London Borough of Ealing Air Quality Annual Status Report for 2017
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This report provides a detailed overview of air quality in Ealing during 2017. It has been produced to meet the requirements of the London Local Air Quality Management statutory process[1].

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[1] LLAQM Policy and Technical Guidance 2016 (LLAQM.TG(16)). https://www.london.gov.uk/what-we-do/environment/pollution-and-air-quality/working-boroughs

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Abbreviations

AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQO	Air Quality Objective
BEB	Buildings Emission Benchmark
CAB	Cleaner Air Borough
CAZ	Central Activity Zone
EV	Electric Vehicle
GLA	Greater London Authority
LAEI	London Atmospheric Emissions Inventory
LAQM	Local Air Quality Management
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	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} mot to be exceeded more than 3 times a year	24 hour mean	31 Dec 2004

Note: [1] by which to be achieved by and maintained thereafter

1. Air Quality Monitoring

1.1 Locations

The London Borough of Ealing currently operates three automatic monitoring stations following the closure of the Ealing Southall Railway site during 2014 and Ealing Southall at the end of 2015. In addition, a new privately-operated automatic monitoring station was opened on 23rd November 2017 in Warple Way, Acton Vale, which monitors Nitrogen Dioxide (NO_2) and Particulate Matter (PM_{10}) and is classified as an urban background site. The monitoring results for this new station are not shown in this report as insufficient data is currently available for representative statistics to be calculated. The data from this site will be presented in next year's report. Of the three remaining monitoring stations, two are roadside sites and one is classified as an industrial site. All sites are operated as part of the London Air Quality Network. Two different analysers for PM_{10} are active at the Horn Lane monitoring station, a TEOM and a TEOM-FDMS. Consistent with the London Air Quality Network classification, data from the two instruments are reported as two separate stations (EA8 Horn Lane and EI8 Horn Lane TEOM). Details of the relevant Quality Assurance/Quality Control (QA/QC) procedures that were followed during the monitoring are provided in Appendix A.

Figure 1 and Table B provide details of the automatic monitoring sites located in the Borough. All of the currently operational monitoring sites measure NO_2 and PM_{10}.

Figure 1. Map of Automatic Monitoring Sites

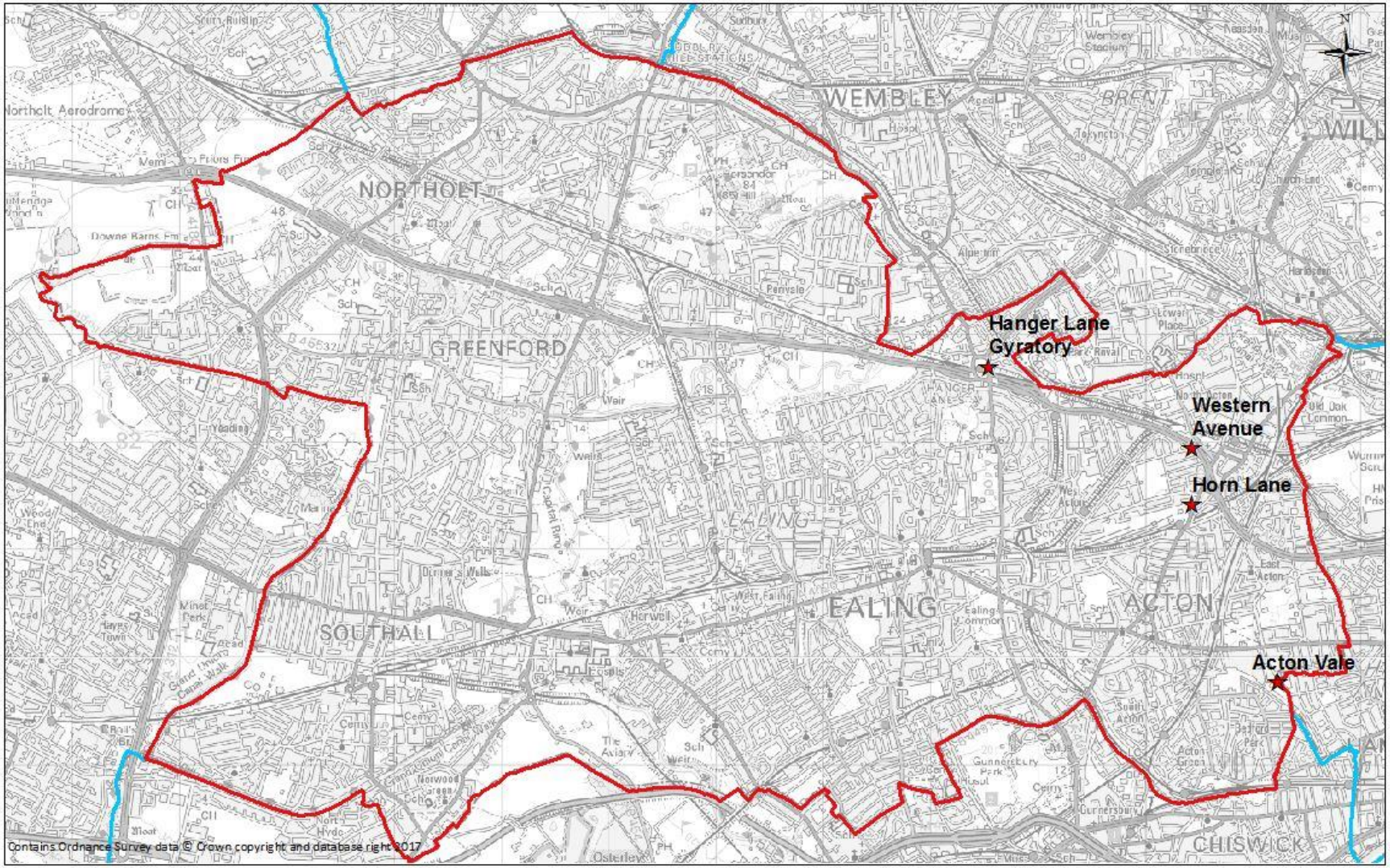


Table B. Details of Automatic Monitoring Sites for 2017

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance from monitoring site to relevant exposure (m)	Distance to kerb of nearest road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Monitoring technique
EA6 Hanger Lane Gyratory	Hanger Lane Gyratory	518537	182708	Roadside	Y	4	3	2.5	NO_2, PM_{10}	Chemiluminescence, TEOM
EA8 Horn Lane	Horn Lane	520432	181428	Industrial	Y	8	2.5	3.0	NO_2, PM_{10}	Chemiluminescence, PM_{10} by FDMS
EI8 Horn Lane TEOM	Horn Lane	520432	181428	Industrial	Y	8	2.5	3.0	PM_{10}	TEOM
EI1 Western Avenue	Western Avenue	520430	181950	Roadside	Y	4	4	2.0	NO_2, PM_{10}	Chemiluminescence, TEOM
EI3 East Acton	Acton Vale*	521234	179771	Urban Background	Y	N/A	N/A	2.55	NO_2, PM_{10}	Chemiluminescence, PM_{10} by FDMS

*Provisional

The London Borough of Ealing historically monitored annual mean NO_2 concentrations using passive diffusion tubes at 126 sites located throughout the Borough. The number of sites has reduced over the years and in 2017, the Council had 61 diffusion tubes at 55 sites. There are three triplicate sites, co-located with the three automatic air quality monitoring stations. Figure 2 and Table C provide details of the diffusion tube sites operated within the Borough during 2017. Changes to the diffusion tube network since 2016 include discontinuation of monitoring at 23 sites to focus on the worst locations of relevant exposure by removing sites that had been compliant with the annual mean objective for several years.

The following sites from 2016 were closed:

- EA1 - 31 Castlebar Road, Ealing, W5 2DJ
- EA2 - 1-4 Peal Gardens, West Ealing, W13 OBA
- EA4 - 1-11 Clover House, Gilbert White Close, Perivale, UB6 7FH
- EA5 - 41 Manor Road, West Ealing, W13 OJA
- EA7 - 12 Balfour Road, West Ealing, W13 9TN
- EA8 - 40 Church Road, Hanwell, W7 1DL
- EA18 - Martin Court, Southbridge Way, Southall, UB2 4QW
- EA19 - 16 Beaconsfield Road, Southall, UB1 1DW
- EA22 - 3 Greenford Avenue, Southall, UB1 2AA
- EA24 - Clubhouse, Spike Bridges Park, West Avenue, Southall, UB1 2AR
- EA25 - 205 Windmill Lane, Greenford, UB6 9DW
- EA26 - 2 Shadwell Drive, Northolt, UB5 6DB
- EA27 - 32 Irving Avenue, Northolt, UB5 5LX
- EA32 - 79 Whitton Avenue East, Greenford, UB6 0QD
- EA37 - 4 Thirlmere Avenue, Perivale, UB6 8EF
- EA38 - Oakley House, Oakley Avenue, Ealing, W5 3SB
- EA43 - 27 Haven Green, Ealing, W5 2NZ
- EA52 - Rainsford Court, Rainsford Road, Park Royal, NW10 7RJ
- EA69 - Old School House, East Acton Lane, Acton, W3 7HA
- EA73 - 26 Hawkshead Road, Chiswick, W4 1AD
- EA75 - 90 Bollo Lane, Chiswick, W4 5LX
- EA76 - 122 Gunnersbury Lane, Acton, W3 9BA
- EA77 - 15 Lantry Court, Lexden Road, Acton, W3 9PE

Note that these changes mean that the site ID codes for a number of sites changed between 2016 and 2017. For ease of reference, site ID codes for 2016 and 2017 are shown in Table C and Table D.

Figure 2. Map of Non-Automatic Monitoring Sites (2017 Sites IDs)

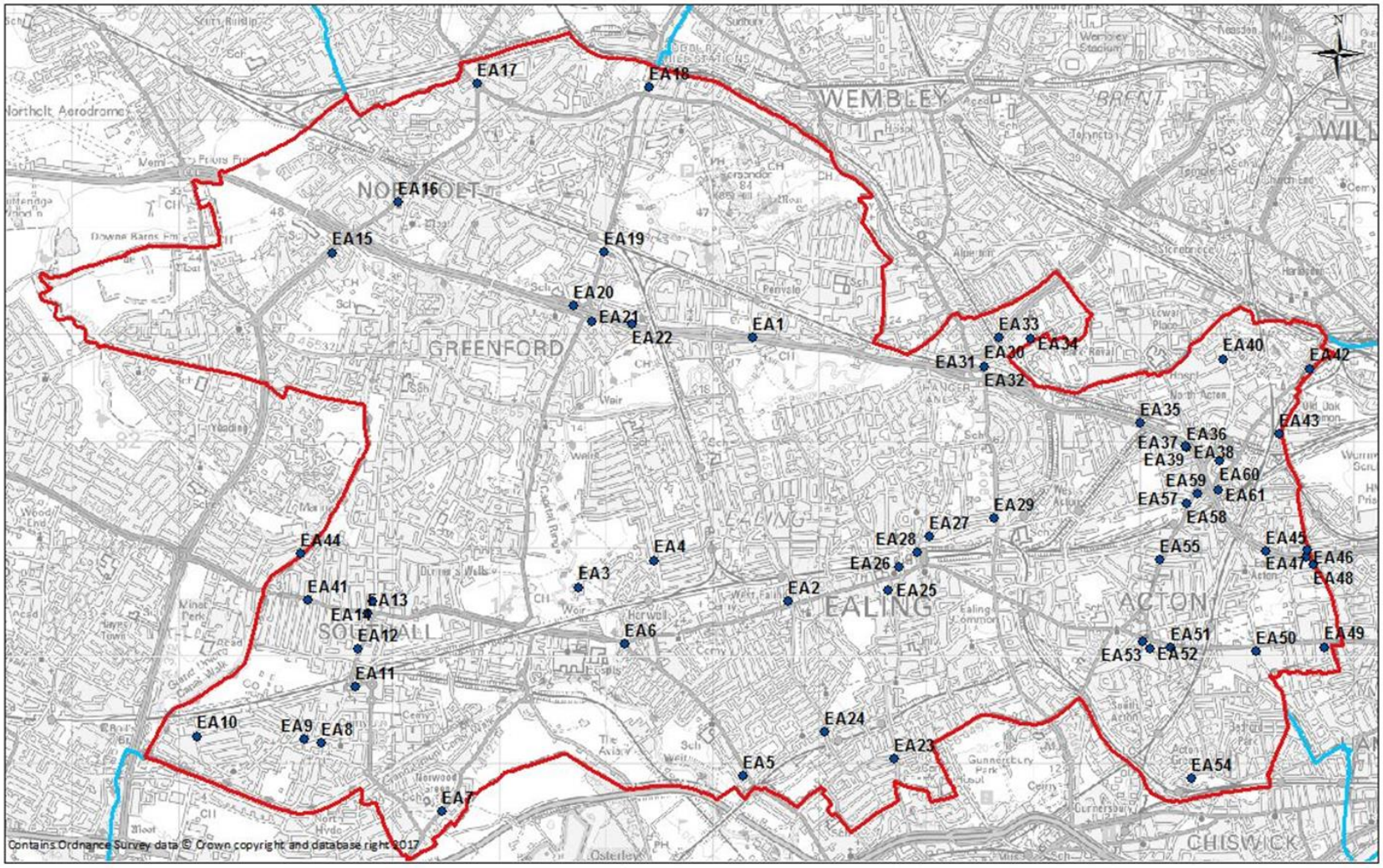


Table C. Details of Non-Automatic Monitoring Sites for 2017

Site ID (2017)	Site ID (2016)	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance from monitoring site 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)
EA01	EA03	2 Horsenden Lane South, Greenford, UB6 8AB	516368	182978	Roadside	Y	0	5	2 – 2.5	NO_2	N
EA02	EA06	1 Kirn Road, West Ealing, W13 0UB	516699	180509	Roadside	Y	0	2	2 – 2.5	NO_2	N
EA03	EA09	Brent Lodge Park, Church Road, Hanwell, W7 3BP	514740	180643	Background	Y	0	30	2 – 2.5	NO_2	N
EA04	EA10	74a Greenford Avenue, Hanwell, W7 3QS	515451	180894	Roadside	Y	0	5	2 – 2.5	NO_2	N
EA05	EA11	6 Boston Gardens, Boston Road, Hanwell, W7 2AN	516277	178882	Roadside	Y	0	10	2 – 2.5	NO_2	N
EA06	EA12	200 Uxbridge Road, Hanwell, W7 3TB	515180	180111	Roadside	Y	0	3.3	2 – 2.5	NO_2	N
EA07	EA13	2 St Marys Avenue South, Southall, UB2 4LS	513468	178553	Roadside	Y	0	12	2 – 2.5	NO_2	N
EA08	EA14	55 King Street, Southall, UB2 4DQ	512341	179186	Roadside	Y	0	3.3	2 – 2.5	NO_2	N
EA09	EA15	18 Western Road, Southall, UB2 5DU	512181	179219	Roadside	Y	0	7.5	2 – 2.5	NO_2	N
EA10	EA16	150 Brent Road, Southall, UB2 5LD	511170	179251	Roadside	Y	0	7.7	2 – 2.5	NO_2	N
EA11	EA17	2 Merrick Road, Southall, UB2 4AU	512657	179712	Roadside	Y	0	12	2 – 2.5	NO_2	N
EA12	EA20	Hambrough Primary School, South Road, Southall, UB1 1SF	512673	180069	Roadside	Y	0	10	2 – 2.5	NO_2	N

