London Borough of Lewisham Air Quality Annual Status Report for 2020

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

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

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Abbreviations

Abbreviation	Description
AQAP	Air Quality Action Plan
AQFA	Air Quality Focus Area
AQMA	Air Quality Management Area
AQO	Air Quality Objective
BEB	Buildings Emission Benchmark
CAB	Cleaner Air Borough
CHP	Combined Heat and Power
EV	Electric Vehicle
GLA	Greater London Authority
JSNA	Joint Strategic Needs Assessment
LAEI	London Atmospheric Emissions Inventory
LAQM	Local Air Quality Management
LLAQM	London Local Air Quality Management
MAQF	Mayor's Air Quality Fund
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
ULEZ	Ultra Low Emission Zone

Table A. Summary of National Air Quality Standards and Objectives

Pollutant	Standard / Objective (UK)	Averaging Period	Date[(1)]
Nitrogen dioxide (NO_2)	200 µg m^{-3} not to be exceeded more than 18 times a year	1-hour mean	31 Dec 2005
Nitrogen dioxide (NO_2)	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
Particles (PM_{10})	40 µg m^{-3}	Annual mean	31 Dec 2004
Particles ($PM_{2.5}$)[2]	25 µg m^{-3}	Annual mean	2020
Particles ($PM_{2.5}$)	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
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

Notes:

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

(2) Currently $PM_{2.5}$ limit levels in UK are working towards the EU limits which is 25 µg m^{-3}. The World Health Organisation has introduced a target 10 µg m^{-3} annual mean concentration.

1. Air Quality Monitoring

There were five continuous monitoring stations in operation within the London Borough of Lewisham (LBL) during 2020. The newest continuous monitoring station (LW5) became operational during November 2019, measuring nitrogen dioxide (NO_2) and $PM_{2.5}$. A fifth station (LW3) was previously operated by LBL; however, this site has since been decommissioned at the end of 2015. SO_2 and O_3 monitoring was carried out at LW1 and LW2, before this was discontinued in October 2016. The continuous monitoring site at Honor Oak Park is operated by Imperial College London. Details of all continuous monitoring stations in operation during 2020 are given below in Table B.

Monitoring of NO_2 with diffusion tubes was carried out at 50 sites throughout 2020, one of which is a triplicate site co-located with the LW2 continuous monitor at New Cross. L25 on Stanstead Road was decommissioned in 2018 as the site had consistently low concentrations. An additional 51 tubes were added to the network in September 2020. The 51 new sites were commissioned as part of some modal filters work being undertaken by LBL's transport department, in order to understand the impact of the works on air quality. The continuity of these monitoring sites will depend on the availability of funding and resources. Details of all tube diffusion tube sites in 2020 are given in Table C. The location of all diffusion tube sites in 2020 are displayed in Figure A. 9 and Figure A. 10 within Appendix A.

1.1 Locations

Table B. Details of Automatic Monitoring Sites for 2020

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA? If so, which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Monitoring technique
LW1	Lewisham1 (Catford)	537675	173689	Urban Background	Y-Lewisham AQMA	n/a	3m	3.0m	NO_2	Chemiluminescence
LW2	Lewisham 2 (New Cross)	536241	176932	Roadside	Y-Lewisham AQMA	0	6m	2.5m	NO_2, PM_{10}, $PM_{2.5}$	Chemiluminescence, TEOM-FDMS
LW4	Lewisham 4 (Loampit Vale)	537912	175838	Roadside	Y-Lewisham AQMA	0	7m	2.5m	NO_2, PM_{10}	Chemiluminescence, BAM
LW5	Lewisham Deptford	537228	177471	Urban Background	Y-Lewisham AQMA	24	2	2.5	NO_2, $PM_{2.5}$	Chemiluminescence, TEOM-FDMS
HP1	Honor Oak Park	536473	174128	Urban Background	Y-Crofton Park and Honor Oak Park AQMA	n/a	n/a	n/a	NO_2, PM_{10}, $PM_{2.5}$	Chemiluminescence, TEOM-FDMS

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

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA? If so, which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor. (Y/N)
L1	Chubworthy Street	536109	177580	Roadside	Y-Lewisham AQMA	5	2	2.5	NO_2	N
L2	Bronze Street	537540	177439	Urban Background	Y-Lewisham AQMA	0	6	2.5	NO_2	N
L3	Grove Street	536561	178471	Urban Background	Y-Lewisham AQMA	n/a	2	2.5	NO_2	N
L4	Plough Way	536534	178926	Urban Background	N	n/a	2	2.5	NO_2	N
L5	Lee High Road	539678	175050	Roadside	Y-Lewisham AQMA	0	5	2.5	NO_2	N
L6	Le May Avenue	540615	172337	Urban Background	N	0	5	2.5	NO_2	N
L7	Bell Green	536556	171810	Roadside	N	0	3	2.5	NO_2	N
L8	Stondon Park	536229	174032	Roadside	Y-Crofton Park and Honor Oak Park AQMA	0	5	2.5	NO_2	N
L9	Ladywell Road	537500	174925	Roadside	Y-Lewisham AQMA	0	3	2.5	NO_2	N
L10	Whitburn Road	538062	175085	Roadside	Y-Lewisham AQMA	1	1	2.5	NO_2	N
L11	Sparta Street	538007	176517	Roadside	Y-Lewisham AQMA	3	3	2.5	NO_2	N
L12	Montague Avenue, Hilly Fields	537132	175353	Urban Background	Y-Lewisham AQMA	n/a	60	2.5	NO_2	N

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA? If so, which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor. (Y/N)
L13	Mayow Road	535804	171567	Urban Background	N	0	5	2.5	NO_2	N
L14	Boyne Road	538482	175792	Urban Background	Y-Lewisham AQMA	3	1	2.5	NO_2	N
L15	Lewisham Road	538237	176101	Roadside	Y-Lewisham AQMA	0	10	2.5	NO_2	N
L16	Loampit Vale	537740	175930	Roadside	Y-Lewisham AQMA	0	1.5	2.5	NO_2	N
L17	New Cross Monitoring Station (Triplicate)	536246	176934	Roadside	Y-Lewisham AQMA	0	6	2.5	NO_2	Y
L18	New Cross Monitoring Station (Triplicate)	536246	176934	Roadside	Y-Lewisham AQMA	0	6	2.5	NO_2	Y
L19	New Cross Monitoring Station (Triplicate)	536246	176934	Roadside	Y-Lewisham AQMA	0	6	2.5	NO_2	Y
L20	Hatcham Park Road	535746	176969	Roadside	Y-Lewisham AQMA	1	4	2.5	NO_2	N
L21	Brockley Rise	536133	173341	Roadside	Y-Crofton Park and Honor Oak Park AQMA	0	3	2.5	NO_2	N
L22	Ringstead Road	538060	173816	Urban Background	Y-Lewisham AQMA	3	0.5	2.5	NO_2	N
L23	Catford Hill	537178	173365	Roadside	N	6	0.5	2.5	NO_2	N

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA? If so, which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor. (Y/N)
L24	Hazelbank Road	538930	172713	Urban Background	N	4	2	2.5	NO_2	N
L25	Stanstead Road	535530	173198	Urban Background	N	0	10	2.5	NO_2	N
L26	Shardloes Road	536527	175935	Roadside	Y-Lewisham AQMA	3	0.5	2.5	NO_2	N
L27	Montpelier Vale	539604	176090	Roadside	Y-Lewisham AQMA	2	0.5	2.5	NO_2	N
L28	Baring Road	540051	173769	Roadside	N	5	0.5	2.5	NO_2	N
L29	Holy Cross, Sangley Road	538165	173406	Roadside	N	0	5	2.5	NO_2	N
L30	Christchurch, Perry Vale	535535	172679	Roadside	N	1	5	2.5	NO_2	N
L31	St Mary Magdalen's RC, Howson Road	536399	175150	Urban Background	Y-Crofton Park and Honor Oak Park AQMA	2	2	2.5	NO_2	N
L32	Grinling Gibbons, Clyde Street	536944	177665	Urban Background	Y-Lewisham AQMA	0	2	2.5	NO_2	N
L33	St Mary's CE, Lewisham High Street	537979	174792	Roadside	Y-Lewisham AQMA	0	2	2.5	NO_2	N
L34	Sydenham, Dartmouth Road	535071	172346	Urban Background	N	0	5	2.5	NO_2	N
L35	Kender Primary School	535447	176897	Roadside	Y-Lewisham AQMA	N/A	2	2.5	NO_2	N
L36	Deptford Park School	536275	178405	Roadside	Y-Lewisham AQMA	N/A	2	2.5	NO_2	N

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA? If so, which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor. (Y/N)
L37	St James Hatcham School	536317	176883	Urban Background	Y-Lewisham AQMA	N/A	N/A	2.5	NO_2	N
L38	Beecroft Primary School	536564	174937	Roadside	Y-Crofton Park and Honor Oak Park AQMA	6	2.0	2.55	NO_2	N
L39	John Stainer Primary School	536308	175721	Roadside	Y-Lewisham AQMA	8	1.7	2.6	NO_2	N
L40	Myatt Garden Primary School	536792	176432	Urban Background	Y-Lewisham AQMA	4	1.4	2.55	NO_2	N
L41	Ashmead Primary School	537256	176353	Urban Background	Y-Lewisham AQMA	8	0.7	2.3	NO_2	N
L42	Lucas Vale Primary School	537032	176534	Urban Background	Y-Lewisham AQMA	0	2.2	2.65	NO_2	N
L43	Childeric Primary School	536389	177144	Urban Background	Y-Lewisham AQMA	6	2.85	2.65	NO_2	N
L44	Sir Francis Drake Primary School	536028	178107	Roadside	Y-Lewisham AQMA	1	2.0	2.45	NO_2	N
L45	Tidemill Academy	537228	177284	Roadside	Y-Lewisham AQMA	1	2.9	2.7	NO_2	N
L46	St Margaret Lee Primary School	539416	175315	Urban Background	Y-Lewisham AQMA	1.	2.3	2.6	NO_2	N
L47	Rathfern Primary School	536839	173211	Roadside	N	2	2.05	2.5	NO_2	N
L48	Holbeach Primary School	537433	173965	Urban Background	Y-Lewisham AQMA	25	0.9	2.55	NO_2	N

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA? If so, which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor. (Y/N)
L49	St Saviours RC Primary School	538358	175324	Urban Background	Y- Lewisham AQMA	3	2.1	2.4	NO_2	N
L50	Rushey Green Primary School	537836	173400	Urban Background	N	0	4.45	2.45	NO_2	N
L51	290 Brownhill Rd South Circular	538803	173683	Roadside	Y- Lewisham AQMA	10	2.2	2.6	NO_2	N
L52	St John CofE School	538285	171877	Roadside	N	3	3.9	2.35	NO_2	N
L53	Greenvale School	539319	172362	Urban Background	N	1	2.9	2.45	NO_2	N
SSDT_1	46 Grinstead Road	536263	178099	Roadside	Y- Lewisham AQMA	12	1.4	2.4	NO_2	N
SSDT_2	58 Friendly Street	537250	176593	Roadside	Y- Lewisham AQMA	7	1.8	2.2	NO_2	N
SSDT_3	1 Lind Street	537534	176469	Roadside	Y- Lewisham AQMA	23	0.8	2.5	NO_2	N
SSDT_4	Goffers Road	538982	176645	Roadside	Y- Lewisham AQMA	N/A	2.0	2.1	NO_2	N
SSDT_5	121 Pepys Road	535947	176287	Roadside	Y- Lewisham AQMA	8	0.7	2.5	NO_2	N
SSDT_6	101 Jerningham Road	536197	176514	Roadside	Y- Lewisham AQMA	9.5	0.6	2.4	NO_2	N
SSDT_7	41 South Row	539761	176431	Roadside	Y- Lewisham AQMA	14	0.9	2.5	NO_2	N
SSDT_8	1 Belmont Park	538795	175291	Roadside	Y- Lewisham AQMA	6	0.5	2.4	NO_2	N

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA? If so, which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor. (Y/N)
SSDT_9	19 Manor Road	538926	175030	Roadside	Y-Lewisham AQMA	14	0.5	2.7	NO_2	N
SSDT_10	94 Hither Green Lane	538367	174857	Roadside	Y-Lewisham AQMA	11	1.4	2.4	NO_2	N
SSDT_11	1 Woodville Close	540200	174781	Roadside	Y-Lewisham AQMA	14	0.5	2.5	NO_2	N
SSDT_12	4 Burnt Ash Road	539871	174720	Roadside	Y-Lewisham AQMA	20	0.5	2.3	NO_2	N
SSDT_13	101 Manor Lane	539418	174543	Roadside	Y-Lewisham AQMA	9	0.9	1.8	NO_2	N
SSDT_14	160 Leahurst Road	539063	174543	Roadside	Y-Lewisham AQMA	5	1.7	2.5	NO_2	N
SSDT_15	185 Hither Green Lane	538562	174494	Roadside	Y-Lewisham AQMA	5	1.4	2.7	NO_2	N
SSDT_16	140 Chudleigh Road	536975	174537	Roadside	Y-Crofton Park and Honor Oak Park AQMA	14	2.3	2.2	NO_2	N
SSDT_17	112 Crofton Park Road	536666	174206	Roadside	Y-Crofton Park and Honor Oak Park AQMA	2	1.9	2.4	NO_2	N
SSDT_18	George Lane, Holy Trinity Church	538313	174269	Roadside	Y-Lewisham AQMA	6	2.2	2.5	NO_2	N
SSDT_19	193 George Lane	538589	174189	Roadside	Y-Lewisham AQMA	12	1.9	2.2	NO_2	N

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA? If so, which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor. (Y/N)
SSDT_20	208 Verdant Lane	539498	172969	Roadside	N	15	0.5	2.5	NO_2	N
SSDT_21	Holme Lacey Road	539892	174174	Roadside	Y-Lewisham AQMA	8	2.5	2.4	NO_2	N
SSDT_22	40B Burnt Ash Road	540014	173979	Roadside	Y-Lewisham AQMA	25	0.4	2.3	NO_2	N
SSDT_23	75 Leyland Road	540119	174329	Roadside	Y-Lewisham AQMA	7	0.8	2.5	NO_2	N
SSDT_24	131 Woodyates Road	540504	173977	Roadside	N	8	2.6	2.6	NO_2	N
SSDT_25	268 Manor Lane	539559	173929	Roadside	Y-Lewisham AQMA	15	0.7	2.6	NO_2	N
SSDT_26	389 Hither Green Lane	539352	173783	Roadside	Y-Lewisham AQMA	12	2.7	2.6	NO_2	N
SSDT_27	51 Polstead Road	536753	173603	Roadside	Y-Crofton Park and Honor Oak Park AQMA	5	3.0	2.3	NO_2	N
SSDT_28	119 Sandhurst Road	538723	173345	Roadside	N	8	1.5	2.4	NO_2	N
SSDT_29	18 Jevington Way	541019	173231	Roadside	N	13	0.8	2.6	NO_2	N
SSDT_30	7 Fordmill Road	537530	173095	Roadside	N	8	0.9	2.5	NO_2	N
SSDT_31	38 Thorpewood Avenue	534939	172586	Roadside	N	10	0.6	2.4	NO_2	N
SSDT_32	155 Woolstone Road	536217	172563	Roadside	N	8	2.2	2.2	NO_2	N
SSDT_33	3 Brookehowse Road	537436	172596	Roadside	N	17	3.3	2.7	NO_2	N

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA? If so, which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor. (Y/N)
SSDT_34	136 Thornsbeach Road	538471	172660	Roadside	N	14	2.6	2.5	NO_2	N
SSDT_35	49 Castillion Road	539254	172658	Roadside	N	9	2.5	2.4	NO_2	N
SSDT_36	12 Pragnell Road	540601	172744	Roadside	N	23	2.7	2.6	NO_2	N
SSDT_37	147 Perry Hill	536618	172405	Roadside	N	11	1.0	2.6	NO_2	N
SSDT_38	Dacres Road	535533	172340	Roadside	N	3	2.5	2.4	NO_2	N
SSDT_39	Wells Park Road	534309	172044	Roadside	N	15	2.8	2.3	NO_2	N
SSDT_40	22 Mayow Road	535883	171754	Roadside	N	14	0.6	2.2	NO_2	N
SSDT_41	5 Stanton Way	536598	171766	Roadside	Y- Lewisham AQMA	16	0.7	2.8	NO_2	N
SSDT_42	Oakridge Road	538788	171517	Roadside	N	14	0.5	2.2	NO_2	N
SSDT_43	198 Glenbow Road	539170	170869	Roadside	N	13	3.4	2.4	NO_2	N
SSDT_44	Glenbow Road, Playing Fields	539374	171246	Roadside	N	39	3.3	2.3	NO_2	N
SSDT_45	165 Downham Way	539492	171567	Roadside	N	9	2.7	2.6	NO_2	N
SSDT_46	Daneswood Avenue, 90 Passfields	539732	172202	Roadside	N	13	0.7	2.5	NO_2	N
SSDT_47	398 Downham Way	540249	171633	Roadside	N	6	3.2	2.4	NO_2	N
SSDT_48	549 Downham Way	540331	172103	Roadside	N	12	0.7	0.2	NO_2	N
SSDT_49	72 Tyrwhitt Road	540734	175912	Roadside	Y- Lewisham AQMA	11	0.6	2.5	NO_2	N
SSDT_50	53 Tressillian Road	540965	175804	Roadside	Y- Lewisham AQMA	9	0.7	2.4	NO_2	N

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA? If so, which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor. (Y/N)
SSDT_51	110 Drakefell Road	542142	176126	Roadside	Y- Lewisham AQMA	2	1.4	2.4	NO_2	N

1.2 Comparison of Monitoring Results with AQOs

The results presented are after adjustments for “annualisation” and bias adjustment, the details of which are described in Appendix A.

