathwick Street 2 (TA)	375489	165450														30	26			
DT240	Bathwick Street 2	375489	165450								29	33	30	40	35	33	30	26			
DT240b	Bathwick Street 2	375489	165450								28	33	30	38	37	33	30	26			
DT240c	Bathwick Street 2	375489	165450								30	33	30	39	34	33	30	26			
DT241	Bathwick Street 3 (TA)	375520	165446														24	22			
DT241	Bathwick Street 3	375520	165446								22	23	24	32	30	26	24	22			
DT241b	Bathwick Street 3	375520	165446								21	21	27	32	30	26	24	22			
DT241c	Bathwick Street 3	375520	165446								22	24	25	31	29	26	24	22			
DT242	Charlotte Street 2 (TA)	374583	164974														24	22			
DT242	Charlotte Street 2	374583	164974								20	25	29	31	28	26	24	22			
DT242b	Charlotte Street 2	374583	164974								20	24	26	32	30	26	24	22			
DT242c	Charlotte Street 2	374583	164974								20	24	26	31	29	26	24	22			
DT243	Sydney Place (TA)	375625	165312														30	22			
DT243	Sydney Place	375625	165312								28	34	22	40	35	32	29	21			
DT243b	Sydney Place	375625	165312								29	33	29	41	36	33	30	22			
DT243c	Sydney Place	375625	165312								31	35	32	38	34	34	31	22			

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO ₂ Mean Concentrations (µg/m ³)															Annual Mean		
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾			
DT244	Whiteway	372494	163165								15	17	23	27	18	20	18	17			
DT245	Whiteway 2	372401	163212								22	26	26	40	23	27	25	24			
DT246	Dorchester Street 2 (TA)	375186	164372														39	24			
DT246	Dorchester Street 2	375186	164372								40	46	42	43	46	44	40	25			
DT246b	Dorchester Street 2	375186	164372								40	42	42	44	37	41	37	24			
DT246c	Dorchester Street 2	375186	164372								42	40	40	48	43	42	39	24			
DT247	Monmouth Place 2 (TA)	374627	164924														30	29			
DT247	Monmouth Place 2	374627	164924								29	32	35	38	37	34	31	30			
DT247b	Monmouth Place 2	374627	164924								28	31	33	34	37	32	30	29			
DT247c	Monmouth Place 2	374627	164924								27	29	29	37	35	32	29	28			
DT248	Chapel Row 2 (TA)	374711	164931														38	37			
DT248	Chapel Row 2	374711	164931								33	42	40	44	44	41	37	36			
DT248b	Chapel Row 2	374711	164931								39	44	45	40	43	42	38	37			
DT248c	Chapel Row 2	374711	164931								38	44	42	44	48	43	39	38			
DT249	Poolemead Road	372050	164460								10	15	20	23	18	17	15	13			
DT250	Newton Road	372041	164787								13	17	18	27	19	19	17	14			
	Bathampton																				
DT091	Bathampton High Street	377683	166408	31	27	26	25	22	21	21	19	24	25	32	26	25	23	23			
DT166	Bathampton – A36	377543	165924	40	35	29	30	28	29	21	26	29	27	38	29	30	28	16			

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO ₂ Mean Concentrations (µg/m ³)															Annual Mean		
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾			
	Batheaston																				
DT058	Batheaston – London Road West A	377643	167365	35	36	24		23	26	21	23	20	25	32	34	27	25	25			
DT094	Batheaston London Road West B	377290	167097	36	29	28	29	27	28	25	23	24	19	33	31	28	25	26			
DT130	Batheaston -London Road West C	377802	167456	35	34	30	27	26		23	21		25	30	32	28	26	26			
DT163	Batheaston – A4 Box Road	378911	167259	34	30	25	19	19	22	20	21	23	26	30	27	25	23	20			
DT191	Batheaston – Mill Lane	377339	167065	26	23	17	20	16	20	19	19	22	22	20	23	21	19	16			
	Chew Magna																				
DT203	Chew Magna	357596	163154	29	21	24										25	17	14			
	Clutton																				
DT205	Clutton	361925	158987	37	24	33	25	25	33							30	25	21			
	Farrington Gurney																				
DT134	Farrington Gurney 2	362891	155485	50	42	41	36	40	40	50	40	39	42	45	41	42	39	39			
DT136	Farrington Gurney 3	362884	155790	44	36	45	39	43	41	43	35	40		48	32	41	37	37			
DT138	Farrington Gurney 5	362983	155459	41	33	47	41	37		37	32	41	39	45	34	39	36	29			
	Keynsham																				
DT033	Keynsham - Kelston Road	364803	168237	23	13	13	15	9	8	8	7	11	14	23	13	13	12	12			
DT063	Keynsham – Station Road	365409	168846	39	23	28	28	21		21	20	25	28	37	28	27	25	22			
DT064	Keynsham –Charlton Rd B	365305	168657	37	30	29	30	24	23	22	25	27	38	40	33	30	28	23			

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO ₂ Mean Concentrations (µg/m ³)															Annual Mean		
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾			
DT065	Keynsham - Charlton Rd A	365399	168701	39	27	32	27	25		26	19	26	28	39	30	29	27	23			
DT066	Keynsham – High Street A	365360	168815	41	34	37	30	30	28	32	28	35	36	42	39	35	32	29			
DT067	Keynsham - Somerfield	365457	168496	40	36	37	30	28		29	25	28	35	41	38	33	31	27			
DT068	Keynsham - Temple St	365489	168363	31	23	21	19	17	18	16	14	19	23	30	20	21	19	19			
DT069	Keynsham – Rock Road	365428	168435	35	27	24	24	15	22	20	14	23	26	37	25	24	22	22			
DT070	Keynsham – Bath Hill	365496	168521	28	25	26	28	25	23	21	17	26	23	35	23	25	23	22			
DT107	Keynsham - Bath Hill South	365710	168339	48	38	38	31	33	35	32	29	35	34		38	35	33	33			
DT112	Keynsham - Ashton Way	365375	168594	33	25	24	20	19	20	19	18	21	26	25	23	23	21	15			
DT113	Keynsham - West View Road	365217	168505	27	16	16	17	12	14	11	9	14	18	27	16	17	15	14			
DT114	Keynsham - Victoria Church	365414	168684	37	28	27	23	17		21	18	22	27	32	28	25	23	17			
DT115	Keynsham - High Street B	365447	168586	31	23	21	26	19	20	17	15		24	32	20	22	21	19			
DT116	Keynsham - Fish Bar	365462	168533	34	27	24		19	20	19	16	21	25	34	26	24	22	18			
DT141	Keynsham - A4	366921	168096	45	36	39	33	34	32	29	25	31	32	38	29	34	31	22			
	Peasedown St John																				
DT204	Peasedown St John	370331	157481	24	18	16										19	14	11			
	Pensford																				
DT174	Pensford 3	361769	164034	46	22	36	39	35	39	36	33	43	44	40	40	38	35	28			

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO ₂ Mean Concentrations (µg/m ³)														Annual Mean		
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾		
	Radstock																			
DT176	Radstock – Wells Road 2	368763	154818	37	28		23	25	28			31	30		31	29	22	22		
	Saltford																			
DT075	Saltford - The Crown	368375	166988	46	32	30	33	31	28	27	24	31	36	44	35	33	30	30		
DT077	Saltford - Bath Road	368778	166687	37	26	31	26	26	26	27	25	25	30	33	30	29	26	27		
	Temple Cloud																			
DT096	Temple Cloud 1 (TA)	362219	157923														56	56		
DT096	Temple Cloud 1	362219	157923	75	51	65	59	56	65	62	47	65	61	66	51	60	55	55		
DT096b	Temple Cloud 1	362219	157923								47	51	61	72	58	58	53	53		
DT096c	Temple Cloud 1	362219	157923								51	68	63	74	71	65	60	60		
DT108	Temple Cloud 2	362179	158055	50	42	48	40	37	37	44	33	39	50	49	40	42	39	27		
DT109	Temple Cloud 3	362344	157658	51	37	42	39	36	40	37	29	37	40	45	38	39	36	31		
	Westfield																			
DT175	Westfield 3	367416	153974	32	27	26	34		25	19	16	24	31	35	22	26	24	21		
	Whitchurch																			
DT032	Whitchurch	361242	167652	46	41	36	33	29	31	32	28	36	38	44	40	36	33	29		
DT098	Whitchurch 2	361276	167555	42	35	32	36	30	31	28	23	33	32	44	27	33	30	30		
DT100	Whitchurch 4	361326	167606	38	29	17	26		24	26	21	25	25	38	27	27	25	19		
DT101	Whitchurch 5	361235	167824	54	42	45	31	40	38	15	35	45	42	42	43	39	36	29		

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO ₂ Mean Concentrations (µg/m ³)														
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
																Raw Data	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
	White Cross																	
DT220	White Cross	362924	156855							35	29	31	29	36	29	32	31	25

- Local bias adjustment factor used
- National bias adjustment factor used
- Annualisation has been conducted where data capture is <75%
- Where applicable, data has been distance corrected for relevant exposure in the final column

Notes:

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

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

(1) See Appendix C for details on bias adjustment and annualisation.

(2) Distance corrected to nearest relevant public exposure.

(3) Rows highlighted TA show the Triplicate Average for the diffusion tube site, calculated after bias and annualisation have been applied.

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

Diffusion Tube Bias - National Adjustment Factors

The diffusion tubes were analysed by Gradko in 2017-2019, by Somerset Scientific Services in 2012-2016 and prior to that by Bristol Scientific Services. The method of analysis is 20% triethanolamine (TEA) in water. They confirm that they are following the harmonised practice guidance document and have a satisfactory AIR-PT result¹⁵.

Monthly National Bias	2015	0.90 (Somerset, 10 studies) ^(26 v06/16)
	2016	0.88 (Somerset, 3 studies) ^(26 v03/17)
	2017	0.89 (Gradko, 34 studies) ^(26 v03/18)
	2018	0.93 (Gradko, 30 studies) ^(26 v03/19)
	2019	0.92 (Gradko, 30 studies) ^(26 v06/20)

Diffusion Tube Bias - Local Co-location Factors

A local bias factor has previously been calculated using the Walcot Terrace triplicate diffusion tubes (DT52-DT54) and original location of the London Road continuous site (CM3), following FAQ guidance¹⁶ on the helpdesk website but due to moving of the site in 2019 and resulting low data capture, a national bias factor is used for 2019. The local bias will be calculated using the new Bath A4 Roadside (CM8) continuous site and co-located triplicate diffusion tubes in future years.

Monthly Local Bias	2015	1.06 (Somerset)
	2016	0.99 (Somerset)
	2017	1.00 (Gradko)
	2018	0.96 (Gradko)
	2019	unavailable due to site move

Discussion of Choice of Which Bias Factor to Use

Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference (more accurate) chemiluminescence continuous analyser.

A bias factor is calculated using three diffusion tubes located next to the reference continuous analyser. A local bias factor is where this represents local conditions, and previously in Bath and North East Somerset this has been calculated using co-

¹⁵ <https://laqm.defra.gov.uk/assets/laqmno2performancedatauptonovember2019v1.pdf>

¹⁶ <https://laqm.defra.gov.uk/laqm-fags/>

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 June 2019 Bath & North East Somerset Council moved the co-location site. The duration of the co-location study is shorter than the duration of the monitoring study so a local bias would not be relevant. Therefore, for in 2019 Bath & North East Somerset Council used the national bias factor for diffusion tube results. This choice is consistent with the recommendations in LAQM.TG16 (Box 7.11) and recommendations from the LAQM helpdesk¹⁷. Using the national bias factor is likely to result in concentrations at sites more representative of the local bias being underestimated.

In 2011-18 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. The choice of factor will be reviewed annually.

PM Monitoring Adjustment

The PM₁₀ measurements are made using an unheated BAM1020 and have been corrected by dividing by 1.2 as recommended in the LAQM.TG16.

¹⁷ <https://laqm.defra.gov.uk/helpdesk/laqm-helpdesk.html>

QA/QC of automatic monitoring

The Council's continuous analysers follow a QA/QC programme; the London Road Monitor (CM1) and the Bath A4 Roadside NO₂ (CM8) sites are AURN affiliated sites and are managed as part of that network. The Guildhall (CM2), Windsor Bridge (CM3), Chelsea House (CM4) and Bath A4 Roadside PM₁₀ (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 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 2015 - 2019 the continuous data for Guildhall, Windsor Bridge, Chelsea House and Bath A4 Roadside PM₁₀ was corrected by Air Quality Data Management (AQDM). Previously the data was corrected in house and was scaled on a time-linear basis from the zero and span readings obtained from the calibration checks. The instrument span was calculated using the method in LAQM.TG16 and the span and offset values are applied to the data using Opsi Enviman software. The data is viewed and spurious data is identified and removed where appropriate. A copy of the original data is kept for reference.

