London Borough of Lewisham Air Quality Annual Status Report for 2019
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This report provides a detailed overview of air quality in *London Borough of Lewisham* during 2019. It has been produced to meet the requirements of the London Local Air Quality Management statutory process[1].

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[1] LLAQM Policy and Technical Guidance 2019 (LLAQM.TG(19)). https://www.london.gov.uk/what-we-do/environment/pollution-and-air-quality/working-boroughs

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Abbreviations

AQAP	Air Quality Action Plan
AQFA	Air Quality Focus Area
AQMA	Air Quality Management Area
AQN	Air Quality Neutral
AQO	Air Quality Objective
BEB	Buildings Emission Benchmark
BEIS	Department for Business, Energy and Industrial Strategy
CAB	Cleaner Air Borough
CAV	Cleaner Air Villages
CAZ	Central Activity Zone
CEMP	Construction Environmental Management Plan
CEO	Civil Enforcement Officer
CHP	Combined Heat and Power
CP	Charge Point
CPZ	Controlled Parking Zone
CRP	Cross River Partnership
DEC	Design Engineer Construction
DMT	Departmental Management Team
DPH	Director(s) of Public Health
EP	Environmental Protection
EPC	Energy Performance Certificate
ERG	King's Environmental Research Group
EV	Electric Vehicle
FORS	Fleet Operator Recognition Scheme
GLA	Greater London Authority
GULCS	Go Ultra Low City Scheme
HGV	Heavy Goods Vehicles
HMO	Homes in multiple occupation
HPC	Health Protection Committee
JNSA	Joint Strategic Needs Assessment
KPI	Key Performance Indicator
LAEI	London Atmospheric Emissions Inventory

LAQM	Local Air Quality Management
LBL	London Borough of Lewisham
LLAQM	London Local Air Quality Management
NRMM	Non-Road Mobile Machinery
PM_{10}	Particulate matter less than 10 micron in diameter
$PM_{2.5}$	Particulate matter less than 2.5 micron in diameter
PNC	Penalty Charge Notice
PSV	Public Service Vehicle
TEB	Transport Emissions Benchmark
TfL	Transport for London
UHL	University Hospital London
ULEZ	Ultra Low Emissions Zone
WHO	World Health Organisation

Table A.   Summary of National Air Quality Standards and Objectives

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

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

1.   Air Quality Monitoring

There were four continuous monitoring stations in operation within the London Borough of Lewisham (LBL) during 2019. The newest monitoring station (HP1) became operational during November 2018; and it is an Automatic Urban and Rural Network site operated by King's College London. 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. Details of all continuous monitoring stations in operation during 2019 are given below in Table B.

A new continuous monitoring site in Deptford (LW5) was also opened during November 2019. The monitoring station measures NO_2, PM_{10} and $PM_{2.5}$. There is insufficient data at this monitoring site to annualise for 2019, however results from this site will be included in next year's report.

Monitoring of NO_2 with diffusion tubes was carried out at 50 sites in 2019, 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. Details of all tube diffusion tube sites in 2019 are given in Table C. The location of all diffusion tube sites in 2019 are displayed in Figure A. 9 and Figure A. 10 within Appendix A.

1.1 Locations

Table B. Details of Automatic Monitoring Sites for 2019

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance from monitoring site to relevant exposure (m)	Distance to kerb of nearest road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Monitoring technique
LW1	Lewisham1 (Catford)	537675	173689	Urban background	Y-AQMA4	n/a	3m	3.0m	NO_2	Chemiluminescence
LW2	Lewisham 2 (New Cross)	536241	176932	Roadside	Y-AQMA3	0	6m	2.5m	NO_2, PM_{10}, $PM_{2.5}$	Chemiluminescence, TEOM-FDMS
LW4	Lewisham 4 (Loampit Vale)	537912	175838	Roadside	Y-AQMA3	0	7m	2.5m	NO_2, PM_{10}	Chemiluminescence, BAM
HP1	Honor Oak Park	536473	174128	Urban background	Y-AQMA6 (Crofton Park and Honor Oak Park)	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 2019

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance from monitoring site to relevant exposure (m)	Distance to kerb of nearest road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor? (Y/N)
L1	Chubworthy St	536109	177580	Roadside	Y	5	2	2.5	NO_2	N
L2	Bronze St	537540	177439	Urban Background	Y	0	6	2.5	NO_2	N
L3	Grove St	536561	178471	Urban Background	Y	n/a	2	2.5	NO_2	N

L4	Plough Way	536534	178926	Urban Background	Y	n/a	2	2.5	NO$_2$	N
L5	Lee High Rd	539678	175050	Roadside	Y	0	5	2.5	NO$_2$	N
L6	Le May Ave	540615	172337	Urban Background	N	0	5	2.5	NO$_2$	N
L7	Bell Green	536556	171810	Roadside	Y	0	3	2.5	NO$_2$	N
L8	Stondon Park	536229	174032	Roadside	Y	0	5	2.5	NO$_2$	N
L9	Ladywell Rd	537500	174925	Roadside	Y	0	3	2.5	NO$_2$	N
L10	Whitburn Rd	538062	175085	Roadside	Y	1	1	2.5	NO$_2$	N
L11	Sparta St	538007	176517	Roadside	Y	3	3	2.5	NO$_2$	N
L12	Montague Avenue, Hilly Fields	537132	175353	Urban Background	Y	n/a	60	2.5	NO$_2$	N
L13	Mayow Rd	535804	171567	Urban Background	N	0	5	2.5	NO$_2$	N
L14	Boyne Rd	538482	175792	Urban Background	Y	3	1	2.5	NO$_2$	N
L15	Lewisham Rd	538237	176101	Roadside	Y	0	10	2.5	NO$_2$	N
L16	Loampit Vale	537740	175930	Roadside	Y	0	1.5	2.5	NO$_2$	N
L17	New Cross	536246	176934	Roadside	Y	0	6	2.5	NO$_2$	Y
L18	Monitoring Station	536246	176934	Roadside	Y	0	6	2.5	NO$_2$	Y
L19	(Triplicate)	536246	176934	Roadside	Y	0	6	2.5	NO$_2$	Y
L20	Hatcham Park Rd	535746	176969	Roadside	Y	1	4	2.5	NO$_2$	N
L21	Brockley Rise	536133	173341	Roadside	Y	0	3	2.5	NO$_2$	N
L22	Ringstead Rd	538060	173816	Urban Background	Y	3	0.5	2.5	NO$_2$	N
L23	Catford Hill	537178	173365	Roadside	Y	6	0.5	2.5	NO$_2$	N
L24	Hazelbank Rd	538930	172713	Urban Background	N	4	2	2.5	NO$_2$	N
L25	Stanstead Rd	535530	173198	Urban Background	Y	0	10	2.5	NO$_2$	N
L26	Shardloes Rd	536527	175935	Roadside	Y	3	0.5	2.5	NO$_2$	N
L27	Montpelier Vale	539604	176090	Roadside	Y	2	0.5	2.5	NO$_2$	N
L28	Baring Rd	540051	173769	Roadside	Y	5	0.5	2.5	NO$_2$	N
L29	Holy Cross, Sangley Rd	538165	173406	Roadside	Y	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 Rd	536399	175150	Urban Background	Y	2	2	2.5	NO_2	N
L32	Grinling Gibbons, Clyde St	536944	177665	Urban Background	Y	0	2	2.5	NO_2	N
L33	St Mary's CE, Lewisham High St	537979	174792	Roadside	Y	0	2	2.5	NO_2	N
L34	Sydenham, Dartmouth Rd	535071	172346	Urban Background	N	0	5	2.5	NO_2	N
L35	Kender Primary School	535447	176897	Roadside	N	N/A	2	2.5	NO_2	N
L36	Deptford Park School	536275	178405	Roadside	Y	N/A	2	2.5	NO_2	N
L37	St James Hatcham School	536317	176883	Urban Background	Y	N/A	N/A	2.5	NO_2	N
L38	Beecroft Primary School	536564	174937	Roadside	N	6.3	2.0	2.55	NO_2	N
L39	John Stainer Primary School	536308	175721	Roadside	Y	7.8	1.7	2.6	NO_2	N
L40	Myatt Garden Primary School	536792	176432	Urban Background	Y	3.6	1.4	2.55	NO_2	N
L41	Ashmead Primary School	537256	176353	Urban Background	Y	7.7	0.7	2.3	NO_2	N
L42	Lucas Vale Primary School	537032	176534	Urban Background	Y	0.5	2.2	2.65	NO_2	N
L43	Childeric Primary School	536389	177144	Urban Background	Y	6.25	2.85	2.65	NO_2	N
L44	Sir Francis Drake Primary School	536028	178107	Roadside	Y	1	2.0	2.45	NO_2	N
L45	Tidemill Academy	537228	177284	Roadside	Y	0.7	2.9	2.7	NO_2	N
L46	St Margaret Lee Primary School	539416	175315	Urban Background	Y	1.2	2.3	2.6	NO_2	N
L47	Rathfern Primary School	536839	173211	Roadside	Y	1.95	2.05	2.5	NO_2	N
L48	Holbeach Primary School	537433	173965	Urban Background	Y	25.2	0.9	2.55	NO_2	N
L49	St Saviours RC Primary School	538358	175324	Urban Background	Y	3.1	2.1	2.4	NO_2	N
L50	Rushey Green Primary School	537836	173400	Urban Background	N	-0.75	4.45	2.45	NO_2	N

L51	290 Brownhill Rd South Circular	538803	173683	Roadside	Y	9.9	2.2	2.6	NO_2	N
L52	St John CofE School	538285	171877	Roadside	Y	3.2	3.9	2.35	NO_2	N
L53	Greenvale School	539319	172362	Urban Background	N	1.1	2.9	2.45	NO_2	N

1.2 Comparison of Monitoring Results with AQOs

The results of nitrogen dioxide monitoring carried out by LBL are presented in Table D. Data from automatic monitoring stations LW1, 2, and 4 have been fully ratified, whilst data from HP1 is still provisional at the time of publication. Raw data from diffusion tube monitoring sites have been adjusted for bias using the local adjustment factor of 0.91. This bias adjustment factor was calculated from the triplicate diffusion tubes L17 to L19, which are co-located with the automatic monitoring station LW2. The national bias adjustment factor for 2019 is 0.89 for the laboratory and preparation method. The local bias adjustment factor was chosen to allow for a more conservative approach to estimates of annual mean concentrations from diffusion tubes.

Data capture for all automatic and diffusion tube monitoring sites were greater than 75%, thus adjustments for annualisation was not required in accordance to LLAQM Technical Guidance.

The results presented are after adjustments for bias and "annualisation". A small number of diffusion tubes are not located at relevant exposure, such as on kerbside lampposts as opposed to building facades. In order to maintain consistency for analysis diffusion tube trends over several years, the NO_2 concentrations presented in Table D have not been distance corrected. However, distance corrected diffusion tube concentrations have been calculated; these are discussed in Appendix A and are presented in tabular form in Appendix B.

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

Site ID	Site type	Valid data capture for monitoring period % [a]	Valid data capture 2019 % [b]	Annual Mean Concentration ($\mu g\ m^{-3}$)						
				2013[c]	2014[c]	2015[c]	2016[c]	2017[c]	2018[c]	2019[c]
LW1	Urban background (Automatic)	99.5	99.5	**48**	**54**	**43**	**44**	**43.1**	37.5	33.3
LW2	Roadside (Automatic)	95.2	95.2	**51**	**42**	**47**	**46**	**48.9**	**42.1**	37.9

Site ID	Site type	Valid data capture for monitoring period % [a]	Valid data capture 2019 % [b]	Annual Mean Concentration (µg m^{-3})						
				2013[c]	2014[c]	2015[c]	2016[c]	2017[c]	2018[c]	2019[c]
LW4	Roadside (Automatic)	99.6	99.6	**57**	**56** [c]	**51**	**58** [c]	**53.9**	**46.4**	**42.8**
HP1[d]	Urban background (Automatic)	96.8	96.8	-	-	-	-	-	-	24.1
L1	Roadside	100	100	38.6	38.0	33.1	34.3	31.6	29.2	28.2
L2	Urban Background	92	92	29.6	29.2	28.1	30.3	29.0	25.2	25.7
L3	Urban Background	100	100	37.1	35.9	34.3	36.3	32.7	30.6	27.4
L4	Urban Background	100	100	37.3	34.9	34.4	33.6	31.7	28.8	27.7
L5	Roadside	100	100	**43.3**	37.7	33.4	36.1	30.0	29.9	27.7
L6	Urban Background	100	100	38.3	36.0	35.2	34.8 c	32.2	30.5	27.2
L7	Roadside	100	100	**53.8**	**55.4**	**48.3**	**49.2**	**43.3**	38.2	39.6
L8	Roadside	100	100	**48.6**	**42.2**	**42.2**	**42.4**	38.6	33.5	31.5
L9	Roadside	100	100	**40.5**	**40.8**	37.5	39.6	35.1	36.2	31.9
L10	Roadside	100	100	**46.2**	**40.3**	39.4	**41.5**	37.3	38.0	31.4
L11	Roadside	92	92	**47.4**	38.6	36.1	37.4	34.8	33.6	31.2
L12	Urban Background	100	100	34.9	30.5	26.9	27.9	26.4	25.3	23.7
L13	Urban Background	92	92	33.3	28.3	27.3	27.3	26.6	23.8	24.4
L14	Urban Background	100	100	34.7	31.2	29.9	31.1	29.2	26.3	25.8
L15	Roadside	100	100	**47.6**	**46.5**	**46.6**	**45.2**	36.3	33.9	34.0
L16	Roadside	100	100	**58.6**	**52.5**	**48.7**	**50.5**	**44.1**	**40.4**	37.0
L17	Roadside (Triplicate)	92	92	**56.5**	**49.1**	**50.6**	**52.1**	**48.9**	**42.3**	38.6