Site ID (2017)	Site ID (2016)	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance from monitoring site 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)
EA13	EA21	11 The Broadway, Southall, UB1 3PX	512768	180400	Roadside	Y	0	4	2 – 2.5	NO_2	N
EA14	EA23	25 Lady Margaret Road, Southall, UB1 2RA	512812	180516	Roadside	Y	0	6.3	2 – 2.5	NO_2	N
EA15	EA28	213 Church Road, Northolt, UB5 5BE	512442	183769	Roadside	Y	0	12.4	2 – 2.5	NO_2	N
EA16	EA29	31 Mandeville Road, Northolt, UB5 5HF	513056	184241	Roadside	Y	0	9	2 – 2.5	NO_2	N
EA17	EA30	126 Petts Hill, Northolt, UB5 4NW	513794	185348	Roadside	Y	0	9	2 – 2.5	NO_2	N
EA18	EA31	1504 Greenford Road, Greenford, UB6 0HR	515402	185313	Roadside	Y	0	5.3	2 – 2.5	NO_2	N
EA19	EA33	914 Greenford Road, Greenford, UB6 8QN	514985	183770	Roadside	Y	0	3.3	2 – 2.5	NO_2	N
EA20	EA34	6 Karoline Gardens, Greenford, UB6 9JP	514691	183269	Roadside	Y	0	9.1	2 – 2.5	NO_2	N
EA21	EA35	12 Blenheim Close, Greenford, UB6 8ET	514863	183122	Roadside	Y	0	9.5	2 – 2.5	NO_2	N
EA22	EA36	19 Runnymede Gardens, Greenford, UB6 8SX	515240	183102	Roadside	Y	0	1.2	2 – 2.5	NO_2	N
EA23	EA39	158 South Ealing Road, Ealing, W5 4QL	517694	179045	Roadside	Y	0	3.5	2 – 2.5	NO_2	N
EA24	EA40	213 Northfields Ave, West Ealing, W13 9QU	517045	179292	Roadside	Y	0	5.2	2 – 2.5	NO_2	N
EA25	EA41	12 Bond Street, Ealing, W5 5AP	517644	180613	Roadside	Y	0	2.7	2 – 2.5	NO_2	N
EA26	EA42	8 Spring Bridge Road, Ealing, W5 2AA	517745	180827	Roadside	Y	0	3	2 – 2.5	NO_2	N
EA27	EA44	21 Haven Lane, Ealing, W5 2HZ	518022	181114	Roadside	Y	0	2.4	2 – 2.5	NO_2	N

Site ID (2017)	Site ID (2016)	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance from monitoring site 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)
EA28	EA45	41-42 Haven Green, Ealing, W5 2NX	517909	180971	Roadside	Y	0	3	2 – 2.5	NO_2	N
EA29	EA46	64 Hanger Lane, Ealing,W5 2JH	518635	181288	Roadside	Y	0	0.7	2 – 2.5	NO_2	N
EA30	EA47	Fernlea House, Hanger Lane, Ealing, W5 1EF (AQMS) (Tri)	518541	182707	Roadside	Y	0	4	2 – 2.5	NO_2	Y
EA31	EA48	Fernlea House, Hanger Lane, Ealing, W5 1EF (AQMS) (Tri)	518541	182707	Roadside	Y	0	4	2 – 2.5	NO_2	Y
EA32	EA49	Fernlea House, Hanger Lane, Ealing, W5 1EF (AQMS) (Tri)	518541	182707	Roadside	Y	0	4	2 – 2.5	NO_2	Y
EA33	EA50	25 Waverley Gardens, Park Royal, NW10 7EX	518680	182979	Roadside	Y	0	1.8	2 – 2.5	NO_2	N
EA34	EA51	3 Iveagh Terrace, Park Royal, NW10 7SY	518976	182963	Roadside	Y	0	33	2 – 2.5	NO_2	N
EA35	EA53	Wendover Court, Western Avenue, Acton, W3 0TG-Grnd Floor	519997	182178	Roadside	Y	0	11	2 – 2.5	NO_2	N
EA36	EA54	322 & 324 Western Avenue, Acton, W3 OPL (AQMS) (Tri)	520430	181950	Roadside	Y	3.5	5	2 – 2.5	NO_2	Y
EA37	EA55	322 & 324 Western Avenue, Acton, W3 OPL (AQMS) (Tri)	520430	181950	Roadside	Y	3.5	5	2 – 2.5	NO_2	Y
EA38	EA56	322 & 324 Western Avenue, Acton, W3 OPL (AQMS) (Tri)	520430	181950	Roadside	Y	3.5	5	2 – 2.5	NO_2	Y

Site ID (2017)	Site ID (2016)	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance from monitoring site 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)
EA39	EA57	326 Western Avenue, Acton, W3 0PL	520426	181958	Roadside	Y	0	11.4	2 – 2.5	NO_2	N
EA40	EA58	94 North Acton Road, Park Royal, NW10 7AY	520780	182775	Roadside	Y	0	6	2 – 2.5	NO_2	N
EA41	EA59	1 Shaftesbury Gardens, Park Royal, NW10 6LJ	512206	180522	Roadside	Y	0	5	2 – 2.5	NO_2	N
EA42	EA60	39 Old Oak Lane, Park Royal, NW10 6EJ	521587	182684	Roadside	Y	0	5	2 – 2.5	NO_2	N
EA43	EA61	165 Wells House Road, Park Royal, NW10 6EA	521301	182076	Roadside	Y	0	5	2 – 2.5	NO_2	N
EA44	EA62	4 St Andrews Road, Acton, W3 7NE	512138	180953	Roadside	Y	0	8.6	2 – 2.5	NO_2	N
EA45	EA63	98 Western Avenue, Acton, W3 7TZ	521173	180981	Roadside	Y	0	10	2 – 2.5	NO_2	N
EA46	EA64	6 Western Avenue, Acton, W3 7UD	521549	180923	Roadside	Y	0	4.6	2 – 2.5	NO_2	N
EA47	EA65	71 Old Oak Common Lane, Acton W3 7DD	521557	180996	Roadside	Y	0	11	2 – 2.5	NO_2	N
EA48	EA66	205 Old Oak Road, Acton W3 7HH	521614	180852	Roadside	Y	0	4.7	2 – 2.5	NO_2	N
EA49	EA67	17 The Vale, Acton, W3 7SH	521720	180084	Roadside	Y	0	19.4	2 – 2.5	NO_2	N
EA50	EA68	Warple Way, Acton, W3 0RH	521088	180046	Roadside	Y	0	2.2	2 – 2.5	NO_2	N
EA51	EA70	88 High Street, Acton, W3 6QX	520285	180075	Roadside	Y	0	5	2 – 2.5	NO_2	N
EA52	EA71	15a Church Road, Acton, W3 8QE	520092	180063	Roadside	Y	0	10	2 – 2.5	NO_2	N
EA53	EA72	182 High Street, Acton, W3 9NN	520026	180141	Roadside	Y	0	4	2 – 2.5	NO_2	N

Site ID (2017)	Site ID (2016)	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance from monitoring site 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)
EA54	EA74	44 Acton Lane, Chiswick, W4 5ED	520480	178854	Roadside	Y	0	5	2 – 2.5	NO_2	N
EA55	EA78	156 Horn Lane, Acton, W3 6PH	520180	180896	Roadside	Y	0	6	2 – 2.5	NO_2	N
EA56	EA79	317 Horn Lane, Acton, W3 0BU (AQMS) (Tri)	520432	181428	Roadside	Y	10	3	2 – 2.5	NO_2	Y
EA57	EA80	317 Horn Lane, Acton, W3 0BU (AQMS) (Tri)	520432	181428	Roadside	Y	10	3	2 – 2.5	NO_2	Y
EA58	EA81	317 Horn Lane, Acton, W3 0BU (AQMS) (Tri)	520432	181428	Roadside	Y	10	3	2 – 2.5	NO_2	Y
EA59	EA82	5 Leamington Park, Acton, W3 6TJ	520532	181517	Roadside	Y	0	11	2 – 2.5	NO_2	N
EA60	EA83	Lyra Court, Portal Way, Acton, W3 6DB	520739	181824	Roadside	Y	0	5	2 – 2.5	NO_2	N
EA61	EA84	36 Wales Farm Road, Acton, W3 6UE	520724	181552	Roadside	Y	0	5	2 – 2.5	NO_2	N

1.2 Comparison of Monitoring Results with AQOs

The results presented in Table D are after adjustments for "annualisation" and for distance to a location of relevant public exposure. Details of these adjustments are described in Appendix A.

Currently, the London Borough of Ealing operates a network of 61 diffusion tubes across 55 sites (including 3 triplicate sites co-located with continuous analysers). The diffusion tubes are prepared and analysed by Socotec (formerly Environmental Scientifics Group Didcot) using the 20% Triethanolamine (TEA) in water preparation. Details of the QA/QC procedures applied to the diffusion tube results are summarised in Appendix A.

Currently there are four automatic monitoring stations in operation, which measure NO_2: Hanger Lane Gyratory (EA6), Horn Lane (EA8) and Western Avenue (EI1). In November 2017, an urban background automatic monitoring site was opened in Warple Way, Acton Vale which measures NO_2 and PM_{10}. Data from this site will be report in next year's report.

The annual mean NO_2 results from the automatic monitoring stations and diffusion tube locations for the last seven years are shown in Table D. Data capture was good in 2017 for Hanger Lane Gyratory and Horn Lane, with both stations achieving a data capture rate above 90%. Data capture at Western Avenue was 79%. All of the diffusion tube monitoring locations had at least 9 months of valid data for 2017 (i.e. 75% data capture or greater).

Exceedances of the NO_2 annual mean objective of 40 $\mu g.m^{-3}$ were observed at the three automatic monitoring stations (Hanger Lane Gyratory, Horn Lane and Western Avenue) in all years between 2011 and 2017. The highest annual mean concentration in 2017 (72.3 $\mu g.m^{-3}$) was recorded at the Hanger Lane Gyratory site. None of the automatic sites exceeded the 1 hour mean NO_2 objective (200 $\mu g\ m^{-3}$ not to be exceeded more than 18 times a year) in 2017.

In total, 30 diffusion tubes at 24 locations recorded concentrations greater than the 40 $\mu g.m^{-3}$ air quality objective in 2017. Of these 30 tubes, 4 tubes at 2 locations recorded concentrations above 60 $\mu g.m^{-3}$. Concentrations greater than 60 $\mu g.m^{-3}$ indicate the likelihood of the 1 hour mean NO_2 objective being exceeded. The maximum NO_2 concentration recorded at diffusion tube sites in 2017 was 74.0 $\mu g.m^{-3}$ at site EA32 at Fernlea House, Hanger Lane, Ealing. This location has recorded concentrations of 73 $\mu g.m^{-3}$ and above in each of the last seven years.