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

Site ID	Site type	Valid data capture for monitoring period %[(a)]	Valid data capture 2020 %[(b)]	2014	2015	2016	2017	2018	2019	2020
LW1	Urban Background (Automatic)	75	75	**54**	**43**	**44**	**43.1**	37.5	33.3	28.6
LW2	Roadside (Automatic)	97	97	**42**	**47**	**46**	**48.9**	**42.1**	37.9	29.1
LW4	Roadside (Automatic)	98	98	**56**	**51**	**58**	**53.9**	**46.4**	**42.8**	35.6
LW5	Urban Background (Automatic)	95	95	-	-	-	-	-	-	18.7
HP1[d]	Urban Background (Automatic)	100	100	-	-	-	-	-	24.1	16.1
L1	Roadside	92	92	38.0	33.1	34.3	31.6	29.2	28.2	21.9
L2	Urban Background	83	83	29.2	28.1	30.3	29.0	25.2	25.7	20.1
L3	Urban Background	92	92	35.9	34.3	36.3	32.7	30.6	27.4	20.6
L4	Urban Background	92	92	34.9	34.4	33.6	31.7	28.8	27.7	21.1
L5	Roadside	92	92	37.7	33.4	36.1	30.0	29.9	27.7	21.8
L6	Urban Background	92	92	36.0	35.2	34.8	32.2	30.5	27.2	22.1
L7	Roadside	83	83	**55.4**	**48.3**	**49.2**	**43.3**	38.2	39.6	32.5
L8	Roadside	92	92	**42.2**	**42.2**	**42.4**	38.6	33.5	31.5	24.5
L9	Roadside	75	75	**40.8**	37.5	39.6	35.1	36.2	31.9	25.7
L10	Roadside	83	83	**40.3**	39.4	**41.5**	37.3	38.0	31.4	24.7

Site ID	Site type	Valid data capture for monitoring period %[a]	Valid data capture 2020 %[b]	2014	2015	2016	2017	2018	2019	2020
L11	Roadside	83	83	38.6	36.1	37.4	34.8	33.6	31.2	23.6
L12	Urban Background	83	83	30.5	26.9	27.9	26.4	25.3	23.7	19.4
L13	Urban Background	83	83	28.3	27.3	27.3	26.6	23.8	24.4	19.5
L14	Urban Background	92	92	31.2	29.9	31.1	29.2	26.3	25.8	21.4
L15	Roadside	92	92	**46.5**	**46.6**	**45.2**	36.3	33.9	34.0	26.9
L16	Roadside	83	83	**52.5**	**48.7**	**50.5**	**44.1**	**40.4**	37.0	29.5
L17	Roadside (Triplicate)	67	67	**49.1**	**50.6**	**52.1**	**48.9**	**42.3**	38.6	27.7
L18	Roadside (Triplicate)	67	67	**51.1**	**49.1**	**50.8**	**48.9**	**42.4**	37.7	30.1
L19	Roadside (Triplicate)	67	67	**49.6**	**49.7**	**52.4**	**48.9**	**43.0**	38.1	28.1
L20	Roadside	83	83	**43.6**	**43.2**	**42.8**	38.6	37.7	34.3	25.6
L21	Roadside	92	92	**54.6**	**50.3**	**51.5**	**49.7**	**41.2**	39.8	30.1
L22	Urban Background	75	75	32.2	30.3	31.3	31.9	28.1	25.5	22.0
L23	Roadside	83	83	**55.1**	**51.8**	**49.9**	**44.5**	**43.1**	38.7	29.9
L24	Urban Background	75	75	35.6	32.4	34.6	33.3	32.8	29.9	24.1
L25	Urban Background	0	0	25.5	23.3	25.0	23.1	-	-	-
L26	Roadside	92	92	**53.7**	**47.2**	**46.4**	**43.5**	39.0	36.0	29.8
L27	Roadside	92	92	36.2	**57.1**	**55.3**	**52.4**	**43.5**	39.5	31.2
L28	Roadside	92	92	**51.0**	**58.6**	**58.1**	**55.5**	**46.3**	**41.0**	33.4
L29	Roadside	83	83	33.0	28.6	30.3	29.0	28.1	24.4	20.4
L30	Roadside	92	92	31.3	32.3	31.3	28.1	28.7	26.3	19.7
L31	Urban Background	92	92	25.7	23.5	26.2	24.4	25.9	21.2	17.8
L32	Urban Background	92	92	30.6	28.6	33.0	28.4	27.4	25.6	20.7
L33	Roadside	83	83	**44.6**	**41.8**	**44.6**	**40.7**	38.2	33.2	28.2
L34	Urban Background	92	92	31.8	27.0	27.6	26.4	23.8	24.2	18.3

Site ID	Site type	Valid data capture for monitoring period %[a]	Valid data capture 2020 %[b]	2014	2015	2016	2017	2018	2019	2020
L35	Roadside	92	92	-	-	-	31.3	27.1	25.9	19.9
L36	Roadside	83	83	-	-	-	**43.1**	39.2	37.0	26.3
L37	Urban Background	92	92	-	-	-	29.2	27.4	25.3	19.6
L38	Roadside	92	92	-	-	-	-	29.7	30.6	22.5
L39	Roadside	92	92	-	-	-	-	30.0	29.0	22.8
L40	Urban Background	75	75	-	-	-	-	23.7	22.7	17.7
L41	Urban Background	92	92	-	-	-	-	24.0	23.2	17.6
L42	Urban Background	83	83	-	-	-	-	26.8	26.7	20.6
L43	Urban Background	92	92	-	-	-	-	26.6	27.5	20.2
L44	Roadside	83	83	-	-	-	-	35.2	32.8	26.1
L45	Roadside	92	92	-	-	-	-	33.4	28.5	20.4
L46	Urban Background	92	92	-	-	-	-	24.9	24.7	18.8
L47	Roadside	83	83	-	-	-	-	27.5	24.8	20.4
L48	Urban Background	75	75	-	-	-	-	27.3	25.8	20.4
L49	Urban Background	83	83	-	-	-	-	27.4	24.0	20.3
L50	Urban Background	83	83	-	-	-	-	24.3	21.8	17.8
L51	Roadside	75	75	-	-	-	-	**53.5**	**44.9**	34.0
L52	Roadside	83	83	-	-	-	-	33.2	33.3	27.3
L53	Urban Background	83	83	-	-	-	-	22.7	20.9	15.9
SSDT_1	Roadside	100	33	-	-	-	-	-	-	22.5
SSDT_2	Roadside	100	33	-	-	-	-	-	-	-
SSDT_3	Roadside	100	33	-	-	-	-	-	-	21.5
SSDT_4	Roadside	100	33	-	-	-	-	-	-	24.4
SSDT_5	Roadside	100	33	-	-	-	-	-	-	19.6
SSDT_6	Roadside	75	25	-	-	-	-	-	-	22.6
SSDT_7	Roadside	100	33	-	-	-	-	-	-	24.6

Site ID	Site type	Valid data capture for monitoring period %[a]	Valid data capture 2020 %[b]	2014	2015	2016	2017	2018	2019	2020
SSDT_8	Roadside	100	33	-	-	-	-	-	-	25.5
SSDT_9	Roadside	100	33	-	-	-	-	-	-	19.2
SSDT_10	Roadside	100	33	-	-	-	-	-	-	27.5
SSDT_11	Roadside	50	17	-	-	-	-	-	-	17.7
SSDT_12	Roadside	100	33	-	-	-	-	-	-	26.4
SSDT_13	Roadside	75	25	-	-	-	-	-	-	20.9
SSDT_14	Roadside	100	33	-	-	-	-	-	-	17.6
SSDT_15	Roadside	75	25	-	-	-	-	-	-	22.2
SSDT_16	Roadside	50	17	-	-	-	-	-	-	21.9
SSDT_17	Roadside	75	25	-	-	-	-	-	-	18.5
SSDT_18	Roadside	100	33	-	-	-	-	-	-	20.3
SSDT_19	Roadside	75	25	-	-	-	-	-	-	16.7
SSDT_20	Roadside	100	33	-	-	-	-	-	-	23.4
SSDT_21	Roadside	100	33	-	-	-	-	-	-	20.9
SSDT_22	Roadside	100	33	-	-	-	-	-	-	24.9
SSDT_23	Roadside	100	33	-	-	-	-	-	-	19.3
SSDT_24	Roadside	100	33	-	-	-	-	-	-	22.1
SSDT_25	Roadside	100	33	-	-	-	-	-	-	21.3
SSDT_26	Roadside	100	33	-	-	-	-	-	-	26.3
SSDT_27	Roadside	100	33	-	-	-	-	-	-	19.1
SSDT_28	Roadside	100	33	-	-	-	-	-	-	25.5
SSDT_29	Roadside	100	33	-	-	-	-	-	-	17.8
SSDT_30	Roadside	100	33	-	-	-	-	-	-	20.9
SSDT_31	Roadside	100	33	-	-	-	-	-	-	17.6
SSDT_32	Roadside	100	33	-	-	-	-	-	-	20.5
SSDT_33	Roadside	100	33	-	-	-	-	-	-	19.8
SSDT_34	Roadside	100	33	-	-	-	-	-	-	19.1
SSDT_35	Roadside	100	33	-	-	-	-	-	-	17.8
SSDT_36	Roadside	100	33	-	-	-	-	-	-	17.4
SSDT_37	Roadside	100	33	-	-	-	-	-	-	29.5
SSDT_38	Roadside	100	33	-	-	-	-	-	-	17.4
SSDT_39	Roadside	100	33	-	-	-	-	-	-	19.3
SSDT_40	Roadside	75	25	-	-	-	-	-	-	25.1
SSDT_41	Roadside	100	33	-	-	-	-	-	-	29.9
SSDT_42	Roadside	100	33	-	-	-	-	-	-	25.3

Site ID	Site type	Valid data capture for monitoring period %[(a)]	Valid data capture 2020 %[(b)]	2014	2015	2016	2017	2018	2019	2020
SSDT_43	Roadside	100	33	-	-	-	-	-	-	17.8
SSDT_44	Roadside	100	33	-	-	-	-	-	-	16.6
SSDT_45	Roadside	100	33	-	-	-	-	-	-	17.6
SSDT_46	Roadside	100	33	-	-	-	-	-	-	21.4
SSDT_47	Roadside	100	33	-	-	-	-	-	-	25.2
SSDT_48	Roadside	100	33	-	-	-	-	-	-	20.1
SSDT_49	Roadside	100	33	-	-	-	-	-	-	19.0
SSDT_50	Roadside	100	33	-	-	-	-	-	-	-
SSDT_51	Roadside	100	33	-	-	-	-	-	-	28.0

Notes:

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

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

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

Means for diffusion tubes have been corrected for bias, but are **NOT** distance corrected

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%.

(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%).

Automatic Monitoring Results

The 2020 annual mean NO_2 concentrations at automatic monitoring sites overall exhibited a continuation of the decreasing trend observed over the seven-year period between 2014 to 2020. For the sites LW1, LW2 and LW4, the average decrease was 38% for the seven year period. The likely impact of the COVID-19 pandemic on observed concentrations is discussed in Section 2 of this ASR. Monitoring sites LW1, LW2, HP1 and LW4 recorded a lower annual mean concentration in 2020 in comparison to 2019. LW5 became operational during the tail end of 2019, and thus had no historical data to demonstrate a temporal pattern; however, it had an annual mean concentration for 2020 below the annual mean NO_2 AQO of 40 µg m^{-3} (18.7 µg m^{-3}). In 2020, monitoring site LW4 had an annual mean concentration below the AQO for the first time in six years (35.6 µg m^{-3}).

Diffusion Tube Results

Regarding monitoring by passive diffusion tubes, there were no diffusion tube locations which exceeded the annual mean NO_2 AQO of 40 µg m^{-3} during 2020. L51 had the highest annual mean concentration at 34.0 µg m^{-3}. An additional 51 tubes were added to the network in September 2020, the highest value recorded at these new locations was at SSDT_2 with an annual mean concentration of 30.2 µg m^{-3}. All sites in 2020 had a decrease in NO_2 concentrations when compared to 2019. On average, the decrease between 2014 and 2020 at diffusion tube sites was 39% for the seven year period. All monitoring locations now demonstrate an overall decreasing trend in annual mean NO_2 concentrations since 2014. For example, the triplicate tubes L17, L18, and L19, co-located with automatic monitoring station LW2, display an overall decreasing NO_2 trend over the seven-year period (43%), albeit with some oscillations. The greatest reduction at the triplicate location occurred between 2019 and 2020 (decrease of 25%).

Over the last seven years, annual mean NO_2 concentrations at all diffusion tube urban background sites have remained below the annual mean NO_2 AQO of 40 µg m^{-3}. Locations that have exceeded the AQO throughout the 2014 to 2019 period have consistently been roadside sites. On average, annual mean NO_2 concentrations at both roadside and urban background monitoring locations have decreased between 2014 and 2020 by an average of 42% and 37% respectively for the seven year period. A breakdown of the

changes seen each year between 2014 and 2020 is shown in Appendix C. It can be seen that the largest difference between two years was the reduction in concentrations between 2019 and 2020.

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

Site ID	Valid data capture for monitoring period %(a)	Valid data capture 2020 %(b)	2014	2015	2016	2017	2018	2019	2020
LW1	75	75	0	0	0	0	0	0	0
LW2	97	97	0	7	0	0	0	0	0
LW4	98	98	5 (180)	0	9 (184)	4	0	0	0
LW5	95	95	-	-	-	-	-	-	0
HP1	100	100	-	-	-	-	-	0	0

Notes

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

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

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

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

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

In 2020, there were no exceedances of the hourly mean NO_2 AQO of 200 µg m^{-3} at any of the five automatic monitoring locations. In the past seven years, there is no discernible trend, although all monitoring locations have tended to remain below of the AQO of 200 µg m^{-3} fewer than 18 times per year since 2014, and there have been no hours with concentrations greater than 200 µg m^{-3} in the last three years. The urban background monitoring site LW1 has not seen an exceedance of the hourly AQO value of 200 µg m^{-3} since pre-2014. LW2, a roadside site, has only recorded hourly concentrations greater than 200 µg m^{-3} once during the seven-year period, in 2015 (7 hours). LW4 has achieved compliance with the hourly mean AQO since 2014, and from 2018 onwards it has not seen any hourly means exceeding 200 µg m^{-3}. As they are recently commissioned sites, HP1 and LW5 have no temporal trend; however, neither site recorded an hourly mean over 200 µg m^{-3} in 2020.

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

Site ID	Valid data capture for monitoring period %([a])	Valid data capture 2020 %([b])	2014	2015	2016	2017	2018	2019	2020
LW2	75	75	23	23	24	22.8	21.2	19.8	19.0
LW4	98	98	25	17	26	20.9	18.6	20.3	18.5
HP1	100	100	-	-	-	-	-	14.7	13.8

Notes

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

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

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

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

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

Three automatic monitoring stations within LBL measure PM_{10}. In 2020, all three sites demonstrated annual mean PM_{10} concentrations well below the AQO of 40 µg m^{-3}. For 2020, the highest annual mean concentration was observed at LW2, with a concentration of 19.0 µg m^{-3}. Nevertheless, over the entire seven-year period between 2014 and 2020, all three monitoring stations showed an overall downward tendency with some fluctuations around the trendline. These variations around the trend are more notable at LW4. The highest recorded annual mean PM_{10} concentration between 2014 and 2020 was 26 µg m^{-3} at LW4 in 2016.

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

Site ID	Valid data capture for monitoring period %[(a)]	Valid data capture 2020 %[(b)]	2014	2015	2016	2017	2018	2019	2020
LW2	75	75	14 (38)	8	9	11	4	9	5 (30)
LW4	98	98	13 (41)	1	18 (47)	7	1	9	8
HP1	100	100	-	-	-	-	-	7	4

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%).

In 2020, LW4 saw 8 instances where the 24-hour mean was greater than the AQO value of 50 µg m^{-3}, whereas HP1 saw 4 instances during the year and LW2, 5 instances. However, these are well below the 35 permitted, meaning all monitoring stations achieved compliance with the 24-hour mean AQO. There has been a decrease in the number of 24-hour means greater than the AQO threshold value in comparison to 2019 at all sites. The highest recorded number of days where the monitored concentration was greater than the AQO objective value was 18 days at LW4 in 2016.

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

Site ID	Valid data capture for monitoring period %[(a)]	Valid data capture 2020 %[(b)]	2014	2015	2016	2017	2018	2019	2020
LW2	97	97	16.5	15.5	18.9	15.5	15.0	15.0	12.6
HP1	100	100	-	-	-	-	-	9.9	8.7
LW5	70	70	-	-	-	-	-	-	8.8

Notes

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

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

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

$PM_{2.5}$ concentrations are monitored at LW2, HP1 & LW5 within the LBL. In 2020, all sites achieved annual mean concentrations below the annual mean $PM_{2.5}$ AQO value of 25 µg m^{-3}. LW2 saw the highest annual mean concentration in 2020 at 12.6 µg m^{-3}. LW5 was annualised using a factor of 0.93 due to low data capture.

Addressing $PM_{2.5}$ in Lewisham

LBL supports the Mayor's commitment to meet the WHO guidelines for $PM_{2.5}$ which is more ambitious than the goal in the new national Clean Air Strategy. Currently $PM_{2.5}$ limit levels in UK are working towards the EU limits which is 25 µg m^{-3}. The World Health Organisation has introduced a target 10 µg m^{-3} as an annual mean concentration.

Unlike other pollutants, such as nitrogen dioxide, a large percentage of $PM_{2.5}$ in London comes from regional, and often transboundary (non-UK) sources. Therefore, the powers to tackle these emissions lie elsewhere within London, the UK and with other European governments, which can make it more difficult to address with direct measures. The Mayor of London stated on 4th October 2017 that approximately half of $PM_{2.5}$ in London is from sources outside the city[2]. However, the main sources of $PM_{2.5}$ emissions within London are from tyre and brake wear, construction and wood burning.

LBL supports the Mayor's objective to work with European institutions, other European cities, and city networks to ensure that transboundary pollution affecting London is minimised and ensuring strong source control measures and regulations are adopted at EU level. The following interventions have been welcomed within Lewisham:

- Real-world driving emissions testing, type-approval process arrangements, tyre and brake wear, and new emission standards (for example Euro 7);
- The introduction of the central London Ultra Low Emission Zone (ULEZ) and cleaning up the bus and taxi fleets;
- Encourage and promote the reduction of the number of trips made by road and encourage walking, cycling and public transport where possible, as laid out in the Mayor's Transport Strategy;

[2] *https://www.london.gov.uk/press-releases/mayoral/every-londoner-is-exposed-to-dangerous-toxic-air#:~:text=Around%20half%20of%20PM2.,wear%2C%20construction%20and%20wood%20burning.*

- Reduce emissions from biomass burning (including domestic wood burning); construction, with emissions from NRMM; and from cooking (including commercial cooking); and
- Government policies will greater ability to reduce $PM_{2.5}$ emissions from road transport as detailed the London Environment Strategy and Mayor's Transport Strategy[3].

The Government's goal is to reduce the number of people exposed to $PM_{2.5}$ above the WHO target by 50% by 2025, which if achieved would still leave many Londoners in general and Lewisham`s residents, visitors and workers exposed to the health effects of high levels of pollution.

LBL will focus on reducing and monitoring $PM_{2.5}$ concentrations within the next Air Quality Action Plan, to be released within the next reporting year.

It is also our intention to work with other authorities towards meeting the 10 µg m^{-3} annual mean concentration by 2030 and to adhere to any legally binding targets to reduce all UK concentrations of $PM_{2.5}$ to WHO recommended levels by 2030, should these be implemented.

LBL, along with other London boroughs, would like to set out how this target will be reached, along with the milestones for doing this and provide details setting out how the most vulnerable people will be protected.

[3] *Mayor of London, (2018); Mayor's Transport Strategy.*

2. Impact of COVID-19 upon LAQM

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

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

Despite the challenges that the pandemic has given rise to, the events of 2020 have also provided Local Authorities with an opportunity to quantify the air quality impacts associated with wide-scale and extreme intervention, most notably in relation to emissions of air pollutants arising from road traffic. The vast majority (>95%) of AQMAs declared within the UK are related to road traffic emissions, where attainment of the annual mean objective for nitrogen dioxide (NO_2) is considered unlikely. On 23rd March 2020, the UK Government released official guidance advising all members of public to stay at home, with work-related travel only permitted when absolutely necessary. During this initial national lockdown (and to a lesser extent other national and regional lockdowns that followed), marked reductions in vehicle traffic were observed; Department for Transport (DfT) data[4] suggests reductions in vehicle traffic of up to 70% were experienced across the UK by mid-April, relative to pre COVID-19 levels.

This reduction in travel in turn gave rise to a change of air pollutant emissions associated with road traffic, i.e. nitrous oxides (NO_x), and exhaust and non-exhaust particulates (PM). The Air Quality Expert Group (AQEG)[5] has estimated that during

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

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

the initial lockdown period in 2020, within urbanised areas of the UK reductions in NO_2 annual mean concentrations were between 20 and 30% relative to pre-pandemic levels, which represents an absolute reduction of between 10 to 20 µg m^{-3} if expressed relative to annual mean averages. During this period, changes in $PM_{2.5}$ concentrations were less marked than those of NO_2. $PM_{2.5}$ concentrations are affected by both local sources and the transport of pollution from wider regions, often from well beyond the UK. Through analysis of AURN monitoring data for 2018-2020, AQEG have detailed that $PM_{2.5}$ concentrations during the initial lockdown period were in the order of 2 to 5 µg m^{-3} lower relative to those that would be expected under business-as-usual conditions.

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

In order to communicate clearly with the public on the potential impact of COVID-19 on the data capture and quality of monitoring data collected during 2020, Defra has provided an impact matrix in the supplementary guidance for LAQM reporting in 2021 (see Appendix C).

Impact of COVID-19 within London Borough of Lewisham

The coronavirus (COVID-19) pandemic has put considerable pressure on LBL Environmental Protection Public health and highways teams' resources particularly, along with all the other services within the council in general. At the same time, there has been much media and political attention on the health impacts of poor air quality, and growing evidence of links between it and higher COVID-19 infection and mortality rate. Dealing with COVID-19 and such challenges, in addition to managing day-to-day ongoing responsibilities, has left LBL services stretched to capacity. There has been an inability of LBL and our stakeholders to fully implement air quality improvement measures (e.g. School assemblies and Idling Action Events were not delivered by the lead Mayor's Air Quality Funding (MAQF) partners due to COVID-19 restrictions).