Site ID	Site type	Valid data capture for monitoring period % [a]	Valid data capture 2019 % [b]	Annual Mean Concentration ($\mu g\ m^{-3}$)						
				2013[c]	2014[c]	2015[c]	2016[c]	2017[c]	2018[c]	2019[c]
L18	Roadside (Triplicate)	100	100	**54.0**	**51.1**	**49.1**	**50.8**	**48.9**	**42.4**	37.7
L19	Roadside (Triplicate)	100	100	**50.5**	**49.6**	**49.7**	**52.4**	**48.9**	**43.0**	38.1
L20	Roadside	83	83	**44.7**	**43.6**	**43.2**	**42.8**	38.6	37.7	34.3
L21	Roadside	100	100	**54.0**	**54.6**	**50.3**	**51.5**	**49.7**	**41.2**	39.8
L22	Urban Background	100	100	33.5	32.2	30.3	31.3	31.9	28.1	25.5
L23	Roadside	100	100	**59.9**	**55.1**	**51.8**	**49.9**	**44.5**	**43.1**	38.7
L24	Urban Background	100	100	36.3	35.6	32.4	34.6	33.3	32.8	29.9
L25	Urban Background	100	100	27.5	25.5	23.3	25.0	23.1	-	-
L26	Roadside	100	100	**51.9**	**53.7**	**47.2**	**46.4**	**43.5**	39.0	36.0
L27	Roadside	100	100	37.2	36.2	**57.1**	**55.3**	**52.4**	**43.5**	39.5
L28	Roadside	100	100	<u>61.9</u>	**51.0**	**58.6**	**58.1**	55.5	**46.3**	**41.0**
L29	Roadside	100	100	33.3	33.0	28.6	30.3	29.0	28.1	24.4
L30	Roadside	100	100	34.3	31.3	32.3	31.3	28.1	28.7	26.3
L31	Urban Background	100	100	29.6	25.7	23.5	26.2	24.4	25.9	21.2
L32	Urban Background	92	92	31.6	30.6	28.6	33.0	28.4	27.4	25.6
L33	Roadside	100	100	**51.0**	**44.6**	**41.8**	**44.6**	**40.7**	38.2	33.2
L34	Urban Background	100	100	34.0	31.8	27.0	27.6	26.4	23.8	24.2
L35	Roadside	100	100	-	-	-	-	31.3	27.1	25.9
L36	Roadside	100	100	-	-	-	-	**43.1**	39.2	37.0
L37	Urban background	100	100	-	-	-	-	29.2c	27.4	25.3
L38	Roadside	100	100	-	-	-	-	-	29.7	30.6

Site ID	Site type	Valid data capture for monitoring period % [a]	Valid data capture 2019 % [b]	Annual Mean Concentration (µg m^{-3})						
				2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]	2018 [c]	2019 [c]
L39	Roadside	100	100	-	-	-	-	-	30.0	29.0
L40	Urban Background	100	100	-	-	-	-	-	23.7	22.7
L41	Urban Background	100	100	-	-	-	-	-	24.0	23.2
L42	Urban Background	92	92	-	-	-	-	-	26.8	26.7
L43	Urban Background	100	100	-	-	-	-	-	26.6	27.5
L44	Roadside	100	100	-	-	-	-	-	35.2	32.8
L45	Roadside	100	100	-	-	-	-	-	33.4	28.5
L46	Urban Background	100	100	-	-	-	-	-	24.9	24.7
L47	Roadside	100	100	-	-	-	-	-	27.5	24.8
L48	Urban Background	100	100	-	-	-	-	-	27.3	25.8
L49	Urban Background	100	100	-	-	-	-	-	27.4	24.0
L50	Urban Background	100	100	-	-	-	-	-	24.3	21.8
L51	Roadside	100	100	-	-	-	-	-	**53.5**	**44.9**
L52	Roadside	100	100	-	-	-	-	-	33.2	33.3
L53	Urban Background	100	100	-	-	-	-	-	22.7	20.9

Notes: Exceedance of the NO$_2$ annual mean AQO of 40 µg m^{-3} are shown in **bold**.

NO$_2$ annual means in excess of 60 µg m^{-3}, indicating a potential exceedance of the NO$_2$ hourly mean AQO are shown in bold and underlined.

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

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

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

[d] Data is still provisional.

The 2019 annual mean NO_2 concentrations at automatic monitoring sites overall exhibited a continuation of the decreasing trend observed over the seven-year period between 2013 to 2019; monitoring sites LW1, LW2 and LW4 recorded a lower annual mean concentration in 2019 in comparison to 2018. HP1 became operational during the tail end of 2018, and thus has not historical data to demonstrate a temporal pattern; however, it has an annual mean concentration for 2019 below the annual mean NO_2 AQO of 40 µg m^{-3} (24.1 µg m^{-3}). In 2019, monitoring site LW2 has an annual mean concentration below the AQO for the first time in seven years (37.9 µg m^{-3}). Despite an overall decreasing trend, there was still one exceedance of the AQO at automatic monitoring sites, with site LW4 reporting the highest annual mean concentration of 42.8 µg m^{-3}.

Regarding monitoring by passive diffusion tubes, there were two diffusion tube locations which exceeded the annual mean NO_2 AQO of 40 µg m^{-3} during 2019; a reduction from seven exceedances in 2018. L51 had the highest annual mean concentration at 44.9 µg m^{-3}, with the second exceedance of annual mean AQO occurring at L28 (41.0 µg m^{-3}). Both L51 and L28 exceeded the AQO to a lesser degree than in preceding years. However, both L28 and L51 are not located at relevant exposure, and after distance correction was applied the annual mean concentration falls below 40 µg m^{-3}. Four separate diffusion tube monitoring locations recorded annual mean concentrations below the 40 µg m^{-3} AQO for the first time since 2013. These locations are L16, the triplicate location (tubes L17, L18 and L19), L21 and L23.

There is some variability in temporal patterns over the seven-year period between individual diffusion tube locations. Most monitoring locations demonstrate an overall decreasing trend in annual mean NO_2 concentrations since 2013. 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, albeit with some oscillations. The greatest reduction at the triplicate location occurred between 2017 and 2018. Of the monitoring locations which show an overall rising pattern, three out of four are sites with limited historical data (two years or less) and thus may not accurately represent long-term trends at these locations. The increasing trendline in NO_2 at location L27 from 2015 is due to the site having been re-located to a worst-case location in early 2015. However, NO_2 annual mean concentrations have started to exhibit a downward trend since its relocation. NO_2 annual mean concentrations were lower at most diffusion tube monitoring locations in 2019 in comparison to 2018, except for L2, L7, L13, L15, L34, L38, L43 and L52. These monitoring locations predominately saw fractional increases, with the largest increase of +1.4 µg m^{-3} at L7.

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 2013 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 2013 and 2019, albeit with some deviation from year to year. This fluctuation is most likely to be the result of meteorological influences.

Table E.   NO$_2$ Automatic Monitor Results: Comparison with 1-hour Mean Objective

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2019 % [b]	Number of Hourly Means > 200 µg m^{-3}						
			2013[c]	2014[c]	2015[c]	2016[c]	2017[c]	2018[c]	2019[c]
LW1	99.5	99.5	3	0	0	0	0	0	0
LW2	95.2	95.2	0	0	7	0	0	0	0
LW4	99.6	99.6	**26**	5 (180)[c]	0	9 (184) [c]	4	0	0
HP1	96.8	96.8	-	-	-	-	-	-	0

Notes: Exceedance of the NO$_2$ short term AQO of 200 µg m^{-3} over the permitted 18 days per year are shown in **bold**.
[a] data capture for the monitoring period, in cases where monitoring was only carried out for part of the year
[b] data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)
[c] Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

In 2019, there were no exceedances of the hourly mean NO$_2$ AQO of 200 µg m^{-3} at any of the four 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 >200 µg m^{-3} in the last two years. The urban background monitoring site LW1 has not seen an exceedance of the hourly AQO value of 200 µg m^{-3} since 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). At LW4, also a roadside site, in 2013 there were 26 hours exceeding the hourly NO$_2$ AQO value, therefore the 1-hour mean objective was not achieved. However, LW4 has achieved compliance with the hourly mean AQO ever since, and from 2018 onwards it has not seen any hourly means exceeding 200 µg m^{-3}. As it is a recently commissioned site, HP1 has no temporal trend; however, this site did not record an hourly mean over 200 µg m^{-3} in 2019.

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

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2019 % [b]	Annual Mean Concentration (μg m^{-3})						
			2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]	2018 [c]	2019 [c]
LW2	76	76	23	23 [c]	23	24	22.8	21.2	19.8
LW4	98	98	28	25 [c]	17	26 [c]	20.9	18.6	20.3
HP1	100	100	-	-	-	-	-	-	14.7

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

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

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

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

Three automatic monitoring stations within LBL measure PM$_{10}$. In 2019, all three sites demonstrated annual mean PM$_{10}$ concentrations well below the AQO of 40 μg m^{-3}. For 2019, the highest annual mean concentration was observed at LW4, with a concentration of 20.3 μg m^{-3}. This monitoring site showed an increase in annual mean concentrations from the previous year. Nevertheless, over the entire seven-year period between 2013 and 2019, both LW2 and LW4 showed an overall downward tendency with some fluctuations around the trendline. These variations around the trend are more notable at LW4. Monitoring station HP1 only has annual mean data from 2019, but this value is well below the AQO of 40 μg m^{-3}. The highest recorded annual mean PM$_{10}$ concentration between 2013 and 2019 was 28 μg m^{-3} at LW4 in 2013.

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

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2019 % [b]	Number of Daily Means > 50 µg m^{-3}						
			2013[c]	2014[c]	2015[c]	2016[c]	2017[c]	2018[c]	2019[c]
LW2	75	75	15	14 (38) [c]	8	9	11	4	9
LW4	97	97	19	13 (41) [c]	1	18 (47) [c]	7	1	9
HP1	100	100	-	-	-	-	-	-	7

Notes: Exceedance of the PM$_{10}$ short term AQO of 50 µg m^{-3} over the permitted 35 days per year or where the 90.4th percentile exceeds 50 µg m^{-3} are shown in **bold**.

Where the period of valid data is less than 85% of a full year, the 90.4[th] percentile is shown in brackets after the number of exceedances.

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

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

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

In 2019, LW2 and LW4 saw 9 instances where the 24-hour mean was greater than the AQO value of 50 µg m^{-3}, whereas HP1 saw 7 instances during the year. However, these are well below the 35 permitted, meaning all monitoring stations achieved compliance with the 24-hour mean AQO. There has been an increase in the number of 24-hour means greater than the AQO threshold value in comparison to 2018. The highest recorded number of exceedances of the AQO objective value was 19 days at LW4 in 2013.

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 2019 % [b]	Annual Mean Concentration (µg m^{-3})						
			2013[c]	2014[c]	2015[c]	2016[c]	2017[c]	2018[c]	2019[c]
LW2	88	88	17.6	16.5	15.5	18.9	15.5	15.0	15.0
HP1	100	100	-	-	-	-	-	-	9.9

Notes: Exceedance of the PM$_{2.5}$ annual mean AQO of 25 µg m^{-3} are shown in **bold**.

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

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

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

PM$_{2.5}$ concentrations are monitored at LW2 and HP1 within the LBL. In 2019, both sites achieved annual mean concentrations below the annual mean PM$_{2.5}$ AQO target value of 25 µg m^{-3}. LW2 saw the highest annual mean concentration in 2019 at 15.0 µg m^{-3}. This is the same value as in 2018, showing a stabilisation in PM$_{2.5}$ annual mean concentrations at LW2 since 2017. 15.0 µg m^{-3} is also the lowest annual mean concentration at LW2 since 2013. The annual mean PM$_{2.5}$ concentration has achieved the annual mean PM$_{2.5}$ AQO every year since 2013.

2.   Action to Improve Air Quality

There are two Air Quality Management Areas (AQMAs) declared within the London Borough of Lewisham:
- Lewisham AQMA declared in 2001 for exceedances in annual mean NO_2 and 24-hour mean PM_{10} concentrations; and
- Crofton Park and Honor Oak Park AQMA declared in 2013 for exceedances in annual mean NO_2 concentrations.

A map of the AQMAs can be found in Appendix A, Figure A. 11.

London Borough of Lewisham contains eight Air Quality Focus Areas (AQFAs), which are areas with some of the poorest air quality in Lewisham, and these are the focus of targeted actions to improve air quality. The AQFAs in LBL are:

125. Brockley Cross;

126. Catford Road and Catford Gyratory;

127. Deptford Town Centre;

128. Forest Hill and Perry Vale Junction;

129. St Mildreds Road (A205) from Hither Green Lane to Burnt Ash Hill (A2212);

130. Honor Oak Park junction Brockley Road;

131. Lewisham Loampit Vale and Lewisham High Street;

132. New Cross Gate and New Cross; and

133. Brockley Road (B218) between Adelaide Avenue and Wickham Road.

A map of the focus areas can be found in Appendix A, Figure A. 12.

2.1   Air Quality Action Plan Progress

Table I provides a brief summary of London Borough of Lewisham's progress against the Air Quality Action Plan[2], showing progress made this year. New projects which commenced in 2019 are shown at the bottom of the table.

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[2] London Borough of Lewisham, (2008); *Lewisham Air Quality Action Plan*.

During 2019, LBL has progressed several actions to improve air quality. A key achievement from 2019 was the implementation of school-based projects (e.g. the GLA pan-London idling project, school streets, greening schools and Air Quality Monitoring) and the development of our draft school's air quality plan for consideration by the air quality steering group. The plan outlines the actions that will be taken/are being taken by the Council to improve air quality around schools, under the topics discussed in the document. The final content and context of the plan has not yet been adopted by the steering group.

Additionally, the development and enrolment of the 'Lewisham Air' app was another notable achievement from 2019. King's ERG developed a bespoke phone app for Lewisham that will be used for all residents through the Mayor's air quality campaign, but initially focused in the promotion of air quality and walking routes around schools.

