Southwark Air Quality Annual Status Report 2020

Date: May 2021

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

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

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Abbreviations

Abbreviation	Description
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQO	Air Quality Objective
BEB	Buildings Emission Benchmark
CAB	Cleaner Air Borough
EV	Electric Vehicle
GLA	Greater London Authority
LAEI	London Atmospheric Emissions Inventory
LAQM	Local Air Quality Management
LLAQM	London Local Air Quality Management
NRMM	Non-Road Mobile Machinery
PM_{10}	Particulate matter less than 10 micron in diameter
$PM_{2.5}$	Particulate matter less than 2.5 micron in diameter
TEB	Transport Emissions Benchmark
TfL	Transport for London

Table A Summary of National Air Quality Standards and Objectives

Pollutant	Standard / Objective (UK)	Averaging Period	Date [2]
Nitrogen Dioxide (NO_2)	200 µg m^{-3} not to be exceeded more than 18 times a year	1-hour mean	31 Dec 2005
Nitrogen Dioxide (NO_2)	40 µg m^{-3}	Annual mean	31 Dec 2005
Particles (PM_{10})	50 µg m^{-3} not to be exceeded more than 35 times a year	24-hour mean	31 Dec 2004
Particles (PM_{10})	40 µg m^{-3}	Annual mean	31 Dec 2004
Particles ($PM_{2.5}$)	25 µg m^{-3}	Annual mean	2020
Particles ($PM_{2.5}$)	Target of 15% reduction in concentration at urban background locations	3-year mean	Between 2010 and 2020
Sulphur Dioxide (SO_2)	266 µg m^{-3} not to be exceeded more than 35 times a year	15-minute mean	31 Dec 2005
Sulphur Dioxide (SO_2)	350 µg m^{-3} not to be exceeded more than 24 times a year	1-hour mean	31 Dec 2004
Sulphur Dioxide (SO_2)	125 µg m^{-3} mot to be exceeded more than 3 times a year	24-hour mean	31 Dec 2004

[2] **Note** – Date by which objective is to be achieved by and maintained thereafter

1. Air Quality Monitoring

In 2020 Southwark increased the amount of air quality monitoring to 4 automatic air quality monitoring stations and 90 NO_2 diffusion tubes at 83 sites across Southwark[3]. **Figure 1** on page 8 shows the 4 locations of Southwark's air quality monitoring stations. **Figure 2** shows the locations of the NO_2 diffusion tubes monitoring sites. All the monitoring stations are within Southwark's Air Quality Management Area.

1.1 Locations

Table B Details of Automatic Monitoring Sites for 2020

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA? If so, which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Monitoring technique
SWK 5	Old Kent Road	534844	177515	Roadside	Yes	1	5	2.0	NO_x, NO_2, PM_{10} & $PM_{2.5}$	Chemiluminescence and BAM & FIDAS
SWK 6	Elephant & Castle	531884	178835	Urban Background	Yes	10	35	3.5	NO_x, NO_2, O_3,PM_{10} & $PM_{2.5}$	Chemiluminescence, UV Absorption & FIDAS
SWK 8	Tower Bridge Road	533488	179804	Roadside	Yes	7	4m	1.7	NO_x, NO_2, PM_{10} & $PM_{2.5}$	Chemiluminescence & FIDAS
SWK A	Lower Road	535272	179331	Roadside	Yes	7	4m	1.7	NO_x, NO_2, PM_{10} & $PM_{2.5}$	Chemiluminescence & FIDAS

[3] 2 AQMS sites have 3 co-located NO_2 tubes: Elephant & Castle, and Old Kent Road. The remaining diffusion tube is used as a Travel Blank necessary for accurate analysis.

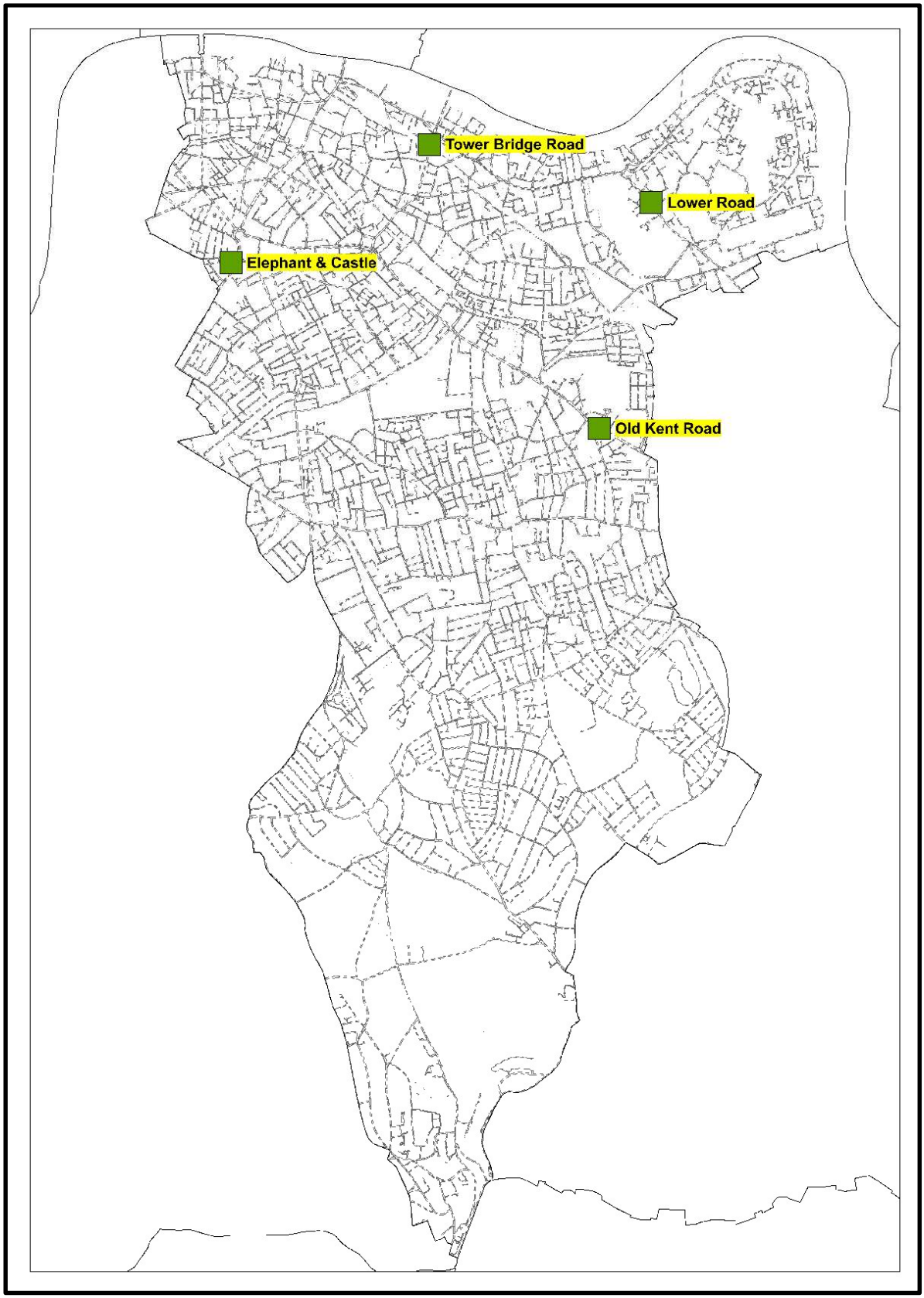


Figure 1 Southwark's Air Quality Monitoring Stations

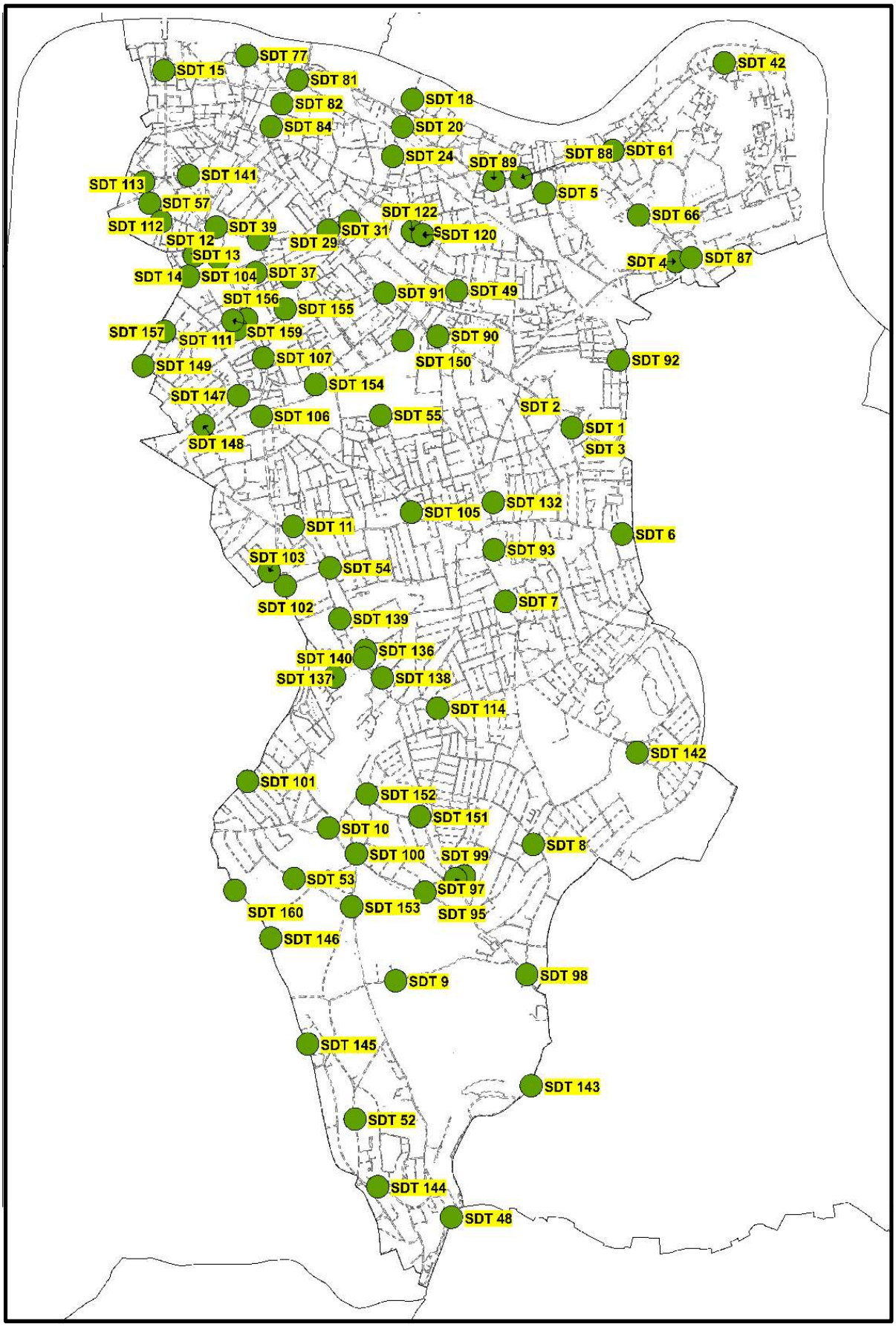


Figure 2 Southwark's NO_2 diffusion tube monitoring locations

Table C Details of Non-Automatic (diffusion tube) Monitoring Sites for 2020

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA? If so, which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor.
SDT 1	AQMS Old Kent Road - Tube 1	534849	177512	Roadside	Yes	1.0	5	2.5	NO_2	Yes
SDT 2	AQMS Old Kent Road - Tube 2	534849	177512	Roadside	Yes	1.0	5	2.5	NO_2	Yes
SDT 3	AQMS Old Kent Road - Tube 3	534849	177512	Roadside	Yes	1.0	5	2.5	NO_2	Yes
SDT 4	Rotherhithe Old Road	535675	178796	Kerbside	Yes	2.0	0.5	2.5	NO_2	No
SDT 5	Drummond Road	534640	179336	Kerbside	Yes	6.0	0.5	2.5	NO_2	No
SDT 6	Adjacent to 168 Queens Road	535253	176679	Kerbside	Yes	14.0	0.5	2.5	NO_2	No
SDT 7	Adjacent to 167A Rye Lane	534333	176155	Kerbside	Yes	2.0	0.5	2.5	NO_2	No
SDT 8	Dunstan's Road	534553	174263	Kerbside	Yes	8.0	0.5	2.5	NO_2	No
SDT 9	Dulwich Common	533470	173204	Kerbside	Yes	3.0	0.5	2.5	NO_2	No
SDT 10	Adjacent to 2 Village Way	532940	174392	Kerbside	Yes	13.0	0.5	2.5	NO_2	No
SDT 11	Adjacent to 11 Camberwell Church Street	532663	176740	Kerbside	Yes	2.0	0.5	2.5	NO_2	No
SDT 12	AQMS Elephant & Castle - Tube 1	531893	1788464	Urban background	Yes	10.0	35	2.5	NO_2	Yes
SDT 13	AQMS Elephant & Castle - Tube 2	531893	1788464	Urban background	Yes	10.0	35	2.5	NO_2	Yes
SDT 14	AQMS Elephant & Castle - Tube 3	531893	1788464	Urban background	Yes	10.0	35	2.5	NO_2	Yes
SDT 15	Blackfriars Road	531641	180290	Kerbside	Yes	3.0	0.5	2.5	NO_2	No
SDT 18	Tower Bridge Approach Tower Bridge Road	533599	180062	Roadside	Yes	3.0	0.5	2.5	NO_2	No

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA? If so, which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor.
SDT 20	Tower Bridge School Tower Bridge Road	533520	179849	Kerbside	Yes	0.5	2.5	2.5	NO_2	No
SDT 24	Opposite Papa John's 168a Tower Bridge Road	533444	179620	Kerbside	Yes	3.0	0.5	2.5	NO_2	No
SDT 29	Opposite Haddon Hall Tower Bridge Road	533105	179117	Kerbside	Yes	2.0	0.5	2.5	NO_2	No
SDT 31	Bricklayers Arms West	532937	179043	Kerbside	Yes	10.0	0.5	2.5	NO_2	No
SDT 37	Lamppost 1068/09 Wansey Street	532340	178711	Kerbside	Yes	10.0	0.5	2.5	NO_2	No
SDT 38	Walworth Road opposite junction to Elephant Road	532074	178825	Kerbside	Yes	2.0	0.5	2.5	NO_2	No
SDT 39	Lamppost 3 New Kent Road north (Metro Central)	532053	179070	Kerbside	Yes	10.0	0.5	2.5	NO_2	No
SDT 41	Lamppost 29 New Kent Road north side (Rodney Place)	532390	178974	Kerbside	Yes	20.0	0.5	2.5	NO_2	No
SDT 42	St Peters Hills Primary School	536047	180343	Kerbside	Yes	10.0	0.5	2.5	NO_2	No
SDT 48	Adjacent to Beechwood Court 3 Crystal Palace Parade	535514	178708	Kerbside	No	20.0	0.5	2.5	NO_2	No
SDT 49	Lamppost 129/08 Lynton Road west	533873	178592	Kerbside	Yes	10.0	0.5	2.5	NO_2	No
SDT 52	Kingsdale Foundation School, Alleyn Park	533150	172123	Kerbside	No	10.0	0.5	2.5	NO_2	No
SDT 53	Lamppost (2074 - 25) Adjacent entrance to Edward Alleyn Club, Burbage Road	532668	173998	Kerbside	Yes	10	0.5	2.5	NO_2	No
SDT 54	Camberwell Grove	532951	176417	Kerbside	Yes	10.0	0.5	2.5	NO_2	No

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA? If so, which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor.
SDT 55	Lamppost 11A St Georges Way South	533350	177603	Kerbside	Yes	3.0	0.5	2.5	NO_2	No
SDT 57	Notre Dame School	531531	179256	Kerbside	Yes	5.0	0.5	2.5	NO_2	No
SDT 61	Junction of Brunel Road and Rupack Street	535176	179665	Kerbside	Yes	3.0	0.5	2.5	NO_2	No
SDT 66	Adjacent to Prince of Orange Lower Road	535384	179161	Kerbside	Yes	3.0	0.5	2.5	NO_2	No
SDT 77	Adjacent to steps to Park St Southwark Bridge Rd	532294	180406	Kerbside	Yes	10.0	0.5	2.5	NO_2	No
SDT 81	Lamppost 02 Borough High Street	532690	180212	Kerbside	Yes	3.0	0.5	2.5	NO2	No
SDT 82	Lamppost 01 Adjacent to 125 Borough High St	532572	180029	Kerbside	Yes	3.0	0.5	2.5	NO_2	No
SDT 84	Lamppost 8 Little Dorritt Park Entrance	532487	179850	Kerbside	Yes	5.0	0.5	2.5	NO_2	No
SDT 87	Lamppost 0139/43 188A Lower Road	535795	178828	Kerbside	Yes	3.0	0.5	2.5	NO_2	No
SDT 88	Lamppost 52 Jamaica Road	534457	179454	Kerbside	Yes	5.0	0.5	2.5	NO_2	No
SDT 89	St James' CofE Primary School Jamaica Road	534241	179435	Roadside	Yes	0.5	2	2.5	NO_2	No
SDT 90	Lamppost Adjacent to 375 Old Kent Road	533800	178220	Kerbside	Yes	5.0	0.5	2.5	NO_2	No
SDT 91	Lamppost adjacent to 221 Old Kent Road	533379	178556	Kerbside	Yes	3.0	0.5	2.5	NO_2	No
SDT 92	Ilderton Primary School Ilderton Road	535222	178032	Roadside	Yes	0.5	2	2.5	NO_2	No

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA? If so, which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor.
SDT 93	Lamppost 9 adjacent to 14 Hanover Park	534243	176558	Roadside	Yes	2.0	0.5	2.5	NO_2	No
SDT 95	Court Lane	533700	173892	Kerbside	Yes	2.0	0.5	2.5	NO_2	No
SDT 97	Barry Road	533940	173998	Kerbside	Yes	5.0	0.5	2.5	NO_2	No
SDT 98	Junction with Underhill Road South Circular Road	534503	173251	Kerbside	No	9.0	0.5	2.5	NO_2	No
SDT 100	Post adjacent to 1d Calton Avenue	533159	174191	Kerbside	Yes	2.0	0.5	2.5	NO_2	No
SDT 101	Lamppost 307/19 Adjacent to 91 Herne Hill	532303	174756	Kerbside	Yes	5.0	0.5	2.5	NO_2	No
SDT 102	Lamppost 1 De Crespigny Park	532599	176277	Kerbside	Yes	5.0	0.5	2.5	NO_2	No
SDT 103	Lamppost 369/7 Coldharbour Lane	532471	176388	Kerbside	Yes	15.0	0.5	2.5	NO_2	No
SDT 104	Lamppost 08 Newington Causeway	531835	178686	Kerbside	Yes	15.0	0.5	2.5	NO_2	No
SDT 105	Lamppost adjacent to Oliver Goldsmith School entrance Southampton Way	533592	176851	Kerbside	Yes	0.5	0.5	2.5	NO_2	No
SDT 106	Post adjacent to 80 Camberwell Road	532409	177597	Kerbside	Yes	18.0	0.5	2.5	NO_2	No
SDT 107	Lamppost 1045/45 adjacent to 351 Walworth Road	532426	178051	Kerbside	Yes	10.0	0.5	2.5	NO_2	No
SDT 111	Lamppost 31A/239 Walworth Road	532294	178354	Kerbside	Yes	5.0	0.5	2.5	NO_2	No
SDT 112	Parking Sign Adjacent to 3 West Square	531621	179112	Kerbside	Yes	3.0	0.5	2.5	NO_2	No
SDT 113	Lamppost adjacent to 43 Westminster Bridge Road	531481	179421	Kerbside	Yes	7.0	0.5	2.5	NO_2	No