QA/QC of diffusion tube monitoring

The diffusion tubes were analysed by Gradko in 2017-2019, by Somerset Scientific Services in 2012-2016 and prior to that by Bristol City Council Scientific Services. 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 report¹³ for nitrogen dioxide for the laboratory indicates a performance classification as satisfactory for all periods.

Short-term to Long-term Data adjustment

During 2019 2 continuous NO₂ analysers, 2 PM₁₀ analysers, 58 diffusion tubes and 4 AQMesh sites had data capture less than 75%. To estimate the annual mean from the short-term monitoring period the method in LAQM.TG(16) was followed. For the NO₂ corrections four sites were selected from the national network within 50 miles of Bath and greater than 85% data capture; Charlton Mackrell (98% data capture, 27miles from Bath), Swindon Walcot (99% data capture, 28miles from Bath), Cwmbran (99% data capture, 33 miles from Bath) and Newport (99% data capture, 30 miles from Bath). For PM₁₀ only 2 sites within 50 miles of Bath and greater than 85% data capture for the relevant periods; Chilbolton Observatory (100% data capture, 43 miles from Bath) and Newport (100% data capture, 30 miles from Bath). Table C.1 shows the adjustment factors and which locations they are applied to.

Table C.1 – Ratio for Short-term to Long-term Data Adjustment

Ratio 1	0.87		
Period	January-June		
Applied to	CM1 – London Rd		
Ratio 2	NO₂	0.75	PM₁₀ 1.13
Period	October – December		
Applied to	CM8 – Bath A4 Roadside		
Ratio 3	1.04		
Period	August-November		
Applied to	DT020b/c – Wells Road DT090c – Anglo Terrace		

Ratio 4	0.99	
Period	August-December	
Applied to	DT037b/c – Charlotte Street DT096c/c – Temple Cloud DT179b/c – Upper Bristol Road 3 DT180b/c – Wells Road 2 DT182b/c – Gay Street Lower DT198b/c – Walcot Parade DT213b/c – Marlborough Lane DT214b/c Marlborough Buildings DT215b/c – Queen Parade Place DT216b/c – Monmouth Place DT217b/c – Cavendish Road DT222 – Anglo Terrace Façade DT223 – Canton Place DT224 – Walcot Parade 2 DT225 – Cleveland Terrace DT227 – Wells Road 3 DT228/b – Lower Bristol Rd 2 DT229 – Lower Bristol Rd 3 DT231 – Upper Bristol Road 5	DT232 – Lansdown Road 3 DT233c – Lansdown Road 4 DT234/c – Gay Street 2 DT235 – Wells Road 4 DT236 – Pulteney Terrace DT237 – Broad Street 2 DT238 – Broad Street 3 DT239 – Broad Street 4 DT240 – Bathwick Street 2 DT241 – Bathwick Street 3 DT242 – Charlotte St 2 DT243 – Sydney Place DT244 – Whiteway DT245 – Whiteway2 DT246 Dorchester Street 2 DT247 – Monmouth Place 2 DT248 – Chapel Row 2 DT249 – Poolemead Road DT250 – Newton Road
Ratio 5	0.82	
Period	October-December	
Applied to	DT148b/c – Julian Road DT226 – AURN DT228c – Lower Bristol Road 2	
Ratio 6	1.32	
Period	August-October	
Applied to	DT172b/c – London Road 2	
Ratio 7	0.81	
Period	low data capture	
Applied to	DT176 – Radstock – Wells Road	
Ratio 8	1.01	
Period	January-July	
Applied to	DT184 – Lansdown Road 2	
Ratio 9	0.77	
Period	January-March	
Applied to	DT203 – Chew Magna DT204 – Peasedown St John	
Ratio 10	0.93	
Period	January-June	
Applied to	DT205 - Clutton	
Ratio 11	0.89	
Period	low data capture	
Applied to	DT214 – Marlborough Buildings	
Ratio 12	1.08	
Period	July-December	
Applied to	DT220 – Whitecross DT221 – Gay Street Façade	

Ratio 13	0.85					
Period	low data capture					
Applied to	DT090b – Anglo Terrace DT230/c – Upper Bristol Road 4					
Ratio 14	0.75					
Period	low data capture					
Applied to	DT206 – Park Lane DT234b – Gay Street 2					
Ratio 15	0.81					
Period	low data capture					
Applied to	DT230b – Upper Bristol Road 4					
Ratio 16	0.71					
Period	low data capture					
Applied to	DT233/b – Lansdown Road 4					
Ratio 17	NO₂	0.7	PM₁₀	0.84	PM_{2.5}	0.77
Period	January-March					
Applied to	AQM15 – Westfield					
Ratio 18	NO₂	1.33	PM₁₀	0.95	PM_{2.5}	0.97
Period	March-September					
Applied to	AQM17 – Farrington Gurney					
Ratio 19	NO₂	0.91	PM₁₀	1.25	PM_{2.5}	1.3
Period	September-December					
Applied to	AQM18 – Bath, George Street					
Ratio 20	NO₂	0.7	PM₁₀	1.11	PM_{2.5}	1.05
Period	October-December					
Applied to	AQM19 – Bath, Windsor Bridge					
Ratio 21	0.94					
Period	January to September					
Applied to	CM4 – Chelsea House PM ₁₀					

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 tool¹⁸. 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%.

¹⁸ <https://laqm.defra.gov.uk/bias-adjustment-factors/local-bias.html>

In 2019 there were 40 triplicate sites introduced in August and one site which was triplicate for 12 months. All triplicate sites in Bath and North East Somerset showed good precision for individual periods. The average coefficient of variation was <10% at all but one site (DT020 – Wells Road, 10.3% over months). This site has overall poor precision.

Distance adjustment to closest receptor

Concentrations of NO₂ fall off rapidly as you move away from the roadside. It is not always possible to locate diffusion tubes on building facades representing worst case exposure. For diffusion tube sites which have been located in roadside locations, the distance adjustment calculator on the LAQM helpdesk website has been applied. A local background of 11.1 µg/m³ 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.2 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.

Table C.2 – Façade adjustment

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Distance from Kerb to Monitor (m)	Distance from Kerb to Relevant Exposure (m)	NO ₂ Mean Concentrations (µg/m ³)		
						Annual Mean		
						Background concentration	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
	Bath							
DT003	Broad Street	374992	165173	1.3	3	11.1	37	33
DT004	George Street	374899	165159	1	4	11.1	30	25
DT005	Gay Street – Top	374797	165161	1	4	11.1	31	25
DT008	Windsor Bridge	373518	165124	3.5	3.5	11.1	28	28
DT009	Upper Bristol Rd	373993	165174	1	6	11.1	31	24
DT014	Bathwick Street	375602	165365	1	2	11.1	33	30
DT015	Beckford Road	375733	165414	1	8	11.1	27	21
DT016	Warminster Road	376063	165492	4	22	11.1	31	22
DT017	Widcombe School	375634	164406	1	6	11.1	29	23
DT018	Widcombe High Street	375414	164216	5	5	11.1	23	At façade
DT020	Wells Road (TA)	374760	164310	1.5	1.5	11.1	49	At façade
DT020	Wells Road	374760	164310	1.5	1.5	11.1	44	At façade
DT020b	Wells Road	374760	164310	1.5	1.5	11.1	52	At façade
DT020c	Wells Road	374760	164310	1.5	1.5	11.1	51	At façade
DT021	Wells Road/Upper Oldfield Park	374454	164202	1	4	11.1	37	30
DT023	Alexandra Park	375105	163991	20	40	11.1	11	Urban Background
DT026	Upper Wellsway	373576	161908	3	3	11.1	27	At façade
DT034	Newbridge Road	373092	165106	1	6	11.1	31	24

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Distance from Kerb to Monitor (m)	Distance from Kerb to Relevant Exposure (m)	NO ₂ Mean Concentrations (µg/m ³)		
						Annual Mean		
						Background concentration	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
DT037	Charlotte Street (TA)	374622	164994	1	4	11.1	30	24
DT037	Charlotte Street	374622	164994	1	4	11.1	31	25
DT037b	Charlotte Street	374622	164994	1	4	11.1	30	25
DT037c	Charlotte Street	374622	164994	1	4	11.1	28	23
DT039	Manvers Street	375247	164591	2	5	11.1	33	28
DT042	Dorchester Street	375230	164383	1	2.5	11.1	48	41
DT043	St James' Parade (new)	375053	164418	1	3	11.1	39	33
DT045	James Street West	374697	164763	5	5	11.1	28	At façade
DT052	Walcot Terrace (TA)	375462	165843	3	3	11.1	36	At façade
DT052	Walcot Terrace	375462	165843	3	3	11.1	36	At façade
DT053	Walcot Terrace	375462	165843	3	3	11.1	36	At façade
DT054	Walcot Terrace	375462	165843	3	3	11.1	37	At façade
DT055	Lambridge	376451	166502	2.6	1.1	11.1	36	42
DT060	Victoria Buildings	374039	164760	0.5	4.2	11.1	44	32
DT062	Argyle Terrace	373211	164743	3	7	11.1	37	32
DT084	Bear Flat	374604	163806	1.85	7.55	11.1	30	24
DT085	RUH – North	373073	165983	1.5	8.5	11.1	26	21
DT087	Oak Street	374702	164414	2.65	2.65	11.1	29	29
DT090	Anglo Terrace (TA)	375288	165758	1.6	4.1	11.1	45	38
DT090	Anglo Terrace	375288	165758	1.6	4.1	11.1	49	41
DT090b	Anglo Terrace	375288	165758	1.6	4.1	11.1	37	32
DT090c	Anglo Terrace	375288	165758	1.6	4.1	11.1	49	41

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Distance from Kerb to Monitor (m)	Distance from Kerb to Relevant Exposure (m)	NO ₂ Mean Concentrations (µg/m ³)		
						Annual Mean		
						Background concentration	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
DT142	Prior Park Road	375513	164194	0.8	1.1	11.1	33	31
DT143	Rackfield Place	372647	164738	3.6	3.9	11.1	26	26
DT145	Lansdown Road	374930	165550	0.7	3.2	11.1	26	22
DT147	Terrace Walk	375195	164735	1.7	2	11.1	29	At façade
DT148	Julian Road (TA)	375195	164735	2.2	2.6	11.1	24	At façade
DT148	Julian Road	375195	164735	2.2	2.6	11.1	26	At façade
DT148b	Julian Road	375195	164735	2.2	2.6	11.1	23	At façade
DT148c	Julian Road	375195	164735	2.2	2.6	11.1	22	At façade
DT149	Camden 3	375038	165838	0.4	2.4	11.1	25	21
DT150	Brougham Hayes	373955	164590	1.3	3.2	11.1	29	26
DT151	Widcombe Hill	375598	164190	0.8	4.7	11.1	27	21
DT152	Bathwick Hill	375800	164912	1	3	11.1	25	22
DT153	North Road	376069	165356	1.85	4.85	11.1	17	15
DT154	Bradford Road	375529	162389	2.2	2.55	11.1	28	At façade
DT155	Newbridge Hill 2	372696	165488	1.8	8.8	11.1	18	16
DT156	Corn Street	374827	164531	2.6	5	11.1	28	25
DT157	Charles Street	374644	164815	3.15	4.65	11.1	27	26
DT158	Paragon 2	375051	165350	1.1	6.5	11.1	32	24
DT159	Walcot Street	375075	165287	2.5	5.5	11.1	26	23
DT160	North Parade Road	375284	164694	1.3	7.6	11.1	34	26
DT165	Brassknocker Hill	377960	162736	0.8	7.8	11.1	37	26
DT167	Weston High Street	372587	166629	1	1.4	11.1	22	At façade

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						Annual Mean		
						Background concentration	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
DT168	Englishcombe Lane	373207	163339	1.6	5	11.1	14	13
DT169	Eastbourne Avenue	357667	166369	2	7.1	11.1	23	19
DT171	Frome Road/Upper Bloomfield	373706	162411	4.2	4.6	11.1	27	At façade
DT172	London Road 2 (TA)	375374	165813	3.55	4.15	11.1	48	46
DT172	London Road 2	375374	165813	3.55	4.15	11.1	42	40
DT172b	London Road 2	375374	165813	3.55	4.15	11.1	52	50
DT172c	London Road 2	375374	165813	3.55	4.15	11.1	50	49
DT173	Upper Bristol Road 2	374362	165016	2.2	2.8	11.1	33	32
DT179	Upper Bristol Road 3 (TA)	373299	165093	1.5	1.5	11.1	37	37
DT179	Upper Bristol Road 3	373299	165093	1.5	1.5	11.1	36	36
DT179b	Upper Bristol Road 3	373299	165093	1.5	1.5	11.1	39	39
DT179c	Upper Bristol Road 3	373299	165093	1.5	1.5	11.1	36	36
DT180	Wells Road 2 (TA)	374537	163968	1.7	2.4	11.1	34	32
DT180	Wells Road 2	374537	163968	1.7	2.4	11.1	35	33
DT180b	Wells Road 2	374537	163968	1.7	2.4	11.1	33	32
DT180c	Wells Road 2	374537	163968	1.7	2.4	11.1	34	32
DT181	Wellsway	374618	163494	1.2	14.2	11.1	33	22
DT182	Gay Street – Lower (TA)	374796	165122	1.1	4.8	11.1	41	32
DT182	Gay Street – Lower	374796	165122	1.1	4.8	11.1	42	33
DT182b	Gay Street – Lower	374796	165122	1.1	4.8	11.1	40	31
DT182c	Gay Street – Lower	374796	165122	1.1	4.8	11.1	41	32