Table D. Annual Mean NO_2 Ratified and Bias-adjusted Monitoring Results (μg m^{-3})

Site ID (2017)	Site ID (2016)	Site type	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Annual Mean Concentration (μg m^{-3})						
					2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]
EA6 Hanger Lane Gyratory		Automatic	97%	97%	**79.2**	**95.0**	**74.3**	**70.8**	**85**	**76**	**72.3**
EA8 Horn Lane		Automatic	95%	95%	**58.1**	**53.4**	**56.6**	**47.6**	**48**	**48**	**44.2**
EI1 Western Avenue		Automatic	79%	79%	**61.7**	**69.8**	**63.9**	**65.7**	**60.3**	**60.1**	**51.2**
EA01	EA03	Diffusion tube	100%	100%	**61.9**	**61.4**	**53.1**	**61.7**	**64.3**	**61.0**	**54.0**
EA02	EA06	Diffusion tube	100%	100%	**52.1**	**51.4**	**46.8**	**48.9**	**50.1**	**47.9**	**40.1**
EA03	EA09	Diffusion tube	92%	92%	27.2	28.9	23.5	23.5	24.7	23.8	20.2
EA04	EA10	Diffusion tube	100%	100%	N/A	N/A	36.5	37.4	36.4	36.2	32.4
EA05	EA11	Diffusion tube	100%	100%	37.1	36.5	33.1	32.4	33.5	34.2	29.7
EA06	EA12	Diffusion tube	100%	100%	N/A	N/A	**52.6**	**54.5**	**49.5**	**49.8**	**42.8**
EA07	EA13	Diffusion tube	100%	100%	30.2	28.9	25.1	25.0	25.6	31.9	29.4
EA08	EA14	Diffusion tube	83%	83%	**63.3**	**56.3**	**47.3**	**47.9**	**48.6**	**48.9**	**50.6**
EA09	EA15	Diffusion tube	100%	100%	38.6	**41.9**	36.4	36.3	36.7	36.6	31.9
EA10	EA16	Diffusion tube	100%	100%	**42.8**	**41.0**	37.6	39.5	**40.3**	38.5	34.6
EA11	EA17	Diffusion tube	92%	92%	**43.1**	38.4	32.6	30.5	31.9	33.4	28.6
EA12	EA20	Diffusion tube	100%	100%	**47.2**	**44.9**	**41.1**	39.2	37.1	39.3	31.4
EA13	EA21	Diffusion tube	100%	100%	**69.3**	**60.9**	**55.2**	**54.2**	**53.5**	**52.7**	**45.1**
EA14	EA23	Diffusion tube	100%	100%	N/A	N/A	N/A	N/A	N/A	**48.0**	**44.1**
EA15	EA28	Diffusion tube	100%	100%	**45.3**	**44.6**	**42.1**	**41.7**	**42.5**	**42.5**	36.2
EA16	EA29	Diffusion tube	100%	100%	N/A	**46.2**	**40.2**	39.6	**42.5**	40.0	37.1
EA17	EA30	Diffusion tube	100%	100%	**40.1**	**40.8**	32.5	35.6	37.5	37.3	33.4
EA18	EA31	Diffusion tube	100%	100%	39.5	38.6	33.5	34.4	34.5	33.9	31.5
EA19	EA33	Diffusion tube	100%	100%	**41.8**	39.5	36.5	39.1	**40.6**	39.3	34.7
EA20	EA34	Diffusion tube	100%	100%	N/A	N/A	**42.2**	**47.5**	**48.8**	**42.2**	**41.0**
EA21	EA35	Diffusion tube	100%	100%	39.9	**43.2**	38.6	36.6	39.4	39.0	34.2
EA22	EA36	Diffusion tube	100%	100%	**43.3**	**44.7**	39.4	**41.2**	**41.9**	39.1	37.9
EA23	EA39	Diffusion tube	100%	100%	N/A	N/A	**57.3**	**60.3**	**62.4**	**62.1**	**53.5**
EA24	EA40	Diffusion tube	100%	100%	N/A	N/A	37.9	34.6	35.4	36.6	36.1
EA25	EA41	Diffusion tube	100%	100%	**57.0**	**49.3**	**50.7**	**47.3**	**49.0**	**48.6**	**44.3**
EA26	EA42	Diffusion tube	100%	100%	**71.8**	**66.8**	**61.4**	**61.3**	**62.3**	**61.9**	**54.4**

Site ID (2017)	Site ID (2016)	Site type	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Annual Mean Concentration (µg m^{-3})						
					2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]
EA27	EA44	Diffusion tube	100%	100%	**41.4**	36.8	33.8	32.4	35.2	35.4	31.2
EA28	EA45	Diffusion tube	100%	100%	**60.8**	**52.1**	**48.4**	**51.4**	**49.4**	**48.0**	39.8
EA29	EA46	Diffusion tube	100%	100%	**42.7**	**44.4**	38.7	39.4	38.4	39.5	35.6
EA30	EA47	Triplicate diffusion tube	100%	100%	**77.1**	**75.0**	**75.1**	**79.6**	**80.3**	**71.5**	**70.3**
EA31	EA48	Triplicate diffusion tube	100%	100%	**80.6**	**81.7**	**74.3**	**81.6**	**79.1**	**74.8**	**71.4**
EA32	EA49	Triplicate diffusion tube	100%	100%	**78.5**	**79.3**	**74.7**	**79.6**	**79.6**	**73.4**	**74.0**
EA33	EA50	Diffusion tube	100%	100%	**54.9**	**51.8**	**49.7**	**50.0**	**52.6**	**49.8**	**43.3**
EA34	EA51	Diffusion tube	100%	100%	**44.5**	**45.0**	**40.6**	**40.9**	**41.1**	39.6	34.6
EA35	EA53	Diffusion tube	100%	100%	38.9	**56.0**	**59.3**	**56.0**	**56.4**	**55.7**	**47.3**
EA36	EA54	Triplicate diffusion tube	92%	92%	**77.8**	**73.8**	**68.2**	**70.5**	**69.9**	**62.1**	**56.3**
EA37	EA55	Triplicate diffusion tube	100%	100%	**72.8**	**75.1**	**66.7**	**70.0**	**68.1**	**57.7**	**56.8**
EA38	EA56	Triplicate diffusion tube	100%	100%	**73.5**	**74.5**	**67.6**	**70.6**	**68.8**	**60.9**	**54.9**
EA39	EA57	Diffusion tube	100%	100%	**62.5**	**59.9**	**57.3**	**55.6**	**58.1**	**52.1**	**45.0**
EA40	EA58	Diffusion tube	100%	100%	39.8	38.9	34.2	35.5	38.0	38.1	33.4
EA41	EA59	Diffusion tube	100%	100%	**42.1**	**43.4**	37.8	36.5	**40.2**	37.7	32.6
EA42	EA60	Diffusion tube	100%	100%	**54.1**	**51.1**	**50.5**	**53.0**	**54.4**	**49.6**	**45.3**
EA43	EA61	Diffusion tube	100%	100%	39.9	36.7	39.8	**41.3**	**45.7**	**40.5**	36.9
EA44	EA62	Diffusion tube	100%	100%	**43.4**	**42.3**	35.8	**40.2**	**40.0**	38.1	34.7
EA45	EA63	Diffusion tube	100%	100%	**51.4**	**51.8**	**48.2**	**50.8**	**49.8**	**49.9**	**43.9**
EA46	EA64	Diffusion tube	100%	100%	**70.4**	**70.8**	**69.2**	**77.4**	**82.5**	**75.3**	**67.9**
EA47	EA65	Diffusion tube	92%	92%	**53.2**	**49.6**	**48.1**	**47.8**	**49.4**	**49.2**	**43.7**
EA48	EA66	Diffusion tube	100%	100%	**59.7**	**55.2**	**58.6**	**57.4**	**60.7**	**58.9**	**50.9**
EA49	EA67	Diffusion tube	92%	92%	**50.1**	**49.5**	**44.3**	**40.3**	**41.4**	**40.9**	34.6
EA50	EA68	Diffusion tube	100%	100%	N/A	N/A	**43.1**	39.8	38.2	39.4	32.6
EA51	EA70	Diffusion tube	100%	100%	N/A	**54.7**	**56.2**	**56.9**	**55.5**	**56.0**	**49.0**
EA52	EA71	Diffusion tube	83%	83%	32.9	39.5	30.6	36.4	33.7	35.1	28.6
EA53	EA72	Diffusion tube	92%	92%	**67.4**	**48.9**	**59.0**	**53.9**	**55.8**	**54.7**	**44.4**
EA54	EA74	Diffusion tube	92%	92%	**41.8**	**40.1**	38.4	38.0	**41.1**	37.8	37.6
EA55	EA78	Diffusion tube	100%	100%	**46.6**	**40.7**	**42.2**	**42.3**	**42.2**	**43.1**	36.5
EA56	EA79	Triplicate diffusion tube	100%	100%	**59.6**	**54.7**	**51.8**	**48.2**	**52.3**	**51.0**	**45.3**
EA57	EA80	Triplicate diffusion tube	100%	100%	**56.8**	**47.0**	**50.1**	**50.7**	**51.6**	**51.1**	**44.4**
EA58	EA81	Triplicate diffusion tube	92%	92%	**54.0**	**53.2**	**51.5**	**46.4**	**52.2**	**50.4**	**42.7**
EA59	EA82	Diffusion tube	100%	100%	**48.6**	**46.6**	**41.9**	**40.9**	**43.7**	**43.7**	36.4

Site ID (2017)	Site ID (2016)	Site type	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Annual Mean Concentration (µg m^{-3})						
					2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]
EA60	EA83	Diffusion tube	100%	100%	N/A	N/A	N/A	**43.1**	**47.8**	**47.5**	**40.0**
EA61	EA84	Diffusion tube	100%	100%	**48.5**	**44.8**	**44.7**	**43.2**	**45.6**	**43.9**	38.9

Notes: Exceedance 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.
[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%)
[c] Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

Figure 3 shows the trends in NO_2 concentrations at automatic monitoring sites in the Borough for the 2011 – 2017 period, whilst Figure 4 to Figure 11 show the trends in NO_2 concentrations for the same period at diffusion tube monitoring sites grouped by monitoring site type: urban background, near road sites and roadside sites.

At the automatic monitoring sites (Figure 3) there is evidence of small reductions in NO_2 concentrations between 2011 and 2017, although there is significant variability from year to year. At Horn Lane, concentrations of NO_2 have remained steady since 2014, with a slight decrease in concentration in 2017. Similarly, at Western Avenue concentrations have fallen or remained constant since 2014. Larger year-to-year variations in NO_2 concentrations have been observed at Hangar Lane Gyratory, although concentrations over the time period 2011 to 2017 have decreased.

At the urban background diffusion tube site, Brent Lodge Park (Figure 4), there is evidence of a slight decrease in NO_2 concentrations between 2011 and 2013, followed by stable concentrations between 2013 and 2016, with a decrease in NO_2 annual mean concentrations in 2017. Concentrations at the background site have continually been within the annual mean objective of 40 µgm^{-3}; suggesting that background concentrations are not the cause of exceedances at other locations. For the majority of near-road and roadside sites (Figure 5 to Figure 11) the reductions in NO_2 concentrations between 2011 and 2013 are smaller than the apparent downward trend of the urban background sites. Between 2013 and 2017 NO_2 concentrations at roadside locations have remained stable or have decreased slightly.