The app is available for download at https://lewisham.gov.uk/myservices/environment/air-pollution/download-our-air-quality-app. The app is made available to all residents as the free 'Lewisham Air' app. This app allows the user to find low pollution routes and show what reduction in exposure is achieved by choosing these routes. It also provides alerts where pollution levels are predicted to be high, with tailored health advice. This app is of particular use to parents and children when looking at routes to and from their home and school.

Key priorities to reduce exposure to poor air quality for the year ahead include:
- There is overwhelming evidence showing the devastating effect air pollution has on human health generally and particularly the most vulnerable including children and those with existing health conditions. Lewisham Council continue to work toward achieving reducing all concentrations of $PM_{2.5}$ to World Health Organisation (WHO) recommended levels by 2030; and
- $PM_{2.5}$ comes from a diverse range of sources, including industry, transport, burning of solid fuels in the home and the use of cleaning products. Therefore, Lewisham Council will be working with charities, other public bodies and businesses to reduce air pollution around venerable receptors such as children and elderly.

New $PM_{2.5}$ Role

The London Borough of Lewisham support 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[3]. Currently $PM_{2.5}$ limit levels in UK are working towards the EU limits which is 25 $\mu g\ m^{-3}$. The World Health Organisation has introduced a target 10 $\mu g\ m^{-3}$ annual mean concentration.

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[3] Defra, (2019); *Air quality: Clean Air Strategy 2019.* Department for Environment, Food & Rural Affairs.

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.

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 are welcome 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[4];
- reduce emissions from biomass burning (including domestic wood burning); construction, with emissions from Non-Road Mobile Machinery; 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[5] and Mayor's Transport Strategy[4].

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. The LBL will be giving consideration to formally adopting the guidelines at a local level and / or outlining its intention to focus on reducing and monitoring this pollutant in our Air Quality Action Plan due for a review before the end of 2020. It is the intention of LBL 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.

If funding opportunities arise for new air quality monitors, priority will be given to $PM_{2.5}$. LBL will soon be commissioning a reference monitor in Deptford that will be measuring $PM_{2.5}$, increasing our $PM_{2.5}$ reference monitoring locations to two. LBL have been monitoring $PM_{2.5}$ on New Cross Road since 2015.

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

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

More actions will be considered to target domestic combustion as the major source of $PM_{2.5}$. Consideration will be given to reassess the tools available to Lewisham Council so that we have greater powers to declare and enforce smoke control areas. Tighter minimum emission standards for burning stoves and ban domestic burning in areas with high $PM_{2.5}$ levels will be considered.

LBL do not yet have new policies, objectives or targets related to $PM_{2.5}$ specifically. However, the combination of actions and policies currently in force, or coming into force, as described in our AQAP will help to bring about a reduction of $PM_{2.5}$ across Lewisham. Some of the actions due for consideration include for example:

- Actions within the Clean Air Act 1993, which enables local authorities to tackle smoke emissions from chimneys of buildings, fixed boilers and industrial plant;
- Prohibiting buildings, like schools and care homes that are designated as sensitive receptors, being built near main roads and motorways. Sensitive receivers can only be built or expanded if the limit values for air quality are not exceeded;
- Installing more $PM_{2.5}$ monitoring around schools and other vulnerable receptors like hospital and care homes; and
- Although a combination of complementary initiatives is key to creating a positive impact in both the short and longer-term $PM_{2.5}$ on-air quality in Lewisham, initiatives with evidence of positive impacts on air quality in the short term such as increasing charging fee, parking and idling enforcement, infrastructures and traffic management should be given priority. LBL will consider the implementation of a new laws that will allow lower parking fees to be charged for vehicles that cause less pollution.

Table I.   Delivery of Air Quality Action Plan Measures

ID	Measure / Category	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
1	Emissions from developments and buildings	Ensuring emissions from construction are minimised	Progress on the production of the draft Local Plan[6], including completion of technical studies, along with preparation of policy proposals. The draft Local Plan (Regulation 18 stage) document was considered by Mayor and Cabinet at a meeting on 11 March 2020. This is scheduled to be considered by a meeting of Council in July 2020,

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[6] London Borough of Lewisham, (2015) *Draft Lewisham Local Plan*.

			where officers are seeking approval to take the plan to formal public consultation in Autumn 2020. These timescales are subject to ongoing review, in the light of the current Coronavirus situation. Adoption of new Lewisham Local Plan by 2022. 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.
2	Emissions from developments and buildings	Ensuring enforcement of Non-Road Mobile Machinery (NRMM) air quality policies	Register of NRMM are 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 2013 construction related PM_{10} & $PM_{2.5}$ emissions Aim to register all major development for NRMM by December 2020. Key benefits include: • NRMM used in construction currently accounts for approximately seven per cent of NO_x 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. 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	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. 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.

		biomass air quality policies)	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 NO_x 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; • Even with abatement equipment fitted standard combustion-based CHP heating systems can produce as much as anywhere from 5 to 170 times the NO_x 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 NO_x emissions" – "new system annual NO_x emissions" = Annual NO_x savings; and • Where waste heat is captured and integrated into a heat network to replace an existing heat source then the NO_x savings will be the total NO_x emissions from the heat source being replaced on the network.
4	Emissions from developments and buildings	Enforcing Air Quality Neutral policies	Progress on the production of the draft 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. 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. • Disseminate Information to support planners in understanding on site mitigation options; • Ensuring conditions and requirements are enforced and monitored; • Agreeing standard planning conditions to require compliance with air quality neutral standards and submission of details prior to occupation for all developments; and

			• Apply Air Quality Positive standards where appropriate (New London Plan) once appropriate guidance is available to do so; • AQN assessments submitted with Major applications. Enforcement via planning process – i.e. via approval of plans discharge of conditions; • Knowledge sharing with planners, so that they can assess basic compliance in cases that are otherwise non-contentious for air quality; and • Log of applications where AQ Neutral/positive conditions applied, and benchmarks achieved Target 100 Key benefits include: • Reinforces the message to developers by reiterating London-wide policies into local guidance documents; • Reduce the contribution to pollution from new development; • Minimise exposure to residents of new developments from the onset; • The Air Quality Consultants report Air Quality Neutral Planning support Update has several case studies which outline the emissions reductions of offsetting amounts that will be realised through adopting air quality policy; and • A large mixed-use development (240,000 m^2) including one gas fired CHP unit and four gas fired boilers is calculated to have total building NO_x emissions of 17.3 tonnes a year. The air quality neutral benchmarks for the development will allow only for NO_x emissions of 8.4 tonnes a year. Some 8.9 tonnes a year of NO_x will therefore be saved through either onsite measures or by off-setting.
5	Emissions from developments and buildings	Ensuring adequate, appropriate, and well-located green space and infrastructure is included in new developments	There have been more than 620 street/community trees added in the last 4 and half years within the borough of Lewisham. Locations and species are available on request:https://lewisham.gov.uk/myservices/environment/trees/how-to-get-new-trees-planted Progress on the production of the draft Local Plan, including completion of technical studies, along with preparation of policy proposals. 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. An Open Spaces Assessment has been prepared, assessing the condition of parks and open spaces across Lewisham. Five strategic sites are, or will in the future, provide significant new open spaces:

			• Convoys Wharf - restored public access to the Thames riverfront; • Surrey Canal Triangle - improved connections and open spaces; • Timber Yard, Oxestalls Road - improved public realm, a new linear park along the former Surrey Canal and a new cycle link under Oxestalls Road; • Plough Way - a completed linear park along the former Surrey Canal; and • Lewisham Gateway - Confluence Place, a new park incorporating the two realigned rivers Quaggy and Ravensbourne. The Council is also working to protect and enhance trees in the borough. 131 street trees were felled but 245 street trees were planted in partnership with Street Trees for Living. 543 tree applications were received and 429 were determined. 10 Tree Preservation Orders (either as individual trees T1 or as a group of trees G1) have also been made. Green infrastructure schemes can transform urban areas and help to provide improved public spaces. Whilst it can be hard to quantify air quality exposure improvements from such schemes it may therefore be useful to consider such schemes as part of the Healthy Streets Approach or to look at the measures of success built into Green Infrastructure proposals.
6	Emissions from developments and buildings	Ensuring that Smoke Control Zones are appropriately identified and fully promoted and enforced	The council continue to raise awareness on Smoke Control Zones and carried out enforcement actions where necessary. A total of 108no Smoke Control Order (2010) complaint were registered by LBL Crime Enforcement and Regulation Team is as follows: • Air Pollution x9 • Bonfire Domestic x61 • Bonfire Commercial x14 • Noxious Odour x12 • Fumes Domestic x4 • Fumes Commercial x7 • Smoke Chimney Domestic x1 64no Enforcement actions were taken across the borough. Reduce emission from conduction activities (Dark smoke) and reduce the number of smoke related compliant by 50% • Estimated reach of awareness campaigns; • Number of suppliers engaged; and

			• Increased enforcement.
			Negative impacts/complaints include:
			• Boroughs could share information about the law change before 2022. This could help encourage early uptake;
			• Research suggests that wet wood fuel contributes far more to particulate emissions than dry wood. Changing consumer habits is the best way to address this issue. An awareness campaign could reap huge benefits;
			• Engaging suppliers helped to make sure they sold/used appropriate fuels. Scientific support enabled the council to use information campaigns to target problem areas; and
			• This is a little understood problem, which is on the increase. Projects promoting smoke control zones produce material which could be very reproducible. Any lessons learned will be applicable to other local authorities where small-scale solid-fuel use is increasing.
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 combination with other energy conservation measures.	As specified in the previous report, in 2018/19 Lewisham Council led a partnership with Bexley, Bromley, Greenwich and Southwark to establish a coordinated 5 borough fuel poverty project, offering practical advice through home visits and events across south east London to over 875 residents with 450 home visits delivered. In March 2020 Lewisham Council adopted a new Climate Emergency Strategic Action Plan, setting out the Council's approach to delivering on the aspiration for the borough to be carbon neutral by 2030. Domestic heating (32%) is the most significant source of carbon emissions. Combined with transport related carbon emissions (26%) these two areas are the source of more than half the measurable emissions in the borough. Delivery of the Action Plan will therefore have significant benefits for air quality. There are 143 actions and 42 asks of Government and other organisations in the Action Plan. Key actions that will deliver benefits on air quality are: • Delivering a carbon neutral corporate estate by 2030 and with a milestone of a 50% reduction by 2025; • Aim for new schools to achieve DEC A and refurbished DEC B; • Achieve a minimum of SAP B across the Lewisham Homes stock; • Delivery of the Council's transport Local Implementation Plan and review the implications of bringing forward targets from 2041 to 2030; and • Deliver a new Climate Emergency Tree planting initiative with the local community. At the end of March 2019, Lewisham Council's fuel poverty advice service had helped over 400 Lewisham residents to access external funding in excess of £600,000 for heating and insulation

upgrades. In 2019/20 Lewisham expanded its fuel poverty advice service with funding from the Mayor of London to cover South London an area with a population of 2.8m and 133,000 households living in fuel poverty based on the latest BEIS figures.

The South London Energy Efficiency Partnership supported 2,281 households across South London until early March 2020 when services were switched to telephone only. 445 of the 2,281 households were in Lewisham.

The Mayor's Better Boilers scheme introduced an ultra-low NO_x requirement for the replacement boilers. This has led to significant NOx reductions as well as saving up to 310 tonnes of CO_2 a year. Since it was created in 2009, RE:NEW has helped improve over 131,000 of London's homes, saving over 47,000 tonnes of CO_2 a year.

This is a fuel poverty advice and referral network operating across South London, an area with a population of 2.8m and 133,000 households living in fuel poverty based on the latest BEIS figures. The partnership was set up with funding from the Mayor of London's Warmer Homes Advice Service, bringing together fuel poverty projects across London boroughs and extending provision to the whole of South London The project seeks to build capacity within local authorities and community organisations, joining up services on the ground to meet the need that exists locally, while at the same time creating a scale that supports efficient and high quality delivery, such as a single phone number and referral process.

In 2019/20 the partnership supported over 2,000 vulnerable South Londoners across each of the 12 local authority areas, with 1,485 home visits completed and 635 residents given one-to-one advice sessions at events.

| 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 in the last financial year and provided advice to the occupants in relation to their specific needs with recommendations to improve thermal efficiency.
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 held on 3 July 2019 and was signed off. The ASR was presented to the DMT for Community Services on 20th June 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. Councillors Brenda Dacres and Sophie McGeevor are Cabinet Members for Environment and Transport (job share). They are all very engaged with the Air Quality work in Lewisham.
8A	Public health and awareness raising	The Council's political leadership will champion the issue of air quality inside and outside of the borough.	Councilor Louise Krupski is the Clean Air Champion for Lewisham Council. Both Cllr Krupski and Councilor Sophie McGeevor (Cabinet Member for Environment and Transport sit in 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,	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

		community groups and healthcare providers). They should be asked for their support via the DPH when projects are being developed.	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 quality responsibilities outlined in their job profile.	Lewisham Health Protection Committee (HPC) is chaired by 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.
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	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.

		actions. Briefing to disseminate amongst transport team.	
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 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 carers. 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 are currently 2,271 downloads. 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
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	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.

		implementation of such a programme.	
17	Public health and awareness raising	Air quality at schools	Public health has been working closely with EP on anti-idling work with the pan-London project on anti-idling project being funded by the Mayor of London. Lewisham was to start anti-idling enforcement. Parking would need to follow up as it is being enforced via Civil Enforcement Officers (CEOs). A Traffic Management Order has been made, so Penalty Charge Notices (PCNs) can be served. School Travel plans are being submitted with AQ activities being monitored and awards will be made to schools that have achieved higher than average AQ actions through the school year. 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 PCN with Code 63 - parked 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 Climate Emergency including air quality was a central theme in Lewisham's successful Borough of Culture Bid for 2021. Unfortunately, due to the COVID19 pandemic this has been delayed by a year.
17A	Public health and awareness raising	Air quality at schools	All schools are 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.