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Distance from Kerb to Monitor (m)	Distance from Kerb to Relevant Exposure (m)	NO ₂ Mean Concentrations (µg/m ³)		
						Annual Mean		
						Background concentration	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
DT183	Chapel Row	374712	164916	2.1	2.1	11.1	30	30
DT184	Lansdown Road 2	374949	165320	0.9	4.4	11.1	36	28
DT185	Greenway Lane	374712	163417	0.7	1.2	11.1	16	16
DT186	Coronation Avenue	373170	163416	1.4	4.7	11.1	20	18
DT187	Stanley Road West	373835	164438	1.7	1.9	11.1	23	At façade
DT188	Moorland Road	373696	164343	3.4	3.9	11.1	22	22
DT189	Old Newbridge Hill	372251	165686	2.1	12.1	11.1	29	22
DT190	Church Street	375814	164027	0.9	0.9	11.1	13	At façade
DT192	Fairfield Road	375505	166428	1.3	4.9	11.1	16	15
DT193	Granville Road	374260	167661	1.5	6	11.1	9	9
DT194	Brooklyn Road	376096	166878	1	4.5	11.1	16	15
DT195	Lansdown Lane	372537	167235	1.9	12.9	11.1	21	17
DT196	Oakley	377133	164045	0.8	10.8	11.1	28	20
DT197	Rush Hill	372703	162983	2	7.5	11.1	24	20
DT198	Walcot Parade (TA)	375240	165739	1	1.4	11.1	49	At façade
DT198	Walcot Parade	375240	165739	1	1.4	11.1	51	At façade
DT198b	Walcot Parade	375240	165739	1	1.4	11.1	47	At façade
DT198c	Walcot Parade	375240	165739	1	1.4	11.1	48	At façade
DT199	Hensley Road	374353	163504	1.1	9.1	11.1	13	12
DT200	Millmead Road	373375	164307	1.6	5	11.1	15	14
DT201	The Hollow	373003	164250	2.4	3.7	11.1	24	22
DT202	Charlcombe	374636	166701	0.35	5.35	11.1	14	13

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						Annual Mean		
						Background concentration	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
DT206	Park Lane (TA)	373742	165305	1.8	2.3	11.1	28	27
DT206	Park Lane	373742	165305	1.8	2.3	11.1	31	30
DT206b	Park Lane	373742	165305	1.8	2.3	11.1	24	23
DT206c	Park Lane	373742	165305	1.8	2.3	11.1	30	29
DT207	Darlington Street	375630	165132	1.1	5.1	11.1	38	30
DT208	Widcombe 3	375602	164387	7	7	11.1	17	At façade
DT209	Bellots Road	373490	164804	1.5	5	11.1	19	17
DT210	Red Lion Roundabout	373895	162254	1.5	1.9	11.1	33	At façade
DT211	St John's Road	375218	165290	2	2	11.1	21	At façade
DT212	Oldfield Road	374356	163985	1.75	6.75	11.1	19	17
DT213	Marlborough Lane (TA)	374262	165127	3	9	11.1	21	18
DT213	Marlborough Lane	374262	165127	3	9	11.1	20	18
DT213b	Marlborough Lane	374262	165127	3	9	11.1	21	19
DT213c	Marlborough Lane	374262	165127	3	9	11.1	22	19
DT214	Marlborough Buildings (TA)	374354	165448	1	3.55	11.1	19	17
DT214	Marlborough Buildings	374354	165448	1	3.55	11.1	16	15
DT214b	Marlborough Buildings	374354	165448	1	3.55	11.1	21	18
DT214c	Marlborough Buildings	374354	165448	1	3.55	11.1	20	18
DT215	Queen Parade Place (TA)	374758	165096	2.6	2.9	11.1	18	At façade
DT215	Queen Parade Place	374758	165096	2.6	2.9	11.1	18	At façade
DT215b	Queen Parade Place	374758	165096	2.6	2.9	11.1	19	At façade

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						Annual Mean		
						Background concentration	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
DT215c	Queen Parade Place	374758	165096	2.6	2.9	11.1	19	At façade
DT216	Monmouth Place (TA)	374574	164958	1.5	1.75	11.1	27	At façade
DT216	Monmouth Place	374574	164958	1.5	1.75	11.1	26	At façade
DT216b	Monmouth Place	374574	164958	1.5	1.75	11.1	29	At façade
DT216c	Monmouth Place	374574	164958	1.5	1.75	11.1	27	At façade
DT217	Cavendish Road (TA)	374335	165990	1	2.2	11.1	17	16
DT217	Cavendish Road	374335	165990	1	2.2	11.1	17	17
DT217b	Cavendish Road	374335	165990	1	2.2	11.1	17	16
DT217c	Cavendish Road	374335	165990	1	2.2	11.1	16	15
DT218	Weston Road	373668	165697	1.4	4.4	11.1	19	17
DT219	Morford Street	374872	165570	1.5	1.5	11.1	21	At façade
DT221	Gay Street - façade	374793	165119	4.4	4.6	11.1	36	At façade
DT222	Anglo Terrace façade (TA)	375231	165778	1.8	2.3	11.1	49	At façade
DT222	Anglo Terrace façade	375231	165778	1.8	2.3	11.1	49	At façade
DT222b	Anglo Terrace façade	375231	165778	1.8	2.3	11.1	50	At façade
DT222c	Anglo Terrace façade	375231	165778	1.8	2.3	11.1	48	At façade
DT223	Canton Place (TA)	375322	165759	4	6.4	11.1	37	34
DT223	Canton Place	375322	165759	4	6.4	11.1	37	33
DT223b	Canton Place	375322	165759	4	6.4	11.1	38	35
DT223c	Canton Place	375322	165759	4	6.4	11.1	37	34
DT224	Walcot Parade 2 (TA)	375207	165726	1.1	1.45	11.1	55	At façade

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						Annual Mean		
						Background concentration	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
DT224	Walcot Parade 2	375207	165726	1.1	1.45	11.1	54	At façade
DT224b	Walcot Parade 2	375207	165726	1.1	1.45	11.1	57	At façade
DT224c	Walcot Parade 2	375207	165726	1.1	1.45	11.1	54	At façade
DT225	Cleveland Terrace (TA)	375203	165708	0.7	3.5	11.1	37	29
DT225	Cleveland Terrace	375203	165708	0.7	3.5	11.1	37	29
DT225b	Cleveland Terrace	375203	165708	0.7	3.5	11.1	39	31
DT225c	Cleveland Terrace	375203	165708	0.7	3.5	11.1	36	29
DT226	AURN (TA)	375394	165824	3.5	7	11.1	32	28
DT226	AURN	375394	165824	3.5	7	11.1	33	29
DT226b	AURN	375394	165824	3.5	7	11.1	31	28
DT226c	AURN	375394	165824	3.5	7	11.1	31	28
DT227	Wells Road 3 (TA)	374580	163979	0.4	1.5	11.1	40	34
DT227	Wells Road 3	374580	163979	0.4	1.5	11.1	40	33
DT227b	Wells Road 3	374580	163979	0.4	1.5	11.1	41	34
DT227c	Wells Road 3	374580	163979	0.4	1.5	11.1	41	34
DT228	Lower Bristol Road 2 (TA)	374002	164754	3	4.4	11.1	28	26
DT228	Lower Bristol Road 2	374002	164754	3	4.4	11.1	29	27
DT228b	Lower Bristol Road 2	374002	164754	3	4.4	11.1	29	28
DT228c	Lower Bristol Road 2	374002	164754	3	4.4	11.1	25	24
DT229	Lower Bristol Road 3 (TA)	373936	164779	0.2	11	11.1	36	21
DT229	Lower Bristol Road 3	373936	164779	0.2	11	11.1	36	21
DT229b	Lower Bristol Road 3	373936	164779	0.2	11	11.1	36	21

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						Annual Mean		
						Background concentration	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
DT229c	Lower Bristol Road 3	373936	164779	0.2	11	11.1	35	21
DT230	Upper Bristol Road 4 (TA)	373439	165098	1.2	4.85	11.1	35	28
DT230	Upper Bristol Road 4	373439	165098	1.2	4.85	11.1	37	29
DT230b	Upper Bristol Road 4	373439	165098	1.2	4.85	11.1	34	27
DT230c	Upper Bristol Road 4	373439	165098	1.2	4.85	11.1	36	29
DT231	Upper Bristol Road 5 (TA)	373480	165125	0.25	4.95	11.1	41	27
DT231	Upper Bristol Road 5	373480	165125	0.25	4.95	11.1	41	27
DT231b	Upper Bristol Road 5	373480	165125	0.25	4.95	11.1	42	27
DT231c	Upper Bristol Road 5	373480	165125	0.25	4.95	11.1	41	27
DT232	Lansdown Road 3 (TA)	374942	165391	0.55	4.85	11.1	29	22
DT232	Lansdown Road 3	374942	165391	0.55	4.85	11.1	30	22
DT232b	Lansdown Road 3	374942	165391	0.55	4.85	11.1	30	23
DT232c	Lansdown Road 3	374942	165391	0.55	4.85	11.1	29	22
DT233	Lansdown Road 4 (TA)	374956	165359	0.9	7.6	11.1	23	18
DT233	Lansdown Road 4	374956	165359	0.9	7.6	11.1	19	16
DT233b	Lansdown Road 4	374956	165359	0.9	7.6	11.1	21	17
DT233c	Lansdown Road 4	374956	165359	0.9	7.6	11.1	29	21
DT234	Gay Street 2 (TA)	374806	165084	0.45	2.6	11.1	37	29
DT234	Gay Street 2	374806	165084	0.45	2.6	11.1	42	33
DT234b	Gay Street 2	374806	165084	0.45	2.6	11.1	30	24
DT234c	Gay Street 2	374806	165084	0.45	2.6	11.1	38	30
DT235	Wells Road 4 (TA)	374694	164288	1.3	7.3	11.1	37	27

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						Annual Mean		
						Background concentration	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
DT235	Wells Road 4	374694	164288	1.3	7.3	11.1	37	27
DT235b	Wells Road 4	374694	164288	1.3	7.3	11.1	38	28
DT235c	Wells Road 4	374694	164288	1.3	7.3	11.1	35	26
DT236	Pulteney Terrace (TA)	375668	164493	1.6	6.3	11.1	30	24
DT236	Pulteney Terrace	375668	164493	1.6	6.3	11.1	31	25
DT236b	Pulteney Terrace	375668	164493	1.6	6.3	11.1	29	24
DT236c	Pulteney Terrace	375668	164493	1.6	6.3	11.1	29	24
DT237	Broad Street 2	375000	165179	1.5	2	11.1	35	34
DT238	Broad Street 3 (TA)	375001	165140	2.2	2.35	11.1	34	At façade
DT238	Broad Street 3	375001	165140	2.2	2.35	11.1	34	At façade
DT238b	Broad Street 3	375001	165140	2.2	2.35	11.1	34	At façade
DT238c	Broad Street 3	375001	165140	2.2	2.35	11.1	33	At façade
DT239	Broad Street 4 (TA)	375008	165145	0.35	2.25	11.1	37	29
DT239	Broad Street 4	375008	165145	0.35	2.25	11.1	37	29
DT239b	Broad Street 4	375008	165145	0.35	2.25	11.1	38	30
DT239c	Broad Street 4	375008	165145	0.35	2.25	11.1	35	28
DT240	Bathwick Street 2 (TA)	375489	165450	1.7	4.25	11.1	30	26
DT240	Bathwick Street 2	375489	165450	1.7	4.25	11.1	30	26
DT240b	Bathwick Street 2	375489	165450	1.7	4.25	11.1	30	26
DT240c	Bathwick Street 2	375489	165450	1.7	4.25	11.1	30	26
DT241	Bathwick Street 3 (TA)	375520	165446	1.75	3.75	11.1	24	22
DT241	Bathwick Street 3	375520	165446	1.75	3.75	11.1	24	22