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA? If so, which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor.
SDT 114	Lamppost 1 Goose Green / East Dulwich Road	533799	175324	Kerbside	Yes	10.0	0.5	2.5	NO_2	No
SDT 120	Adjacent to Boucher CofE Primary School Grange Road	533681	179010	Kerbside	Yes	0.0	4	2.5	NO_2	No
SDT 121	Front Playground Boucher CofE Primary School	533683	179004	Background	Yes	0.0	6	2.5	NO_2	No
SDT 122	Rear entrance Boucher CofE Primary School	533598	179036	Kerbside	Yes	0.0	1	2.5	NO_2	No
SDT 132	Lamppost 2732/01 adjacent to 117-125 Rye Lane	534237	176363	Kerbside	Yes	5.0	0.5	2.5	NO_2	No
SDT 136	Lamppost 2160/12 adjacent to Dog Kennel Hill School	533232	175775	Kerbside	Yes	10.0	0.5	2.5	NO_2	No
SDT 137	Lamppost 2136/18 at the junction adjacent to Champion Hill	532987	175568	Kerbside	Yes	10.0	0.5	2.5	NO_2	No
SDT 138	Lamppost 2127 11 Pytchley Road	533364	175561	Kerbside	Yes	8.0	0.5	2.5	NO_2	No
SDT 139	Lamppost 2139 29 Grove Lane	533030	176022	Kerbside	Yes	4.5	0.5	2.5	NO_2	No
SDT 140	Post near Dog Kennel Hill School entrance Dog Kennel Hill	533221	175715	Kerbside	Yes	3.0	0.5	2.5	NO_2	No
SDT 141	ConnectKerb site Borough Road	531835	179473	Kerbside	Yes	8.0	0.5	2.5	NO_2	No
SDT 142	Lamppost 2640L05 Cheltenham Road	535321	175023	Kerbside	Yes	11.0	0.5	2.5	NO_2	No
SDT 143	Lamppost 05 Sydenham Hill	534537	172386	Kerbside	No	26.0	0.5	2.5	NO_2	No
SDT 144	Lamppost 2087L04 -Dulwich Wood Park	533328	171601	Kerbside	No	27.0	0.5	2.5	NO_2	No
SDT 145	Lamppost 2544L08 -Croxted Road	532777	172711	Kerbside	No	16.0	0.5	2.5	NO_2	No

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA? If so, which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor.
SDT 146	Lamppost 423-23 - Croxted Road	532486	173535	Kerbside	Yes	5.5	0.5	2.5	NO_2	No
SDT 147	Lamppost 1515 - 13 John Ruskin Street	532230	177756	Kerbside	Yes	7.0	0.5	2.5	NO_2	No
SDT 148	Lamppost 1515 – 34 John Ruskin Street	532002	177578	Kerbside	Yes	21.0	0.5	2.5	NO_2	No
SDT 149	Lamppost 1436L03 Kennington Park Place	531479	177990	Kerbside	Yes	21.5	0.5	2.5	NO_2	No
SDT 150	Lamppost 2302L 14 Albany Road	533522	178187	Kerbside	Yes	36.0	0.5	2.5	NO_2	No
SDT 151	Lamppost 2300 - L01, Junction of Townley Road & Lordship Lane	533660	174480	Kerbside	Yes	5.0	0.5	2.5	NO_2	No
SDT 152	Lamppost 2300 - L19, Townley Road	533245	174655	Kerbside	Yes	14.0	0.5	2.5	NO_2	No
SDT 153	Lamppost 2292 - L27, Dulwich Village	533123	173780	Kerbside	Yes	2.8	0.5	2.5	NO_2	No
SDT 154	Lamppost (1125 - L37) at the junction of Portland Street / Albany Road	532836	177844	Kerbside	Yes	5.0	0.5	2.5	NO_2	No
SDT 155	Junction of East Street / Portland Street	532597	178433	Kerbside	Yes	7.5	0.5	2.5	NO_2	No
SDT 156	Lamppost (1107 - L07), Junction of Stead Street / Flint Street	532643	178677	Kerbside	Yes	5.0	0.5	2.5	NO_2	No
SDT 157	Lamppost (1027 - L03), adjacent to Braganza Street	531648	178257	Kerbside	Yes	3.0	0.5	2.5	NO_2	No
SDT 158	Lamp Conduit Adjacent to Arch 12 Angel Lane	532195	178276	Kerbside	Yes	3.0	0.1	2.5	NO_2	No
SDT 159	Lamp Conduit Adjacent to Arch 4 Angel Lane	532167	178336	Kerbside	Yes	3.0	0.1	2.5	NO_2	No

1.2 Comparison of Monitoring Results with AQOs

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

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

Site ID	Site type	Valid data capture for monitoring period %[(a)]	Valid data capture 2020 %[(b)]	2016	2017	2018	2019	2020
SWK 5	Automatic	68	68	**53** (80%)	**42 (97%)**	**41 (85%)**	35 (98%)	25
SWK 6	Automatic	87	87	39 (90%)	34 (97%)	32 (>90%)	30(97%)	21
SWK 8	Automatic	95	95	-	-	-	-	30
SWK A	Automatic	93	9	-	-	-	-	39
SDT 1- 3	Diffusion Tube	90.91	90.91	**50.6**	**41.9**	**42.4**	35.9	24.5
SDT 4	Diffusion Tube	100.00	100.00	**55.9**	**54.7**	**42.9**	39.8	30.7
SDT 5	Diffusion Tube	100.00	18.18	35.0	32.2	30.4	31.1	-
SDT 6	Diffusion Tube	100.00	100.00	**45.1**	**63.1**	38.0	36.1	35.0
SDT 7	Diffusion Tube	81.82	81.82	**45.9**	**46.4**	34.9	31.6	20.7
SDT 8	Diffusion Tube	100.00	100.00	31.1	32.4	27.4	28.1	18.8
SDT 9	Diffusion Tube	100.00	100.00	**46.0**	**50.7**	36.8	34.5	29.5
SDT 10	Diffusion Tube	100.00	100.00	30.1	32.3	29.6	28.9	19.6
SDT 11	Diffusion Tube	100.00	100.00	**65.8**	**63.1**	**50.2**	**45.4**	34.2
SDT 12- 14	Diffusion Tube	100.00	100.00	**53.5**	**41.9**	35.3	32.8	19.9
SDT 15	Diffusion Tube	100.00	100.00	**66.0**	**51.9**	**46.2**	**42.1**	31.6
SDT 18	Diffusion Tube	100.00	100.00	**65.2**	**60.6**	**54.2**	**54.6**	35.6
SDT 20	Diffusion Tube	100.00	100.00	**67.8**	**60.0**	**52.3**	**48.6**	32.9
SDT 24	Diffusion Tube	100.00	100.00	**70.4**	**68.3**	**53.6**	**51.1**	38.8
SDT 29	Diffusion Tube	100.00	100.00	**75.7**	**73.9**	**57.0**	**50.5**	37.5
SDT 31	Diffusion Tube	100.00	100.00	**50.5**	**46.5**	**41.4**	38.6	27.5
SDT 37	Diffusion Tube	100.00	100.00	37.2	32.5	31.1	27.4	19.2

Site ID	Site type	Valid data capture for monitoring period %[a]	Valid data capture 2020 %[b]	2016	2017	2018	2019	2020
SDT 38	Diffusion Tube	90.91	90.91	**87.8**	**63.6**	**44.9**	**40.1**	30.4
SDT 39	Diffusion Tube	90.91	90.91	**48.2**	**46.2**	**40.0**	35.6	25.1
SDT 41	Diffusion Tube	100.00	100.00	**50.8**	**46.0**	39.8	37.6	35.1
SDT 42	Diffusion Tube	100.00	100.00	36.4	36.2	34.9	35.6	24.0
SDT 48	Diffusion Tube	100.00	100.00	35.7	32.2	29.3	28.0	29.5
SDT 49	Diffusion Tube	100.00	100.00	35.4	33.0	29.0	27.5	19.2
SDT 52	Diffusion Tube	100.00	100.00	35.6	33.7	26.1	26.0	18.1
SDT 53	Diffusion Tube	100.00	100.00	31.2	28.1	25.3	23.8	16.6
SDT 54	Diffusion Tube	100.00	100.00	37.0	32.4	29.4	28.3	19.1
SDT 55	Diffusion Tube	100.00	100.00	37.9	35.0	34.1	31.4	19.8
SDT 57	Diffusion Tube	100.00	100.00	**51.6**	**44.0**	39.8	34.8	24.8
SDT 61	Diffusion Tube	100.00	100.00	37.9	35.9	34.3	32.9	23.0
SDT 66	Diffusion Tube	100.00	100.00	36.0	33.3	33.8	30.4	21.9
SDT 77	Diffusion Tube	90.91	90.91	**47.7**	**49.0**	**45.2**	**41.0**	26.8
SDT 81	Diffusion Tube	100.00	100.00	**79.4**	**68.4**	**59.0**	**52.7**	39.6
SDT 82	Diffusion Tube	100.00	100.00	**70.0**	**61.2**	**50.4**	**45.2**	30.9
SDT 84	Diffusion Tube	100.00	100.00	**55.9**	**50.2**	**40.9**	39.1	29.3
SDT 87	Diffusion Tube	100.00	100.00		**57.0**	**46.5**	**46.2**	34.7
SDT 88	Diffusion Tube	90.91	90.91		**52.3**	**45.5**	**42.7**	34.4
SDT 89	Diffusion Tube	100.00	100.00		**42.0**	**40.8**	35.8	25.2
SDT 90	Diffusion Tube	100.00	100.00		**50.8**	**52.0**	**43.7**	34.3
SDT 91	Diffusion Tube	100.00	100.00		**55.5**	**51.1**	**46.2**	34.8
SDT 92	Diffusion Tube	100.00	100.00		**57.6**	**48.7**	**45.2**	27.0
SDT 93	Diffusion Tube	100.00	100.00		**58.4**	**53.3**	37.8	30.7
SDT 95	Diffusion Tube	100.00	100.00		24.8	26.9	26.1	16.8
SDT 97	Diffusion Tube	100.00	100.00		37.5	37.3	32.5	24.3
SDT 98	Diffusion Tube	100.00	100.00		**43.1**	36.8	36.5	34.4

Site ID	Site type	Valid data capture for monitoring period %[a]	Valid data capture 2020 %[b]	2016	2017	2018	2019	2020
SDT 100	Diffusion Tube	100.00	100.00		35.8	34.7	34.1	17.4
SDT 101	Diffusion Tube	100.00	100.00		34.2	31.9	34.6	23.6
SDT 102	Diffusion Tube	100.00	100.00		38.2	34.4	32.7	23.3
SDT 103	Diffusion Tube	100.00	100.00		38.7	35.0	31.4	27.0
SDT 104	Diffusion Tube	100.00	100.00		**48.9**	**46.8**	38.9	32.1
SDT 105	Diffusion Tube	100.00	100.00		**44.2**	39.8	35.6	24.7
SDT 106	Diffusion Tube	100.00	100.00		**48.0**	**40.9**	34.8	34.1
SDT 107	Diffusion Tube	90.91	90.91		38.5	35.5	35.7	23.4
SDT 111	Diffusion Tube	100.00	100.00		**46.6**	**42.3**	36.4	27.5
SDT 112	Diffusion Tube	90.91	90.91		31.3	27.6	25.0	18.1
SDT 113	Diffusion Tube	100.00	100.00		**74.0**	**58.5**	**46.0**	37.5
SDT 114	Diffusion Tube	100.00	100.00		37.4	31.6	33.0	22.6
SDT 120	Diffusion Tube	100.00	100.00				32.1	19.9
SDT 121	Diffusion Tube	100.00	100.00				30.4	18.2
SDT 122	Diffusion Tube	90.91	90.91				27.0	16.9
SDT 132	Diffusion Tube	90.91	90.91				33.0	21.5
SDT 136	Diffusion Tube	100.00	100.00				33.8	20.2
SDT 137	Diffusion Tube	100.00	100.00				25.2	16.4
SDT 138	Diffusion Tube	100.00	100.00				31.1	24.7
SDT 139	Diffusion Tube	100.00	100.00				33.2	24.1
SDT 140	Diffusion Tube	100.00	100.00				31.3	22.9
SDT 141	Diffusion Tube	100.00	100.00				33.8	26.4
SDT 142	Diffusion Tube	100.00	100.00				29.0	20.5
SDT 143	Diffusion Tube	100.00	100.00				25.7	18.5
SDT 144	Diffusion Tube	100.00	100.00				33.5	23.4
SDT 145	Diffusion Tube	100.00	100.00				25.0	19.5
SDT 146	Diffusion Tube	100.00	100.00				29.5	20.6

Site ID	Site type	Valid data capture for monitoring period %[a]	Valid data capture 2020 %[b]	2016	2017	2018	2019	2020
SDT 147	Diffusion Tube	100.00	100.00				35.4	22.6
SDT 148	Diffusion Tube	100.00	100.00				31.6	22.4
SDT 149	Diffusion Tube	100.00	100.00				33.5	22.1
SDT 150	Diffusion Tube	100.00	100.00				31.7	28.3
SDT 151	Diffusion Tube	100.00	100.00				28.6	18.6
SDT 152	Diffusion Tube	100.00	100.00				31.5	19.4
SDT 153	Diffusion Tube	100.00	100.00				27.2	17.1
SDT 154	Diffusion Tube	90.91	90.91				34.7	23.3
SDT 155	Diffusion Tube	100.00	100.00				31.3	20.1
SDT 156	Diffusion Tube	100.00	100.00				36.0	25.4
SDT 157	Diffusion Tube	100.00	100.00				33.1	19.4
SDT 158	Diffusion Tube	100.00	81.82					18.2
SDT 159	Diffusion Tube	100.00	81.82					16.0

Notes:

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

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

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

Means for diffusion tubes have been corrected for bias.

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

Results have been distance corrected where applicable.

In 2020, none of the sites breached 60µg.m^{-3}, the level that indicates a potential exceedance of the NO_2 hourly mean objective limit. After distance correcting the monitoring data, none of the sites exceeded the annual objective of 40µg.m^{-3}. This could be due to the effect of the Covid-19 lockdowns, and the reduced traffic throughout the year. The Authority has reviewed the data for SDT 98 and found it to be complying, but will continue monitoring.

Table D shows that since 2016, annual average concentrations of nitrogen dioxide have fallen, with none of the monitoring sites being above 60µg.m^{-3} since 2018. This trend can be seen in **Figure 4** below.

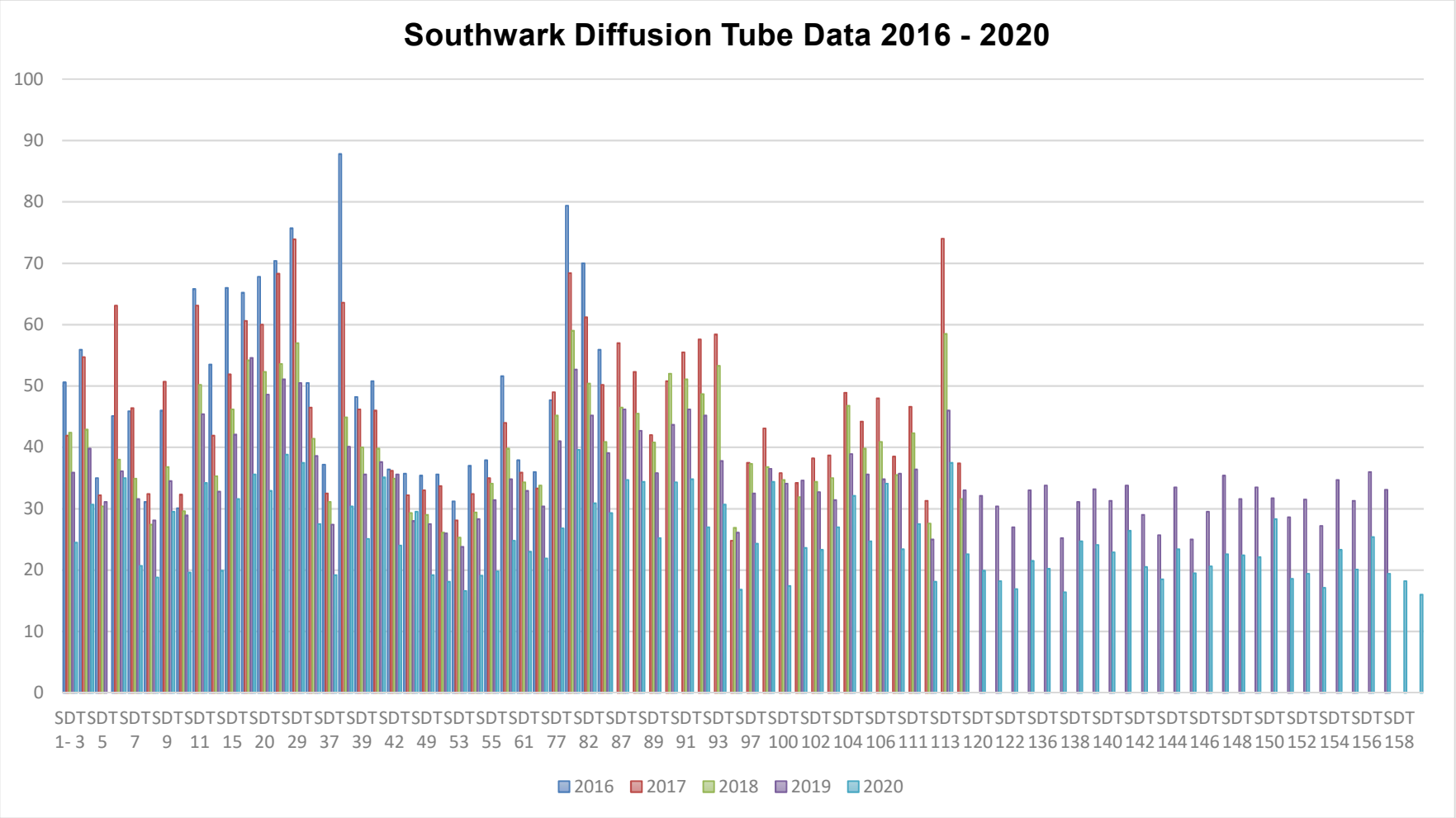


Figure 3 Southwark's diffusion tube monitoring results since 2016

Figure 4 below shows historic data trends from Southwark automatic air quality monitoring stations, indicating an improvement in Southwark's air quality since 2003, following the same trend in the London wide data as shown in **Figure 5** on the next page.