With reference to the impact of the pandemic on air quality, a detailed analysis of the impact of COVID-19[6] on air pollutant concentrations was undertaken as part of the Lewisham and Lee Green Low Traffic Neighbourhood. The assessment shows a general decrease in concentration of NO_2 across Lewisham during 2020 due to reductions in movement because of lockdowns. The general decrease in concentrations of NO_2 across Lewisham during 2020 corroborated very well with the results of the assessment[4] carried out by Kings College research team (now part of Imperial College) across London.

Details of air quality projects that have been impacted by the pandemic will be made available in our 2022-2027 Draft Air Quality Action Plan and in Table J of this ASR.

In terms of impacts on monitoring data, such as lower data capture or tubes being exposed outside of the usual time periods the following observations are made:

- During 2020, access to the diffusion tube monitoring sites was generally not restricted due to their locations predominantly in public access areas. During the month of May, no tubes were exposed due to closure of the tube supplier. Therefore, it was not possible to maintain diffusion tube exposure periods for April to June in line with the national monitoring calendar for a number of sites. Despite this, data capture across the sites was high and no more sites were annualised than might usually be expected in a typical year (no impact).
- Tubes were stored in accordance with laboratory guidance (no impact).
- As with previous years, a national bias adjustment factor has been utilised to adjust the diffusion tube results for 2020. Within 2019 there were 29 co-location studies that were utilised to calculate the bias factor for the laboratory and preparation method used. For 2020, this number has reduced to 14 studies. There is therefore the potential for there to be a greater degree of uncertainty associated with the resultant annual mean NO_2 concentrations in 2020 than in previous years (small impact).
- COVID-19 is currently having a small impact on all other air quality work.

[6] https://s3-eu-west-2.amazonaws.com/commonplace-customer-assets/lewishamcovidresidentialstreets/Lee%20Green%20LTN%20programme%20-%20air%20quality%20monitoring%20report.pdf

3. Action to Improve Air Quality

3.1 Air Quality Action Plan Progress

Table J provides a brief summary of London Borough of Lewisham's progress against the Air Quality Action Plan, showing progress made this year. New projects which commenced in 2020 are shown at the bottom of the table.

Table J. Delivery of Air Quality Action Plan Measures

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
1	Emissions from developments and buildings	Ensuring emissions from construction are minimised	Emissions from buildings account for about 15% of the NO_X emissions across London so are important in affecting NO_2 concentrations. Key benefits include: • Flexible and can ensure developments are best practice even at long-running developments; • Clear requirements of, and a level playing field for all, developers; and • Less effort for the borough as construction dust management plans do not need to be checked in detail at the planning stage. The draft Local Plan (Regulation 18 stage) document was considered by Council at a meeting in November 2020. Public consultation was due to take place in January 2021 and new the Lewisham Local Plan by 2022/23. LBL is part of a pan-London project MAQF Non-Road Mobile Machinery Zone enforcement – to inspect construction sites in every borough to ensure they are using the cleanest construction equipment.
2	Emissions from developments and buildings	Ensuring enforcement of Non-Road Mobile Machinery (NRMM) air quality policies	Register of NRMM are still secured in planning conditions with Construction Environmental Management Plans (CEMPs). Data on number of planning applications with NRMM condition and also data on enforcement. Overall reduction of LAEI 2016 construction related PM_{10} & $PM_{2.5}$ emissions Aim to register all major development for NRMM by December 2020.

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			Key benefits include: • NRMM used in construction currently accounts for approximately seven per cent of NOx and eight per cent of PM_{10} emissions in London therefore, regular enforcement (education) ensures those operators who comply see the benefits in continuing to do so; • Pollution is transboundary; therefore, compliance could result in reduced emissions on sites outside of London as operators are pushed to procure cleaner equipment; • Minimises exposure of residents near developments; and • Current applicable standards were progressed to stage IV and IIIB respectively in 2020, with further tightening of the standards is planned in 2025 and 2030. 2020 MAQF NRMM project output for Lewisham is appended to this report Negative impacts/complaints: Hard enforcement is still currently difficult to implement and compliant NRMM is not currently readily available. Therefore, it is proposed that the GLA produce a database of suppliers' of NRMM.
3	Emissions from developments and buildings	Enforcing alternative clean and efficient energy supplies (to replace Enforcing Combined Heat and Power (CHP) and biomass air quality policies)	No change from last year. Progress on the production of the draft Local Plan, including completion of technical studies, along with preparation of policy proposals. The council commissioned work on an Energy Masterplan, which will inform the local plan. This work is currently in progress. As noted above, the draft Local Plan (Regulation 18 stage) document was considered by Mayor and Cabinet at a meeting on 11 March 2020. This will now proceed to Council, in order to receive endorsement for formal public consultation. In February 2019, the Council agreed a motion to declare a 'climate emergency' and agreed a new action to make the borough of Lewisham carbon neutral by 2030. A climate emergency action plan is being prepared and energy efficiency will be considered as part of this. Published Regulation 18 stage public consultation by December 2020. • Number of secondary heat sources integrated into heat networks • number of existing combustion-based CHP engines removed/replaced with cleaner, lower carbon heat sources; and • total NOx savings from actions (and PM where biomass is replaced) undertaken in respect to heat networks. Key benefits include: • Cheaper and greener heat for local people; • Promoting the use of waste heat as part of district heating networks, and minimising the impacts of existing combustion-based CHP plant should reduce any negative impacts on local air quality;

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			• Even with abatement equipment fitted standard combustion-based CHP heating systems can produce as much as anywhere from 5 to 170 times the NOx emissions per kilowatt hour unit of gas/electricity heat generated; • Where existing combustion-based CHP systems are replaced, emissions reductions should be simple to calculate – for example "old system annual NOx emissions" – "new system annual NOx emissions" = Annual NOx savings; and • Where waste heat is captured and integrated into a heat network to replace an existing heat source then the NOx savings will be the total NOx emissions from the heat source being replaced on the network.
4	Emissions from developments and buildings	Enforcing Air Quality Neutral policies	Considered on a site by site basis as new development is proposed. Progress on the production of the Lewisham Local Plan, including completion of technical studies, along with preparation of policy proposals. The draft plan will need to reflect Air Quality Neutral (AQN) standards, in line with the London Plan.
5	Emissions from developments and buildings	Ensuring adequate, appropriate, and well-located green space and infrastructure is included in new developments	Green infrastructure can provide a source of social, environmental and mental health Benefits through active travel and wellbeing. More than one fifth of the borough is green space and this includes an 8km long network along the Rivers Thames, Ravensbourne, Quaggy and Deptford Creek. Lewisham parks are among the best in the United Kingdom as 15 green spaces have been recognised by the Green Flag Award Scheme. They include Blackheath, Brookmill Park, Deptford Park and Ladywell Fields. Lewisham Council has been awarded £4.9 million from the Heritage Lottery Fund to improve Beckenham Place Park. Plans include an education centre, restored lake and new sports facilities.
6	Emissions from developments and buildings	Ensuring that Smoke Control Zones are appropriately identified and fully promoted and enforced	Data from LBL Crime Enforcement and Regulation Team not provided because of lack of resources. All staff are involved in COVID- enforcement. The council continue to raise awareness on Smoke Control Zones and carried out enforcement actions as necessary.
7	Emissions from developments and buildings	Promoting and delivering energy efficiency retrofitting projects in workplaces and homes, including through using the GLA RE:NEW and RE:FIT programmes, where appropriate, to replace old boilers /top-up loft insulation in	Lewisham Council declared a Climate Emergency in 2019 and set a new ambition for the borough to be carbon neutral by 2030. In March 2020 the Council approved a new Climate Emergency Action Plan setting out a range of actions to cut carbon and reduce energy consumption with a particular focus on energy consumption in homes and workplaces. Actions delivered in the two years 2019/20 and 2020/21 include: - expanding the Council's advice service supporting vulnerable residents stay warm and well in winter to combine with similar activity and create a service for South London; - providing bespoke practical free advice to over 2,000 households in 2019/20 with a target of over 3,000 in 2020/21 achieved through external funding; supporting a successful application by Veolia for capital funding from the Government to build a heat network connecting a heat from waste facility to over 1,500 homes in the north of the borough;

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
		combination with other energy conservation measures.	- publishing energy master-planning that will focus delivery of the Council's new Core Strategy in shaping the way new development meets zero carbon standards; - delivery of a £90,000 Lewisham's Community Energy Fund supporting 11 projects in 2019 and 2020 including installation of renewables and lighting in schools and community buildings as well as communications and advice work; - Development of detailed proposals for zero carbon retrofit work on 10 corporate sites and 5 schools using £175k funding secured from the Government's Low Carbon Skills Fund; Zero carbon technology (ZC) is the term given to technologies with no net CO2 emissions, including Solar hot water, Air source heat pumps, Ground source heat pump, Solar photovoltaics (PV), and Wind turbines. Low and zero carbon technology (LZC) can bring a building's CO2 emissions closer to zero.
7A	Emissions from developments and buildings	Introduce a requirement for a minimum Energy Performance Certificate (EPC) rating for privately rented sector houses in multiple occupation (HMOs) covered by both the mandatory and additional licensing schemes	Lewisham intends to apply to the Secretary of State at the Ministry of Housing, Communities and Local Government for a borough-wide licensing scheme for privately rented with the intention to rolling out licensing to all 26,000 privately rented properties in the borough. Inspections will be carried out on a risk basis including analysis of potential poor standards in the stock with a particular focus on damp and cold. Two compliance officers have been appointed and have been ensuring that all properties have the relevant documentation for use as temporary accommodation. Work has been carried out to identify those that fall below the minimum requirement. Gas and electrical certificates have been prioritised; however, work has commenced to ensure up to date EPC records are kept for all temporary accommodation of which there are around 800. The new licensing scheme has not yet come into force. However, all properties, in order to be licensed, will have to meet the minimum legal standards. Currently there are 750 licensed properties which meet the minimum legislative requirements. Landlords complain that providing this information creates an undue burden.
7B	Emissions from developments and buildings	Introduce a requirement for any works covered by the Disabled Facilities Grant or discretionary housing improvement grants to meet level D EPC rating in privately owned accommodation.	In line with legislation all properties brought back into use for private renting by discretionary grants are required to meet a minimum EPC standard of E. When assessing disabled facilities grants consideration is given to the eligibility of further support to improve energy rating levels. Our policy allows us to bring properties up to the decent homes standard. All windows and new insulation must meet regulatory standards. Where work is carried out in properties that have been identified for grant support a surveyor will assess the need for more efficient boilers and insulation. The grants team have carried out an assessment on 337 properties during the last financial year and provided advice to the occupants in relation to their specific needs with recommendations to improve thermal efficiency.

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
8	Public health and awareness raising	Ensure that Directors of Public Health (DPHs) have been fully briefed on the scale of the problem in the local authority area, what is being done, and what is needed.	The ASR was presented and discussed at the Lewisham Health Protection Committee meeting and was signed off. The ASR will be presented to the DMT for Community Services on May 2021 and signed off. The DPH sits in both the groups. The DPH is represented at both Lewisham Air Quality Working and Strategic groups. Councillor Louise Krupski is the Clean Air Champion for Lewisham Council and Councillor Sophie McGeevor are Cabinet Members for Environment and Transport. They are all very engaged with the Air Quality work in Lewisham. We will continue to look for additional source of funding to enhance the measures described.
8A	Public health and awareness raising	The Council's political leadership will champion the issue of air quality inside and outside of the borough.	The School Air Quality Champion Pilot is a volunteer programme organised by Lewisham Council to engage members of the local school community to help in raising awareness of local air quality issues and to encourage others and assist in the reduction of local air pollution. Councillor Louise Krupski is the Clean Air Champion for Lewisham Council. Both Cllr Krupski and Councillor Sophie McGeevor (Cabinet Member for Environment and Transport) sit on the AQ working group and are very engaged with the Air Quality work in Lewisham.
9	Public health and awareness raising	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 DPH when projects are being developed.	Lewisham was one of the London boroughs which implemented the School Superzone pilot project to create a healthier and safer environment for children within 400m radius around schools to protect children's health. The project by Lewisham Public Health Team encouraged healthy behaviours through interventions that target unhealthy food and drink sales; advertisements; alcohol; smoking; gambling; air quality; physical inactivity and crime. Air quality had top priority for this piece of work with Haseltine Primary School and Public Health Team engaged with local businesses, community groups and healthcare providers.
10	Public health and awareness raising	Director of Public Health to have responsibility for ensuring their Joint Strategic Needs Assessment (JSNA) has up to date information on air quality impacts on the population.	JSNA for Air Quality was refreshed and signed off by the JSNA Steering Group and was published in February 2018. The JSNA will be reviewed and refreshed as per the decision by the AQ Strategy Group.
11	Public health and awareness raising	Strengthening co-ordination with Public Health by ensuring that at least one Consultant-grade public health specialist within the borough has air	Lewisham Health Protection Committee (HPC) is chaired by a Consultant in Public Health nominated by the DPH. The DPH is well briefed on air quality issues and updates. The HPC reports to Health and Wellbeing Board and meets twice a year.

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
		quality responsibilities outlined in their job profile.	
12	Public health and awareness raising	Director of Public Health to sign off Statutory Annual Status Reports and all new Air Quality Action Plans.	The statutory Annual Status Report is normally presented and discussed at the DMT for Community services before it is presented and signed at the Health Protection Committee meeting. The DPH sits in both the groups.
13	Public health and awareness raising	Ensure Head of Transport fully briefed along with all Directors responsible for delivering air quality actions. Briefing to disseminate amongst transport team.	The Steering Group will meet on a regular basis to provide ongoing briefing. Transport team works closely with the Lewisham Air Quality Working and Strategic Groups. The transport team is instrumental in organising sustainable transport initiatives/schemes and infrastructure to support transition away from car use. It also supports the provision of electric vehicle charging infrastructure, as an option where the car is used.
14	Public health and awareness raising	Engagement with businesses.	As the lead authority for the Department for Environment, Food & Rural Affairs funded, Cleaner Air Villages that support businesses in reducing pollution and congestion, Public health led the liaison with Lewisham Hospital in deliveries and in Deptford High Street for use of cargo bikes. 1-2-1 business engagement took place in Lewisham Town Centre. It was anticipated, following a workshop due to be held in March 2020 (discussed below), further 1-2-1 meetings would take place to discuss business' involvement in the solution for this village. Unfortunately, both the workshop and any potential 1-2-1s were impacted by the COVID-19 lockdown.
15	Public health and awareness raising	Promotion of availability of airTEXT and Lewisham Air App.	As before, Public Health is still promoting the Lewisham Air App through Lewisham Clinical Commissioning Group (CCG) to raise awareness, so that the GPs promote the app to Chronic obstructive pulmonary disease (COPD) and Asthma patients and their careers. The App is also promoted to the respiratory nurses as well to raise awareness amongst COPD & Asthma patients. This was launched in March 2018. There has been an update to the app to include information in relation to Tranquil Space. This is an exposure reduction initiative, as opposed to targeting emissions. Early warning via text message to vulnerable people, especially those who may be digitally excluded. This enables people to take steps to protect their health. A video-commercial of Lewisham Air App was produced and will need to be followed up with Comms on promotion. An update with subtitles has been provided and web communications are following up. https://vimeo.com/dfptv/review/389192083/9b51577ef2

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
16	Public health and awareness raising	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.	STARS project continues to be a priority in Lewisham, the school travel plan mode share will be monitored and comparative data from previous years will be made. Use will be made of TFL City Planning guides and routes with higher walking potential will be considered for additional work and focus. The grants encourage schools to maintain their STARS programme and allows the borough to share stories and promote successful strategies to other schools. The number of start gold schools in 2020 was 19.
17	Public health and awareness raising	Air quality at schools	Review ongoing opportunities for School engagement through action plan period. • Targeting schools where air quality is poorest. This will involve working directly with parents and staff to produce individual school air quality/travel plan that encourage active travel. • This will include 121 support with schools and delivery of walking campaigns. • Work with TfL to incorporate Air Quality awareness into JTA and STARS programmes. • Engage in existing and future GLA's AQ Schools Audit Initiative. • Review monitoring at schools. • Subject to staffing resources provide presentations at schools on how to improve air quality and actions to take on high pollution days. • Identify further projects within schools with AQ in Focus Areas (see figure A.12). • Investigate strategic partnership opportunities e.g. Trees for Cities and Trees for Living (STfL) for green infrastructure.
17A	Public health and awareness raising	Air quality at schools	Before the pandemic all schools were offered Bikeability training. Balance bike and/or Scooter training is an annual offer to schools for their lower school pupils. The draft school action plan will be used to monitor progress of measures implemented across the schools located in Lewisham.
18	Delivery servicing and freight	Update local authority procurement policies to include a requirement for suppliers with large fleets to have attained silver Fleet Operator Recognition Scheme (FORS) accreditation.	The Procurement team have been promoting the Social Value Policy and encouraging stakeholders to include in their procurements. For example, in April 2020 Lewisham awarded a stationery contract through the Havering Framework to Staples UK Ltd for stationery. Staples work with Fedex to deliver to LBL. As part of a KPI to deliver efficiencies, deliveries are every 2 days instead of every day with the previous provider. The Highways team are preparing are new tender and FORS will be included in the documentation. Award is targeted for April 2021. Procurement and stakeholders will together monitor whether the social value stipulations may increase costs going forward.
19	Delivery servicing and freight	Update procurement policies to ensure sustainable logistical measures are implemented (and include requirements for	LBL has been part of the Clean Air Villages funded by the Defra central government Clean Air Grant with match funding from the participating boroughs since the first project. CRP and the partners have created low and zero emission directories, helping businesses share suppliers with their neighbours, and even trialling a shared electric van. Read more on https://crossriverpartnership.org/

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
		preferentially scoring bidders based on their sustainability criteria).	Lewisham cargo bike scheme introduces in 2020 for pharmacies delivery.
20	Delivery servicing and 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.	The bid was successful, and the project is ongoing. Reduces the number of Heavy Goods Vehicles (HGVs) used for all the sites incorporated in the project, with benefits for air quality. Fosters co-operation between companies that can have benefits elsewhere. The Low Emissions Logistics considers emissions reductions which could be achieved using the efficient deliveries hierarchy to reduce the number of deliveries required by the four local authorities. Monthly NOx emissions were predicted to reduce from around 54kg to around 7kg assuming the deliveries were made using Euro V vehicles. Measures of success could include: • Rigorous vehicle standards included within procurement policies; • Number of contracts with air quality requirements included; • Number of 'last mile' deliveries to borough premises that are ultra-low or zero emission; and • Number of Non-Road Mobile Machinery (NRMM) procured by the local authority that are zero emission or at least compliant with the NRMM Low Emission Zone standards.
21	Delivery servicing and freight	Virtual Loading Bays and priority loading for ultra-low emission delivery vehicles.	As before, this type of traffic restriction remains difficult to implement in the borough. On-street loading facilities are secured as part of the planning process and in FY20/21 we have started to specify EV charging points for new loading facilities. Implementation is planned between 2021-2025. The extended ULEZ moving to the South Circular in October 2021 may give the borough more control on vehicle movements due to the associated infrastructure that brings. We will continue to investigate options for prioritizing Low and zero emission vehicles. This type of traffic restriction remains difficult to implement in the borough.
23	Borough fleet actions	Increasing the number of hydrogen, electric, hybrid, bio-methane and cleaner vehicles in the borough's fleet.	No changes have occurred since 2019. Working with LoCITY to increase the availability and uptake of low emission commercial vehicles. We have 25 petrol/hybrid vehicles now on fleet plus 2 hybrid refuse vehicles. Considering electric refuse vehicles and are reviewing options for the future.
24	Borough fleet actions	Accelerate uptake of new Euro VI vehicles in borough fleet.	Report back on review and outcomes to GLA through ASRs/No significant change from last year. The only thing that has changed is although all the vehicles have been ordered only 10 buses have been delivered due to the COVID shutdown, however the Impending introduction of the ULEZ regulation has now been put back until February 2021. 49 trucks to be were changed to Euro 6 by April 2017. 75 Euro 6 vehicles on order: 24 refuse vehicles; 50 buses; and 1 tipper.

