London Borough of Bromley Air Quality Annual Status Report for 2020

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This report provides a detailed overview of air quality in London Borough of Bromley during 2020. It has been produced to meet the requirements of the London Local Air Quality Management (LLAQM) statutory process[1].

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[1] LLAQM Policy and Technical Guidance 2019 (LLAQM.TG(19))

Contents

Abbreviations 4
1. Air Quality Monitoring 6
1.1 Locations 6
1.2 Comparison of Monitoring Results with AQOs 9
2. Impact of COVID-19 upon LAQM 20
3. Action to Improve Air Quality 21
3.1 Air Quality Action Plan Progress 21
4. Planning Update and Other New Sources of Emissions 28
4.1 New or significantly changed industrial or other sources 28
Appendix A Details of Monitoring Site Quality QA/QC 29
A.1 Automatic Monitoring Sites 29
A.2 Diffusion Tubes 29
A.3 Adjustments to the Ratified Monitoring Data 32
Appendix B Full Monthly Diffusion Tube Results for 2020 37

Tables

Table A. Summary of National Air Quality Standards and Objectives 5
Table B. Details of Automatic Monitoring Sites for 2020 6
Table C. Details of Non-Automatic Monitoring Sites for 2020 7
Table D. Annual Mean NO_2 Ratified and Bias-adjusted Monitoring Results 10
Table E. NO_2 Automatic Monitoring Results: Comparison with 1-hour Mean Objective, Number of 1-Hour Means > 200 µg m^{-3} 14
Table F. Annual Mean PM_{10} Automatic Monitoring Results (µg m^{-3}) 16
Table G. PM_{10} Automatic Monitoring Results: Comparison with 24-Hour Mean Objective, Number of PM_{10} 24-Hour Means > 50 µg m^{-3} 17
Table H. Annual Mean $PM_{2.5}$ Automatic Monitoring Results (µg m^{-3}) 19
Table I. Delivery of Air Quality Action Plan Measures 21
Table J. Planning requirements met by planning applications in Bromley in 2020 28
Table K. Bias Adjustment Factor 31
Table L. Short-Term to Long-Term Monitoring Data Adjustment 33
Table M. NO_2 Fall off With Distance Calculations 36
Table N. NO_2 Diffusion Tube Results 37

Figures

Figure 1. Air Quality Monitoring Locations 8
Figure 2. Annual Mean NO_2 concentrations at the Harwood Avenue Automatic Monitoring Site 12
Figure 3. Annual Mean NO_2 concentrations at Non-Automatic Monitoring sites 13
Figure 4. Annual Mean PM10 concentrations at the Harwood Automatic Monitoring site 18

Abbreviations

Abbreviation	Description
AIR-PT	Air Proficiency Testing
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQO	Air Quality Objective
BAM	Beta Attenuation Monitor
BEB	Buildings Emission Benchmark
CAB	Cleaner Air Borough
ERG	Environmental Research Group
EV	Electric Vehicle
GLA	Greater London Authority
HSL	Health and Safety Laboratory
LAEI	London Atmospheric Emissions Inventory
LAQM	Local Air Quality Management
LGC	Laboratory of Government Chemists
LLAQM	London Local Air Quality Management
NRMM	Non-Road Mobile Machinery
PM_{10}	Particulate matter less than 10 micron in diameter
$PM_{2.5}$	Particulate matter less than 2.5 micron in diameter
TEB	Transport Emissions Benchmark
TfL	Transport for London

Table A. Summary of National Air Quality Standards and Objectives

Pollutant	Standard / Objective (UK)	Averaging Period	Date[(1)]
Nitrogen dioxide (NO_2)	200 µg m^{-3} not to be exceeded more than 18 times a year	1-hour mean	31 Dec 2005
	40 µg m^{-3}	Annual mean	31 Dec 2005
Particles (PM_{10})	50 µg m^{-3} not to be exceeded more than 35 times a year	24-hour mean	31 Dec 2004
	40 µg m^{-3}	Annual mean	31 Dec 2004
Particles ($PM_{2.5}$)	25 µg m^{-3}	Annual mean	2020
	Target of 15% reduction in concentration at urban background locations	3-year mean	Between 2010 and 2020
Sulphur dioxide (SO_2)	266 µg m^{-3} not to be exceeded more than 35 times a year	15-minute mean	31 Dec 2005
	350 µg m^{-3} not to be exceeded more than 24 times a year	1-hour mean	31 Dec 2004
	125 µg m^{-3} not to be exceeded more than 3 times a year	24-hour mean	31 Dec 2004

Notes:

(1) Date by which to be achieved by and maintained thereafter

1. Air Quality Monitoring

1.1 Locations

The Council has historically monitored at six continuous monitoring sites within the Borough, five of which are now closed. The one operational monitoring station is located in Harwood Avenue. Figure 1 and Table B provide details of this monitoring site. The station was operated by the Environmental Research Group (ERG) as part of the London Air Quality Network (LAQN) from July 1998 to July 2010. Monitoring at the site was suspended until July 2011 when it was recommissioned and has since been operated by the London Borough of Bromley. Details of the relevant Quality Assurance / Quality Control (QA/QC) procedures that have been followed throughout the monitoring period are provided in Appendix A.

Table B. Details of Automatic Monitoring Sites for 2020

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Monitoring technique
BRY-CM3	Harwood Avenue	540523	169326	Roadside	Y	0	3	3.5	NO_2, PM_{10} and $PM_{2.5}$	Chemilumine scence, Beta attenuation monitoring (BAM)

The London Borough of Bromley carries out passive monitoring using NO_2 diffusion tubes at 10 locations within the AQMA in the north western part of the Borough. All the diffusion tube sites are either at roadside or kerbside locations, and all sites are triplicate tube sites. The Harwood Avenue diffusion tube site is co-located with the automatic monitor. In April 2017 a new diffusion tube site

was installed on Beckenham Lane close to a previous diffusion tube location formerly known as Shortlands. Figure 1 and Table C provide details of the operational diffusion tube sites within the Borough during 2020.

Table C. Details of Non-Automatic Monitoring Sites for 2020

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor. (Y/N)
Area 1	Elmers End Road	536076	168434	Roadside	Y	4	1	2	NO_2	N
Area 3	Beckenham Lane	539486	169399	Roadside	Y	5.3	1.2	2	NO_2	N
Area 4	London Road	539790	170050	Roadside	Y	4	2	2	NO_2	N
Area 5	Widmore Road	540519	169403	Roadside	Y	0*	3	2	NO_2	N
Area 6	College Road	540336	170258	Roadside	Y	3	3	2	NO_2	N
Area 13	Homesdale Road	541047	168231	Roadside	Y	2	2	2	NO_2	N
Area 14	Anerley Hill	533949	170624	Kerbside	Y	13**	0.5	2	NO_2	N
Area 15	Anerley Road	535006	169590	Kerbside	Y	3	0.5	2	NO_2	N
Area 16	Beckenham Road	535947	169765	Kerbside	Y	10**	0.5	2	NO_2	N
Area 17	Harwood Avenue	540525	169325	Roadside	Y	0*	3	2	NO_2	Y

* not directly on a facade, but representative of adjacent facade road distance.