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Distance from Kerb to Monitor (m)	Distance from Kerb to Relevant Exposure (m)	NO ₂ Mean Concentrations (µg/m ³)		
						Annual Mean		
						Background concentration	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
DT241b	Bathwick Street 3	375520	165446	1.75	3.75	11.1	24	22
DT241c	Bathwick Street 3	375520	165446	1.75	3.75	11.1	24	22
DT242	Charlotte Street 2 (TA)	374583	164974	1.7	3.75	11.1	24	22
DT242	Charlotte Street 2	374583	164974	1.7	3.75	11.1	24	22
DT242b	Charlotte Street 2	374583	164974	1.7	3.75	11.1	24	22
DT242c	Charlotte Street 2	374583	164974	1.7	3.75	11.1	24	22
DT243	Sydney Place (TA)	375625	165312	1.05	8.85	11.1	30	22
DT243	Sydney Place	375625	165312	1.05	8.85	11.1	29	21
DT243b	Sydney Place	375625	165312	1.05	8.85	11.1	30	22
DT243c	Sydney Place	375625	165312	1.05	8.85	11.1	31	22
DT244	Whiteway	372494	163165	1.5	4.5	11.1	18	17
DT245	Whiteway 2	372401	163212	1.4	1.9	11.1	25	24
DT246	Dorchester Street 2 (TA)	375186	164372	4.85	27.85	11.1	39	24
DT246	Dorchester Street 2	375186	164372	4.85	27.85	11.1	40	25
DT246b	Dorchester Street 2	375186	164372	4.85	27.85	11.1	37	24
DT246c	Dorchester Street 2	375186	164372	4.85	27.85	11.1	39	24
DT247	Monmouth Place 2 (TA)	374627	164924	1.1	1.4	11.1	30	At façade
DT247	Monmouth Place 2	374627	164924	1.1	1.4	11.1	31	At façade
DT247b	Monmouth Place 2	374627	164924	1.1	1.4	11.1	30	At façade
DT247c	Monmouth Place 2	374627	164924	1.1	1.4	11.1	29	At façade
DT248	Chapel Row 2 (TA)	374711	164931	1.6	1.95	11.1	38	At façade
DT248	Chapel Row 2	374711	164931	1.6	1.95	11.1	37	At façade

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Distance from Kerb to Monitor (m)	Distance from Kerb to Relevant Exposure (m)	NO ₂ Mean Concentrations (µg/m ³)		
						Annual Mean		
						Background concentration	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
DT248b	Chapel Row 2	374711	164931	1.6	1.95	11.1	38	At façade
DT248c	Chapel Row 2	374711	164931	1.6	1.95	11.1	39	At façade
DT249	Poolemead Road	372050	164460	0.55	11.55	11.1	15	13
DT250	Newton Road	372041	164787	2.1	20.1	11.1	17	14
	Bathampton							
DT091	Bathampton High Street	377683	166408	1.1	1.1	9.3	23	At façade
DT166	Bathampton – A36	377543	165924	1.2	24.2	9.3	28	16
	Batheaston							
DT058	Batheaston – London Road West A	377643	167365	1	1	9.6	25	At façade
DT094	Batheaston London Road West B	377290	167097	1.25	1.25	9.6	25	At façade
DT130	Batheaston -London Road West C	377802	167456	1.4	1.4	9.6	26	At façade
DT163	Batheaston – A4 Box Road	378911	167259	1.8	4.2	9.6	23	20
DT191	Batheaston – Mill Lane	377339	167065	1	5	9.6	19	16
	Chew Magna							
DT203	Chew Magna	357596	163154	0.6	3.95	6.1	17	14
	Clutton							
DT205	Clutton	361925	158987	1.7	4.8	5.2	25	21
	Farrington Gurney							
DT134	Farrington Gurney 2	362891	155485	4.5	4.5	5.7	39	At façade
DT136	Farrington Gurney 3	362884	155790	1.2	1.2	5.7	37	At façade

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Distance from Kerb to Monitor (m)	Distance from Kerb to Relevant Exposure (m)	NO ₂ Mean Concentrations (µg/m ³)		
						Annual Mean		
						Background concentration	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
DT138	Farrington Gurney 5	362983	155459	1.9	4.9	5.7	36	29
	Keynsham							
DT033	Keynsham - Kelston Road	364803	168237	1	9	12.5	12	12
DT063	Keynsham – Station Road	365409	168846	1	4	12.5	25	22
DT064	Keynsham –Charlton Rd B	365305	168657	1	5	12.5	28	23
DT065	Keynsham - Charlton Rd A	365399	168701	1	4	12.5	27	23
DT066	Keynsham – High Street A	365360	168815	1	2	12.5	32	29
DT067	Keynsham - Somerfield	365457	168496	1	3	12.5	31	27
DT068	Keynsham - Temple St	365489	168363	3	3	12.5	19	At façade
DT069	Keynsham – Rock Road	365428	168435	2	2	12.5	22	At façade
DT070	Keynsham – Bath Hill	365496	168521	4	5	12.5	23	22
DT107	Keynsham - Bath Hill South	365710	168339	1.3	1.3	12.5	33	33
DT112	Keynsham - Ashton Way	365375	168594	1.5	36.5	12.5	21	15
DT113	Keynsham - West View Road	365217	168505	1.5	6	12.5	15	14
DT114	Keynsham - Victoria Church	365414	168684	0.5	12	12.5	23	17
DT115	Keynsham - High Street B	365447	168586	1.1	2.9	12.5	21	19
DT116	Keynsham - Fish Bar	365462	168533	0.8	6.1	12.5	22	18
DT141	Keynsham - A4	366921	168096	1.4	14.4	12.5	31	22
	Peasedown St John							

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Distance from Kerb to Monitor (m)	Distance from Kerb to Relevant Exposure (m)	NO ₂ Mean Concentrations (µg/m ³)		
						Annual Mean		
						Background concentration	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
DT204	Peasedown St John	370331	157481	0.7	6.1	7.1	14	11
	Pensford							
DT174	Pensford 3	361769	164034	1.25	3.95	6.7	35	28
	Radstock							
DT176	Radstock – Wells Road 2	368763	154818	2.2	2.2	8.9	22	At façade
	Saltford							
DT075	Saltford - The Crown	368375	166988	3	3	8.3	30	At façade
DT077	Saltford - Bath Road	368778	166687	2	2	8.3	26	At façade
	Temple Cloud							
DT096	Temple Cloud 1 (TA)	362219	157923	1.5	1.5	6.0	56	At façade
DT096	Temple Cloud 1	362219	157923	1.5	1.5	6.0	55	At façade
DT096b	Temple Cloud 1	362219	157923	1.5	1.5	6.0	53	At façade
DT096c	Temple Cloud 1	362219	157923	1.5	1.5	6.0	60	At façade
DT108	Temple Cloud 2	362179	158055	1.25	7.45	6.0	39	27
DT109	Temple Cloud 3	362344	157658	1.67	3.67	6.0	36	31
	Westfield							
DT175	Westfield 3	367416	153974	1.9	4.6	8.8	24	21
	Whitchurch							
DT032	Whitchurch	361242	167652	2.1	4.8	9.0	33	29
DT098	Whitchurch 2	361276	167555	1.3	1.3	9.0	30	At façade
DT100	Whitchurch 4	361326	167606	1.6	7.6	9.0	25	19

Site ID	Site Name ⁽³⁾	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Distance from Kerb to Monitor (m)	Distance from Kerb to Relevant Exposure (m)	NO ₂ Mean Concentrations (µg/m ³)		
						Annual Mean		
						Background concentration	Bias Adjusted (0.92) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
DT101	Whitchurch 5	361235	167824	1.6	5.6	9.0	36	29
	White Cross							
DT220	White Cross	362924	156855	1.9	5.4	5.8	31	25

At façade – The diffusion tube is considered to be at the façade when the lamppost is located adjacent to the building.

TA – Triplicate average for the diffusion tube site.

Appendix D: Other monitoring

D1 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.

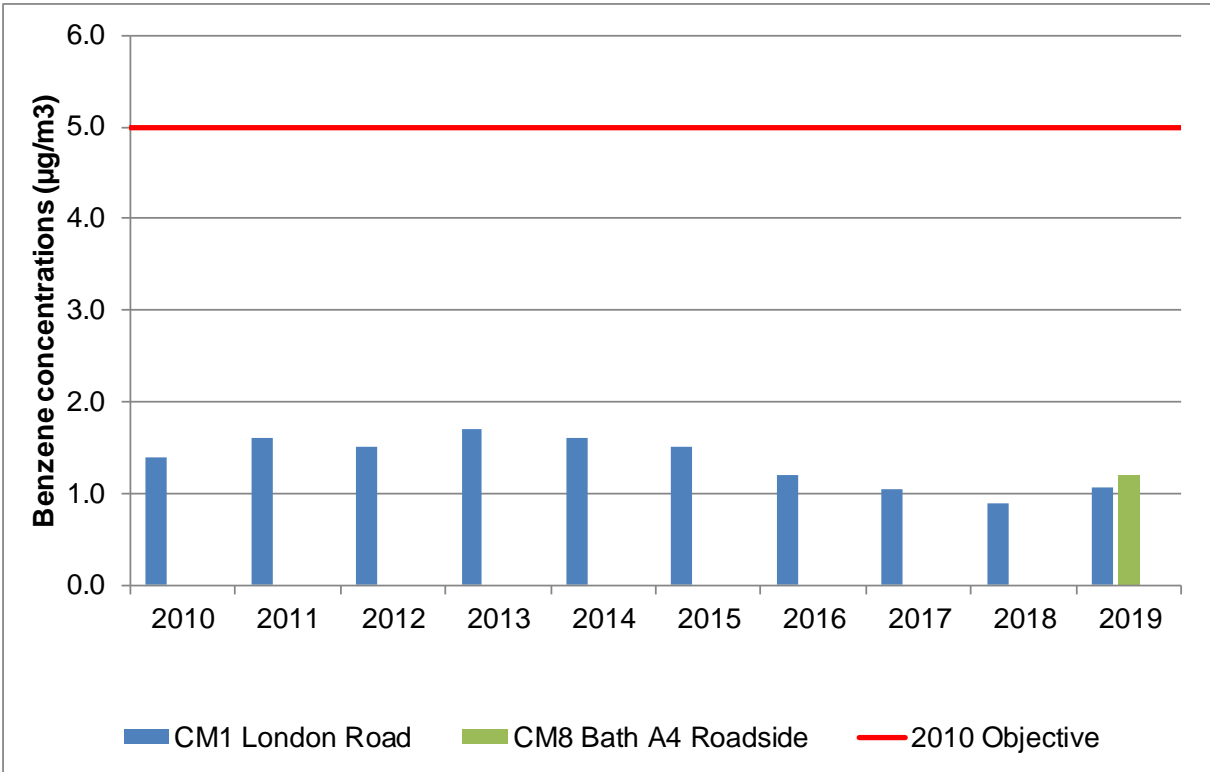
Monitoring results for benzene are shown in Table D.1 and Figure D.1. The results show that there are no exceedances of the benzene objectives during 2019. The 2019 data has not been annualised but has a low data capture.

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

Table D.1 – Results of Benzene Monitoring

Site ID	Site Name	Data Capture for 2019 (%)	Annual Mean ($\mu\text{g}/\text{m}^3$)				
			2015	2016	2017	2018	2019
CM1	London Road	42	1.5	1.2	1.1	0.9	1.1
CM8	Bath A4 Roadside	19	-	-	-	-	1.2
Annual Mean Objective: $5 \mu\text{g}/\text{m}^3$							

Figure D.1 – Trends in Benzene Monitoring



D2 AQMesh results

The AQMesh analyser is an indicative analyser which uses electrochemical sensors to measure NO₂ 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 NO₂ sensor is 10 µg/m³. In areas where the background concentrations are low and NO₂ concentrations are often likely to fall below 10µg/m³ e.g. overnight, there is a higher uncertainty in the results.

In 2019 the AQMesh analysers were located at Bath – George Street, Bath – Windsor Bridge (co-located with a continuous analyser, CM3), Bathampton High Street, Farrington Gurney and Westfield – Wells Road. The results from these locations are shown in Table D.3.

Figures D.2 shows NO₂ concentrations from the AQMesh (Wallander) whilst co-located at Windsor Bridge continuous analyser (CM3). This shows that the general trend is good but the minimum concentrations are not always measured correctly due to the limit of detection. Some of the peaks are over-estimated. A comparison of the period mean concentrations in Table D.2 shows that NO₂ period means are close for NO₂ in the urban environment.

Figures D.3 shows PM₁₀ concentrations from the AQMesh (Wallander) whilst co-located at Windsor Bridge continuous analyser (CM3). The AQMesh shows a diurnal trend but concentrations are generally under-predicted during this period. This is also shown in Table D.2 as the period mean concentration is lower for the AQMesh analyser.

The results shown in Table D.2 show whilst the AQMesh analysers were at Bathampton and Westfield the NO₂ concentrations were higher than the co-located

diffusion tube. From the background maps these locations have a lower background NO₂ concentration of 9.3 µg/m³ and 8.8 µg/m³ respectively. The results indicate the uncertainty in the AQMesh NO₂ concentrations in more rural locations due to the limit of detection. The results from Farrington Gurney are also likely to be more uncertain due to its more rural location and a background NO₂ concentration of 5.7 µg/m³ and these are also significantly higher than the nearby diffusion tube.