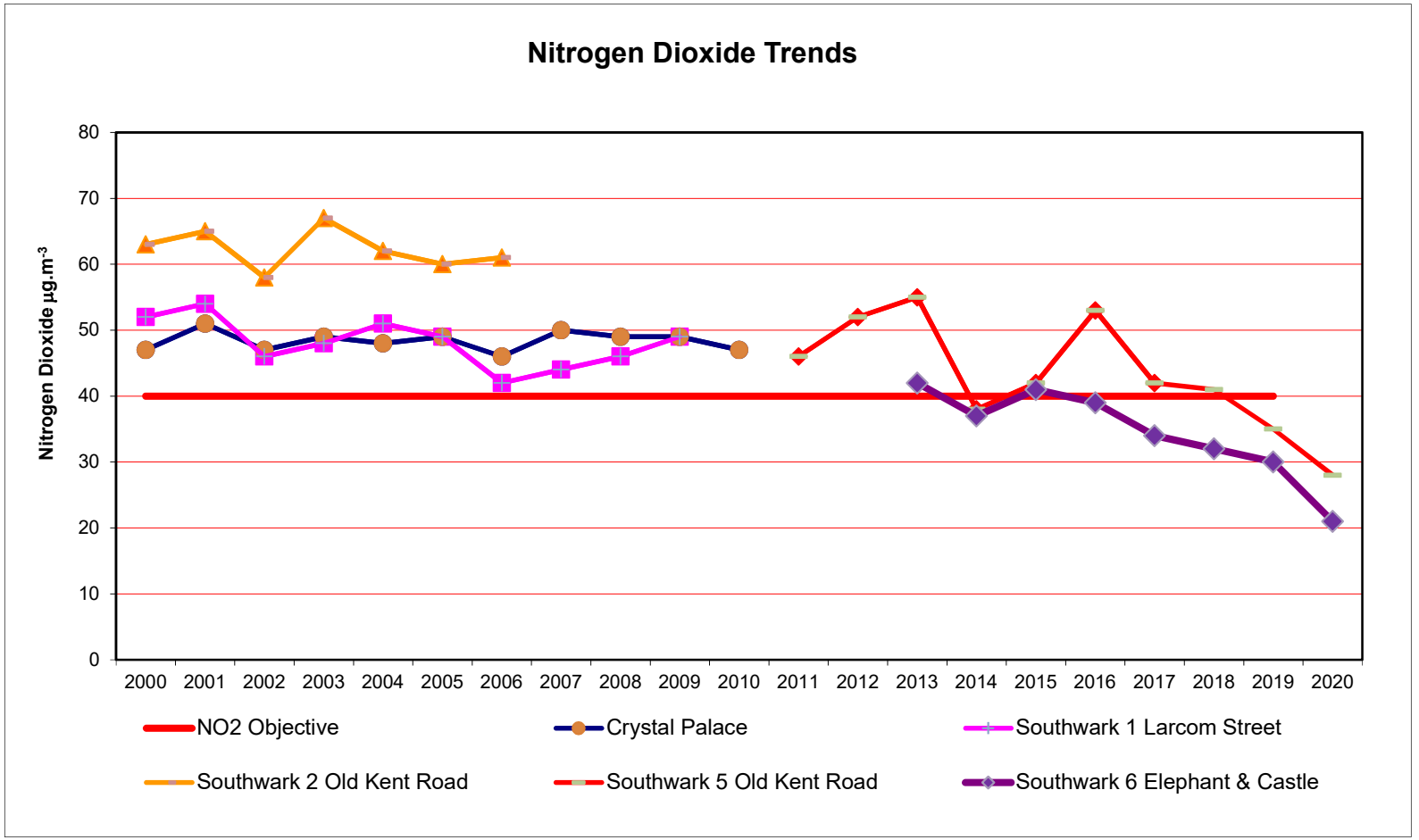


Figure 4 Trend in annual mean NO_2 concentrations at Southwark's air quality monitoring stations

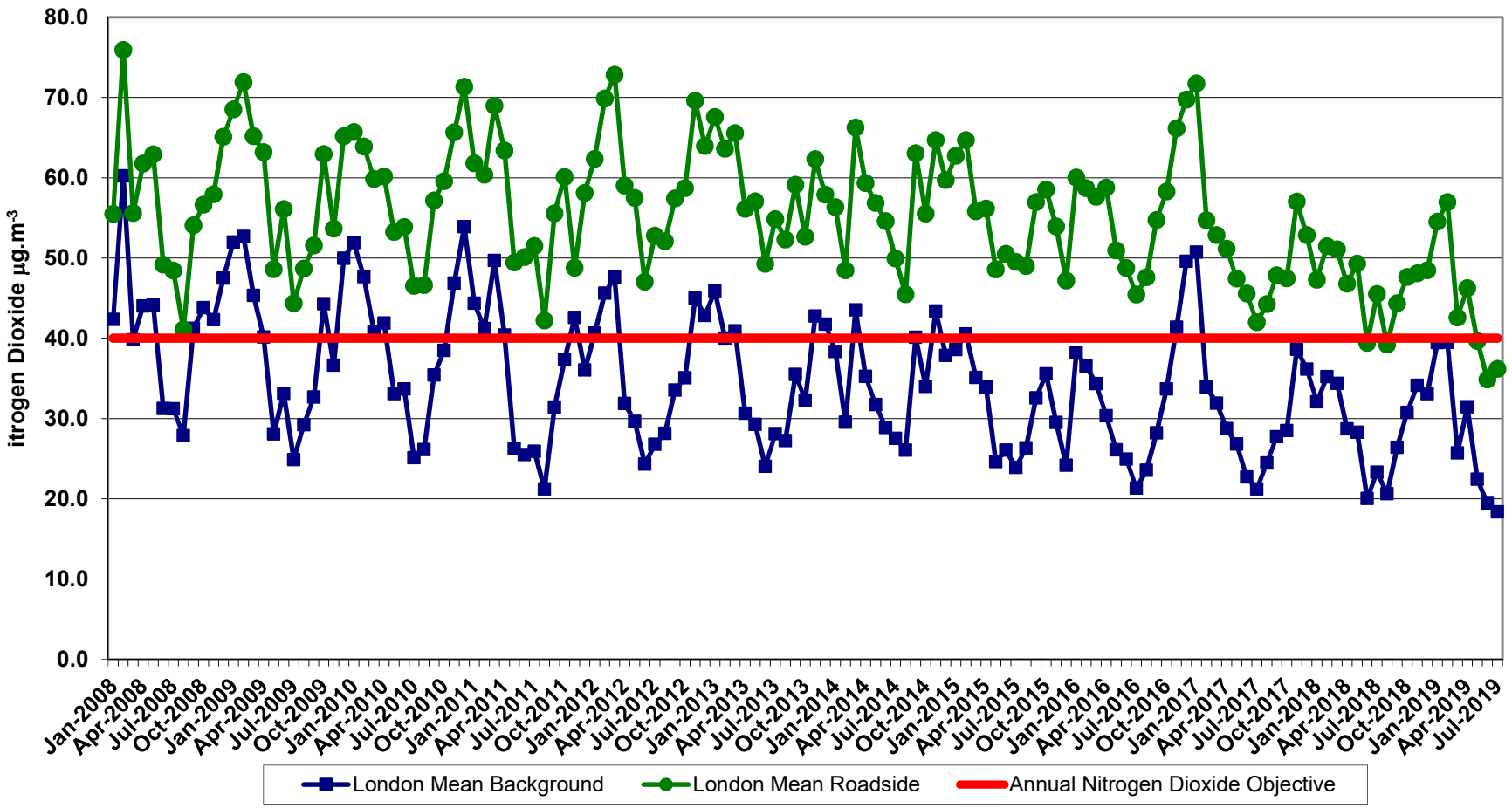


Figure 5 Monthly mean trend of NO_2 concentrations at London roadside and background sites

Source GLA accessed at http://data.london.gov.uk/dataset/london-average-air-quality-levels (Accessed March 2021)

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

Site ID	Valid data capture for monitoring period %([a])	Valid data capture 2020 %([b])	2014	2015	2016	2017	2018	2019	2020
SWK 5	68	68	1 (32%)	1 (69%)	1 (80%)	0 (97%)	0 (85%)	0 (98%)	0
SWK 6	97	97	0 (84%)	0 (80%)	0 (90%)	0 (97%)	0 (>90%)	0 (97%)	0
SWK 8	95	95	-	-	-	-	-	-	0
SWK A	93	9	-	-	-	-	-	-	0

Notes

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

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

(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%)

The Southwark AQMS follow the trend in monthly mean NO_2 concentrations at the London roadside and background sites. However, **Figure 5** only shows data up to July 2019, as GLA / Imperial College have not updated the data within the GLA London Datastore.

Southwark has increased the number of monitoring stations over the last year with the addition of Lower Road AQMS (SWK A) in 2020, and Vicarage Grove (SWK B) in early 2021. As part of the air quality monitoring renewal and expansion programme, Southwark has renewed the NOx monitors at Elephant & Castle, and Old Kent Road Air Quality Monitoring Stations.

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

Site ID	Valid data capture for monitoring period %(a)	Valid data capture 2020 %(b)	2014	2015	2016	2017	2018	2019	2020
SWK 5 BAM	75	75	23 (32%)	21 (60%)	24 (94%)	22 (91%)	22 (80%)	24 (89%)	22
SWK 5 FIDAS	100	32							19
SWK 6	99	99	19 (>90%)	20 (77%)	26 (79%)	19 (99%)	20 (>90%)	17 (86%)	16
SWK 8	91	46							13
SWK A	0	0							

Notes

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

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

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

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

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

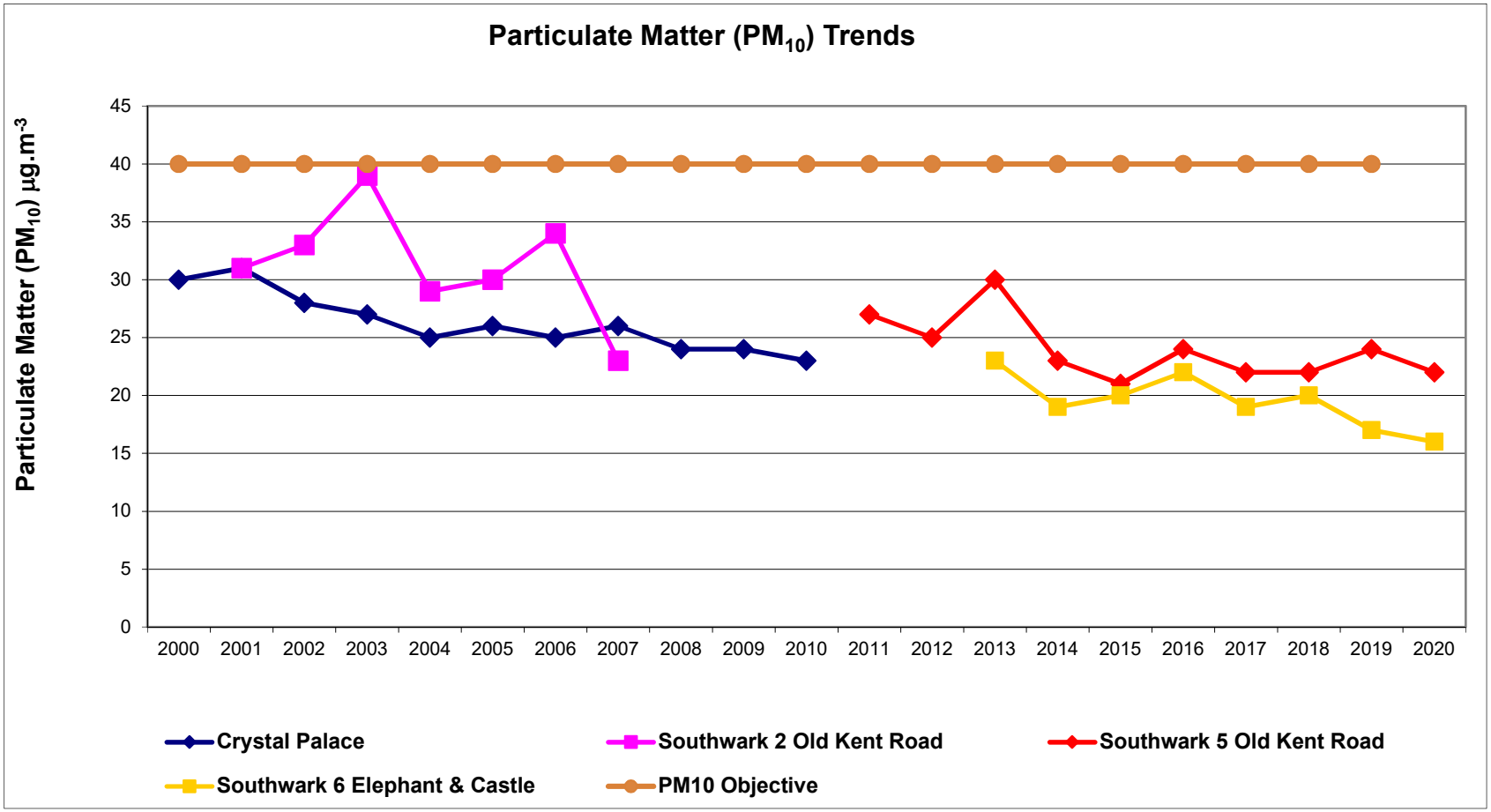


Figure 6 Trend in Annual Mean PM_{10} concentrations at Southwark's monitoring stations

Particulate Matter (PM_{10}) concentrations since 2000 have been below the national objective, and concentration levels have been reducing. The single year of results from the new monitoring stations are not included in the graph, and these will be presented in the next annual report.

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

Site ID	Valid data capture for monitoring period %[a]	Valid data capture 2020 %[b]	2014	2015	2016	2017	2018	2019	2020
SWK 5 (BAM)	75	75	10 (32%)	4 (60%)	18 (94%)	19 (91%)	8 (93%)	2 (89%)	11
SWK 5 (FIDAS)	100	32							5
SWK 6	99	99	0 (>90%)	1 (77%)	21 (79%)	1 (99%)	2 (99%)	14 (86%)	3
SWK 8	91	46							2
SWK A	0	0							

Notes

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

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

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

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

The trend in Southwark Particulate Matter (PM_{10}) is similar to the London wide data trend shown in **Figure 6** on the next page.

Figure 7 only shows data up to July 2019, as GLA / Imperial College have not updated the data within the GLA London Datastore.

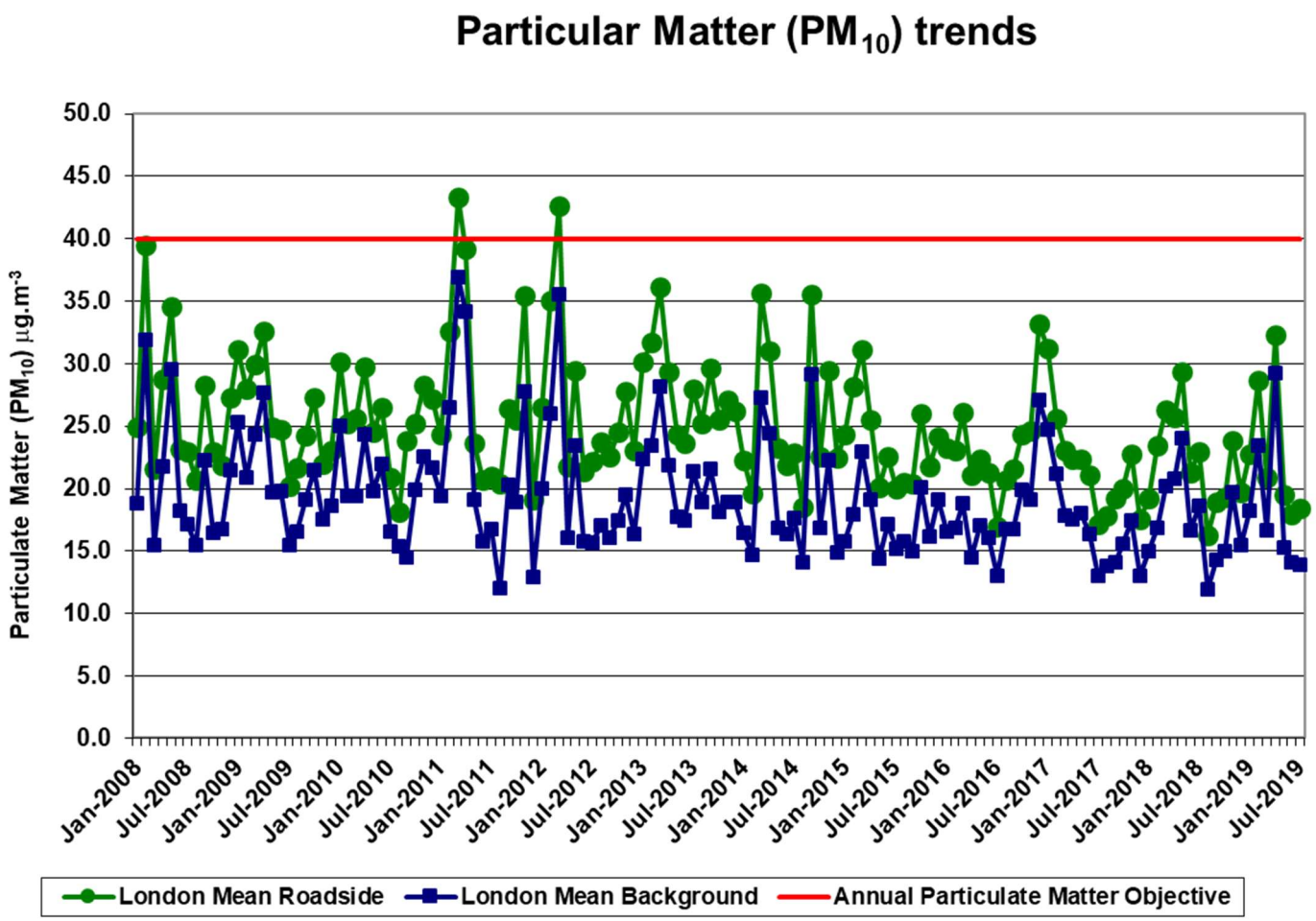


Figure 7 Trend for the Monthly Mean PM10 concentrations at roadside and background sites in the London area

Source GLA accessed at http://data.london.gov.uk/dataset/london-average-air-quality-levels (Accessed April 2021)

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

Site ID	Valid data capture for monitoring period %[(a)]	Valid data capture 2020 %[(b)]	2016	2017	2018	2019	2020
SWK 5	100[4]	32	-	-	-	-	10 (32%)
SWK 6	100[4]	29	-	-	-	-	9 (29%)
SWK 8	91	46	-	-	-	-	8 (46%)
SWK A	0	0	-	-	-	-	

Notes

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

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

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

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

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

Southwark commenced monitoring Particular Matter ($PM_{2.5}$) for the first time this year. The Covid-19 outbreak delayed the delivery and installation of the monitors until the late summer, resulting in low data capture for the year. The captured data for the available monitoring period is below the WHO guideline concentration of 10µg.m^{-3} for $PM_{2.5}$.

London wide monitoring data for $PM_{2.5}$ since 2008 in **Figure 8** shows a downward trend towards the WHO guideline concentration of 10µg.m^{-3} for $PM_{2.5}$. However, **Figure 8** only shows data up to July 2019, as GLA / Imperial College have not updated the data within the GLA London Datastore.

[4] All data is provisional, as the data has not been ratified by Imperial College London.