Figure 3. Annual Mean NO_2 concentrations at Automatic Monitoring sites

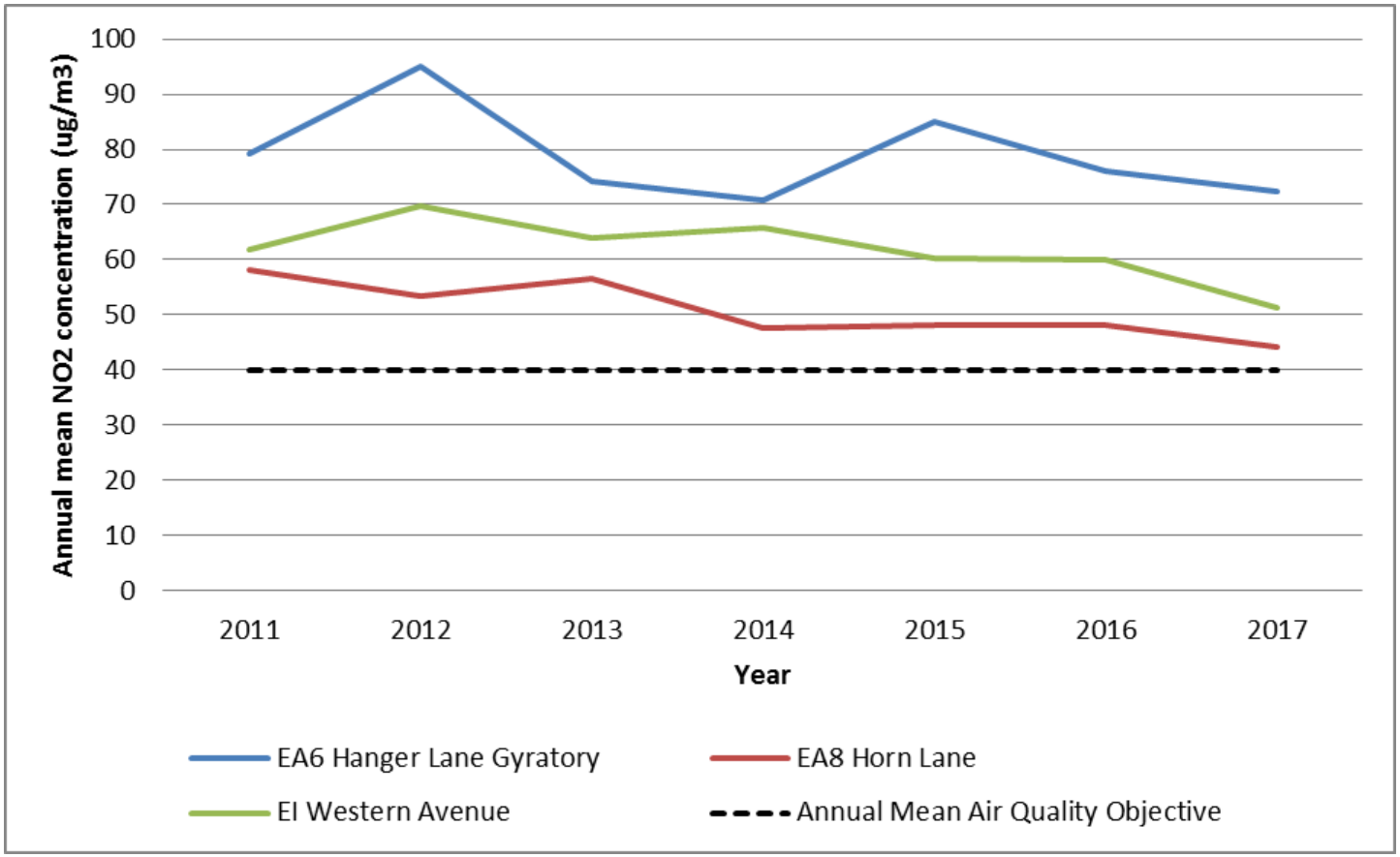


Figure 4. Annual Mean NO_2 concentrations at Urban Background sites

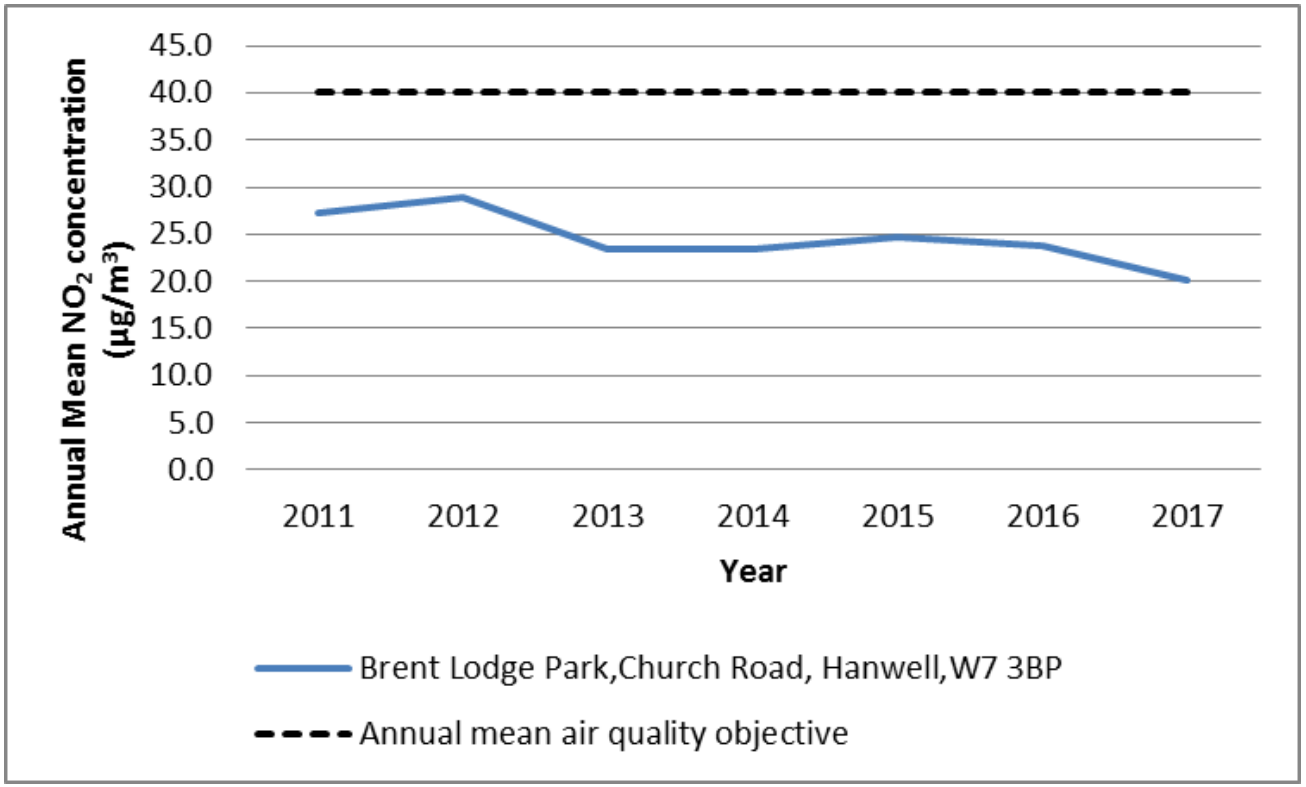


Figure 5. Annual Mean NO_2 concentrations at Roadside sites (1)

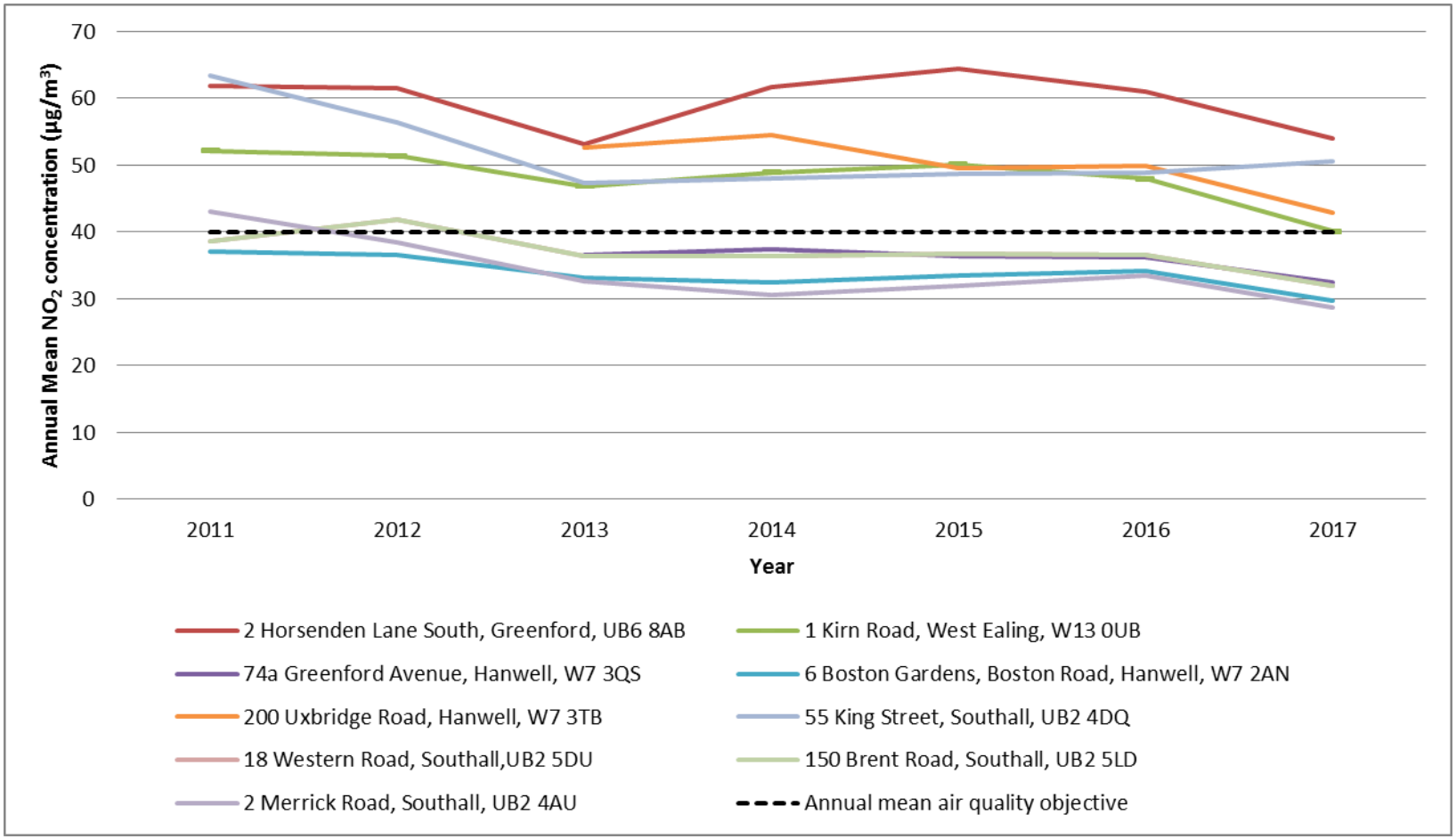


Figure 6. Annual Mean NO_2 concentrations at Roadside sites (2)

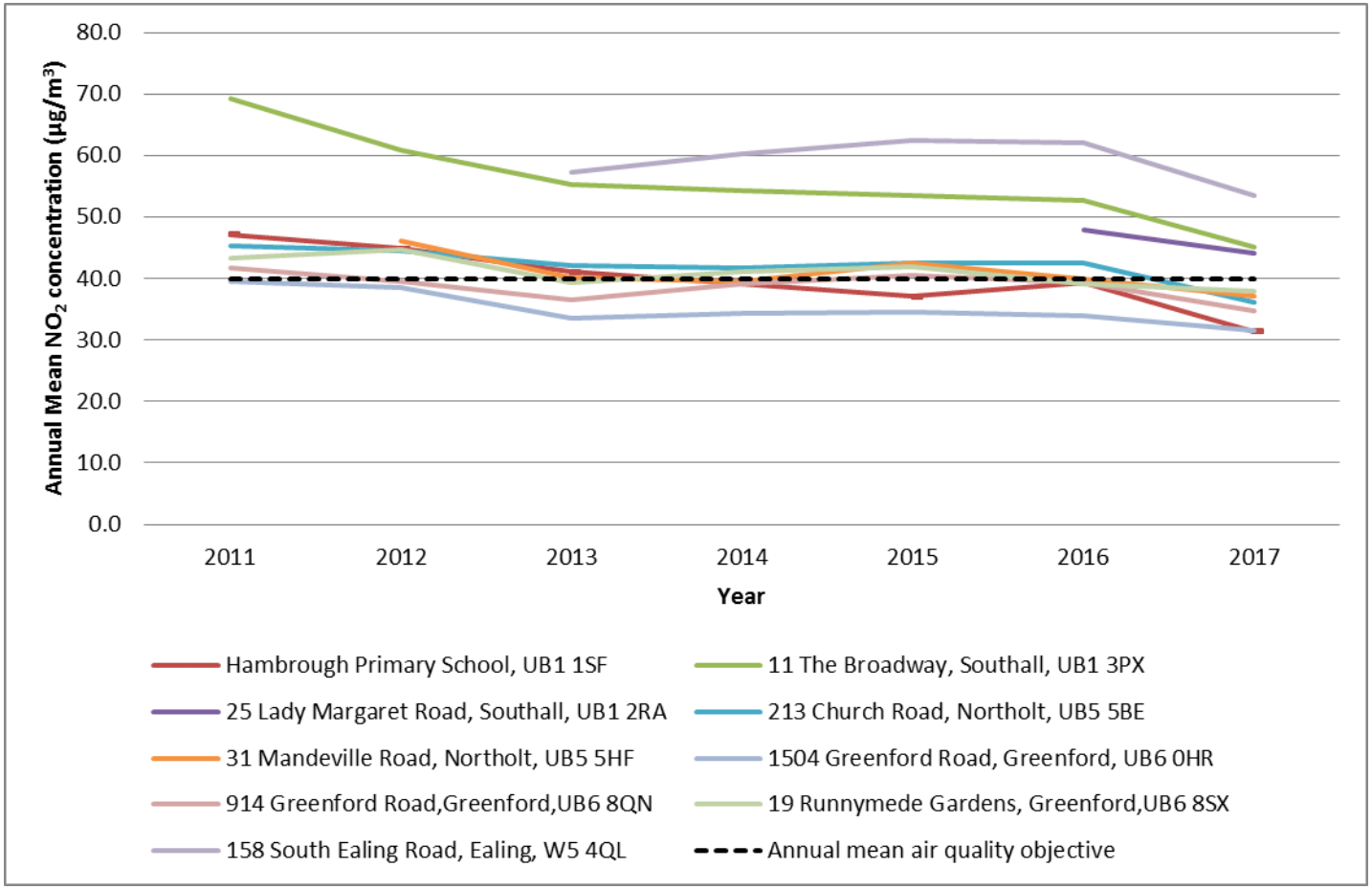


Figure 7. Annual Mean NO_2 concentrations at Roadside sites (3)

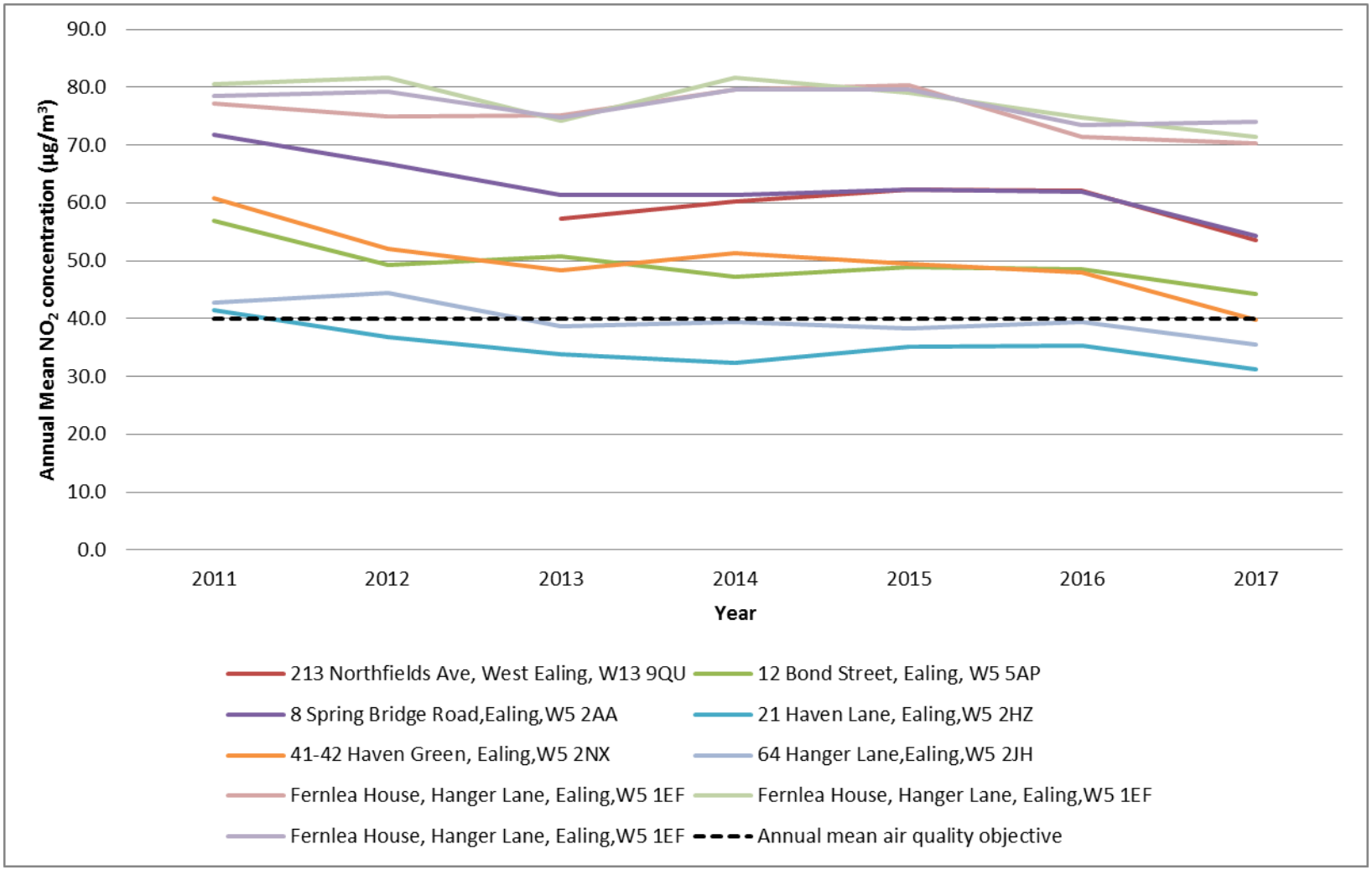


Figure 8. Annual Mean NO_2 concentrations at Roadside sites (4)