Figure D.2 – Comparison of NO₂ concentrations from the AQMesh and continuous analysers November-December 2019

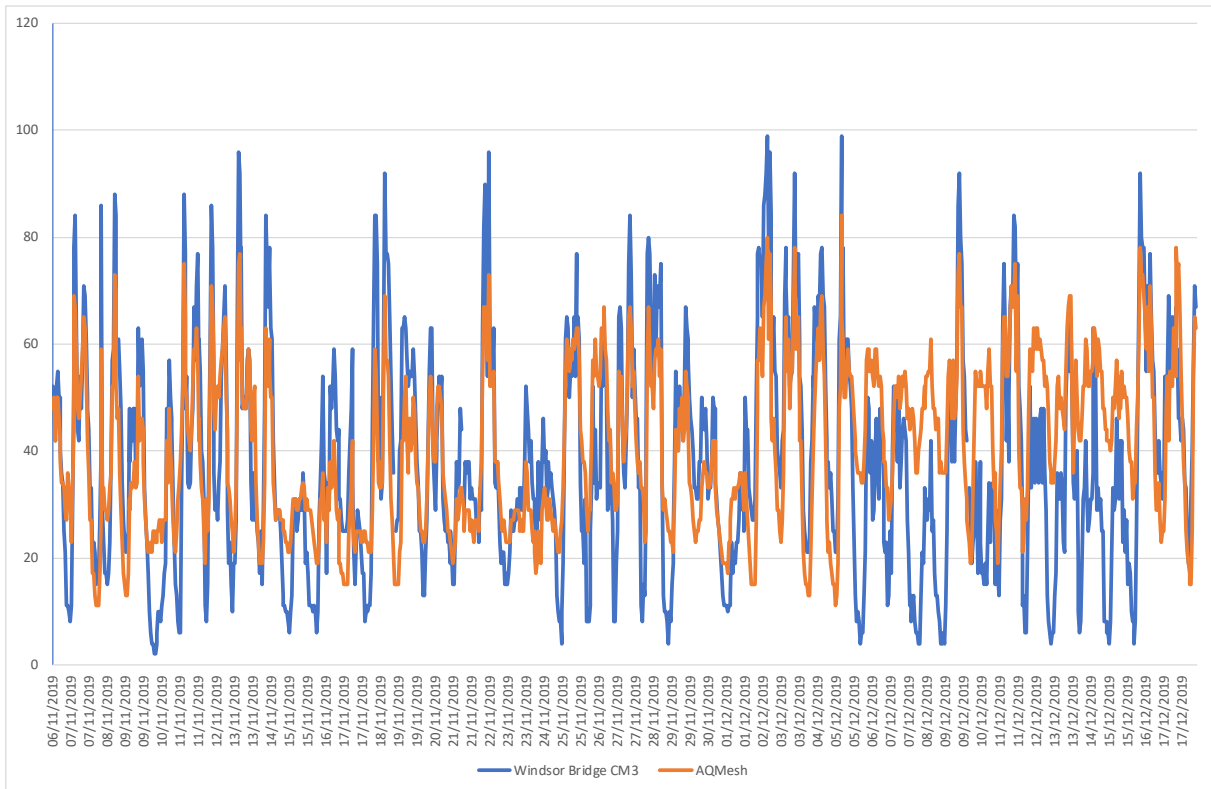


Figure D.3 – Comparison of PM₁₀ concentrations from the AQMesh and continuous analysers October-December 2019

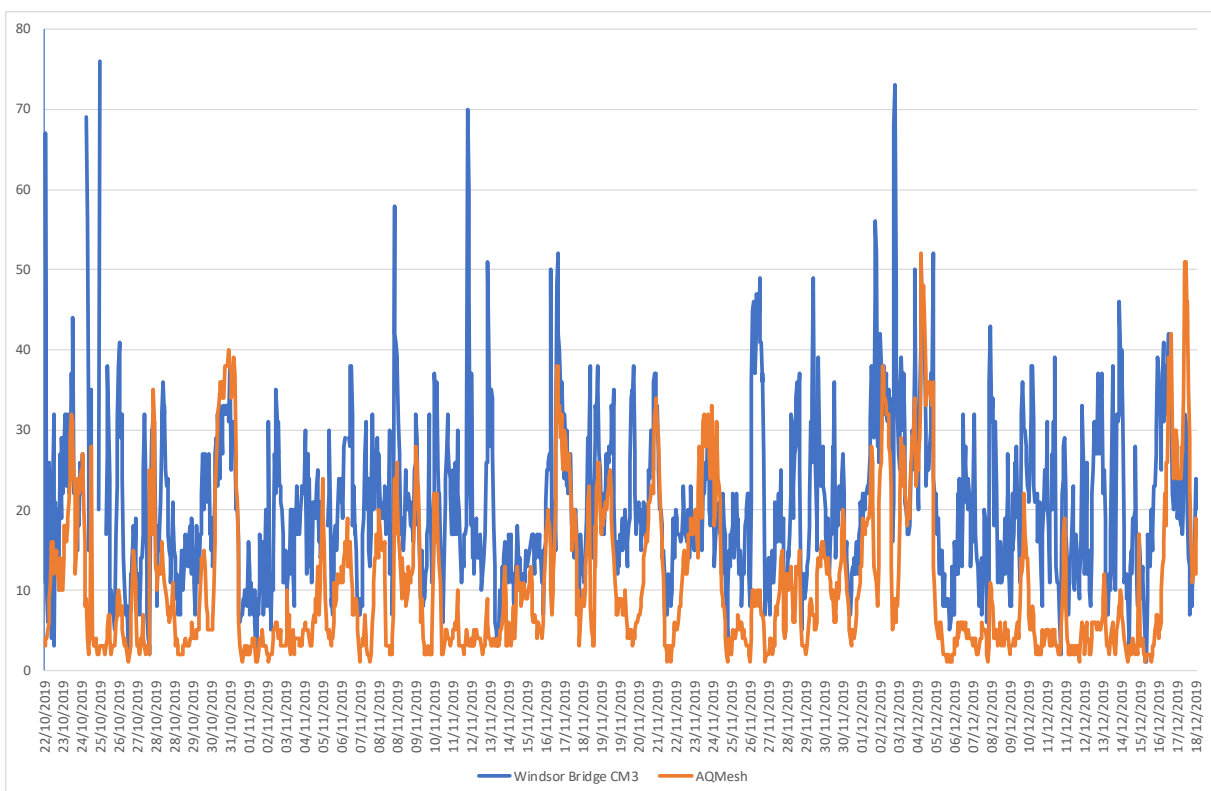


Table D.2 – Results from AQMesh analysers

		Annual Mean NO ₂ (µg/m ³)	NO ₂ 1-Hour Means > 200µg/m ³ (3)	Annual Mean PM ₁₀ (µg/m ³)	PM ₁₀ 24- hour Means >50 µg/m ³ (4)	Annual Mean PM _{2.5} (µg/m ³)	Data Capture 2019 (%) (1)
January-March– at AQM15 - Westfield							
AQMesh – Luther	Period	41	0 (90)	26	7 (50)	17	19 (99)
	Annualised ⁽²⁾	29	-	22	-	13	-
	At façade	25	-	-	-	-	-
	Diffusion tube Jan-Mar	28	-	-	-	-	-
April-August – at AQM17 – Farrington Gurney							
AQMesh – Luther	Period	46	0 (99)	17	9 (35)	12	49 (99)
	Annualised ⁽²⁾	61	-	16	-	12	-
	At façade	51	-	-	-	-	-
September-December – at AQM18 – Bath, George Street							
AQMesh – Luther	Period	43	0 (103)	15	1 (33)	11	29 (99)
	Annualised ⁽²⁾	39	-	19	-	14	-
	At façade	29	-	-	-	-	-
January-October – at AQM16 – Bathampton (at façade)							
AQMesh – Wallander	Period	39	0 (78)	13	11 (31)	8	81 (100)
	Diffusion tube Jan-Oct	24	-	-	-	-	-
October-December – at AQM19 – Bath, Windsor Bridge (co-located)							
AQMesh – Wallander	Period	39	0 (78)	11	3 (26)	8	16 (100)
	CM3 Windsor Bridge Oct-Dec	38	0 (96)	20	2 (27)	-	-
	Annualised ⁽²⁾	27	-	12	-	10	-

Notes:

Exceedances of the NO₂ annual mean objective of 40µg/m³ 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) Annual means have been “annualised” as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