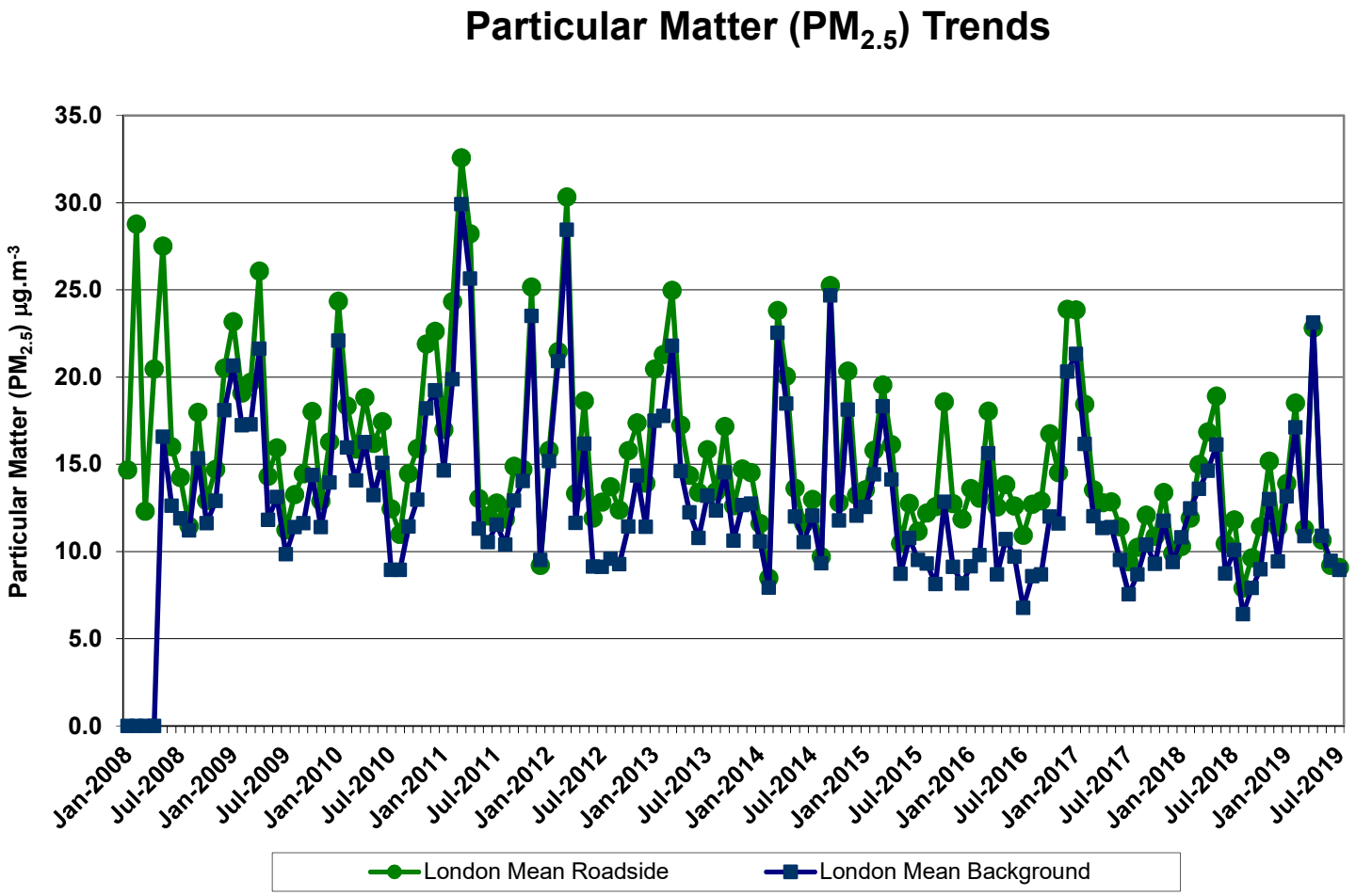


Figure 8 **Trend of the monthly mean $PM_{2.5}$ concentrations at London roadside and background sites**

Source GLA accessed at http://data.london.gov.uk/dataset/london-average-air-quality-levels (Accessed April 2021)

Sulphur Dioxide (SO_2)

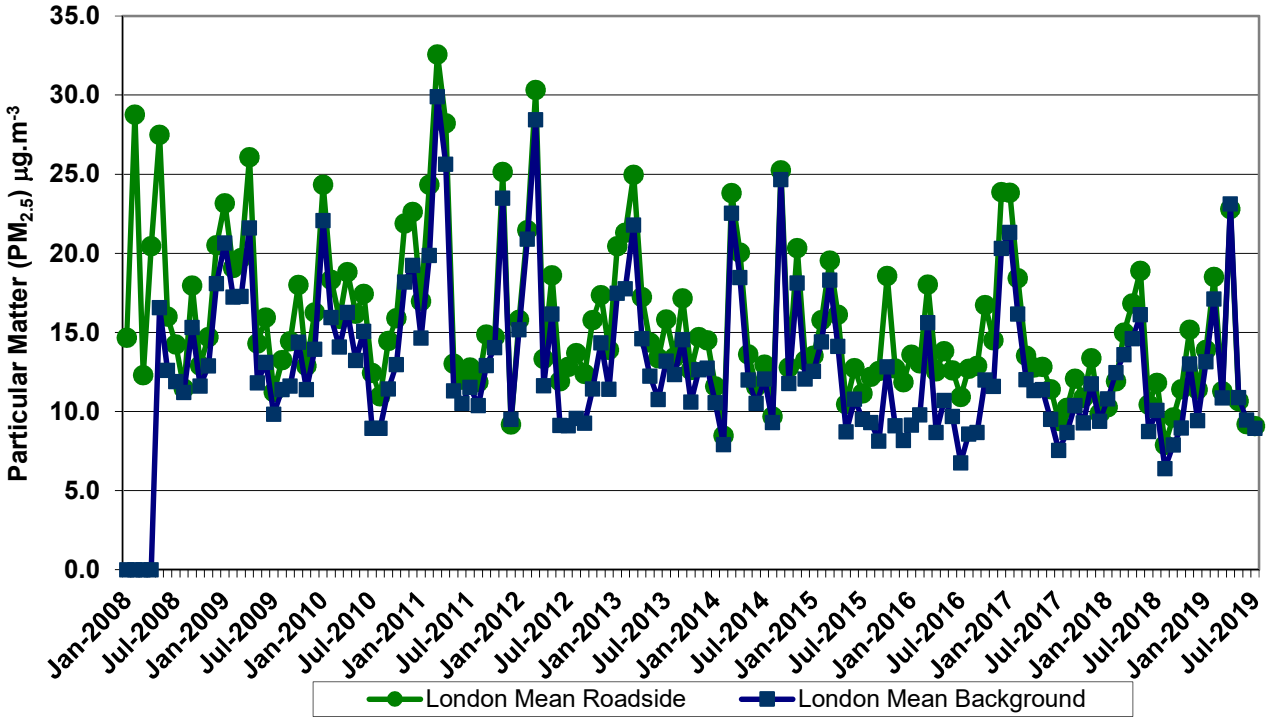


Figure 9 Trend of the monthly mean SO2 concentrations at London roadside and background sites

(Source GLA at http://data.london.gov.uk/dataset/london-average-air-quality-levels) (Accessed April 2020)

Southwark does not monitor for SO_2. **Figure 9** shows the average concentrations of all the SO_2 roadside and background monitors in the London Air Quality Network. The concentrations are well below the various objective limits. The 24-hour mean objective, not to be exceeded more than 3 times a year, is 125µg.m^{-3}. This is well off the scale of the graph above. However, the **Figure 9** is only showing data up to July 2019, as GLA / Imperial College have not updated the data within the GLA London Datastore.

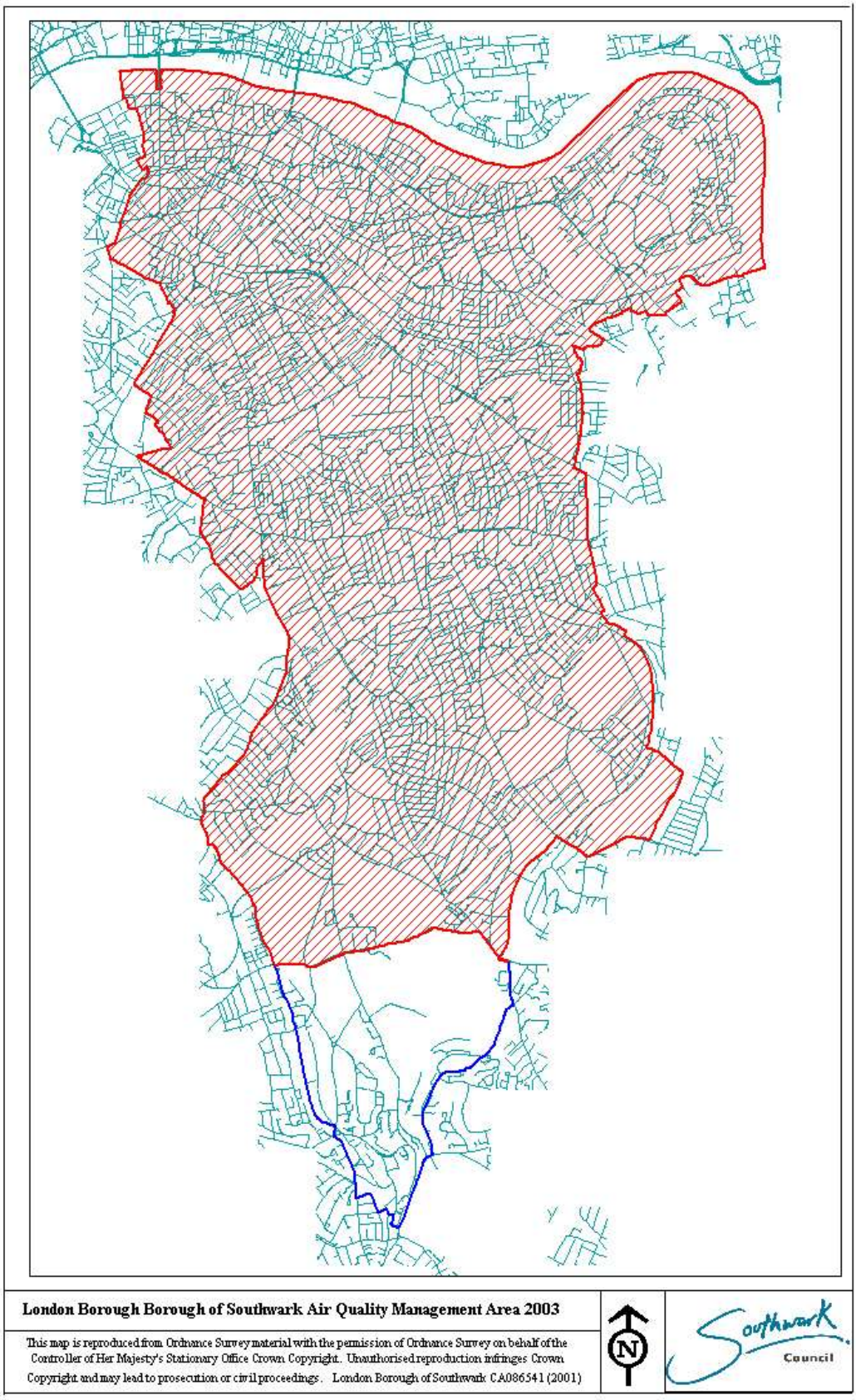


Figure 10 Map of Southwark's AQMA Boundary

1.3 Southwark's Air Quality Management Area

Figure 10 shows the map of the currently designated Air Quality Management Area in Southwark. This area was designated in 2003[5] and has remained unchanged through several reviews since. The Air Quality Management Area will be reviewed during the renewal of the Southwark's Air Quality Strategy and Southwark's Action Plan in accordance with the requirements of the London Local Air Quality Management Framework[6] during 2021.

1.4 Air Quality Focus Areas in Southwark

Figure 11 , shows the GLA Air Quality Focus areas in Southwark. For each GLA Air Quality Focus Area[7], there are objectives in the Air Quality Action Plan to reduce emissions and/or exposure to pollutants.

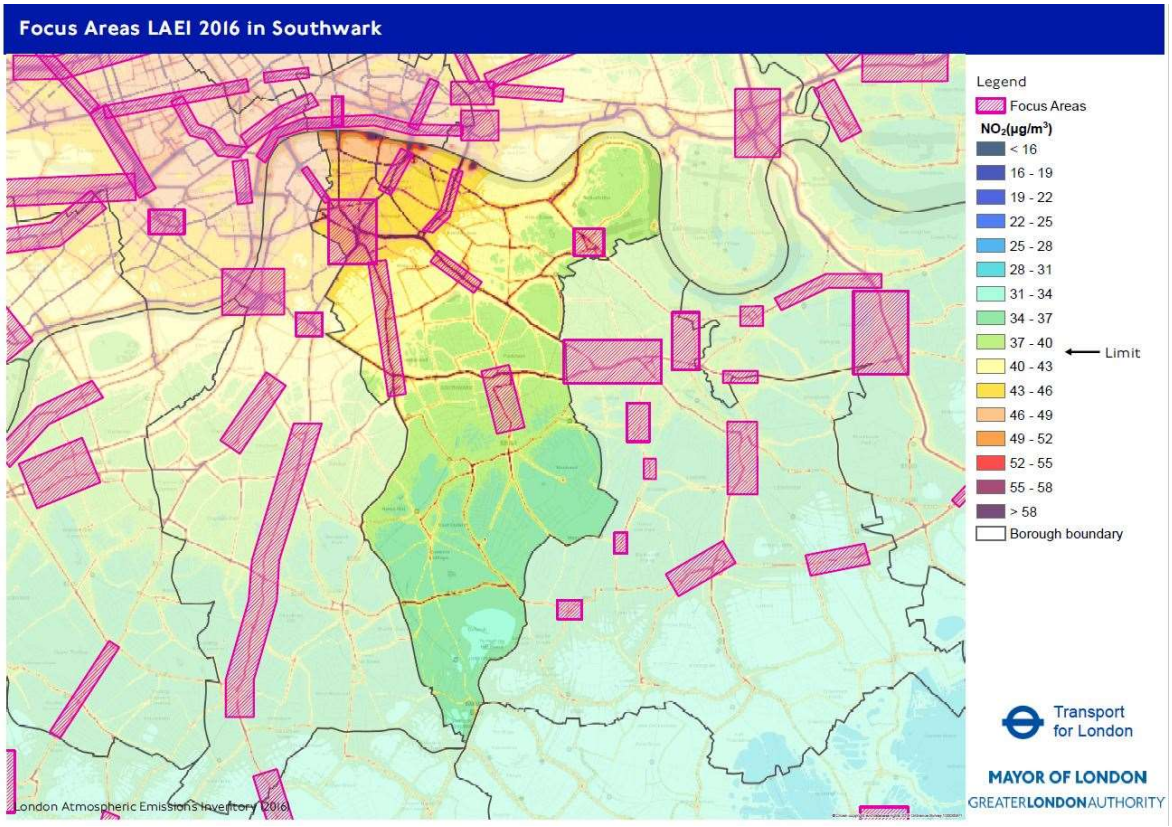


Figure 11 GLA Air Quality Focus Areas in Southwark

[5] https://www.southwark.gov.uk/assets/attach/3635/Southwark-air-quality-management-area-order-2003.pdf

[6] https://www.london.gov.uk/sites/default/files/llaqm_technical_guidance_llaqm.tg_16.pdf

[7] https://data.london.gov.uk/dataset/laei-2013-london-focus-areas

2. Impact of COVID-19 on LAQM

2.1 The National Picture

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

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

Despite challenges from the pandemic, the events of 2020 also provided Local Authorities with a novel opportunity to quantify the impact of large scale changes to road traffic and commerce on emissions of air pollutants. The vast majority (>95%) of AQMAs declared within the UK are related to road traffic emissions, where attainment of the annual mean objective for Nitrogen Dioxide (NO_2) is considered unlikely. On 23rd March 2020, the UK Government released official guidance advising all members of public to stay at home, with work-related travel only permitted when absolutely necessary. During this initial national lockdown (and to a lesser extent other national and regional lockdowns that followed), marked reductions in vehicle traffic were observed; Department for Transport (DfT) data[8] suggests reductions in vehicle traffic of up to 70% were experienced across the UK by mid-April, relative to pre-COVID-19 levels.

This reduction in travel, in turn, reduced air pollutant emissions from road traffic, i.e. Nitrous Oxides (NO_x), and exhaust and non-exhaust particulates (PM). The Air Quality

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

Expert Group (AQEG)[9] has estimated that within urbanised areas of the UK during the initial lockdown period in 2020, there was a 20 - 30% reduction in NO_2 annual mean concentration, relative to pre-pandemic levels. This represents an absolute reduction of 10 - 20µg.m^{-3}, expressed relative to annual mean averages.

During this period, changes in $PM_{2.5}$ concentrations were less marked than those of NO_2. $PM_{2.5}$ is a complex mix of components from a range of sources. The composition of $PM_{2.5}$ varies depending on emissions, weather conditions, local and regional contributions, and temporal variations. Urban background $PM_{2.5}$ concentrations are dominated by regional rather than local sources. $PM_{2.5}$ from sources in continental Europe, significantly affect concentrations in the UK[10].

Through analysis of AURN monitoring data for 2018-2020, AQEG have detailed that $PM_{2.5}$ concentrations during the initial lockdown period are around 2 to 5µg.m^{-3} lower than would be expected under business-as-usual conditions.

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

2.2 Impacts of COVID-19 on Air Quality in Southwark

Air quality in Southwark, during the Covid-19 lockdown, showed a reduction in the monthly diffusion tube concentrations of NO_2, so that for the first time in several years, none of the Nitrogen Dioxide Diffusion monitoring sites exceeded the Nitrogen Dioxide national annual mean objective of 40µg.m^{-3}. However, as the first lockdown eased, with people's reluctance to use public transport and greater use of private vehicles, there was an increase in monthly concentrations. **Figure 12** below illustrates this change at monitoring site SD15. This site is on a main arterial route into central London, and not all sites have shown this degree of variation. The data for the combined months of March and April are shown in Appendix B, but, as this is not

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

[10] Air Quality Expert Group, Fine Particulate Matter (PM2.5) in the United Kingdom, 2012

separated, it has not been included in this graph. This is to comply with Defra guidance which is : as all the diffusion tubes in Southwark were exposed for 10 weeks instead of the 5 weeks indicated in the national programme for nitrogen diffusion tubes, that the data should be excluded from calcualtions.

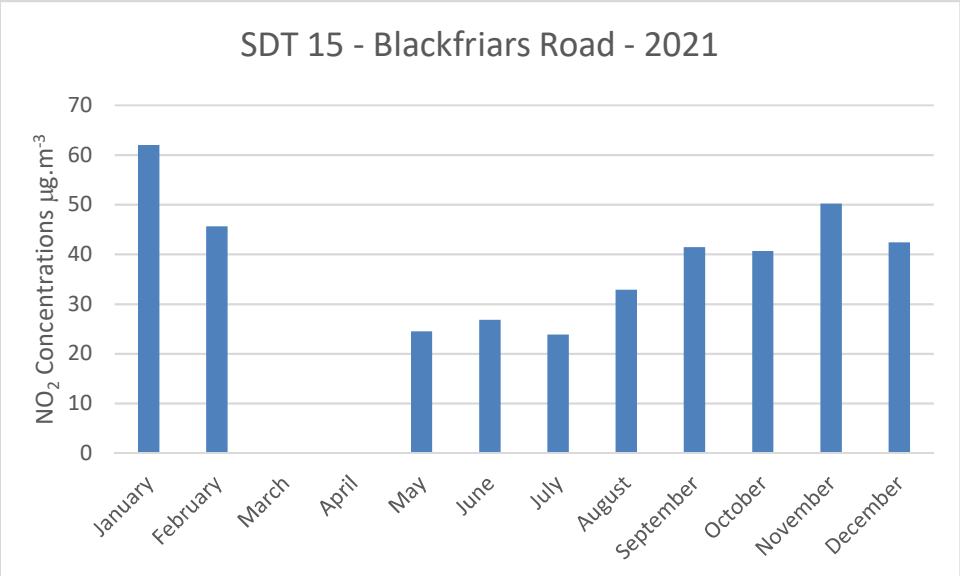


Figure 12 SD15 monitoring site showing a reduction of Nitrogen Dioxide concentrations during the first lockdown

The reduction in Nitrogen Dioxide concentrations experienced during 2020, shows annual mean objectives can be achieved from a large reductions in road traffic emissions.

2.3 Opportunities Presented by COVID-19 to LAQM in Southwark

The COVID-19 outbreak has provided Southwark with several opportunities, and measures have been developed and implemented in 2020 arising from the pandemic.

- Southwark accelerated the number of school streets introduced in the Borough and has widened pavements outside schools to help parents, carers and guardians to maintain social distancing at the school gate.