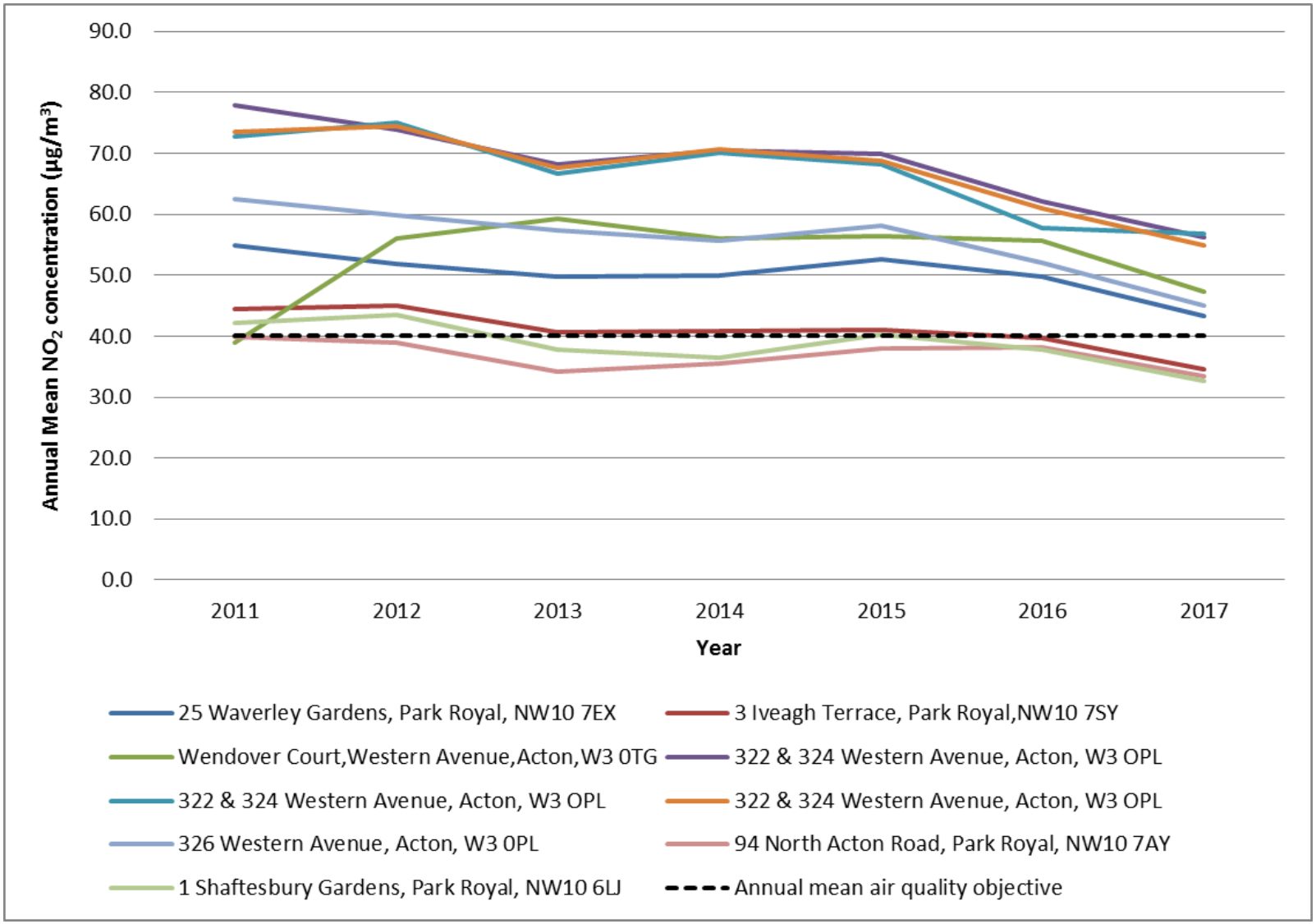


Figure 9. Annual Mean NO_2 concentrations at Roadside sites (5)

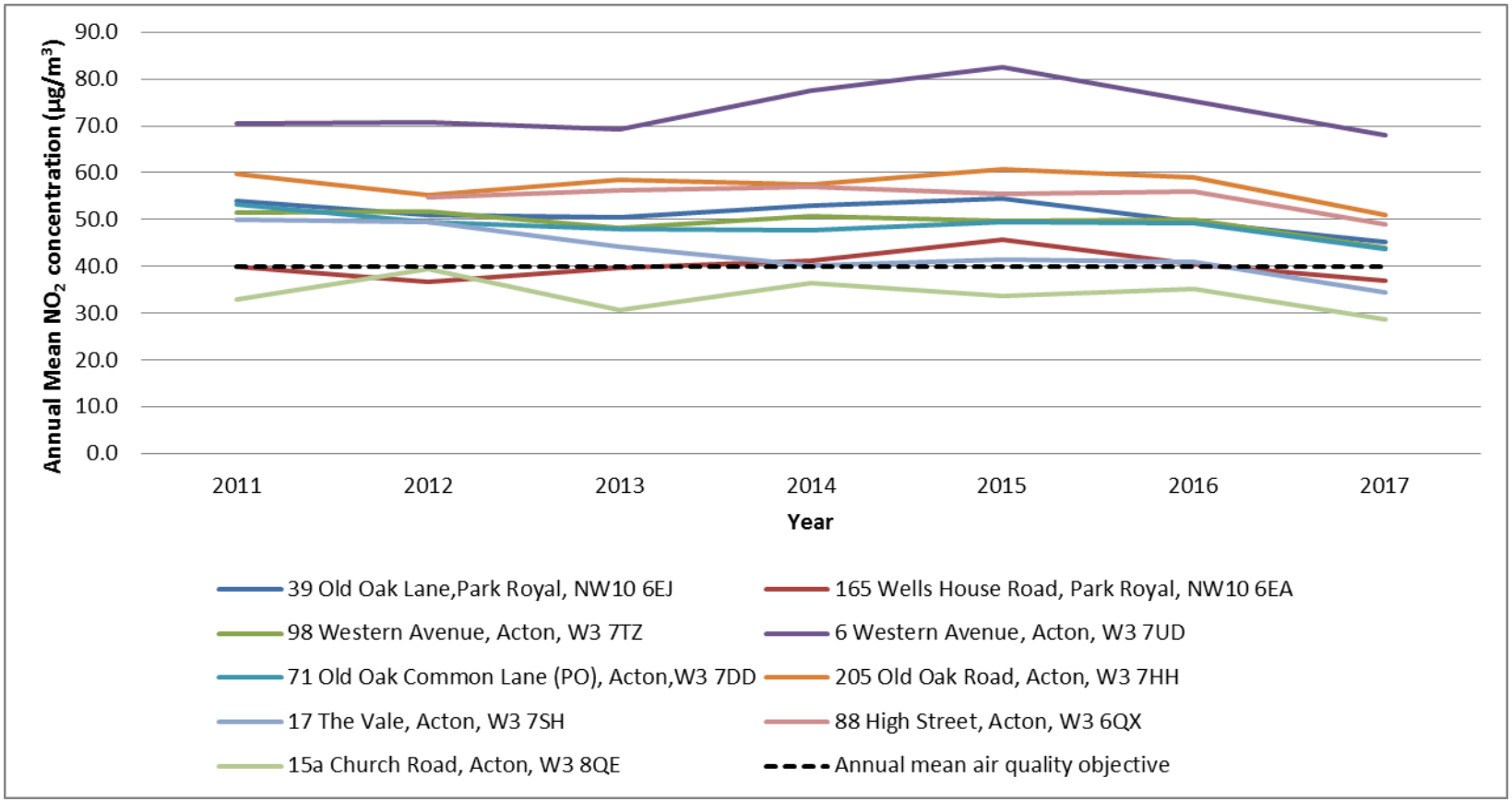


Figure 10. Annual Mean NO_2 concentrations at Roadside sites (6)