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

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

Figure E.1 – Map showing the AQMA in Bath

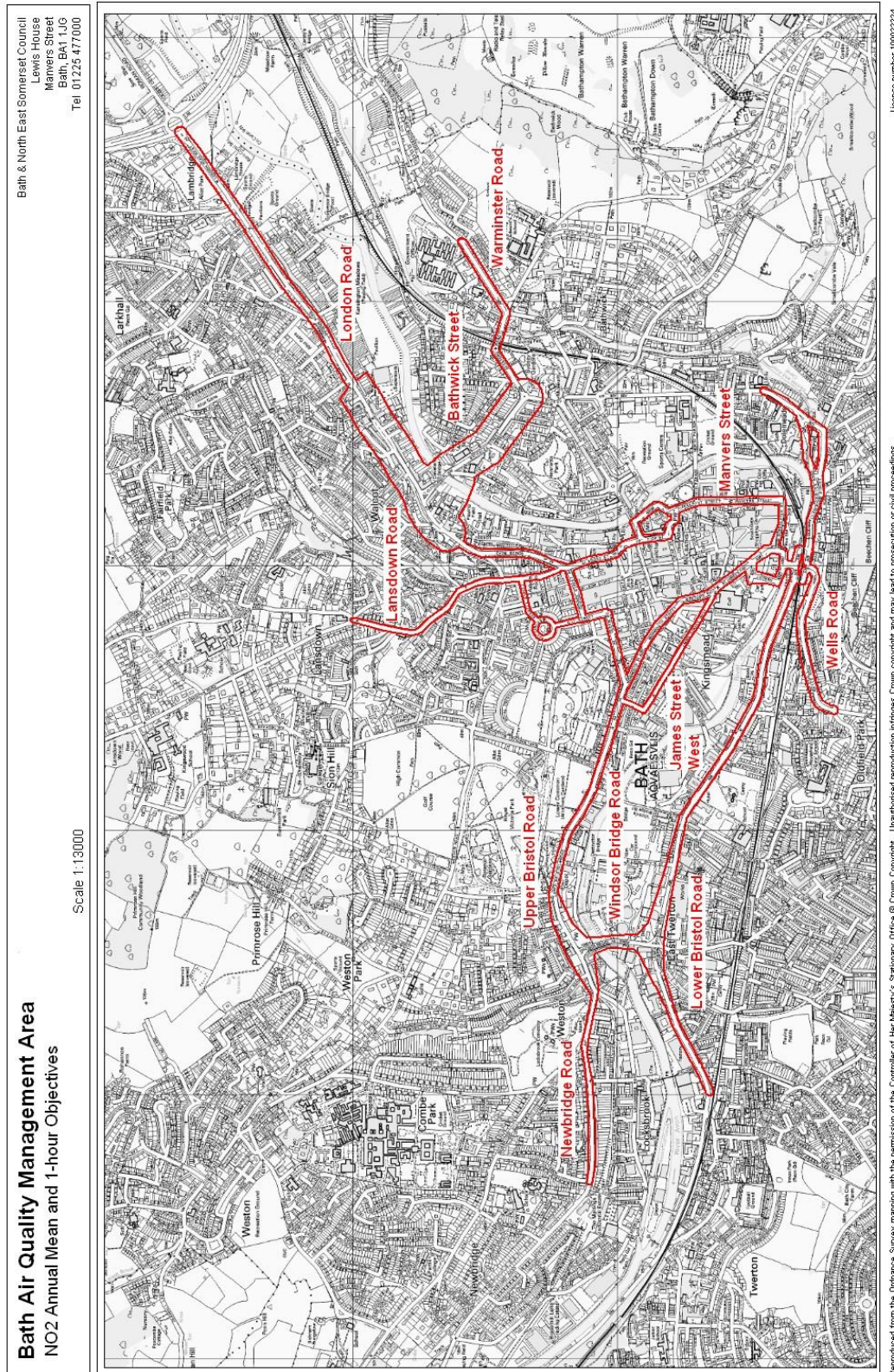


Figure E.2 – Map showing the automatic monitoring locations

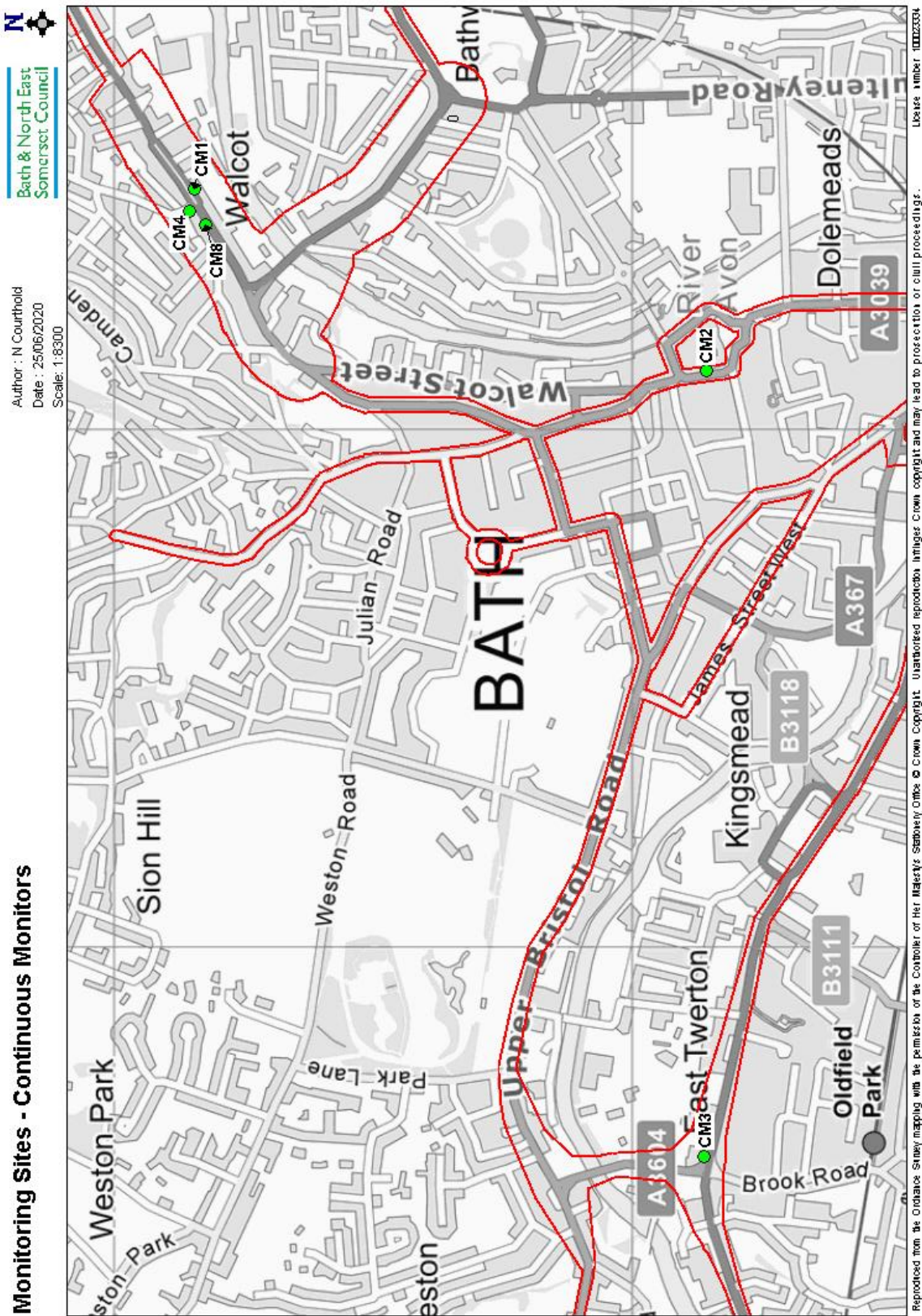


Figure E.3 – Map showing the monitoring sites and AQMA – Bath - Centre

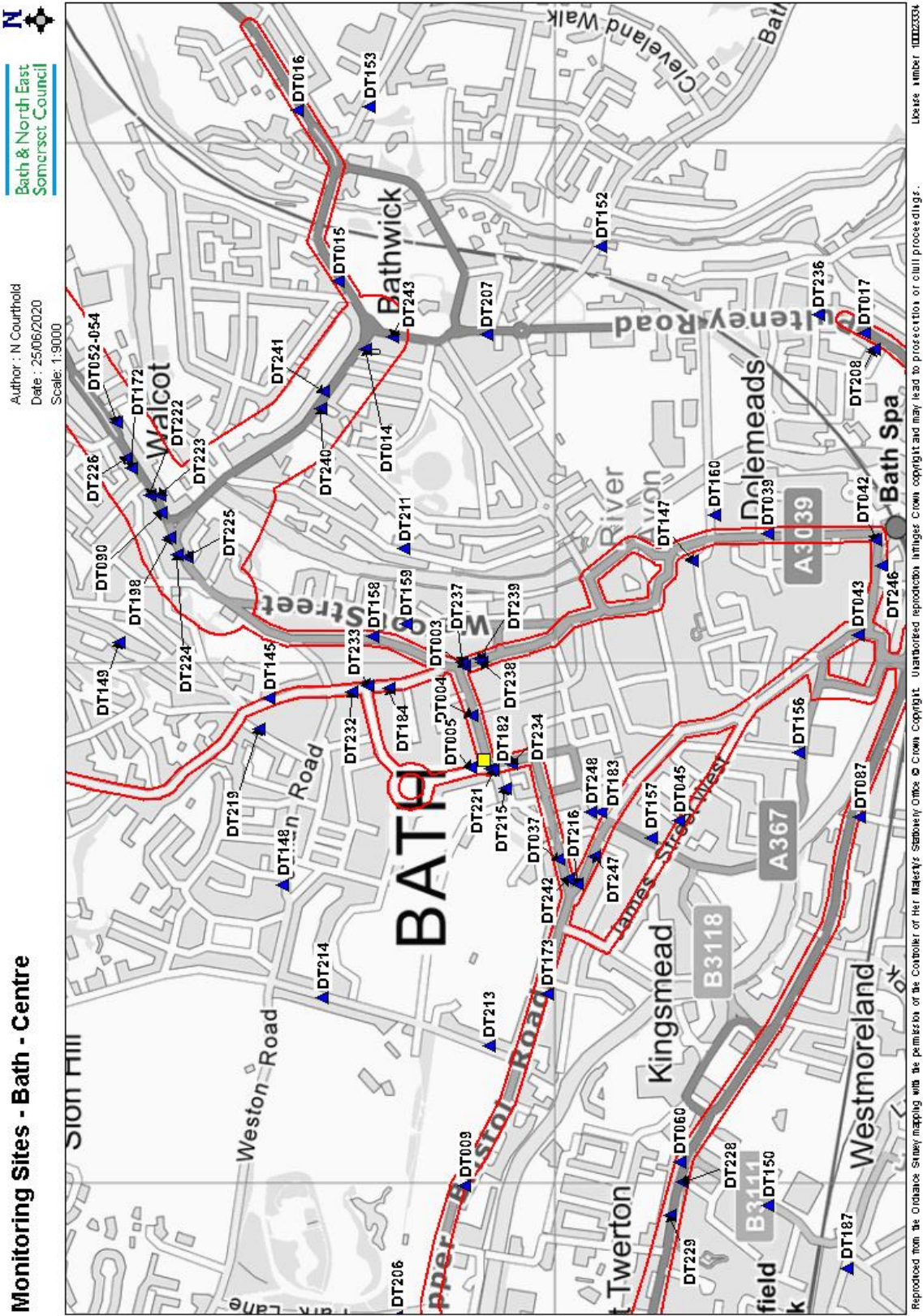


Figure E.4 – Map showing the monitoring sites and AQMA – Bath – North

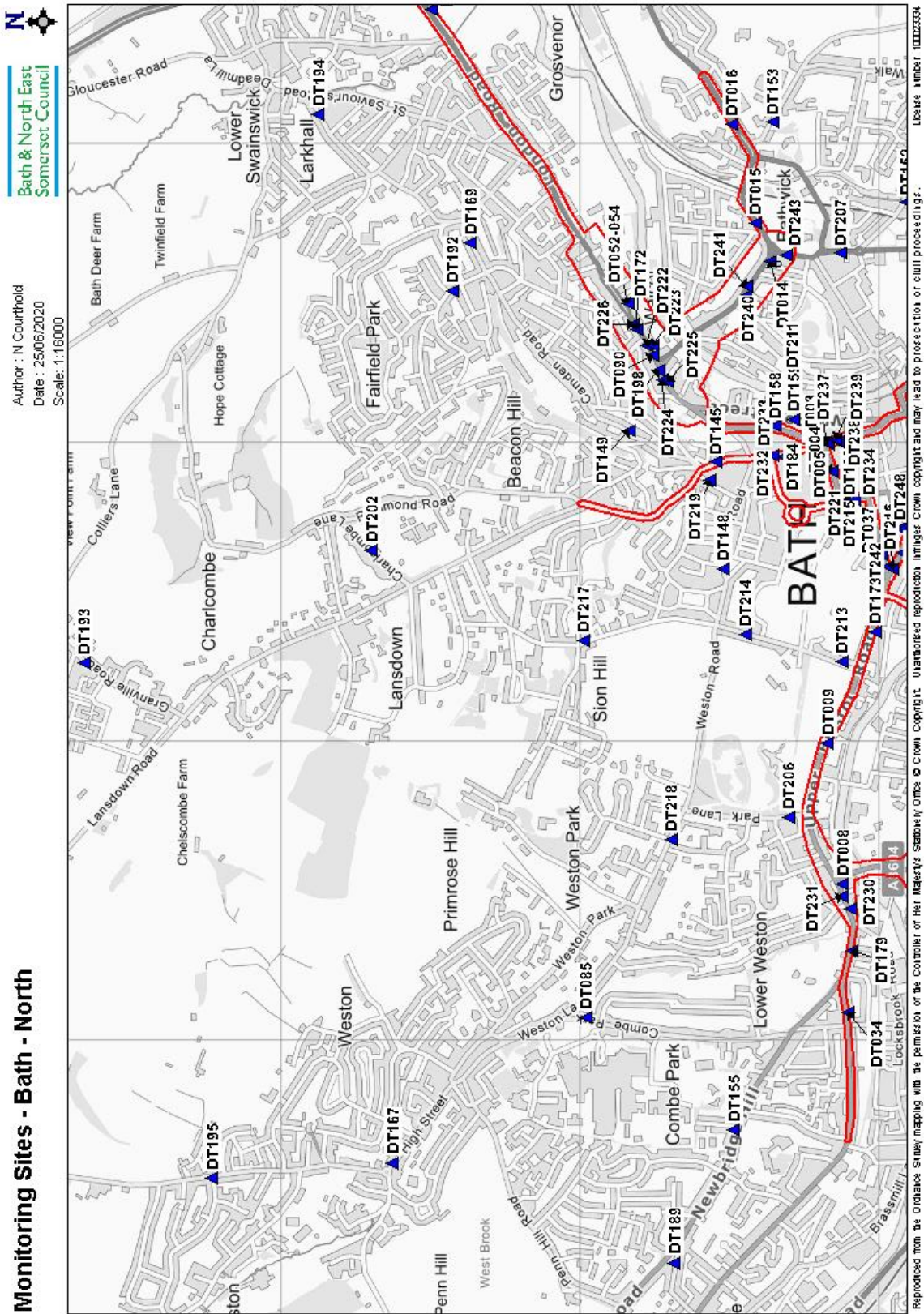


Figure E.6 – Map showing the monitoring sites and AQMA – Bath – South West

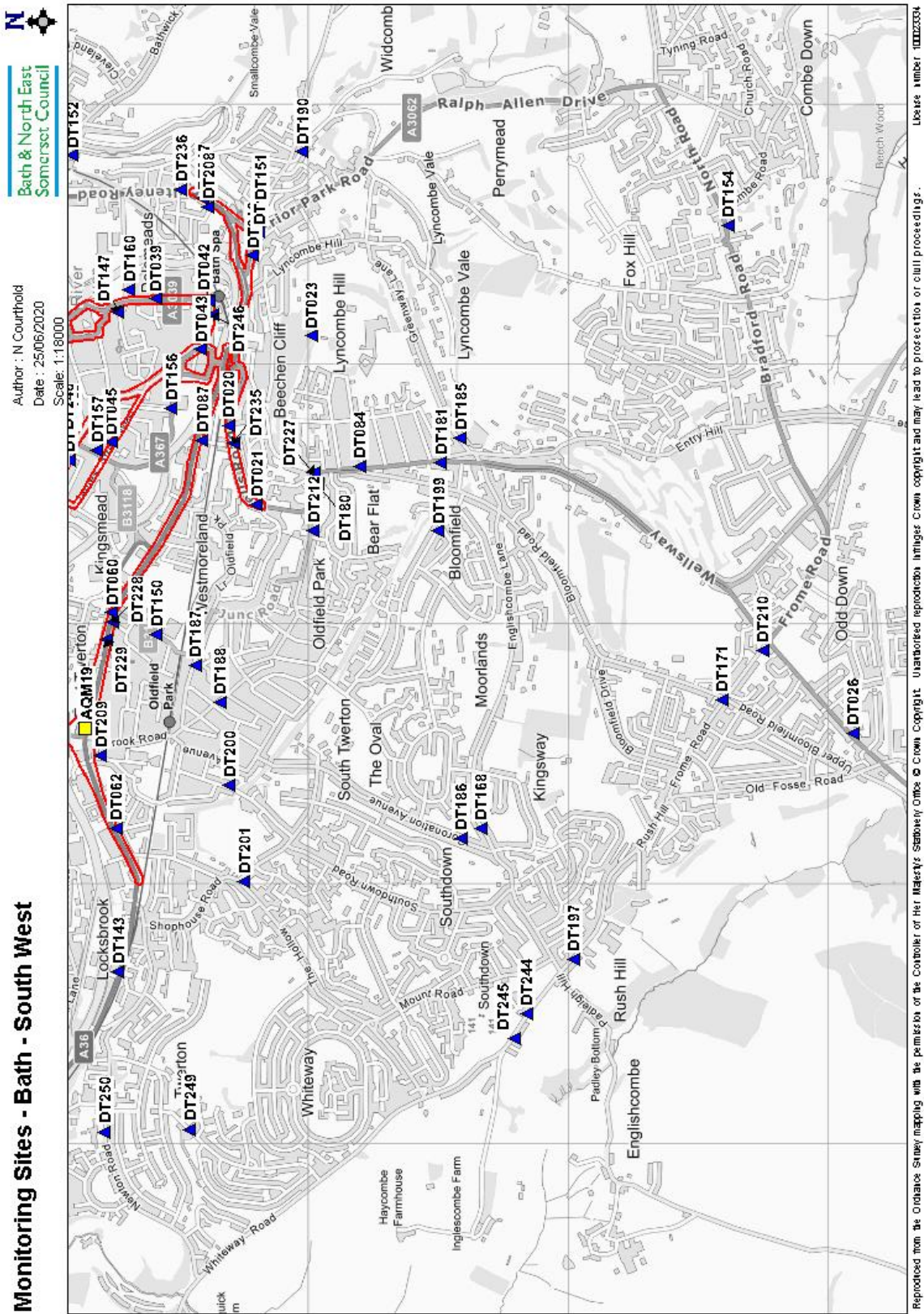


Figure E.7 – Map showing the monitoring sites and AQMA – Bathampton and Batheaston

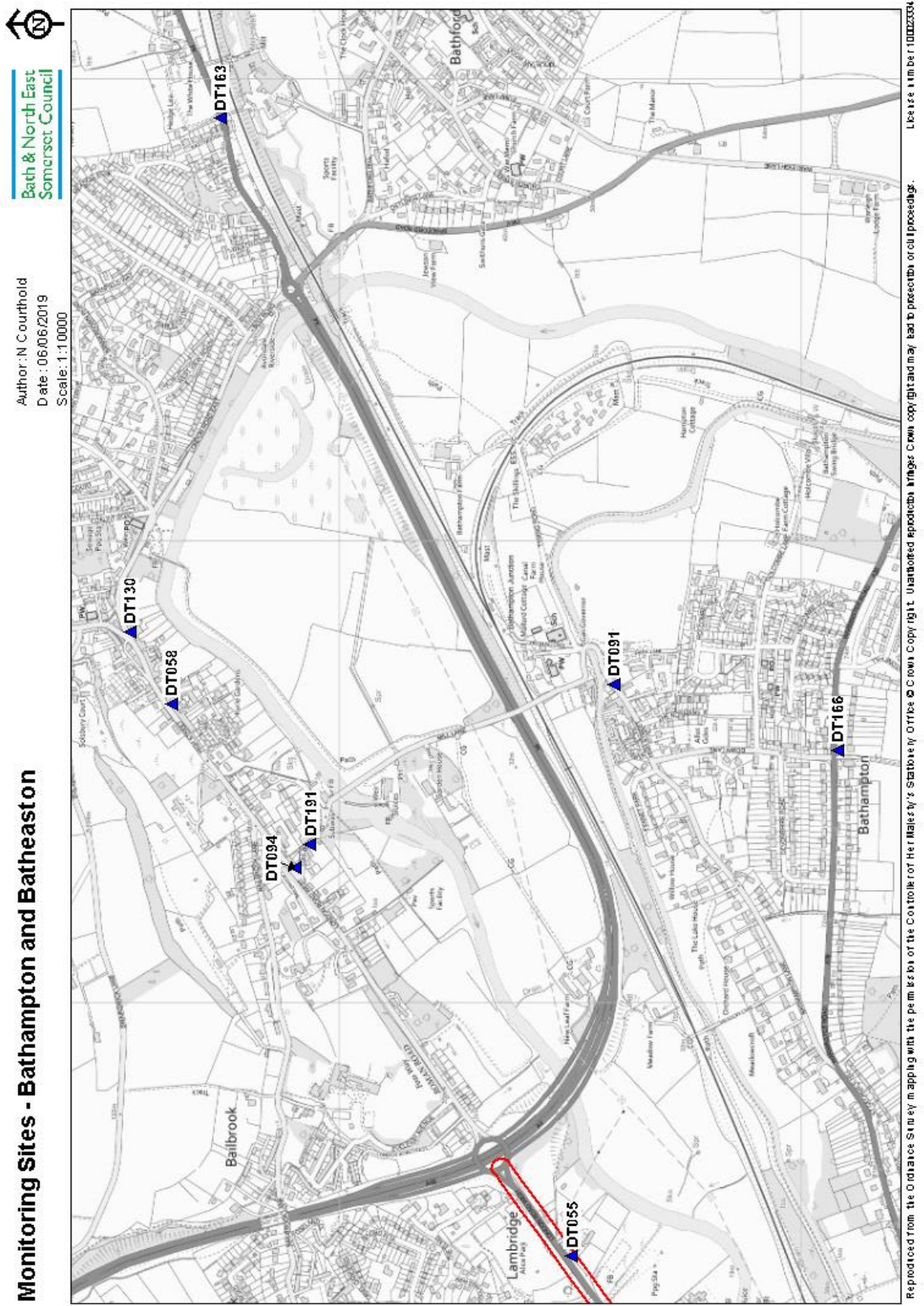


Figure E.8 – Map showing the monitoring sites – Chew Magna

Monitoring Sites - Chew Magna

Author : N Courthold

Date : 25/6/2020

Scale : 1:3000

Bath & North East
Somerset Council