- Southwark closed Rye Lane between Hanover Place and Peckham Rye, to road traffic, diverting buses via Consort Road. Rye Lane commercial deliveries are restricted to one hour in the morning.
- In other high footfall and shopping areas, barriers were used to widen pavements and parking and loading bays were suspended to facilitate social distancing for pedestrians and those queueing on pavements.
- The number of Low Traffic Neighbourhoods (LTN) introduced was increased from the limited number planned, using the additional funding provided by TfL. The Experimental Traffic Orders used to introduce LTN's will be reviewed during 2021. Reaction to the LTN's has been mixed, with more deprived communities with higher air pollution exposure and lower levels of car ownership generally being more in favour, and more affluent communities with a higher level of car ownership being less so A significant challenge for the introduction of LTN's was the inability to conduct a pre-pandemic standard of public consultation process due to COVID-19 restrictions.

2.4 Challenges and Constraints Imposed by COVID-19 on LAQM within Southwark

The COVID-19 pandemic caused challenges and constraints in relation to Southwark's LAQM in 2020**.** The impacts have been assessed against the criteria in the LAQM Impact Matrix at **Table I**.

The constraints identified are:-

- The program of refit of the monitoring equipment in the existing air quality monitoring stations, and expansion of the network to 6 air quality monitoring stations (from 3), was delayed, in particular, the installation and commissioning of the new equipment. The production of plans for relevant planning and highways approvals were delayed as the technician producing the plans was diverted to work on drawings for COVID-19 highway measures. There was a lack of availability of electrical contractors due to demands of emergency work during the first lockdown period. Their subsequent backlog of work, when lockdown restrictions were lifted, caused further delay to the installation of an electrical supply to the new enclosures. As a result of these challenges,

commissioning of 2 of the 3 new air quality monitoring stations was delayed until 2021. **Impact – Medium to High**

- The existing monitoring stations were serviced, maintained and calibrated following the appropriate COVID-19 guidance at the time of the site visit **Impact – None**
- During 2020, Southwark's supplier laboratory for Nitrogen Dioxide diffusion tubes and analysis, temporarily ceased to offer supply and analysis of diffusion tubes. Southwark had already received the next batch of tubes, so it was decided to continue the exposure of the March batch until the end of April, and delay the deployment of the new batch. The exposed tubes were sent to Staffordshire County Council laboratory for analysis. The results have been included in Appendix B, but not included in any other calculations or reported on in this report following Defra supplementary guidance **Impact – Small**
- As reported in Section 3, several Air Quality Action Plan measures were not progressed during the year, either due to resources being diverted to other work, schools closures, or other pandemic related reasons. **Impact – Small to High depending on measure.** See details in Table J.

Table I Impact Matrix

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

3. Action to Improve Air Quality

3.1 Air Quality Action Plan Progress

Table J provides a brief summary of Southwark progress made this year delivering the current Southwark Air Quality Action Plan measures and actions.

Table J Delivery of Air Quality Action Plan Measures

No.	Measure		Action	Progress	Further information
1.1	Air quality monitoring	Maintain the continuous air quality monitoring stations	Ensure that the air quality monitoring stations at the Elephant & Castle, Old Kent Road & Tower Bridge are maintained, serviced and calibrated to current guidance	During 2020 a 4th monitoring station was added at Lower Road. The monitoring equipment at the Old Kent Road and Elephant & Castle was replaced. At all the sites Particulate Matter now includes monitoring for PM_{10} & $PM_{2.5}$. During 2021 2 further monitoring sites will be added to the network.	**Target not met due to C19 related delays**
1.2		Maintain the NO_2 diffusion tube survey	Ensure that the NO_2 diffusion tube monitoring is maintained and published in accordance with current guidance	NO_2 diffusion tube monitoring has been maintained in accordance with current guidance.	**Target met**
1.3				Data for the NO_2 diffusion tube monitoring is available at http://www.southwark.gov.uk/environment/air-quality/air-quality-data-monitoring-stations	**Target met**
1.4		Review the use of low-cost sensor technology to support air quality modelling	Support the University consortium 'Managing air for green inner cities' (MAGIC) project (London Road)	The monitoring project that was conducted during Summer 2019 around the Elephant & Castle measuring roadside concentrations and collecting the registration numbers using ANPR and speed cameras, showed that increasing the traffic light timing cycles did have effect on the local air quality, but	**Target met**

No.	Measure		Action	Progress	Further information
				further research is required to ascertain the impact on other parts of the road network.	
1.5	London Local Air Quality Management Framework	Prepare and produce all London Local Air Quality Management Framework reports as required	All reports required by the London Local Air Quality Management Framework produced and submitted	This report to be submitted by the Framework deadline of 31st May 2021.	**Target met**
1.6	London Local Air Quality Management Framework	Respond to all appropriate air quality consultations	Review all air quality consultation requests and respond where appropriate	The Environment Protection Team received and responded to 5 air quality related consultations during the year. (Combined Heat Plants, Environment Bill, Southwark's Climate Strategy, Southwark's Streetscape Plan and Planning for the Future)	**Target met**
1.7		Ensure the air quality action plan is current	Review the local air quality action plan to ensure it records achieved objectives and takes account of new evidence	The local air quality action plan 2017 – 2022 is reviewed annually through the ASR reporting process. The Authority has started the process for developing and approving a new AQAP for 2022 – 2027. The review of the current AQAP due in 2020 but delayed due to C-19 will be included in this review process	**Target met**
1.8		Have and continue to develop a communication plan and campaign of relevant air quality improvement topics	Devise an air quality communication plan and campaign	A Draft Air Quality Communication Plan has been devised, however due to priority C-19 work streams on testing and vaccination, the Communication Team has been unable to approve and deliver the plan in 2020	**Target not met due to C19 related delays**
1.9		Support the Mayor of London's call for a government scrappage scheme for private diesel vehicle in line with JSNA recommendation to continue to advocate for wider, regional action to address air quality	3 public statement/s of support from Cabinet Member issued	In the response to the Government's Clean Air Strategy and the Mayor's Environment and Transport Strategies, Southwark has supported the introduction of a scrappage scheme.	**Action complete**

No.	Measure		Action	Progress	Further information
1.10		Support the Mayor of London's call that the Government should modify the Vehicle Excise Duty regime to disincentivise the purchase of diesel vehicles in line with the JSNA recommendation to advocate for wider regional action to address air quality	3 Public statement/s of support from Cabinet Member issued	In the response to the Government's Clean Air Strategy and the Mayor's Environment and Transport Strategies, Southwark supported the call to modify the Vehicle Excise Duty regime to disincentivise the purchase of diesel vehicles.	**Action complete**
1.11	Corporate responsibility	Support the introduction of a new or revised Clean Air Act that improves public protection from atmospheric pollution in line with JSNA recommendation to "Continue to advocate for wider, regional action to address air quality."	Explore whether there is support for new or revised Clean Air Act or a new London Act with the GLA and London Councils	Southwark has engaged with the City of London, London Councils and the first readings of two private Members Bills. There is now a commitment by the UK Government to introduce further clean air legislation in the Environment Bill. A new measure/action to ensure the provisions are introduced in any Environment Bill is required.	**Action complete**
1.12		Reduce the council's pension investment in fossil fuels	Southwark is cutting investment in fossil fuels and have agreed to place part of the pension fund into the "Blackrock Low Carbon Target Equity Fund	Place part of our pension fund into the "Blackrock Low Carbon Target Equity Fund".	**Action complete – further opportunities to work towards full pension divestment from fossil fuels are being pursued**
1.13	Control of shipping emissions and use of shipping to mitigate land based transport emissions	Reduce emissions from shipping using the River Thames	Support the Port of London Authority in delivering its air quality action plan in relation to Southwark	No further work has been undertaken directly with the PLA, however the authority has taken regard of the PLA air quality action plan during preparation of the New Southwark Plan.	**Target met**
1.14				No further contact has been made by the PLA to detail how we can assist the undertaking of this research into the detailed feasibility into the potential of installing shore-side power in Southwark.	**Target met**
1.15	Environment Bill	Support the GLA, UK100 and London Councils	Lobby for strong commitments to air quality improvements and a robust regulatory regime in the forthcoming Environment Bill	Due to C-19 priorities the External Affairs Team were unable to resource this measure in 2020.	**Target not met due to C19 related delays**

No.	Measure		Action	Progress	Further information
1.16	Clean Air Bill	Support the GLA, UK100 and London Councils	Lobby for strong commitments to air quality improvements and a robust regulatory regime in the forthcoming Clean Air Bill	Due to Covid-19, the External Affairs Team were unable to resource this measure in 2020.	**Target not met due to C19 related delays**
1.17	Air quality standards	Borough commitment to WHO targets	Produce a report to lead member regarding adoption of WHO targets for $PM_{2.5}$ by 2030	The adaption of the WHO targets for $PM_{2.5}$ will be included within the Authority's review of the air quality management area and will be presented to the lead member during 2021.	**In progress**
1.18	Improved air quality	Biodiversity 'Net Gain' measure	Explore how implementation of 'Net Gain for Biodiversity' methodologies in the GLA Environment Strategy can support air quality improvement	Environment Act not yet passed by government. Early stage nternal discussions with relevant departments has commenced	**In progress**
1.19	Air Quality management framework	Air quality steering group	Set up a cross service air quality steering group to manage and oversee delivery of the AQAP actions and AQ improvement projects	Discussion held during 2020 with the Authority's Director for Climate, how the air quality work will integrate with the Authority's Climate Change Strategy. Governance of the Climate Change Strategy was not yet agreed in 2020.	**Target not met**

No.	Measure		Action	Progress	Further information
2.1	Local Air Quality Assessments	Ensure that Southwark Council's air quality technical guidance provides the latest advice on air quality assessment and mitigation	Devise air quality technical guidance	Technical guidance in place. This is reviewed annually.	**Action complete**
2.2			Include the air quality technical guidance standards in an SPD	The Technical Guidance on Air Quality document provides guidance to applicants and developers on achieving air quality standards. The national and regional air quality benchmark standards have remained consistent since publication of this guidance. Planning Policy are currently considering whether further guidance on air quality will be included within an updated revised Sustainable Design and Construction SPD in line with action number 5.18, or whether this action would be better placed in a new Climate Emergency SPD. Planning Policy will be reviewing all SPDs after the New Southwark Plan is adopted in 2021 to ensure that all relevant guidance and processes are set out for all relevant policies.	**Target not met**
2.3	Environmental Standards	Planning applications assessed to ensure that all developments meet the requirements of the local air quality technical guidance	Assessment of 100% of all relevant planning applications with reference to the air quality technical guidance	All relevant planning applications assessed against the air quality technical guidance.	**Target met**
2.4	Increase the awareness of residents, businesses & visitors of the need to reduce emissions to atmosphere	Promote the reduction of total emissions to atmosphere	Public information campaign on domestic &/or commercial heating fuel type and fuel economy	This was included as part of the proposed air quality communication plan, but due to C-19 the plan was unable to be approved by the Comms Team in 2020	**Target not met due to C19 related delays**
2.5	Low Emission Neighbourhood	Review the GLA Low Emissions Neighbourhoods pilot project to support the JSNA recommendation to maintain our multi-agency approach to air quality.	Review and learn from the evaluation reports of the MAQF Low Emission Neighbourhoods schemes	The watching brief of the previous Low Emissions Neighbourhoods has continued and leanrning incorporated into the Walworth Low Emissions Neighbourhood.	**Target met**

No.	Measure		Action	Progress	Further information
3.1	Encourage residents and those working in the borough to walk and cycle	Encourage children and parents to walk or cycle to school or nursery	Promote School Travel Plans & increase the number of schools attaining TfL STARs Silver or Gold accreditation each year	All London Boroughs were informed that due to C-19 the STARS programme was effectively "on hold" and Boroughs should not contact schools to complete activities. Those schools that are doing activities will receive a STARs Notification for this year's activities. This will not resemble the certificate, which is provided for Accreditation levels. As hands-up surveys will not be possible TfL are not conducting an Accreditation this Academic year. The STARs Notification will hold the schools Accreditation level for a further year. Any activities completed will contribute to the schools next Accreditation in July 2022	**Target not met due to C19 related adjustments**
3.2					
3.3		Encourage Southwark staff to commute by walking or cycling	Promote the Authority's Travel Plan	A full Council-wide programme reviewing and updating Staff Travel policies and procedures was underway in late 2019 and early 2020. This delivery of this programme has been paused as the majority of staff are working from home so data or this year is aytipical	**Target not met due to C19 related delays**
3.4			Provide greater access to cycles for staff by promoting the use of pool cycles &/or provide cycling offer annually	As majority of staff are working from home, this measured is paused.	**Target not met due to C19 related delays**
3.5			Provide greater access to cycles for staff if the pool cycle demand exceeds capacity. Introduce additional pool cycles to meet demand	As majority of staff are working from home, this measured is paused.	**Target not met due to C19 related delays**
3.6		Encourage employees of businesses in Southwark to commute by foot or cycle	Encourage employees of businesses in Southwark to walk or cycle through the promotion of business specific travel plans	As working patterns, for many workers in Southwark, have changed during the pamdemic this action has been revised.	**See revised action at 3.17**

No.	Measure		Action	Progress	Further information
3.7		Encourage residents to walk or cycle in the Borough	Promote active travel through relevant public health work streams and services including physical activity and healthy weight	During the year, the Authority introduced several LTN's and increased pavements widths in shopping areas and adjacent to schools and actively encouraged and facilitated walking and cycling for local travel..	**Target met**
3.8	Increase public awareness of air quality forecasting and information on avoidance of high levels of pollutants	Public aware of how to access AirText, CityAir and Walk-it apps	Promotion of availability of AirText, CityAir and Walk-it apps especially to vulnerable groups	During 2020, the Environment Protection and Public Health Teams reviewed air quality alerts and messaging. We have secured funding from internal grant sources and Impact on Urban Health to instigate a digital discovery project to improve the uptake and appeal of Air Text and current air quality alert systems available within the Borough.	**Target met**
3.9	Evidence based policy	Ensure action to tackle health impacts where air quality information is intelligence-led and evidence based	Provide PH advice and guidance on the health impacts of air quality and mitigating actions	JSNA on air quality was reviewed When Public Health resource is available new evidence will be incorporated into new recommendations. Impact of recent coroners court implications for childhood asthma anre being developed.	**Target met**
3.10	Web information on air quality	Southwark website content has comprehensive air quality information and guidance	Ensure web-based information is accurate and up to date	The air quality web page/s content is reviewed annually and as required	**Target met**
3.11	Increase awareness of air quality issues	Public and businesses aware of the impact of their actions on air quality	Communication campaign on personal or business behaviour change to improve air quality	Information is included on the Authority's air quality web pages and is updated annually as a minimum. Web page content will be further advertised when the AQ communication campaign commences	**Target met**
3.12		Provide general public with advice on what they can do to improve air quality	Prepare guidance for general public on what they can do to improve air quality	Information is included on the Authority's air quality web pages and is updated annually as a minimum.	**Target met**

No.	Measure		Action	Progress	Further information
3.13		Notify all 5 Community Councils of revised Air Quality Strategy 2017 – 2022 in support of JSNA recommendation to "Maintain our multi agency approach to air quality."	Present Air Quality Strategy 2017 – 2022 at all Community Councils	Presentations occurred in 2017	**Action complete**
3.14	Protect health of vulnerable groups including children, the ill and the elderly from poor air quality	Ensure those advising people in poor respiratory health have advice on reducing personal exposure to atmospheric pollutants	Work with clinicians via Breathlessness Group of CCG to ensure GPs and other health professionals have access to appropriate prompts, advice and information for use in GP surgery consultations	No work with the Breathlessness Group of CCG was possible due to C19. At the end of 2020 the Environmental Protection Team have presented at and regularly attend the SE London Children and Young People Asthma Network.	**Target partially met**
3.15		Provide advice to schools and nurseries with regard to improving air quality in and around their premises and on how to avoid exposure to high pollution environments	Devise advice to schools on air quality	Advice available on Southwark Council aire quality webpage/s	**Action completed**
3.16	Reduce traffic emissions	Reduce business use of vehicles	Work with BIDs to develop improved measure of business sector transport	Worked with Team London Bridge on a business directory of local companies that make deliveries by cargo bikes as part of the TfL/Team London Bikes for Business Project. Better Bankside run similar schemes including trials of a Brompton bike.	**Target met**
3.17 (revised 3.6)	Encourage employees of businesses in Southwark to commute by foot or cycle	Reduce business use of vehicles	Work with BIDS to encourage employees of businesses in Southwark to walk or cycle through the promotion of business specific travel plans	Worked with Team London Bridge to publicise several events to encourage businesses to walk and cycle more, from cycle repair and marking of bicycles, to maps showing cycle parking sites.	**Target met**

No.	Measure		Action	Progress	Further information
4.1	Reducing Emissions from Delivery and Servicing	Develop a freight consolidation solution for Southwark	Carry out a joint feasibility study with Lambeth, Wandsworth and Croydon	Feasibility study indicated minimal or no benefit from implementation of a consolidation solution - Action complete	**Action complete**
4.2			If the feasibility study is positive, monitor the preferred solution	N/a	**Action complete/not applicable due to the outcome of Measure 4.1.**
4.3			If the feasibility study is positive, evaluate the preferred solution	N/a	
4.4		If consolidation centre opens – All Southwark Council suppliers to use the proposed freight consolidation solution where possible	Ensure in-contract documentation that all Southwark Council suppliers are required to use any implemented consolidation solution	N/a	
4.5	Reducing Emissions from Delivery and Servicing	All non-consolidation solution suppliers to the Authority, with a large fleet to join the Fleet Operator Recognition Scheme (FORS) and obtain Silver accreditation as a minimum	Insert within standard contract documentation that all suppliers of large fleet are required to hold Silver accreditation of the Fleet Operator Recognition Scheme (FORS) or it be achieved within six months of the contract being signed, along with an ongoing commitment to use ULEV's	Documentation is in progress and this requirement is contained within the Fairer Future Procurement Framework as a statement for doing business with Southwark Council: https://www.southwark.gov.uk/business/procurement/policy-and-guidance-for-procurement	**Action complete**
4.6		To support sustainable logistical measures in the north of the Borough	Work with stakeholders to promote rationalisation of deliveries and collections using low & zero emission vehicles and local distribution hubs for final stage delivery. Explore the	Discussion held with a cycle courier to set up a consolidation hub in the Camberwell / Walworth area, but a suitable location has not been identified.. The authority has joined with Pedal-Me to deliver goods to residents from local businesses.	**Target met**

No.	Measure		Action	Progress	Further information
			feasibility of new technologies for smart deliveries	Plans for a virtual loading bay as part of the Walworth LEN project have been devised Work on installation and virtuail booking is still in progress. Have participated in distribution centre study and created new tool to ensure cycle lanes can accommodate cycle freight.	
4.7		Reduce Southwark commercial fleet emissions.	Switch to use of low or no emission vehicles	During the year the full sustainability evaluation was introduced. Since Autumn 2020 all vehicles procured have gone through this process	**Target met**
4.8			Produce mileage and efficiency guidance for services	Guidance has been produced on mileage and efficiency. This will be launched Spring 2021. New mileage and fuel use procedures have been introduced in 2020. Further enhancement to the process to be implemented in 2021.	**Target met**
4.9		Introduction of telematics on commercial fleet	Install telematics on commercial fleet	Due to C-19 issues, there has been no progress in introduction to telematics policy. Trade unions discussions ongoing.	**Target not met due to C19 related delays**
4.10		Smarter Driver Southwark fleets Training for all drivers	Introduce Smarter Driver training requirement for all current fleet drivers	Delayed due to C-19 now to be introduced Summer 2021	**Target not met due to C19 related delays**
4.11			Introduce Smarter Driver training requirement for all new fleet drivers		**Target not met due to C19 related delays**
4.12	Travel planning	Maintain an up to date Council Travel Plan consistent with the aims of the air quality action plan	Undertake survey of staff travel arrangements	Due to the Covid-19, the review of the staff travel plan was put on-hold	**Target not met due to C19 related delays**
4.13			Review the Authority's Travel Plan		**Target not met due to C19 related delays**