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			Fleet will be 100% compliant with ULEZ by the October deadline. Training on-going to meet legal requirements
25	Borough fleet actions	Smarter Driver Training, or equivalent, for drivers of vehicles in Borough Own Fleet i.e. through training of fuel-efficient driving and providing regular re-training of staff.	Training still on-going to meet legal requirements. This training is mandatory for vocational drivers (HGV and PSV) and is organised by the environment division not by personnel.
26	Localised solutions	Improvement and Introduction of green spaces in new developments through the Planning process by conditions and S106 obligations.	Urban greening strategies: Considered on a site by site basis as new development is proposed. Search for funding to support green infrastructure, such as the Community Tree Planting and Green Space Grants which can help support projects to plant trees and improve green spaces, including school playgrounds. www.london.gov.uk/greener-city
28	Cleaner transport	Discouraging unnecessary idling by vehicles near schools.	Ongoing resource required from Environmental Protection Team and from Road Safety and Sustainability Team. LBL is part of the MAQF Pan-London idling project which outputs are detailed in the following section. The Idling Action project (including enforcement), spans 27 boroughs as described in the following webpage https://idlingaction.london/ .
28A	Cleaner transport	Carry out a Council-wide anti-idling campaign discouraging unnecessary idling by idling vehicles	Public health has been working closely with the environmental protection team on anti-idling work with the pan-London project on anti-idling project being funded by the Mayor of London. Parking is carrying out enforcement via Civil Enforcement Officers (CEOs). A Traffic Management Order has been made, so Penalty Charge Notices (PCNs) can be served. All parking enforcement team now wear hi-vis jackets with 'anti-idling' campaign icon daily. At the point of engine idling, CEOs will first approach motorists and ask to switch off the engine or move. If after 5 mins of the observation period, the motorists do not comply, the CEO will enforce by issuing a PCN. Since Jan 2020, there has not been one penalty charge notice (PCN) under Code 63 for parking with engine running where prohibited. School zones are patrolled heavily during pick-up and drop-offs. A video-commercial has been produced (as described for Lewisham Air, but for anti-idling specifically). https://vimeo.com/dfptv/review/389031710/ee4692eaad
29	Cleaner transport	Speed control measures e.g. lowering the legal speed limit to 20mph in built up residential areas	All roads in Lewisham have a posted 20mph speed limit. Speed reduction measures are intended to improve compliance with these limits. Construction completed at following sites: • Baring Road (north): Works included traffic calming features at 21 locations involving 34 cushions, 1 flat top road hump and Zebra with parallel cycle crossing on local cycle route;

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			• Prince Charles Road – additional road hump incorporated within cycle scheme proposals; • Guibal Road (included work in Winn Road) – improvements to 20mph signing; • Marvels Lane: Works included features at 3 locations involving one flat top road hump, 4 speed cushions and improvements to signing; • Burnt Ash Hill: Works included features at 12 locations involving two flat top road humps in conjunction with crossing points, 5 standard flat top road humps, 11 speed cushions and approach signing; • Ashwater Road: Improvements to 20mph signing; • Le May Avenue: Works included features at 3 locations involving 6 speed cushions and improvements to signing; • Oxford Road: Improvements to 20mph signing; • Coopers Lane: Works included 2 sets of speed cushions and table junction at end of road; • Blacklands Road: Works included 5 sinusoidal road humps; • Beckenham Hill Road: Works included features at 10 locations involving two flat top road humps and 17 speed cushions, new central hatching and cycle access improvements; • Whitefoot Lane: Existing traffic calming scheme modified by removing 2 flat top road humps and constructing features at 5 locations incorporating an additional flat top road and 8 cushions; • Southend Lane: Works included features at 5 locations involving 4 flat top road humps covering carriageway in both directions, 1 in conjunction with crossing point, 1 speed cushion and approach signing; • Newlands Park: Improvements to 20mph signing; and • Kirkdale (North): Improvements to 20mph signing. Initial monitoring of early sites indicates reduction of 3.7mph in average speeds
30	Cleaner transport	Expanding car clubs and increasing the proportion of electric, hydrogen and ultra-low emission vehicles in Car Clubs.	We are Increasing the number of car club bays through Planning process. Work with car clubs towards compliment of electric vehicles.
31	Cleaner transport	Very Important Pedestrian (VIP) Days (e.g. no vehicles on certain roads on a Sunday) and similar initiatives.	For future actions in 2020 Lewisham has implemented School streets at 26 schools with more to follow. We will facilitate community car free days in September 2021, subject to resources.
32	Cleaner transport	Free or discounted parking charges at existing parking meters for zero emission cars.	Emissions-based charges for parking permits (residential, business permits) is been considered during the update of our parking policy has
33	Cleaner transport	Free or discounted residential parking permits for zero emission cars.	Resident parking permits are now priced based on vehicle emissions.

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
35	Cleaner transport	Installation of residential electric charge points.	Early 2020 COVID emergency halted all civil works. This had delayed the installation of units as programmed (early 2020).
35A	Cleaner transport	Carry out a campaign to promote the use of electric charge points within the borough.	The communication campaign increase of EVCPs took place in March 2017 and was limited to the residents who approached the council requesting CP on their streets. Once CP bollards were installed, a promotion strategy would be implemented to residents of the Borough. This would be also linked to the boroughs (planned and existing) low traffic neighbourhoods. The team expects a higher uptake of EVs in these areas due to the combination of these 2 initiatives.
36	Cleaner transport	Installation of rapid chargers to help encourage the take-up of electric taxis, cabs and commercial vehicles (in partnership with TfL and/or OLEV).	Due to COVID, further expansion for Rapids are on hold. OLEV funding is looked at to increase provisions of other charge units instead of rapid charges. LBL in partnership carried out surveys for potential hubs. In relating to this TfL agreed 4 car park sites and managed to install 8 rapid chargers (2 on each of the car parks). 2020: Due to COVID emergency TfL froze their RIS scheme and further expansion for Rapids are on hold. Awaiting further instructions to facilitate the expansion of rapids. Previous 8 rapids were installed as planned. OLEV funding is looked at to increase provisions of other charge units instead of rapid charges. There are 8 rapid chargers installed across the borough.
37	Cleaner transport	Reprioritisation of road space; reducing parking at some destinations and/or restricting parking on congested high streets and A-roads to improve bus journey times, cycling experience, and reduce emissions caused by congested traffic.	Cycle superhighway reported to TfL through a LiP yearly report/Controlled Parking Zone (CPZ) Consultations have been delayed due to COVID-19, to recommence as soon as possible during 2020/21. This will include the review of the existing Grove Park CPZ and consultation regarding proposed new CPZs in Leegate and Sydenham.
38	Cleaner transport	Provision of infrastructure to support walking and cycling.	• All 3 quietway routes have been delivered apart from Southend Lane and the Waterlink Way Bridge, the programmes of which have now been paused until further notice due to the COVID-19 outbreak. • Deptford Parks Liveable Neighbourhood has reached Stage Gate 3 and outline design and the business case has been finalised and submitted to TfL for review. However, the programme is now on hold until further notice due to the COVID-19 outbreak. Pedestrianisation of Prince Street and Scawen Road (outside Francis Drake School) have been installed as well as 4 x Copenhagen crossings on Crook Road, Avignon Road, Kezia Street and Etta Street. It is difficult to quantify with certainty the reduction in emissions or concentration that can be achieved on specific projects through modal shift from car to active travel (walking or cycling) as this depends on many

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			factors, including the expected reduction in car trips, the average car trip length, and assumptions on car engine technology (engine type and Euro standard) However, reducing car use is one of the best ways to cut both NOx and PM emissions. Sustainable Travel Towns studies show that car driver distance could be reduced by five to seven per cent, which can provide large reductions in NOx/PM emissions. Negative impacts/complaints: • Issues raised by Francis Drake School regarding Scawen Road and teacher parking
39	Cleaner transport	Develop a 'stand-alone' Cycling Strategy for the borough.	We are focusing on specific cycling related projects and issues. Internal reporting and LiP yearly reporting. /See old ID 38 & 40.
40	Cleaner transport	Increasing cycle parking.	"Residential, community and Rail station parking. Internal reporting and LiP yearly reporting on increase in parking/110 bike hangars installed across the borough with at least one hangar in every ward. Sheffield stands are being installed in early 2022 (Aug 20 installation delayed due to COVID-19) at all stations in the borough to meet demand. 13 extra bike hangars added in 2020 equating to 78 new spaces. It is difficult to quantify with certainty the reduction in emissions or concentration that can be achieved on specific projects through modal shift from car to active travel (walking or cycling) as this depends on many factors, including the expected reduction in car trips, the average car trip length, and assumptions on car engine technology (engine type and Euro standard) However, reducing car use is one of the very best ways to cut both NO_2 and PM emissions. Sustainable Travel Towns studies show that car driver distance could be reduced by five to seven per cent, which can provide large reductions in NOx/PM emissions. • 194 sheffield stands to be installed in 2021 at key train stations and town centres. • Currently have 110 bike hangars in the borough - equivalent to 660 individual spaces
41	GLA AQ Focus Area 127 & parts of 132 Cleaner Transport	Development of a Zonal Construction Logistic Framework for the Evelyn Street Corridor.	The future of the project is in jeopardy due the implication of the pandemic on funding from TFL
44	GLA AQ Focus Area 125 to 133	44	Deptford High Street has been identified as a focus area where we will look for transfer business deliveries to zero emission vehicles. We will investigate the viability of EV bays for car clubs and small delivery vans as part of the overall design for the area.
45	GLA AQ Focus Area 127	Liveable Neighbourhood Scheme 'Deptford Parks'.	No change.

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			Deptford Parks Liveable Neighbourhood has reached Stage Gate 3 and outline design and the business case has been finalised and submitted to TfL for review. However, the programme is now on hold until further notice due to the COVID-19 outbreak. Pedestrianisation of Prince Street and Scawen Road (outside Francis Drake School) have been installed as well as 4 x Copenhagen crossings on Crook Road, Avignon Road, Kezia Street and Etta Street. Increase in space for walking and cycling at 6 locations. Crook Road, Avignon Road, Kezia Street and Etta Street. As well as Prince Street and Scawen Road. It is difficult to quantify with certainty the reduction in emissions or concentration that can be achieved on specific projects through modal shift from car to active travel (walking or cycling) as this depends on many factors, including the expected reduction in car trips, the average car trip length, and assumptions on car engine technology (engine type and Euro standard) However, reducing car use is one of the very best ways to cut both NO_2 and PM emissions. Sustainable Travel Towns studies show that car driver distance could be reduced by five to seven per cent, which can provide large reductions in NOx/PM emissions. Negative impacts/complaints: Issues raised by Francis Drake School regarding Scawen Road and teacher parking The Liveable Neighbourhood Scheme will need to be completed subject to funding
46	GLA AQ Focus Area 127	DEFRA Project: 'Cleaner Villages' Business engagement at Deptford High Street, to reduce impact of delivery.	Cross River Partnership (CRP) first met with the University Hospital Lewisham (UHL) at the start of Cleaner Air Villages 2 (CAV2), to discuss their existing deliveries and potential involvement with CAV2. A second meeting, that brought together the Procurement and Emergency Planning Departments from UHL, explored the potential to use a cargo-bike to carry out pathology trips between Lewisham and Greenwich Hospitals. Clean Air Village 2 A total of 41 businesses were engaged with during visits to area, 16 of which completed the survey in full. Deptford High Street has been identified as the focus area of Clean Air Village 3 to promote sustainable transport and deliveries and reduce emissions. The start has been delayed due to Covid-19.
47	GLA AQ Focus Area 131	DEFRA Project: 'Cleaner Villages' Business engagement at Lewisham Town Centre, to reduce impact of delivery.	CAV2 program was implemented in Deptford, eco-fleet ran a 3-month business engagement e-cargobike trial which they engaged around 70 businesses and worked with 7. This was interrupted by COVID and we have a remaining 3 weeks on the e-cargobike trial. The Defra Partly funded CV3 was implemented in Deptford High Street. Chosen solution: cargo bike scheme extension for businesses, pharmacies, charities, community groups and food banks. Engagement: 50 businesses contacted by emails, 10 x 1-2-1s and EV interest Monitoring: CAWR (New Cross Gate to Deptford High Street)

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			The link to the project flyer can be found at https://crossriverpartnership.org/wp-content/uploads/2020/03/CAV-village-info-two-pager-Final-Deptford.pdf
48	Traffic reduction programme	Healthy Neighbourhood Cell Scheme	Healthy Neighbourhood Programme (including low traffic neighbourhoods) will be rolled out across the borough, subject to funding. The first Healthy Neighbourhood Cell will be Lewisham, Hither Green and Lee Green, see link for further information: https://lewisham.gov.uk/myservices/roads-and-transport/community-led-traffic-reduction-healthy-neighbourhoods. Monitoring of air quality is planned for assessing impacts from interventions within the scheme. Extensive community engagement was carried out throughout summer 2019 for two Healthy Neighbourhood cells – Lewisham and Lee Green and East Sydenham. Implementation of traffic reduction trials were due to be carried out in in March 2020 for the Lewisham and Lee Green area, but the programme has been paused due to the COVID-19 outbreak. However, as a set of temporary measures the council has installed the full trial scheme as part of the COVID-19 response to aid social distancing as well as promoting walking and cycling. Monitoring has been carried out from September 2020 to understand the impacts of the scheme on the way people travel. With reference to regular temporary Car Free Days and pedestrianisation schemes, where road traffic sources make up the main source of pollutant concentrations, temporary road closures will provide a big temporary improvement to air quality. For example, the road closures for the London Marathon in 2018, resulted in a reduced NO_2 concentration on Upper Thames Street of approximately 89 per cent. Research by King's College in 2013 found that the Summer Streets event in Regent Street resulted in a 75 per cent drop in NO_2 concentrations. Negative impacts/complaints: Low traffic neighbourhoods are historically divisive as a concept and the introduction of the scheme has created a lot of heated discussion.

Lewisham's main air quality achievements in 2020 were:

- On 18th September 2019, the Mayor and Cabinet agreed to introduce a traffic management order (TMO) that allows enforcement action against drivers who are caught idling. This applied to all roads in the borough and started in January 2020. From this date, Civil Enforcement Officers are able to enforce where drivers are idling their vehicles through Penalty Charge Notice (PCN)[7];
- We adopted and published of the Low Emission Vehicle Charging Strategy to ensure that everyone in the borough is no further than 500m from an electric vehicle charge point by 2020, then expansion of the electric vehicle charging points throughout the borough to 100 plus;
- A new Strategy for Parks & Open Spaces in Lewisham was launched at the beginning of 2020 following consultation with relevant parties;
- The strategy prioritises healthy streets and green spaces and in particular areas where people choose to walk, cycle and use public transport in preference to driving;
- The transport school streets initiative has seen physical measures introduced to these streets to stop car use during school drop off and pick up. 26 school streets have been implemented so far, with more to follow;
- Lewisham's Climate Emergency Action Plan[8] was approved by Mayor and Cabinet in 2020 and includes a range of radical actions across the Council's corporate estate, housing, transport and green spaces intended to support delivery of the ambition for Lewisham to be carbon neutral by 2030. We secure over £5m external funding in 2020/21 for carbon reduction, fuel poverty and flooding projects;
- LBL's Borough of Culture (BoC)[9] successful bid, Cultural Activism, sets out plans to inspire local people to take action on climate change. On 11 February 2020, the Mayor of London announced that Lewisham had been awarded the title of London Borough of

[7] *https://lewisham.gov.uk/articles/news/our-drive-to-improve-air-quality-forges-ahead-with-new-measures-to-tackle-idling-vehicles*

[8] *https://councilmeetings.lewisham.gov.uk/mgAi.aspx?ID=26629*

[9] https://www.london.gov.uk/what-we-do/arts-and-culture/current-culture-projects/london-borough-culture/london-borough-culture-winners-2022-and-2023

Culture for 2021. Due to the Covid-19 pandemic, LBL's year as London BoC will move to 2022. LBL was awarded £1.35m funding to deliver a year-long programme of activities that will place culture at the heart of their communities and celebrate the unique character of local people and places; and

- As shown in our 2020 Annual Status Report[10], the results of the most current diffusion tube monitoring regime and from our four automatic stations show no ratified annual average NO_2 concentrations in excess of 40µg m^{-3}. Since 2015, the downward trend in measured NO_2 annual mean concentrations has continued, with ten in 2017, six in 2018 only two diffusion tubes across all boroughs greater than 40 µg m^{-3} in 2019. The two recorded measurements greater than 40 µg m^{-3} become compliant with the objective after distance correction for relevant exposure.

Lewisham's two main priorities to reduce exposure to poor air quality for the year ahead are:

- Communication and Raising Public Health and Awareness: Lewisham has already produced a Joint Strategic Needs Assessment (JSNA) for Air Quality, which as part of this Action Plan will be periodically reviewed. The Public Health and Environmental Protection Teams will work together in raising awareness on air quality issues. Working closely with the Lewisham council's communications team, we will use several readily available resources to raising awareness of health impacts of air quality and monitor these health impacts more closely.
- Minimising emissions from New Developments: A priority for the coming year is to provide development, through construction and build, which minimises emissions through effective planning policy, development management and environmental protection enforcement. As part of this priority Lewisham, through future London's MAQF or other sources of funding, is seeking to still establish, monitor and enforce a Zonal Framework Construction Logistics Plan for the Evelyn and New Cross area. This will seek

[10] https://lewisham.gov.uk/myservices/environment/air-pollution/check-air-quality-levels

to reduce the impact and emissions from vehicle movements to and from construction sites in the area. As part of this action, we will be enforcing the NRMM Low Emission Zone.

4. Planning Update and Other New Sources of Emissions

Table K. Planning requirements met by planning applications in the London Borough of Lewisham in 2020

Condition	Number	Notes
Number of planning applications where an air quality impact assessment was reviewed for air quality impacts	*11*	Reviewed by Environmental Protection Team as part of the planning consultation.
Number of planning applications required to monitor for construction dust	9[11]	Reviewed as part of the CEMP submission.
Number of CHPs/Biomass boilers refused on air quality grounds	Nil	All meeting the AQ Neutral Required.
Number of CHPs/Biomass boilers subject to GLA emissions limits and/or other restrictions to reduce emissions	Nil	Assessment included as part of AQ planning submission.
Number of developments required to install Ultra-Low NO_x boilers	28	Installed but not a requirement.
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	3	
Number of planning applications with S106 agreements including other requirements to improve air quality	3	Not allocated.
Number of planning applications with CIL payments that include a contribution to improve air quality	Nil	
NRMM: Central Activity Zone and Canary Wharf Number of conditions related to NRMM included. Number of developments registered and compliant. Please include confirmation that you have checked that the development has been registered with the GLA through the relevant NRMM website and that all NRMM used on-site is compliant with Stage IIIB of the Directive and/or exemptions to the policy.	N/A	

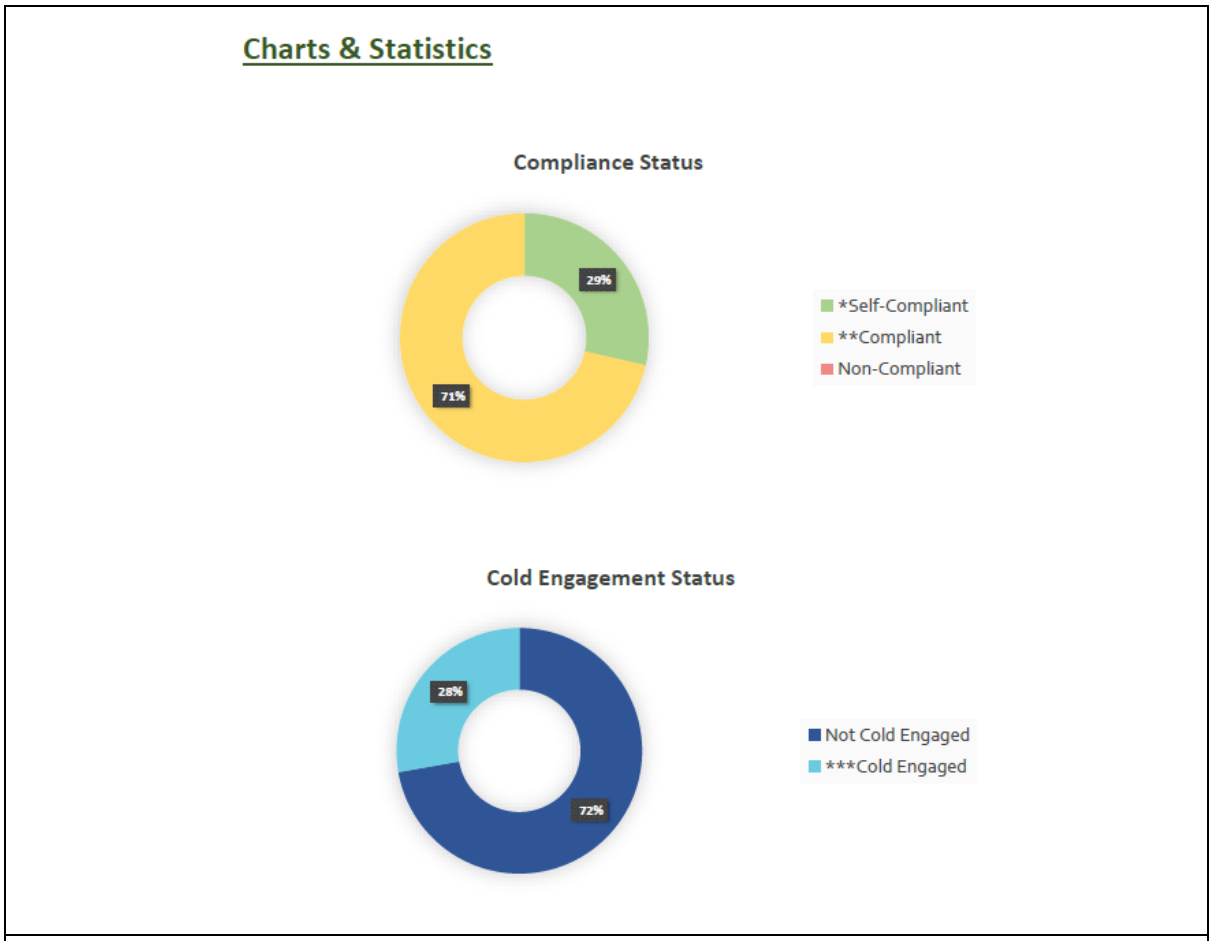
[11] 29no with Dust Management Plan

Condition	Number	Notes
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.	8 conditions included 7 registered and compliant 0 unregistered/uncompliant and being chased.	Proposals for 2020, to provide condition for all major sites, for Planners to review and to make a decision on introducing as a standard condition. Conditions have been introduced in the past but not on a regular basis

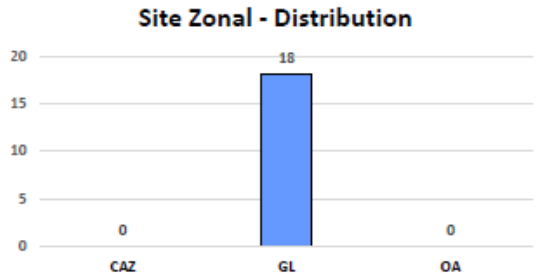
Lewisham is part of the Pan London Non-Road Mechanical Machinery (NRMM) project which aims to reduce emissions from construction sites and almost all major planning applications are now subject to Non Road Mobile Machinery, air quality and dust conditions. We continue to regulate and help manage and reduce emissions from developments and buildings by using planning powers to enforce air quality measures, reducing emissions, increase energy efficiency and adoption of Planning Policy that is encouraging car-free developments.

The following extract (Figure 1) from the NRMM End of Financial Year Report by Merton for Lewisham (April 2020 – March 2021) shows the NRMM compliance status of ongoing developments. Total compliance status is compliant and Self-Compliant combined, and the London Borough Lewisham achieved a Total Compliance status of 100%, which as increase from 78% in 2018 and 86% in 2019.

Figure 1: NRMM Compliance Status for LB Lewisham



Site Status Count	
Total registered sites	16
*Self-Compliant	2
**Compliant	5
Non-Compliant	0
Not Cold Engaged	13
***Cold Engaged	5
Non-Registration	0
No NRMM	3
Site Complete	8
Total Audits	18



Year	Months	Site Reference	Zone	ColdEngaged	Reason for Site Non-Compliance	Compliant	No NRMM	Self-compliant	Site Complete
2020	Apr	Greenwich Peninsula	GL	No	Na				1
		NRMM Phase 6,7,8	GL	No	Na				1
		Prentiss Court	GL	No	Na				1
	May	Timberyard/Lewisham Gateway Phase 1	GL	No	Na				1
	Sep	Fairway House	GL	No	Na				1
		Sydenham Police Station	GL	Yes	Na	1			
	Oct	Kenton Court	GL	Yes	Na	1			
	Nov	223-229 Lewisham High	GL	No	Na		1		
		Anthology Deptford Foundry	GL	No	Na				1
		Bond House	GL	No	Na				1
		Trophy House	GL	Yes	Na				1
		Phoebes Garden	GL	No	Na		1		
		Velo House, 9-19 Rushey Green	GL	No	Na	1			
		Frankham Street	GL	Yes	Na			1	
		Lewisham Gateway Phase1	GL	No	Na	1			
	Dec	Amersham Vale	GL	Yes	Na	1			
		EARPS	GL	No	Na			1	
2021	Feb	Haberdashers HAHC	GL	No	Na		1		

Appendix A Details of Monitoring Site Quality QA/QC

A.1 Automatic Monitoring Sites

Calibrations of continuous monitors are carried out with certified calibration gases for each analyser. Routine calibrations are undertaken manually every 2 weeks by the Local Authority Officer for LW1 and LW4. At LW2, a nightly auto-calibration is invoked.

The calibration data are sent to ERG-King's College London, who are responsible for data management, data validation and ratification. Site audits are carried out annually and includes UKAS accredited on-site gas cylinder certification and on-site testing of sampling system efficiency.

In December 2020 monitoring equipment at the site LW5 was replaced with a Met One BAM. Data quality management via ERG has been undertaken since the site was taken over by Lewisham.

A.2 Diffusion Tube Quality Assurance / Quality Control

Diffusion tubes for NO_2 in LBL are provided by Gradko International Ltd, using a preparation method of 50% Triethanolamine (TEA) in acetone. For the new diffusion tube sites, a method of 20% Triethanolamine (TEA) in water was used for the first three months of monitoring then from December 2020 it was switched to the other method for consistency with the wider survey. This was appropriately accounted for in the bias adjustment calculations as per LAQM FAQ 138[12]. The calculation used was as follows:

*Annual mean NO_2 concentration = (annualised concentration * (3 month bias factor*3/4 + 1 month bias factor *1/4))*

Gradko participates in the AIR-PT scheme. AIR is an independent analytical proficiency-testing (PT) scheme, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL). The AIR-PT scheme started in April 2014, combining two long running PT schemes: LGC Standards STACKS PT scheme and HSL 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

[12] https://laqm.defra.gov.uk/laqm-faqs/faq138.html

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 percentage of results submitted by Gradko International Ltd that were subsequently determined to be satisfactory was 75% in AIR-PT Round AR036 (January 2020-February 2020) and 75% for AIR-PT Round AR040 (September – October 2020). No results were reported for AIR-PT Rounds AR037 (May 2020 – June 2020) and AR039 (July 2020 – August 2020).

National Bias Adjustment Factor

The national bias adjustment factor for 2020 is available from the Defra website[13]. The results of multiple co-location studies are collated, and the average bias adjustment factor is taken for studies using the 50% TEA/acetone preparation method, analysed by Gradko. The national bias adjustment factor for 2020 is 0.82, based on 14 studies. Details are shown in Figure A. 1 below.

[13] Diffusion tube bias adjustment spreadsheet March 2021, available at: https://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html

Figure A. 1 National bias adjustment factor

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

Follow the steps below **in the correct order** to show the results of **relevant** co-location studies
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet
This 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 2021

LAQM Helpdesk Website

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

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

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

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

Step 3: Select a Year from the Drop-Down List. If a year is not shown, we have no data[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@bureauveritas.com or 0800 0327953

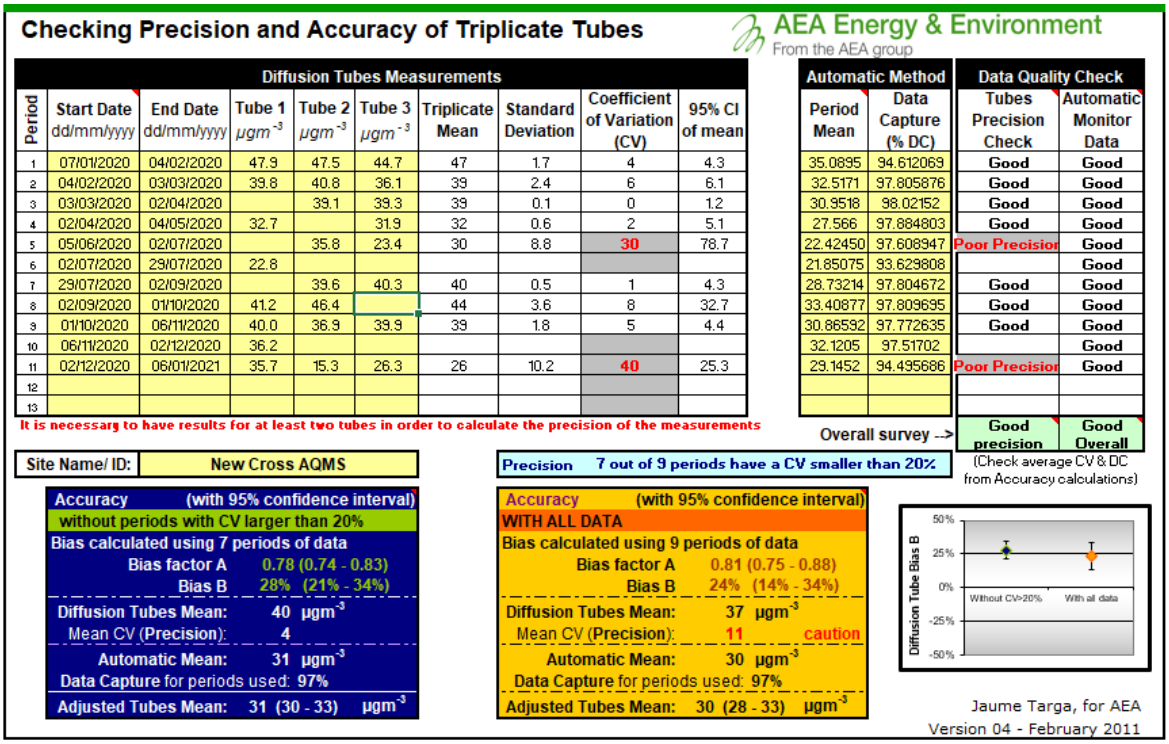
Analysed By[1]	Method (To make your selection, choose [All] from the pop-up list)	Year[1] (To make your selection, choose [All])	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[5]	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	50% TEA in Acetone	2020	UC	Falkirk Council	10	33	26	24.9%	G	0.80
Gradko	20% TEA in water	2020	R	Gedling Borough Council	10	31	25	24.1%	G	0.81
Gradko	50% TEA in Acetone	2020	UB	Falkirk Council	11	16	12	33.6%	G	0.75
Gradko	50% TEA in acetone	2020	UB	Middlesbrough	10	17	12	44.3%	G	0.69
Gradko	50% TEA in acetone	2020	R	Royal Borough of Windsor and Maidenhead	12	29	25	17.3%	G	0.85
Gradko	50% TEA in acetone	2020	R	Royal Borough of Windsor and Maidenhead	12	24	22	11.7%	G	0.90
Gradko	20% TEA in water	2020	R	SOUTHAMPTON CITY COUNCIL	12	37	27	37.1%	G	0.73
Gradko	50% TEA in acetone	2020	SU	Redcar & Cleveland Borough Council	11	16	13	23.4%	P	0.81
Gradko	20% TEA in water	2020	R	Fareham Borough Council	10	25	14	77.4%	G	0.56
Gradko	20% TEA in water	2020	R	Fareham Borough Council	12	30	22	35.1%	G	0.74
Gradko	20% TEA in water	2020	R	Fareham Borough Council	10	22	17	26.5%	G	0.79
Gradko	50% TEA in acetone	2020	R	Neuham	10	29	24	18.2%	G	0.85
Gradko	50% TEA in acetone	2020	R	Sandwell MBC	12	34	27	26.9%	G	0.79
Gradko	50% TEA in acetone	2020	B	Sandwell MBC	9	14	11	23.0%	S	0.81
Gradko	50% TEA in acetone	2020	R	Sandwell MBC	11	25	23	9.4%	S	0.91
Gradko	50% TEA in acetone	2020	UB	Sandwell Metropolitan Borough Council	11	21	19	9.4%	G	0.91
Gradko	20% TEA in water	2020	R	SOUTHAMPTON CITY COUNCIL	11	32	31	4.9%	G	0.95
Gradko	20% TEA in water	2020	KS	Marylebone Road Intercomparison	12	57	43	33.3%	G	0.75
Gradko	50% TEA in acetone	2020	KS	Marylebone Road Intercomparison	12	57	43	33.0%	G	0.75
Gradko	20% TEA in water	2020	R	Bath & North East Somerset	11	32	29	13.0%	G	0.89
Gradko	20% TEA in water	2020	R	Gateshead Council	12	22	17	28.1%	G	0.78
Gradko	20% TEA in water	2020	R	Gateshead Council	12	23	21	11.6%	G	0.90
Gradko	20% TEA in water	2020	R	Gateshead Council	10	26	25	6.5%	G	0.94
Gradko	20% TEA in water	2020	R	Gateshead Council	12	28	21	30.5%	G	0.77
Gradko	20% TEA in water	2020	R	Gateshead Council	12	31	32	-3.4%	G	1.03
Gradko	50% TEA in acetone	2020	R	Landan Borough of Richmond upon Thames	12	22	20	9.4%	G	0.91
Gradko	50% TEA in acetone	2020	B	Landan Borough of Richmond upon Thames	9	19	16	20.3%	G	0.83
Gradko	20% TEA in water	2020	R	Lutan Borough Council	9	38	28	33.8%	G	0.75
Gradko	20% TEA in water	2020	R	Nattingham City Council	12	31	34	-8.5%	G	1.09
Gradko	20% TEA in water	2020	R	Dudley MBC	13	33	28	19.9%	G	0.83
Gradko	20% TEA in water	2020	UB	Dudley MBC	13	23	14	61.2%	G	0.62
Gradko	20% TEA in water	2020	R	Dudley MBC	13	44	34	30.6%	G	0.77
Gradko	20% TEA in water	2020		**Overall Factor[3] (18 studies)**				Use		0.81
Gradko	50% TEA in acetone	2020		**Overall Factor[3] (14 studies)**				Use		0.82

Factor from Local Co-location Studies

LBL has one co-location site at New Cross (LW2), where triplicate diffusion tubes are co-located adjacent to the inlet of the continuous monitor, so that diffusion tube concentrations can be adjusted for bias by comparing to the more accurate continuous monitoring dataset. A spreadsheet tool for calculating the locally derived bias adjustment factor for triplicate tubes co-located at a continuous monitor is available from the Defra website[14]. The local bias adjustment factor for 2020 at LW2 is 0.78. Figure A. 2 below shows the calculation.

[14] Local bias adjustment factor tool available at: https://laqm.defra.gov.uk/bias-adjustment-factors/localbias.html

Figure A. 2 Local bias adjustment factor



Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements

Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm^{-3}	Tube 2 µgm^{-3}	Tube 3 µgm^{-3}	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean
1	07/01/2020	04/02/2020	47.9	47.5	44.7	47	1.7	4	4.3
2	04/02/2020	03/03/2020	39.8	40.8	36.1	39	2.4	6	6.1
3	03/03/2020	02/04/2020		39.1	39.3	39	0.1	0	1.2
4	02/04/2020	04/05/2020	32.7		31.9	32	0.6	2	5.1
5	05/06/2020	02/07/2020		35.8	23.4	30	8.8	30	78.7
6	02/07/2020	29/07/2020	22.8						
7	29/07/2020	02/09/2020		39.6	40.3	40	0.5	1	4.3
8	02/09/2020	01/10/2020	41.2	46.4		44	3.6	8	32.7
9	01/10/2020	06/11/2020	40.0	36.9	39.9	39	1.8	5	4.4
10	06/11/2020	02/12/2020	36.2						
11	02/12/2020	06/01/2021	35.7	15.3	26.3	26	10.2	40	25.3
12									
13									

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Automatic Method		Data Quality Check	
Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
35.0895	94.612069	Good	Good
32.5171	97.805876	Good	Good
30.9518	98.02152	Good	Good
27.566	97.884803	Good	Good
22.42450	97.608947	Poor Precision	Good
21.85075	93.629808		Good
28.73214	97.804672	Good	Good
33.40877	97.809695	Good	Good
30.86592	97.772635	Good	Good
32.1205	97.51702		Good
29.1452	94.495686	Poor Precision	Good
	Overall survey -->	Good precision	Good Overall

(Check average CV & DC from Accuracy calculations)

Site Name/ ID: New Cross AQMS

Precision 7 out of 9 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval)
without periods with CV larger than 20%
Bias calculated using 7 periods of data
Bias factor A 0.78 (0.74 - 0.83)
Bias B 28% (21% - 34%)
Diffusion Tubes Mean: 40 µgm^{-3}
Mean CV (Precision): 4
Automatic Mean: 31 µgm^{-3}
Data Capture for periods used: 97%
Adjusted Tubes Mean: 31 (30 - 33) µgm^{-3}

Accuracy (with 95% confidence interval)
WITH ALL DATA
Bias calculated using 9 periods of data
Bias factor A 0.81 (0.75 - 0.88)
Bias B 24% (14% - 34%)
Diffusion Tubes Mean: 37 µgm^{-3}
Mean CV (Precision): 11 caution
Automatic Mean: 30 µgm^{-3}
Data Capture for periods used: 97%
Adjusted Tubes Mean: 30 (28 - 33) µgm^{-3}

Jaume Targa, for AEA
Version 04 - February 2011

Discussion of Choice of Factor to Use

The national bias adjustment factor was chosen in this ASR, primarily on the basis that it is higher than the local bias adjustment factor. This is to ensure a more conservative approach in reporting annual mean NO_2 concentrations. The co-location study was also associated with higher than usual data loss, partly due to COVID-19 restrictions. This resulted in greater uncertainty in the locally derived bias factor. As well as this, two periods exhibited poor precision, which meant they were excluded from consideration.

In the past seven years, a mixture of the national bias and local bias adjustment factor have been used depending on the most appropriate for the year. Table L details both the local and national bias adjustment factors for this and previous years in LBL and includes the choice of factor used.

Table L Bias adjustment factors for Lewisham between 2013 and 2020

Year	Local Factor	National Factor	Factor Used
2014	0.82	0.97	National
2015	1.02	0.95	Local
2016	0.92	1.03	National
2017	1.00	0.97	Local
2018	0.91	0.92	National
2019	0.91	0.89	Local
2020	0.78	0.82*	National

*Note the national factor for the new tube sites was time-weighted due to a change in preparation methods. Factor applied for these sites was 0.8125.

A.3 Adjustments to the Ratified Monitoring Data

Short-term to Long-term Data Adjustment

Where data capture is less than 75% of a full calendar year (less than 9 months), the mean should be "annualised" – i.e. adjusted using the methodology outlined in LLAQM.TG(16) before being compared to annual mean objectives. Annualisation was required at L17-L19 due to low data capture. It was also required at the 51 new sites which had three months' data or more, as they were only deployed during the last four months of 2020.

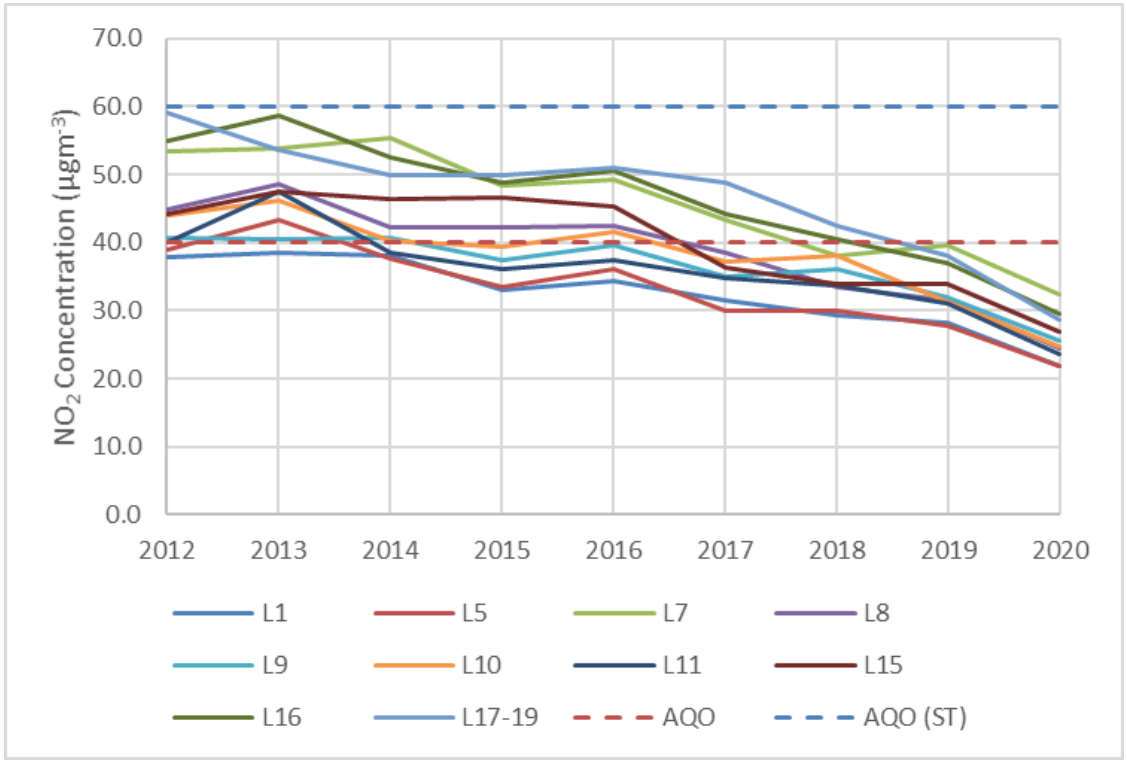
Distance Correction

A small number of diffusion tubes are not located at relevant public exposure, such as on kerbside lampposts opposed to building facades. Distance corrected NO_2 concentrations at the nearest receptor has been calculated using the LAQM 'NO_2 Fall-off with Distance Calculator (Version 4.2)'. The full distance corrected results are displayed in Table N (Appendix B).

A.4 Adjustments to the Ratified Monitoring Data

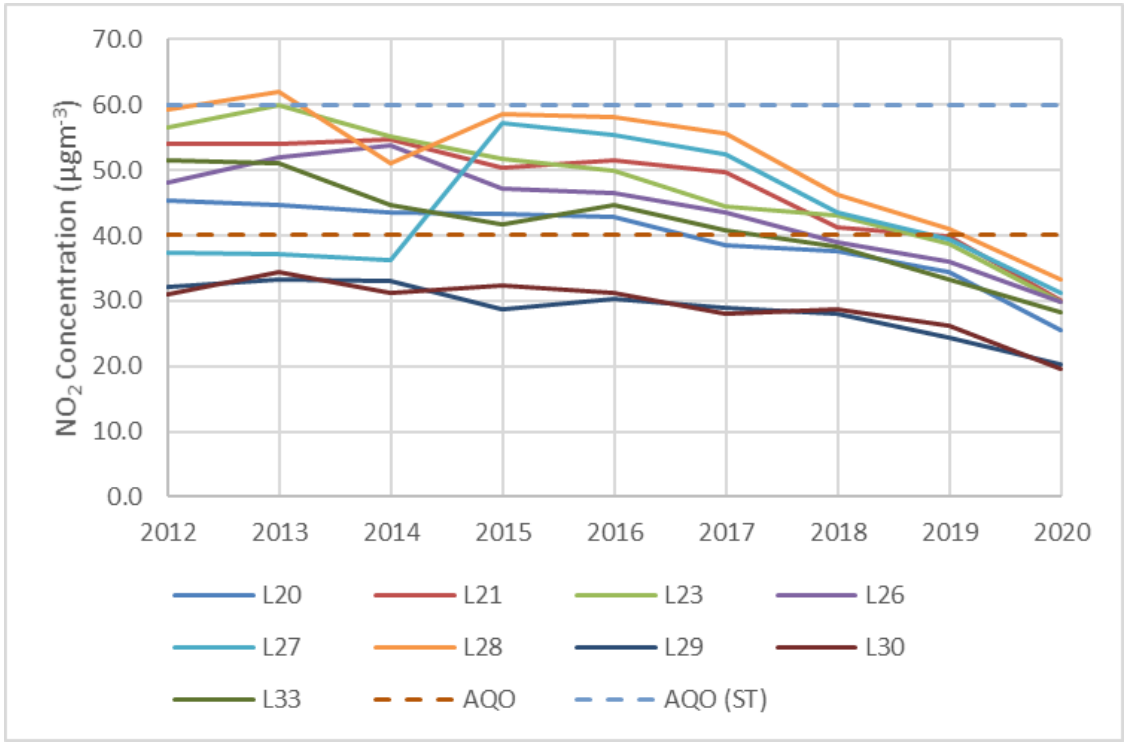
To better understand and visualise temporal trends, annual mean concentrations recorded at all NO_2 monitoring locations have been plotted over time, and are displayed below in Figure A. 3 to Figure A. 8, where AQO is annual mean Air Quality Objective (40 µg m^{-3}) and AQO (ST) is the short-term Air Quality Objective (60 µg m^{-3}).

Figure A. 3 Trend in NO_2 concentration at roadside diffusion tube locations (1)



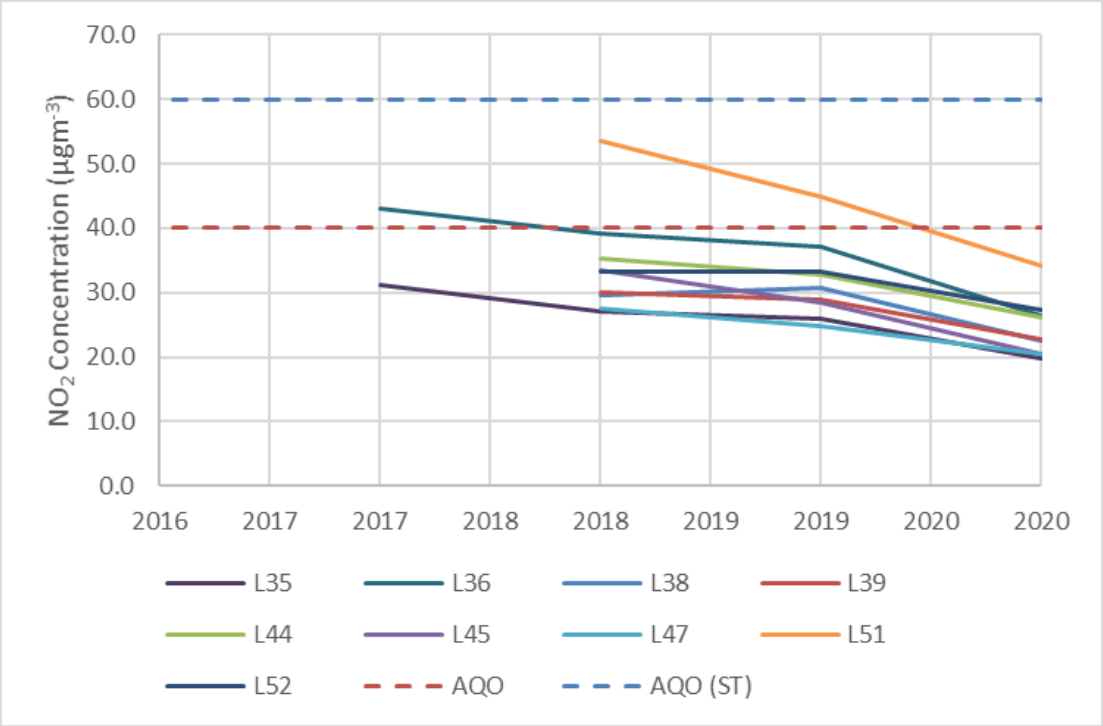
Note: AQO (ST) = 60 µg m^{-3}. Diffusion tubes cannot be used to directly compare against the 1-hour mean NO_2 objective. However, LLAQM.TG19 states that at locations where annual mean NO_2 concentrations of greater than 60 µg m^{-3} are monitored the 1-hour mean NO_2 objective is likely to be exceeded.

Figure A. 4 Trend in NO_2 concentration at roadside diffusion tube locations (2)



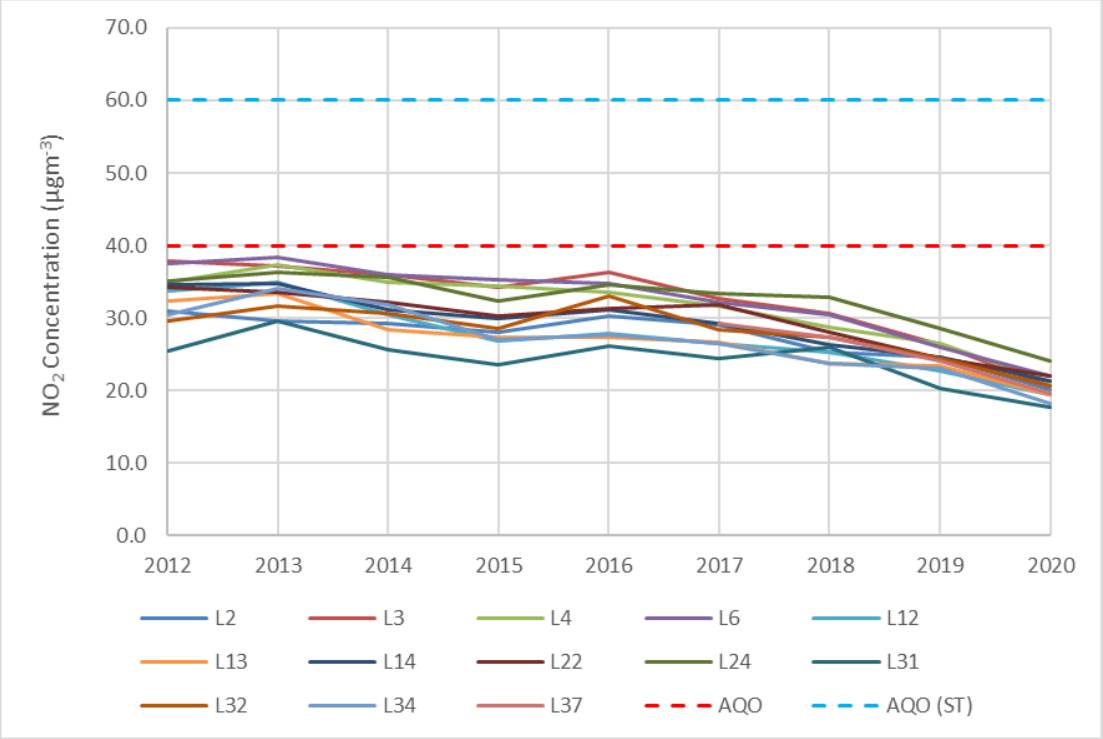
Note: AQO (ST) = 60 µg m^{-3}. Diffusion tubes cannot be used to directly compare against the 1-hour mean NO_2 objective. However, LLAQM.TG19 states that at locations where annual mean NO_2 concentrations of greater than 60 µg m^{-3} are monitored the 1-hour mean NO_2 objective is likely to be exceeded.

Figure A. 5 Trend in NO_2 concentration at roadside diffusion tube locations (3)



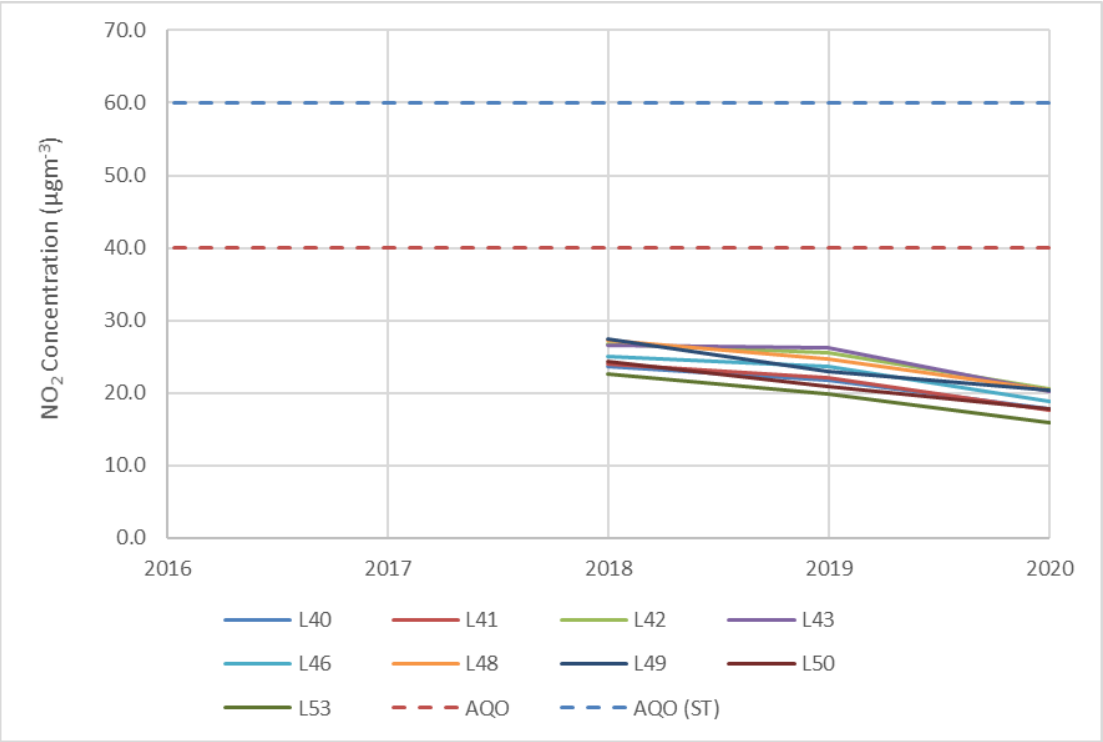
Note: AQO (ST) = 60 µg m^{-3}. Diffusion tubes cannot be used to directly compare against the 1-hour mean NO_2 objective. However, LLAQM.TG19 states that at locations where annual mean NO_2 concentrations of greater than 60 µg m^{-3} are monitored the 1-hour mean NO_2 objective is likely to be exceeded.

Figure A. 6 Trend in NO_2 concentrations at urban background diffusion tube locations (1)



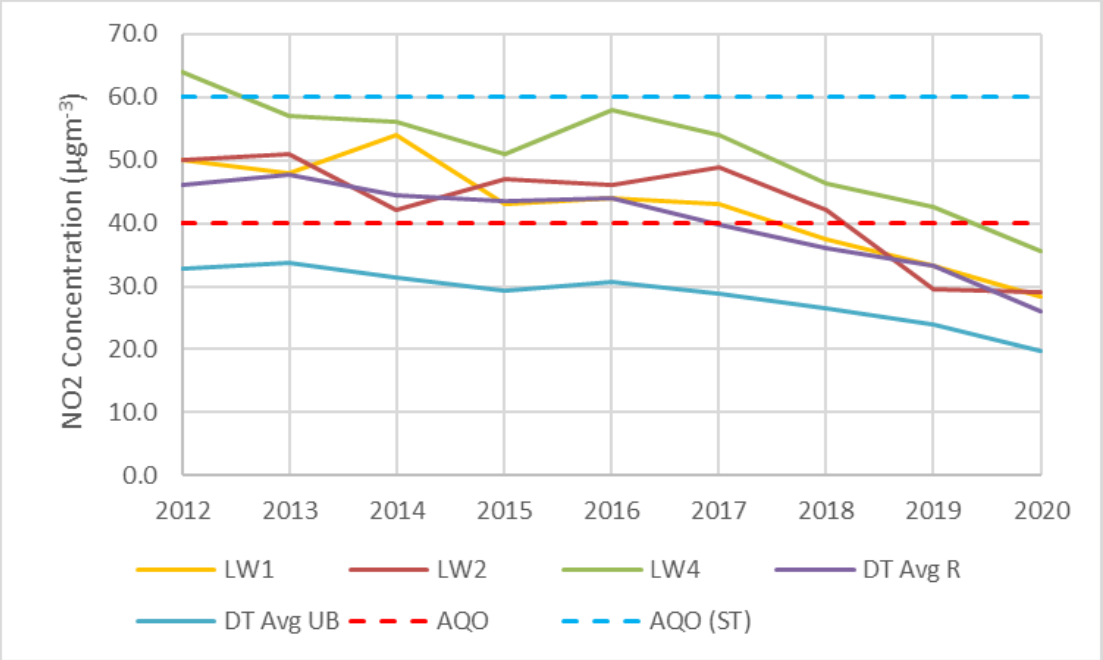
Note: AQO (ST) = 60 µg m^{-3}. Diffusion tubes cannot be used to directly compare against the 1-hour mean NO_2 objective. However, LLAQM.TG19 states that at locations where annual mean NO_2 concentrations of greater than 60 µg m^{-3} are monitored the 1-hour mean NO_2 objective is likely to be exceeded.

Figure A. 7 Trend in NO_2 concentrations at urban background diffusion tube locations (2)



Note: AQO (ST) = 60 µg m^{-3}. Diffusion tubes cannot be used to directly compare against the 1-hour mean NO_2 objective. LLAQM.TG19 states that at locations where annual mean NO_2 concentrations of greater than 60 µg m^{-3} are monitored the 1-hour mean NO_2 objective is likely to be exceeded. Diffusion tube sites installed in 2018.

Figure A. 8 Trend in NO_2 concentrations at automatic monitoring stations, roadside and urban background diffusion tube locations (averaged)



Note: AQO (ST) = 60 µg m^{-3}. Diffusion tubes cannot be used to directly compare against the 1-hour mean NO_2 objective. However, LLAQM.TG19 states that at locations where annual mean NO_2 concentrations of greater than 60 µg m^{-3} are monitored the 1-hour mean NO_2 objective is likely to be exceeded.

Figure A. 9 London Borough of Lewisham 2020 Diffusion Tube Network (North)

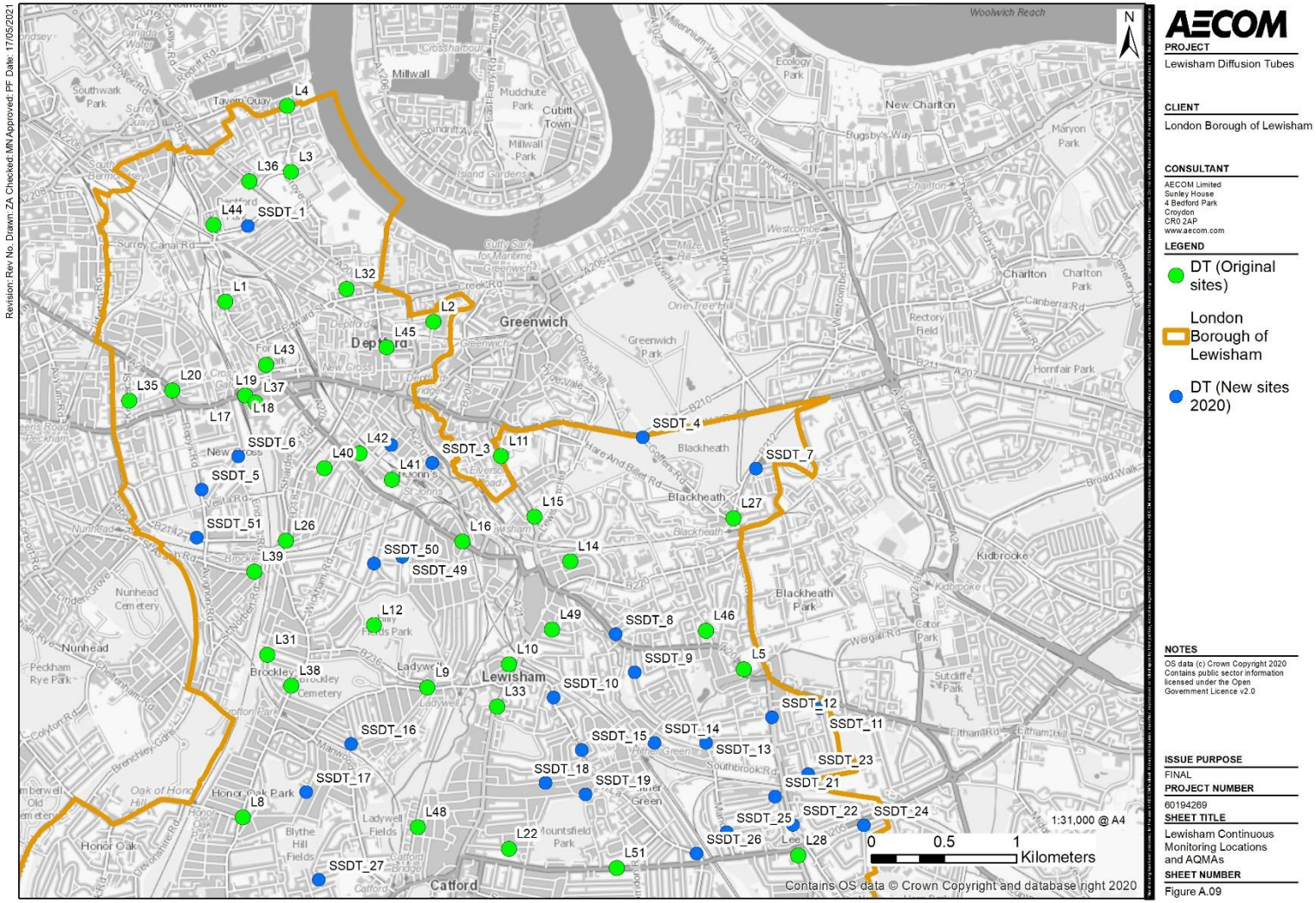


Figure A. 10 London Borough of Lewisham 2020 Diffusion Tube Network (South)

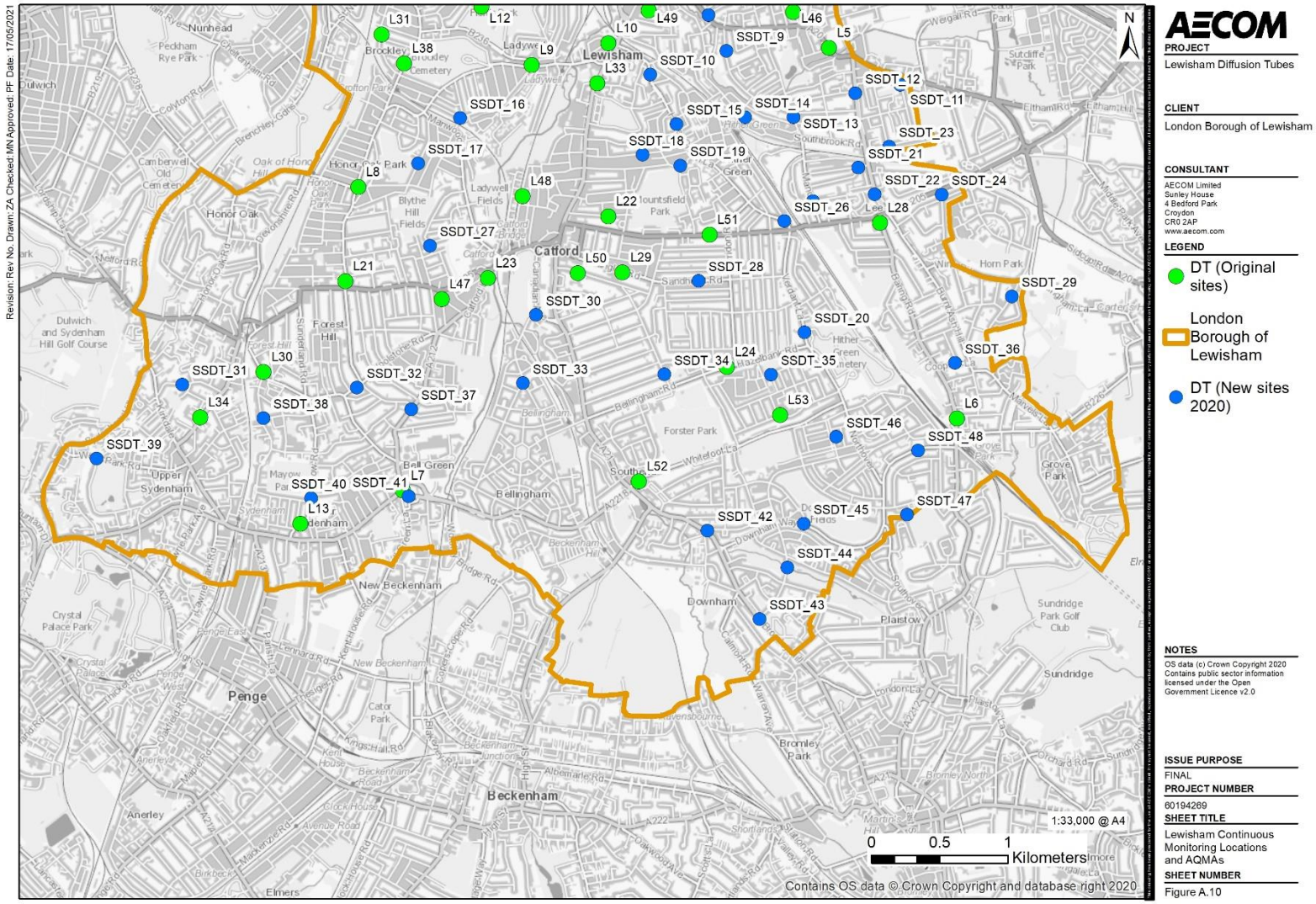


Figure A. 11 Air Quality Management Areas and Continuous Monitoring Locations in London Borough of Lewisham

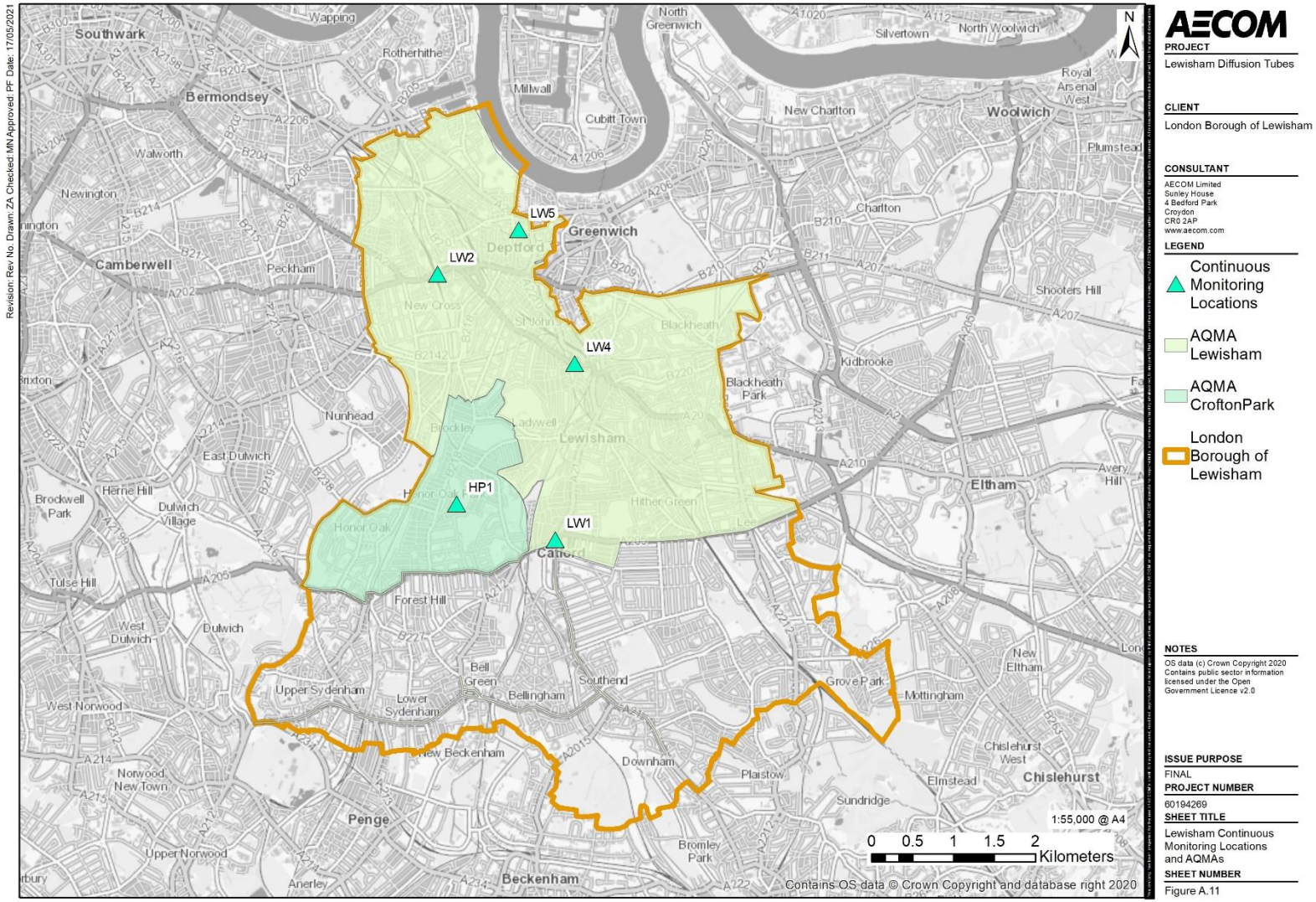


Figure A. 12 Air Quality Focus Areas in London Borough of Lewisham

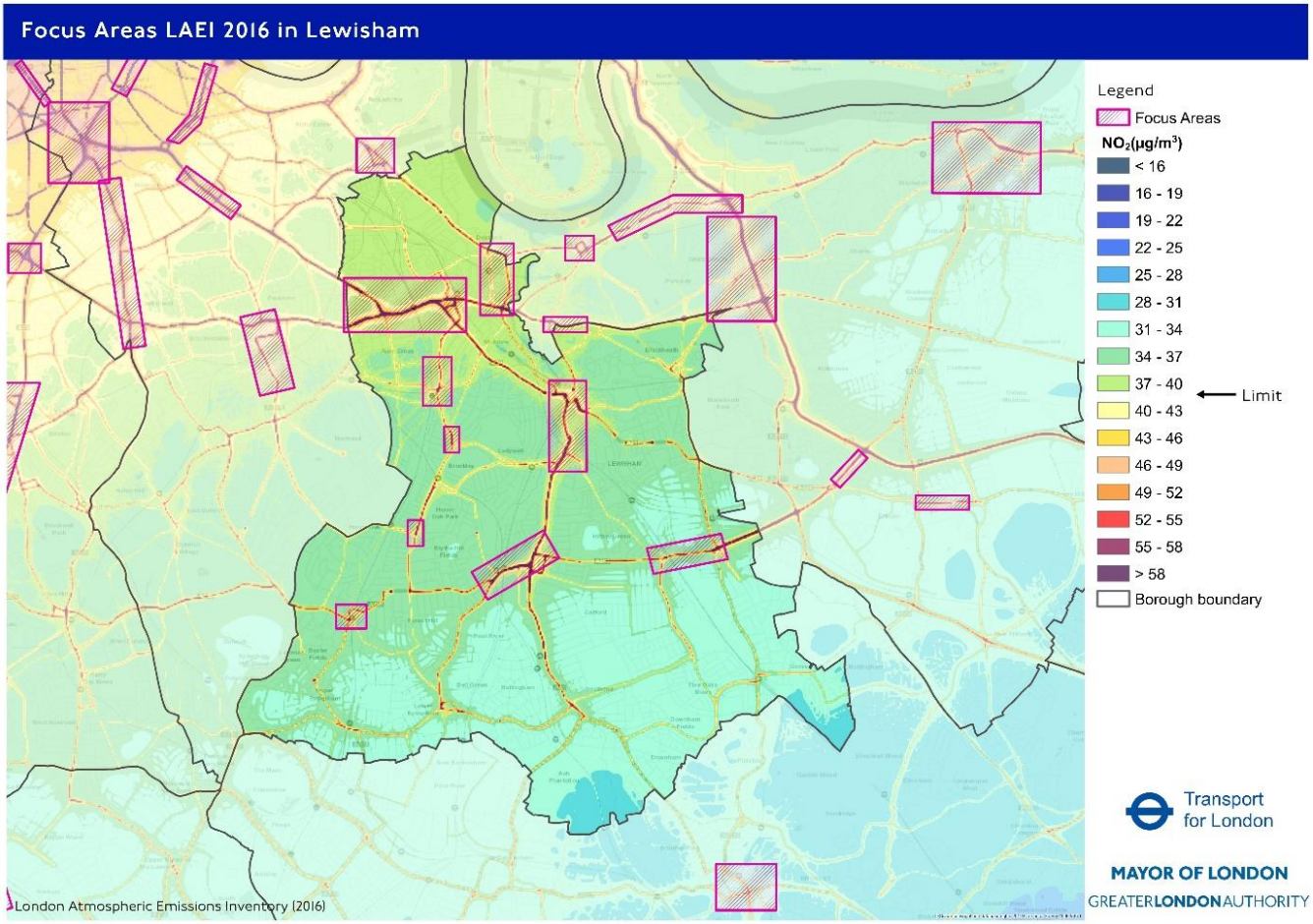


Table M. Short-Term to Long-Term Monitoring Data Adjustment

Site ID	Annualisation Factor – Honour Oak Park	Annualisation Factor – Streatham Green	Annualisation Factor - Deptford	Average Annualisation Factor	Raw Data Annual Mean (µg m^{-3})	Annualised Annual Mean (µg m^{-3})	Comments
L17	0.8973	0.9457	0.8946	0.9125	37	33.8	
L18	0.9531	0.9924	0.9766	0.974	37.7	36.7	
L19	0.953	0.9836	0.9749	0.9705	35.2	34.2	
SSDT_1	0.8919	0.8526	0.8008	0.8485	32.7	27.8	
SSDT_3	0.8919	0.8526	0.8008	0.8485	31.1	26.4	
SSDT_4	0.8919	0.8526	0.8008	0.8485	35.4	30	
SSDT_5	0.8919	0.8526	0.8008	0.8485	28.4	24.1	
SSDT_6	0.9012	0.8824	0.8348	0.8728	31.9	27.8	
SSDT_7	0.9012	0.8824	0.8348	0.8728	34.7	30.2	
SSDT_8	0.9012	0.8824	0.8348	0.8728	35.9	31.4	
SSDT_9	0.9012	0.8824	0.8348	0.8728	27.1	23.7	
SSDT_10	0.9012	0.8824	0.8348	0.8728	38.8	33.9	
SSDT_11	0.9012	0.8824	0.8348	0.8728	24.9	21.7	
SSDT_12	0.9012	0.8824	0.8348	0.8728	37.3	32.5	
SSDT_13	0.9012	0.8824	0.8348	0.8728	29.5	25.8	
SSDT_14	0.9012	0.8824	0.8348	0.8728	24.8	21.6	
SSDT_15	0.9012	0.8824	0.8348	0.8728	31.2	27.3	
SSDT_16	0.9012	0.8824	0.8348	0.8728	30.9	26.9	
SSDT_17	0.9012	0.8824	0.8348	0.8728	26.1	22.8	
SSDT_18	0.9012	0.8824	0.8348	0.8728	28.6	25	
SSDT_19	0.9012	0.8824	0.8348	0.8728	23.6	20.6	
SSDT_20	0.9012	0.8824	0.8348	0.8728	33	28.8	
SSDT_21	0.9012	0.8824	0.8348	0.8728	29.4	25.7	
SSDT_22	0.9012	0.8824	0.8348	0.8728	35.1	30.6	
SSDT_23	0.9012	0.8824	0.8348	0.8728	27.2	23.8	
SSDT_24	0.9012	0.8824	0.8348	0.8728	31.2	27.2	
SSDT_25	0.9012	0.8824	0.8348	0.8728	30.1	26.3	
SSDT_26	0.9012	0.8824	0.8348	0.8728	37.1	32.4	
SSDT_27	0.9012	0.8824	0.8348	0.8728	27	23.5	
SSDT_28	0.9012	0.8824	0.8348	0.8728	35.9	31.3	

Site ID	Annualisation Factor – Honour Oak Park	Annualisation Factor – Streatham Green	Annualisation Factor - Deptford	Average Annualisation Factor	Raw Data Annual Mean (µg m^{-3})	Annualised Annual Mean (µg m^{-3})	Comments
SSDT_29	0.9012	0.8824	0.8348	0.8728	25.1	21.9	
SSDT_30	0.9012	0.8824	0.8348	0.8728	29.5	25.7	
SSDT_31	0.9012	0.8824	0.8348	0.8728	24.8	21.6	
SSDT_32	0.8919	0.8526	0.8008	0.8485	29.8	25.3	
SSDT_33	0.9012	0.8824	0.8348	0.8728	27.9	24.4	
SSDT_34	0.9012	0.8824	0.8348	0.8728	26.9	23.5	
SSDT_35	0.9012	0.8824	0.8348	0.8728	25.2	22	
SSDT_36	0.9012	0.8824	0.8348	0.8728	24.6	21.4	
SSDT_37	0.9012	0.8824	0.8348	0.8728	41.6	36.3	
SSDT_38	0.9012	0.8824	0.8348	0.8728	24.5	21.4	
SSDT_39	0.9012	0.8824	0.8348	0.8728	27.3	23.8	
SSDT_40	0.9012	0.8824	0.8348	0.8728	35.4	30.9	
SSDT_41	0.9012	0.8824	0.8348	0.8728	42.2	36.8	
SSDT_42	0.9012	0.8824	0.8348	0.8728	35.7	31.2	
SSDT_43	0.9012	0.8824	0.8348	0.8728	25	21.9	
SSDT_44	0.9012	0.8824	0.8348	0.8728	23.4	20.4	
SSDT_45	0.9012	0.8824	0.8348	0.8728	24.8	21.6	
SSDT_46	0.9012	0.8824	0.8348	0.8728	30.1	26.3	
SSDT_47	0.9012	0.8824	0.8348	0.8728	35.6	31	
SSDT_48	0.8656	0.8293	0.7784	0.8245	30	24.7	
SSDT_49	0.9012	0.8824	0.8348	0.8728	26.8	23.4	
SSDT_51	0.9012	0.8824	0.8348	0.8728	39.5	34.5	
Site ID	**Annualisation Factor – HP1**	**Annualisation Factor – CT3**	**Annualisation Factor – CR8**	**Average Annualisation Factor**	**Raw Data Annual Mean (µg m-3)**	**Annualised Annual Mean (µg m-3)**	**Comments**
LW5	0.9258	0.9488	0.9273	0.9340	9.40	8.78	$PM_{2.5}$

Note: Results presented are not bias adjusted

Table N. NO_2 Fall off With Distance Calculations

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted (µg m^{-3})	Background Concentration (µg m^{-3})	Concentration Predicted at Receptor (µg m^{-3})	Comments
L1	2.0	7.0	21.9	23.5	-	Monitored concentration below background
L10	1.0	2.0	24.7	23.8	24.6	
L11	3.0	6.0	23.6	22.2	23.3	
L20	4.0	5.0	25.6	23.4	25.5	
L23	0.5	6.5	29.9	22.0	26.3	
L26	0.5	3.5	29.8	21.0	26.8	
L27	0.5	2.5	31.2	21.8	28.5	
L28	0.5	5.5	33.4	18.7	27.2	
L30	5.0	6.0	19.7	19.9	-	Monitored concentration below background
L38	2.0	8.3	22.5	20.0	21.7	
L39	1.7	9.5	22.8	21.0	22.1	
L44	2.0	3.0	26.1	24.1	25.9	
L45	2.9	3.6	20.4	24.7	-	Monitored concentration below background
L47	2.1	4.0	20.4	20.2	20.4	
L51	2.2	12.1	34.0	19.7	28.2	
L52	3.9	7.1	27.3	18.4	25.8	