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Figure E.9 – Map showing the monitoring sites – Clutton

Monitoring Sites - Clutton

Author : N Courthold
 Date : 25/6/2020
 Scale: 1:3000



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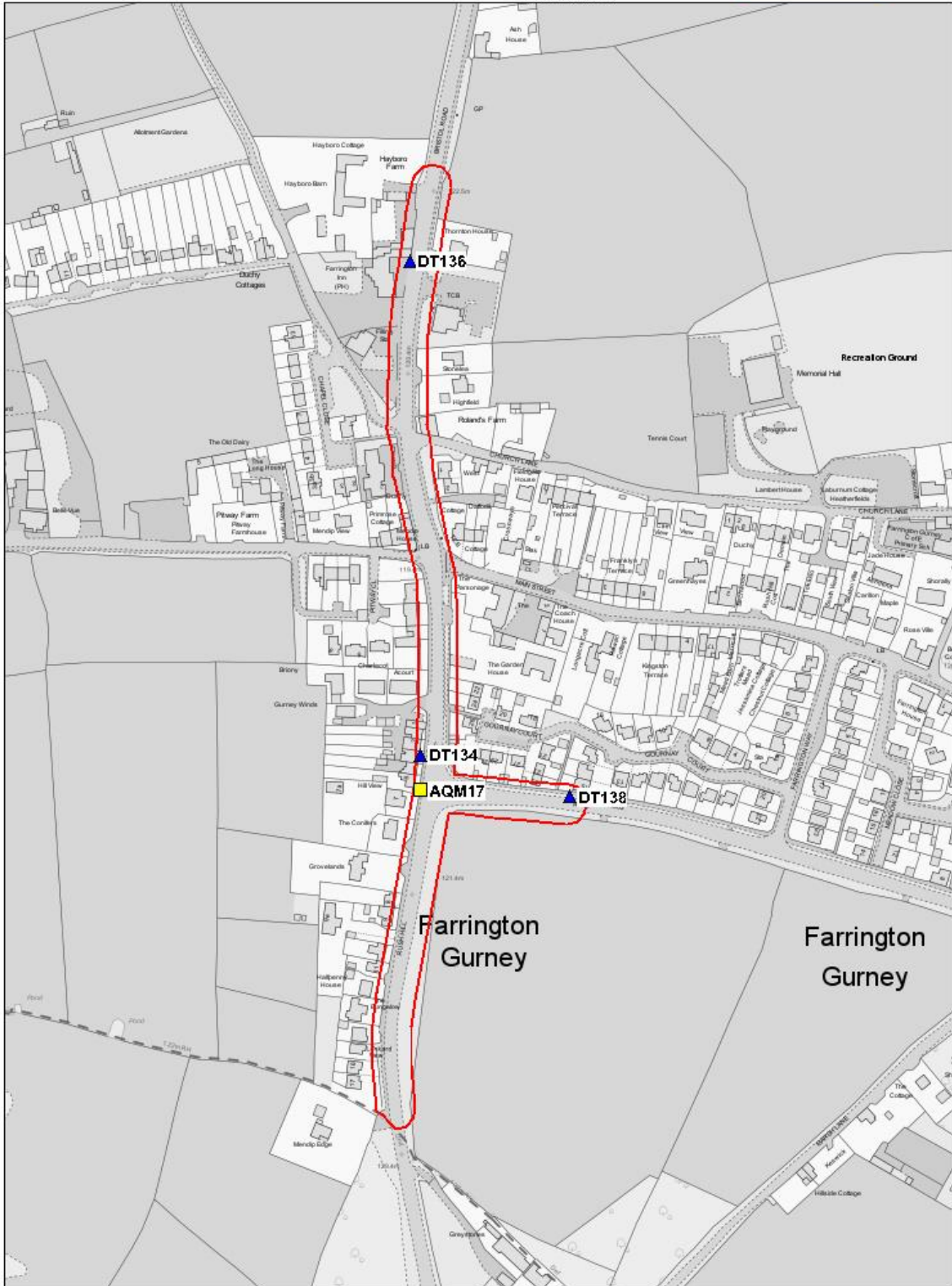
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Figure E.10 – Map showing the monitoring sites and AQMA – Farrington Gurney

Monitoring Sites - Farrington Gurney

Author : N Courthold
 Date : 25/6/2020
 Scale : 1:3000

Bath & North East
 Somerset Council



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Figure E.11 – Map showing the monitoring sites and AQMA – Keynsham

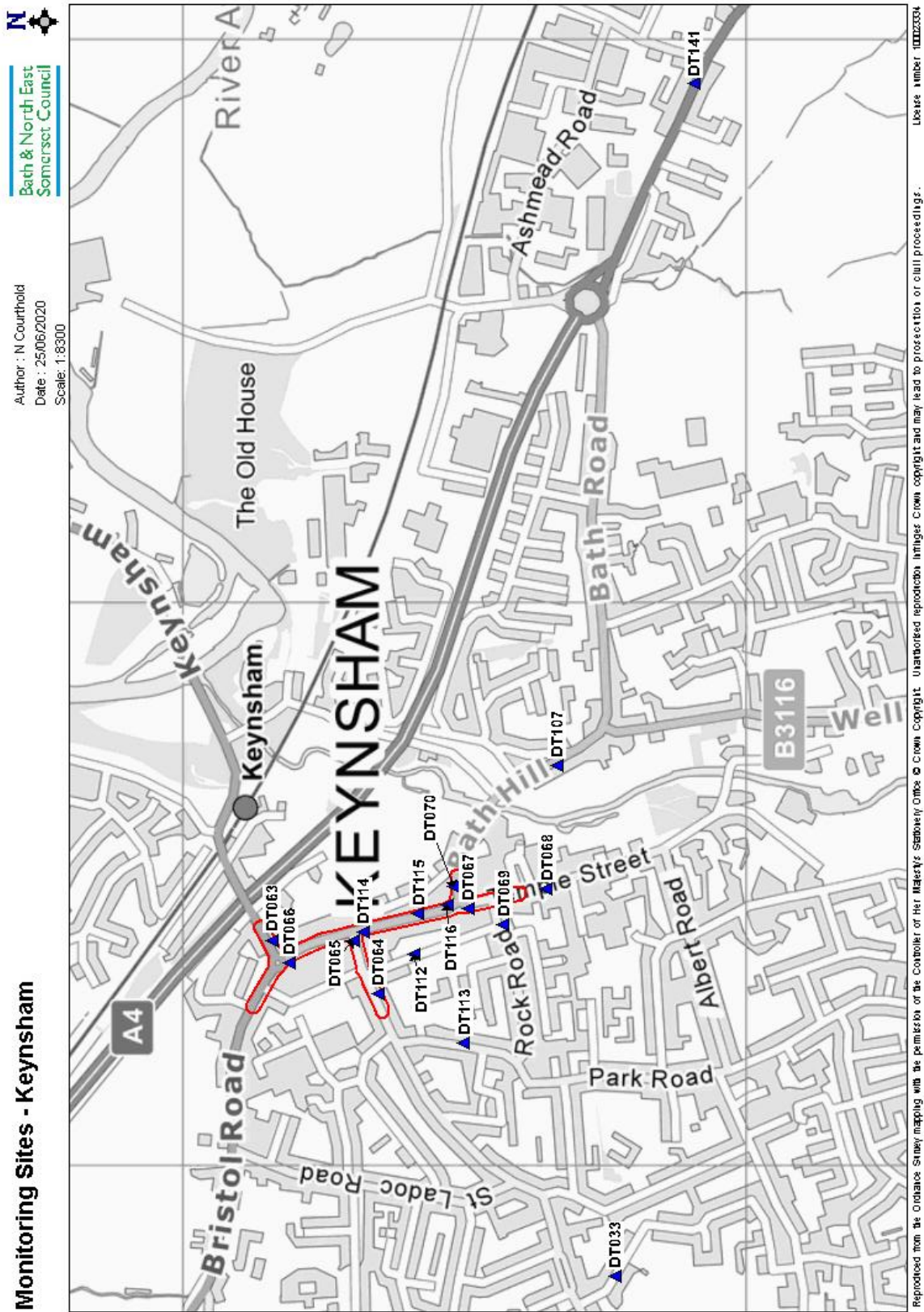


Figure E.12 – Map showing the monitoring sites – Pensford

Monitoring Sites - Pensford

Author: N Courthold
 Date: 10/06/2019
 Scale: 1:4000

Bath & North East
 Somerset Council



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Figure E.13 – Map showing the monitoring sites – Peasedown St John