No.	Measure		Action	Progress	Further information
4.14	Reducing emissions from Taxies & Private Hire Vehicles	Smarter Driver Training for drivers of all taxis and private hire vehicles	Ask the GLA & TfL to introduce a requirement that all PCO licences include a Smarter Driver training element in line with JSNA recommendation to maintain our multi-agency approach to air quality	No opportunity occurred during 2020 due to C-19 related priority activity	**Target not met due to C19 related delays**
4.15		Support the Mayor of London's requirement that all newly licenced taxis be zero emission capable from 2018 in line with JSNA recommendations	Support TfL in the identification and installation of EV charging points in line with JSNA recommendations to maintain our multi agency approach to air quality	Further EV charging points have been installed in the Borough, however information on the internet is incomplete, with the various sources not providing consistent information. A survey of the EV charging points in the Borough to be carried out during 2021. Work is in progress.	**Target met**
4.16	Reducing vehicle emissions	Reduce emissions from buses in the borough in line with JSNA recommendations	Work with TfL & GLA to deliver low emission bus zones and routes in Southwark in line with JSNA recommendations to maintain our multi agency approach to air quality	All the low emission low bus zones in Southwark has been completed.|Further work on more routes/zones is in progress.	**Target met and action complete**.
4.17	Reducing vehicle emissions	Work with TfL and other London Boroughs to extend the Ultra-Low Emission Zone (ULEZ) to the South Circular initially, with a long term option to extend to the M25 in line with JSNA recommendations	Respond to all consultations and via any relevant forums on the ULEZ recommending the ULEZ be to the South Circular initially with a long term option to extend to the M25	Expansion of ULEZ to south circular delayed to Oct 2021	**Action complete** **See measure 7.14**

No.	Measure		Action	Progress	Further information
4.18	Reducing vehicle emissions	Reduce fine particle emissions from tyre, brake and clutch components in line with JSNA recommendation to Continue to advocate for wider, regional action to address air quality reduce re-suspension of road dust	Engage with appropriate researchers and industries to increase research to reduce fine particle emissions from tyre, brake and clutch components in line with JSNA recommendation to maintain our multi agency approach to air quality	Joint MAQF project with Lambeth researching road dust in progress	**Action complete**
4.19		Reduce re-suspension of road dust	Explore possibilities for more extensive wet road cleaning techniques	Joint MAQF project with Lambeth researching road dust in progress	**Action complete**
4.20		Vehicle idling awareness	Run public awareness campaign	Campaign delivered	**Action complete**
4.21		Enforcement of the provisions of the Road Traffic Act	Authorise street based enforcement staff	Street based staff authoirsed	**Action Complete**
4.22			Enable the Parking Enforcement staff to undertake enforcement through current contract	Street based staff authoirsed	**Action Complete**
4.23			Authorise other street based staff to undertake enforcement	Street based staff authoirsed	**Action Complete**
4.24	Emissions from vehicles	Variable vehicle parking charges to promote use of less polluting vehicles	Review the charges for on-street parking & permits	The council has implemented the revised policy of the Pay and Display charging and parking permit charges. A diesel surcharge is now applied to all vehicles which are not ULEZ compliant and pay by phone and park in the council's permitted parking places of approximately 25% increase over other vehicle types. In addition a diesel surcharge is being applied to all non-ULEZ diesel vehicles with an on-street residential/business	**Target met**

No.	Measure		Action	Progress	Further information
				parking permit, of £120 per annum alongside existing discounts for electric and hybrid vehicles. Options for further expanding charges using vehicle emissions are being considered with an options report to members due in Q1 2021/22	
4.25			Review the charges for Housing Estate parking permits	The review of the charges for Housing Estate parking permits has been further delayed due to C-19 priorities to June 2022 from February 2021.	**Target not met due to C19 related delays**
4.26		Promote the reduction of total emissions to atmosphere	Public information on alternative fuels for fleets/cars	Work is being carried out during the year, to produce a map of the electric charging points in the borough. Within the Borough the Southwark has a target to work towards having electric car charging points on every street with an additional 200 charging points delivered by 2022.	**In progress**
4.27	Air quality around schools	Reduce parent & carer parking close to primary schools and nurseries	Pilot School Streets at 5 primary schools or nurseries (by 2022)	Due to the extra requirements for social distancing due to C-19, School Streets have been accelerated and now cover 25 schools in the Borough.	**Target met**
4.28	Air quality around schools	GLA Air Quality Audits for primary school/s	Air Quality Audit/s facilitated	Air quality audits undertaken	**Action complete**
4.29		GLA Air Quality Audits for primary school/s	Identify funding to implement the Air Quality Audit recommendations	Funding has been found from an internal capital bid, requested other service departments to provide costing for the implementation of the recommendations. From the costing information, a programme of works to be drawn up and implemented.	**Action complete**
4.30			Encourage schools to implement the GLA Air Quality Audit recommendations and inform schools about funding sources for implementation	Schools provided with audit reports and starter grant funding and information on further funding sources. Work to continute to monitor and encourage schools to ensure ensure delivery of audit recommendations is ongoing	**Action complete**
4.31		Southwark Air Quality Audits for primary schools	Facilitate Air Quality Audits at 34 Southwark maintained schools as listed by the GLA	Southwark has let a contract to WSP to progress the air quality audit of 34 Southwark maintained schools, with a £5k grant to implement any of the audit recommendation in Spring 2021.	**Target met**

No.	Measure		Action	Progress	Further information
4.32			Provide access to AQ Audits to all non-community schools in the Borough that are on the GLA list	As part of the WSP contract, Southwark has written to all the non-Southwark maintained schools to offer an air quality audit at the unit contract price and the opportunity to receive an £5k air quality grant to kick start implementation of any audit recommendations.	**Target met**
4.33			Identify funding to implement the Southwark schools Air Quality Audit recommendations	When the audit reports are received, further funding will be sought	**In progress Target will be met in 2021**
4.34			Ensure school air quality audit reports are received within performance management targets specified in contract	A mechanism has been built into the contract to ensure that the contract reports are received promptly	**Target met**
4.35			Ensure the overarching priority recommendations report is received within performance management targets specified in contract		
4.36			Promote and share actions that will improve air quality for the school community through Southwark and GLA Air Quality for Schools Networks	Southwark Air Quality Officers attend the GLA / GAP Schools forum.	**Target met**
4.37	Reduce private vehicles in the Borough	Promote the use of shared mobility in Southwark	Continue to promote & encourage shared mobility systems	Work is still in progress. Advised TfL where to install Cycle Hire along C4, and funding 10 more sites. Also supporting e-scooter site identification.	**In progress**
4.38	Reduce traffic emissions	Movement Plan impact assessment	Monitor whether implementation of the Movement Plan achieves the reductions in NO_x, PM_{10} and $PM_{2.5}$ sought by the Mayor of London Transport Strategy outcome 4	Work is still in progress, but has been complicated by C-19 related highway modifications	**In progress**

No.	Measure		Action	Progress	Further information
4.39		Reduce re-suspension of road dust	Explore possibilities for more extensive wet road cleaning techniques	Due to the C-19 the trials of different types of the Road Sweepers has been programmed to occur during Spring 2021, the literature review has been completed.	**In progress**
4.40	Reduce emissions from Rotherhithe Tunnel	Reduce pollutant levels at tunnel vent shaft outlets and portals	Work with TfL's Tunnel Team and Tower Hamlets officers to monitor air quality in the tunnel and around the tunnel vents and portals	Southwark has worked with TfL's Tunnel Team and Tower Hamlets to monitor air quality in and around the infrastructure and work to the vents and tunnel ventilation system and controls on the size of vehicles permitted to use the tunnel has significantly improved air quality in the adjacent areas to the exhaust vents.	**Action complete**
4.41			Work with TfL's Tunnel Team and Tower Hamlets officers to identify further improvements to the tunnel current ventilation system	TfL Tunnel Team had secured significant funding to improve the ventilation system and is working towards an engineering solution to improve air quality within the tunnel and to further improve the quality of exhaust emissions at the vents with a full tunnel ventilation refit.	**Target met**
4.42			Lobby TfL to fund and develop a plan to refit the tunnel ventilation system	TfL provided assurances at the end of 2020, that the refit of the tunnel ventilation system was a TfL priority	**Action complete**

No.	Measure		Action	Progress	Further information
5.1	Reduction of carbon emissions	Require developers to contribute to reducing atmospheric emissions in line with JSNA recommendations to build on existing Council work to further address air quality locally	Achieve minimum 35% regulated carbon emissions reduction on Part L of 2013 Building Regulations on all new major developments in line with JSNA action to continue to develop and adopt robust planning policies that require high standards from new development proposals, particularly in identified areas such as Opportunity Areas or Air Quality Focus Areas	Ongoing - achieving target at present.	**Target met**
5.2			Any of the 35% minimum CO_2 reduction not achieved on-site to be secured through S106 for the "Green Fund" (carbon off-setting projects) for the equivalent remaining regulated carbon emission savings in line with JSNA action to "Continue to develop and adopt robust planning policies that require high standards from new development proposals, particularly in identified areas such as Opportunity Areas or Air Quality Focus Areas"	Ongoing - achieving target at present.	**Target met**
5.3			New homes on all major developments to be zero carbon as per London Plan policy 5.2, achieved either on-site or via financial contributions for off-setting in line with JSNA action to continue to develop and adopt robust planning policies that require high standards from new development proposals, particularly in identified areas such as Opportunity Areas or Air Quality Focus Areas	Ongoing - further details relating to carbon offset fund are being agreed and will be published when agreed.	**Target met**

No.	Measure		Action	Progress	Further information
5.4			All major developments to achieve Air Quality Neutral Standards onsite in line with JSNA action to continue to develop and adopt robust planning policies that require high standards from new development proposals, particularly in identified areas such as Opportunity Areas or Air Quality Focus Areas	Ongoing - achieving target at present.	**Target met**
5.5	Reduction of carbon emissions	Require developers to contribute to reducing atmospheric emissions in line with JSNA recommendations to build on existing Council work to further address air quality locally	Where Air Quality Neutral standards are not achieved on-site, off-setting funds secured through section 106 to be used to ensure development meets the air quality neutral standard equivalent	Ongoing - achieving target at present.	**Target met**
5.6			Commit and spend all off-setting funds on carbon off-setting projects	Ongoing - further details relating to carbon offset fund are being agreed and will be published when agreed.	**Target met**
5.7	Improve the energy efficiency in Southwark homes	Promote reduced energy consumption and bills	Promote low cost energy efficiency measures	Will be part of air quality awareness comms campaign. Delayed due to C-19 related comms priprities	**Target not met due to C19 related delays**
5.8		Maximise funding streams available to improve energy efficiency	Bid for funding where it will be beneficial to energy efficiency and fit in with the overall council objectives	No suitable grant funds identifined in 2020	**Target not met**
5.9	Improve energy efficiency in Southwark homes	Install ultra-low NO_x boilers in council & TMO housing	Install ultra-low NO2 boilers when boilers are replaced in council and TMO housing	The Housing and Modernisation Department was able to complete 1800 installations during 2020	**Target met**
5.10		Develop & implement a strategy for communal boiler upgrades and renewals within council housing	Develop & implement the strategy for communal boiler upgrades and renewals	Strategy update to be presented to cabinet in Feb 2022. Salisbury Estate completed in 2020 for 223 properties.	**Target met**
5.11		Monitor the effect of energy efficiency improvements in the Council's social housing planned renewal programme	Implement monitoring regime for improvement programme in the social housing planned works programme	Will be progressed when consultant report on LAs large boilers is complete	**In progress**

No.	Measure		Action	Progress	Further information
5.12	Promote the use of renewable energy and minimise the energy demand of Southwark estate	Reorganise the use of space in operational council buildings to reduce overall energy demand	Improve the use of Council buildings making them more sustainable, flexible, cost & space efficient	Council buildings have been adapted to ensure that their operation is C-19 compliant	**Target met**
5.13		Be aware of the energy used and generated by the Authority's operational buildings	Publish on-line information of the energy used and any generated by the Authority's operational buildings	The Council is currently working to construct an up to date full and accurate baseline of its operational emissions and associated carbon impact. Once completed officers will review how best we may publish live or near-live energy use and generation data.	**In progress**
5.14	Promote the use of renewable energy and minimise the energy demand of Southwark Housing	Explore the opportunity to install renewable energy technologies in Southwark housing	Through extra funding, explore the opportunities for installing renewable energy technologies, energy efficiency measures and insulation retrofitting	WSHP installation project went into contract in June 2020 and progressing well towards anticipated completion in Aug 2021. Other renewable energy opportunities are being identified through options appraisals. Funding explored. Ground Source heating is being introduced on the Newington Estate. Southwark Council has entered in to a contract with Veolia Environmental Services Southwark Ltd to provide heat and hot water from SELCHP plant in Lewisham to some Southwark homes. Target remains the same and progress being made towards developing a major expansion to the SELCHP district heating network.	**Target met**
5.15			Explore options to set up community energy schemes on estates	See above	**Target met**
5.16			Explore use of low energy alternatives and motion sensor systems to major repairs to lighting systems on estates	Emergency lighting smart scan to 316 properties across 52 blocks. Savings on CO_2 LED lighting and emergency lighting tests.	**Target met**

No.	Measure		Action	Progress	Further information
5.17	Ensure new developments minimise their impact on local air quality and climate change	Develop robust air quality planning policies	Develop robust air quality planning policies in the New Southwark Plan, Old Kent Road Opportunity Area Plan & any new and revised Neighbourhood Plans in line with JSNA recommendations to "Commission an air quality study for the Old Kent Road Opportunity Area"	The New Southwark Plan is undergoing Examination in Public and is due for adoption in August 2021. Policy P64 Air Quality sets out the standards that development must achieve to be acceptable. The policy achieves general conformity with national and regional policy on air quality. Consultation on the draft Old Kent Road Area Action Plan is currently taking place.	**Target not met**
5.18		Highlight design guidance for best practice in reducing emissions to air	Develop a revised Sustainable Design and Construction SPD that includes up to date guidance on improving air quality	We are considering whether a revision to the Sustainable Design and Construction SPD is necessary, or whether air quality details may be included in the proposed new Climate Emergency SPD. We will be reviewing all SPDs after the New Southwark Plan is adopted to ensure that all relevant guidance and processes are set out for the policies.	**Target not met**
5.19	Increase number of Southwark Council Homes using renewable energy	Increase no. of Southwark Council Homes using renewable energy from SELCHP	Connect more dwellings to SELCHP	See 5.14	**Target met**
5.20	Area and Heat Power Network	Provide an Area Heat and Power Scheme in the Borough	Explore how Southwark can replicate the “Croydon Central Area Heat and Power Scheme” within the Borough’s Opportunity Areas	SELCHP is already in place within the Old Kent Road Opportunity Area. Progress on achieving the recommendations set out in the Heat Mapping and Master Planning (2019) report by Arup is lead by the Heat Networks Governance Board	**In progress**
5.21	Zero Emission Network	Provide a Zero Emission Network in the Borough	Explore how Southwark can develop a Zero Emission Network	Not actioned to date	**Target not met**
5.22	Reduction of carbon emissions	Revised measure for Air Quality Neutral	Working with planning services to better define and measure progress against target.	This will be part of the development of SPD’s workstream	**Target not met**

No.	Measure		Action	Progress	Further information
6.1	Smoke Control Zone	Enforcement of the Clean Air Acts	Ensure that all retail premises selling wood and coal are aware that the whole of Southwark is a Smoke Control Area	Retail premises selling wood and coal were made aware that the whole of Southwark was a Smoke Control Area, late 2019. However this was not followed up with a communication campaign during 2020, due to the C-19 comms teams prirotieis	**Targets not met due to C19 related delays**
6.2		Discourage burning of logs and house coal	Undertake a public communication campaign during Autumn 20 to highlight pollution caused by using non-smokeless fuels		
6.3	Emissions from industrial premises	Regulation of EPA Part B processes	All IPPC premises in the Borough inspected in accordance with their risk assessment	The crematorium have been inspected in accordance with their risk assessment, majority of IPPC premises in the Borough are Low Risk, which are due to be completed during 2021.	**Target met**
6.4	Green infrastructure	Increase the amount of green infrastructure	Explore all opportunities to install green infrastructure	During the FY 2020/21 to date we have increased the amount of green infrastructure by e.g. installing 36 modal filters (not including school streets), 51 uncontrolled crossing and 10 controlled crossing. We also completed 1.8 km of cycle route that meets the TfL Quality Criteria and installed 13 cycle space on-streets and 52 cycle hangars. – The majority with associated planters and soft landscaping. The council has also revised its green space and biodiversity strategies to encourage further tree planting and increase green infrastructre	**Target met**
6.5	Healthy Streets	Assess the Borough's Highways against the criteria in TfL's Healthy Streets approach	Highway projects to be assessed against the TfL's Healthy Streets criteria	All improvement schemes are assessed against the TfL Healthy Streets criteria.	**Target met**
6.6	Emissions from development	Emissions from construction work minimised	Ensure that all strategic and major developments are aware of the Authority's Technical Guidance for Demolition & Construction	Environmental Protection officers use the planning consultation process, planning conditions,Contruction and Demolition Environment Management Plans, NRMM and environmental law enforcement to	**Target met**

No.	Measure		Action	Progress	Further information
				work with contractors to minimise emissions from construction sits and their logistics. The Technical guides for sontruction and air quality are fundmental documents of reference in these processes and interactions	
6.7	Emissions from construction equipment	Ensure all Non-Road Mobile Machinery (NRMM) complies with the GLA SPG construction criteria	Ensure that all strategic & major construction sites are on the on-line NRMM register	Work with Merton on MAQF funded NRMM project – enforcement action taken where non-compliance is identified	**Target met**
6.8			All strategic and major construction sites inspected for NRMM compliance	Above project is still in progress	**In progress**
6.9	Emissions from developments and premises	Enforcement of the provisions of the Environmental Protection and Clean Air Acts	Apply the provisions of Clean Air Act 1993 S.14 (chimney height) to appropriate developments	During 2020, two applications were assessed, processed and approved.	**Target met**
6.10		Enforcement of the provisions of the Environmental Protection and Clean Air Acts	Investigate all reports of bonfires & open burning	100% of complaints responded to in 2020	**Target met**
6.11	Emissions from waste management process	Enforcement of the Permit conditions at waste management sites in the Borough	Liaise with Environment Agency to ensure appropriate controls are being used to minimise and mitigate the creation of dust and fume at waste management sites in line with JSNA recommendation to maintain our multi-agency approach to air quality	100% of complaint and new applications addressed in consort with EA	**Target met**
6.12	Improved air quality	$PM_{2.5}$ from catering sources	Revise the air quality technical guidance for planning applications	The revised air quality technical guidance has been completed and have been applied to complaints involving complaints regarding commercial kitchens	**Complete**
6.13			Apply revised technical guidance standards with regards to complaints regarding emission from commercial kitchens		**Target met**
6.14			Ensure all planning applications for catering premises include adequate provision for exhaust gas filtration and/or treatment	All relevant planning applications assessed by Environmental Porection and conditioned appropriately if granted	**Target met**