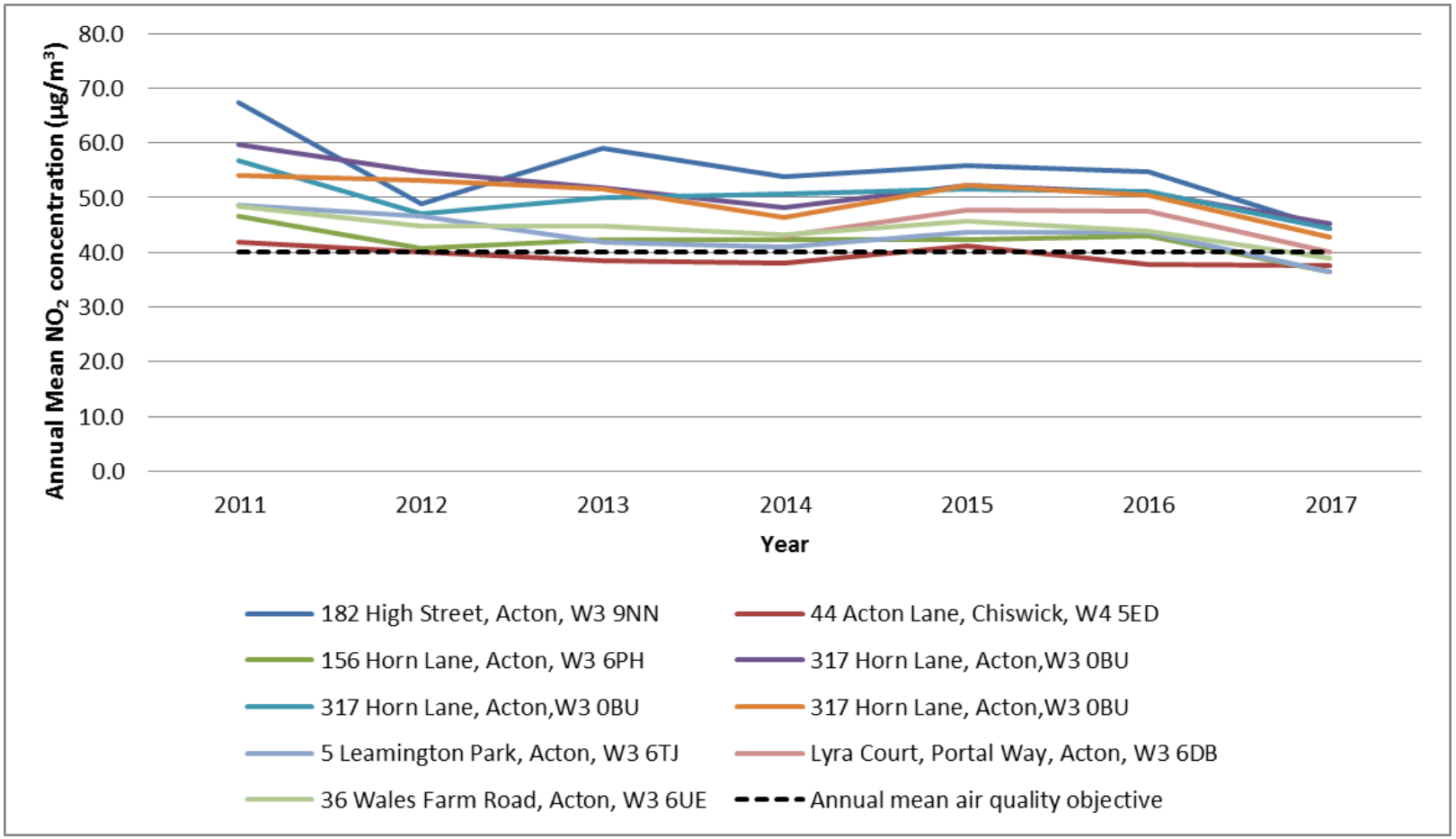


Figure 11. Annual Mean NO_2 concentrations at Near Road sites

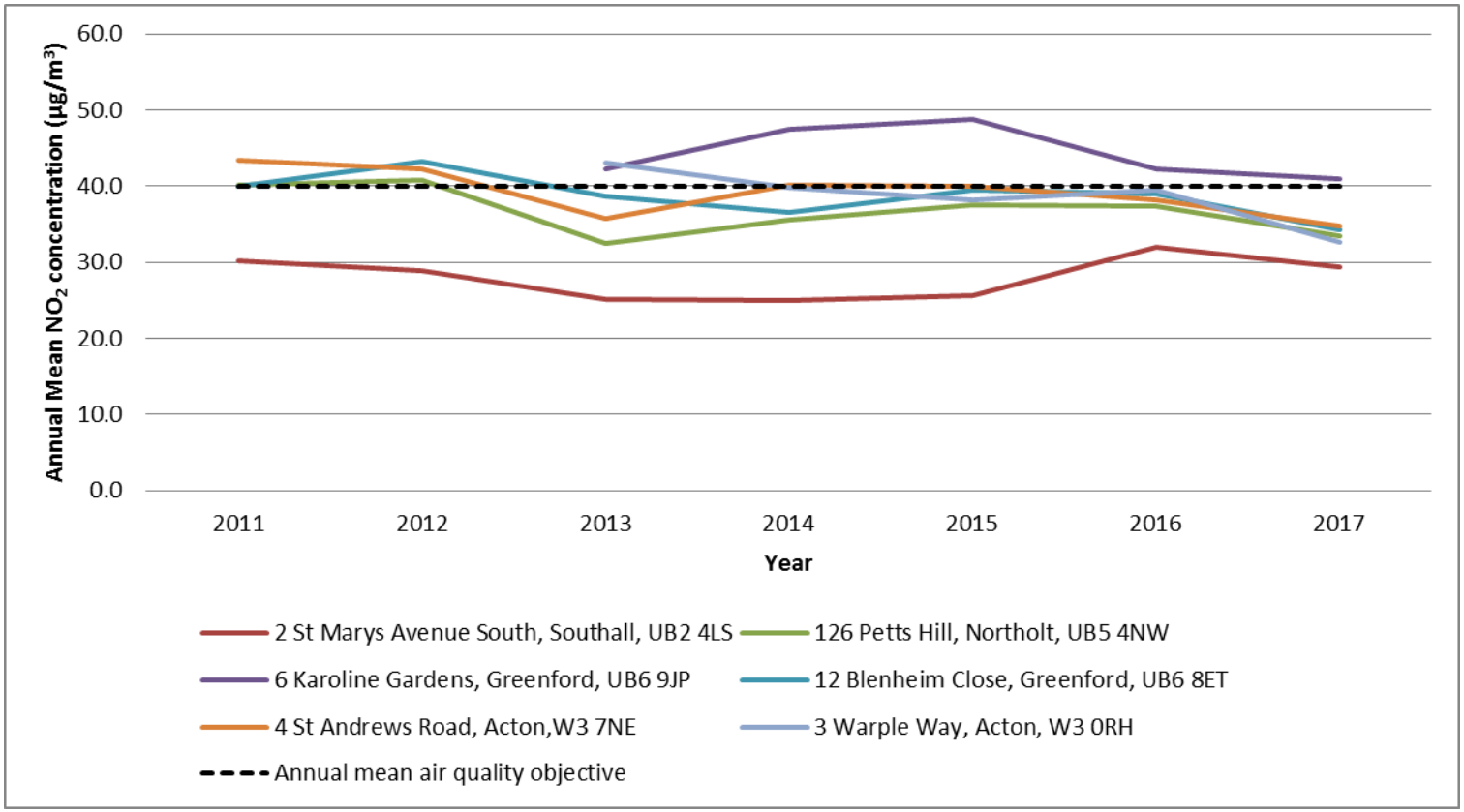


Table E. NO_2 Automatic Monitor Results: Comparison with 1-hour Mean Objective

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Number of Hourly Means > 200 µg m^{-3}						
			2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]
EA6 Hanger Lane Gyratory	97%	97%	**66**	**173**	**56**	17 (**205**)	**98**	**45**	9
EA8 Horn Lane	95%	95%	14 (192)	2	0 (152)	0	3	1	2
EI1 Western Avenue	79%	79%	2 (168)	10	17 (**202**)	17	2 (179)	**22**	0

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

[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%)

[c] Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

Table E shows the 1-hour mean NO_2 monitoring results for 2011 to 2017. Monitored hourly mean NO_2 concentrations at the Hanger Lane Gyratory site in 2017 exceeded the 1-hour mean NO_2 air quality standard (200 µg.m^{-3}) for 9 hours. The Horn Lane monitoring site exceeded the 1-hour mean NO_2 standard for 2 hours during 2017. These results are within the 18 hours permitted on a yearly basis to comply with the 1-hour mean objective. It is first time in the last 7 years that the 1-hour NO_2 has been achieved at the Hangar Lane Gyratory site. The 1 hour mean standard was not exceeded at Western Avenue during 2017, and so the objective was achieved at this location.

PM_{10} concentrations are currently measured at all automatic monitoring locations in the London Borough of Ealing. TEOMs are used to monitor PM_{10} at all sites. The Horn Lane station is equipped with both TEOM and TEOM-FDMS analysers for PM_{10} monitoring and results from both are presented separately. 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 in 2017 was good (i.e. >90%) at all locations.

Annual mean PM_{10} concentrations in 2017 at all sites were found to achieve the annual mean objective of 40 µg.m^{-3}. The annual mean objective has been achieved at all automatic monitoring locations in the Borough since 2011. The highest annual mean PM_{10} concentration in 2017 was recorded at EA8 Horn Lane (27 µg.m^{-3}).

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

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Annual Mean Concentration (µg m^{-3})						
			2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]
EA6 Hanger Lane Gyratory	97%	97%	32	29	30	26	25	24	26
EA8 Horn Lane	96%	96%	N/A	N/A	N/A	31	31	28	27
EI8 Horn Lane TEOM	97%	97%	36	34	38	34	27	26	26
EI1 Western Avenue	91%	91%	31	30	31	28	29	30	26

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

[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%)

[c] Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

The 24-hour mean PM_{10} monitoring results are shown in Table G. The 24-hour mean air quality objective (50 µg.m^{-3}, not to be exceeded more than 35 times a year) was achieved at all monitoring locations in 2017. The Horn Lane sites (EA8 and EI8) have not exceeded the objective since 2014.

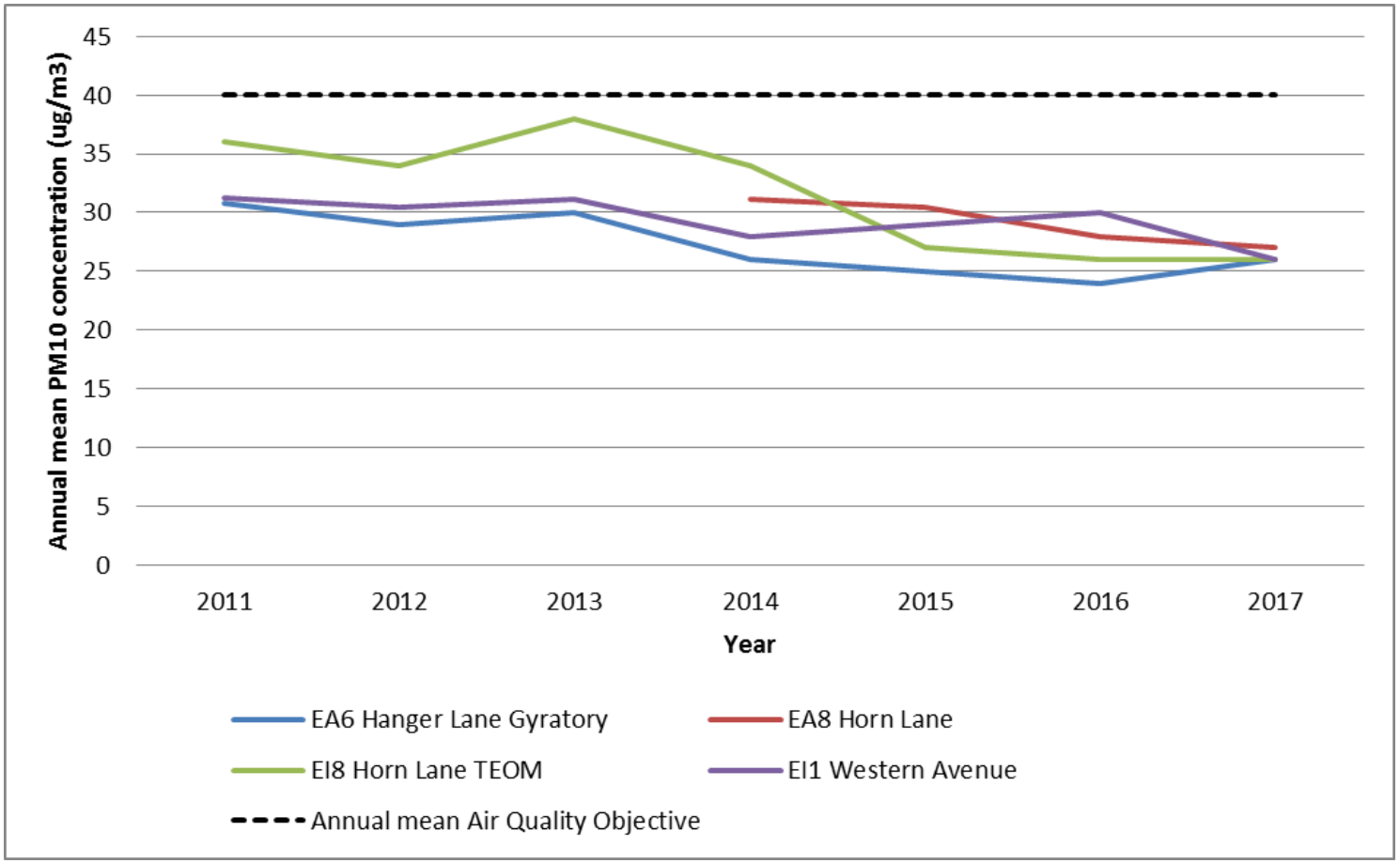
Table G. PM_{10} Automatic Monitor Results: Comparison with 24-Hour Mean Objective

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Number of Daily Means > 50 µg m^{-3}						
			2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]
EA6 Hanger Lane Gyratory	96%	96%	29 (47)	18	19	10	6	12	10
EA8 Horn Lane	95%	95%	N/A	N/A	N/A	22 (**51**)	11 (46)	19	16
EI8 Horn Lane TEOM	97%	97%	**55**	**49**	**76**	**55**	17	17	10
EI1 Western Avenue	91%	91%	23 (45)	10 (45)	22 (46)	22	22 (43)	24	9

Notes: Exceedance of the PM_{10} short term AQO of 50 µg m^{-3} over the permitted 35 days per year or where the 90.4th percentile exceeds 50 µg m^{-3} are shown in **bold**.
Where the period of valid data is less than 85% of a full year, the 90.4th percentile is shown in brackets after the number of exceedances.
[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%)
[c] Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

Figure 12 shows the trends in PM_{10} concentrations between 2011 and 2017 for all currently operational monitoring sites. There is evidence of annual PM_{10} concentrations decreasing slightly over this period at all sites.

Figure 12. Annual Mean PM_{10} concentrations at Automatic Monitoring sites



2. Action to Improve Air Quality

2.1 Air Quality Action Plan Progress

The current Air Quality Action Plan (AQAP) for Ealing was published in 2003. A new AQAP has been drafted and consulted upon with the Secretary of State, the Mayor of London, the Environment Agency, Transport for London and all neighbouring local authorities, including the West London Cluster Group. A large number of other bodies and organisations have also been consulted, including Ealing Friends of the Earth, resident's groups, Ealing Civic Society and Ealing Public Transport User Group. The final draft AQAP was written in January 2018 and is awaiting internal sign off and final approval from the Mayor of London.

In 2017, Ealing has achieved full compliance with the Air Quality Objectives for PM_{10} at the Council's Horn Lane air quality monitoring station for the third successive year. LBE also had successful participation in the Mayor's Schools Air Quality Audit Scheme and the completion of an additional audit using Council funding. In 2018, Ealing's main priorities are to roll out further air quality audits at primary schools and to launch the new Air Quality Action Plan for the borough.

Table J provides a brief summary of progress on projects started in previous years, highlighting progress made this year. New projects that commenced in 2017 are shown at the bottom of the table.

All measures detailed below which aim to reduce PM_{10} will also have an impact on $PM_{2.5}$. The impacts of these measures, when assessed, will be linked to Public Health England's Outcomes Framework. $PM_{2.5}$ monitoring (by TEOM) has previously taken place at Acton Town Hall, a roadside monitoring site, from 9 September 1996 to 17 January 2012, and at Southall from 2012 to 26 January 2016.

Table J. Delivery of Air Quality Action Plan Measures

Measure	Action	Progress	Further information
PM mitigation	Further actions to mitigate PM_{10} and $PM_{2.5}$ emissions from industrial sources and resuspension in Horn Lane, Acton	ONGOING • No idling signage placed in Horn Lane in the vicinity of Goods Yard entrance and on the approach to the junction with the A40 Western Avenue at Gypsy Corner. • Landscaping scheme in Horn Lane adjacent to Goods Yard to provide planting of species for capture of particulates – *Update: completion of landscaping and planting expected June 2018.* • Indicative monitoring to be continued in Goods Yard – *monitoring carried out in 2017/18 and ongoing. Data online at www.llecp.org.uk/*	Contact LB Ealing for updates
Ealing Broadway Station	Forecourt improvements at Ealing Broadway Station	ONGOING • Improved pedestrian and cycle access to Ealing Broadway Station. - *Works programmed, to be delivered by end of 2019 as part of Crossrail works*	See https://www.ealing.gov.uk/downloads/download/3256/ealing_broadway_station_forecourt_improvement_plans
Cycling	Cycling	ONGOING • Ealing was the first London Borough to introduce Mobike dockless cycle hire in September 2017, followed by neighbouring LB Hounslow. Approximately half the borough is served by Mobike and coverage will spread to the entire borough by late 2018. • Ruislip Road East Quietway dedicated cycle route linking two schools and leisure centre opened in autumn 2017. • Two 'Summer of Cycling' events to take place in June and July 2018.	www.ealing.gov.uk

Measure	Action	Progress	Further information
Student Cycling	West London Student Cycling Champion project	ONGOING • Project in collaboration between London Cycling Campaign and the WestTrans Partnership led by LB Ealing.	Contact WestTrans for further information
Access to transport	Improved access to public transport	ONGOING • Ongoing work at Acton Mainline Station, Ealing Broadway, Hanwell Station, Southall Station and West Ealing Station along the Paddington Main Line as part of the Crossrail programme by end of 2019.	For details of access improvements at these stations, see http://www.crossrail.co.uk/route/western-section/
Building emissions	Control of emissions from developments and buildings	ONGOING • Ensuring emissions from construction are minimised • Developing enforcement of Non-Road Mobile Machinery (NRMM) air quality policies • Enforcing CHP and biomass air quality policies. Ensuring smaller developments use ultra-low NO_x Boilers. • Enforcing Air Quality Neutral policies - *all measures currently implemented through the planning system.*	
Green space	Ensuring adequate, appropriate, and well located green space and infrastructure is included in new developments	ONGOING • Included chapter on Green Space in Core Strategy.	Focus on larger developments to implement on site green space

Measure	Action	Progress	Further information
Air quality impacts	Investigate the potential for larger development areas to proactively assess air quality impacts cumulatively	ONGOING • Identified opportunities at Old Oak Common & Park Royal and former Southall Gas Works site.	A Low Emission Strategy (LES) will be a useful tool to ensure air quality has thorough consideration.
Energy efficiency	Promoting and delivering energy efficiency retrofitting projects in workplaces and homes using the GLA RE:NEW and RE:FIT programmes to replace old boilers/top-up loft insulation in combination with other energy conservation measures.	ONGOING • Currently a 2-year programme being implemented.	
Local authority knowledge	Ensure that Directors of Public Health (DsPH) have been fully briefed on the scale of the problem in your local authority area; what is being done, and what is needed. A briefing should be provided.	COMPLETE • DPH briefed by way of a briefing note and works closely with Regulatory Services via Public Health consultant	

Measure	Action	Progress	Further information
Engagement	Public Health Teams should be supporting engagement with local stakeholders (businesses, schools, community groups and healthcare providers). They should be asked for their support via the DsPH when projects are being developed.	ONGOING • Actively working with voluntary sector and linking in to hospitals and pharmacies. • Provision of support to others re: work on engagement.	
Public health	Strengthening co-ordination with Public Health by ensuring that at least one Consultant-grade public health specialist within the borough has air quality responsibilities outlined in their job profile	COMPLETE • Health protection role embedded in Public Health	
Public health	Ensure that the Head of Transport has been fully briefed on the Public Health duties and the fact that all directors (not just Director of Public Health) are responsible for delivering them, as well as on air quality opportunities and risks related to transport in the borough. Provide a briefing which can be disseminated amongst the Transport team.	COMPLETE • There is a very active obesity group which works well with transport colleagues, particularly in relation to active travel. • PHE briefing given.	