Monitoring Sites - Peasedown St John

Author : N Courthold
Date : 25/6/2020
Scale : 1:3000



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Figure E.14 – Map showing the monitoring sites – Radstock and Westfield

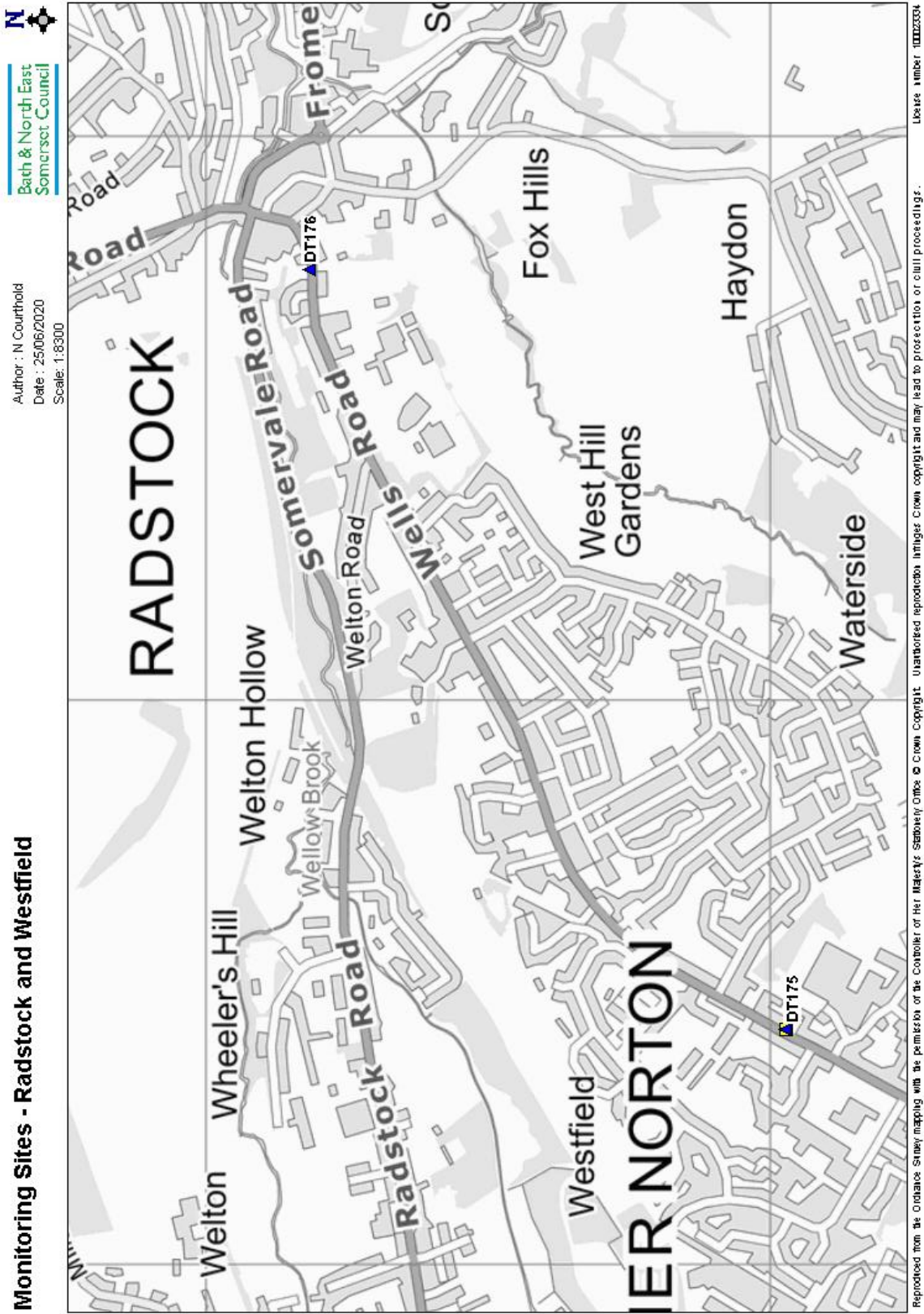


Figure E.15 – Map showing the monitoring sites and AQMA – Salford

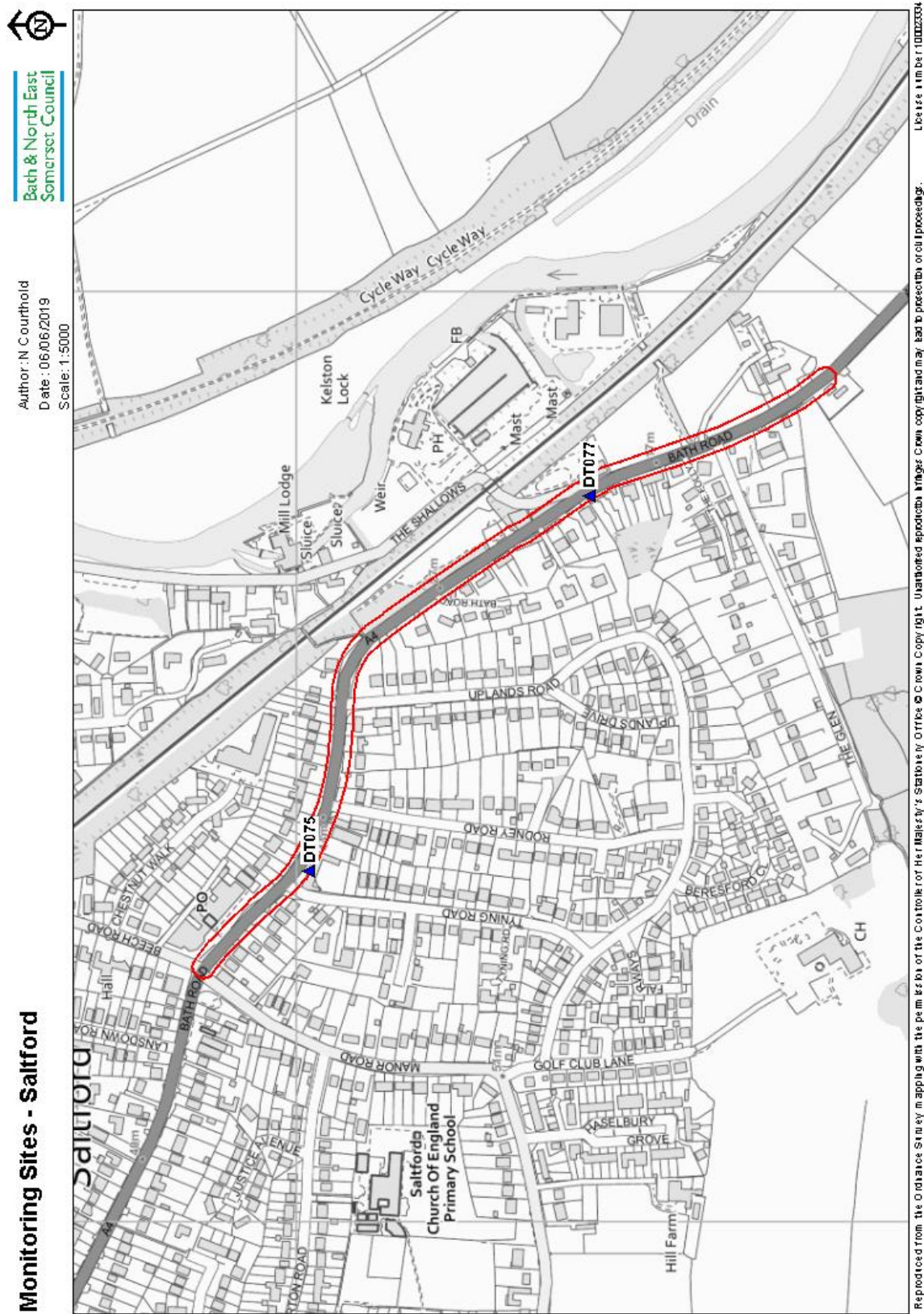


Figure E.16 – Map showing the monitoring sites and AQMA – Temple Cloud

Monitoring sites - Temple Cloud

Author: N Courthold
 Date: 06/06/19
 Scale: 1:3000

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 Somerset Council



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Figure E.18 – Map showing the monitoring sites – White Cross

Monitoring Sites - White Cross

Author : N Courthold
Date : 25/6/2020
Scale : 1:3000



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Appendix F: Supporting Technical Information – Additional Information

F.1 Screening Assessment

Road Traffic Sources

Road sources within Bath and North East Somerset have been assessed for:

- Narrow congested streets with residential properties close to the kerb
- Busy Streets where people spend 1-hour or more close to traffic
- Roads with high HGV flows
- Junctions
- New roads constructed or proposed
- Roads with significantly changed traffic flows and
- Bus and Coach Stations

Bath & North East Somerset Council confirms that there are no new/newly identified road traffic sources within Bath and North East Somerset.

Non-road Transport Sources

Bath & North East Somerset Council confirms that there are no new/newly identified non-road transport sources within Bath and North East Somerset.

Industrial Sources

Bath & North East Somerset Council confirms that there have been 4 new industrial processes¹⁹ with Bath & North East Somerset in 2019. The processes are a petrol station with stage 2 vapour recovery, blending and packing of cement process and 2 mobile crushers. The processes have been screened and it will not be necessary to proceed to a detailed assessment.

Commercial Sources

Bath & North East Somerset Council confirms that there are no new/newly identified commercial sources within Bath and North East Somerset.

Fugitive or Uncontrolled Sources

Bath & North East Somerset Council confirms that there are no new/newly identified fugitive sources within Bath and North East Somerset.

¹⁹ <https://www.bathnes.gov.uk/services/environment/pollution/environmental-permitting/public-registers>

Appendix G: Summary of Air Quality Objectives in England

Table G.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective (microgrammes per cubic metre)	
	Concentration	Measured as
Nitrogen Dioxide (NO ₂)	200 µg/m ³ not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m ³	Annual mean
Particulate Matter (PM ₁₀)	50 µg/m ³ , not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m ³	Annual mean
Sulphur Dioxide (SO ₂)	350 µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m ³ , not to be exceeded more than 35 times a year	15-minute mean

Glossary of Terms

Abbreviation	Description
AQ	Air Quality
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Air quality Annual Status Report
AURN	Automatic Urban and Rural Network
BAM1020	Beta Attenuation Monitor
CAD	Clean Air Day
CAP	Clean Air Plan
CAZ	Clean Air Zone
CBTF	Clean Bus Technology Fund
CM	Continuous Monitor
CVRAS	Clean Vehicle Retrofit Accreditation Scheme
DC	Development Control
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DNO	District Network Operator
DT	Diffusion Tube
EU	European Union
EV	Electric Vehicle
GUL	Go Ultra Low
HGV	Heavy Goods Vehicle
JAQU	Joint Air Quality Unit
LAQM	Local Air Quality Management
LCWIP	Local Cycling and Walking Investment Plan
LEP	Local Enterprise Partnership
LEZ	Low Emission Zone
LGF	Local Growth Fund
LSO	Local Site Operator
LSTF	Local Sustainable Transport Fund
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 (micrometres or microns) 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

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
µg/m ³	microgrammes per cubic metre
ULEV	Ultra-Low Emission Vehicles
WECA	West of England Combined Authority

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