No.	Measure		Action		Progress	Further information
7.1	GLA Air Quality Focus Areas	Ensure that local air quality is monitored in the GLA Air Quality Focus Areas	Diffusion tube survey expanded to include all GLA Air Quality Focus Areas		Survey expanded	**Action complete**
7.2		Improvement of air quality in the GLA Air Quality Focus Areas	Implement an air quality improvement project in each GLA Air Quality Focus Area. Ensure they are linked to relevant regeneration plans and build on any existing relevant initiatives to encourage modal shift towards public transport, cycling & walking	GLA AQ Focus Area 147 – Peckham Town Centre	The Peckham Town Centre, the Traffic has been removed from Rye Lane and TfL has made alteration to the Peckham High Street in the vicinity of Rye Lane and introduced protected cycle lines on Peckham High Street.	**Target met**
7.3				GLA AQ Focus Area 148 – Tower Bridge Road	A Study has shown that a premises adjacent to this Focus area could be a potential cycle logistics hub for the area. On Tower Bridge Road the authority is working with TfL to improve the bus lane here.	**Target met**
7.4				GLA AQ Focus Area 149 – London Bridge Area	The pavements has been widened in this area, by barriers, TfL have introduced a daytime ban to majority of traffic types over London Bridge and banned the right turn from Borough High Street into St Thomas Street and Duke Hill / Tooley Street	**Target met**
7.5				GLA AQ Focus Area 150 – Old Kent Road	Updating the Area Action Plan for the Old Kent Road area and introducing air quality modelling in the area. Looking at project to increasing Cycle Freight work in this area working with parcel firms on Mandela Way.	**Target met**
7.6				GLA AQ Focus Area 151 – Elephant & Castle	Worked with TfL to install bus lane on New Kent Road and will look to work with TfL to follow up the work produced by the Magic Project next year.	**Target met**

No.	Measure		Action		Progress	Further information
7.7				GLA AQ Focus Area 152 – Walworth Road / Camberwell Road	Southwark has an MAQF LEN in the Walworth area and a GLA Good Growth Funding for Camberwell Road	**Target met**
7.8				GLA AQ Focus Area 153 – Lower Road	Lower Road accelerating the introduction of the experimental segregated cycle lane	**Target met**
7.9			In Air Quality Focus Areas 147, 152, and 153 explore using geo-fencing for TfL buses to only use electrical mode in specific areas/junctions		Determined to not be possible at this time by TfL	**Action complete**
7.10			Ensure that the air quality improvement projects in GLA Air Quality Focus Areas are assessed		Work in progress.	**In progress**
7.11			Ensure that local air quality projects in the GLA Air Quality Focus Areas are comprehensively evaluated		Work in progress.	**In progress**
7.12			Ensure that air quality projects implemented in the GLA Air Quality Focus Areas are regularly reviewed		Work in progress.	**In progress**
7.13	Cleaner Air Borough	Ensure full consideration of GLA air quality policy changes	Take all actions required by GLA to retain Cleaner Air Borough status in 2020		Due to C-19, the applications for Clean Air Borough for 2020 was cancelled and the Borough retained its Clean Air Borough status in 2020	**Target met**

No.	Measure		Action	Progress	Further information
7.14	Extension of the ULEZ	Council policy is to support the extension of ULEZ to the south circular and in future for it to include the whole borough or be extended to the M25	Respond to GLA consultations expressing the Southwark policy stance	All consultations responded to in line with Southwark Council policy	**Duplicate measure see 4.17**
7.15	Support GLA planning policy with regard to air quality	Ensure full consideration of GLA planning policy changes that relate to air quality	Ensure GLA air quality policy is considered in all planning decisions	Awaiting the publication of the Final London Plan and the guidance associated with the Air Quality Positive policy.	**Target met**
7.16	Mayor's Air Quality Fund	Identify projects suitable for Mayor's Air Quality Fund	Review the Mayor's Air Quality Fund funding guidance & apply for funds when possible	No MAQF funding opportunities in this year	**Target met**
7.17	Clean Air for Londoners	Work, with the GLA, TfL and other organisations, towards meeting the national air quality objectives in line with JSNA recommendation to advocate for wider regional action on air quality	Review all external opportunities to participate in air quality improvement projects and respond to all air quality consultations	Southwark is working with Imperial College, Impact on Urban Health, Breathe London Project, University of Cambridge on projects designed to improve air quality and responded to all relevant air quality consultations	**Target met**
7.18	GLA Air Quality Focus Areas	Target the improvement of air quality in the GLA Air Quality Focus Areas	Implement an air quality improvement project in each GLA Air Quality Focus Area. Ensure they are linked to relevant regeneration plans and build on any existing relevant initiatives to encourage modal shift towards public transport, cycling & walking. Deliver Walworth LEN	Public health, transport policy and highways team secured funding from Impact on Urban Health (£250k) to deliver trial healthy streets projects in 3 neighbourhoods in central Southwark, focusing on areas with poorer AQ, higher levels of deprivation, social housing and near schools. The trial changes will be in for 18 months and the aim is to improve the safety and feel of the streets to encourage walking, cycling and people spending time in the streets, and to address rising car traffic levels. The project will be evaluated after 6 months.	**Target met**

No.	Measure		Action	Progress	Further information
8.1	Joint Strategic Needs Assessment	The JSNA includes air quality and has up to date information on its health impacts	Produce an air quality section for the JSNA	JSNA for AQ Document produced in 2017	**Action complete – see further measure 8.8**
8.2			Review the air quality section of the JSNA bi-annually	JSNA document revised in 2019	**Target met**
8.3	Air Quality & Public Health	Retain local air quality as a public health priority	Provide up to date information in connection with air quality	Local air quality continues being a public health priority.	**Target met**
8.4	Embed Air Quality Policy	Ensure that local air quality is considered within all relevant complementary council policy developments	All relevant new policies to incorporate air quality improvement objectives	All the authority's policies have been reviewed and when the relevant policies are due to be updated, the policy is reviewed to ensure that air quality improvements are included in the revised document.	**Target met**
8.5	Air Quality Alerts	Provide a poor air quality alert to Southwark Council staff caring for health vulnerable persons with particular emphasis on nurseries, primary schools and care homes	Instigate a poor air quality cascade is in line with the GLA Air Quality Alert system	Cascade in place	**Action complete**
8.6			Continue to develop the air quality communications plan	Work on air quality communications plan will be reviewed following the Public Health Team's acute response to C-19	**Target not met due to C19 related delays**
8.7			Maintain and strengthen the poor air quality alert cascade	Work on poor air quality alerts will be reviewed following the Public Health Team's acute response to C-19. A discovery project being devised to review the effectiveness of air quality Airtext during 2021.	**Target not met due to C19 related delays**
8.8		Each organisation receiving GLA AQ alerts should provide feedback to the GLA	Encourage the GLA to request feedback	Work on poor air quality alerts will be reviewed following the Public Health Team's acute response to C-19.	**Target not met due to C19 related delays**
8.9	Joint Strategic Needs Assessment	The JSNA includes air quality and up to date information on the health impacts of poor air quality	Monitor the implementation of the recommendations in the air quality JSNA	The JSNA recommedndations will be evaluated and will be updated during 2021, as part of the process for developing a revised AQAP for 2022 - 2027.	**Target not met due to C19 related delays**
8.10			Review the air quality section of the JSNA bi-annually		

No.	Measure		Action	Progress	Further information
8.11	Air Quality Monitoring Data	Find out whether PHE are aggregating and analysing air quality monitoring data and local hospital data for impacts for respiratory and cardiovascular disease	Review the progress of recommendation 13 of the Chief Medical Officers report 2017 a) Southwark Clinical Commissioning Group (CCG) Groups should analyse local air quality monitoring data for breaches of air pollution standards, and publish these alongside the local hospital data for impacts on admissions for respiratory and cardiovascular disease and b) Public Health England should aggregate and analyse progress annually for a national public report to NHS England	Work on Air Quality Data has been put on hold during the C-19 pandemic period. The new Healthy Places Public Health Policy Officer will work across teams including Planning Policy to provide updated data on the impacts of Airt Quality on Public Health Outcomes.	**Target not met due to C19 related delays**

4. Planning Update and Other New Sources of Emissions

Table K. Planning requirements met by planning applications in Southwark in 2020

Condition	Number
Number of planning applications where an air quality impact assessment was reviewed for air quality impacts	98
Number of planning applications required to monitor for construction dust	77
Number of CHPs/Biomass boilers refused on air quality grounds	0
Number of CHPs/Biomass boilers subject to GLA emissions limits and/or other restrictions to reduce emissions	0
Number of developments required to install Ultra-Low NO_x boilers	0
Number of developments where an AQ Neutral building and/or transport assessments undertaken	3
Number of developments where the AQ Neutral building and/or transport assessments not meeting the benchmark and so required to include additional mitigation	2
Number of planning applications with S106 agreements including other requirements to improve air quality	0
Number of planning applications with CIL payments that include a contribution to improve air quality	0
NRMM: Central Activity Zone and Canary Wharf Number of conditions related to NRMM included. Number of developments registered and compliant. Please include confirmation that you have checked that the development has been registered with the GLA through the relevant NRMM website and that all NRMM used on-site is compliant with Stage IIIB of the Directive and/or exemptions to the policy.	13 conditions included 18 registered and compliant 0 unregistered/uncompliant Confirm NRMM register is checked
NRMM: Greater London (excluding Central Activity Zone and Canary Wharf) Number of conditions related to NRMM included. Number of developments registered and compliant. Please include confirmation that you have checked that the development has been registered at www.nrmm.london and that all NRMM used on-site is compliant with Stage IIIA of the Directive and/or exemptions to the policy.	57 conditions included 24 registered and compliant 2 unregistered/uncompliant and enforcement action in process Confirm NRMM register is checked

The Environmental Protection Team (EPT) review planning applications for air quality implications, comments and recommendations are communicated to planning officers. EPT then rely on the planning systems officer to produce the data required to complete Table K. This year the data has not been produced. A review of the planning ecording system will be carried out to rectify this in 2021.

Southwark has engaged L.B. Merton to inspect construction sites in the Borough to check for compliance with the London Non-Road Mobile Machinery requirements. Southwark provides a list of the known construction sites in the Borough to L.B. Merton who then report to Southwark any non-compliant sites. Any non-compliances are then addressed and//or enforced by Southwark officers to ensure that all the equipment on the sites are compliant.

4.1 New or significantly changed industrial or other sources

No new sources of significance identified in the Borough during 2020

Appendix A. Details of Monitoring Site Quality QA/QC

A.1 Automatic Monitoring Sites

The Authority is a member of the London Air Quality Network. All monitoring data (NO_2/PM_{10}) is ratified in accordance with Kings College London Imperial College London, QA/QC procedures for the network. The Authority has out-sourced the Local Site Operator role to ERG at King's College London / Imperial College London. They are contracted to calibrate the all the pollutant monitors fortnightly.

A.2 Diffusion Tubes

Diffusion Tube Bias Adjustment Factors

The Authority incorporates 2 local co-location diffusion tube studies, by exposing triplicate tubes at 2 automatic air quality monitoring stations at the Elephant & Castle (Urban Background) and the Old Kent Road (Roadside). The Local Air Quality Management bias spreadsheet has been used to obtain the bias factors for Gradko (2020 = 0.81) (See Table N). The results presented in section 1.2 of this report has had the bias value applied. Appendix B Full Monthly Diffusion Tube Results for 2020 presents the Southwark network's monthly results.

QA/QC of Diffusion Tube Monitoring

The Authority has appointed Gradko International Ltd. to provide and analyse the Nitrogen Dioxide survey diffusion tubes. The laboratory supplies the Authority 20% TEA in water diffusion tubes each month. The laboratory has confirmed that it follows the procedures set out in the Practical Guidance. The Didcot Laboratory of Environmental Services Group and Gradko International submit two sets of results, whereas the other laboratories in the scheme only submit one set of results.

The AIR PT scheme has up 38 regular different samples and 3 different trial standards for the analytic laboratories to analyse. LGC Ltd has a programme to send out different

combinations of the 41 samples in six rounds throughout the year. (The trial samples were available for one round only.) Each Sample contains 4 dynamically loaded Palmes type diffusion tubes.

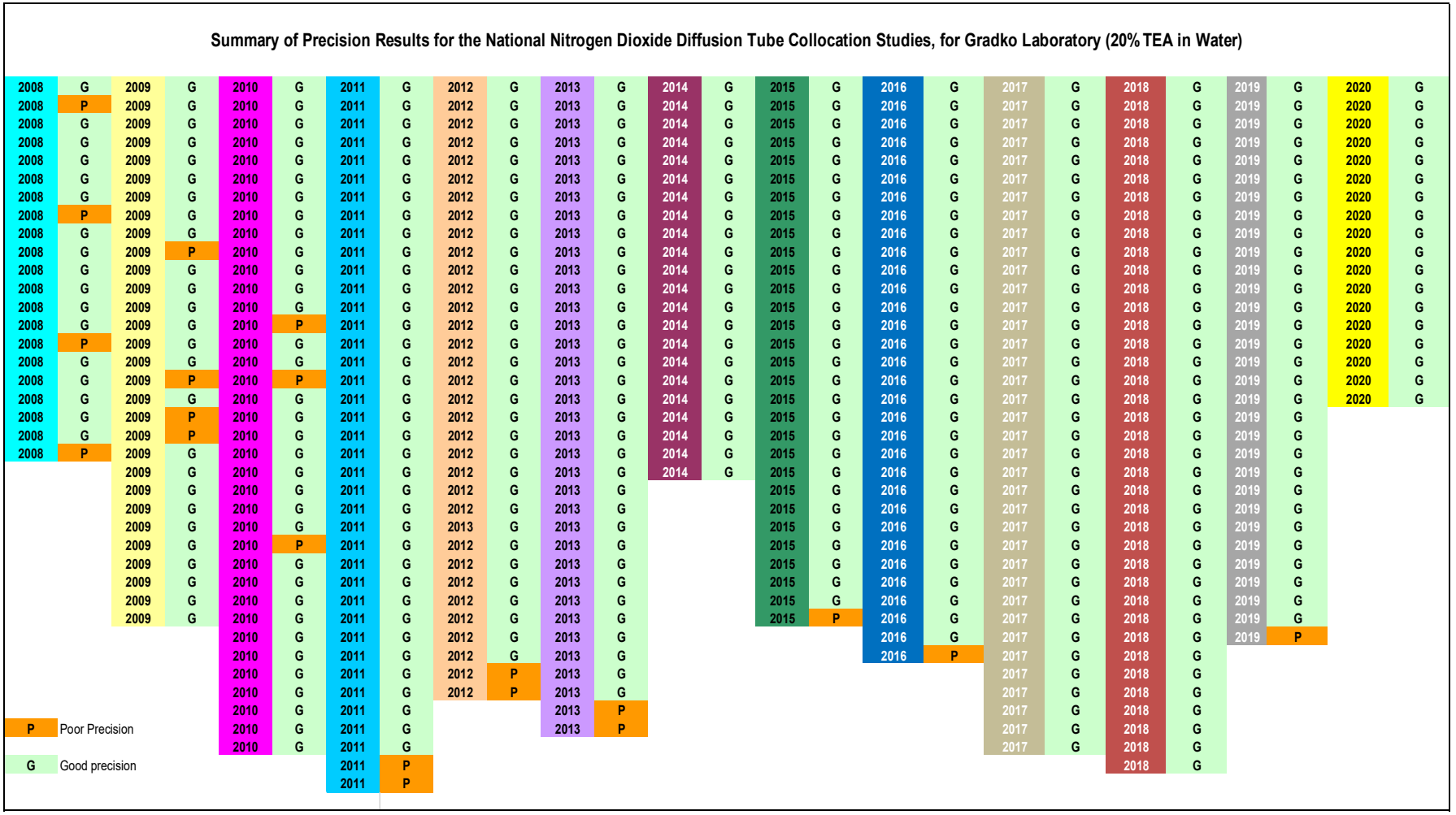
Results for Gradko International from the Air Proficiency Testing (AIR PT) scheme are shown on the next page (**Table L** on page 70). The summary of the diffusion tube precision from the national database for Gradko International is given in **Table M** below, on page 71.

Table L Performance of Gradko Laboratory AIR NO2 PT rounds AR001, to AR040

Air PT Round	AR001	AR003	AR004	AR006	AR007	AR009	AR010
Round conducted in the period	Apr – May 2014	Jul – Aug. 2014	Oct. – Nov. 2014	Jan. – Feb. 2015	Apr – May 2015	July – Aug 2015	Oct – Nov 2015
Gradko International	100%	100%	100%	100%	100%	100%	100%
Air PT Round	**AR012**	**AR013**	**AR015**	**AR016**	**AR018**	**AR021**	**AR022**
Round conducted in the period	Jan – Feb 2016	Apr – May 2016	Jul – Aug 2016	Sept – Oct 2016	Jan – Feb 2017	Apr – May 2017	Sept – Oct 2017
Gradko International	100%	100%	100%	100%	100%	100%	100%
Air PT Round	**AR024**	**AR025**	**AR027**	**AR028**	**AR031**	**AR033**	**AR034**
Round conducted in the period	Jan – Feb 2018	Apr – May 2018	Jul – Aug 2018	Oct – Nov 2018	Apr – May 2019	Jul – Aug 2019	Sept – Nov 2019
Gradko International	100%	100%	100%	100%	100%	100%	100%
Air PT Round	**AR036**	**AR037**	**AR039**	**AR040**			
Round conducted in the period	Jan – Feb 2020	May – Jun 2020	Jul – Aug 2020	Sept – Oct 2020			
Gradko International	75%	No Results[11]	No Results[11]	75%			

[11] Round was cancelled due to pandemic.

Table M Gradko Laboratory summary performance April 2009 – March 2021



Factor from Local Co-location Studies

Southwark has two continuous monitoring sites, where co-located three Nitrogen Dioxide diffusion tubes are deployed at each site, these are at Old Kent Road, and Elephant & Castle AQMS sites. **Table N** below is an extract from the from the LAQM Diffusion Tube Data Processing Tool v1.0 accessed at https://laqm.defra.gov.uk/tools-monitoring-data/dtdp.html showing the local bias co-location studies.

Table N Factors from Local Co-location Studies

	STEP 3a Local Bias Adjustment Old Kent Road - Roadside	STEP 3b Local Bias Adjustment Elephant and Castle – Urban Background
Periods used to calculate bias	4	7
Bias Adjustment Factor A	0.84 (0.62 - 1.31)	0.84 (0.71 - 1.02)
Diffusion Tube Bias B	19% (-23% - 61%)	19% (-2% - 40%)
Diffusion Tube Mean (µg.m^{-3})	34.7	23.3
Mean CV (Precision)	5.3%	5.6%
Automatic Mean (µg.m^{-3})	29.2	19.6
Data Capture	99%	96%
Adjusted Tube Mean (µg.m^{-3})	29 (22 - 45)	20 (17 - 24)

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

Discussion of Choice of Factor to Use

In the calculation of the local co-location bias factor, the spreadsheet had the following message "*Warning - One or more Co-location studies has Poor Overall Continuous Monitor Data Capture (i.e. <90%). Local Bias Adjustment Factor should be treated with caution."* This report uses the National co-location factor. As this value derives from 18 co-location studies, this will be a more statistically significant value.

Table O Bias Adjustment Factor

Year	Local or National	If Local, Version of National Spreadsheet	Adjustment Factor
2020	National	03/21	0.81
2019	National	03/21	0.91
2018	National	03/21	0.92
2017	National	03/21	0.87
2016	National	03/21	0.92

A.3 Adjustments to the Ratified Monitoring Data

Short-term to Long-term Data Adjustment

Where data capture is less than 75% and greater than 33% of a full calendar year (between 3 and 9 months), the mean should be "annualised" – i.e. adjusted using the methodology outlined in LLAQM.TG(19), before being compared to annual mean objectives.

Southwark 5 data capture for 2020 was 68% for the full calendar year was annualised was completed in line with Box4.2 of LLAQM TG(19). The data is provided in **Table P** below

Southwark Diffusion tube data that was less than 75% and greater than 33% of a full calendar year was annualised using the LAQM Diffusion Tube Data Processing Tool v1.0 accessed at https://laqm.defra.gov.uk/tools-monitoring-data/dtdp.html. The data is provided in **Table Q** below.

Distance Adjustment

If an exceedance is measured at a monitoring site which is not representative of public exposure, Southwark used the procedure specified in LLAQM.TG(19) to estimate the concentration at the nearest receptor.

Southwark Diffusion tube data was distance adjusted using the LAQM Diffusion Tube Data Processing Tool v1.0 accessed at https://laqm.defra.gov.uk/tools-monitoring-data/dtdp.html. The data is provided in **Table R** below.

Table P Annualisation of Southwark Nitrogen Dioxide Automatic Montoring Data

Background Site	Annual mean 2020 (A_m)	Period Mean 2020 (P_m)	Ratio (A_m/P_m)
City Of London - The Aldgate School	22.421	25.400	0.883
Lambeth - Streatham Green	25.794	28.328	0.911
Lewisham - Deptford	18.703	21.324	0.877
Southwark - Elephant and Castle	21.274	24.192	0.879
Average (R_A)			0.887

Table Q Annualisation of Southwark Nitrogen Dioxide Diffusion Data

Diffusion Tube ID	Annualisation Factor City Of London - The Aldgate School	Annualisation Factor Lambeth - Streatham Green	Annualisation Factor Lewisham - Deptford	Annualisation Factor Southwark - Elephant and Castle	Average Annualisation Factor	Raw Data Simple Annual Mean (µg/m3)	Annualised Data Simple Annual Mean (µg/m3)	Comments
SDT 88	0.9985	1.0100	1.0016	1.0082	1.0045	42.3	42.5	-
SDT 158	1.0525	1.0411	1.0484	1.0706	1.0531	21.4	22.5	-
SDT 159	1.0525	1.0411	1.0484	1.0706	1.0531	18.7	19.7	-

The above table was extracted from the LAQM Diffusion Tube Data Processing Tool v1.0 accessed at https://laqm.defra.gov.uk/tools-monitoring-data/dtdp.html

Table R Short-Term to Long-Term Monitoring Data Adjustment

Diffusion Tube ID	Distance (m)		NO_2 Annual Mean Concentration ($\mu g/m^3$)			Comment
	Monitoring Site to Kerb	Receptor to Kerb	Bias Adjusted	Background	Predicted at Receptor	
SDT 11	0.5	2.5	36.8	27.6	34.2	
SDT 24	0.5	3.5	43.0	30.9	*38.8*	*Predicted concentration at Receptor within 10% the AQS objective.*
SDT 29	0.5	2.5	40.2	30.9	*37.5*	*Predicted concentration at Receptor within 10% the AQS objective.*
SDT 81	0.5	3.5	40.8	37.3	*39.6*	*Predicted concentration at Receptor within 10% the AQS objective.*
SDT 87	0.5	3.5	39.8	25.1	34.7	
SDT 90	0.5	5.5	39.2	27.7	34.3	
SDT 104	0.5	15.5	36.9	29.0	32.1	
SDT 113	0.5	7.5	42.0	32.6	*37.5*	*Predicted concentration at Receptor within 10% the AQS objective.*

The above table was extracted from the LAQM Diffusion Tube Data Processing Tool v1.0 accessed at https://laqm.defra.gov.uk/tools-monitoring-data/dtdp.html

Appendix B Full Monthly Diffusion Tube Results for 2020

Table S NO_2 Diffusion Tube Results

Site ID	Valid data capture for monitoring period %[(a)]	Valid data capture 2020 %[(b)]	Jan	Feb	Mar / Apr[12]	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual mean – raw data	Annual mean – bias adjusted
SDT 1	90.91	90.91	27.48	30.69	**29.30**	27.16	30.23	24.71		37.99	18.43	46.56	36.61	-	-
SDT 2	90.91	90.91	25.21	30.26	**29.70**	24.91	24.89	24.92		38.55	11.72	44.68	37.67	-	-
SDT 3	90.91	90.91	22.26	33.98	**31.00**	26.16	30.49	25.43		38.36	15.96	44.14	36.70	30.2	24.5[13]
SDT 4	100.00	100.00	30.13	33.30	**34.90**	34.33	38.48	32.04	51.31	48.46	24.53	46.82	39.72	37.9	30.7
SDT 5	100.00	18.18										69.88	31.16	-	-
SDT 6	100.00	100.00	33.35	44.84	**37.00**	26.77	48.37	32.80	57.72	56.30	29.54	56.54	46.17	**43.2**	35.0
SDT 7	81.82	81.82		30.96		26.36	33.09	14.66	19.49	24.39	18.74	34.22	27.69	25.5	20.7
SDT 8	100.00	100.00	22.92	24.87	**21.00**	16.14	18.45	15.68	22.21	27.16	16.01	38.71	29.65	23.2	18.8
SDT 9	100.00	100.00	20.75	38.85	**32.80**	36.14	33.93	30.44	45.77	46.83	28.60	46.49	36.81	36.5	29.5
SDT 10	100.00	100.00	17.89	27.00	**23.90**	21.64	22.64	19.97	28.60	29.21	9.99	34.16	31.29	24.2	19.6
SDT 11	100.00	100.00	56.71	41.50	**42.70**	35.43	42.83	41.03	55.36	55.87	21.49	52.35	51.38	**45.4**	36.8[14]
SDT 12	100.00	100.00	20.29	30.43	**20.50**	17.10	19.44	16.41	25.36	26.24	17.26	35.48	31.56	-	-
SDT 13	100.00	100.00	25.21	28.30	**21.30**	16.41	18.87	17.07	22.52	26.79	12.51	40.21	32.59	-	-
SDT 14	100.00	100.00	25.78	29.30	**23.20**	18.66	19.73	15.94	23.91	27.45	25.32	37.14	34.66	24.6	19.9[15]
SDT 15	100.00	100.00	62.02	45.60	**25.10**	24.49	26.79	23.88	32.86	41.42	40.64	50.21	42.42	39.0	31.6
SDT 18	100.00	100.00	37.07	51.18	**34.10**	28.79	48.51	39.08	59.09	54.42	27.57	53.46	39.91	**43.9**	35.6
SDT 20	100.00	100.00	36.86	43.12	**34.60**	32.83	42.44	35.77	47.91	48.90	37.05	45.06	40.21	**40.6**	32.9

[12] This data has been excluded from any calculations, due to the exposure period being 10 weeks instead of two 5 weeks period due to the Covid-19 outbreak, as advised by the LAQM Covid-19 supplementary guidance issued by Defra / Greater London Authority https://laqm.defra.gov.uk/documents/Covid-19%20-%20Supplementary%20Guidance%20for%20Local%20Air%20Quality%20Management%20Reporting%20in%202021%20v1.pdf

[13] Triplicate Site with SDT 1, SDT 2 and SDT 3 - Annual data provided for SDT 3 only

[14] In Table D, the data has been incorporated the "Fall off with distance" calculations within the LAQM Diffusion Tube Data Processing Tool v1.0

[15] Triplicate Site with SDT 12, SDT 13 and SDT 14 - Annual data provided for SDT 14 only

Site ID	Valid data capture for monitoring period %[a]	Valid data capture 2020 %[b]	Jan	Feb	Mar / Apr[12]	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual mean – raw data	Annual mean – bias adjusted
SDT 24	100.00	100.00	57.05	57.92	**36.50**	37.52	52.49	60.72	62.54	59.99	30.90	60.29	51.04	**53.0**	**43.0**[14]
SDT 29	100.00	100.00	54.33	55.32	**38.90**	35.93	48.31	49.50	57.91	53.45	35.89	54.39	51.27	**49.6**	**40.2**[14]
SDT 31	100.00	100.00	25.69	36.37	**30.20**	26.03	36.10	28.42	39.22	40.04	23.56	46.89	36.62	33.9	27.5
SDT 37	100.00	100.00	23.56	27.46	**22.20**	15.53	19.45	17.67	22.66	23.93	0.00	35.21	28.39	23.8	19.2
SDT 38	90.91	90.91	41.54	43.94	**30.30**	26.80	39.12		41.15	41.80	28.20	40.35	34.48	37.5	30.4
SDT 39	90.91	90.91	32.06	35.21		21.88	28.50	31.32	32.61	25.53	21.54	40.51	40.70	31.0	25.1
SDT 41	100.00	100.00	58.02	43.58	**33.40**	32.57	46.40	38.95	49.74	46.37	20.80	52.72	44.78	**43.4**	35.1
SDT 42	100.00	100.00	26.62	30.95	**24.90**	22.09	24.24	23.35	31.12	34.53	20.73	45.25	37.09	29.6	24.0
SDT 48	100.00	100.00	28.12	36.97	**28.30**	28.39	33.34	33.42	44.99	43.27	21.10	52.71	42.09	36.4	29.5
SDT 49	100.00	100.00	23.63	26.16	**21.40**	17.64	19.20	16.84	23.18	24.15	16.37	40.29	29.48	23.7	19.2
SDT 52	100.00	100.00	23.90	27.32	**17.20**	15.16	16.75	16.70	21.41	25.02	14.21	34.08	29.37	22.4	18.1
SDT 53	100.00	100.00	16.73	24.05	**19.10**	14.17	16.99	16.17	21.04	23.78	11.87	33.05	27.04	20.5	16.6
SDT 54	100.00	100.00	23.20	30.85	**21.10**	16.43	19.58	17.94	24.18	26.52	8.86	33.00	35.08	23.6	19.1
SDT 55	100.00	100.00	25.05	28.68	**22.30**	18.05	21.81	18.39	23.22	28.60	10.74	38.24	31.16	24.4	19.8
SDT 57	100.00	100.00	23.68	34.31	**25.40**	25.58	26.58	22.18	29.33	37.16	32.92	39.63	34.95	30.6	24.8
SDT 61	100.00	100.00	26.46	33.36	**24.30**	20.00	25.17	20.73	31.66	34.26	18.39	41.93	31.49	28.3	23.0
SDT 66	100.00	100.00	32.10	26.10	**24.70**	21.24	24.39	16.75	29.33	29.44	18.37	39.41	33.49	27.1	21.9
SDT 77	90.91	90.91	43.73	34.26	**19.90**	24.56	26.70	25.29		37.94	37.29	34.48	33.92	33.1	26.8
SDT 81	100.00	100.00	72.41	54.88	**36.30**	40.01	40.16	38.48	60.10	56.62	42.10	54.03	44.69	**50.3**	**40.8**[14]
SDT 82	100.00	100.00	58.48	44.29	**24.10**	25.52	31.18	24.82	36.95	39.87	38.44	46.80	35.41	38.2	30.9
SDT 84	100.00	100.00	53.48	39.19	**24.00**	21.03	26.71	24.74	33.80	36.67	38.37	47.86	39.42	36.1	29.3
SDT 87	100.00	100.00	31.71	54.33	**35.90**	30.89	47.50	46.43	69.17	62.83	34.53	60.53	53.53	**49.1**	39.8[14]
SDT 88	90.91	90.91	32.60		**24.70**	29.79	42.42	41.79	60.06	0.00	30.09	58.90	42.65	**42.3**	34.4
SDT 89	100.00	100.00	23.73	32.18	**30.50**	22.37	27.99	27.08	40.13	39.04	21.58	41.91	34.78	31.1	25.2
SDT 90	100.00	100.00	44.98	41.93	**38.20**	38.08	45.83	38.91	58.30	59.97	46.49	59.24	50.55	**48.4**	39.2[14]
SDT 91	100.00	100.00	22.26	38.83	**36.40**	35.37	44.89	39.29	59.32	59.37	25.41	58.79	46.69	**43.0**	34.8
SDT 92	100.00	100.00	25.91	33.68	**28.80**	25.91	33.37	25.60	40.57	39.33	22.82	47.58	38.29	33.3	27.0
SDT 93	100.00	100.00	63.37	49.44	**40.30**	33.99	43.95	28.45	34.30	0.00	14.29	39.72	33.29	37.9	30.7
SDT 95	100.00	100.00	18.40	25.34	**19.40**	15.41	16.91	12.93	17.66	21.52	13.00	29.49	36.58	20.7	16.8
SDT 97	100.00	100.00	22.40	38.03	**25.00**	22.00	30.80	27.55	35.95	34.71	19.23	43.60	25.41	30.0	24.3
SDT 98	100.00	100.00	31.25	45.96	**32.00**	39.93	44.85	36.55	48.81	50.42	34.42	50.08	41.81	42.4	34.4
SDT 100	100.00	100.00	27.13	36.61	**23.90**	18.46	24.09	13.57	17.97	2.38	12.87	34.90	26.50	21.4	17.4

Site ID	Valid data capture for monitoring period %[a]	Valid data capture 2020 %[b]	Jan	Feb	Mar / Apr[12]	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual mean – raw data	Annual mean – bias adjusted
SDT 101	100.00	100.00	29.07	33.68	**26.30**	20.69	27.57	21.41	31.68	32.14	22.22	45.18	27.98	29.2	23.6
SDT 102	100.00	100.00	20.68	31.06	**26.20**	21.64	26.90	26.31	33.68	34.47	15.77	43.43	33.96	28.8	23.3
SDT 103	100.00	100.00	25.36	43.87	**31.00**	23.16	31.19	28.99	34.30	37.31	18.05	46.07	44.51	33.3	27.0
SDT 104	100.00	100.00	44.97	49.92	**37.80**	34.10	48.66	42.85	54.60	50.95	25.47	60.34	43.39	**45.5**	36.9[14]
SDT 105	100.00	100.00	23.47	38.83	**24.30**	22.67	30.95	25.59	34.54	33.57	13.15	44.95	37.70	30.5	24.7
SDT 106	100.00	100.00	28.13	50.24	**33.70**	31.22	42.21	41.21	45.02	49.96	31.32	54.09	47.44	42.1	34.1
SDT 107	90.91	90.91		33.53	**22.70**	21.72	27.74	22.13	33.95	31.69	15.99	34.83	38.68	28.9	23.4
SDT 111	100.00	100.00	35.35	34.68	**31.50**	27.25	32.25	28.86	37.49	36.22	19.89	48.80	38.14	33.9	27.5
SDT 112	90.91	90.91	24.11	22.94	**18.80**	16.07	17.07	14.18		24.28	22.61	32.53	27.41	22.4	18.1
SDT 113	100.00	100.00	67.80	55.94	**30.20**	35.05	48.87	38.85	58.14	58.04	50.97	56.82	47.85	**51.8**	**42.0[14]**
SDT 114	100.00	100.00	21.58	34.97	**26.90**	21.33	24.35	21.53	28.58	32.49	20.82	42.91	30.91	27.9	22.6
SDT 120	100.00	100.00	18.45	27.51	**22.60**	20.25	21.54	18.11	28.50	29.99	12.31	38.18	30.79	24.6	19.9
SDT 121	100.00	100.00	18.51	25.98	**20.30**	10.58	18.73	16.70	35.79	25.30	9.25	33.04	30.41	22.4	18.2
SDT 122	90.91	90.91	20.43	25.78	**19.40**	13.92	16.93		21.89	21.86	13.07	22.98	30.77	20.8	16.9
SDT 132	90.91	90.91		33.05	**30.90**	30.18	37.12	15.82	21.67	24.35	12.75	34.63	28.84	26.5	21.5
SDT 136	100.00	100.00	17.42	31.98	**23.90**	17.74	23.93	21.05	26.49	30.52	13.09	37.96	29.07	24.9	20.2
SDT 137	100.00	100.00	18.09	23.72	**19.70**	14.56	15.78	15.00	19.21	25.01	14.15	33.10	24.36	20.3	16.4
SDT 138	100.00	100.00	19.81	38.51	**26.10**	21.02	24.79	27.96	31.31	36.10	24.86	43.52	37.42	30.5	24.7
SDT 139	100.00	100.00	32.16	34.27	**29.20**	25.90	25.93	25.26	32.41	30.30	15.50	43.69	32.26	29.8	24.1
SDT 140	100.00	100.00	19.57	31.69	**27.70**	22.82	27.02	24.02	31.31	36.51	19.27	38.14	32.10	28.2	22.9
SDT 141	100.00	100.00	47.85	36.63	**26.50**	21.21	23.61	21.45	30.11	31.65	25.49	56.52	31.08	32.6	26.4
SDT 142	100.00	100.00	21.71	24.85	**23.40**	19.84	22.47	20.39	27.90	31.93	13.67	40.31	30.61	25.4	20.5
SDT 143	100.00	100.00	20.67	24.91	**19.70**	16.86	18.02	18.81	22.51	24.96	14.31	34.81	32.79	22.9	18.5
SDT 144	100.00	100.00	16.94	30.12	**23.50**	28.20	31.07	29.00	36.64	33.67	16.70	35.86	30.43	28.9	23.4
SDT 145	100.00	100.00	24.93	30.27	**20.80**	18.48	20.10	18.93	21.36	24.80	17.27	35.22	29.42	24.1	19.5
SDT 146	100.00	100.00	18.90	30.86	**23.00**	21.10	23.91	20.51	23.80	31.54	19.19	37.33	27.21	25.4	20.6
SDT 147	100.00	100.00	21.89	35.12	**26.10**	19.69	26.77	22.01	28.49	30.26	27.17	34.10	33.88	27.9	22.6
SDT 148	100.00	100.00	20.74	35.95	**28.60**	21.59	26.30	23.04	29.73	30.20	19.68	34.98	34.70	27.7	22.4
SDT 149	100.00	100.00	18.42	32.15	**23.80**	20.15	22.96	22.42	25.85	28.53	27.22	41.32	34.19	27.3	22.1
SDT 150	100.00	100.00	25.39	37.03	**28.90**	25.90	38.22	26.48	42.38	42.89	20.45	50.84	39.24	34.9	28.3
SDT 151	100.00	100.00	20.58	25.34	**22.00**	17.59	20.16	17.58	25.43	27.45	11.80	35.48	28.13	23.0	18.6
SDT 152	100.00	100.00	18.55	28.94	**21.90**	17.77	21.46	20.00	27.07	29.72	11.89	37.36	26.50	23.9	19.4

Site ID	Valid data capture for monitoring period %[a]	Valid data capture 2020 %[b]	Jan	Feb	Mar / Apr[12]	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual mean – raw data	Annual mean – bias adjusted
SDT 153	100.00	100.00	12.88	23.20	**19.90**	17.33	19.92	19.08	22.03	27.60	13.52	29.71	25.57	21.1	17.1
SDT 154	90.91	90.91	21.44	32.12	**27.10**	20.85	24.65		28.93	30.63	23.40	42.69	33.68	28.7	23.3
SDT 155	100.00	100.00	26.65	27.72	**21.90**	18.28	21.20	18.29	24.48	26.51	16.38	37.40	31.27	24.8	20.1
SDT 156	100.00	100.00	24.15	39.18	**26.90**	21.67	25.90	23.98	30.39	32.71	34.17	44.50	36.51	31.3	25.4
SDT 157	100.00	100.00	17.89	32.28	**22.20**	17.14	22.90	19.94	24.43	25.48	13.52	35.59	29.80	23.9	19.4
SDT 158	100.00	81.82			**22.20**	21.04	19.75	14.74	12.07	24.15	16.55	34.21	28.62	21.4	18.2
SDT 159	100.00	81.82			**20.00**	16.18	17.23	15.39	10.94	23.92	8.01	34.19	24.06	18.7	16.0

Notes

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

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

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

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

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

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