Measure	Action	Progress	Further information
Schools	Encourage schools to join the TfL STARS accredited travel planning programme by providing information on the benefits to schools and supporting the implementation of such a programme	ONGOING **STARS Accreditation** • Gold 20 schools • Silver 14 schools • Bronze 4 schools • Engaged (registered on STARS only) 2 schools • Working towards engagement 79 schools **Awards Information** • ***Clifton Primary - School of the Region (primary)*** Positive parental engagement through meetings with parent representatives and a wide range of promotional activities. This included an organised 'step counting week' inter-class competition as part of Walk to School Week. • ***Brentside High - School of the Region (secondary)*** Very successful student participation in developing innovative campaigns to engage with their peers. • ***Beaconsfield Primary member of staff, Smita Moezzi - Long Serving School Travel Champion*** For more than three years work on the STP, she has managed to get her school to gold almost single handily. As part of her work, she gave road safety presentations to new parents who were new to the country. Given that ethnic and cultural diversity features prominently in their school, she went the extra mile to make sure those who have not used British roads before were safe.	For information on the London-wide STARS scheme, see https://stars.tfl.gov.uk/About/About

Measure	Action	Progress	Further information
Schools	Air quality at schools	ONGOING • Mayor's Air Quality Audits completed in December 2017 for Christ the Saviour C of E Primary School and for Ark Priory Primary Academy • Additional School Air Quality Audit for Ark Byron Primary Academy funded by L.B. Ealing and completed in December 2017 • Reporting on all audits completed May 2018 • Further schools to be considered for AQ audit with LBE funding in 2018	Focus on minimising further exposure by siting new schools away from busy roads. LB Ealing's school transport strategy: https://www.egfl.org.uk/services-to-schools/school-travel-plans-201617
Policies	Update Procurement policies to ensure sustainable logistical measures are implemented (and include requirements for preferentially scoring bidders based on their sustainability criteria)	ONGOING • Contract for waste handling includes sustainable logistics.	Most significant measure identified as reducing trip distance (and hence emissions)
Freight	Re-organisation of freight to support consolidation (or micro-consolidation) of deliveries, by setting up or participating in new logistics facilities, and/or requiring that council suppliers participate in these	PARTIALLY COMPLETED • Already underway in Ealing Broadway • Mayor's Air Quality Funded work at Ealing Broadway with BID paying costs. • MAQF funding similar scheme in Park Royal	
Green Infrastructure	Green Infrastructure	ONGOING • Planning policies encourage green roofs, green walls, Sustainable Urban Drainage Systems etc. • Defra air quality grant providing improvements for Horn Lane which includes green landscaping.	

Measure	Action	Progress	Further information
Anti-idling	Discouraging unnecessary idling by taxis, coaches and other vehicles (e.g. through anti-idling campaigns or enforcement activity)	ONGOING • No idling signage set up at Acton Goods Yard entrance; more signage provided in mid-2017 in Horn Lane. • Other idling hotspot sites identified for deployment of new signage. • Ongoing community engagement with parents and residents re anti-idling measures.	
Low emission vehicles	Increasing the proportion of electric, hydrogen and ultra-low emission vehicles in Car Clubs	ONGOING • Work undertaken within WestTrans Partnership to increase EV fleet within car clubs. • Officers working with Bluepoint London to bring an EV car club to Ealing as part of the EV Chargepoint programme	
Pedestrian days	Very Important Pedestrian Days (e.g. no vehicles on certain roads on a Sunday) and similar initiatives	ONGOING • Play Streets programmes in 25 different areas of the Borough. • Officers working towards holding multiple Play Street events for World Car Free day in September 2018 • Very popular 'Make it Sunday' street fair (road closure) held in Ealing town centre on two Sundays in August 2017.	

3. Planning Update and Other New Sources of Emissions

Table K gives a summary of planning requirements relating to air quality in the London Borough of Ealing in 2017. All planning applications for developments that involve potential new air quality impacts or new exposure to elevated concentrations of air pollutants are reviewed by a member of the Planning Enforcement and Environment Team. All submitted air quality assessments are dealt with in person by the air quality lead officer or by a member of the team in consultation with the air quality lead officer.

Table K. Planning requirements met by planning applications in Ealing in 2017

Condition	Number
Number of planning applications where an air quality impact assessment was reviewed for air quality impacts	892
Number of planning applications required to monitor for construction dust	54
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	1
Number of developments required to install Ultra-Low NO_x boilers	39
Number of developments where an AQ Neutral building and/or transport assessments undertaken	9
Number of developments where the AQ Neutral building and/or transport assessments not meeting the benchmark and so required to include additional mitigation	1
Number of planning applications with S106 agreements including other requirements to improve air quality	21
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 at www.nrmm.london 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.	15 conditions included 1 registered and complaint

3.1 New or significantly changed industrial or other sources

No new sources have been identified since the last Annual Status Report in 2016.

Appendix A Details of Monitoring Site QA/QC

A.1 Automatic Monitoring Sites

During 2017, the three active automatic monitoring sites in the Borough were operated as part of the London Air Quality Network (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 NOx and SO_2 analysers and maintenance of particulate samplers, and quarterly calibration of O_3 analysers.

PM_{10} Monitoring Adjustment

Monitoring is conducted using TEOMs at two of the three 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 Tube Quality Assurance / Quality Control

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 (formely Environmental Scientifics Group (ESG) Didcot) were overall satisfactory. The laboratory scored 100% satisfactory results between January 2017 to February 2017 (AR018), 100% between April 2017 to May 2017 (AR019), 100% between July 2017 and August 2017 (AR021), and 100% satisfactory results between September and October 2017 (AR022).

Factor from Local Co-location Studies

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 2017, the average local bias adjustment factor, derived from these studies, was 0.72.

Two automatic monitors (Hanger Lane Gyratory and Horn Lane) had very good data capture (>90%), and adjustment factors of 0.72 and 0.73 respectively. The Western Avenue automatic monitor had a data capture of 79% for the co-located diffusion tube periods, and a calculated adjustment factor of 0.71. Due to the close agreement of the factor calculated for the Western Avenue site with those calculated for the Hangar Lane Gyratory and Horn Lane sites, the result for Western Avenue was included in the calculation of the average adjustment factor.

Figures 13 to 15 show 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 13. Local bias adjustment factor calculation for Hanger Lane Gyratory co-location site

Hanger Lane Gyratory	EA30	EA31	EA32

Need to enter
Calculated for you
Result

			DIFFUSION TUBE DATA						AUTOMATIC DATA	
	Period	Start Date	End Date	Tube 1	Tube 2	Tube 3	Triplicate Mean	Standard Deviation	Coefficient of Variation	Period Mean	Data Capture (%)
January	1	04/01/2017	31/01/2017	114.6	112.3	114.5	113.80	1.3	1.1	87.2	98.1
February	2	31/01/2017	01/03/2017	97.6	97.2	107.9	100.90	6.1	6.0	79.8	99.6
March	3	01/03/2017	28/03/2017	99.4	92.4	107.1	99.63	7.4	7.4	78.3	99.7
April	4	28/03/2017	03/05/2017	103.2	105	101.7	103.30	1.7	1.6	72.3	99.5
May	5	03/05/2017	30/05/2017	98.1	98.2	104.2	100.17	3.5	3.5	62.4	99.8
June	6	30/05/2017	27/06/2017	92.3	92.4	95.8	93.50	2.0	2.1	62.3	90.0
July	7	27/06/2017	02/08/2017	89.5	91.6	104.8	95.30	8.3	8.7	60.5	99.3
August	8	02/08/2017	30/08/2017	87.3	93	103.1	94.47	8.0	8.5	68.2	99.4
September	9	30/08/2017	27/09/2017	93	92	94.1	93.03	1.1	1.1	66.3	99.9
October	10	27/09/2017	29/10/2017	101	102.7	109.2	104.30	4.3	4.1	70.7	99.7
November	11	29/10/2017	06/12/2017	102.9	112.3	100.3	105.17	6.3	6.0	84.7	86.5
December	12	06/12/2017	04/01/2018	89.1	96.5	86.2	90.60	5.3	5.9	76.2	98.7
	13										
										% with DC >=90%	91.7

	DTs	AUTOMATIC
Weighted Mean	96.8	69.4
Local Bias Adjustment Factor	0.72	

Figure 14. Local bias adjustment factor calculation for Horn Lane co-location site

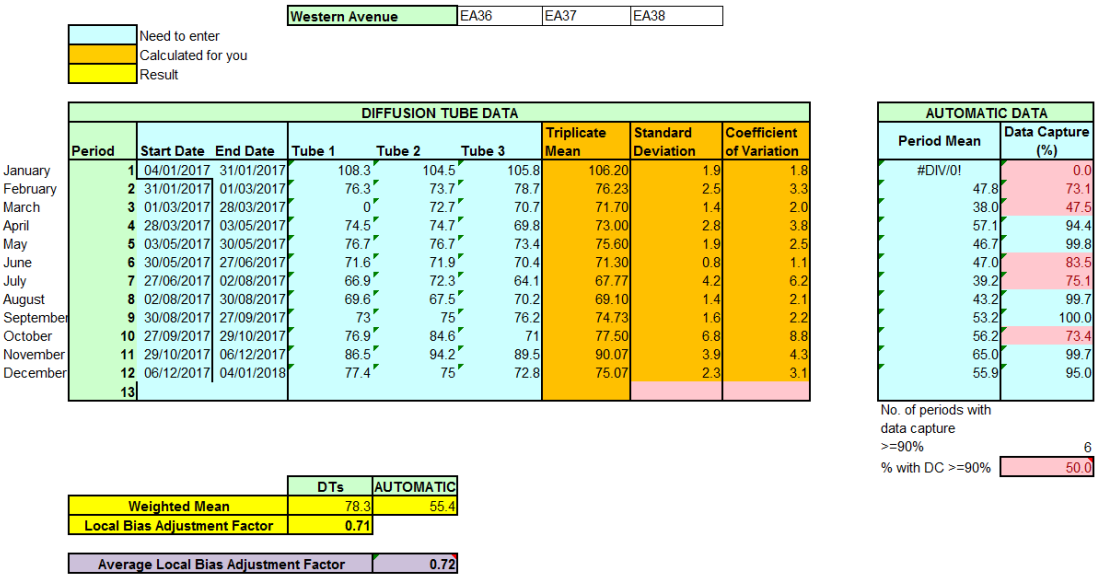
Horn Lane	EA56	EA57	EA58

Need to enter
Calculated for you
Result

			DIFFUSION TUBE DATA						AUTOMATIC DATA	
	Period	Start Date	End Date	Tube 1	Tube 2	Tube 3	Triplicate Mean	Standard Deviation	Coefficient of Variation	Period Mean	Data Capture (%)
January	1	04/01/2017	31/01/2017	83.5	78.4	64.1	75.33	10.1	13.4	69.5	33.0
February	2	31/01/2017	01/03/2017	64.7	67.9	69.3	67.30	2.4	3.5	51.0	99.9
March	3	01/03/2017	28/03/2017	61.2	62.7	65.2	63.03	2.0	3.2	47.6	99.7
April	4	28/03/2017	03/05/2017	58.4	59.6	60.6	59.53	1.1	1.9	47.1	99.5
May	5	03/05/2017	30/05/2017	63.7	62	63.9	63.20	1.0	1.7	43.4	99.8
June	6	30/05/2017	27/06/2017	59.1	55.2	50.2	54.83	4.5	8.1	36.8	99.1
July	7	27/06/2017	02/08/2017	52	49.5	44.8	48.77	3.7	7.5	31.7	99.8
August	8	02/08/2017	30/08/2017	53.2	58	52	54.40	3.2	5.8	35.4	99.7
September	9	30/08/2017	27/09/2017	58.3	57.3	54.5	56.70	2.0	3.5	39.7	99.9
October	10	27/09/2017	29/10/2017	62.1	60.5	55.3	59.30	3.6	6.0	40.9	99.3
November	11	29/10/2017	06/12/2017	72.2	67.1	70	69.77	2.6	3.7	55.6	99.6
December	12	06/12/2017	04/01/2018	63.6	60	0	61.80	2.5	4.1	48.1	99.5
	13										
										% with DC >=90%	91.7

	DTs	AUTOMATIC
Weighted Mean	60.5	44.0
Local Bias Adjustment Factor	0.73	

Figure 15. Local bias adjustment factor calculation for Western Avenue co-location site, including average local bias adjustment factor



Western Avenue	EA36	EA37	EA38

Need to enter
Calculated for you
Result

DIFFUSION TUBE DATA								
Period		Start Date	End Date	Tube 1	Tube 2	Tube 3	Triplicate Mean	Standard Deviation	Coefficient of Variation
January	1	04/01/2017	31/01/2017	108.3	104.5	105.8	106.20	1.9	1.8
February	2	31/01/2017	01/03/2017	76.3	73.7	78.7	76.23	2.5	3.3
March	3	01/03/2017	28/03/2017	0	72.7	70.7	71.70	1.4	2.0
April	4	28/03/2017	03/05/2017	74.5	74.7	69.8	73.00	2.8	3.8
May	5	03/05/2017	30/05/2017	76.7	76.7	73.4	75.60	1.9	2.5
June	6	30/05/2017	27/06/2017	71.6	71.9	70.4	71.30	0.8	1.1
July	7	27/06/2017	02/08/2017	66.9	72.3	64.1	67.77	4.2	6.2
August	8	02/08/2017	30/08/2017	69.6	67.5	70.2	69.10	1.4	2.1
September	9	30/08/2017	27/09/2017	73	75	76.2	74.73	1.6	2.2
October	10	27/09/2017	29/10/2017	76.9	84.6	71	77.50	6.8	8.8
November	11	29/10/2017	06/12/2017	86.5	94.2	89.5	90.07	3.9	4.3
December	12	06/12/2017	04/01/2018	77.4	75	72.8	75.07	2.3	3.1
	13								

AUTOMATIC DATA	
Period Mean	Data Capture (%)
#DIV/0!	0.0
47.8	73.1
38.0	47.5
57.1	94.4
46.7	99.8
47.0	83.5
39.2	75.1
43.2	99.7
53.2	100.0
56.2	73.4
65.0	99.7
55.9	95.0

No. of periods with data capture >=90%	6
% with DC >=90%	50.0

	DTs	AUTOMATIC
Weighted Mean	78.3	55.4
Local Bias Adjustment Factor	0.71	

Average Local Bias Adjustment Factor	0.72

The national bias adjustment factor for co-location diffusion tube studies in 2017 analysed by Socotec (formerly Environmental Scientifics Group (ESG) Didcot) using a preparation method of 20% TEA/water was calculated to be 0.71. This has been taken from the national bias adjustment spreadsheet 03/18, as shown in Figure 16.