			KPIs:
			• A new Social Value policy at Lewisham, was developed and adopted on the 6 February 2019 which covers these requirements and therefore will be included (where relevant) in each procurement under the relevant KPI for Social Value. The standardised templates will also cross-refer to the policy;
			• Publication of new procurement strategy to include pollution reduction measures by end of 2020;
			• All passenger transport providers' vehicles Euro VI compliant by end of 2021, 50% ULEV end of 2022 rising to 75% by end of 2023;
			• internal fleet to be ULEZ compliant by 2020;
			• Number of contracts with air quality requirements included; and
			• Number of Non-Road Mobile Machinery procured that are compliant with the NRMM Low Emission Zone standards or zero emission.
19	Delivery servicing and freight	Update procurement policies to ensure sustainable logistical measures are implemented (and include requirements for preferentially scoring bidders based on their sustainability criteria).	The Procurement team have been promoting the Social Value Policy and encouraging stakeholders to include in their procurements. Procurement and stakeholders will together monitor whether the social value stipulations may increase costs going forward. KPIs: • Inclusion of Air Quality considerations in updated Procurement Strategy by end of 2020; • Rigorous vehicle standards included within procurement policies; and • Number of contracts with air quality requirements included.
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 NO_x 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.	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. As before this type of traffic restriction is currently difficult to implement in the borough due to the reasons stated before. 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. KPIs: • No. of Loading Bays with electric charging; • Measured reduction in freight vehicles on inner city road network; • Consolidation/last mile delivery schemes in place; Quantified usage and take up of schemes and interventions (such as parcel lockers); and • Percentage increase in Ultra Low Emission Vehicles to undertake deliveries.
23	Borough fleet actions	Increasing the number of hydrogen, electric, hybrid, bio-methane and cleaner vehicles in the borough's fleet.	No change from last year. 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.	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. 75 Euro 6 vehicles on order: 24 refuse vehicles 50 buses 1 tipper 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 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.

		training of fuel-efficient driving and providing regular re-training of staff.	
26	Localised solutions	Improvement and Introduction of green spaces in new developments through the Planning process by conditions and S106 obligations.	• Funds secured through S106 or CIL have been used to improve open spaces at Deptford Park, Folkestone Gardens, Eckington Gardens, Ladywell Fields, Luxmore Gardens and Manor Park; • S106 agreements that have been signed during 2018-19 will contribute: £72,000 for air quality monitoring, £8,000 for allotments, £784,000 for carbon offset, £9,000 for children's play space and £84,000 for play space provision; • The Council has also launched a Greening Fund using pooled S106 contributions to improve open spaces or nature reserves. 32 applications were awarded funding equating to £360,000 and will be used to benefit 35 spaces across the borough; • Furthermore, a range of funding has been used to restore and revitalise Beckenham Place Park, which was opened in July 2019. The historic parkland has been transformed, with improved accessible walking routes, new cycling tracks, a wet woodland area, reedbeds and boardwalks, the planting of 15,000 trees and the lake reinstated (creating the first purpose-built swimming lake in London), pleasure gardens, courtyard and a carriage drive to the Grade II* Mansion House, children's play area, a BMX track, a skate park and a community garden; • Conditions attached to planning applications, S106 funding from new developments and the Greening Fund enable the provision of new open spaces; and • Green infrastructure schemes can transform urban areas and help to provide improved public spaces. Whilst it can be hard to quantify air quality exposure improvements from such schemes it may therefore be useful to consider such schemes as part of the Healthy Streets Approach or to look at the measures of success built into Green Infrastructure proposals.
28	Cleaner transport	Discouraging unnecessary idling by vehicles near schools.	All signs were placed at schools on request. Anti-Idling events were completed. As well as improving safety, initial monitoring suggests that NO_2 levels have reduced by around 25% Improved walking and cycling environment, enhanced commercial environment, and reduced air pollution. KPIs: • Regular meetings and formal processes in place to ensure effective communication; • Transport inputting into AQAPs and AQ inputting on all major transport projects; and • Delivery of ambitious Transport projects which support Healthy Streets, walking and cycling and improved air quality outcomes.

28A	Cleaner transport	Carry out a Council-wide anti-idling campaign discouraging unnecessary idling by idling vehicles	As detailed above, a small-scale study by King's College suggested that concerted idling action campaigns could reduce local concentrations very close to the source of idling vehicles by 20-30 per cent. KPIs: • Number of fine issued for vehicle idling; • Where marketing campaigns are undertaken the effects of these could be tracked, the number of hospitals displaying anti-idling videos for example; and • Monitoring along the lines of the King's Idling Action Days study could be considered.
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; • 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; • Exford 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.	This policy has been incorporated into revised car club terms and conditions.
31	Cleaner transport	Very Important Pedestrian (VIP) Days (e.g. no vehicles on certain roads on a Sunday) and similar initiatives.	School plays streets were run over the summer at 6 schools. A further 35 community play streets were carried out to support Car Free Day in September. As well as the car free events there were the regular road closures for community events organised each year by local residents. Clean Air day was held in June 2019 where schools held play streets after school to support the programme and raise awareness of Clean Air and Car Free Summer. @VZLewisham - Lewisham Vision Zero twitter ran a series of car free Friday tweets suggesting ways of increasing cycle and walking to school. For future actions in 2020 Lewisham is planning to implement School streets at 14 schools subject to funding.
32	Cleaner transport	Free or discounted parking charges at existing parking meters for zero emission cars.	The updated parking policy has emissions-based charges for parking permits (residential, business permits). Key benefits include: • The surcharge should encourage a shift to cleaner vehicles. By encouraging electric vehicles, the borough is also promoting a solution; • It is hard to measure the emissions reduction from parking surcharges directly. However, it is expected that measures such as surcharges for diesel vehicles could lead to a drop in the overall number of higher polluting vehicles in London; and • Assuming 2016 Inner London Fleet levels a 5% shift from diesel cars to petrol cars would result in NOx emissions reductions from cars of 7.2% and PM_{10} emissions reductions from cars of 2.3%. If a

			5% shift occurred from Diesel cars to Electric Vehicles a NO_x emissions reduction from cars of 9.2% would result.
			KPIs:
			• Monitoring parking levels of most polluting vehicles;
			• Proportion of residential permits issued to both most polluting and cleanest vehicles; and
			• Comparison of charges with other boroughs.
33	Cleaner transport	Free or discounted residential parking permits for zero emission cars.	Resident parking permits are now priced based on vehicle emissions.
34	Cleaner transport	Surcharge on diesel vehicles below Euro 6 standards for Resident and Controlled Parking Zone permits.	A £50 surcharge applies to annual resident and business permits where the vehicle does not meet Euro 6 standard or better.
35	Cleaner transport	Installation of residential electric charge points.	In late 2019 the EV team managed to complete the procurement process for the residential charges under the TfL Go Ultra Low City Scheme (GULCS) funding.
			Using the LBL strategy, the team used the EV requests by the public to carry out surveys for potential sites. Due to the limited GULCS budget, potential sites were narrowed down to maximise coverage for residents and an area.
			In the LBL strategy, 500m radius inclusion for Controlled Parking (CP) was used as a measure to cover Lewisham with CP. This ensure was used with overlapping of resident requests.
			In this regard 40+ streets were evaluated for potential sites. 25 streets were chosen and surveyed by contractor for final suitability. 40 EV bollards will be installed on these locations early 2020.
			Work could be tracked by:
			• Monitoring proportion of electric vehicles registered by residents in the borough;
			• Monitoring proportion of lampposts or equivalent infrastructure which have been modified to enable EV charging;
			• The number of rapid chargers installed; and
			• Monitoring the usage of existing EV charges from the CPs.
			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 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. Having a policy which allows for further growth in EV charging points when a certain number of electric vehicles are registered in an area allows for continued growth of the new technology. An app-based booking system allows users to see other nearby charging stations should one already be in use upon arrival. Assuming 2016 Inner London Fleet levels, if a five per cent shift occurred from diesel cars to electric cars this would result in an emission reduction across the whole fleet of 4.2 per cent for NO_x and 1.7 per cent for PM_{10}. A 5 per cent shift to electric vehicles from both each of Diesel cars and Diesel LGVs would result in 9.9 per cent reduction in NO_x emissions and 3.7 per cent for PM_{10}. Work could be tracked by: • Monitoring proportion of electric vehicles registered by residents in the borough; • Monitoring proportion of lampposts or equivalent infrastructure which have been modified to enable EV charging; and • The number of rapid chargers installed
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).	2019/early 2020: 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 have frozen 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.
37	Cleaner transport	Reprioritisation of road space; reducing parking at some destinations and/or restricting parking on congested high streets and A-roads	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.

		to improve bus journey times, cycling experience, and reduce emissions caused by congested traffic.	
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 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 NO_X 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.	See ID 38 & 40.
40	Cleaner transport	Increasing cycle parking.	98 bike hangars installed across the borough with at least one hangar in every ward. Sheffield stands are being installed in August 2020 at all stations in the borough to meet demand. 67 extra bike hangars added in 2019 equating to 402 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 NO_x/PM emissions.
41	GLA AQ Focus Area 127 & parts of 132 Cleaner Transport	Development of a Zonal Construction Logistic Framework for the Evelyn Street Corridor.	King's College London has continued to provide air quality monitoring and management aspect to support the project. The future of the project is in jeopardy due the implication of the pandemic on funding from TFL.
43	GLA AQ Focus Area 130 & 133	Road Layout changes along the Crofton Park area of the Brockley corridor.	Crofton Park Station (Brockley Road corridor) improvements Phase 1 was in full construction phase, starting in August 2019. The construction programme included drainage/kerbs works, footway widening, c/w & f/w resurfacing, traffic calming, cycle crossing, street lightening and public realm improvements including new highway trees, immediately outside Crofton Park Station. Planned future action: Phase 1 works were substantially completed in Jan 2020 – Phases (2 & 3) of corridor improvements will be subject to TfL funding – these new phases will extend measures along Brockley Road on both ends of Crofton Park Station. Negative impacts/complaints: • Minor complaints about traffic queues during some stages of construction but nothing noteworthy. The generally perception of improvements was welcomed – via social media and local resident messages to the Council.
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.
45	GLA AQ Focus Area 127	Liveable Neighbourhood Scheme 'Deptford Parks'.	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 NO_x/PM emissions. Negative impacts/complaints: Issues raised by Francis Drake School regarding Scawen Road and teacher parking
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 will be implemented in the Deptford High Street.
48	Traffic reduction programme	Healthy Neighbourhood Cell 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 will be 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.

3. Planning Update and Other New Sources of Emissions

Table J.   Planning requirements met by planning applications in Lewisham in 2019

Condition	Number	Notes
Number of planning applications where an air quality impact assessment was reviewed for air quality impacts	8	Reviewed by EP Team as part of the planning consultation.
Number of planning applications required to monitor for construction dust	32	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	1	Assessment included as part of AQ planning submission.
Number of developments required to install Ultra-Low NO$_x$ boilers	Nil	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	1	
Number of planning applications with S106 agreements including other requirements to improve air quality	1	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 at www.nrmm.london and that all NRMM used on-site is compliant with Stage IIIB of the Directive and/or exemptions to the policy.	N/A	
NRMM: Greater London (excluding Central Activity Zone and Canary Wharf) Number of conditions related to NRMM included.	9 sites identified NRMM requirements for the development within their	Proposals for 2020, to provide condition for all

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.	Air Quality Assessment as part of the planning decision. Conditions haven't always been introduced. As indicated in the Action Plan Progress Table, the CEMPs has also been used to identify the need. Cleaner Construction for London on behalf of London borough of Merton undertook 7 site audit(s) in the London Borough of Lewisham.2 site(s) achieved Self-Compliant status, 4 site(s) worked towards and achieved Compliance and 1 site(s) failed and were recorded as non-Compliant. The relevant report has been appended to this report.	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.

The following extract from the Non-Road Mobile Machinery (NRMM) End of Financial Year Report by Merton for Lewisham (April 2019 – March 2020) shows NRMM compliance status of ongoing developments. Total compliance status is compliant and Self-Compliant combined, the London Borough Lewisham achieved a Total Compliance status of 86%, which as increase from78% in 2018.

Compliance Status

- Self-Compliant
- Compliant
- Non-Compliant

57%
29%
14%

Reasons for Non-Compliance

- Emission Standard not met
- Can't evidence Compliance
- Non Registration
- Passive Decline
- Active Decline

100%

Site Status Count

**Self-Compliant	2
*Compliant	4
Non-Compliant	1
Not Cold Engaged	6
***Cold Engaged	1
Non-Registration	1
No NRMM	0
Site Complete	0
Total Audits	7

Cold Engagement Status

- Not Cold Engaged
- Cold Engaged

14%
86%

🟥	Declined Audit
🟪	Admin Failure

Years	Months	Date	Site Reference	Zone	Cold Engaged	Reason for Site Non-Compliance	Compliant	Non-compliant	Self-compliant
2019	May	03-May	Tymberyard	GL	No	Na	1		
	Jul	08-Jul	Deptford Church Street	GL	No	Na	1		
	Oct	17-Oct	Anthology Deptford Foundry	CAZ	No	Na			1
		24-Oct	Earl Pumping Station (EARPS)	GL	No	Na	1		
	Nov	15-Nov	Lewisham Exchange	GL	No	Na			1
			Lewisham High Street	GL	yes	Non-Registration		1	
2020	Jan	31-Jan	St Dunstan's College	GL	No	Na	1		

Borough breakdown

Cleaner Construction for London undertook 7 site audit(s) in the London Borough of Lewisham.

2 site(s) achieved Self-Compliant status, 4 site(s) worked towards and achieved Compliance and 1 site(s) failed and were recorded as non-Compliant.

14% of sites audited were cold engaged and therefore not registered prior to auditing.

100% of Non-compliance is due to sites not using the online NRMM London Register, even though all their machinery is of the stage required by the Mayor's SPG.

Table K.   Local Implementation Plan Projects in Air Quality Focus Areas in 2019.

1	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	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
3	Brockley Cross	Rail Strategy inc Overground proposals	B218 Corridor Study	New EVCP Sites	New 20mph limits		
4	Honor Oak Park	New speed camera at Stondon Park Junction(implemented) *	B218 Corridor Study	New EVCP Sites	New 20mph limits		
5	Loampit Vale & L.High St	Bakerloo Line Extension (Consultation)	Quietway 2 (in design)	New EVCP Sites	New 20mph limits		
6	Catford Road	Major regeneration programme, including A205 alignment (feasibility)	Quietway 2 (in design)	New EVCP Sites	New 20mph limits		
7	A205 Brownhill Road	A205 Brownhill Road Corridor improvements * (in design)	New EVCP Sites	New 20mph limits			
8	Forest Hill	A205 jw Devonshire Rd minor junction improvement (implemented)	Dartmouth Road streetscape improvements (inc 20mph measures) *	New EVCP Sites	New 20mph limits	Air Quality Assessment commissioned with recommendations. Report in late Spring 2017	
9	Deptford Parks – Liveability Neighbourhoods	Streets in North Deptford will see reduced traffic owing to new restrictions. Walking and cycling will be transformed by a new north-south traffic-free route along the former Grand Surrey Canal, new Copenhagen crossings, cycle parking and street lighting. New cycle routes through the park will also link to the proposed new Bakerloo line station (New Cross Gate).					

3.1   New or significantly changed industrial or other sources
No new sources identified.

Appendix A   Details of Monitoring Site 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.

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.

Gradko participate 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 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 AR030 (January 2019-February 2019) and 100% for all tests in AIR-PT Rounds AR031-AR034 (March 2019-November 2019).

National Bias Adjustment Factor

The national bias adjustment factor for 2019 is available from the Defra website[7]. 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 2019 is 0.89, based on 29 studies. Details are shown in Figure A. 1 below.

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[7] Diffusion tube bias adjustment spreadsheet June 2020, 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: 06/20			

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 September 2020

LAQM Helpdesk Website

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

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

Step 1:	Step 2:	Step 3:	Step 4:								
Select the Laboratory that Analyses Your Tubes from the Drop-Down List	Select a Preparation Method from the Drop-Down List	Select a Year from the Drop-Down List	Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in blue at the foot of the final column.								
If a laboratory is not shown, we have no data for this laboratory.	If a preparation method is not shown, we have no data for this method at this laboratory.	If a year is not shown, we have no data[2]	If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953								

Analysed By[1]	Method	Year[2]	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) ($\mu g/m^3$)	Automatic Monitor Mean Conc. (Cm) ($\mu g/m^3$)	Bias (B)	Tube Precision[6]	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	50% TEA in acetone	2019	R	City of London	12	74	71	4.1%	G	0.96
Gradko	50% TEA in acetone	2019	UB	City of London	12	37	33	14.3%	G	0.88
Gradko	50% TEA in acetone	2019	KS	Marylebone Road Intercomparison	12	83	65	26.3%	G	0.79
Gradko	50% TEA in acetone	2019	R	London Borough of Richmond upon Thames	12	46	35	30.4%	G	0.77
Gradko	50% TEA in acetone	2019	R	London Borough of Richmond upon Thames	12	29	27	7.1%	G	0.93
Gradko	50% TEA in acetone	2019	B	London Borough of Richmond upon Thames	11	21	21	1.0%	G	0.99
Gradko	50% TEA in acetone	2019	UB	Falkirk Council	9	18	15	18.1%	G	0.85
Gradko	50% TEA in acetone	2019	R	LB Newham	12	35	30	16.2%	G	0.86
Gradko	50% TEA in acetone	2019	UB	Middlesbrough	12	20	16	22.4%	G	0.82
Gradko	50% TEA in acetone	2019	UB	Norwich City Council	12	14	13	7.6%	G	0.93
Gradko	50% TEA in acetone	2019	R	RBWM	12	34	32	5.8%	G	0.95
Gradko	50% TEA in acetone	2019	R	RBWM	12	38	35	6.6%	G	0.94
Gradko	50% TEA in acetone	2019	UB	Bureau Veritas	11	38	32	21.6%	G	0.82
Gradko	50% TEA in acetone	2019	KS	Croydon	11	50	43	16.2%	G	0.86
Gradko	50% TEA in acetone	2019	R	Croydon	11	53	44	20.5%	G	0.83
Gradko	50% TEA in acetone	2019	SU	Greenwich	12	20	17	17.0%	G	0.85
Gradko	50% TEA in acetone	2019	R	Greenwich	12	60	53	14.3%	G	0.87
Gradko	50% TEA in acetone	2019	R	Greenwich	12	44	36	24.6%	G	0.80
Gradko	50% TEA in acetone	2019	R	Greenwich	12	41	39	5.8%	G	0.95
Gradko	50% TEA in acetone	2019	R	Greenwich	12	37	34	10.8%	G	0.90
Gradko	50% TEA in acetone	2019	R	Greenwich	12	33	33	0.1%	G	1.00
Gradko	50% TEA in acetone	2019	R	Greenwich	12	36	33	9.8%	G	0.91
Gradko	50% TEA in acetone	2019	R	Hammersmith and Fulham	11	57	58	-2.3%	G	1.02
Gradko	50% TEA in acetone	2019	R	Newham	12	35	30	16.3%	G	0.86
Gradko	50% TEA in acetone	2019	UB	Royal Borough of Kensington and Chelsea	12	27	27	-2.2%	G	1.02
Gradko	50% TEA in acetone	2019	R	Sandwell MBC	10	40	33	20.9%	G	0.83
Gradko	50% TEA in acetone	2019	UB	Sandwell MBC	11	17	15	10.5%	S	0.91
Gradko	50% TEA in acetone	2019	UB	Sandwell MBC	12	25	22	18.2%	S	0.85
Gradko	50% TEA in acetone	2019	R	Sandwell MBC	12	30	30	0.5%	S	1.00
Gradko	50% TEA in acetone	2019		**Overall Factor[3] [29 studies]**				**Use**		0.89

Factor from Local Co-location Studies (if available)

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[8]. The local bias adjustment factor for 2019 at LW2 is 0.91. Figure A. 2 below shows the calculation.

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

Figure A. 2 Local bias adjustment factor
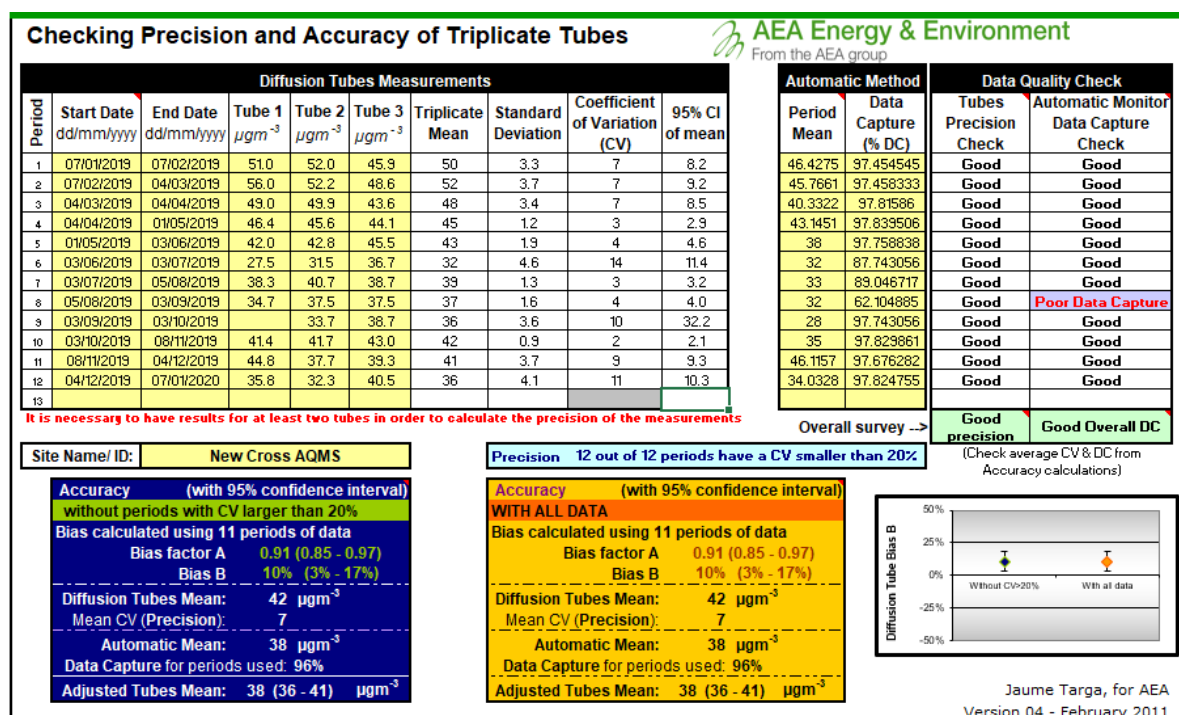
Discussion of Choice of Factor to Use

The local bias adjustment factor was chosen in this ASR, on the basis that it is higher than the national bias adjustment factor. This is to ensure a more conservative approach in reporting annual mean NO_2 concentrations. In the past seven years, it has typically been the national bias adjustment factor that has been used. 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 2019

Year	Local Factor	National Factor	Factor Used
2013	0.93	1.00	National
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

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. Data capture at all monitoring sites was greater than 75%, thus annualisation was not required.

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).

Prior to distance correction, there are two diffusion tube locations would exceed the annual mean NO_2 AQO of 40 µgm^{-3}; L28 and L51. The highest monitored NO2 concentration was 44.9 µgm^{-3} at L51. After distance correction was applied, no diffusion tube monitoring locations are estimated to exceed the annual mean NO_2 AQO. Annual mean NO2 concentrations at the nearest relevant exposure to sites L28 and L51 are estimated to be 32.2 µgm^{-3} and 35.2 µgm^{-3} respectively, thus achieving the AQO.

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 µgm^{-3}) and AQO (ST) is the short-term Air Quality Objective (60 µgm^{-3}).

Figure A. 3 Trend in NO$_2$ concentration at roadside diffusion tube locations (1)
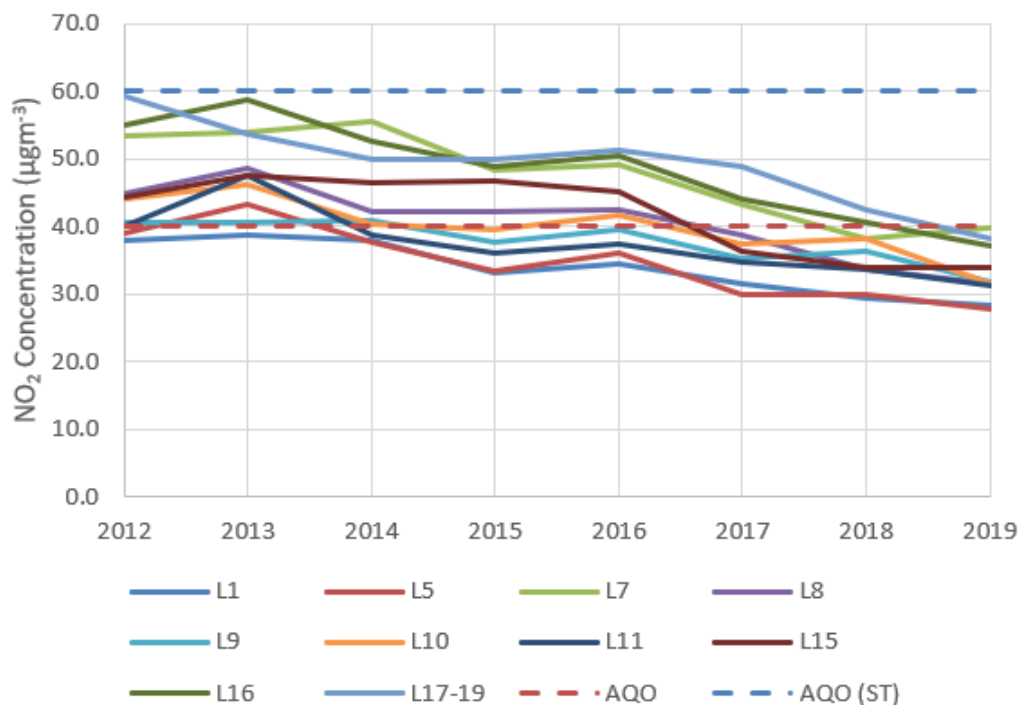
Note: AQO (ST) = 60 µgm^{-3}. Diffusion tubes cannot be used to directly compare against the 1-hour mean NO_2 objective. However, LLAQM.TG19 states that at locations where annual mean NO_2 concentrations of greater than 60 µgm^{-3} are monitored the 1-hour mean NO_2 objective is likely to be exceeded.

Figure A. 4 Trend in NO₂ concentration at roadside diffusion tube locations (2)
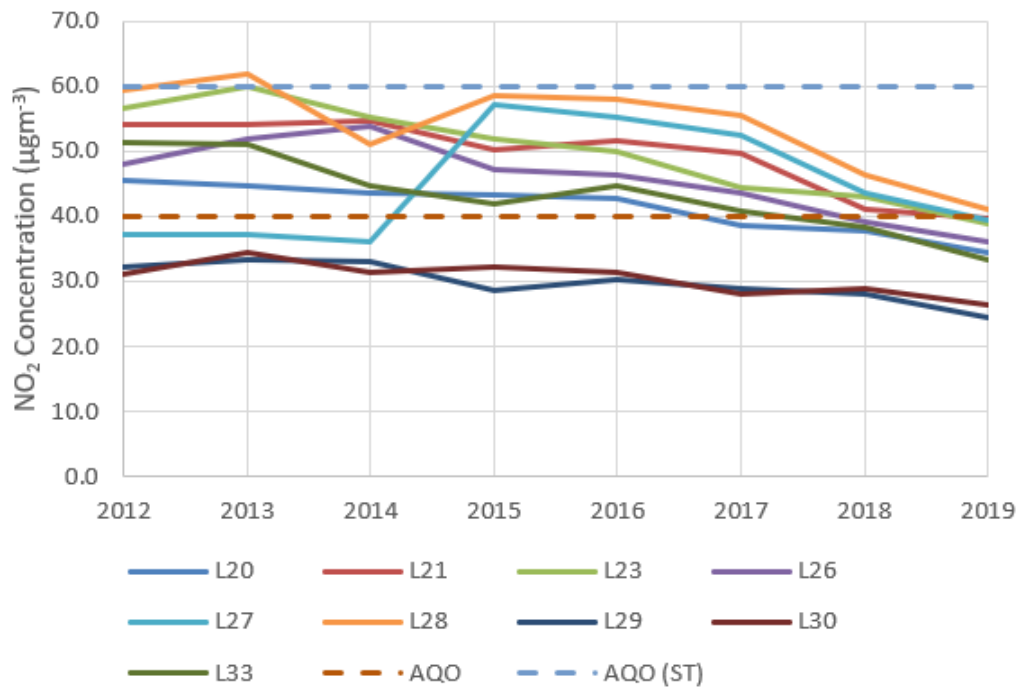
Note: AQO (ST) = 60 µgm⁻³. Diffusion tubes cannot be used to directly compare against the 1-hour mean NO₂ objective. However, LLAQM.TG19 states that at locations where annual mean NO₂ concentrations of greater than 60 µgm⁻³ are monitored the 1-hour mean NO₂ objective is likely to be exceeded.

Figure A. 5 Trend in NO₂ concentration at roadside diffusion tube locations (3)

Note: AQO (ST) = 60 µgm⁻³. Diffusion tubes cannot be used to directly compare against the 1-hour mean NO₂ objective. However, LLAQM.TG19 states that at locations where annual mean NO₂ concentrations of greater than 60 µgm⁻³ are monitored the 1-hour mean NO₂ objective is likely to be exceeded.

Figure A. 6 Trend in NO₂ concentrations at urban background diffusion tube locations (1)

Note: AQO (ST) = 60 μgm^{-3}. Diffusion tubes cannot be used to directly compare against the 1-hour mean NO₂ objective. However, LLAQM.TG19 states that at locations where annual mean NO₂ concentrations of greater than 60 μgm^{-3} are monitored the 1-hour mean NO₂ objective is likely to be exceeded.

Figure A. 7 Trend in NO₂ concentrations at urban background diffusion tube locations (2)

Note: AQO (ST) = 60 μgm^{-3}. Diffusion tubes cannot be used to directly compare against the 1-hour mean NO₂ objective. However, LLAQM.TG19 states that at locations where annual mean NO₂ concentrations of greater than 60 μgm^{-3} are monitored the 1-hour mean NO₂ objective is likely to be exceeded.

Figure A. 8 Trend in NO₂ concentrations at automatic monitoring stations, roadside and urban background diffusion tube locations (averaged)
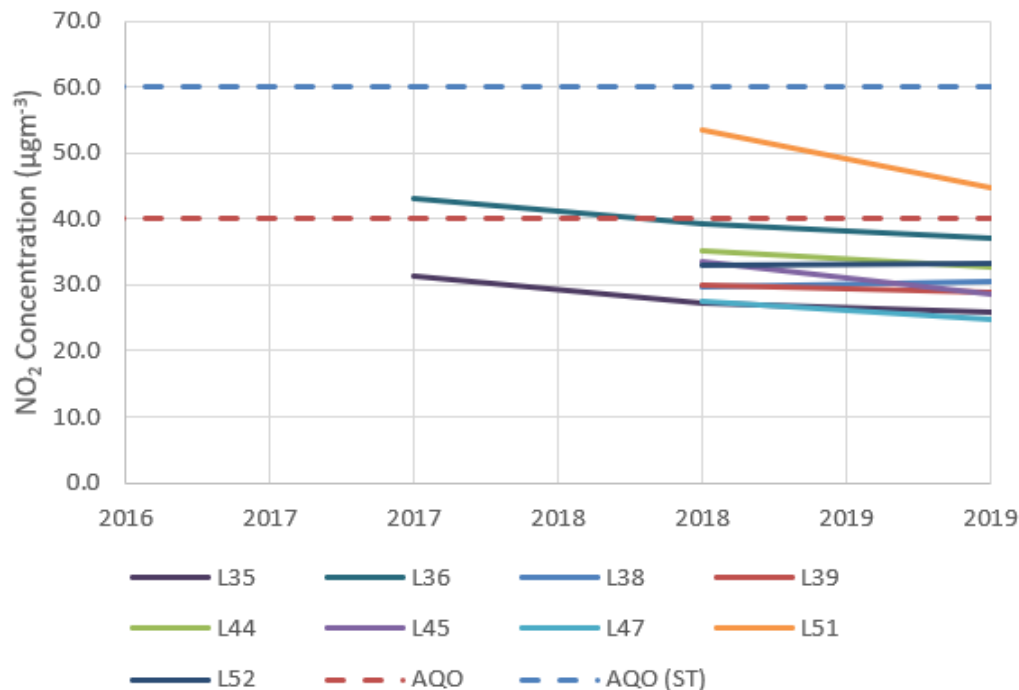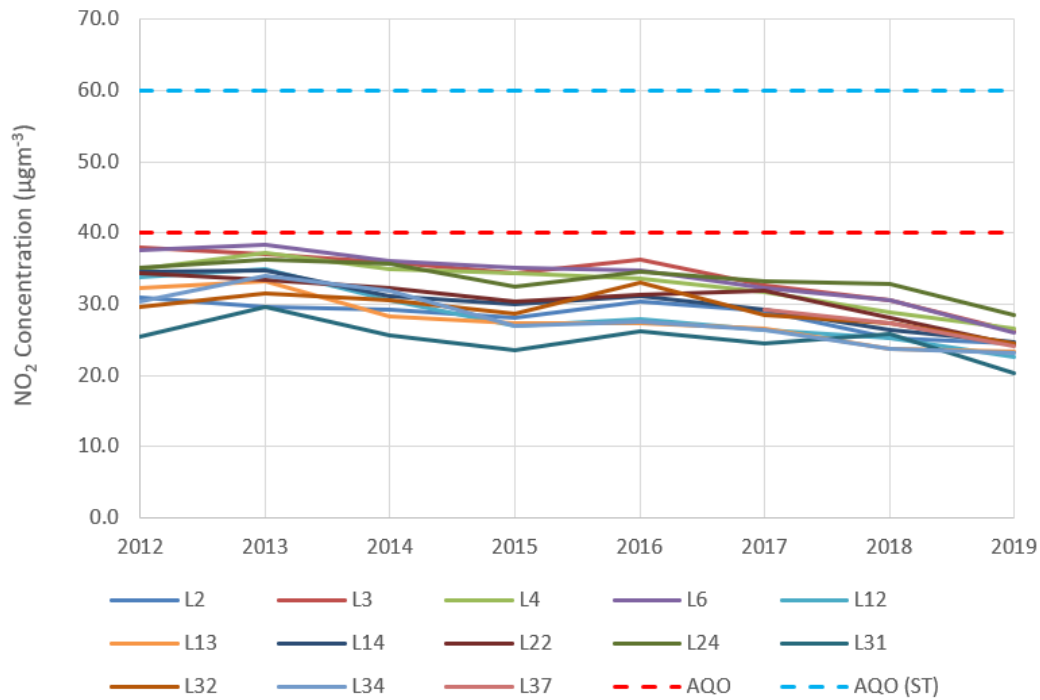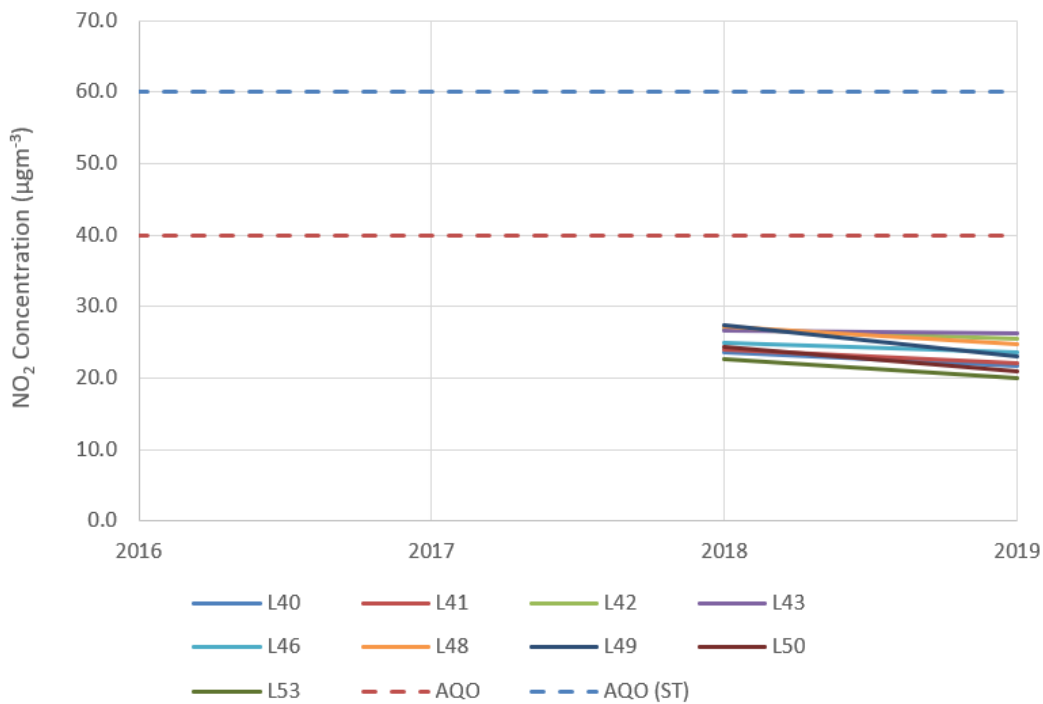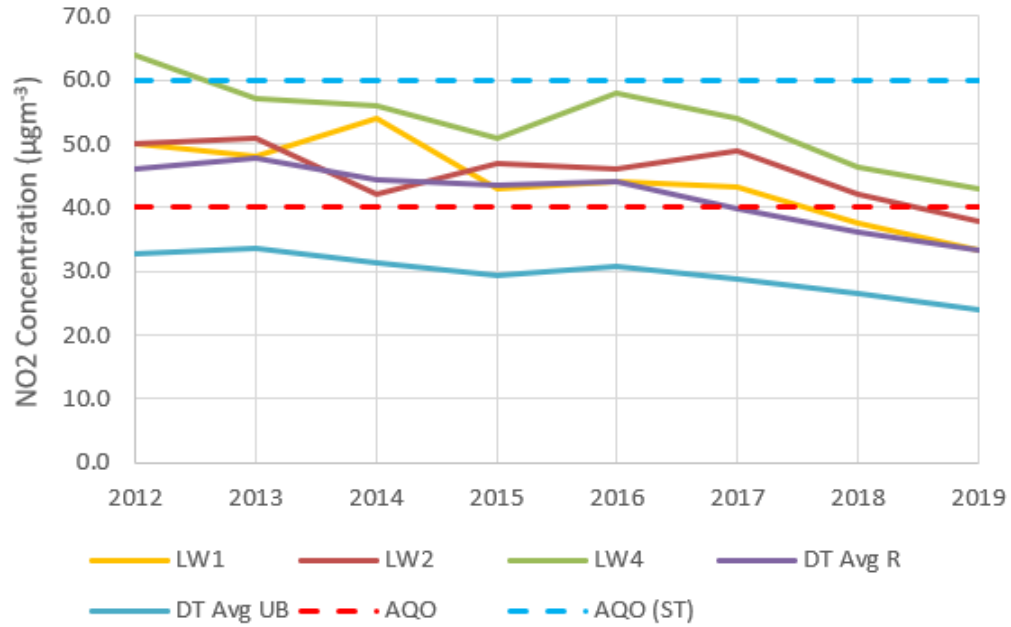

Note: AQO (ST) = 60 μgm⁻³. Diffusion tubes cannot be used to directly compare against the 1-hour mean NO₂ objective. However, LLAQM.TG19 states that at locations where annual mean NO₂ concentrations of greater than 60 μgm⁻³ are monitored the 1-hour mean NO₂ objective is likely to be exceeded.

Figure A. 9 London Borough of Lewisham 2019 Diffusion Tube Network (North)

Figure A. 10 London Borough of Lewisham 2019 Diffusion Tube Network (South)
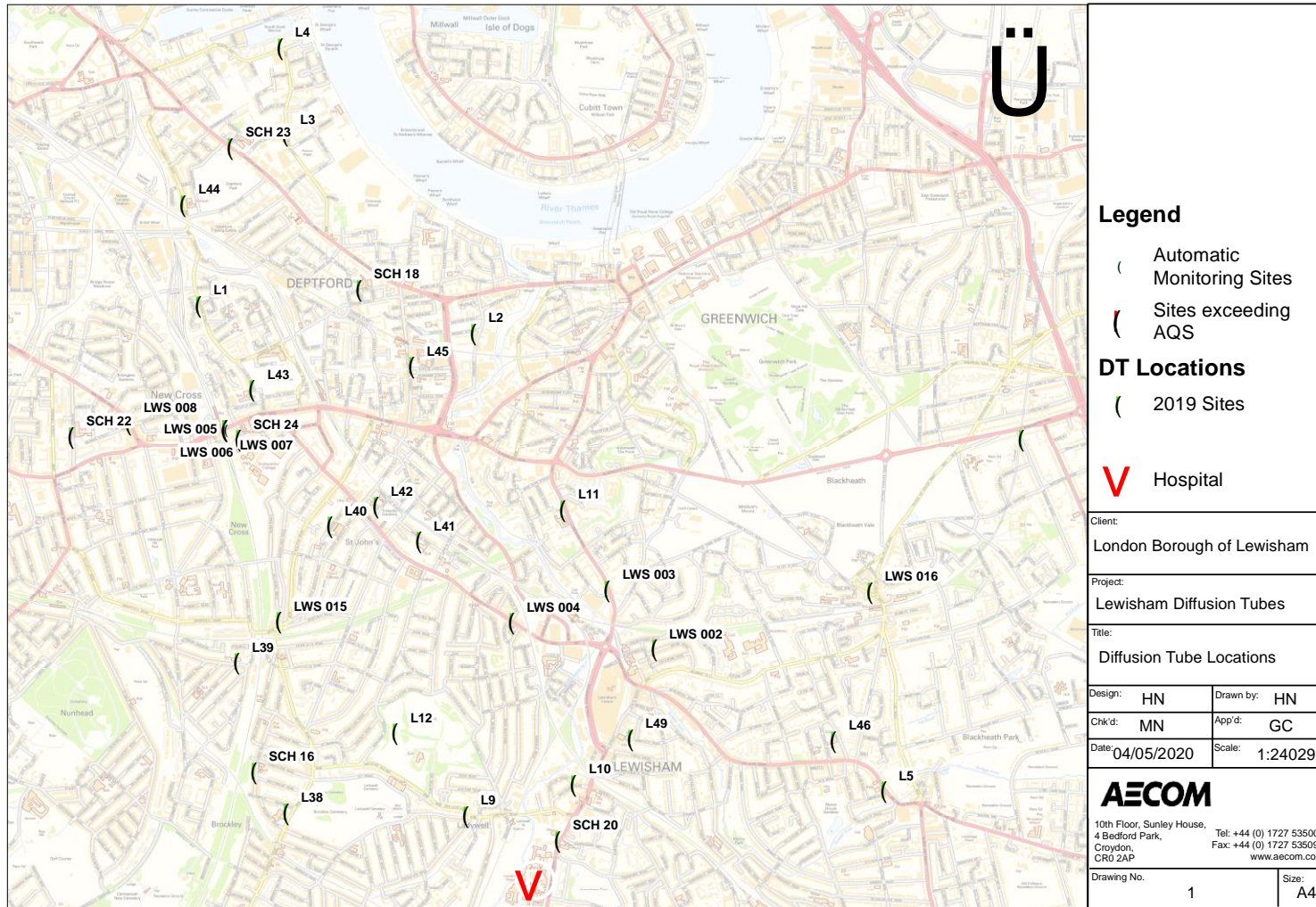
Legend

(Automatic Monitoring Sites

(Sites exceeding AQS

DT Locations

(2019 Sites

V   Hospital

Client:
London Borough of Lewisham

Project:
Lewisham Diffusion Tubes

Title:
Diffusion Tube Locations

Design:	HN	Drawn by:	HN
Chk'd:	MN	App'd:	GC
Date: 04/05/2020		Scale:	1:28834

AECOM

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Croydon,
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Fax: +44 (0) 1727 535099
www.aecom.com

Drawing No.		Size:
1		A4

Figure A. 11 Air Quality Management Areas in London Borough of Lewisham

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

Appendix B   Full Monthly Diffusion Tube Results for 2019

Table M.   NO₂ Diffusion Tube Results

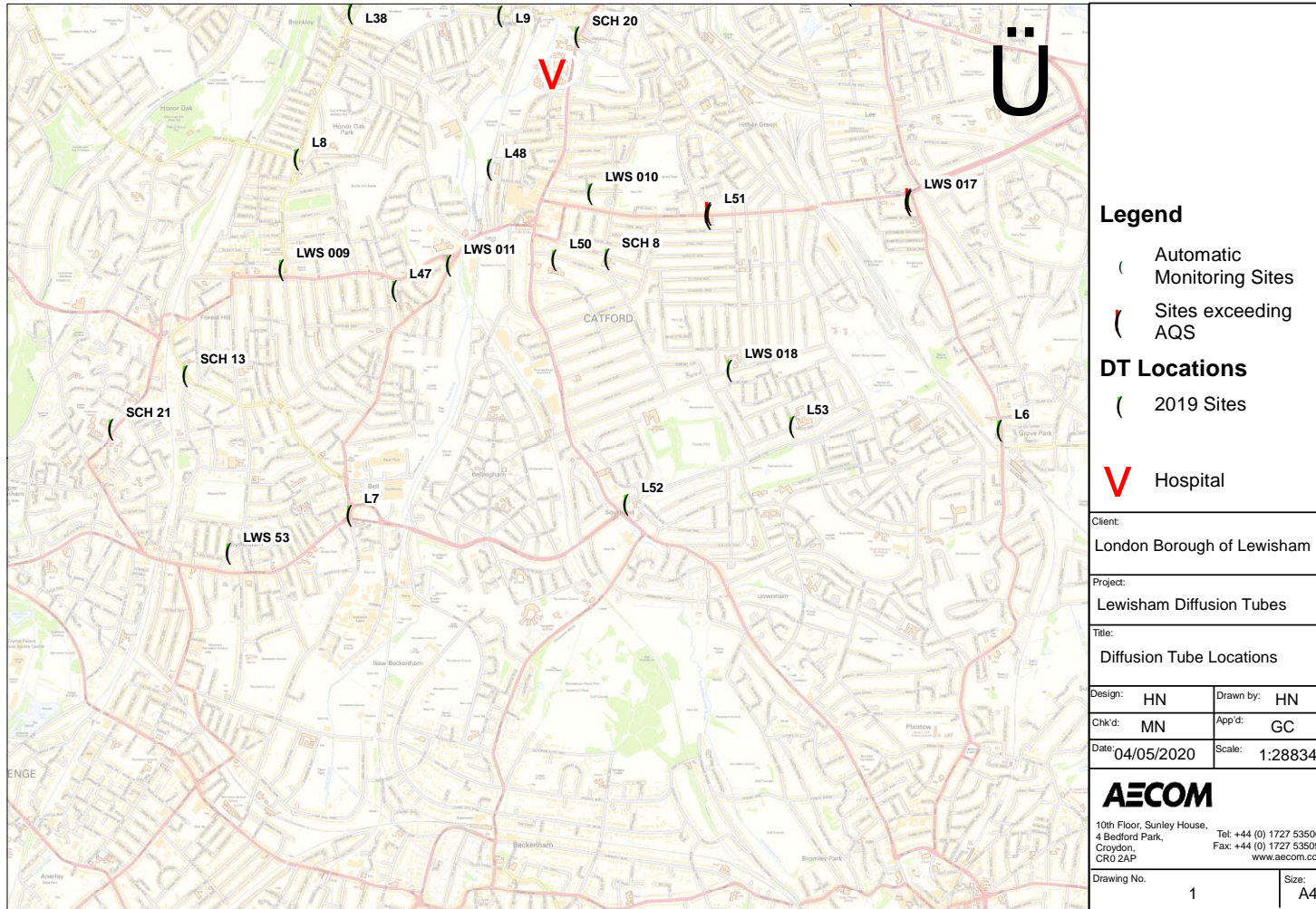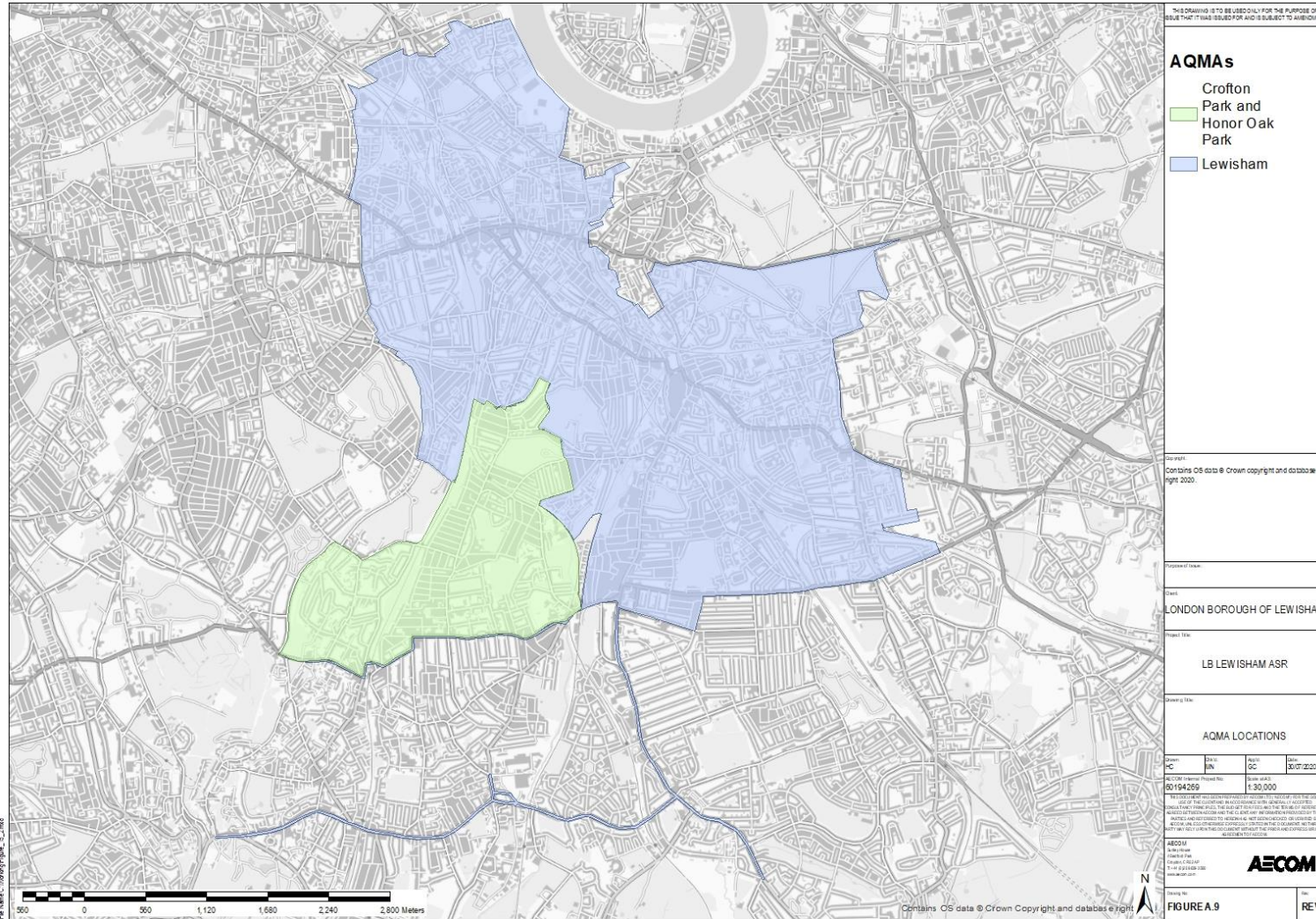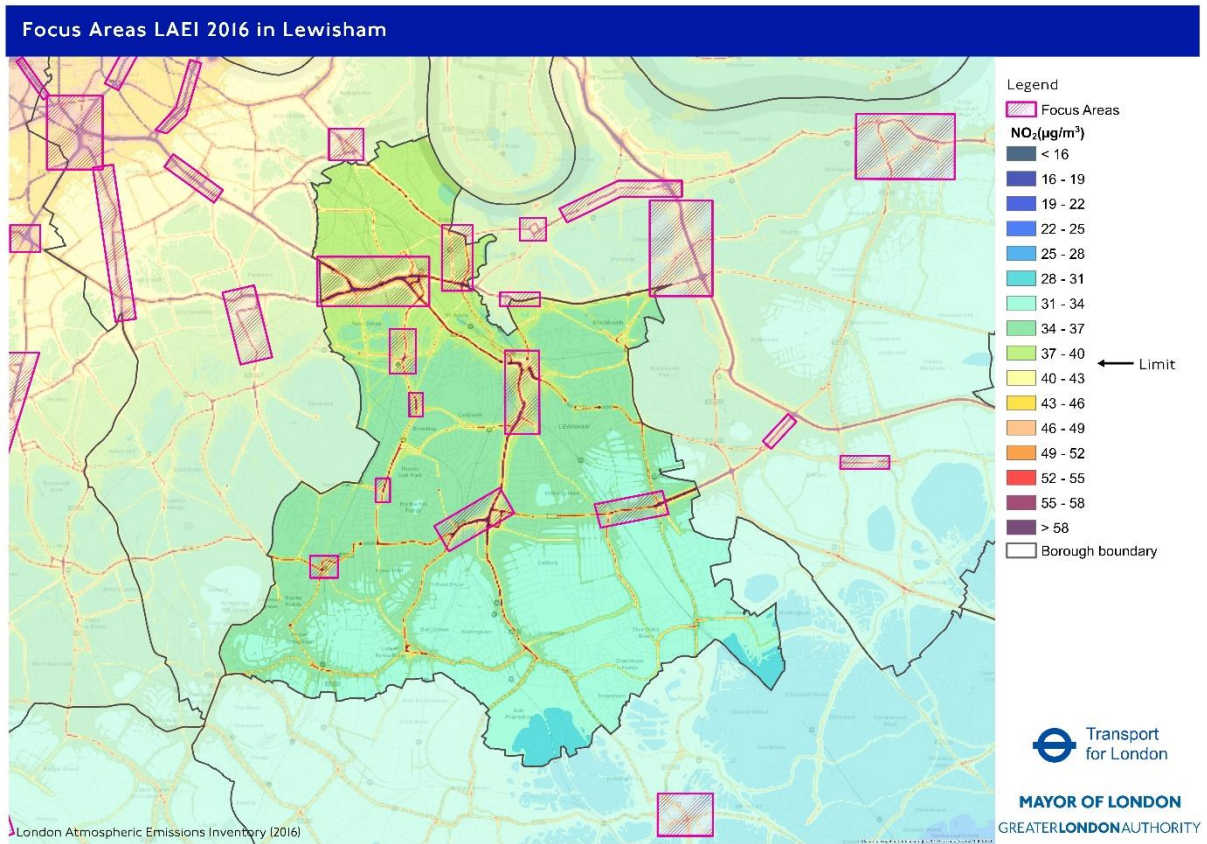| Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2019 % [b]	Annual Mean NO₂													
			Jan	Feb	March	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual mean – raw data [c]	Annual mean – bias adjusted [c]
L1	100	100	38.3	**40.1**	28.1	32.0	26.2	23.1	25.8	27.6	28.9	35.1	37.1	29.9	31.0	28.2
L2	92	92	33.6	**42.2**	29.7	32.0	23.9	18.0	22.5	22.6	24.1	-	33.3	28.2	28.2	25.7
L3	100	100	**41.5**	**44.8**	23.3	31.3	25.5	23.1	22.5	24.5	25.4	34.3	35.3	30.2	30.1	27.4
L4	100	100	37.3	**46.8**	28.0	32.9	24.1	20.3	23.2	26.2	29.1	30.2	**40.4**	26.9	30.5	27.7
L5	100	100	36.8	38.5	24.6	**41.1**	29.0	27.2	25.6	22.0	27.1	30.5	38.8	24.3	30.4	27.7
L6	100	100	37.3	**43.7**	29.7	32.6	19.4	25.0	24.8	26.9	23.4	27.6	37.9	30.6	29.9	27.2
L7	100	100	**47.3**	**52.1**	**44.5**	**51.1**	**45.4**	38.2	39.0	35.0	39.4	**46.3**	**42.6**	**41.6**	**43.5**	39.6
L8	100	100	39.1	**40.9**	33.8	**44.7**	34.2	30.0	30.0	27.6	30.3	36.6	36.7	31.5	34.6	31.5
L9	100	100	35.0	**48.8**	31.8	**44.4**	32.9	32.0	29.5	25.7	31.1	36.0	**42.9**	30.3	35.0	31.9
L10	100	100	**43.3**	**45.1**	32.1	**45.1**	30.8	31.3	30.5	24.8	30.0	31.3	39.5	29.7	34.5	31.4
L11	92	92	38.3	**41.9**	30.1	**42.2**	31.1	27.2	28.6	24.8	-	37.7	**44.0**	31.0	34.3	31.2
L12	100	100	31.4	39.3	24.4	29.3	21.0	18.9	17.1	18.2	21.5	28.2	33.9	29.5	26.1	23.7
L13	92	92	38.2	38.5	28.5	29.8	23.5	17.7	16.9	17.6	22.7	-	33.8	28.6	26.9	24.4
L14	100	100	38.3	**46.2**	29.8	21.8	23.2	17.4	18.3	24.2	23.0	29.0	33.9	34.7	28.3	25.8
L15	100	100	**42.8**	**49.8**	35.4	**41.9**	36.7	30.1	31.7	32.6	34.0	36.2	**43.0**	34.1	37.4	34.0
L16	100	100	**44.2**	**48.7**	**43.0**	**56.1**	39.9	30.4	35.3	30.7	37.2	**45.6**	**45.6**	31.5	**40.7**	37.0
L17	92	92	**51.0**	**56.0**	**49.0**	**46.4**	**42.0**	27.5	38.3	34.7	-	**41.4**	**44.8**	35.8	**42.5**	38.6
L18	100	100	**52.0**	**52.2**	**49.9**	**45.6**	**42.8**	31.5	**40.7**	37.5	33.7	**41.7**	37.7	32.3	**41.5**	37.7
L19	100	100	**45.9**	**48.6**	**43.6**	**44.1**	**45.5**	36.7	38.7	37.5	38.7	**43.0**	39.3	**40.5**	**41.8**	38.1
L20	83	83	**51.3**	**53.6**	35.3	-	31.5	27.1	-	31.4	33.0	37.7	**42.9**	33.4	37.7	34.3
L21	100	100	**53.3**	**58.6**	**48.0**	36.9	**46.5**	34.3	**40.2**	38.8	39.9	**43.6**	**44.7**	39.9	**43.7**	39.8