** monitoring site closer to the road source than the nearest façade.

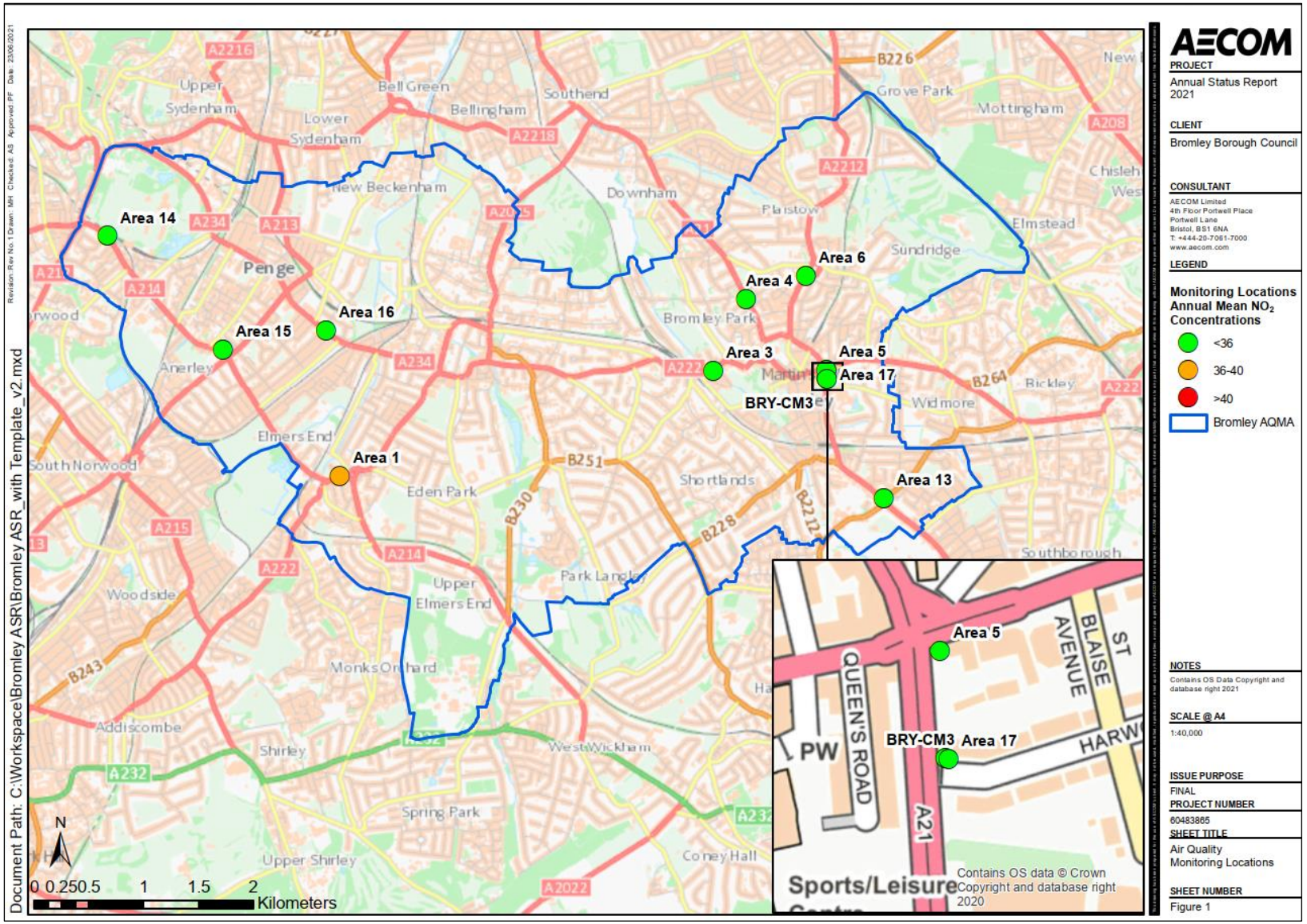


Figure 1. Air Quality Monitoring Locations

1.2 Comparison of Monitoring Results with AQOs

The NO_2 monitoring results from the automatic monitoring stations and diffusion tube locations for the last seven years are shown in Table D and Table E.

All data have been ratified, and details of the data ratification process are provided in Appendix A.

Diffusion tube monitoring results have been adjusted for bias using the local bias adjustment factor. The derivation of the bias adjustment factor is described in Appendix A. The diffusion tubes are prepared and analysed by Gradko (using the 20% triethanolamine (TEA) in water preparation method). Details of the QA/QC procedures applied to the diffusion tube results are summarised in Appendix A. Façade distance correction calculations have been carried out for those monitoring locations that are not representative of relevant public exposure (see Appendix A). All diffusion tube sites achieved less than 75% data capture for 2020 (i.e. less than 9 months), and therefore “annualisation” was required for all diffusion tube sites.

The annual mean NO_2 objective of 40 µg m^{-3} was not exceeded at any of the ten monitoring locations in 2020. This is the lowest number of annual mean NO_2 exceedances in all years since 2010. The lowest annual mean NO_2 concentration of 21.4 µg m^{-3} was monitored at Harwood Avenue in 2020. The highest annual mean NO_2 concentration in 2020 was monitored at Elmers End Road with a value of 39.5 µg m^{-3}. This site has reported the highest NO_2 concentrations in all years since 2010. However, the 2020 annual mean NO_2 concentration at Elmers End Road is the lowest measured at this site since 2011 with a consistent drop in concentration over the last 4 years towards and below the AQ objective of 40 µg m^{-3}.

For those monitoring sites not located at points of relevant exposure, Defra’s façade distance correction tool has been used to estimate the annual mean NO_2 concentrations at the nearest location of relevant exposure. These results are not shown in the main report in order to maintain time series consistency with previous reports; however, the distance-corrected concentrations can

be found in Appendix B. After correction for bias and façade distance (where applicable), annual mean NO_2 concentrations at all sites are below the annual mean objective.

The results presented are after adjustments for “annualisation” and for distance to a location of relevant public exposure (if required), the details of which are described in Appendix A.

Table D. Annual Mean NO_2 Ratified and Bias-adjusted Monitoring Results

Site ID	Site name	Site type	Valid data capture for monitoring period %[a]	Valid data capture 2020 %[b]	2014	2015	2016	2017	2018	2019	2020
BRY-CM3	Harwood Avenue	Automatic	95	65.1	28.6	30.7	31.9	28.6	25.7	24.7	21.3
Area 1	Elmers End Road	Diffusion tube	95	65.1	**69.9**	**64.2**	**68.8**	**59.5**	**51.3**	**48.1**	39.5
Area 3	Beckenham Lane	Diffusion tube	100	65.1	-	-	-	37.3	35.3	36.0	27.7
Area 4	London Road	Diffusion tube	95	65.1	**51.7**	**46.1**	**52.4**	**43.3**	37.6	37.6	27.7
Area 5	Widmore Road	Diffusion tube	100	65.1	**54.4**	**50.5**	**50.9**	**43.4**	39.1	38.4	30.9
Area 6	College Road	Diffusion tube	100	65.1	-	-	**46.8**	36.4	35.6	33.1	25.7
Area 13	Homesdale Road	Diffusion tube	100	65.1	**59.9**	**57.2**	**63.3**	**54.3**	**43.5**	39.4	29.3
Area 14	Anerley Hill	Diffusion tube	100	65.1	**51.1**	**43.7**	**49.6**	**41.6**	39.0	**42.5**	35.1
Area 15	Anerley Road	Diffusion tube	100	65.1	**51.3**	**46.4**	**47.9**	38.2	35.2	36.4	27.9
Area 16	Beckenham Road	Diffusion tube	100	65.1	**49.6**	**44.8**	**47.9**	38.0	38.2	36.0	28.6
Area 17	Harwood Avenue	Diffusion tube	100	65.1	36.7	34.0	31.3	30.3	27.3	28.3	21.4

Notes:

The annual mean concentrations are presented as µg m^{-3}.

Exceedances of the NO_2 annual mean AQO of 40 µg m^{-3} are shown in **bold**.

NO_2 annual means in excess of 60 µg m^{-3}, indicating a potential exceedance of the NO_2 hourly mean AQS objective are shown in **bold and underlined**.

Means for diffusion tubes have been corrected for bias.

All means have been "annualised" in accordance with LLAQM Technical Guidance if valid data capture for the calendar year is less than 75% and greater than 33%.

Results have been distance corrected where applicable.

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

(b) data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

Figure 2 shows the trend in annual mean NO_2 concentrations at the Harwood Avenue automatic monitoring station from 1999 to 2020. The graph shows that high concentrations of NO_2 were recorded prior to 2002, before decreasing sharply and gradually rising again between 2003 and 2005 to almost 50 µg m^{-3}. Concentrations of NO_2 have been steadily decreasing since 2009, dropping below 40 µg m^{-3} and have remained below since and have, therefore, achieved the annual mean NO_2 air quality objective in 2020.

Figure 3 shows the annual mean NO_2 concentrations recorded at the diffusion tube monitoring sites between 2013 and 2020. All sites show a general decrease in NO_2 concentrations since 2013, with most sites showing a slight increase in 2016. All recorded annual mean NO_2 concentrations in 2020 are below the annual mean NO_2 air quality objective.

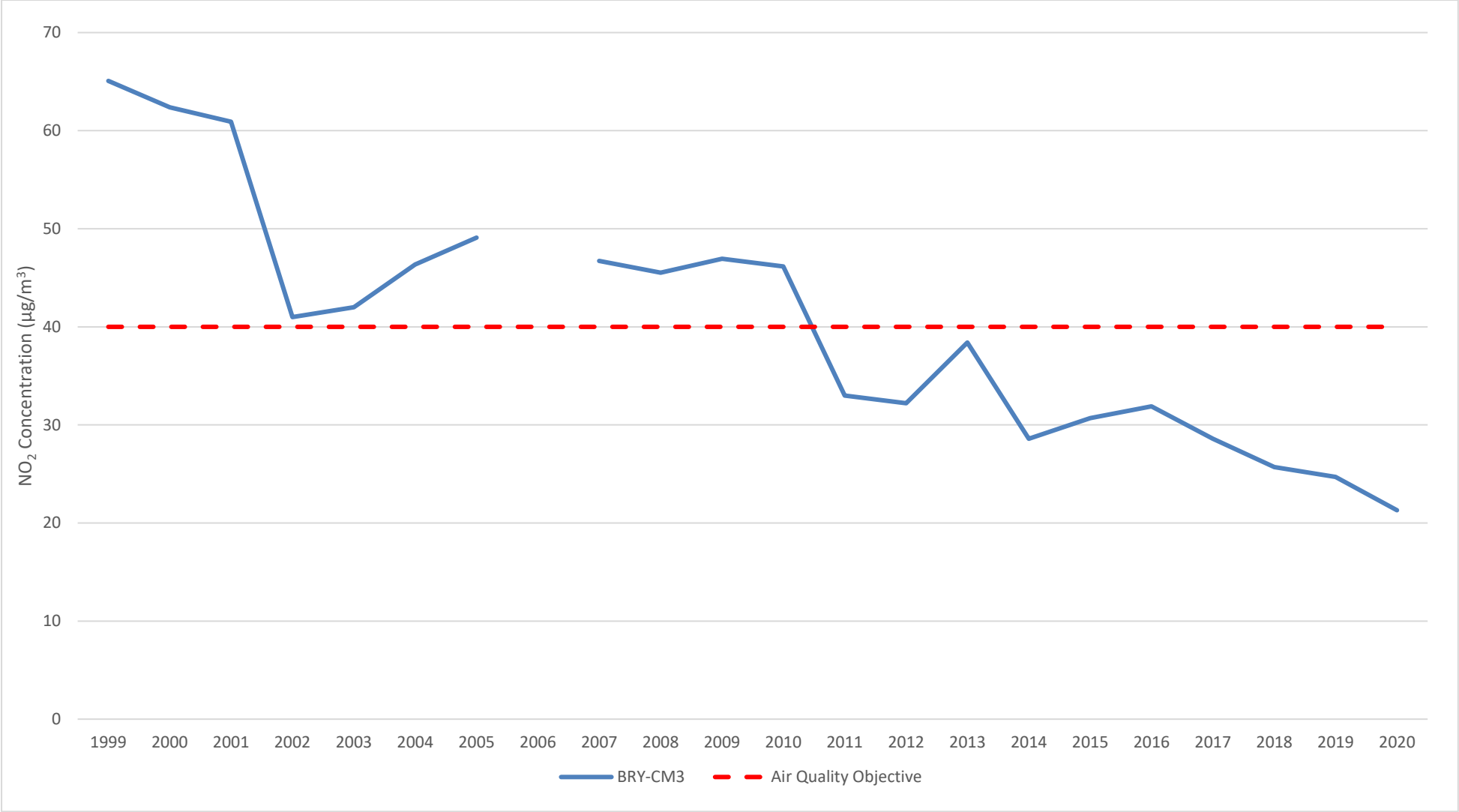


Figure 2. Annual Mean NO_2 concentrations at the Harwood Avenue Automatic Monitoring Site

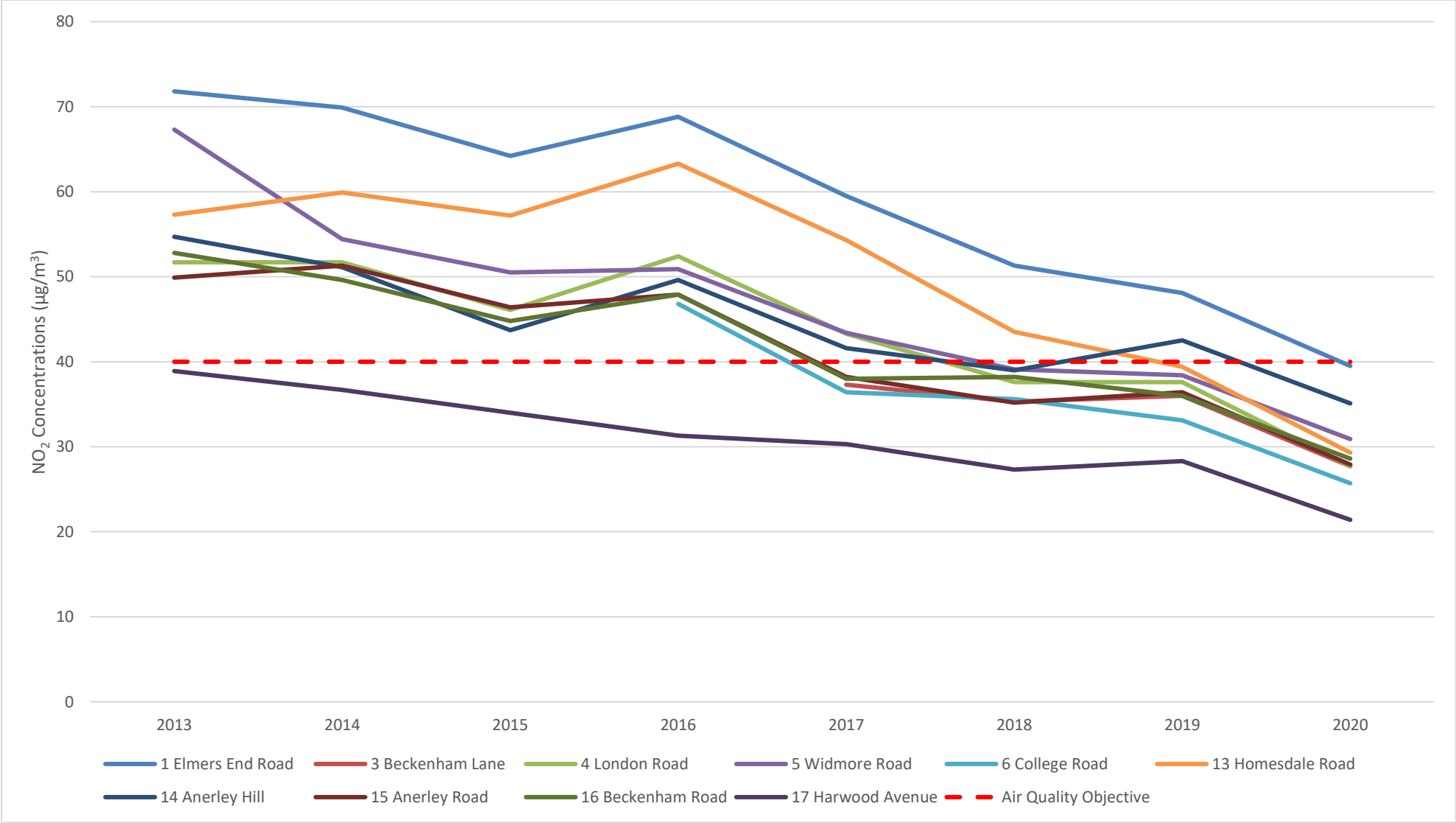


Figure 3. Annual Mean NO_2 concentrations at Non-Automatic Monitoring sites

Table E. NO_2 Automatic Monitoring Results: Comparison with 1-hour Mean Objective, Number of 1-Hour Means > 200 µg m^{-3}

Site ID	Valid data capture for monitoring period %([a])	Valid data capture 2020 %([b])	2014	2015	2016	2017	2018	2019	2020
BRY-CM3	96	96	4(102)	0(90.6)	0(98.3)	0	0	0	0

Notes

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

Exceedance of the NO_2 short term AQO of 200 µg m^{-3} over the permitted 18 hours per year are shown in **bold**.

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

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

(b) Data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

Table E shows the 1-hour NO_2 monitoring results for 2014 - 2020. During the 2014 to 2020 period there were no monitored exceedances of the 1-hour NO_2 standard of 200 µg m^{-3}, except for 4 hours in 2014. This is well within the permitted 18 hours of concentrations above 200 µg m^{-3} in order to achieve the 1-hour NO_2 objective. Where data capture rates were lower than 90%, the 99.8th percentiles of hourly mean NO_2 concentrations have been calculated and are shown in brackets alongside the number of exceedances in Table E. Between 2011 and 2016 the 99.8th percentiles of hourly mean NO_2 concentrations were lower than 200 µg m^{-3}; it is therefore likely that the 1-hour NO_2 objective was achieved in all years during this period.

The Council has been monitoring PM_{10} within the Borough since October 1999. The only currently operational monitoring station is Harwood Avenue. The annual mean PM_{10} results are shown in Table F and the 24-hour mean PM_{10} results are presented in Table

G. Data capture at the site in 2020 was 98.0%. The annual mean PM_{10} concentration at Harwood Avenue in 2020 was 15.8 µg m^{-3}, which is below the annual mean objective of 40 µg m^{-3}. This is consistent with all years since 1999 (see Figure 4).

The 24-hour mean PM_{10} monitoring results are shown in Table G. There was 1 day in 2020 where the average concentration was above the 24-hour mean air quality objective value of 50 µg m^{-3}. This result is well within the 35 permitted days to achieve the 24-hour mean PM_{10} air quality objective and indicates that the 24-hour mean PM_{10} objective is likely to have been achieved in 2020. Between 2014 and 2020 the 24-hour mean PM_{10} objective has been achieved at Harwood Avenue in all years.

Table F. Annual Mean PM_{10} Automatic Monitoring Results (µg m^{-3})

Site ID	Valid data capture for monitoring period %([a])	Valid data capture 2020 %([b])	2014	2015	2016	2017	2018	2019	2020
BRY-CM3	98	98	33.3	30.1	29.5	16.8	16.5	18.8	15.8

Notes

The annual mean concentrations are presented as µg m^{-3}.

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

All means have been "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75% and more than 33%.

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

(b) Data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

Table G. PM_{10} Automatic Monitoring Results: Comparison with 24-Hour Mean Objective, Number of PM_{10} 24-Hour Means > 50 µg m^{-3}

Site ID	Valid data capture for monitoring period %[(a)]	Valid data capture 2020 %[(b)]	2014	2015	2016	2017	2018	2019	2020
BRY-CM3	98	98	12(43)	10(39)	4(45)	2(30)	0(26)	8	1

Notes

Exceedances of the PM_{10} 24-hour mean objective (50 µg m^{-3} over the permitted 35 days per year) are shown in **bold.**

Where the period of valid data is less than 85% of a full year, the 90.4th percentile is provided in brackets.

(a) data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

(b) data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

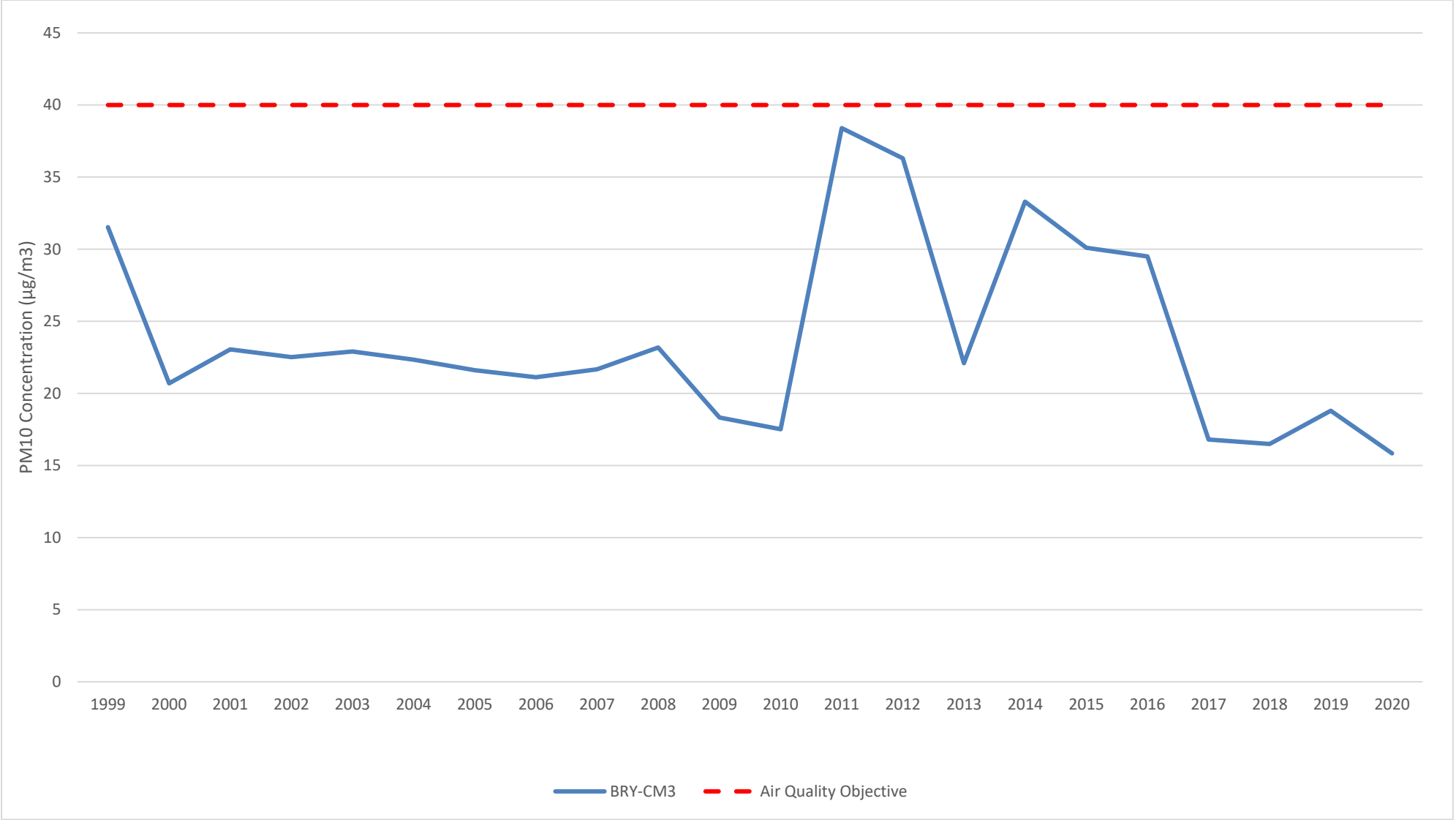


Figure 4. Annual Mean PM10 concentrations at the Harwood Automatic Monitoring site

Table H. Annual Mean $PM_{2.5}$ Automatic Monitoring Results (µg m^{-3})

Site ID	Valid data capture for monitoring period %[(a)]	Valid data capture 2020 %[(b)]	2014	2015	2016	2017	2018	2019	2020
BRY-CM3	79	56	-	-	15.5	-	-	-	8.5

Notes

The annual mean concentrations are presented as µg m^{-3}.

Exceedances of the $PM_{2.5}$ annual mean AQO of 25 µg m^{-3} are shown in **bold**.

All means have been "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75% and more than 33%.

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

(b) Data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

In 2015, an inlet particle sensor was attached to the PM_{10} monitor to monitor $PM_{2.5}$. This monitoring technique is not reference equivalent and the results should be viewed as indicative. Due to technical issues with the inlet particle sensor during 2015 there was no valid $PM_{2.5}$ data collected. The $PM_{2.5}$ data capture rate for 2016 was 19.6% due to data collection only being possible during the first 3 months of the year. The data capture rate for the 3-month period was 78.9%. The "annualised" mean $PM_{2.5}$ concentration at Harwood Avenue in 2015 was 15.5 µg m^{-3}, which is below the annual mean air quality objective value of 25 µg m^{-3} (see Table H). During 2020, the $PM_{2.5}$ monitor was re-commissioned. Data was available from 17th April 2020, producing a data capture rate of 56% for the year, and 79% for the period when monitoring was performed. The "annualised" mean $PM_{2.5}$ concentration at Harwood Avenue in 2020 was 8.5 µg m^{-3}, which is below the annual mean air quality objective value of 25 µg m^{-3} (see Table H).

2. Impact of COVID-19 upon LAQM

During 2020, local air quality monitoring was suspended between March and July due to the national lockdown in place at the time. Diffusion tubes put out at the start of March were not collected until July, and after the national lockdown the first complete month of monitoring data was for the period of 8th July to 5th August 2020. While the diffusion tubes were collected in July and analysed, the data obtained is not considered reliable due to the exposure duration and has been discounted from the analysis of NO_2 concentrations. All diffusion tube data has therefore been annualised in line with the LAQM.TG(16) guidance. It is considered that this will have a small impact on the results reported in this ASR, in line with the COVID-19: Supplementary Guidance published by Defra and the GLA.

The recorded NO_2 concentrations for 2020 are likely to be lower than in other years due to the reduction in traffic levels during and after the national lockdown, and subsequent restrictions in London throughout 2020. As traffic levels return to those seen prior to the national lockdown in March 2020, NO_2 concentrations are likely to rise again in the following years.

The response to the COVID-19 pandemic has put Local Authority resources under pressure and introduced a number of constraints on implementing air quality improvement measures. These constraints have meant that progress on the Air Quality Action Plan in 2020 has been more limited than in other years.

A review of Bromley's existing AQAP (2010) was completed during early 2020, subsequent to which an amended AQAP was released for public consultation in the summer of 2020. Amendments included revisions to existing actions to ensure compliance with current GLA standards. Consultation responses to the amended AQAP were reviewed, and a recommendation made for the expansion of the existing AQMA within the borough. The production of a new AQAP to support this expansion was also recommended. Both recommendations were approved.

Bromley's AQAP 2020-2025, including the revised AQMA boundary, was published in late 2020, with new provisions and arrangements taking effect from 1st January 2021.

3. Action to Improve Air Quality

3.1 Air Quality Action Plan Progress

Table I provides a brief summary of Bromley's progress against the Air Quality Action Plan (AQAP), showing progress made this year. Bromley adopted their latest AQAP in 2020 for the period of 2020-2025, and therefore Table I provides a full list of the actions contained within Bromley's new AQAP. Due to the introduction of the plan during 2020, many of the new actions are yet to be implemented.

Table I. Delivery of Air Quality Action Plan Measures

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
1	Monitoring	Ensure that appropriate and effective monitoring is undertaken across Bromley to meet statutory obligations	Ongoing. $PM_{2.5}$ analyser purchased and installed. Harwood Avenue monitoring station maintained in-house. Monthly reports required from service contractor. Council staff available to answer queries and modelled air quality data is available through the LAQN. Air quality information is provided through the South London Cluster Group 'Love Clean Air' website - https://lovecleanair.org/
2	Reducing Emissions from developments and buildings	Ensuring emissions from demolition and construction are minimised	Ongoing. Construction dust management plans required from constructors to include air quality monitoring for all major developments.

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
3	Reducing Emissions from developments and buildings	Ensuring enforcement of Non-Road Mobile Machinery (NRMM) air quality policies	Ongoing. NRMM compliance project commenced in 2016 and ongoing with funding support from the GLA confirmed until 2022.
4	Reducing Emissions from developments and buildings	Reducing emissions from CHP and ensure smaller developments use ultra-low NOx boilers	Ongoing. Installation of ultra-low NOx gas boilers encouraged in line with the MoL London Plan policy. Where CHPs are planned to be installed, emissions standards will be required to meet those specified in the Defra/EPUK 2012 Combined Heat and Power: Air Quality Guidance for Local Authorities. A CHP Information Request Form is required to be submitted and approved by the local planning authority prior to installation and commencement of use of any plant.
5	Reducing Emissions from developments and buildings	Enforcing Air Quality Neutral Policies	Ongoing. Compliance with the MoL SPG, Institute of Air Quality Management (IAQM) and other relevant guidance documents to be agreed at pre-application discussions and/or written into planning conditions to ensure no negative impact on air quality either during construction or occupation of development, with all major developments meeting GLA Air Quality Neutral standards as a minimum.
6	Reducing Emissions from developments and buildings	Ensuring adequate, appropriate, and well-located green space and infrastructure is included in new and existing developments, where appropriate.	Ongoing.

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
7	Reducing Emissions from developments and buildings	Ensuring that Smoke Control Areas (SCA) are appropriately identified and fully promoted	Ongoing. Smoke Control Area website information updated for better clarity and ease of use. Residents and developers informed of wood burning stove requirements either on request or via a link to the Defra web page from the Bromley Council website.
8	Reducing Emissions from developments and buildings	Deliver energy efficiency retrofitting projects in workplaces and homes through EFL retrofit programmes such as RE:NEW, RE:FIT and through borough carbon offset funds to replace old boilers /top-up lost insulation in combination with other energy conservation Measures.	Ongoing.
8A	Reducing Emissions from developments and buildings	Promoting and delivering energy efficiency projects in council buildings – leading by example	Ongoing.
8B	Reducing Emissions from developments and buildings	Update local authority procurement policies to reduce pollution from logistics and servicing, and to maximise air pollution benefits	Ongoing.
9	Reducing Emissions from developments and buildings	Ensure master planning and redevelopment areas are aligned with Air Quality Positive and Healthy Street approaches.	Ongoing.
10	Public Health and Awareness Raising	Public Health department taking shared responsibility for borough air quality issues and supporting implementation of Air Quality Action Plans	Ongoing.
11	Public Health and Awareness Raising	Engagement with businesses. This could be linked to the engagement with town centre BIDS proposed in the final LIP to promote active and public transport options to their members, reducing pollution in town centres through mode shift	Ongoing.
12	Public Health and Awareness Raising	Promotion of availability of airTEXT	Ongoing.

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
13	Public Health and Awareness Raising	Encourage schools to join the TFLs STARS accredited travel planning programme by providing information on the benefits to schools and supporting the implementation of such a programme.	Ongoing. Projects & initiatives supported as appropriate. Bromley LIP3 subsequently published in 2019 with action taken to promote the initiatives outlined in the LIP3 documents. 2019 Bromley Schools STP (STARS) Accreditations Primary Secondary Gold 27% 19% Silver 29% 11% Bronze 25% 11% Not accredited 19% 58% 2020 accreditation status not available.
14	Public Health and Awareness Raising	Air quality in and around schools.	Ongoing. The Council will support and help promote the numerous initiatives as outlined in Bromley LIPS 2017 such as Bike Week, Walk to School Weeks, EU mobility week and the London Wide “Good going” campaign. The Council will additionally seek funding to implement an air quality awareness campaign at local schools that will dovetail with current schemes such as WOW (Walk on Wednesdays, Don’t stop to drop). This is yet to be implemented.
15	Reducing Emissions from Transport	Update local authority procurement policies to reduce pollution from logistics and servicing	Ongoing. Toolkit developed by Carbon Management team to appraise environmental and health concerns, including

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			air quality. The toolkit is primarily concerned with sustainability issues, but air quality is included as an environmental outcome that should be considered when procuring services and assets.
16	Reducing Emissions from Transport	Reducing emissions from deliveries to local businesses and residents	Ongoing.
17	Reducing Emissions from Transport	Reducing emissions from council fleets	Ongoing. In house driving training (Advanced motoring) provided to Council officers. The Council continues to educate staff driving on Council business about fuel efficient driving to minimise emissions and costs through its driver induction process, following the Driver's Code of Practice (LIP3). The pool car fleet will be hybrid by 2019/20 and non-ULEZ compliant vans will be withdrawn from service by 2021.
17A	Reducing Emissions from Transport	Staff Lease Car Scheme	Ongoing. Car Share scheme currently under consideration. Further work is required to liaise with colleagues working on LIP.
18	Localised Solutions	Expanding and improving Green infrastructure	Ongoing.
18A	Localised Solutions	Maintain and increase Council's green infrastructure	Ongoing.
19	Localised Solutions	Low Emission Neighbourhoods (LENs)	Ongoing.
19A	Localised Solutions	Provide waste and recycling collections specifically to reduce need for residents to make trips to Council Household Reuse and Recycling Centres	Ongoing.

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
19B	Localised Solutions	Reduce the Council's Environmental Services contractors transport to work emissions	Ongoing.
19C	Localised Solutions	Minimise dust generation at Council's Waste Transfer Stations	Ongoing.
19D	Localised Solutions	Reduce emissions from closed landfill site	Ongoing.
19E	Localised Solutions	Reduce arboriculture haulage movements	Ongoing.
20	Reducing Emissions from Transport	Ensure that Transport and Air Quality policies and projects are integrated.	Ongoing. Air Quality focus of traffic monitoring is being prioritised through collaboration between the Council Transport and Environmental Health teams. Environmental Health and Transport teams work together where resources permit to ensure air quality monitoring is undertaken at problem areas prior to any improvement works so the cost benefit analysis for improved AQ can be determined. AQ monitoring post works can then be utilised to support further prioritisation (and potential funding bids) based on health impacts for traffic improvement works in the borough.
21	Reducing Emissions from Transport	Discouraging unnecessary idling by taxis, coaches, and other vehicles	Ongoing. Council officers given powers to enforce idling restrictions. The MAQF anti-idling campaign rolled out during 2019.
22	Reducing Emissions from Transport	Temporary car free days.	Ongoing.
23	Reducing Emissions from Transport	Using parking policy to reduce pollution emissions.	Ongoing.
24	Reducing Emissions from Transport	Installation of Ultra-low Emission Vehicle (ULEV) infrastructure such as electric vehicle charging points,	Ongoing.

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
		rapid electric vehicle charging points and hydrogen refuelling stations	Charging point opportunities identified for developments built on Council land. Travel plans required for all new developments (highways and planning teams responsible).
25	Reducing Emissions from Transport	Provision of infrastructure to support walking and cycling and encourage mode shift away from private vehicle usage	Ongoing. Cycle to work scheme (financial support, bicycles provided to Council officers, showers provided in the workplace). Bikeability cycle training and bike maintenance courses offered to all Bromley Council employees (and residents of the borough).

4. Planning Update and Other New Sources of Emissions

Table J. Planning requirements met by planning applications in Bromley in 2020

Condition	Number
Number of planning applications where an air quality impact assessment was reviewed for air quality impacts	43
Number of planning applications required to monitor for construction dust	64
Number of CHPs/Biomass boilers refused on air quality grounds	0
Number of CHPs/Biomass boilers subject to GLA emissions limits and/or other restrictions to reduce emissions	0
Number of developments required to install Ultra-Low NO_x boilers	107
Number of developments where an AQ Neutral building and/or transport assessments undertaken	11
Number of developments where the AQ Neutral building and/or transport assessments not meeting the benchmark and so required to include additional mitigation	0
Number of planning applications with S106 agreements including other requirements to improve air quality	0
Number of planning applications with CIL payments that include a contribution to improve air quality	0
NRMM: Central Activity Zone and Canary Wharf Number of conditions related to NRMM included. Number of developments registered and compliant. Please include confirmation that you have checked that the development has been registered with the GLA through the relevant NRMM website and that all NRMM used on-site is compliant with Stage IIIB of the Directive and/or exemptions to the policy.	N/A
NRMM: Greater London (excluding Central Activity Zone and Canary Wharf) Number of conditions related to NRMM included. Number of developments registered and compliant. Please include confirmation that you have checked that the development has been registered at www.nrmm.london and that all NRMM used on-site is compliant with Stage IIIA of the Directive and/or exemptions to the policy.	19 21 Audits. Of these; 5 sites work complete 3 sites no qualifying NRMM 1 site Self-compliant 9 sites compliant 3 sites non-compliant

4.1 New or significantly changed industrial or other sources

No new sources identified

Appendix A Details of Monitoring Site Quality QA/QC

A.1 Automatic Monitoring Sites

During 2020, the Harwood Avenue station was operated by the London Borough of Bromley. QA/QC procedures involve monthly maintenance and calibration visits by LB Bromley's local site operator, and regular service checks by instrument supplier EnviroTechnology. All data have been ratified according to Defra LAQM Technical Guidance standards.

PM_{10} Monitoring Adjustment

All PM_{10} monitoring data has been fully ratified. Prior to ratification, a fixed zero offset of 15 µg m^{-3} is removed from the raw PM_{10} concentration. The PM_{10} concentrations are then divided by 1.21 to make them equivalent to the reference method, following Defra guidance (LAQM.TG(16)).

A.2 Diffusion Tubes

Air proficiency testing (AIR-PT) is an independent analytical proficiency-testing scheme, operated by Laboratory of Government Chemists (LGC) Standards and supported by the Health and Safety Laboratory (HSL). AIR-PT is a new scheme, started in April 2014, which combines two long running PT schemes: LGC Standards Stack emission proficiency testing scheme and HSL Workplace Analysis Scheme for Proficiency scheme.

AIR NO2 PT forms an integral part of the UK NO_2 Network's QA/QC and is a useful tool in assessing the analytical performance of those laboratories supplying diffusion tubes to Local Authorities for use in the context of Local Air Quality Management (LAQM). Defra and the Devolved Administrations advise that diffusion tubes used for LAQM should be obtained from laboratories that have demonstrated satisfactory performance in the AIR-PT scheme.

The results for Gradko International were overall satisfactory as stated here. Gradko International scored 75% satisfactory results for all relevant AIR-PT rounds unless stated otherwise:

- AR036 (January-February 2020)
- AR037 (May-June 2020) – No results reported
- AR039 (July-August 2020) – No results reported

- AR040 (September-October 2020)

Rounds AR037 and AR039 were cancelled due to the COVID-19 pandemic

Bias Adjustment

Bias adjustment is effectively a calculated factor which shows whether diffusion tubes are overreading or under-reading ambient concentrations, and therefore allows for a correction to be made.

Factor from National Bias Adjustment

The national bias adjustment factor spreadsheet for 2020 is available from the Defra website. The results of multiple co-location studies are collated, and the average bias adjustment factor is taken for studies using the 20% TEA/water preparation method, analysed by Gradko. The national bias adjustment factor for 2020 is 0.81, based on 18 studies, details of which are shown in Figure A-1 below.

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/21

Follow the steps below in the correct order to show the results of relevant co-location studies
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet
This spreadhseet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated at the end of June 2021
LAQM Helpdesk Website

The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.

Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List
If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the Drop-Down List
If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down List
If a year is not shown, we have no data

Step 4: Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor shown in blue at the foot of the final column.

If you have your own co-location study then see footnote. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953

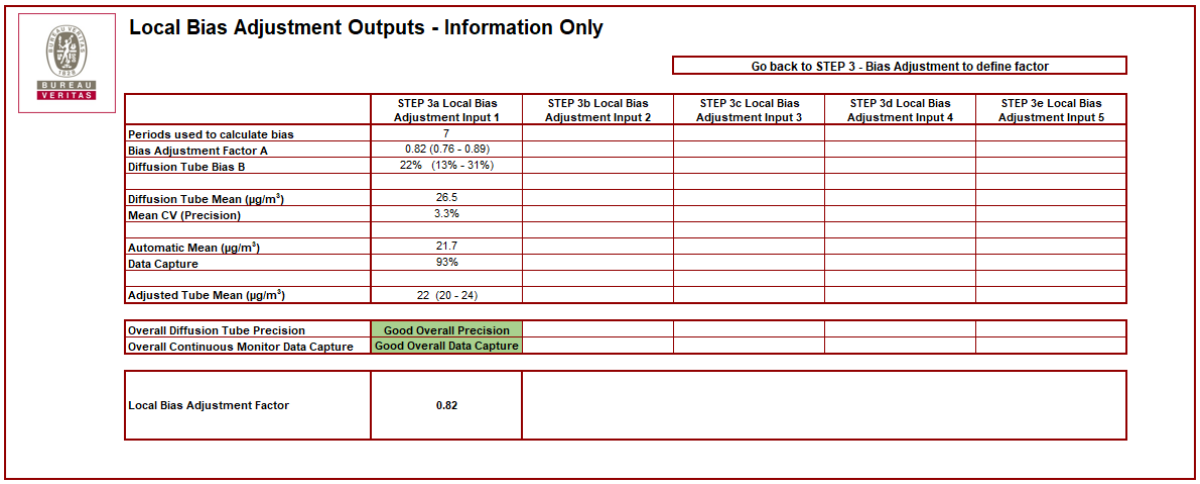
Analysed By	Method	Year	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	20% TEA in water	2020	R	Gedling Borough Council	10	31	25	24.1%	G	**0.81**
Gradko	20% TEA in water	2020	R	SOUTHAMPTON CITY COUNCIL	12	37	27	37.1%	G	**0.73**
Gradko	20% TEA in water	2020	R	Fareham Borough Council	10	25	14	77.4%	G	**0.56**
Gradko	20% TEA in water	2020	R	Fareham Borough Council	12	30	22	35.1%	G	**0.74**
Gradko	20% TEA in water	2020	R	Fareham Borough Council	10	22	17	26.5%	G	**0.79**
Gradko	20% TEA in water	2020	R	SOUTHAMPTON CITY COUNCIL	11	32	31	4.9%	G	**0.95**
Gradko	20% TEA in water	2020	KS	Marylebone Road Intercomparison	12	57	43	33.3%	G	**0.75**
Gradko	20% TEA in water	2020	R	Bath & North East Somerset	11	32	29	13.0%	G	**0.89**
Gradko	20% TEA in water	2020	R	Gateshead Council	12	22	17	28.1%	G	**0.78**
Gradko	20% TEA in water	2020	R	Gateshead Council	12	23	21	11.6%	G	**0.90**
Gradko	20% TEA in water	2020	R	Gateshead Council	10	26	25	6.5%	G	**0.94**
Gradko	20% TEA in water	2020	R	Gateshead Council	12	28	21	30.5%	G	**0.77**
Gradko	20% TEA in water	2020	R	Gateshead Council	12	31	32	-3.4%	G	**1.03**
Gradko	20% TEA in water	2020	R	Luton Borough Council	9	38	28	33.8%	G	**0.75**
Gradko	20% TEA in water	2020	R	Nottingham City Council	12	31	34	-8.5%	G	**1.09**
Gradko	20% TEA in water	2020	R	Dudley MBC	13	33	28	19.9%	G	**0.83**
Gradko	20% TEA in water	2020	UB	Dudley MBC	13	23	14	61.2%	G	**0.62**
Gradko	20% TEA in water	2020	R	Dudley MBC	13	44	34	30.6%	G	**0.77**
Gradko	20% TEA in water	2020		**Overall Factor (18 studies)**				**Use**		**0.81**

Figure A-1: National Bias Adjustment Factor Spreadsheet

Factor from Local Co-location Studies

LB Bromley carries out a co-location study at the Harwood Avenue continuous monitor. In 2020, this co-location site was used to derive a local bias adjustment factor for diffusion tubes of 0.82, as detailed in Figure A-2.

