SOUTHWARK - Air Quality Annual Status Report for 2022

Date of publication: MAY 2023

This report provides a detailed overview of air quality in Southwark during 2022. It has been produced to meet the requirements of the London Local Air Quality Management (LLAQM) statutory process[1].

Contact details:

Paul Newman
Environmental Protection Team
Regulatory Services
Environment and Leisure Services
Floor 3 Hub 1
London Borough of Southwark
160 Tooley Street
London
SE1 2QH
Telephone 020 7525 3551
Email environmental.protection@southwark.gov.uk

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

Contents

Tables

Figures

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[(1)]
Nitrogen dioxide (NO_2)	200 µg.m^{-3} not to be exceeded more than 18 times a year	1-hour mean	31 Dec 2005
Nitrogen dioxide (NO_2)	40 µg.m^{-3}	Annual mean	31 Dec 2005
Particles (PM_{10})	50 µg.m^{-3} not to be exceeded more than 35 times a year	24-hour mean	31 Dec 2004
Particles (PM_{10})	40 µg.m^{-3}	Annual mean	31 Dec 2004
Particles ($PM_{2.5}$)	20 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 2021
Sulphur dioxide (SO_2)	266 µg.m^{-3} not to be exceeded more than 35 times a year	15-minute mean	31 Dec 2005
Sulphur dioxide (SO_2)	350 µg.m^{-3} not to be exceeded more than 24 times a year	1-hour mean	31 Dec 2004
Sulphur dioxide (SO_2)	125 µg.m^{-3} mot to be exceeded more than 3 times a year	24-hour mean	31 Dec 2004

Notes:

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

Table B Summary of World Health Organisation global air quality guidelines published in 2021[2].

Pollutant	Standard / Objective (UK)	Averaging Period
Nitrogen dioxide (NO_2)	200 µg.m^{-3}	1-hour
Nitrogen dioxide (NO_2)	10 µg.m^{-3}	Annual
Particles (PM_{10})	45 µg.m^{-3}	24-hour
Particles (PM_{10})	15 µg.m^{-3}	Annual
Particles ($PM_{2.5}$)	5 µg.m^{-3}	Annual
Particles ($PM_{2.5}$)	15	24-hour
Sulphur dioxide (SO_2)	40 µg.m^{-3}	24-hour

Note:

The Guideline values in Table B are the not mandatory and are not required to be achieved in order to comply with UK legislation. The values identified in Table B are based on extensive research into the health effects of poor air quality.

[2] World Health Organization (2021).WHO global air quality guidelines: particulate matter ($PM_{2.5}$ and PM_{10}), ozone, nitrogen dioxide, sulphur dioxide and carbon monoxide. World Health Organization. https://apps.who.int/iris/handle/10665/345329. License: CC BY-NC-SA 3.0 IGO

Air Quality Monitoring

1.1 Locations

In 2022, Southwark has six automatic air quality monitoring stations. Southwark also has an extensive network of diffusion tubes monitoring NO_2. Spread throughout the borough there are 90 diffusion tubes at 86 sites across Southwark[3]. **Table *C*** provides the location information of Southwark Councils Automatic Monitoring sites. **Figure 1** shows locations of Southwark's six continuous air quality monitoring stations. All the automatic monitoring stations are within Southwark's Air Quality Management Area. **Figure 2** shows the locations of the NO_2 diffusion tubes.

Table C Details of Automatic Monitoring Sites for 2022

Site ID	Site Name	X (m)	Y (m)	Site Type	In 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}	Chemiluminescence and BAM &
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	4	1.7	NO_x, NO_2, PM_{10} & $PM_{2.5}$	Chemiluminescence & FIDAS

[3] