London Borough of Ealing Air Quality Annual Status Report for 2024

Date of publication: June 2025

This report provides a detailed overview of air quality in the London Borough of Ealing during 2024. It has been produced to meet the requirements of the London Local Air Quality Management (LLAQM) statutory process[1].

Contact details:

Air Quality Officer: Sneha Patil

Department: Regulatory Services

Address: London Borough of Ealing

Perceval House

14-16 Uxbridge Road

London W5 2HL

E-mail: Pollution-Technical@ealing.gov.uk

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

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Abbreviations

Abbreviation	Description
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQO	Air Quality Objective
AQG	Air Quality Guidelines
AQS	Air Quality Strategy
AURN	Automatic Urban and Rural Network
BAM	Beta Attenuation Monitor
CHP	Combined Heat and Power
COP26	Conference of the Parties (2021 United Nations Climate Change Conference)
CV	Coefficient of Variation
CYP	Children and Young People
DPD	Development Plan Document
DPH	Department of Public Health
EA	Environment Agency
EV	Electric Vehicle
FDMS	Filter Dynamics Measurement System
GLA	Greater London Authority
HPF	Health Protection Forum
HSL	Health and Safety Laboratory
JSNA	Joint Strategic Needs Assessment
LAQM	Local Air Quality Management
LAQN	London Air Quality Network
LBE	London Borough of Ealing
LES	Low Emission Strategy
LLAQM	London Local Air Quality Management
MAQF	Mayor's Air Quality Fund
NHS	National Health Service

Abbreviation	Description
NO_2	Nitrogen dioxide
NOx	Nitrogen oxides
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
QA/QC	Quality assurance and quality control.
STARS	Sustainable Travel: Active, Responsible, Safe
TEOM	Tapered Element Oscillating Microbalance
TfL	Transport for London
VCM	Volatile Correction Model
WHO	World Health Organisation

Table A. Summary of National Air Quality and International Standards, Objectives and Guidelines

Pollutant	Standard / Objective / Guideline	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
Nitrogen dioxide (NO_2)	40 µg m^{-3}	Annual mean	31 Dec 2005
Nitrogen dioxide (NO_2)	WHO AQG[2]: 10 µg m^{-3}	Annual mean	
Particles (PM_{10})	50 µg m^{-3} not to be exceeded more than 35 times a year	24-hour mean	31 Dec 2004
Particles (PM_{10})	WHO AQG[2]: 45 µg m^{-3} not to be exceeded more than 3-4 times a year	24-hour mean	
Particles (PM_{10})	40 µg m^{-3}	Annual mean	31 Dec 2004
Particles (PM_{10})	WHO AQG[2]: 15 µg m^{-3}	Annual mean	
Particles ($PM_{2.5}$)	10 µg m^{-3}[3]	Annual mean	2040
Particles ($PM_{2.5}$)	London Mayoral Objective[4]: 10 µg m^{-3}	Annual mean	2030
Particles ($PM_{2.5}$)	WHO AQG[2]: 5 µg m^{-3}	Annual mean	
Particles ($PM_{2.5}$)	Target of 15% reduction in concentration at urban background locations	3-year mean	Between 2010 and 2021
Particles ($PM_{2.5}$)	WHO AQG[2]: 15 µg m^{-3}	24-hour mean	
Sulphur dioxide (SO_2)	266 µg m^{-3} not to be exceeded more than 35 times a year	15-minute mean	31 Dec 2005
Sulphur dioxide (SO_2)	350 µg m^{-3} not to be exceeded more than 24 times a year	1-hour mean	31 Dec 2004
Sulphur dioxide (SO_2)	125 µg m^{-3} mot to be exceeded more than 3 times a year	24-hour mean	31 Dec 2004
Sulphur dioxide (SO_2)	WHO AQG[2]: 40 µg m^{-3} not to be exceeded more than 3-4 times a year	24-hour mean	

Notes:

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

(2) 2021 World Health Organisation Air Quality Guidelines

(3) Environmental Target Regulations under the Environment Act 2021

(4) London Mayoral Objective

1.   Air Quality Monitoring

1.1   Locations

In 2024, four automatic monitoring stations were operational in the London Borough of Ealing as part of the London Air Quality Network (LAQN). These include Ealing Acton Vale, an urban background site, two roadside sites (Ealing Hanger Lane Gyratory and Ealing Western Avenue) and one industrial site (Ealing Horn Lane). Two different PM_{10} analysers are active at the Horn Lane monitoring station, a TEOM and a BAM. Consistent with the LAQN classification, data from the two instruments are reported as two separate stations (EA8 Horn Lane and EI8 Horn Lane TEOM). Site EA010 Ealing Green Quarter was decommissioned in December 2023 and has not been reported in this ASR.

Details of the relevant Quality Assurance/Quality Control (QA/QC) procedures that were followed during the monitoring are provided in Appendix A. Figure N in Appendix C and Table B provide details of the automatic monitoring sites located in the Borough. All the currently operational automatic monitoring sites measure nitrogen dioxide (NO_2) and Particulate Matter (PM_{10}).

Table B. Details of Automatic Monitoring Sites for 2024

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Inlet Height (m)
EA6 Hanger Lane Gyratory	Hanger Lane Gyratory	Roadside	518537	182708	NO_2, PM_{10}	Y	Ealing	Chemiluminescence, TEOM	4	3	2.0
EA8 Horn Lane	Horn Lane	Industrial	520432	181428	NO_2, PM_{10}	Y	Ealing	Chemiluminescence, PM_{10} by BAM	8	2.5	1.8
EI8 Horn Lane	Horn Lane	Industrial	520432	181428	PM_{10}	Y	Ealing	TEOM	8	2.5	1.8
EI1 Western Avenue	Western Avenue	Roadside	520430	181950	NO_2, PM_{10}	Y	Ealing	Chemiluminescence, TEOM	4	4	2.0
EI3 Acton Vale	Acton Vale	Urban Background	521134	179771	NO_2, PM_{10}	Y	Ealing	Chemiluminescence, PM_{10} by FDMS	N/A	N/A	2.55

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

During 2024, the London Borough of Ealing also monitored annual mean NO_2 concentrations using a network of 66 passive diffusion tubes across 60 locations at a time[2]. There are three triplicate diffusion tube sites, co-located with three of the automatic air quality monitoring stations. Figure M in Appendix C and Table C provide details of the diffusion tube sites operated within the borough during 2024.

In 2024, there were minor changes to the diffusion tube network. A total of seven sites were relocated, two of which were relocated twice during the latter part of the year. These sites had previously been moved from drainpipes on house facades to nearby lampposts due to access requirements, they have now been moved back to their original positions on the drainpipes. These changes generally do not significantly change exposure and therefore do not affect monitoring concentrations, with the exception of EA53. EA53 was relocated in 2023, which saw the concentrations change drastically after being relocated. As such the location before and after relocation are considered to be separate sites and have been addressed as EA53 and EA53b accordingly, this is discussed further in Section 1.2. EA53b was decommissioned at the end of 2024 and returned to the original EA53 site. All of these changes are outlined in Table C with new coordinates reported where relevant.

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[2] There were 61 different monitoring locations during 2024 due to EA53 relocation to EA53b.

Table C. Details of Non-Automatic Monitoring Sites for 2024

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube Co-located with a Continuous Analyser?	Tube Height (m)
EA1	2 Horsenden Lane South, Greenford, UB6 8AB	Roadside	516368	182978	NO_2	Y- Ealing	0.0	5.0	No	2-2.5
EA2	1 Kirn Road, West Ealing, W13 0UB	Roadside	516704	180487	NO_2	Y- Ealing	0.0	7.0	No	2-2.5
EA3	Brent Lodge Park, Church Road, Hanwell, W7 3BP	Background	514740	180643	NO_2	Y- Ealing	0.0	30.0	No	2-2.5
EA4	74a Greenford Avenue, Hanwell, W7 3QS	Roadside	515451	180894	NO_2	Y- Ealing	0.0	5.0	No	2-2.5
EA5	Boston Parade, 19 Boston Road, Hanwell, W7 2AN	Roadside	516281	178879	NO_2	Y- Ealing	0.0	15.0	No	2-2.5
EA6	200 Uxbridge Road, Hanwell, W7 3TB	Roadside	515180	180111	NO_2	Y- Ealing	0.0	3.3	No	2-2.5
EA7	2 St Marys Avenue South, Southall, UB2 4LS	Roadside	513476	178561	NO_2	Y- Ealing	0.0	12.0	No	2-2.5
EA8	55 King Street, Southall, UB2 4DQ	Roadside	512341	179186	NO_2	Y- Ealing	0.0	3.3	No	2-2.5
EA9	18 Western Road, Southall, UB2 5DU	Roadside	512181	179219	NO_2	Y- Ealing	0.0	7.5	No	2-2.5
EA10	150 Brent Road, Southall, UB2 5LD	Roadside	511172	179241	NO_2	Y- Ealing	0.0	8.0	No	2-2.5
EA11	2 Merrick Road, Southall, UB2 4AU	Roadside	512657	179706	NO_2	Y- Ealing	0.0	12.0	No	2-2.5
EA12	Hambrough Primary School	Roadside	512673	180069	NO_2	Y- Ealing	0.0	10.0	No	2-2.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube Co-located with a Continuous Analyser?	Tube Height (m)
EA13	11 The Broadway, Southall, UB1 3PX	Roadside	512768	180400	NO_2	Y- Ealing	0.0	4.0	No	2-2.5
EA14	25 Lady Margaret Road, Southall, UB1 2RA	Roadside	512812	180516	NO_2	Y- Ealing	0.0	6.3	No	2-2.5
EA15	213 Church Road, Northolt, UB5 5BE	Roadside	512442	183769	NO_2	Y- Ealing	0.0	12.4	No	2-2.5
EA16	31 Mandeville Road, Northolt, UB5 5HF	Roadside	513056	184241	NO_2	Y- Ealing	0.0	9.0	No	2-2.5
EA17	126 Petts Hill, Northolt, UB5 4NW	Roadside	513794	185348	NO_2	Y- Ealing	0.0	9.0	No	2-2.5
EA18	1504 Greenford Road, Greenford, UB6 0HR	Roadside	515402	185313	NO_2	Y- Ealing	0.0	5.3	No	2-2.5
EA19	914 Greenford Road, Greenford, UB6 8QN	Roadside	514985	183770	NO_2	Y- Ealing	0.0	3.3	No	2-2.5
EA20	6 Karoline Gardens, Greenford, UB6 9JP	Roadside	514691	183269	NO_2	Y- Ealing	0.0	9.1	No	2-2.5
EA21	12 Blenheim Close, Greenford, UB6 8ET	Roadside	514882	183102	NO_2	Y- Ealing	0.0	20.0	No	2-2.5
EA22	18 Runnymede Gardens, Greenford, UB6 8SX	Roadside	515250	183093	NO_2	Y- Ealing	0.0	4.5	No	2-2.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube Co-located with a Continuous Analyser?	Tube Height (m)
EA23	158 South Ealing Road, Ealing, W5 4QL	Roadside	517694	179045	NO_2	Y- Ealing	0.0	3.5	No	2-2.5
EA24	213 Northfields Ave, West Ealing, W13 9QU	Roadside	517045	179292	NO_2	Y- Ealing	0.0	5.2	No	2-2.5
EA25	12 Bond Street, Ealing, W5 5AP	Roadside	517644	180613	NO_2	Y- Ealing	0.0	2.7	No	2-2.5
EA26	8 Spring Bridge Road, Ealing, W5 2AA	Roadside	517745	180826	NO_2	Y- Ealing	0.0	3.0	No	2-2.5
EA27	21 Haven Lane, Ealing, W5 2HZ	Roadside	518022	181114	NO_2	Y- Ealing	0.0	2.4	No	2-2.5
EA28	41-42 Haven Green, Ealing, W5 2NX	Roadside	517909	180971	NO_2	Y- Ealing	0.0	3.0	No	2-2.5
EA29	64 Hanger Lane, Ealing, W5 2JH	Roadside	518635	181288	NO_2	Y- Ealing	0.0	0.7	No	2-2.5
EA30, EA31, EA32	Fernlea House	Roadside	518541	182707	NO_2	Y- Ealing	0.0	4.0	Yes	2-2.5
EA33	25 Waverley Gardens, Park Royal, NW10 7EX	Roadside	518673	182982	NO_2	Y- Ealing	6.0	1.8	No	2-2.5
EA34	3 Iveagh Terrace, Park Royal, NW10 7SY	Roadside	519126	183383	NO_2	Y- Ealing	4.0	33.0	No	2-2.5
EA35	5 Wendover Court, Western Avenue, Acton, W3 0TG	Roadside	520020	182180	NO_2	Y- Ealing	0.0	11.0	No	2-2.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube Co-located with a Continuous Analyser?	Tube Height (m)
EA36, EA37, EA38	322 & 324 Western Avenue	Roadside	520430	181950	NO_2	Y- Ealing	3.5	5.0	Yes	2-2.5
EA39	326 Western Avenue, Acton, W3 0PL	Roadside	520426	181958	NO_2	Y- Ealing	0.0	11.4	No	2-2.5
EA40	94 North Acton Road, Park Royal, NW10 7AY	Roadside	520782	182771	NO_2	Y- Ealing	0.0	8.0	No	2-2.5
EA41	1 Shaftesbury Gardens, Park Royal, NW10 6LJ	Roadside	521312	182366	NO_2	Y- Ealing	0.0	10.0	No	2-2.5
EA42	39 Old Oak Lane, Park Royal, NW10 6EJ	Roadside	521587	182685	NO_2	Y- Ealing	0.0	5.0	No	2-2.5
EA43	161 Wells House Road, Park Royal, NW10 6EA	Roadside	521303	182056	NO_2	Y- Ealing	6.5	3.0	No	2-2.5
EA44	4 St Andrews Road, Acton, W3 7NE	Roadside	521389	180953	NO_2	Y- Ealing	0.0	8.6	No	2-2.5
EA45	98 Western Avenue, Acton, W3 7TZ	Roadside	521173	180981	NO_2	Y- Ealing	0.0	10.0	No	2-2.5
EA46	6 Western Avenue, Acton, W3 7UD	Roadside	521549	180923	NO_2	Y- Ealing	0.0	4.6	No	2-2.5
EA47	71 Old Oak Common Lane, Acton, W3 7DD	Roadside	521557	180996	NO_2	Y- Ealing	0.0	11.0	No	2-2.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube Co-located with a Continuous Analyser?	Tube Height (m)
EA48	205 Old Oak Road, Acton, W3 7HH	Roadside	521614	180852	NO_2	Y- Ealing	0.0	4.7	No	2-2.5
EA49	17 The Vale, Acton, W3 7SH	Roadside	521720	180084	NO_2	Y- Ealing	0.0	5.0	No	2-2.5
EA50	3 Warple Way, Acton, W3 0RH	Roadside	521088	180046	NO_2	Y- Ealing	0.0	2.2	No	2-2.5
EA51	88 High Street, Acton, W3 6QX	Roadside	520285	180075	NO_2	Y- Ealing	0.0	5.0	No	2-2.5
EA52	15a Church Road, Acton, W3 8QE	Roadside	520092	180063	NO_2	Y- Ealing	0.0	10.0	No	2-2.5
EA53	182 High Street, Acton, W3 9NN	Roadside	520030	180141	NO_2	Y- Ealing	1.5	0.5	No	2-2.5
EA53b	182 High Street, Acton, W3 9NN	Roadside	520044	180125	NO_2	Y- Ealing	1.5	0.5	No	2-2.5
EA54	44 Acton Lane, Chiswick, W4 5ED	Roadside	520484	178847	NO_2	Y- Ealing	6.5	1.0	No	2-2.5
EA55	156 Horn Lane, Acton, W3 6PH	Roadside	520226	180947	NO_2	Y- Ealing	0.0	6.0	No	2-2.5
EA56, EA57, EA58	317 Horn Lane, Acton,W3 0BU (AQMS) (Tri)	Roadside	520432	181428	NO_2	Y- Ealing	8.0	2.5	Yes	2-2.5
EA59	5 Leamington Park, Acton, W3 6TJ	Roadside	520532	181517	NO_2	Y- Ealing	0.0	3.0	No	2-2.5
EA60	Lyra Court, Portal Way, Acton, W3 6DB	Roadside	520739	181824	NO_2	Y- Ealing	0.0	5.0	No	2-2.5
EA61	36 Wales Farm Road, Acton, W3 6UE	Roadside	520713	181592	NO_2	Y- Ealing	0.0	5.0	No	2-2.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube Co-located with a Continuous Analyser?	Tube Height (m)
EA62	30 Bengarth Road, Northolt, UB5 5LH	Roadside	512026	183762	NO_2	Y- Ealing	10.0	4.0	No	2-2.5
EA63	Greenway Gardens, Greenford, UB6 9TT	Roadside	513483	182686	NO_2	Y- Ealing	16.0	0.0	No	2-2.5
EA64	Greenford Business Centre,Greenford, UB6 9AP	Roadside	514378	182112	NO_2	Y- Ealing	12.0	0.0	No	2-2.5
EA65	31 Kennedy Road, Hanwell, W7 1JL	Roadside	515276	181990	NO_2	Y- Ealing	8.0	0.0	No	2-2.5
EA66	69 Oldfield Lane South, Greenford, UB6 9JT	Roadside	514521	182949	NO_2	Y- Ealing	7.0	0.0	No	2-2.5

Notes:

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

(2) N/A if not applicable.

1.2 Comparison of Monitoring Results with AQOs

The annual mean NO_2 concentration results from automatic monitoring stations since 2018 are presented in Table D. 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.

Data capture was excellent at Hanger Lane Gyratory, Horn Lane and Western Avenue (EA6, EA8, EI1) automatic monitors in 2024, with these three stations achieving data capture rates above 95% for NO_2. Due to ongoing technical issues with the monitor during there was no data available at Acton Vale (EI3) for the majority of 2024. The monitor was fixed in November and has been recording data since, however data capture is less than 25% and thus insufficient to undergo annualisation. As a result, the monitoring data at Acton Vale have not been reported for 2024.

There were no exceedances of the NO_2 annual mean objective of 40 µg m^{-3} observed in 2024. The latest exceedance was at the Hanger Lane Gyratory monitoring station in 2023 where it recorded an NO_2 concentration marginally above the objective (40.5 µg m^{-3}). Concentrations have since reduced to 36.5 µg m^{-3} in 2024, which continues the long-term downward trend observed at this location. Both Horn Lane and Western Avenue recorded NO_2 concentrations below the objective for the fifth year in a row and continue to show a downward trend. However, it should be noted that all the automatic monitoring locations were in exceedance of the annual mean WHO AQG of 10 µg m^{-3}.

Concentration values are those at the location of the monitoring site (bias adjusted and annualised, as required), not those following any fall-off with distance correction.

Table D. Annual Mean NO$_2$ Monitoring Results: Automatic Monitoring (µg m^{-3})

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid data capture for monitoring period %[a]	Valid data capture 2024 %[b]	2018	2019	2020	2021	2022	2023	2024
EA6 Hanger Lane Gyratory	518537	182708	Roadside	96.2	96.2	**<u>67.9</u>**	**<u>64.5</u>**	**51.0**	**49.4**	**51.5**	**40.5**	36.4
EA8 Horn Lane	520432	181428	Industrial	93.0	93.0	**43.9**	**41.8**	33.2	32.0	29.3	28.5	25.7
EI1 Western Avenue	520430	181950	Roadside	96.9	96.9	**47.7**	**48.6**	35.2	35.9	35.2	30.1	28.3
EI3 Acton Vale	521134	179771	Urban Background	13.2	13.2	29.0	26.5	19.7	21.0	20.6	-	-

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 **<u>bold and underlined</u>**.

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 25%.

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

(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 1 shows the trends in NO_2 concentrations at automatic monitoring sites in the borough for the period of 2018 – 2024. At automatic monitoring sites, a decreasing trend in NO_2 concentrations can be seen since 2015, albeit with some natural variations. There was a large reduction in 2020 due to the impacts of COVID-19 travel restrictions. Between 2020 and 2022, the trend has generally stabilised. All sites displayed decreases in 2024 from 2023 concentrations where data are available.

Figure 1. Annual Mean NO$_2$ Concentrations at Automatic Monitoring Sites
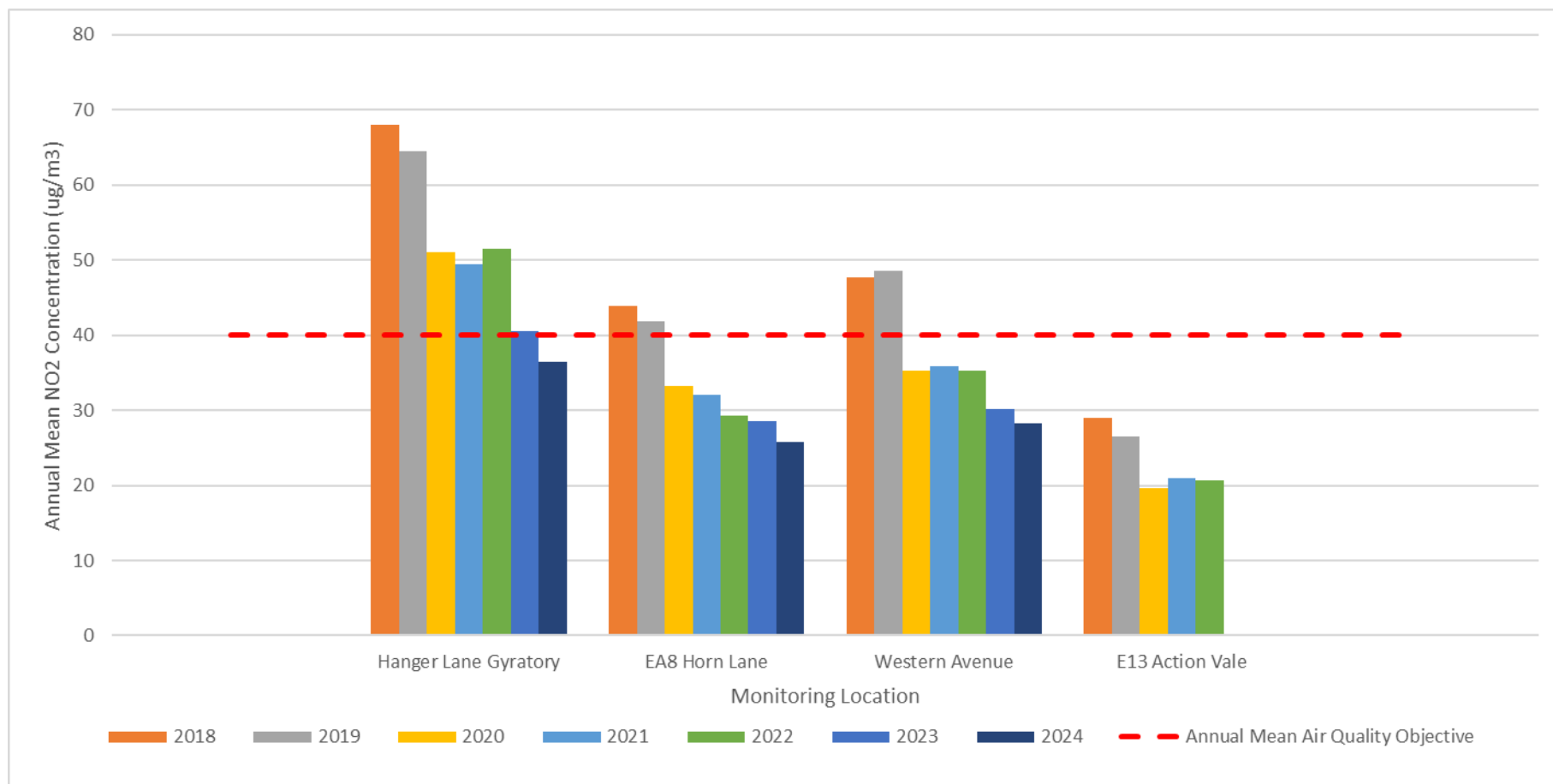
Data capture at most NO_2 diffusion tubes sites was good in 2024, with at least 9 months of valid data (i.e. 75% data capture or greater). EA53, EA53b, EA62, EA64 and EA65 were the only diffusion tube locations with poor data capture, with a data capture of 18.9%, 64.1%, 56.5%, 69.5% and 41.4% respectively. As the data capture for EA53 was less than 25%, it was insufficient for annualisation.

The annual mean NO_2 concentration results from diffusion tube monitoring locations since 2018 are presented in Table D. The results presented are after adjustments for "annualisation" but not for distance to a location of relevant public exposure (if required), the details of which are described in Appendix A.

Amongst the diffusion tubes, there were two exceedances of the NO_2 annual mean objective in 2024, at sites EA30-32 and EA53b. This is a reduction from 2023 where there were three exceedances at the same monitoring sites as well as EA46. EA30-32 is co-located with the automatic monitor on the Hanger Lane Gyratory. EA53b is located along Acton High Street.

The maximum NO_2 concentration recorded at diffusion tube sites in 2024 was 52.5 µg m^{-3} prior to distance correction at site EA53b along Acton High Street. After distance correction, concentrations at EA53b are reduced but remain above the annual mean NO_2 objective (43.9 µg m^{-3}). Monitoring is considered to have started at this site in January 2023 after the diffusion tube at EA53 had been relocated to the opposite side of the road which is closer to relatively longer queues of idling vehicles. This resulted in large increases to annual mean concentrations compared to the seven-year trend, as such EA53 and EA53b are considered separate monitoring sites. The tube was then relocated again in October 2024 from EA53b back to the original EA53 site, away from the idling vehicles and across from a cycle lane. There is insufficient data from EA53 in 2024 to confirm whether exceedances remain in this area.

Overall, there have been decreases in NO_2 concentrations at 58 sites in 2024 compared to 2023. The largest decrease was seen at the EA64 site, Greenford Business Centre, (-6.2 µg m^{-3}). Other notable decreases include EA46 (-3.0 µg m^{-3}) from 40.5 µg m^{-3} to 37.5 µg m^{-3}. This is the first time EA46 has been below the NO_2 annual mean objective in the recent 7-year period.

As there were no diffusion tube locations which saw annual mean concentrations above 60 µg m^{-3} in 2024, it is unlikely that the 1 hour mean NO_2 objective was exceeded at any monitoring location.

Table E. Annual Mean NO₂ Monitoring Results: Non-Automatic Monitoring ($\mu g\ m^{-3}$)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%)([1])	Valid Data Capture 2024 (%)([2])	2018	2019	2020	2021	2022	2023	2024
EA1	516368	182978	Roadside	100.0	100.0	**49.4**	**50.3**	36.1	34.6	33.5	29.6	26.3
EA2	516704	180487	Roadside	81.4	81.4	**42**	38.7	27.7	29.8	28.4	29.9	27.7
EA3	514740	180643	Background	90.5	90.5	21	20.5	15.2	14.9	15.9	13.4	11.0
EA4	515451	180894	Roadside	100.0	100.0	30.1	34.4	24.4	25.9	25.3	23.5	23.3
EA5	516281	178879	Roadside	100.0	100.0	30.7	29.8	21.2	21.1	26.2	25.2	20.4
EA6	515180	180111	Roadside	100.0	100.0	**42.8**	**43**	33.5	33.5	35.8	30.4	26.5
EA7	513476	178561	Roadside	92.4	92.4	30.5	28.9	21	22	20.2	19.7	16.7
EA8	512341	179186	Roadside	100.0	100.0	**41.1**	**40.5**	27	29.4	32.3	28.7	26.3
EA9	512181	179219	Roadside	100.0	100.0	30.9	31.5	22.4	22.9	23.4	21.7	18.8
EA10	511172	179241	Roadside	100.0	100.0	35	33.2	23.4	24.3	27.2	30.3	25.4
EA11	512657	179706	Roadside	100.0	100.0	28.6	27.5	17.6	20.8	19.3	20.3	18.3
EA12	512673	180069	Roadside	100.0	100.0	34.4	32.5	24	22.6	23	22.2	19.8
EA13	512768	180400	Roadside	100.0	100.0	**46**	**44.3**	35.2	32.9	36.2	34.2	32.8
EA14	512812	180516	Roadside	100.0	100.0	**40.2**	**41.2**	29.6	31.6	32.5	29.8	27.2
EA15	512442	183769	Roadside	100.0	100.0	37.2	35.2	24.3	27.3	25.2	23.8	20.3
EA16	513056	184241	Roadside	100.0	100.0	33.9	34.6	28.3	25.9	26.7	24.4	21.4
EA17	513794	185348	Roadside	100.0	100.0	33.4	32.8	24.8	23.6	23.1	20.8	18.5
EA18	515402	185313	Roadside	100.0	100.0	31.8	31.7	24.1	25.3	24.2	19.8	18.6
EA19	514985	183770	Roadside	100.0	100.0	35	34.3	24.4	26.7	25.2	23.9	20.1
EA20	514691	183269	Roadside	100.0	100.0	**41.6**	39.1	28.7	27.9	27.8	23.1	21.9
EA21	514882	183102	Roadside	100.0	100.0	34.4	30	20.2	22.6	20.7	20.2	18.4
EA22	515250	183093	Roadside	100.0	100.0	33.1	33.1	24.6	23.5	22.3	21.2	22.1
EA23	517694	179045	Roadside	100.0	100.0	**50.6**	**52**	35.2	31.4	34.1	32.1	29.0
EA24	517045	179292	Roadside	100.0	100.0	33.5	32.7	24.3	25.6	27.6	27.5	24.1
EA25	517644	180613	Roadside	100.0	100.0	**52.5**	**42.2**	30.9	30.7	31.8	26.2	22.7
EA26	517745	180826	Roadside	100.0	100.0	**60.4**	**56.2**	**42.5**	**44.3**	**43.6**	36.7	33.5
EA27	518022	181114	Roadside	100.0	100.0	31.2	30.2	22.6	22.5	21.5	20.8	17.6
EA28	517909	180971	Roadside	92.7	92.7	**42.3**	**42.1**	33.3	36.8	37.4	30.0	30.0

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%)([1])	Valid Data Capture 2024 (%)([2])	2018	2019	2020	2021	2022	2023	2024
EA29	518635	181288	Roadside	100.0	100.0	36.4	35.1	27.1	25.6	25.4	21.8	20.2
EA30, EA31, EA32	518541	182707	Roadside	100.0	100.0	**69.4**	**66.2**	**50.2**	**50.3**	**52**	**42.5**	**40.1**
EA33	518673	182982	Roadside	90.5	90.5	**54.5**	**56**	**44.5**	**40.3**	35.9	32.5	30.9
EA34	519126	183383	Roadside	90.8	90.8	35.2	33.9	28.1	25.1	29.5	33.5	29.5
EA35	520020	182180	Roadside	100.0	100.0	**49.7**	**46.6**	35.7	33.7	35	28.5	26.9
EA36, EA37, EA38	520430	181950	Roadside	100.0	100.0	**54.4**	**49.4**	36.5	35.8	35.3	32.1	28.0
EA39	520426	181958	Roadside	100.0	100.0	**48.3**	**41.4**	31.2	28.4	27.1	23.4	22.1
EA40	520782	182771	Roadside	100.0	100.0	33.1	30.6	22	25.9	25.1	22.9	19.4
EA41	521312	182366	Roadside	100.0	100.0	32.6	30	25.2	24.2	23.2	24.9	18.7
EA42	521587	182685	Roadside	100.0	100.0	**44.4**	**45.9**	32	35.4	32.6	32.0	27.5
EA43	521303	182056	Roadside	100.0	100.0	36.6	33.2	24.9	24.4	25.4	22.8	19.7
EA44	521389	180953	Roadside	100.0	100.0	32	31.4	22.6	21	21.9	19.7	16.8
EA45	521173	180981	Roadside	100.0	100.0	**46.7**	**39.6**	29.3	29.4	29.7	25.9	22.9
EA46	521549	180923	Roadside	90.5	90.5	**67.6**	**59.6**	**46.1**	**45.3**	**46**	**40.5**	37.5
EA47	521557	180996	Roadside	90.5	90.5	**43**	**41.4**	32.9	30.5	29	26.4	23.0
EA48	521614	180852	Roadside	100.0	100.0	**52.6**	**47.1**	37.8	36.4	**39.7**	30.8	30.0
EA49	521720	180084	Roadside	100.0	100.0	37.5	35.3	26.7	25.4	24.5	21.6	20.1
EA50	521088	180046	Roadside	100.0	100.0	36.2	34.3	25.7	24.3	23.7	22.0	20.7
EA51	520285	180075	Roadside	100.0	100.0	**48.1**	**48.8**	39	39.4	**39.9**	37.8	35.4
EA52	520092	180063	Roadside	100.0	100.0	29.6	27.5	22.5	22.2	22.6	20.2	18.8
EA53	520030	180141	Roadside	66.7	18.9	**47.7**	**47.5**	36.2	34.5	37.2		29.3
EA53b	520044	180125	Roadside	88.9	64.1						52.9	**52.5**
EA54	520484	178847	Roadside	92.4	92.4	**44.3**	39.3	28.2	28.9	28.5	24.9	21.7
EA55	520226	180947	Roadside	100.0	100.0	**40.5**	34.9	27.6	28.2	26.8	24.1	23.1

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%)([1])	Valid Data Capture 2024 (%)([2])	2018	2019	2020	2021	2022	2023	2024
EA56, EA57, EA58	520432	181428	Roadside	100.0	100.0	**44.3**	**41.2**	31.3	31.1	30.2	27.7	26.0
EA59	520532	181517	Roadside	100.0	100.0	38.4	34.1	26.6	26	26.1	23.7	22.0
EA60	520739	181824	Roadside	100.0	100.0	39.2	**39.8**	29.7	26.5	26.1	23.6	22.0
EA61	520713	181592	Roadside	56.5	56.5	37.6	37.1	28.6	26.3	26.9	28.0	24.7
EA62	512026	183762	Roadside	82.7	82.7	-	-	-	-	19.2	18.8	16.1
EA63	513483	182686	Roadside	100.0	100.0	-	-	-	-	24.4	22.0	19.7
EA64	514378	182112	Roadside	69.5	69.5	-	-	-	-	37.8	33.9	29.0
EA65	515276	181990	Roadside	41.4	41.4	-	-	-	-	18.2	17.5	16.7
EA66	514521	182949	Roadside	92.2	92.2	-	-	-	-	24	21.3	19.4

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LLAQM.TG19.**

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

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

Notes:

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

Exceedances of the NO$_2$ annual mean objective of 40µg m^{-3} are shown in **bold**.

NO$_2$ annual means exceeding 60µg m^{-3}, indicating a potential exceedance of the NO$_2$ 1-hour mean objective are shown in **<u>bold and underlined</u>**.

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 25%.

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

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

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

Figure 2 to Figure 9 show the trends in NO_2 concentrations for 2018-2024 at diffusion tube monitoring sites grouped by monitoring site type: urban background and roadside sites. At the urban background diffusion tube site Brent Lodge Park (EA3) (Figure 2), there is evidence of a decrease in NO_2 concentrations between 2018 and 2024.

The majority of near-road and roadside sites show an overall decreasing trend in annual mean NO_2 concentrations since 2018, with evidence of a stabilisation or slight increase from 2020 to 2022. The decrease in 2020 is likely to be the impact of COVID-19 and resulting lockdowns leading to a decrease in road traffic emissions, with subsequent increases likely attributable to a return to business as usual. 2024 generally saw a gradual decreasing trend at most sites, with two diffusion tube sites showing an increase.

EA53b has been omitted from these figures as there is not enough data to show a trend.

Figure 2. Annual Mean NO$_2$ Concentrations at the Urban Background Diffusion Tube Sites
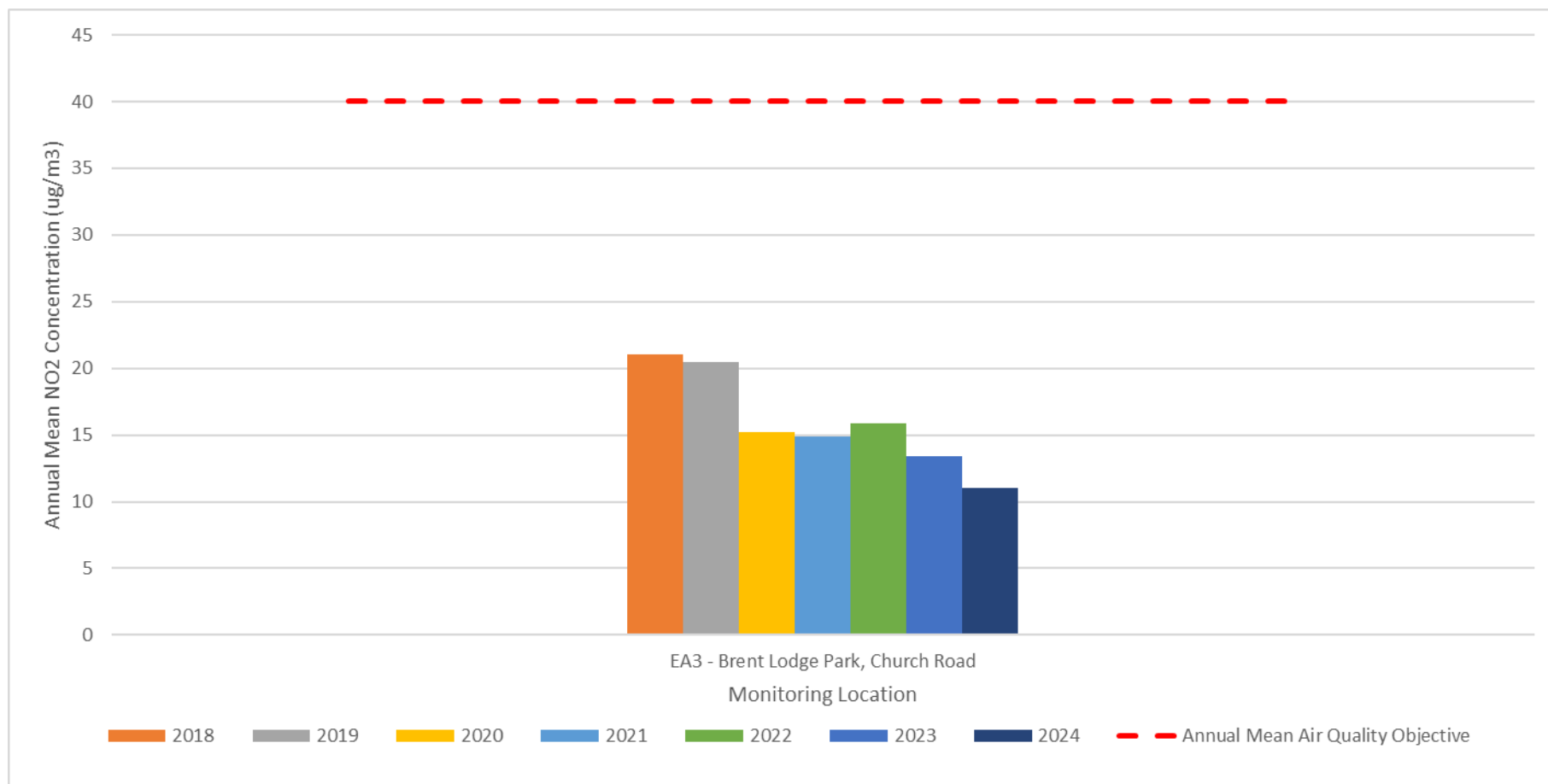
Figure 3. Annual Mean NO$_2$ Concentrations at Roadside Diffusion Tube Sites (1)
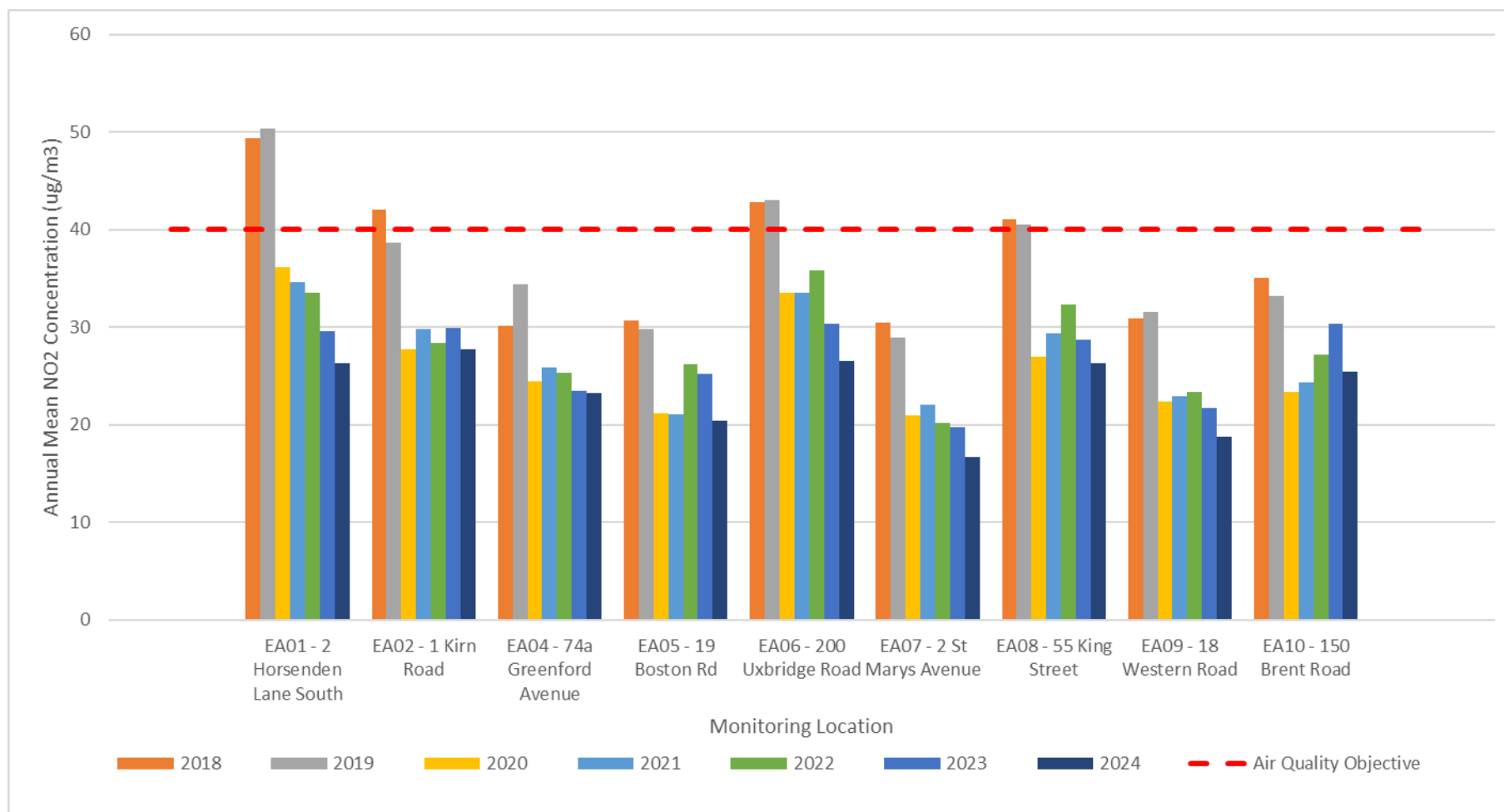
Figure 4. Annual Mean NO$_2$ Concentrations at Roadside Diffusion Tube Sites (2)

Figure 5. Annual Mean NO$_2$ Concentrations at Roadside Diffusion Tube Sites (3)

Figure 6. Annual Mean NO₂ Concentrations at Roadside Diffusion Tube Sites (4)

Figure 7. Annual Mean NO₂ Concentrations at Roadside Diffusion Tube Sites (5)
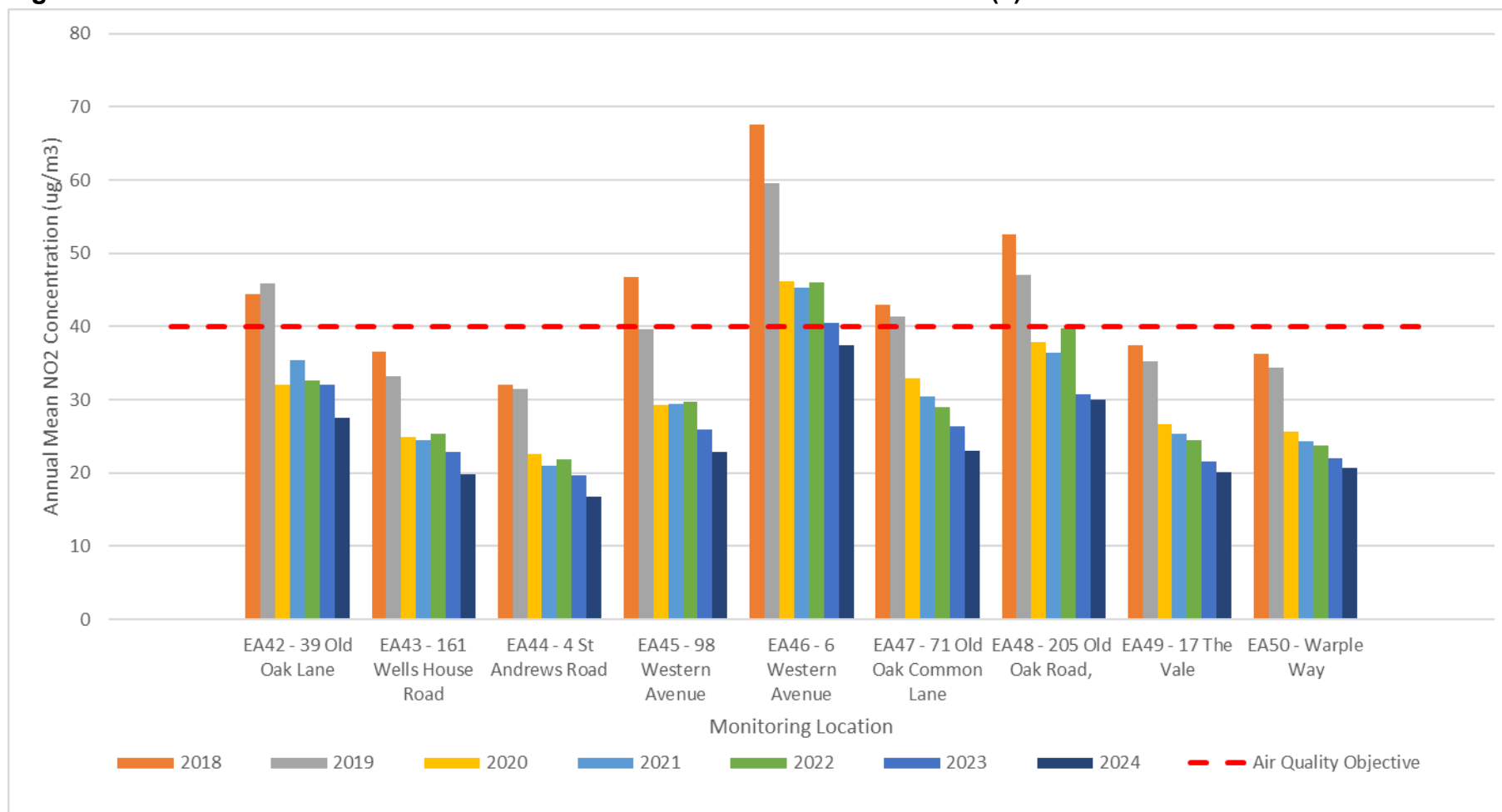
Figure 8. Annual Mean NO$_2$ Concentrations at Roadside Diffusion Tube Sites (6)

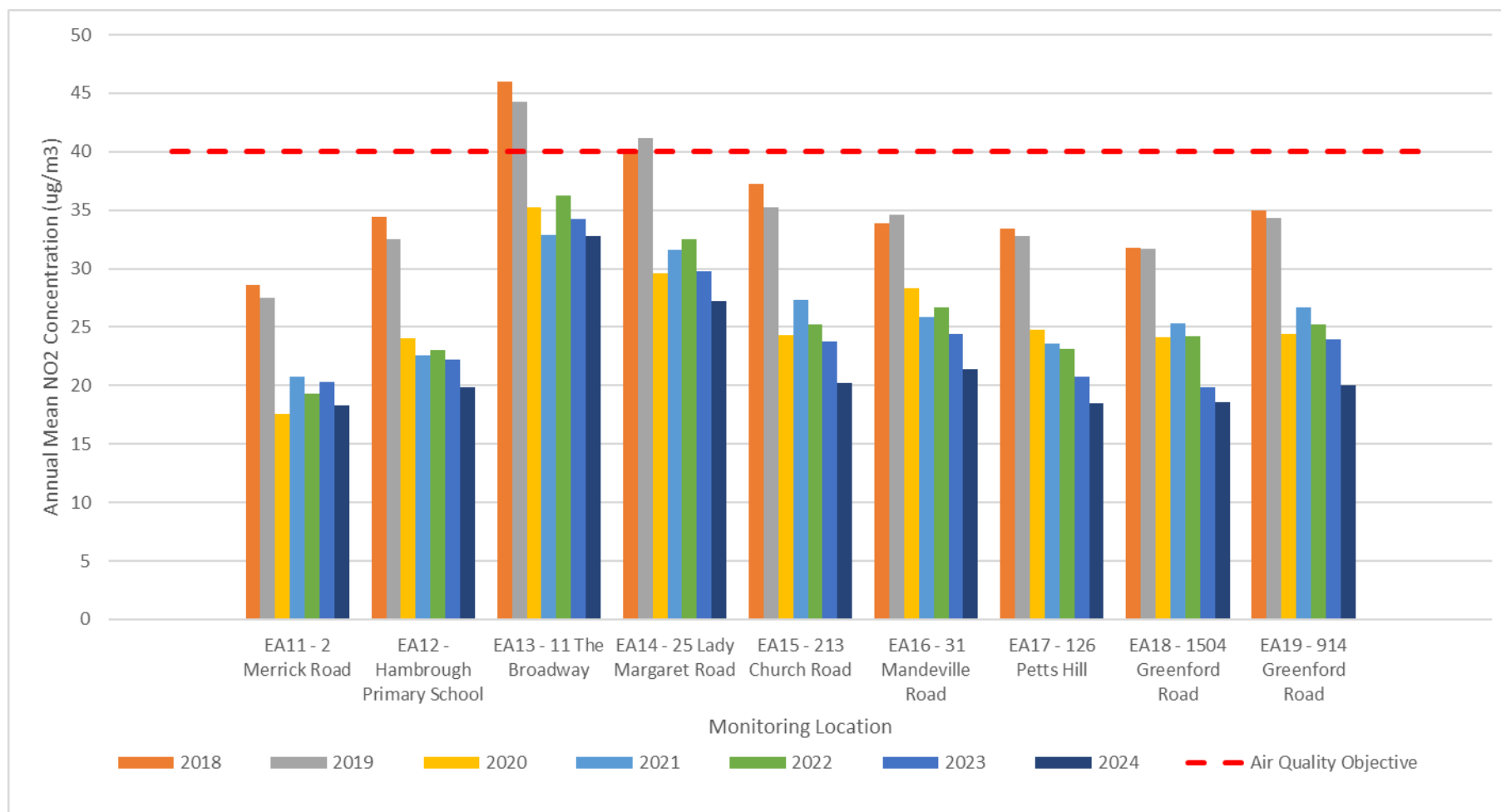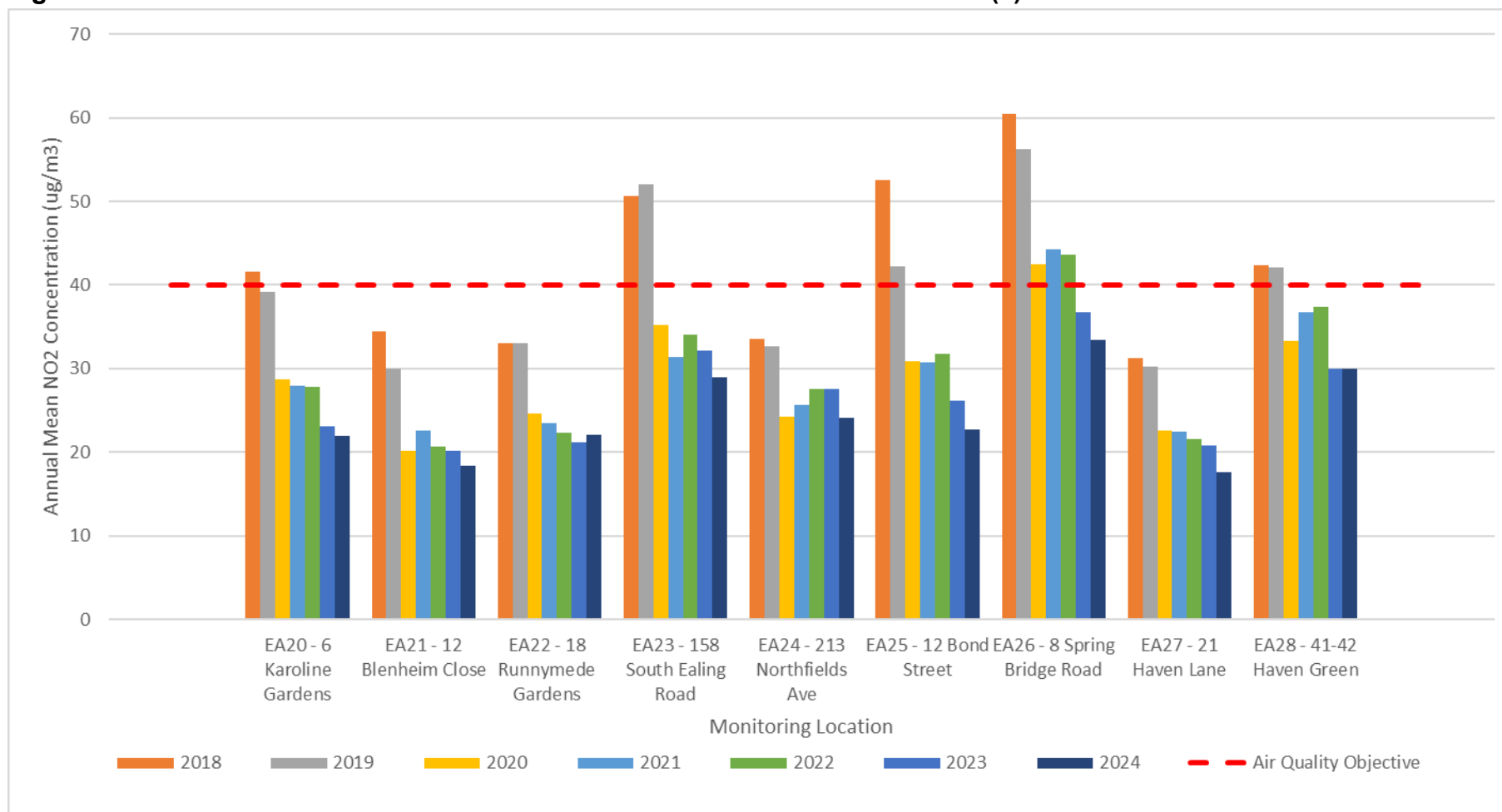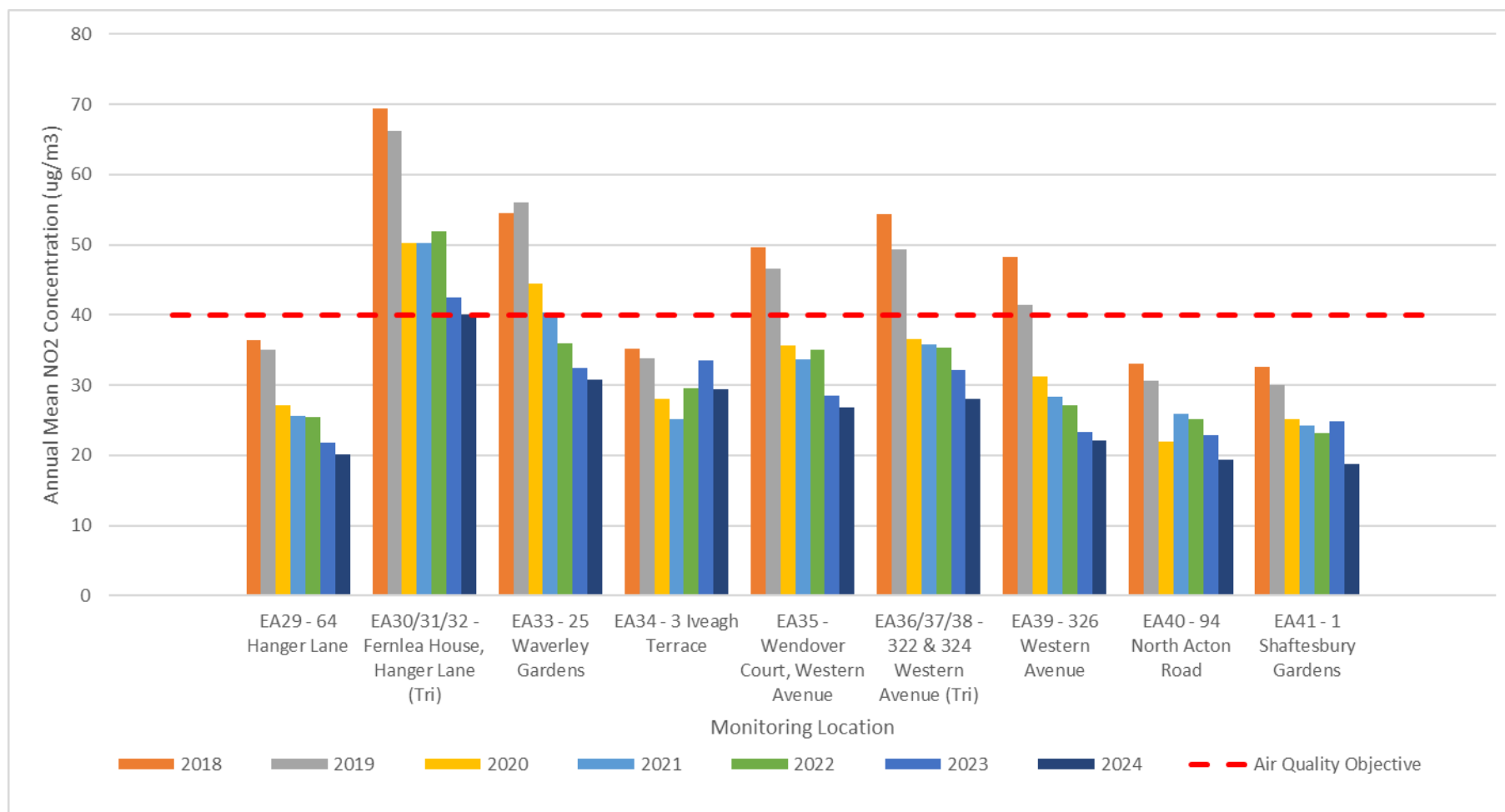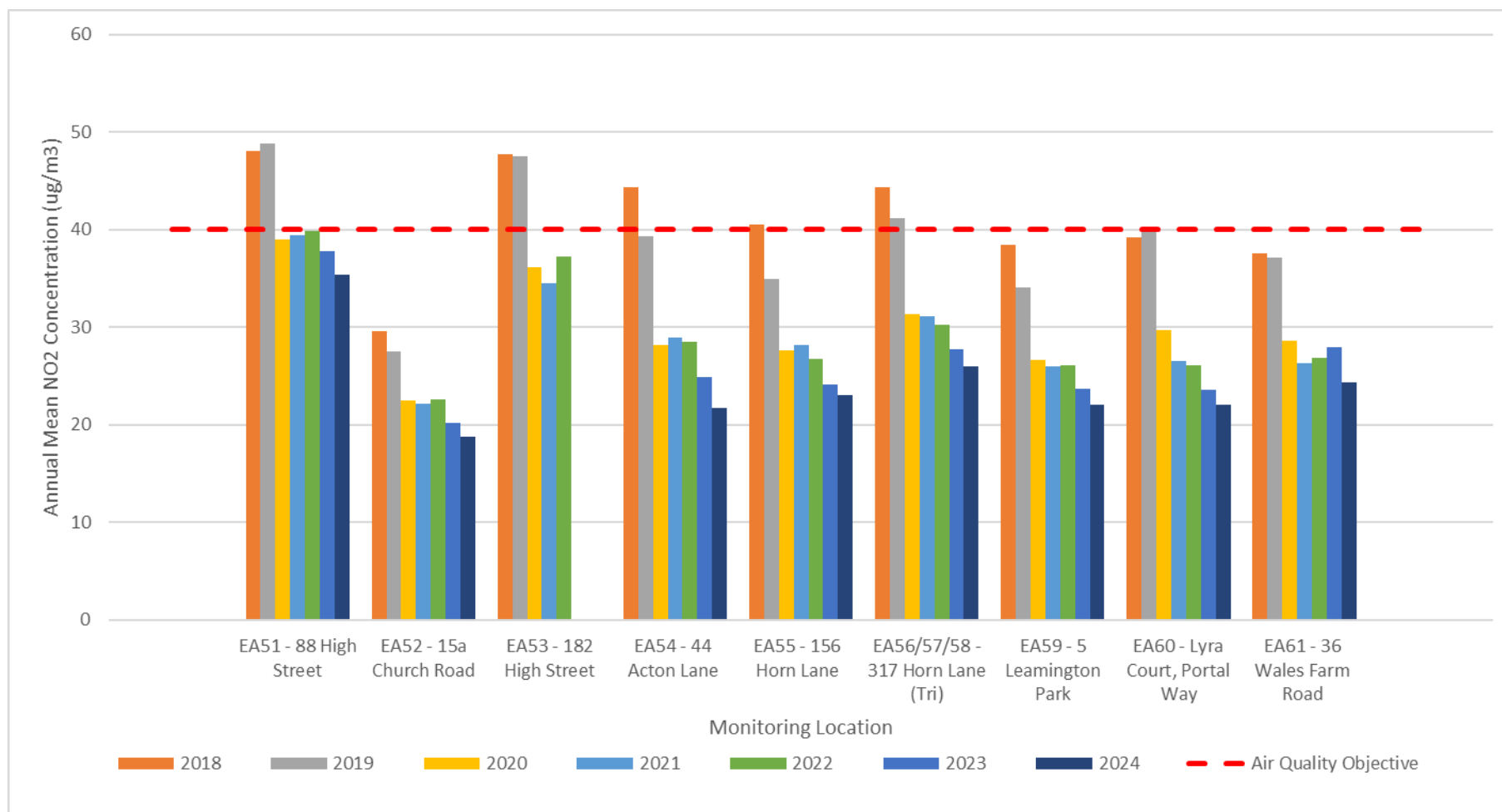**Figure 9. Annual Mean NO$_2$ Concentrations at Roadside Diffusion Tube Sites (7)**
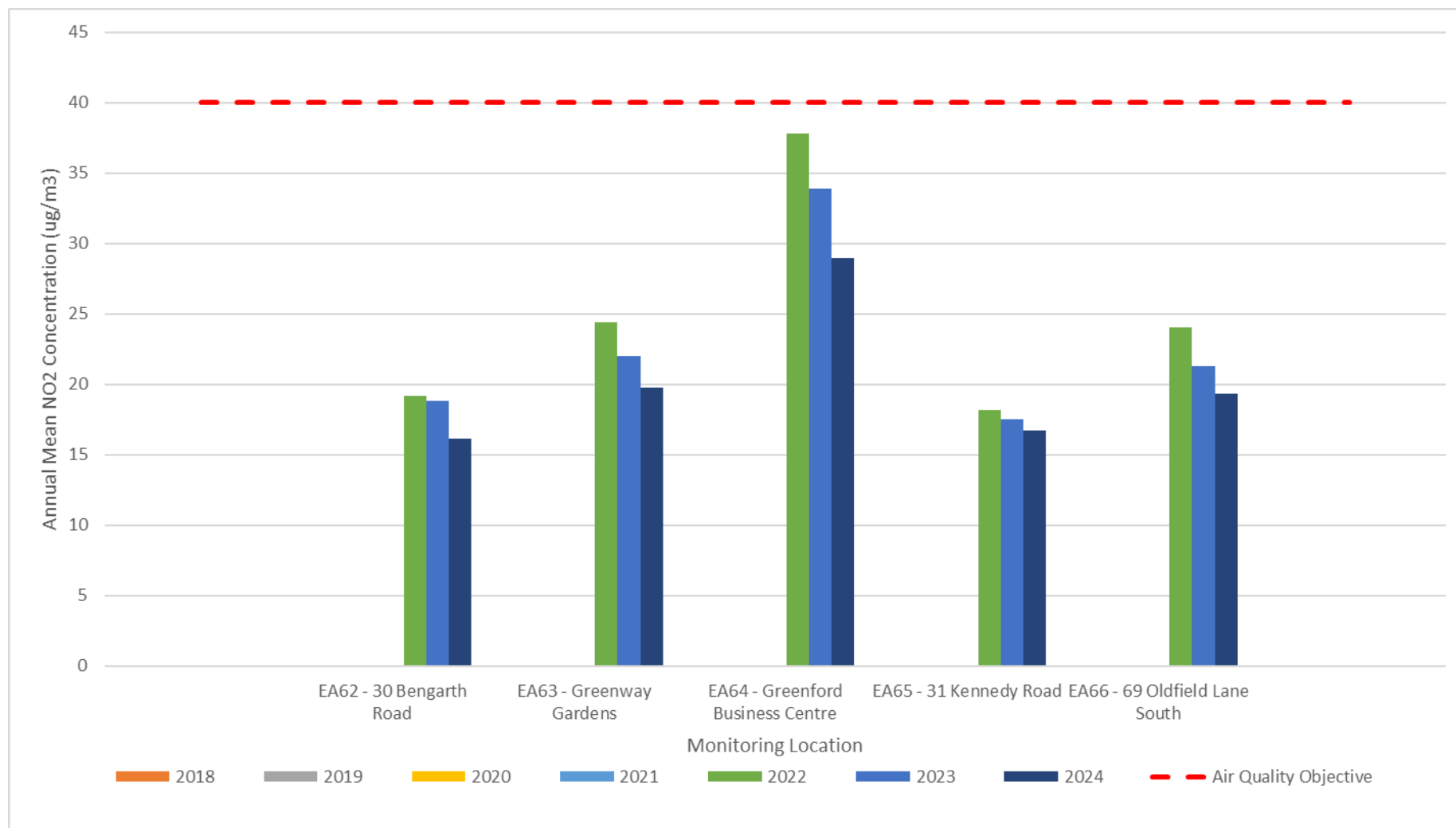
Table F presents the 1-hour mean NO$_2$ monitoring results at automatic monitoring stations between 2018 to 2024. None of the automatic sites exceeded the 1 hour mean NO$_2$ objective (200 µg m^{-3} not to be exceeded more than 18 times a year) in 2024. Whilst there were some hourly mean concentrations over the 200 µg m^{-3} threshold in 2019, all monitoring sites have been compliant with the objective since 2018.

Table F. NO$_2$ Automatic Monitoring Results: Comparison with 1-hour Mean Objective, Number of 1-Hour Means > 200 µg m^{-3}

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid data capture for monitoring period %[a]	Valid data capture 2024 %[b]	2018	2019	2020	2021	2022	2023	2024
EA6 Hanger Lane Gyratory	518537	182708	Roadside	96.2	96.2	0	3	0	0	0	0	0
EA8 Horn Lane	520432	181428	Industrial	93.0	93.0	0	2	0	0	0	0	0
EI1 Western Avenue	520430	181950	Roadside	96.9	96.9	0	0	0	0	0	0	0
EI3 Acton Vale	521134	179771	Urban Background	13.2	13.2	0	0	0 (82)	0 (81)	0 (102)	-	-

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%)

PM$_{10}$ concentrations are currently measured using TEOMs at most automatic monitoring locations in the London Borough of Ealing. The Horn Lane station is equipped with both TEOM and BAM analysers for PM$_{10}$ monitoring and results from these are presented separately. The Acton Vale station is equipped with FDMS. The annual mean PM$_{10}$ results are shown in Table G and the 24-hour mean PM$_{10}$ results are presented in Table H.

Data capture in 2024 was good (i.e. >85%) at EA6 Hanger Lane, EA8 Horn Lane, and EI1 Western Avenue. EI8 Horn Lane TEOM recorded a data capture of 69.1% for 2024 and had to undergo annualisation as shown in Appendix A. Due to ongoing technical issues with the monitor, there was no data available for EI3 Acton Vale for the majority of 2024, the monitor was fixed in November 2024 and has been monitoring since, but as there is insufficient data to undergo annualisation, the PM$_{10}$ data at EI3 has not been reported. The annual mean PM$_{10}$ objective of 40 µg m^{-3} was achieved at all sites during 2024 (where valid data is available), and it has been achieved at all automatic monitoring locations in the borough since 2018. However, it should be noted that all the automatic monitoring locations were in exceedance of WHO AQG for annual mean PM$_{10}$ (15 µg m^{-3}). The highest annual mean PM$_{10}$ concentration in 2024 was recorded at EA8 Horn Lane (27.3 µg m^{-3}).

The number of exceedances of the 24-hour mean objective (50 µg m^{-3}) was within the permitted 35 days per year at all sites in 2024, with EA8 recording the highest number of days (22) with 24-hour concentrations above 50 µg m^{-3}. There are several industries within vicinity of EA8 that have potential to lead to 24-hr PM$_{10}$ concentrations higher than 50 µg m^{-3}, most of these industries are regulated by the Environment Agency (EA). Both the EA and LBE conducted site visits in the past and investigations are still ongoing as to identify the cause.

Table G. Annual Mean PM$_{10}$ Automatic Monitoring Results (µg m^{-3})

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid data capture for monitoring period %(^{a})	Valid data capture 2024 %(^{b})	2018	2019	2020	2021	2022	2023	2024
EA6 Hanger Lane Gyratory	518537	182708	Roadside	84.3	84.3	28	25	23	20	18	17.6	20.2
EA8 Horn Lane	520432	181428	Industrial	93.0	93.0	25	28	24	26	27	28.5	27.3
EI8 Horn Lane TEOM	520432	181428	Industrial	69.1	69.1	26	25	21	23	27	23.8	22.6
EI1 Western Avenue	520430	181950	Roadside	86.8	86.8	28	26	23	25	25	21.3	22.4
EI3 Acton Vale	521134	179771	Urban Background	11.3	11.3	19	18	16	16	17	-	-

Notes

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

Exceedances of the PM$_{10}$ annual mean concentration target 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 25%.

(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 H. PM$_{10}$ Automatic Monitoring Results: Comparison with 24-Hour Mean Objective, Number of PM$_{10}$ 24-Hour Means > 50 µg m^{-3}

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid data capture for monitoring period %[a]	Valid data capture 2024 %[b]	2018	2019	2020	2021	2022	2023	2024
EA6 Hanger Lane Gyratory	518537	182708	Roadside	84.3	84.3	12	13	7	4	3 (30)	9	2 (36)
EA8 Horn Lane	520432	181428	Industrial	93.0	93.0	7	15	9	13	**13 (52)**	27	22
EI8 Horn Lane TEOM	520432	181428	Industrial	69.1	69.1	7	16	5	9	18	15	9 (47)
EI1 Western Avenue	520430	181950	Roadside	86.8	86.8	14	21	11	11	14 (41)	10	1
EI3 Acton Vale	521134	179771	Urban Background	11.3	11.3	2	9	3 (30)	1	4 (36)	-	-

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 10 shows the trends in PM_{10} concentrations at automatic monitoring sites in the borough for the period of 2018 – 2024. The figure indicates a slight downward trend in annual values at Hanger Lane from 2018 to 2023, whilst other monitoring locations do not show a strong discernible trend. However, two sites appear to have experienced an increase in PM_{10} concentrations in between 2023 and 2024.

Figure 10 Annual Mean PM_{10} Concentrations at Automatic Monitoring Sites
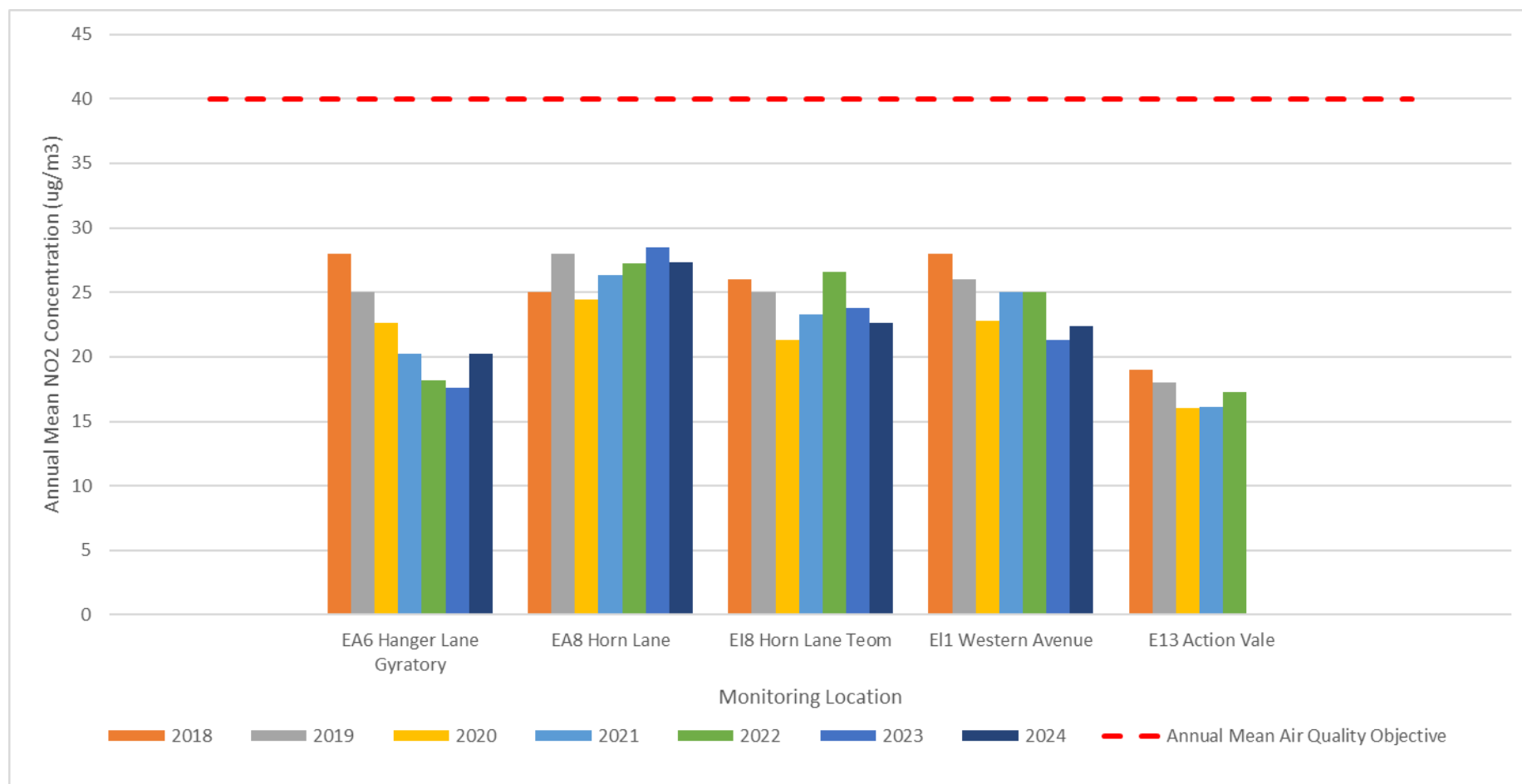
PM$_{2.5}$ concentrations are not monitored within the borough; however, they can be estimated using a PM$_{Coarse}$ factor in accordance with LAQM.TG(22). PM$_{Coarse}$ factors have been derived for an urban traffic site using Hounslow Brentford (HS5) from the neighbouring borough Hounslow. A PM$_{Coarse}$ factor has not been calculated for the Horn Lane monitoring sites as industrial sites have unique site-specific characteristics, such that PM$_{Coarse}$ factors aren't transferrable.

Calculation of the PM$_{Coarse}$ factors are shown in Table I, application of these factors to Ealing automatic monitors are shown in Table J. The resultant PM$_{2.5}$ concentrations are only indicative and cannot be used for compliance against the AQOs however they do suggest that PM$_{2.5}$ levels are below the Environmental Target Regulations Level (10 µg m^{-3}) and London Mayoral Objective (10 µg m^{-3}) but have yet to reach WHO AQG levels (5 µg m^{-3}).

Table I. PM$_{Coarse}$ factor calculation (µg m^{-3})

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid PM$_{10}$ data capture 2024 %	Valid PM$_{2.5}$ data capture 2024 %	Annual PM$_{10}$	Annual PM$_{2.5}$	PMCoarse
HS5	517425	178070	Urban Traffic	88.1	88.9	23.5	9.3	14.2

Notes

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

Table J. Estimated Annual Mean PM$_{2.5}$ Automatic Monitoring Results for 2024 (µg m^{-3})

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid PM$_{10}$ data capture 2024 %	Annual PM$_{10}$	Applied PMCoarse	Estimated Annual PM$_{2.5}$
EA6 Hanger Lane Gyratory	518537	182708	Roadside	84.3	20.2	14.2	6.0
El1 Western Avenue	520430	181950	Roadside	86.8	22.4	14.2	8.2

2. Action to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority should prepare an Air Quality Action Plan (AQAP) within 12 months. The AQAP should specify how air quality targets will be achieved and maintained, and provide dates by which measures will be carried out.

A summary of AQMAs declared by London Borough of Ealing can be found in Table K. The table presents a description of the AQMA that is currently designated within London Borough of Ealing. Appendix C provides maps of AQMA and also the air quality monitoring locations in relation to the AQMA. The air quality objectives pertinent to the current AQMA designation are as follows:

- NO_2 annual mean
- PM_{10} 24-hour mean

Table K. Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
Ealing AQMA	Declared 14/12/2000	NO_2 Annual Mean	Borough Wide AQMA	YES	**53 µg m^{-3}** (NO$_2$ annual mean) at Ealing 2 and Ealing 5. **42 µg m^{-3}** (NO$_2$ annual mean) at Ealing 1. [3]	**43.9 µg m^{-3} at site EA53b (NO$_2$ annual mean)**	Not compliant for NO$_2$ annual mean objective	Air Quality Action Plan 2022-2027 published in Dec 2023	Air Quality Action Plan 2022-27 | Ealing Council
Ealing AQMA	Declared 14/12/2000	PM$_{10}$ 24-hour mean	Borough Wide AQMA	YES	Compliant at the time of declaration. Ealing 2: 19 days over daily average of >50µg m^{-3} Ealing 5: 16 days over daily average of >50µg m^{-3} This is within the permitted	A maximum of 22 daily exceedances of the 24 - hour objective (PM$_{10}$ 24 hour mean) at EA8 Horn Lane. This is within the permitted 35 days per year.	Not compliant for PM$_{10}$ 24 hour mean objective	Air Quality Action Plan 2022-2027 published in Dec 2023	Air Quality Action Plan 2022-27 | Ealing Council

[3] King's College London (2000). Air Quality in London 2000. Available at: Microsoft Word - an_report_2000_v3.DOC (londonair.org.uk)

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
					35 days per year. [3]				

☒ **London Borough of Ealing confirm the information on UK-Air regarding their AQMA(s) is up to date.**

☒ **London Borough of Ealing confirm that all current AQAPs have been submitted to GLA.**

2.2 Air Quality Action Plan Progress

Table L provides a brief summary of London Borough of Ealing progress against the Air Quality Action Plan, showing progress made this year. New projects which commenced in 2024 are shown at the bottom of the table.

Table L. Delivery of Air Quality Action Plan Measures

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
12	Public health and awareness raising	Raise public awareness about air quality and provide accurate resources for the public to use to find out about air pollution in Ealing	Ongoing	Environment Protection /Public Health	**ONGOING** In 2023, Ealing published the Air Quality Strategy which sets out Ealing's vision to improve air quality in the borough. A bespoke air quality website was published in 2024 as part of the DEFRA funding: Clean Air Ealing - Home. The website provides near real-time sensor air quality data and useful advice on what residents and schools can do to reduce pollution.
13	Public health and awareness raising	Encourage schools to join the TfL Travel for Life accredited travel planning programme Further engagement with GPs surgeries, via Public Health, to target and protect vulnerable groups from impacts of air pollution, by	2022 - 2025	Transport/Public Health	**ONGOING** 44 schools engaged with TfL's Travel for Life accreditation, with schools achieving:

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
		increasing free subscription of airTEXT.			• Gold: 26 • Silver: 2 • Bronze: 15 There is 1 additional school engaged & registered on Travel for Life.
14	Public health and awareness raising	Improvement of air quality in and around schools. Extend schools audits to all polluted schools (and potentially to other vulnerable groups, such as nurseries)	Ongoing	Environment Protection /Public Health	**ONGOING** • 1608 school children have been cycle trained • Air quality/active travel workshops delivered at 18 schools
1	Monitoring and core statutory duties	Ealing to maintain the borough's 3 continuous monitoring stations and 60 diffusion tubes	Ongoing	Air quality team	**ONGOING** Air quality monitoring via 3 continuous monitoring stations and 60 diffusion tubes continued for 2024.
2	Monitoring and core statutory duties	Seek funding for a $PM_{2.5}$ monitor from S106	2022 - 2023	Air quality team	**ON HOLD** The council is currently evaluating resources required to monitor for $PM_{2.5}$ at Horn Lane, or an alternative, site including installation of a new $PM_{2.5}$ monitor at the site. Although there are no specific measures targeting the reduction

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
					of $PM_{2.5}$ currently, it is expected that the combination of actions and that are currently in force or coming into force will help to bring about a reduction of $PM_{2.5}$. However, discussions are being held with Public Health to devise policies that will specifically target the reduction of $PM_{2.5}$.
3	Monitoring and core statutory duties	Commission and maintain monitoring of air pollution around the Southall Gasworks site	Monitoring commissioned 2021; to continue through period covered by this plan	Air quality team	**COMPLETE** Southall monitoring stations were decommissioned on 08/11/2023. Council is currently evaluating resources to recommission monitoring in Southall as background site. Historical data for the Southall air quality monitors can be found here: London Borough of Ealing - Air Quality monitoring service (airqualityengland.co.uk)
4	Emissions from developments and buildings	Ensuring emissions from construction are minimised	Ongoing	Development Management in association with Environment Protection	**ONGOING** All medium to high-risk developments are required to install air quality sensors prior to any works onsite. Any exceedances are requested to be sent to AQ team to investigate.

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
					Construction sites are requested to set trigger alerts as per study by Kings College London: • 15-min mean at 190µg m-3 • Hourly mean at 190 µg m-3 All other small-risk developments are requested to conduct visual site inspections regularly including outside the site boundary, log their observations and investigate any poor air quality exceedances.
5a	Emissions from developments and buildings	Ensuring enforcement of Non-Road Mobile Machinery (NRMM) air quality policies	Ongoing	Development Management in association with Environment Protection	**ONGOING**

In 2024, 31 NRMM conditions were set for major planning applications.

When assessing demolition method statement and/or construction environment management plans, minor developments are made aware of NRMM policies and ensure they comply with emission standards set within the guidance.

Ealing council continues to collaborate with Merton Council to enforce the Council's NRMM policies. In 2024, 18 sites were audited by Merton Council. |

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
5b	Emissions from developments and buildings	Reduce emissions from onsite diesel- or petrol-powered generators at construction sites	Ongoing	Air quality Team	**ONGOING** All major developments are requested to commit to no diesel- or-petrol powered generators in their Dust/Air Quality Management Plans or at minimum use Stage V NRMM compliant generator for a very limited time.
6	Emissions from developments and buildings	Reduce emissions from CHP	Ongoing	Development Management in association with Environment Protection	**ONGOING** All developments are heavily encouraged not to use any combustion sources for heating and hot water. In 2024, all developments were found to be air quality neutral for building emissions and hence, no off-setting payment using DEFRA damages cost was required.
7a	Emissions from developments and buildings	Enforce Air Quality Neutral policies	Ongoing	Development Management in association with Environment Protection	**ONGOING** In 2024, 33 major planning applications provided AQ assessments. All 33 developments were found to be air quality neutral (AQN) for building emissions. Only 3 developments were found to not be AQN for Transport emissions and discussions are ongoing to

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
					propose measures to reduce transport emissions, if not an off-setting payment will be requested.
7b	Emissions from developments and buildings	Reduce emissions from emergency diesel- or petrol-powered generators	Ongoing	Development Management in association with Environment Protection	**ONGOING** In 2024, 9 major developments had conditions requesting submission of post installation emission testing at the flue for an emergency generator by an accredited laboratory to ensure that NOx emissions standard of 150mg/Nm-3 (at 5% O2) can be achieved.
8	Emissions from developments and buildings	Ensuring adequate, appropriate, and well-located green space and infrastructure is included in new developments	Ongoing	Development Management in association with Environment Protection	**ONGOING** The London Borough of Ealing's Development (Core) Strategy DPD includes a chapter "Protecting and Enhancing Ealing's Green and Open Spaces". Major developments are checked internally using bespoke s106 calculator for provision of outdoor amenity space, children's play space and allotment / growing spaces for each development. Developers are also requested to use native species.

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
9	Public health and awareness raising	Public Health department taking shared responsibility for borough air quality issues and implementation of Air Quality Action Plans	Ongoing	Public Health	**ON HOLD** Air Quality and Public Health teams to explore closer collaboration to advance this action.
10	Public health and awareness raising	Engagement with businesses to encourage active changes to improve air quality, particularly anchor institutions – such as NHS, schools, and Ealing Council – and their local supply chains	Ongoing	Public Health	**ON HOLD** Air Quality and Public Health teams to explore closer collaboration to advance this action.
11	Public health and awareness raising	Supporting direct alert service such as airTEXT, and promotion and sharing of high pollution alert services through community engagement and school events	Ongoing	Environment Protection /Public Health	**ONGOING** Ealing continues to subscribe to GLA's air pollution alerts and the airTEXT service. Public health team to explore embedding airText alerts with the weather alert system.
15	Delivery Servicing and Freight	Update of Procurement policies to reduce pollution from logistics and servicing	Complete	Transport/ Development Management	**COMPLETE**
16	Delivery Servicing and Freight	Reducing emissions from deliveries to local businesses and residents: Council to take action to raise awareness of Air Quality amongst the business community, by preparing briefing to Ealing's largest businesses.	Short term	Transport and Development Management	**COMPLETE**

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
		Briefing will seek to promote use of Evs, using London mayor's Cleaner Vehicle Checker			
17	Borough Fleet Actions	Reducing emissions from council fleets: Migrate existing small vehicle fleet to electric vehicles (EV)	Ongoing	Facilities Management	**ONGOING** The council retains 32 fully electric vehicles, but limited charging infrastructure limits further transition.
18	Borough Fleet Actions	Reducing emissions from council fleets: Smarter Driver Training for drivers of vehicles in the borough's Own Fleet i.e. through training of fuel-efficient driving and providing regular re-training of staff	Ongoing	Facilities Management	**COMPLETE** Ealing council currently only has zero emission vehicles for its ICT and Property Services departments and hence monitoring for idling is not required. Monitoring for driver behaviour and training to address any driving issues is still ongoing.
19	Localised solutions	Green Infrastructure (GI)	Ongoing	Development Management, Transport, Highways, Environment Protection, Regeneration	**ONGOING** Planning policies encourage green roofs, green walls,

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
					Sustainable Urban Drainage Systems etc. Ealing's new Biodiversity Action Plan is a useful reference for developers and planners on how to encourage developers to increase habitat and biodiversity onsite.
20	Localised solutions	Liveable Neighbourhoods	Ongoing	Transport in partnership with Environment Protection and Regeneration	**ONGOING** West Ealing Liveable neighbourhood schemes at Jacobs Ladder and Green Passage completed in 2024, Brownlow Rd scheme to be completed in 2025.
21	Localised solutions	Support communities wishing to enact temporary road closures, support and encourage residentled Play Streets, and identify opportunities to increase the size and number of School Streets	Ongoing	Transport/ Highways/ Street Services	**ONGOING** As of April 2025, there are 43 schools with School Streets in place or ready to launch. 70+ Playstreets across the borough, including 25 new applications for Car Free Day 2024.
22	Cleaner transport	Ensuring that Transport and Air Quality policies and projects are integrated	Ongoing	Shared responsibility between Transport, Street Enforcement and Environment Protection	**ONGOING** Vortex air quality monitors installed along Church Road in

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
					2024 as part of Northolt Levelling Up Fund improvement scheme.
23	Cleaner transport	Discouraging unnecessary idling by taxis and other vehicles	2022 and ongoing	Environment Protection/ Transport/ Street Enforcement	**ONGOING** Civil enforcement officers have been asking drivers to switch of their engines or move their vehicles when patrolling the borough. This includes hot spot locations including near schools. No PCNs have been issued for idling as we're not permitted to do so however, as most drivers either comply or are parked in contravention to parking restrictions in place so we're able to on some occasions enforce.
24	Cleaner transport	Using parking policy to reduce pollution emissions	2022	Street Services/ Highways	**ONGOING** The council now offer emission-based parking charging for resident permits and short stay non-residential visitor parking. The council is currently evaluating resources required to implementing emissions-based charging for residential visitor.

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
25	Cleaner transport	Installation of Ultralow Emission Vehicle (ULEV) infrastructure	Ongoing	Transport/ Highways	**ONGOING** 1077 publicly available EV charge points as of 2025 Q1.
26	Cleaner transport	Provision of infrastructure to support cycling	Ongoing	Transport	**ONGOING** • 132 cycle hangars installed as of 2025 Q1 • From 2022/23 to 2023/24, 36% of Ealing residents engaged in 20 minutes of daily active travel. • 34% of residents live within 400m of the strategic cycle network.
27	Cleaner transport	Increase cycle training with schools and adults	2022 – 2027 (annually)	Transport	**ONGOING** • 316 adults undertook cycle training in 2024/25 • 101 residents look part in family cycle training (training which includes at least one adult and child) in 2024/25
28	Cleaner transport	Provision of infrastructure to support pedestrians	Ongoing	Transport	**ONGOING** • In 2024–25, Ealing renewed ~7.5km of footways and resurfaced ~10km of roads, supporting safer and more accessible active travel.

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
					• Free-Range Urban Neighbourhood schemes at Kelvin Gardens, Adrienne Avenue, Culmington Road, Occupation Lane and Leighton Road schemes due to be completed in 2025.
29	Cleaner transport	Increasing the proportion of electric and hydrogen vehicles and low emission vehicles in Car Clubs	Ongoing	Transport	**ON HOLD** No car club projects have been progressed for this period. Major developments are requested to include car club bays where possible.

3. Planning Update and Other New Sources of Emissions

Table M. Planning requirements met by planning applications in London Borough of Ealing in 2024

Condition	Number
Number of planning applications where an air quality impact assessment was reviewed for air quality impacts	74 (See Note 1)
Number of planning applications required to undertake construction dust monitoring and reporting (Please specify how you get access to dust monitoring data i.e. online tool or CSV file)	49 planning conditions were assessed (See Note 2) 8 developments had AQ monitors and access to live monitoring website was requested, and the rest included visual inspection procedures
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 as detailed in Air Quality Neutral LPG (london.gov.uk) point 3.1.5.	0
Number of developments required to install Ultra-Low NO_X boilers	0
Number of developments where an AQ Neutral building and/or transport assessments undertaken	33
Number of developments where the AQ Neutral building and/or transport assessments not meeting the benchmark and so required to include additional mitigation	3
Number of planning applications with S106 agreements including other requirements to improve air quality	32
Number of planning applications with CIL payments that include a contribution to improve air quality	0
NRMM: Central Activity Zone, Canary Wharf and Opportunity Areas Number of planning applications with conditions related to NRMM included. Number of developments registered at www.nrmm.london. Number of audits (based on the pan-London project report and / or inhouse auditing programme) % of sites unregistered prior to audit % of sites compliant with Stage IV of the Directive and/or exemptions to the policy.	N/A
NRMM: Greater London (excluding Central Activity Zone, Canary Wharf and Opportunity Areas) Number of planning applications with conditions related to NRMM included. Number of developments registered at www.nrmm.london.	31 conditions included 18 sites were audited: * 1 was self-compliant * 13 were compliant * 1 were non-compliant

Condition	Number
Number of audits (based on the pan-London project report and / or inhouse auditing programme)% of sites unregistered prior to audit % of sites compliant with Stage IIIB of the Directive and/or exemptions to the policy.	* 2 did not require to be registered on NRMM website

Notes:

1. This is the number of full planning applications initially reviewed by officers for air quality impacts. It does not include condition discharge applications where an air quality condition has been set and details are submitted in compliance with the condition.

2. Monitoring is taken to include visual monitoring.

3.1 New or significantly changed industrial or other sources

No new sources identified.

4.   Additional Activities to Improve Air Quality

4.1   London Borough of Ealing Fleet

The Council's vehicle fleet comprises of:

a) 32 zero emission fleet representing 41% of the total fleet.
b) 40 zero emission capable fleet representing 51% of the total fleet.

The rest of the fleet of 6 is not zero emission capable and represents 8%.

4.3   Pan-London NRMM Auditing Project

London Borough of Ealing continues to collaborate with Merton Council to enforce the Council's NRMM policies. Ealing provides Merton with a list of medium to large construction sites that have informed the council that they will be commencing works within 6 months.

The Air Quality Team at Ealing also sets NRMM conditions on major developments and ensures minor developments are aware of NRMM guidance via their Demolition Method Statement and Construction Management Plan.

The following condition is included in major planning applications: All Non-Road Mobile Machinery (NRMM) of net power of 37kW and up to and including 560kW used during the course of the demolition, site preparation and construction phases shall comply with the emission standards as published on the NRMM Website (https://nrmm.london/). Unless it complies with the standards set out on the website, no NRMM shall be on site, at any time, whether in use or not, without the prior written consent of the local planning authority. The developer shall keep an up-to-date list of all NRMM used during the demolition, site preparation and construction phases of the development on the online register at https://nrmm.london/.

4.4   Air Quality Alerts

London Borough of Ealing has subscribed to airTEXT (https://www.airtext.info/) and advertises its services on Ealing Air website and on social media to raise awareness for residents to subscribe. Details of the Councils bespoke air quality project funded by DEFRA will also be released on the Clean Air Ealing website. Residents will soon be able to sign up for alerts that forecast air pollution and notify them of elevated pollution levels.

4.5   Air Quality Positive

London Borough of Ealing currently haven't received any innovative mitigation measures as part of the Air Quality Positive Statements.

Appendix A   Details of Monitoring Site Quality QA/QC

A.1   Automatic Monitoring Sites

Each of the four active automatic monitoring sites in the borough were operated as part of the LAQN. Data have traceability to national standards and operational procedures defined for the LAQN. The Horn Lane site is also part of the national Automatic Urban and Rural Network (AURN), operated by the Environment Agency to monitor compliance with the EU Directives. AURN QA/QC procedures involve 4-weekly calibration of NO_x and maintenance of particulate samplers.

PM_{10} Monitoring Adjustment

Monitoring is conducted using TEOMs at three of the four automatic monitoring stations. There is therefore a need to eliminate the effect of changing humidity on the mass measurement; the TEOM is required to maintain the sample filter at an elevated temperature, which may lead to losses of semi-volatile species such as ammonium nitrate. The Volatile Correction Model (VCM) uses local FDMS monitoring sites to correct TEOM measurements for the loss of volatile components of particulate matter that occur due to the high sampling temperatures employed by this instrument. This adjustment to PM_{10} data is provided by the London Air Quality Network.

A.2   Diffusion Tubes

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

AIR NO_2 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 Socotec (formerly Environmental

Scientifics Group (ESG) Didcot) were overall satisfactory. The laboratory scored 100% satisfactory results between May 2022 and June 2024 (AR050-AR063).

<u>Factor from Local Co-location Studies</u>

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

Ealing carries out studies at three sites where triplicate diffusion tubes are co-located with automatic monitors for the purpose of deriving a local bias adjustment factor. In 2024, the combined local bias adjustment factor derived from these studies was 0.73.

Figure 11 shows the details of the calculation of the local bias adjustment factors. The calculation of local bias adjustment factors takes into account both data capture from diffusion tubes and automatic 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. Periods where automatic monitoring data capture rates are less than 90% are also excluded.

Figure 11. Local Bias Adjustment Factor Calculation

	STEP 3a Local Bias Adjustment Input 1	STEP 3b Local Bias Adjustment Input 2	STEP 3c Local Bias Adjustment Input 3
Periods used to calculate bias	12	12	11
Bias Adjustment Factor A	0.68 (0.63 - 0.74)	0.77 (0.74 - 0.8)	0.74 (0.7 - 0.79)
Diffusion Tube Bias B	46% (34% - 58%)	30% (24% - 36%)	34% (26% - 43%)
Diffusion Tube Mean ($\mu g/m^3$)	53.4	37.3	35.1
Mean CV (Precision)	7.9%	5.7%	6.9%
Automatic Mean ($\mu g/m^3$) (for periods used to calculate bias)	36.6	28.7	26.1
Data Capture (for periods used to calculate bias)	100%	100%	95%
Overall Data Capture	100%	100%	93%
Adjusted Tube Mean ($\mu g/m^3$)	36 (34 - 40)	29 (28 - 30)	26 (25 - 28)
Overall Diffusion Tube Precision	Good Overall Precision	Good Overall Precision	Good Overall Precision
Overall Continuous Monitor Data Capture	Good Overall Data Capture	Good Overall Data Capture	Good Overall Data Capture
Combined Local Bias Adjustment Factor	0.73		

The national bias adjustment factor for co-location diffusion tube studies in 2023 analysed by Socotec (formerly Environmental Scientifics Group (ESG) Didcot) using a preparation method of 20% TEA/water was calculated to be 0.78. This has been taken from the national bias adjustment spreadsheet 03/25, as shown in Figure 12.

Figure 12. National Bias Adjustment Factor Calculation

National Diffusion Tube Bias Adjustment Factor Spreadsheet			Spreadsheet Version Number: 04/25

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 spreadsheet 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 2025
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:	Step 2:	Step 3:	Step 4:							
Select the Laboratory that Analyses Your Tubes from the Drop-Down List	Select a Preparation Method from the Drop-Down List	Select a Year from the Drop-Down List	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[3] shown in blue at the foot of the final column.							
If a laboratory is not shown, we have no data for this laboratory.	The preparation method is not shown, we have no data for this method at this laboratory.	If a year is not shown, we have no data[2]	If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953							
Analysed By[1]	Method	Year	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) ($\mu g/m_3$)	Automatic Monitor Mean Conc. (Cm) ($\mu g/m_3$)	Bias (B)	Tube Precision[5]	Bias Adjustment Factor (A) (Cm/Dm)
SOCOTEC Didcot	20% TEA in water	2024	KS	Marylebone Road Intercomparison	10	48	36	32.8%	G	0.75
SOCOTEC Didcot	20% TEA in water	2024		Overall Factor[3] (1 study)					Use	0.75

Discussion of Choice of Factor to Use

A conservative approach was taken, with the national bias adjustment factor selected to be applied to the 2024 monitoring data as it is slightly higher than the local factor.

Table N presents the bias adjustment factors used for LAQM purposes in the borough since 2017.

Table N. Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2024	National	04/25	0.75
2023	National	03/24	0.75
2022	National	03/23	0.76
2021	Local	-	0.76
2020	Local	-	0.80
2019	Local	-	0.79
2018	Local	-	0.84
2017	Local	-	0.72

A.3   Adjustments to the Ratified Monitoring Data

Short-term to Long-term Data Adjustment

Where data capture is less than 75% and greater than 25% of a full calendar year (between 3 and 9 months), the mean should be "annualised" – i.e. adjusted using the methodology outlined in LLAQM.TG(19) before being compared to annual mean objectives.

There were four diffusion tube locations which required annualisation, EA53b, EA61, EA64 and EA65. At diffusion tube monitoring site EA53 and automatic monitoring site EI3, data capture was below <25% for all pollutants measured, hence these sites were unable to be annualised. There was one automatic monitoring site (EI8 Horn Lane TEOM) where data capture was below <75% but >25% for PM_{10} only and hence this site was also annualised.

The continuous monitoring data chosen for annualisation of diffusion tube NO_2 data were the following AURN urban background sites: London Bloomsbury, London Hillingdon and London Westminster. London Bloomsbury and London Hillingdon were also used for the annualisation of PM_{10} data, as London Westminster does not monitor PM_{10} data London North Kensington was also used.

Table O outlines the calculations for the annualisation factors applied to the NO_2 monitoring data. Table P outlines the calculations for the annualisation factors applied to the PM_{10} monitoring data.

Distance Adjustment

If an exceedance is measured at a monitoring site which is not representative of public exposure, the procedure specified in LLAQM.TG(19) is used to estimate the concentration at the nearest receptor. Distance correction was required at one location in 2024. Background concentrations have been obtained from Defra-mapped background concentrations for 2024 for the grid-square where the monitoring site is located. Details of this can be found in Table P.

Table O. Non-Automatic Monitoring Data Adjustment

Site ID	Annualisation Factor London Bloomsbury	Annualisation Factor London Hillingdon	Annualisation Factor London Westminster	Average Annualisation Factor	Raw Data Annual Mean (µg m⁻³)	Annualised Annual Mean (µg m⁻³)	Comments
EA53b	1.0464	1.0405	1.0904	1.0591	66.1	70.0	
EA61	0.9091	0.9767	0.9013	0.9290	35.4	32.9	
EA64	0.9379	0.9334	0.9283	0.9332	41.4	38.6	
EA65	0.8808	0.9499	0.8898	0.9068	24.6	22.3	

Table P. Automatic PM$_{10}$ Monitoring Data Adjustment

Background Site	Annual Data Capture (%)	Annual Mean (A$_m$)	EI8	
			Period Mean (P$_m$)	Ratio (A$_m$ / P$_m$)
London Bloomsbury	94.0	12.4	13.0	0.953
London Hillingdon	99.7	12.9	13.2	0.978
London N. Kensington	99.6	11.9	12.4	0.954
Average (R$_a$)			0.962	
Raw Data Annual Mean (M)			23.5	
Annualised Annual Mean (M x R$_a$)			22.6	

Table Q. NO₂ Fall off With Distance Calculations

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted ($\mu g\ m^{-3}$)	Background Concentration ($\mu g\ m^{-3}$)	Concentration Predicted at Receptor ($\mu g\ m^{-3}$)	Comments
EA53b	0.5	2.0	52.5	17.6	**43.9**	*Predicted concentration at Receptor above AQS objective. Note there is no relevant public exposure.*

Appendix B   Full Monthly Diffusion Tube Results for 2024

Table R. NO$_2$ 2024 Diffusion Tube Results (µg m^{-3})

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.75)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
EA1	516368	182978	44.5	41.7	31.3	31.8	31.4	33.1	30.3	31.8	34.4	38.6	38.3	33.6	35.1	26.3	-	
EA2	516704	180487	42.8	42.6	37.2	33.0		34.0	34.9		35.6	36.1	39.1	34.1	36.9	27.7	-	
EA3	514740	180643	19.6		14.6	10.9	12.5	12.6	11.8	13.1	11.6	17.2	18.4	19.1	14.7	11.0	-	
EA4	515451	180894	36.2	31.1	26.9	30.0	30.4	29.0	28.1	24.0	33.0	35.6	37.1	30.9	31.0	23.3	-	
EA5	516281	178879	35.0	30.5	26.4	21.5	23.9	27.7	26.1	25.9	28.3	24.8	29.5	26.3	27.2	20.4	-	
EA6	515180	180111	37.1	39.5	35.2	29.8	33.0	27.9	37.4	30.8	43.4	41.1	36.5	35.3	35.3	26.5	-	
EA7	513476	178561	29.3	28.4	20.6	18.2	15.2	19.4	17.8	20.4		23.3	25.4	26.2	22.2	16.7	-	
EA8	512341	179186	37.7	38.2	36.4	29.2	31.2	30.9	34.6	32.3	37.3	37.6	43.0	32.9	35.1	26.3	-	
EA9	512181	179219	30.7	29.4	22.0	22.2	21.5	21.7	21.4	22.8	27.0	26.9	27.3	28.0	25.1	18.8	-	
EA10	511172	179241	46.9	41.5	36.9	30.9	30.8	31.7	30.2	31.2	32.5	32.2	33.4	27.9	33.8	25.4	-	
EA11	512657	179706	27.4	28.7	19.9	20.5	23.1	22.2	20.1	20.8	25.6	26.3	31.4	26.7	24.4	18.3	-	
EA12	512673	180069	33.0	32.0	29.7	23.5	22.8	20.5	25.1	23.4	23.5	31.1	32.6	20.3	26.5	19.8	-	
EA13	512768	180400	44.2	53.9	47.7	37.3	39.5	36.4	42.8	42.6	38.4	46.6	52.6	42.1	43.7	32.8	-	
EA14	512812	180516	42.8	43.1	40.1	33.9	35.7	35.3	36.3	31.6	24.8	35.8	39.0	36.5	36.2	27.2	-	
EA15	512442	183769	36.3	29.5	26.6	23.9	21.4	22.3	22.1	21.7	25.6	29.8	34.3	30.5	27.0	20.3	-	
EA16	513056	184241	35.7	32.1	27.2	27.2	22.6	27.7	25.1	26.4	29.0	27.2	29.1	32.9	28.5	21.4	-	
EA17	513794	185348	30.9	30.4	25.9	20.1	19.8	17.5	21.5	21.1	22.8	29.9	31.6	24.8	24.7	18.5	-	
EA18	515402	185313	30.1	31.5	25.6	19.4	22.1	19.9	19.1	20.3	23.8	29.7	29.9	25.9	24.8	18.6	-	
EA19	514985	183770	35.6	32.9	26.4	25.1	20.1	21.9	22.6	22.4	26.9	29.5	34.7	23.0	26.8	20.1	-	
EA20	514691	183269	31.9	36.2	32.9	25.4	26.7	26.9	25.4	25.2	24.3	33.1	32.6	29.9	29.2	21.9	-	
EA21	514882	183102	30.9	27.1	20.9	21.8	20.7	18.3	18.7	16.5	26.6	23.3	43.6	25.5	24.5	18.4	-	
EA22	515250	183093	42.0	35.0	36.4	29.5	26.8	27.7	25.4	24.3	28.5	29.4	22.6	26.2	29.5	22.1	-	
EA23	517694	179045	46.6	43.6	30.8	33.6	33.8	35.9	38.3	38.9	40.6	43.4	39.9	38.8	38.7	29.0	-	
EA24	517045	179292	40.4	35.1	30.1	29.6	30.4	23.8	27.7	24.0	33.2	37.1	38.2	35.5	32.1	24.1	-	
EA25	517644	180613	35.3	34.0	20.2	27.6	29.3	25.8	28.6	27.2	33.2	32.8	36.2	33.3	30.3	22.7	-	
EA26	517745	180826	45.2	44.7	38.2	38.1	42.2	44.3	47.2	47.6	46.0	49.6	49.1	43.3	44.6	33.5	-	
EA27	518022	181114	29.2	22.8	20.6	17.8	18.1	16.8	19.1	19.9	23.9	28.8	33.1	30.7	23.4	17.6	-	
EA28	517909	180971		39.1	33.0	29.1	35.8	35.7	39.2	37.1	42.2	43.5	65.2	40.0	40.0	30.0	-	
EA29	518635	181288	32.4	33.4	30.2	22.7	20.4	20.7	21.0	20.5	23.8	29.3	34.9	33.1	26.9	20.2	-	
EA30	518541	182707	60.2	54.6	63.9	56.1	53.8	49.7	60.2	42.5	50.4	42.3	49.1	45.8	-	-	-	Triplicate Site with EA30, EA31 and EA32 - Annual data provided for EA32 only
EA31	518541	182707	57.7	66.6	58.3	50.7	52.8	51.1	55.3	49.8	53.2	49.9	55.7	49.4	-	-	-	Triplicate Site with EA30, EA31 and EA32 - Annual data provided for EA32 only

Site	Easting	Northing	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Notes
EA32	518541	182707	**54.7**	**59.8**	**58.5**	**49.4**	**52.1**	**53.4**	**52.0**	**45.6**	**67.2**	**54.4**	**57.1**	39.7	53.4	**40.1**	-	Triplicate Site with EA30, EA31 and EA32 - Annual data provided for EA32 only
EA33	518673	182982	**46.9**	37.6	34.1	**40.6**		**45.0**	37.8	39.2	**43.9**	**43.0**	**44.4**	**40.1**	41.1	30.9	-	
EA34	519126	183383	**48.8**	**43.5**	39.3	35.7	35.4	31.1	33.2		38.4	**40.8**	**41.9**	**44.3**	39.3	29.5	-	
EA35	520020	182180	**43.3**	38.0	29.9	31.7	35.9	30.6	33.5	27.8	**40.6**	38.0	40.0	**40.9**	35.9	26.9	-	
EA36	520430	181950	**43.1**	**47.3**	36.5	36.1	33.9	30.7	32.5	27.9	34.1	38.9	38.2	37.6	-	-	-	Triplicate Site with EA36, EA37 and EA38 - Annual data provided for EA38 only
EA37	520430	181950	**50.9**	**43.0**	39.8	36.2	37.2	32.6	32.6	23.3	36.9	39.9	40.0	**42.6**	-	-	-	Triplicate Site with EA36, EA37 and EA38 - Annual data provided for EA38 only
EA38	520430	181950	**45.3**	**47.9**	**40.9**	36.9	37.4	32.0	30.7	27.3	34.5	34.5	**44.0**	39.7	37.3	28.0	-	Triplicate Site with EA36, EA37 and EA38 - Annual data provided for EA38 only
EA39	520426	181958	37.8	35.6	30.9	27.9	27.1	24.6	23.2	21.7	27.6	32.2	37.5	27.7	29.5	22.1	-	
EA40	520782	182771	25.1	29.1	24.5	23.0	22.6	21.2	23.0	20.5	29.7	31.9	34.2	25.8	25.9	19.4	-	
EA41	521312	182366	33.6	30.9	24.8	21.3	23.4	22.7	22.6	22.8	26.4	28.2	16.9	25.8	25.0	18.7	-	
EA42	521587	182685	38.0	**50.9**	34.6	30.9	33.3	30.0	33.2	34.8	**42.5**	**45.1**	39.1	27.4	36.7	27.5	-	
EA43	521303	182056	33.9	30.4	20.4	23.2	22.6	22.3	21.4	20.0	27.3	32.6	35.1	26.7	26.3	19.7	-	
EA44	521389	180953	31.9	28.4	22.8	20.3	20.2	9.0	18.4	18.4	20.8	26.8	24.9	27.0	22.4	16.8	-	
EA45	521173	180981	36.0	36.4	24.3	28.5	27.5	26.9	23.8	24.7	33.7	35.2	34.7	35.1	30.6	22.9	-	
EA46	521549	180923	**53.0**	**47.6**	**47.8**	**46.3**	**53.6**	**46.8**	**51.5**	**40.3**	**54.3**		**52.4**	**56.4**	50.0	37.5	-	
EA47	521557	180996	38.0	38.6	30.3	28.8	28.7	28.5	30.0	28.5	31.5		25.4	29.2	30.7	23.0	-	
EA48	521614	180852	**43.6**	**43.0**	34.9	38.4	38.7	35.8	**41.2**	33.1	**44.2**	**40.5**	**47.4**	39.8	40.1	30.0	-	
EA49	521720	180084	35.0	29.2	24.4	23.1	23.7	19.4	22.4	21.8	26.8	31.1	33.6	31.2	26.8	20.1	-	
EA50	521088	180046	35.1	26.7	25.6	24.7	26.6	22.4	25.9	22.8	32.1	28.6	33.1	28.0	27.6	20.7	-	
EA51	520285	180075	**54.9**	**55.5**	**46.8**	**47.8**	**47.4**	**44.1**	**46.0**	40.0	**53.7**	**49.9**	38.3	**42.2**	47.2	35.4	-	
EA52	520092	180063	34.1	26.8	21.0	22.1	22.0	20.5	20.3	18.1	27.2	29.3	31.5	27.8	25.1	18.8	-	
EA53	520030	180141										40.6		37.5	39.1	29.3		
EA53b	520044	180125	**65.0**	**53.3**	**67.5**	**67.3**		**70.4**	**65.9**	**65.2**	**73.9**				66.1	**52.5**	43.9	
EA54	520484	178847	38.1	34.2	27.5	25.6	26.4	24.5	27.7	21.9	31.9	29.2		31.0	28.9	21.7	-	
EA55	520226	180947	37.0	37.3	29.5	25.5	26.6	23.5	28.7	26.4	36.1	36.5	35.9	26.2	30.8	23.1	-	
EA56	520432	181428	**45.6**	**42.1**	23.0	31.4	29.0	27.9	34.2	31.3	38.3	38.2	35.2	30.9	-	-	-	Triplicate Site with EA56, EA57 and EA58 - Annual data provided for EA58 only
EA57	520432	181428	**43.9**	**40.4**	33.9	29.7	31.1	31.5	32.1	27.4	37.6	37.8	**42.3**	37.8	-	-	-	Triplicate Site with EA56, EA57 and EA58 - Annual data provided for EA58 only

Site ID	X	Y																Comments
EA58	520432	181428	37.8	**40.8**	30.1	32.7	29.9	29.1	30.7	31.3	37.1	38.9	**43.8**	33.6	34.7	26.0	-	Triplicate Site with EA56, EA57 and EA58 - Annual data provided for EA58 only
EA59	520532	181517	33.9	35.8	26.3	25.6	27.1	19.6	27.1	25.4	33.5	34.8	34.6	28.6	29.4	22.0	-	
EA60	520739	181824	36.2	34.0	29.3	25.0	25.0	23.9	25.9	22.7	29.9	34.0	39.9	26.2	29.3	22.0	-	
EA61	520713	181592	**40.3**	36.9	35.5	27.6					35.1		**40.8**	31.7	35.4	24.7	-	
EA62	512026	183762	29.0		24.3	17.7	15.1	14.6		17.2	18.1	27.0	26.8	24.9	21.5	16.1	-	
EA63	513483	182686	36.5	26.1	26.2	19.1	22.6	20.2	21.9	24.8	26.1	32.3	31.6	28.4	26.3	19.7	-	
EA64	514378	182112	**45.4**	**43.8**	**42.5**		**41.0**			**41.1**		**41.8**	36.7	38.9	41.4	29.0	-	
EA65	515276	181990	27.6		19.2						21.4	26.4		28.3	24.6	16.7	-	
EA66	514521	182949	33.2	32.5	24.3	20.6	20.2	16.3		20.2	24.9	31.8	35.1	24.7	25.8	19.4	-	

☒ **All erroneous data has been removed from the NO$_2$ diffusion tube dataset presented in Table R.**

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LLAQM.TG19.**

☐ **Local bias adjustment factor used.**

☒ **National bias adjustment factor used.**

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

☒ **London Borough of Ealing confirm that all 2024 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

Exceedances of the NO$_2$ annual mean objective of 40µg m^{-3} are shown in **bold**.

NO$_2$ annual means exceeding 60µg m^{-3}, indicating a potential exceedance of the NO$_2$ 1-hour mean objective are shown in **<u>bold and underlined</u>**.

See Appendix C for details on bias adjustment and annualisation.

Appendix C   Map(s) of Monitoring Locations and AQMAs
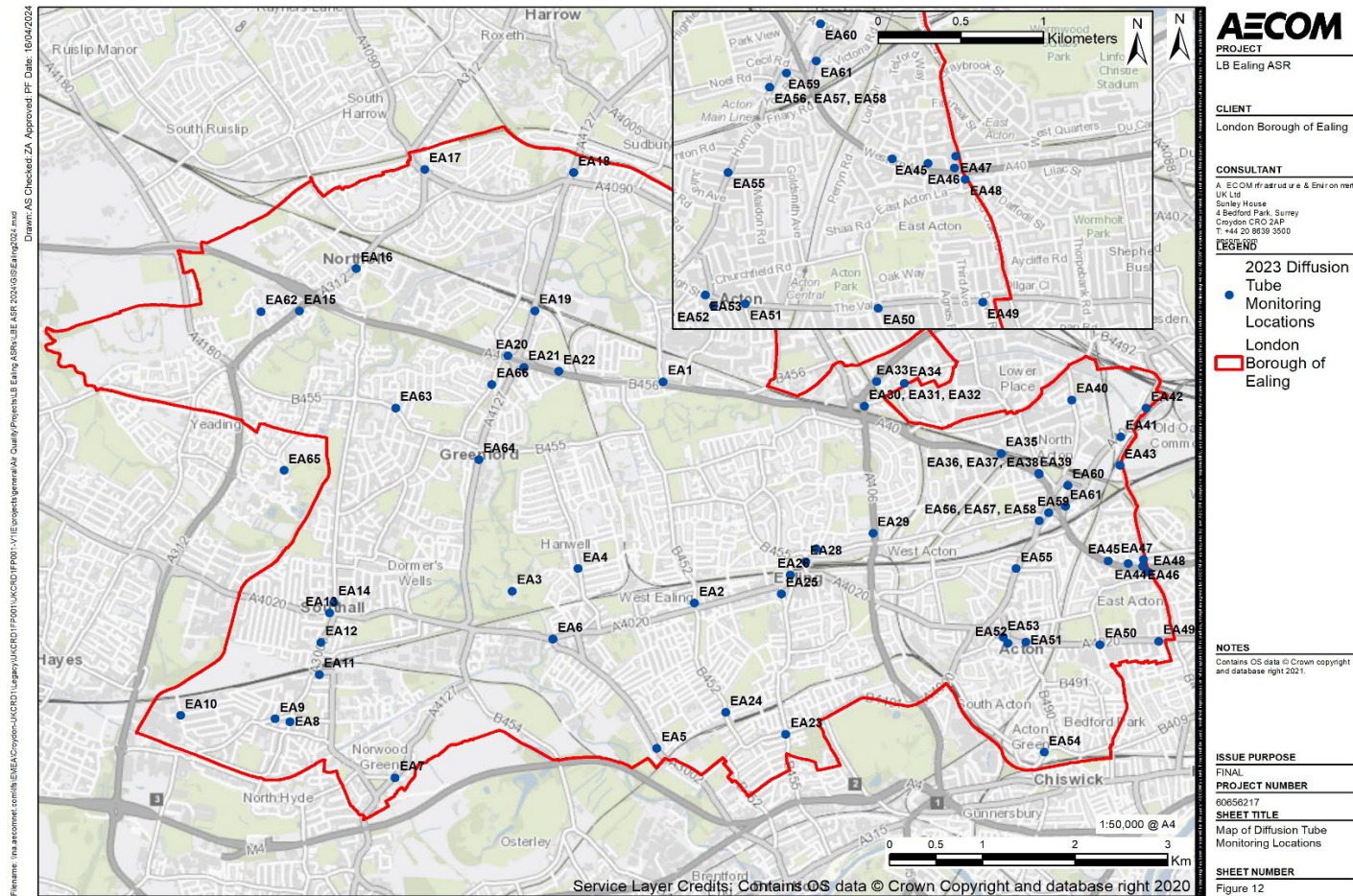
Figure M. Map of Non-Automatic Monitoring Site(s)

Figure N. Map of Automatic Monitoring Sites