Note: Sites at relevant exposure or urban background locations are not included.
New sites added in 2020 were not distance corrected due to lower data capture and the annualised concentrations being <36 µg m^{-3}

Appendix B Full Monthly Diffusion Tube Results for 2020

Table O. NO_2 Diffusion Tube Results

Site ID	Valid data capture for monitoring period %[(a)]	Valid data capture 2020 %[(b)]	Jan	Feb	Mar	Apr	May*	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual mean – raw data	Annual mean – bias adjusted
L1	92	92	34.1	24.2	23.7	21.0	-	23.9	18.0	27.4	26.6	29.4	34.2	30.7	26.7	21.9
L2	83	83	33.6	22.9	22.9	22.0	-	18.9	14.9	-	24.9	24.6	31.8	28.8	24.5	20.1
L3	92	92	31.7	23.8	26.1	22.7	-	20.7	16.3	24.6	25.7	25.5	32.4	27.0	25.1	20.6
L4	92	92	32.6	27.2	27.2	23.9	-	18.1	16.7	23.9	25.7	26.1	33.2	28.8	25.8	21.1
L5	92	92	28.4	19.9	29.3	26.2	-	22.4	17.4	28.3	31.8	26.1	35.4	27.6	26.6	21.8
L6	92	92	34.6	24.8	27.8	21.2	-	22.7	21.7	23.6	28.5	27.6	34.6	28.9	26.9	22.1
L7	83	83	42.6	-	37.5	36.3	-	40.1	26.3	41.1	42.4	40.2	49.9	39.7	39.6	32.5
L8	92	92	34.8	27.8	31.1	30.8	-	26.5	18.8	30.0	34.1	28.7	36.7	29.2	29.9	24.5
L9	75	75	37.3	25.2	35.7	-	-	28.8	20.4	-	34.6	31.6	37.5	30.7	31.3	25.7
L10	83	83	35.3	23.4	34.4	-	-	28.9	20.4	28.9	31.5	31.2	34.2	33.4	30.2	24.7
L11	83	83	32.7	22.6	30.0	31.2	-	26.3	17.9	29.3	30.8	32.4	-	35.0	28.8	23.6
L12	83	83	33.1	22.1	24.7	-	-	15.7	13.6	16.8	24.7	22.7	31.5	31.6	23.7	19.4
L13	83	83	32.8	23.5	23.9	-	-	17.4	14.4	19.7	21.5	23.4	32.7	27.9	23.7	19.5
L14	92	92	37.2	32.1	26.6	20.5	-	18.0	16.8	21.4	26.0	25.1	34.4	28.5	26.0	21.4
L15	92	92	39.4	30.2	28.2	30.7	-	31.4	22.3	32.0	33.5	35.0	42.0	35.6	32.8	26.9
L16	83	83	36.6	27.0	34.0	35.4	-	34.7	27.7	-	44.9	36.6	43.8	39.7	36.0	29.5
L17	67	67	47.9	39.8	-	32.7	-	-	22.8	-	41.2	40.0	36.2	35.7	37.0	27.7
L18	67	67	47.5	40.8	39.1	-	-	35.8	-	39.6	46.4	36.9	-	15.3	37.7	30.1
L19	67	67	44.7	36.1	39.3	31.9	-	23.4	-	40.3	-	39.9	-	26.3	35.2	28.1
L20	83	83	40.8	29.9	29.7	-	-	24.7	22.0	32.0	31.5	29.5	38.6	33.3	31.2	25.6
L21	92	92	43.7	37.3	35.0	28.3	-	33.5	30.5	37.7	39.3	34.6	44.1	39.8	36.7	30.1
L22	75	75	36.9	29.2	26.1	-	-	18.7	16.8	18.9	-	25.4	39.9	29.6	26.8	22.0
L23	83	83	40.5	31.5	37.1	-	-	37.9	24.6	38.5	36.3	36.3	44.8	37.4	36.5	29.9
L24	75	75	39.8	27.4	-	-	-	21.1	19.0	25.6	29.8	29.8	39.8	32.1	29.4	24.1
L25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
L26	92	92	44.8	34.6	34.6	29.3	-	32.7	23.7	36.6	38.5	40.1	47.0	37.3	36.3	29.8
L27	92	92	52.4	35.0	39.3	29.2	-	29.8	30.5	40.4	39.1	41.5	44.6	36.9	38.1	31.2
L28	92	92	47.4	40.6	39.3	30.9	-	36.9	35.8	42.2	44.9	39.8	48.4	41.4	40.7	33.4
L29	83	83	32.1	23.1	26.3	-	-	19.8	15.3	22.1	25.2	22.8	34.1	27.5	24.8	20.4

Site ID	Valid data capture for monitoring period %[a]	Valid data capture 2020 %[b]	Jan	Feb	Mar	Apr	May*	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual mean – raw data	Annual mean – bias adjusted
L30	92	92	34.1	22.0	25.4	21.6	-	19.5	15.2	22.4	19.8	24.8	31.0	28.5	24.0	19.7
L31	92	92	28.5	18.2	22.7	19.9	-	16.3	11.6	19.3	20.7	22.3	31.6	27.2	21.7	17.8
L32	92	92	32.2	25.2	24.7	23.9	-	18.7	14.0	23.1	26.3	24.5	35.7	28.9	25.2	20.7
L33	83	83	42.9	34.1	35.4	-	-	26.8	26.3	30.8	35.6	34.0	43.9	34.4	34.4	28.2
L34	92	92	31.2	19.8	20.1	20.4	-	16.3	12.9	18.3	26.5	19.1	32.1	28.4	22.3	18.3
L35	92	92	30.5	24.0	26.2	21.8	-	17.9	13.1	21.6	24.1	26.6	32.2	28.7	24.2	19.9
L36	83	83	39.7	29.3	31.9	32.2	-	28.6	19.0	32.3	-	36.3	38.8	33.1	32.1	26.3
L37	92	92	28.3	20.0	25.1	21.2	-	15.8	15.8	22.8	26.3	25.1	33.4	29.2	23.9	19.6
L38	92	92	35.1	25.3	28.9	25.5	-	25.3	16.0	27.3	27.6	27.3	32.3	30.9	27.4	22.5
L39	92	92	35.6	27.3	29.6	25.7	-	20.0	17.8	24.4	27.8	27.4	36.9	32.8	27.8	22.8
L40	75	75	27.1	-	22.5	-	-	16.4	12.5	19.3	21.2	21.9	32.1	21.6	21.6	17.7
L41	92	92	29.1	19.2	19.1	17.7	-	16.0	13.1	21.7	22.7	22.4	29.6	25.1	21.4	17.6
L42	83	83	31.0	23.7	26.4	21.6	-	19.1	14.8	-	26.5	25.3	35.2	27.3	25.1	20.6
L43	92	92	33.3	24.9	25.5	19.5	-	19.2	14.8	19.3	24.9	27.7	32.7	29.5	24.7	20.2
L44	83	83	39.3	32.4	25.8	24.3	-	-	21.6	30.5	33.3	35.9	40.3	34.6	31.8	26.1
L45	92	92	32.0	23.4	24.9	20.1	-	20.0	15.5	21.2	25.9	25.6	35.2	29.9	24.9	20.4
L46	92	92	33.8	20.7	23.2	19.0	-	17.2	14.2	19.2	23.4	24.3	31.8	25.9	23.0	18.8
L47	83	83	33.3	21.9	25.5	-	-	18.4	14.8	19.7	25.0	26.0	35.6	28.8	24.9	20.4
L48	75	75	30.7	20.6	27.9	-	-	18.9	13.3	21.5	-	26.1	34.2	30.6	24.9	20.4
L49	83	83	34.3	23.5	23.8	-	-	18.9	17.4	16.7	26.9	26.8	31.2	28.5	24.8	20.3
L50	83	83	29.5	19.4	20.3	-	-	14.6	13.3	15.9	22.1	21.6	38.3	22.3	21.7	17.8
L51	75	75	47.3	39.4	42.7	-	-	42.0	40.3	45.2	-	36.8	44.7	35.3	41.5	34.0
L52	83	83	48.6	37.6	31.3	-	-	28.9	24.6	27.8	32.9	29.4	39.0	32.4	33.2	27.3
L53	83	83	19.4	19.1	21.0	-	-	14.9	12.3	12.7	20.0	22.5	27.8	24.2	19.4	15.9
SSDT_1	75	25	-	-	-	-	-	-	-	-	-	30.2	38.3	29.7	32.7	22.5
SSDT_2	50	17	-	-	-	-	-	-	-	-	-	-	34.9	26.1	-	-
SSDT_3	75	25	-	-	-	-	-	-	-	-	-	29.3	33.3	30.9	31.1	21.5
SSDT_4	75	25	-	-	-	-	-	-	-	-	-	30.4	41.4	34.4	35.4	24.4
SSDT_5	75	25	-	-	-	-	-	-	-	-	-	24.5	33.8	27	28.4	19.6
SSDT_6	100	33	-	-	-	-	-	-	-	-	28.8	27.8	39.1	31.8	31.9	22.6
SSDT_7	100	33	-	-	-	-	-	-	-	-	33.4	30.3	39.5	35.3	34.7	24.6
SSDT_8	100	33	-	-	-	-	-	-	-	-	35.8	33.4	41.6	33.0	35.9	25.5
SSDT_9	100	33	-	-	-	-	-	-	-	-	25.0	23.2	31.7	28.5	27.1	19.2
SSDT_10	100	33	-	-	-	-	-	-	-	-	39.0	37.3	40.5	38.5	38.8	27.5
SSDT_11	100	33	-	-	-	-	-	-	-	-	23.3	21.8	29.8	24.7	24.9	17.7

Site ID	Valid data capture for monitoring period %[a]	Valid data capture 2020 %[b]	Jan	Feb	Mar	Apr	May*	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual mean – raw data	Annual mean – bias adjusted
SSDT_12	100	33	-	-	-	-	-	-	-	-	37.6	33.8	42.9	34.8	37.3	26.4
SSDT_13	100	33	-	-	-	-	-	-	-	-	25.6	25.8	35.2	31.6	29.5	20.9
SSDT_14	100	33	-	-	-	-	-	-	-	-	24.7	22.8	27.2	24.4	24.8	17.6
SSDT_15	100	33	-	-	-	-	-	-	-	-	31.2	27.8	35.6	30.3	31.2	22.2
SSDT_16	100	33	-	-	-	-	-	-	-	-	28.0	26.9	41.0	27.7	30.9	21.9
SSDT_17	100	33	-	-	-	-	-	-	-	-	23.8	20.3	33.3	26.9	26.1	18.5
SSDT_18	100	33	-	-	-	-	-	-	-	-	26.0	27.1	32.7	28.8	28.6	20.3
SSDT_19	100	33	-	-	-	-	-	-	-	-	22.6	21.0	27.6	23.1	23.6	16.7
SSDT_20	100	33	-	-	-	-	-	-	-	-	32.7	31.2	39.4	28.7	33.0	23.4
SSDT_21	100	33	-	-	-	-	-	-	-	-	26.2	24.7	39.5	27.4	29.4	20.9
SSDT_22	100	33	-	-	-	-	-	-	-	-	36.4	34.3	32.3	37.3	35.1	24.9
SSDT_23	100	33	-	-	-	-	-	-	-	-	25.9	24.4	32.1	26.5	27.2	19.3
SSDT_24	100	33	-	-	-	-	-	-	-	-	34.7	29.0	31.7	29.3	31.2	22.1
SSDT_25	100	33	-	-	-	-	-	-	-	-	28.6	27.5	35.7	28.5	30.1	21.3
SSDT_26	100	33	-	-	-	-	-	-	-	-	36.7	33.6	41.3	36.9	37.1	26.3
SSDT_27	100	33	-	-	-	-	-	-	-	-	24.5	26.0	32.6	24.7	27.0	19.1
SSDT_28	100	33	-	-	-	-	-	-	-	-	36.8	31.2	40.4	35.1	35.9	25.5
SSDT_29	100	33	-	-	-	-	-	-	-	-	24.1	22.6	30.8	23.0	25.1	17.8
SSDT_30	100	33	-	-	-	-	-	-	-	-	28.8	25.7	34.6	28.8	29.5	20.9
SSDT_31	100	33	-	-	-	-	-	-	-	-	23.1	19.5	30.9	25.5	24.8	17.6
SSDT_32	75	25	-	-	-	-	-	-	-	-	-	26.2	35.4	27.8	29.8	20.5
SSDT_33	100	33	-	-	-	-	-	-	-	-	26.4	25.3	33.6	26.3	27.9	19.8
SSDT_34	100	33	-	-	-	-	-	-	-	-	24.0	25.8	29.9	27.9	26.9	19.1
SSDT_35	100	33	-	-	-	-	-	-	-	-	24.7	20.5	31.2	24.2	25.2	17.8
SSDT_36	100	33	-	-	-	-	-	-	-	-	22.2	21.3	27.7	27.0	24.6	17.4
SSDT_37	100	33	-	-	-	-	-	-	-	-	38.2	37.9	48.9	41.4	41.6	29.5
SSDT_38	100	33	-	-	-	-	-	-	-	-	21.4	21.4	30.1	25.0	24.5	17.4
SSDT_39	100	33	-	-	-	-	-	-	-	-	24.5	23.6	33.8	27.1	27.3	19.3
SSDT_40	100	33	-	-	-	-	-	-	-	-	32.1	31.4	43.3	35.0	35.4	25.1
SSDT_41	100	33	-	-	-	-	-	-	-	-	45.6	36.6	48.6	38.0	42.2	29.9
SSDT_42	100	33	-	-	-	-	-	-	-	-	34.8	32.9	39.7	35.5	35.7	25.3
SSDT_43	100	33	-	-	-	-	-	-	-	-	23.7	23.5	30.0	23.0	25.0	17.8
SSDT_44	100	33	-	-	-	-	-	-	-	-	21.5	21.7	27.4	23.1	23.4	16.6
SSDT_45	100	33	-	-	-	-	-	-	-	-	22.2	23.0	28.7	25.1	24.8	17.6
SSDT_46	100	33	-	-	-	-	-	-	-	-	27.7	27.4	37.5	27.9	30.1	21.4

Site ID	Valid data capture for monitoring period %[a]	Valid data capture 2020 %[b]	Jan	Feb	Mar	Apr	May*	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual mean – raw data	Annual mean – bias adjusted
SSDT_47	100	33	-	-	-	-	-	-	-	-	34.7	30.4	43.3	33.8	35.6	25.2
SSDT_48	75	25	-	-	-	-	-	-	-	-	29.0	-	34.6	26.5	30.0	20.1
SSDT_49	100	33	-	-	-	-	-	-	-	-	24.9	21.3	33.0	28.1	26.8	19.0
SSDT_50	50	17	-	-	-	-	-	-	-	-	-	-	33.2	26.2	-	-
SSDT_51	100	33	-	-	-	-	-	-	-	-	36.3	35.3	46.5	40.1	39.5	28.0

Notes

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

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

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

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

*No monitoring was conducted in May as the diffusion tube supplier was closed due to COVID-19 lockdown restrictions.

Appendix C Other Information

Impact Matrix

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

Table P. Local Implementation Plan Projects in Air Quality Focus Areas in 2020 and ongoing

No.		GLA ref.	Focus Area	Local Implementation Plan Projects					
1		125	Deptford Church Street	Quietway 1 (Implemented)	Cycle Superhighway 4 (in design)	Quietway 2 (in design)	S106 New Bus Services	New Electric Vehicle CP Sites	New 20mph limits
2		126	New Cross	Bakerloo Line Extension (Consultation)	A2 Corridor Study – TfL	Old Kent Road OA work with LB Southwark & GLA	S106 New Bus Services	New Electric Vehicle CP Sites	New 20mph limits Deptford Parks Liveable Neighbourhood (DPLN) Project. The Woodpecker Walk improvements that comes into New Cross Ward.
3		127	Brockley Cross	Rail Strategy inc Overground proposals	B218 Corridor Study	New EVCP Sites	New 20mph limits		
4		128	Honor Oak Park	New speed camera at Stondon Park	B218 Corridor Study	New EVCP Sites	New 20mph limits		

No.		GLA ref.	Focus Area	Local Implementation Plan Projects					
				Junction(implemented)					
5		129	Loampit Vale & L.High St	Bakerloo Line Extension (Consultation)		New EVCP Sites	New 20mph limits		
6		130	Catford Road	Major regeneration programme, including A205 alignment (feasibility)	Quietway 2 (in design)	New EVCP Sites	New 20mph limits		
7		131	A205 Brownhill Road	A205 Brownhill Road Corridor improvements (in design)	New EVCP Sites	New 20mph limits	TFL road		
8		132	Forest Hill	A205 junction with Devonshire Rd minor junction improvement (implemented)	Dartmouth Road streetscape improvements (including 20mph measures)	New EVCP Sites	New 20mph limits	Air Quality Assessment commissioned with recommendations in 2017	

No.		GLA ref.	Focus Area	Local Implementation Plan Projects					
9		133	Deptford Parks	Copenhagen crossings	Prince Street and Scawen Rd modal filters.		Streets in North Deptford will see reduced traffic owing to new restrictions.	Improvements to Woodpecker Walk and Rolt Street are due to be implemented	Liveability Neighbourhoods - Streets in North Deptford will see reduced traffic owing to new restrictions. The funding picture and the scope of work for this action remain unclear.

Changes in NO_2 average annual mean concentrations (2014-2020)

Figure C.1 Percentage change of NO_2 average annual mean concentrations from previous year (Roadside Sites)

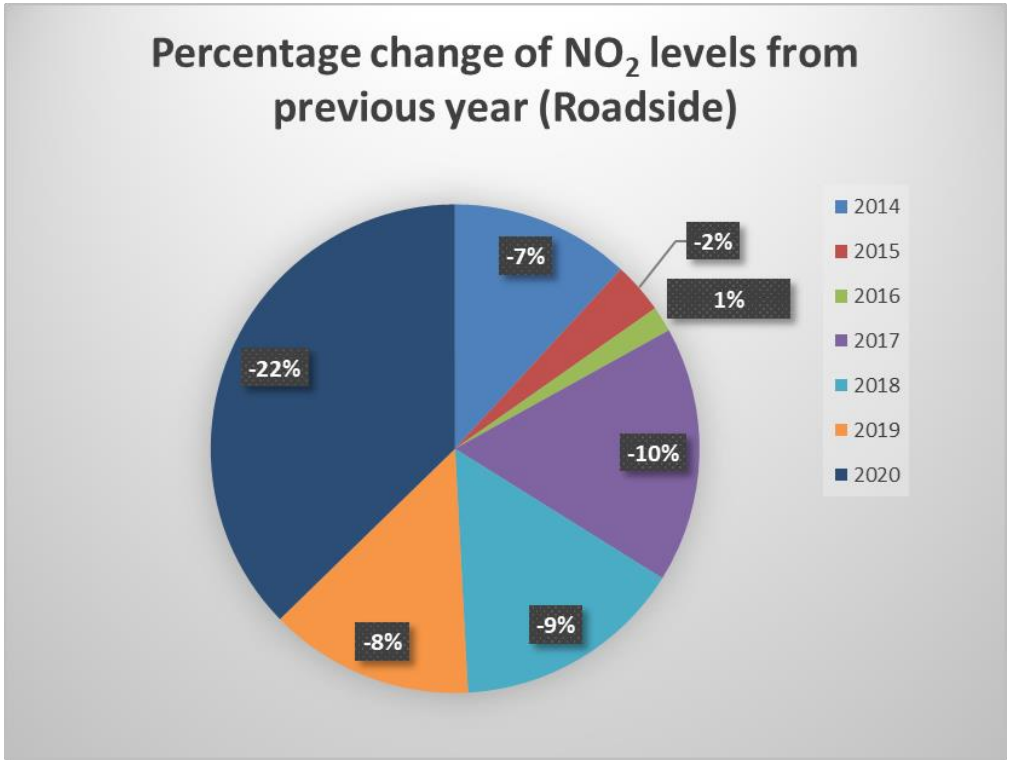


Figure C.2 Percentage change of NO_2 average annual mean concentrations from previous year (UB Sites)