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2019 % [b]	Annual Mean NO$_2$												Annual mean – raw data [c]	Annual mean – bias adjusted [c]
			Jan	Feb	March	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec		
L22	100	100	39.1	**45.4**	26.2	28.4	19.2	18.1	18.2	23.6	21.9	30.1	34.0	31.4	28.0	25.5
L23	100	100	**51.1**	**53.3**	**41.2**	**52.3**	32.5	37.6	**41.3**	39.8	36.3	**40.8**	**44.0**	**40.4**	**42.6**	38.7
L24	100	100	**42.2**	**46.1**	31.7	33.1	24.0	27.3	27.0	26.5	29.3	32.4	**40.7**	33.3	32.8	29.9
L26	100	100	**45.7**	**53.0**	36.9	**47.2**	37.3	30.1	34.1	34.5	37.4	35.0	**43.0**	**40.2**	39.5	36.0
L27	100	100	**53.4**	**56.9**	**44.6**	**42.7**	37.8	34.9	39.4	37.2	**41.3**	**46.4**	**46.3**	39.7	**43.4**	39.5
L28	100	100	**52.9**	**52.3**	**44.2**	**43.0**	**47.8**	34.7	**43.3**	**41.2**	**43.6**	**44.6**	**48.6**	**45.1**	**45.1**	**41.0**
L29	100	100	30.5	**40.7**	19.4	33.7	24.0	21.6	18.8	18.8	22.2	26.1	37.6	28.9	26.8	24.4
L30	100	100	37.1	35.9	27.4	31.8	25.6	22.1	21.8	20.8	25.6	32.2	38.3	28.1	28.9	26.3
L31	100	100	33.3	33.2	23.8	27.7	19.0	18.0	17.0	15.4	19.3	12.7	35.2	24.7	23.3	21.2
L32	100	100	36.8	**40.3**	27.9	32.8	23.4	20.5	21.2	23.2	26.2	24.0	35.1	26.2	28.1	25.6
L33	92	92	**46.4**	**44.3**	36.5	37.1	33.2	32.0	-	27.6	35.1	39.5	37.5	32.0	36.5	33.2
L34	100	100	31.5	34.5	24.2	32.0	21.9	20.5	19.3	18.0	22.5	29.3	37.2	27.9	26.5	24.2
L35	100	100	36.1	**44.9**	27.9	32.7	23.0	18.1	21.6	20.5	23.7	26.5	37.3	29.6	28.5	25.9
L36	100	100	**49.9**	**53.2**	36.2	**45.3**	35.8	35.5	**40.3**	35.4	34.5	**42.1**	**44.0**	35.8	**40.7**	37.0
L37	100	100	37.6	37.2	28.7	28.3	22.9	21.4	21.4	20.1	23.3	28.1	35.4	28.4	27.8	25.3
L38	100	100	35.2	**45.8**	31.4	**40.3**	33.2	27.8	28.4	26.3	28.1	37.7	38.7	30.8	33.7	30.6
L39	100	100	**40.9**	**43.8**	31.9	35.9	27.3	24.9	25.2	24.9	23.9	33.2	38.9	31.5	31.9	29.0
L40	100	100	31.8	35.3	24.0	31.0	20.0	17.1	17.7	17.1	20.2	27.0	32.9	25.1	24.9	22.7
L41	100	100	33.7	37.6	25.6	29.2	20.0	16.5	18.1	19.3	21.1	26.4	34.8	23.7	25.5	23.2
L42	100	100	34.3	36.8	28.7	33.7	25.3	20.5	22.2	20.8	25.5	34.7	39.1	30.8	29.4	26.7
L43	92	92	38.2	**44.2**	28.0	28.1	22.0	20.1	-	22.7	23.6	29.8	38.6	36.9	30.2	27.5
L44	100	100	**42.4**	**50.1**	32.9	35.1	31.6	27.4	31.1	33.1	33.2	34.8	**46.4**	34.2	36.0	32.8
L45	100	100	33.9	**48.2**	31.7	38.4	27.6	22.8	23.6	23.8	25.6	36.2	37.0	27.4	31.3	28.5
L46	100	100	37.9	36.5	22.1	29.0	21.9	18.0	18.8	18.5	22.2	30.9	32.0	38.1	27.1	24.7
L47	100	100	34.8	37.0	28.7	32.0	22.7	20.5	20.1	18.7	22.8	30.5	30.7	28.2	27.2	24.8
L48	100	100	33.1	**43.7**	25.4	33.2	20.7	23.3	21.0	22.4	21.0	31.4	38.0	27.6	28.4	25.8
L49	100	100	**43.1**	23.9	18.0	30.2	23.7	20.1	20.6	21.3	25.4	11.7	**40.7**	37.8	26.4	24.0

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2019 % [b]	Annual Mean NO$_2$												Annual mean – raw data [c]	Annual mean – bias adjusted [c]
			Jan	Feb	March	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec		
L50	100	100	33.9	35.2	24.2	27.1	20.1	16.8	16.8	15.7	19.4	22.4	30.4	26.0	24.0	21.8
L51	100	100	**61.9**	**63.6**	**43.7**	**57.0**	**42.4**	**44.2**	**47.3**	**42.0**	**44.5**	**49.1**	**53.0**	**43.0**	**49.3**	**44.9**
L52	100	100	**41.0**	**54.0**	37.5	31.2	30.0	25.7	33.4	38.8	29.6	39.5	**40.2**	38.5	36.6	33.3
L53	100	100	30.8	33.8	21.1	24.9	19.7	15.1	16.5	16.5	18.4	23.8	30.5	23.9	22.9	20.9

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

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

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

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

Table N. Distance-Corrected NO$_2$ Concentrations

Site Name/ID	Distance (m)		NO$_2$ Annual Mean Concentration (μgm^{-3})		
	Monitoring Site to Kerb	Receptor to Kerb	Background	Monitored at Site	Predicted at Receptor
L1	2	7	24.8	28.2	27.2
L2	6	6	25.0	25.7	25.7
L3	2	2	25.2	27.4	27.4
L4	2	2	25.2	27.7	27.7
L5	5	5	22.6	27.7	27.7
L6	5	5	18.5	27.2	27.2
L7	3	3	20.4	39.6	39.6
L8	5	5	21.3	31.5	31.5
L9	3	3	22.9	31.9	31.9
L10	1	2	24.9	31.4	30.5
L11	3	6	23.3	31.2	29.8
L12	50	50	22.3	23.7	23.7
L29	5	5	21.1	24.4	24.4
L30	5	6	20.7	26.3	26.0
L31	2	4	22.3	21.2	Monitored concentration lower than background
L32	2	2	24.8	25.6	25.6
L33	2	2	22.9	33.2	33.2
L34	5	5	20.7	24.2	24.2
L35	2	2	25.2	25.9	25.9
L36	2	2	25.2	37.0	37.0

Site Name/ID	Distance (m)		NO$_2$ Annual Mean Concentration (μgm^{-3})		
	Monitoring Site to Kerb	Receptor to Kerb	Background	Monitored at Site	Predicted at Receptor
L37	10	10	24.6	25.3	25.3
L13	5	5	20.2	24.4	24.4
L14	1	4	24.9	25.8	25.5
L15	10	10	23.3	34.0	34.0
L16	1.5	1.5	22.3	37.0	37.0
L17	6	6	24.6	38.6	38.6
L18	6	6	24.6	37.7	37.7
L19	6	6	24.6	38.1	38.1
L20	4	5	25.2	34.3	33.8
L21	3	3	21.7	39.8	39.8
L22	0.5	3.5	21.1	25.5	24.0
L23	0.5	6.5	23.5	38.7	31.8
L26	10	13	22.3	36.0	34.6
L27	0.5	2.5	23.0	39.5	34.8
L28	0.5	5.5	20.1	**41.0**	32.2
L24	2	6	19.1	29.9	27.1
L38	2	8.3	21.3	30.6	27.5
L39	1.7	9.5	22.3	29.0	26.4
L40	1.4	5	24.6	22.7	Monitored concentration lower than background
L41	0.7	8.4	24.9	23.2	Monitored concentration lower than background
L42	2.2	2.7	24.9	26.7	26.6

Site Name/ID	Distance (m)		NO$_2$ Annual Mean Concentration (μgm^{-3})		
	Monitoring Site to Kerb	Receptor to Kerb	Background	Monitored at Site	Predicted at Receptor
L43	2.85	9.1	24.8	27.5	26.7
L44	2	3	25.2	32.8	32.1
L45	2.9	3.6	25.0	28.5	28.3
L46	2.3	3.5	22.6	24.7	24.5
L47	2.05	4	21.7	24.8	24.3
L48	0.9	26.1	23.5	25.8	24.3
L49	2.1	5.2	24.9	24.0	Monitored concentration lower than background
L50	4.45	3.7	23.5	21.8	Monitored concentration lower than background
L51	2.2	12.1	21.1	**44.9**	35.2
L52	3.9	7.1	19.7	33.3	31.1
L53	2.9	4	18.6	20.9	20.7

Notes: [a] Site L12 is greater than 50 metres from the nearest road and there is no nearby relevant exposure, therefore 50 metres has been assumed for monitoring site to kerb and receptor to kerb distances.

[b] No relevant exposure near to site L35, therefore receptor to kerb distance has been assumed to be equal to monitoring site to kerb distance.

[c] No relevant exposure near to site L36, therefore receptor to kerb distance has been assumed to be equal to monitoring site to kerb distance.

[d] No relevant exposure or roads near to site L37.