The calculation of local bias adjustment factors takes into account both data capture from diffusion tubes and continuous monitors, and also the coefficient of variation (CV) of the triplicate diffusion tubes. If the CV is too high for a particular period, that period is not taken into account when calculating the local bias adjustment factor.



Local Bias Adjustment Outputs - Information Only

Go back to STEP 3 - Bias Adjustment to define factor

	STEP 3a Local Bias Adjustment Input 1	STEP 3b Local Bias Adjustment Input 2	STEP 3c Local Bias Adjustment Input 3	STEP 3d Local Bias Adjustment Input 4	STEP 3e Local Bias Adjustment Input 5
Periods used to calculate bias	7				
Bias Adjustment Factor A	0.82 (0.76 - 0.89)				
Diffusion Tube Bias B	22% (13% - 31%)				
Diffusion Tube Mean (µg/m³)	26.5				
Mean CV (Precision)	3.3%				
Automatic Mean (µg/m³)	21.7				
Data Capture	93%				
Adjusted Tube Mean (µg/m³)	22 (20 - 24)				

Overall Diffusion Tube Precision	Good Overall Precision				
Overall Continuous Monitor Data Capture	Good Overall Data Capture				

Local Bias Adjustment Factor	0.82	

Figure A-2: Local Bias Adjustment Factor Spreadsheet

Discussion of Choice of Factor to Use

In 2020, it was decided to use the local bias adjustment factor (0.82) rather than the national bias adjustment factor (0.81), as the local bias adjustment factor is slightly higher than the national factor and therefore represents a more conservative choice.

The local bias adjustment factor for 2020 is slightly lower than bias adjustment factors used by LB Bromley in recent years. The bias adjustment factors used for LAQM for the last five years are as follows:

Table K. Bias Adjustment Factor

Year	Local or National	If Local, Version of National Spreadsheet	Adjustment Factor
2020	Local	-	0.82
2019	National	03/20	0.93
2018	National	03/19	0.93
2017	National	06/18	0.87
2016	National	03/17 v2	0.94
2015	National	06/16	0.88

A.3 Adjustments to the Ratified Monitoring Data

Short-term to Long-term Data Adjustment

Due to the restrictions imposed during the national lockdown in 2020 as a response to the COVID-19 pandemic, there are gaps in the NO_2 diffusion tube results for all locations. All diffusion tube results have therefore been annualised using the Diffusion_tube_data_processing_Tool_v1.0 (available from: https://laqm.defra.gov.uk/tools-monitoring-data/dtdp.html)

The results of the annualisation process are shown in Table L.

Distance Adjustment

The monitoring sites that have been bias adjusted and shown to be with 10% of the NO_2 annual objective of 40 µg m^{-3} (i.e. above 36 µg m^{-3}) or above should be accounted for the inherent uncertainty in diffusion tube monitoring concentration data as advised in the LAQM technical guidance produce by Defra (LAQM.TG(16)).

All sites above the threshold (Elmers End Road, as seen in previous reports) are considered not representative of relevant exposure, and for reference, the distance-corrected annual mean NO_2 concentrations are shown below. It has been decided not to present this concentration in the main report in order to maintain consistency with previous LAQM reports.

The local annual mean background concentrations in 2020 from the Defra 2018-based background maps (Defra, *Background Mapping data for local authorities - 2018*) have been used for the calculation.

Table L. Short-Term to Long-Term Monitoring Data Adjustment

Site ID	Annualisation Factor CR5	Annualisation Factor HP1	Annualisation Factor LB6	Average Annualisation Factor	Raw Data Annual Mean (µg m^{-3})	Annualised Annual Mean (µg m^{-3})	Comments
DT 1	0.9890	0.9210	0.9661	0.9587	-	-	Triplicate Site with DT 1, DT 2 and DT 3 - Annual data provided for DT 3 only
DT 2	0.9890	0.9210	0.9661	0.9587	-	-	Triplicate Site with DT 1, DT 2 and DT 3 - Annual data provided for DT 3 only
DT 3	0.9890	0.9210	0.9661	0.9587	50.2	48.2	Triplicate Site with DT 1, DT 2 and DT 3 - Annual data provided for DT 3 only
DT 4	0.9890	0.9210	0.9661	0.9587	-	-	Triplicate Site with DT 4, DT 5 and DT 6 - Annual data provided for DT 6 only
DT 5	0.9890	0.9210	0.9661	0.9587	-	-	Triplicate Site with DT 4, DT 5 and DT 6 - Annual data provided for DT 6 only
DT 6	0.9890	0.9210	0.9661	0.9587	35.3	33.8	Triplicate Site with DT 4, DT 5 and DT 6 - Annual data provided for DT 6 only
DT 7	0.9890	0.9210	0.9661	0.9587	-	-	Triplicate Site with DT 7, DT 8 and DT 9 - Annual data provided for DT 9 only
DT 8	0.9890	0.9210	0.9661	0.9587	-	-	Triplicate Site with DT 7, DT 8 and DT 9 - Annual data provided for DT 9 only
DT 9	0.9890	0.9210	0.9661	0.9587	35.2	33.8	Triplicate Site with DT 7, DT 8 and DT 9 - Annual data provided for DT 9 only
DT 10	0.9890	0.9210	0.9661	0.9587	-	-	Triplicate Site with DT 10, DT 11 and DT 12 - Annual data provided for DT 12 only

Site ID	Annualisation Factor CR5	Annualisation Factor HP1	Annualisation Factor LB6	Average Annualisation Factor	Raw Data Annual Mean (µg m^{-3})	Annualised Annual Mean (µg m^{-3})	Comments
DT 11	0.9890	0.9210	0.9661	0.9587	-	-	Triplicate Site with DT 10, DT 11 and DT 12 - Annual data provided for DT 12 only
DT 12	0.9890	0.9210	0.9661	0.9587	39.3	37.7	Triplicate Site with DT 10, DT 11 and DT 12 - Annual data provided for DT 12 only
DT 13	0.9890	0.9210	0.9661	0.9587	-	-	Triplicate Site with DT 13, DT 14 and DT 15 - Annual data provided for DT 15 only
DT 14	0.9890	0.9210	0.9661	0.9587	-	-	Triplicate Site with DT 13, DT 14 and DT 15 - Annual data provided for DT 15 only
DT 15	0.9890	0.9210	0.9661	0.9587	32.7	31.4	Triplicate Site with DT 13, DT 14 and DT 15 - Annual data provided for DT 15 only
DT 16	0.9890	0.9210	0.9661	0.9587	-	-	Triplicate Site with DT 16, DT 17 and DT 18 - Annual data provided for DT 18 only
DT 17	0.9890	0.9210	0.9661	0.9587	-	-	Triplicate Site with DT 16, DT 17 and DT 18 - Annual data provided for DT 18 only
DT 18	0.9890	0.9210	0.9661	0.9587	37.3	35.7	Triplicate Site with DT 16, DT 17 and DT 18 - Annual data provided for DT 18 only
DT 19	0.9890	0.9210	0.9661	0.9587	-	-	Triplicate Site with DT 19, DT 20 and DT 27 - Annual data provided for DT 27 only
DT 20	0.9890	0.9210	0.9661	0.9587	-	-	Triplicate Site with DT 19, DT 20 and DT 27 - Annual data provided for DT 27 only
DT 21	0.9890	0.9210	0.9661	0.9587	-	-	Triplicate Site with DT 21, DT 25 and DT 26 - Annual data provided for DT 26 only

Site ID	Annualisation Factor CR5	Annualisation Factor HP1	Annualisation Factor LB6	Average Annualisation Factor	Raw Data Annual Mean (µg m^{-3})	Annualised Annual Mean (µg m^{-3})	Comments
DT 22	0.9890	0.9210	0.9661	0.9587	-	-	Triplicate Site with DT 22, DT 23 and DT 24 - Annual data provided for DT 24 only
DT 23	0.9890	0.9210	0.9661	0.9587	-	-	Triplicate Site with DT 22, DT 23 and DT 24 - Annual data provided for DT 24 only
DT 24	0.9890	0.9210	0.9661	0.9587	35.5	34.0	Triplicate Site with DT 22, DT 23 and DT 24 - Annual data provided for DT 24 only
DT 25	0.9890	0.9210	0.9661	0.9587	-	-	Triplicate Site with DT 21, DT 25 and DT 26 - Annual data provided for DT 26 only
DT 26	0.9890	0.9210	0.9661	0.9587	44.6	42.8	Triplicate Site with DT 21, DT 25 and DT 26 - Annual data provided for DT 26 only
DT 27	0.9890	0.9210	0.9661	0.9587	36.4	34.9	Triplicate Site with DT 19, DT 20 and DT 27 - Annual data provided for DT 27 only
DT 28	0.9890	0.9210	0.9661	0.9587	-	-	Triplicate Site with DT 28, DT 29 and DT 30 - Annual data provided for DT 30 only
DT 29	0.9890	0.9210	0.9661	0.9587	-	-	Triplicate Site with DT 28, DT 29 and DT 30 - Annual data provided for DT 30 only
DT 30	0.9890	0.9210	0.9661	0.9587	27.2	26.1	Triplicate Site with DT 28, DT 29 and DT 30 - Annual data provided for DT 30 only