Figure 16. 2017 National bias adjustment factor

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/18

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 2018
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[2]

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[3] shown in blue at the foot of the final column.
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@uk.bureauveritas.com or 0800 0327953

Analysed By[1]	Method (To undo your selection, choose (All) from the pop-up list)	Year[2] (To undo your selection, choose (All))	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[5]	Bias Adjustment Factor (A) (Cm/Dm)
ESG Didcot	20% TEA in water	2017	KS	South Lakeland District Council	11	43	28	52.7%	G	0.65
ESG Didcot	20% TEA in water	2017	KS	Marylebone Road Intercomparison	12	104	79	32.0%	G	0.76
ESG Didcot	20% TEA in water	2017		Overall Factor[3] (2 studies)				Use		0.71

Discussion of Choice of Factor to Use

For 2017 data it was decided to use the local bias adjustment factor on the basis that:

- it is locally-derived from three co-location sites, and therefore considered most representative of local conditions;
- it is a more conservative factor, as it is slightly greater than the national bias factor (0.72 vs 0.71); and
- the national bias adjustment factor is based on two studies only.

The bias adjustment factors used for LAQM purposes for the last six years are as follows:

- 2012 – 0.96
- 2013 – 0.76
- 2014 – 0.78
- 2015 – 0.83
- 2016 – 0.81.
- 2017 – 0.72

A.3 Adjustments to the Ratified Monitoring Data

Short-term to Long-term Data Adjustment

Data capture for 2017 was higher than 75% for NO_2 and PM_{10} at all sites. No seasonal adjustment factors were required to be calculated.

Appendix B Full Monthly Diffusion Tube Results for 2017

Table M. NO_2 Diffusion Tube Results

Site ID 2017	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	NO_2 Concentration ($\mu g/m^3$)													
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual mean – raw data [c]	Annual mean – bias adjusted [c]
EA1	100%	100%	89.3	70.9	73.8	68.1	75.3	80.5	68.0	71.3	65.9	74.3	83.2	75.9	**74.7**	**54.0**
EA2	100%	100%	79.6	66.2	54.5	54.4	52.8	48.6	41.4	48.0	51	52.8	62.7	54.6	**55.6**	**40.1**
EA3	92%	92%	47.6	N/A	25.3	22.4	24.6	22.8	21.4	23.8	23.8	27.4	37.6	30.8	28.0	20.2
EA4	100%	100%	73.0	51.5	43.4	46.4	43.9	36.9	33.3	34.2	41	38.2	54.3	42.5	**44.9**	32.4
EA5	100%	100%	67.4	44.4	44.0	40.4	36.1	32.2	28.3	30.5	36.3	38.2	52.3	42.4	**41.0**	29.7
EA6	100%	100%	90.0	64.3	62.5	56.1	66.2	53.7	51.6	51.9	57.1	50.6	60.1	46.4	**59.2**	**42.8**
EA7	100%	100%	63.7	39.8	39.4	35.7	36.6	37.0	33.5	38.4	36.5	38.6	51.2	37.9	**40.7**	29.4
EA8	83%	83%	89.8	61.7	N/A	60.7	N/A	54.1	47.8	53.0	N/A	54.0	156.6	52.7	**70.0**	**50.6**
EA9	100%	100%	71.0	48.9	43.2	41.1	41.8	35.2	35.2	34.1	40.6	41.8	53.7	43.3	**44.2**	31.9
EA10	100%	100%	71.7	50.2	48.1	44.1	50.0	37.2	39.3	38.4	48.7	44.0	56.7	46.5	**47.9**	34.6
EA11	92%	92%	62.2	40.2	39.9	41.0	37.0	29.6	33.4	33.2	34.5	35.9	48.4	N/A	39.6	28.6
EA12	100%	100%	76.9	45.7	42.1	39.4	40.6	38.5	35.3	36.9	39.9	41.7	46.5	37.4	**43.4**	31.4
EA13	100%	100%	88.2	66.3	62.8	53.7	63.2	63.3	58.8	56.2	57.9	57.7	64.3	57.1	**62.5**	**45.1**
EA14	100%	100%	81.6	63.4	59.0	61.1	59.3	60.3	50.9	57.2	56.7	55.6	67.8	59.5	**61.0**	**44.1**
EA15	100%	100%	76.1	50.1	48.5	51.2	49.6	40.4	39.3	38.9	44.6	46.9	63.4	52.2	**50.1**	36.2
EA16	100%	100%	72.4	53.0	53.0	48.4	45.4	48.0	41.6	46.5	45	48.0	60.8	54.3	**51.4**	37.1
EA17	100%	100%	69.8	49.6	41.8	44.1	43.2	36.9	35.9	40.0	43.5	46.2	55.2	48.9	**46.3**	33.4
EA18	100%	100%	62.0	48.8	42.6	41.5	43.1	30.4	35.3	37.6	42	45.5	52.8	42.0	**43.6**	31.5
EA19	100%	100%	68.3	52.1	46.1	50.9	44.0	40.1	36.4	38.1	41.7	48.2	61.5	49.3	**48.1**	34.7
EA20	100%	100%	82.3	51.3	54.2	51.2	52.8	58.5	51.5	51.6	56.7	57.7	59.9	52.8	**56.7**	**41.0**
EA21	100%	100%	77.8	47.8	41.9	50.3	46.3	32.6	33.3	34.8	41.6	41.3	73.3	47.6	**47.4**	34.2
EA22	100%	100%	77.4	52.3	51.3	45.2	46.2	45.1	66.3	40.7	45.2	49.5	59.8	50.5	**52.5**	37.9
EA23	100%	100%	98.3	74.5	68.1	70.6	60.4	73.7	65.9	66.0	76.7	78.4	87.1	68.9	**74.1**	**53.5**
EA24	100%	100%	72.9	52.2	41.7	40.0	43.0	33.5	30.2	34.0	41.6	40.8	125.1	45.0	**50.0**	36.1
EA25	100%	100%	85.9	56.6	55.6	58.8	73.0	57.5	54.5	55.0	59	59.3	68.2	53.1	**61.4**	**44.3**
EA26	100%	100%	103.7	72.9	67.9	80.1	73.5	69.5	65.6	72.2	71.5	72.7	87.4	67.0	**75.3**	**54.4**

Site ID 2017	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	NO_2 Concentration (µg/m³)													
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual mean – raw data [c]	Annual mean – bias adjusted [c]
EA27	100%	100%	69.7	49.7	41.2	37.6	39.4	36.0	29.7	29.4	39.9	42.3	56.2	46.5	**43.1**	31.2
EA28	100%	100%	47.3	64.8	56.0	54.2	56.7	53.2	48.2	51.0	54.2	56.4	64.0	55.7	**55.1**	39.8
EA29	100%	100%	69.3	57.6	51.9	45.0	53.4	38.7	39.0	37.5	45	51.3	52.9	49.3	**49.2**	35.6
EA30	100%	100%	114.6	97.6	99.4	103.2	98.1	92.3	89.5	87.3	93	101.0	102.9	89.1	**97.3**	**70.3**
EA31	100%	100%	112.3	97.2	92.4	105.0	98.2	92.4	91.6	93.0	92	102.7	112.3	96.5	**98.8**	**71.4**
EA32	100%	100%	114.5	107.9	107.1	101.7	104.2	95.8	104.8	103.1	94.1	109.2	100.3	86.2	**102.4**	**74.0**
EA33	100%	100%	82.7	56.9	64.2	61.6	60.7	52.5	53.5	55.3	57.3	58.6	62.6	53.9	**60.0**	**43.3**
EA34	100%	100%	71.7	52.3	47.9	44.9	41.4	41.9	35.5	40.5	47.1	44.1	57.3	49.9	**47.9**	34.6
EA35	100%	100%	96.0	67.8	65.8	67.1	77.3	60.3	51.6	55.9	62.9	59.2	64.4	57.2	**65.5**	**47.3**
EA36	92%	92%	108.3	76.3	N/A	74.5	76.7	71.6	66.9	69.6	73	76.9	86.5	77.4	**78.0**	**56.3**
EA37	100%	100%	104.5	73.7	72.7	74.7	76.7	71.9	72.3	67.5	75	84.6	94.2	75.0	**78.6**	**56.8**
EA38	100%	100%	105.8	78.7	70.7	69.8	73.4	70.4	64.1	70.2	76.2	71.0	89.5	72.8	**76.1**	**54.9**
EA39	100%	100%	113.0	76.8	65.2	10.7	55.3	55.3	56.8	54.6	59.3	62.2	73.9	64.0	**62.3**	**45.0**
EA40	100%	100%	71.0	45.9	46.4	41.6	44.1	34.2	36.3	38.3	45.3	42.5	64.4	45.0	**46.3**	33.4
EA41	100%	100%	69.0	51.9	44.9	39.4	39.6	36.5	36.2	38.1	41.4	45.1	52.6	46.6	**45.1**	32.6
EA42	100%	100%	86.0	66.9	67.2	58.3	69.8	62.4	51.9	53.9	55.9	59.2	71.5	49.8	**62.7**	**45.3**
EA43	100%	100%	77.9	50.7	49.5	54.6	57.2	50.4	41.1	41.6	48.4	41.9	56.3	43.6	**51.1**	36.9
EA44	100%	100%	67.4	49.9	46.5	40.4	48.7	42.3	36.3	41.5	44.6	49.7	58.4	50.7	**48.0**	34.7
EA45	100%	100%	86.2	58.3	50.4	61.9	66.4	56.6	50.5	52.6	58	56.0	71.7	59.8	**60.7**	**43.9**
EA46	100%	100%	126.6	86.4	93.2	98.0	110.0	89.4	83.3	83.6	87	81.6	103.3	85.3	**94.0**	**67.9**
EA47	92%	92%	84.0	65.3	63.8	56.3	56.9	59.4	51.3	54.7	52.8	60.0	N/A	61.5	**60.5**	**43.7**
EA48	100%	100%	94.4	69.3	61.5	73.4	73.9	67.3	60.0	64.5	69.8	59.4	81.8	70.8	**70.5**	**50.9**
EA49	92%	92%	75.7	51.8	42.0	43.8	43.8	33.9	36.7	41.5	N/A	44.0	64.8	48.5	**47.9**	34.6
EA50	100%	100%	69.0	48.3	42.3	48.0	42.4	44.1	33.4	38.1	42	38.6	52.7	42.1	**45.1**	32.6
EA51	100%	100%	83.6	62.3	72.2	76.7	70.1	67.6	56.2	58.4	63.4	60.7	76.9	66.0	**67.8**	**49.0**
EA52	83%	83%	68.1	N/A	36.1	N/A	35.0	30.4	29.0	31.0	39.2	35.4	51.6	39.8	39.6	28.6
EA53	92%	92%	92.9	N/A	65.9	61.4	70.7	56.6	46.0	52.3	60.7	46.9	71.9	50.4	**61.4**	**44.4**
EA54	92%	92%	65.9	46.0	43.4	36.8	42.2	N/A	46.7	48.0	57.7	54.5	69.5	61.4	**52.0**	37.6
EA55	100%	100%	78.3	51.0	49.0	51.1	54.7	42.5	36.5	42.3	48.8	44.4	60.5	46.6	**50.5**	36.5
EA56	100%	100%	83.5	64.7	61.2	58.4	63.7	59.1	52.0	53.2	58.3	62.1	72.2	63.6	**62.7**	**45.3**
EA57	100%	100%	78.4	67.9	62.7	59.6	62.0	55.2	49.5	58.0	57.3	60.5	67.1	60.0	**61.5**	**44.4**
EA58	92%	92%	64.1	69.3	65.2	60.6	63.9	50.2	44.8	52.0	54.5	55.3	70.0	N/A	**59.1**	**42.7**

Site ID 2017	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	NO_2 Concentration (µg/m^3)													
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual mean – raw data [c]	Annual mean – bias adjusted [c]
EA59	100%	100%	78.8	50.5	52.4	46.6	51.4	42.8	38.0	40.6	45.1	50.4	53.8	54.2	**50.4**	36.4
EA60	100%	100%	79.5	61.8	54.0	49.9	54.0	49.2	46.0	44.2	50.6	53.7	64.7	57.4	**55.4**	**40.0**
EA61	100%	100%	72.4	60.0	56.7	49.5	48.8	49.9	46.7	46.2	48.5	52.2	63.4	51.8	**53.8**	38.9

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

[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%)

[c] Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%