Site ID	Annualisation Factor CR8	Annualisation Factor HP1	Annualisation Factor GR4	Average Annualisation Factor	Raw Data Annual Mean (µg m^{-3})	Annualised Annual Mean (µg m^{-3})	Comments
BRY-CM3	1.129	1.054	1.007	1.063	7.96	8.46	$PM_{2.5}$ Annualisation

Table M. NO_2 Fall off With Distance Calculations

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted (µg m^{-3})	Background Concentration (µg m^{-3})	Concentration Predicted at Receptor (µg m^{-3})	Comments
DT1, DT2, DT3	1.0	5.0	39.5	18.0	32.5	None

Appendix B Full Monthly Diffusion Tube Results for 2020

Table N. NO_2 Diffusion Tube Results

Site ID	Site Name	Valid data capture for monitoring period %[a]	Valid data capture 2020 %[b]	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual mean – raw data	Annual mean – bias adjusted
Area 1	Elmers End Road	95	65.1	**59.9**	**55.1**	No data	No data	No data	No data	**42.5**	**48.9**	**56.4**	**48.4**	**48.4**	**43.8**	**50.2**	39.5
Area 3	Beckenham Lane	100	65.1	**44.7**	33.7	No data	No data	No data	No data	25.7	30.6	36.1	35.5	39.7	31.4	35.3	27.7
Area 4	London Road	95	65.1	**41.6**	32.2	No data	No data	No data	No data	26.4	30.7	No data	30.5	**41.8**	33.8	35.2	27.7
Area 5	Widmore Road	100	65.1	**42.8**	35.4	No data	No data	No data	No data	33.8	33.6	**45.5**	35.0	**43.1**	38.2	39.3	30.9
Area 6	College Road	100	65.1	38.0	28.1	No data	No data	No data	No data	22.9	31.0	35.9	27.9	39.2	31.6	32.7	25.7
Area 13	Homesdale Road	100	65.1	38.5	33.6	No data	No data	No data	No data	31.9	36.4	**45.1**	30.5	**44.7**	32.6	37.3	29.3
Area 14	Anerley Hill	100	65.1	**52.8**	**40.5**	No data	No data	No data	No data	35.0	**43.2**	**46.4**	**40.5**	**49.2**	**44.5**	**44.6**	35.1
Area 15	Anerley Road	100	65.1	**41.4**	33.0	No data	No data	No data	No data	28.1	32.8	39.5	34.0	**44.7**	38.0	35.5	27.9
Area 16	Beckenham Road	100	65.1	**44.8**	30.6	No data	No data	No data	No data	29.0	32.6	**42.3**	33.9	**40.6**	33.6	36.4	28.6
Area 17	Harwood Avenue	100	65.1	31.8	27.5	No data	No data	No data	No data	20.4	22.6	27.7	26.9	34.6	29.3	27.2	21.4

Notes

Concentrations are presented as µg m^{-3}.

Exceedances of the NO_2 annual mean AQO of 40 µg m^{-3} are shown in **bold**.

NO_2 annual means in excess of 60 µg m^{-3}, indicating a potential exceedance of the NO_2 hourly mean AQS objective are shown in **bold and underlined**.

All means have been "annualised" in accordance with LLAQM Technical Guidance if valid data capture for the calendar year is less than 75% and greater than 33%.

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

(b) data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

Site Name	Valid data capture for monitoring period %[a]	Valid data capture 2020 %[b]	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual mean – raw data	Annual mean – bias adjusted
1- Elmers End Road	100	67	59.9	51.5	No data	No data	No data	No data	40.2	50.8	59.2	49.0	50.8	43.2	-	-
2- Elmers End Road	86	50	-	49.2	No data	No data	No data	No data	37.4	48.6	No data	44.2	55.2	45.6	-	-
3- Elmers End Road	100	58	-	55.1	No data	No data	No data	No data	42.5	48.9	56.4	48.4	48.4	43.8	50.2	39.5
1- Beckenham Lane	100	67	44.7	35.3	No data	No data	No data	No data	27.6	32.2	38.4	35.4	42.2	33.3	-	-
2- Beckenham Lane	100	58	-	38.6	No data	No data	No data	No data	24.5	32.3	38.2	33.8	38.7	29.2	-	-
3- Beckenham Lane	100	58	-	33.7	No data	No data	No data	No data	25.7	30.6	36.1	35.5	39.7	31.4	35.3	27.7
1- London Road	100	67	41.6	29.1	No data	No data	No data	No data	26.2	34.3	41.1	34.3	40.7	31.6	-	-
2- London Road	100	58	-	32.8	No data	No data	No data	No data	25.5	31.7	40.4	35.1	46.3	31.9	-	-
3- London Road	86	50	-	32.2	No data	No data	No data	No data	26.4	30.7		30.5	41.8	33.8	35.2	27.7

1- Widmore Road	100	67	42.8	39.8	No data	No data	No data	No data	34.6	36.2	45.6	40.1	45.8	36.9	-	-
2- Widmore Road	100	58	-	37.8	No data	No data	No data	No data	31.4	36.4	45.2	37.0	43.5	40.1	-	-
3- Widmore Road	100	58	-	35.4	No data	No data	No data	No data	33.8	33.6	45.5	35.0	43.1	38.2	39.3	30.9
1- College Road	100	67	38.0	32.1	No data	No data	No data	No data	24.5	30.2	37.0	31.6	43.9	32.0	-	-
2- College Road	100	58	-	30.6	No data	No data	No data	No data	22.6	30.8	35.5	27.6	41.0	31.1	-	-
3- College Road	100	58	-	28.1	No data	No data	No data	No data	22.9	31.0	35.9	27.9	39.2	31.6	32.7	25.7
1- Homesdale Road	100	67	38.5	36.2	No data	No data	No data	No data	32.3	35.2	46.6	36.0	43.4	32.5	-	-
2- Homesdale Road	100	58	-	34.1	No data	No data	No data	No data	32.0	36.1	44.8	33.6	43.8	33.8	-	-
3- Homesdale Road	100	58	-	33.6	No data	No data	No data	No data	31.9	36.4	45.1	30.5	44.7	32.6	37.3	29.3
1- Anerley Hill	100	67	52.8	42.8	No data	No data	No data	No data	37.8	40.9	48.5	39.4	50.2	58.2	-	-
2- Anerley Hill	100	58	-	38.6	No data	No data	No data	No data	34.5	38.5	46.4	41.2	53.5	42.8	-	-
3- Anerley Hill	100	58	-	40.5	No data	No data	No data	No data	35.0	43.2	46.4	40.5	49.2	44.5	44.6	35.1
1- Anerley Road	100	67	41.4	29.8	No data	No data	No data	No data	26.6	33.8	38.9	31.6	40.6	34.0	-	-
2- Anerley Road	100	58	-	33.5	No data	No data	No data	No data	27.3	30.3	39.4	32.8	40.5	37.0	-	-
3- Anerley Road	100	58	-	33.0	No data	No data	No data	No data	28.1	32.8	39.5	34.0	44.7	38.0	35.5	27.9
1- Beckenham Road	100	67	44.8	34.2	No data	No data	No data	No data	25.8	31.4	40.6	33.0	42.7	31.9	-	-
2- Beckenham Road	100	58	-	32.0	No data	No data	No data	No data	30.5	33.6	43.8	34.2	45.1	35.9	-	-

3- Beckenham Road	100	58	-	30.6	No data	No data	No data	No data	29.0	32.6	42.3	33.9	40.6	33.6	36.4	28.6
1- Harwood Avenue	100	67	31.8	28.0	No data	No data	No data	No data	20.9	22.2	27.2	26.0	34.4	28.8	-	-
2- Harwood Avenue	100	58	-	28.6	No data	No data	No data	No data	20.0	21.2	25.1	24.9	31.9	28.3	-	-
3- Harwood Avenue	100	58	-	27.5	No data	No data	No data	No data	20.4	22.6	27.7	26.9	34.6	29.3	27.2	21.4

During January, only a single diffusion tube was situated at each monitoring location due to a possible change to a single tube at a greater number of locations. This was subsequently cancelled, and each monitoring location reverted to a triplicate site for the remainder of the year.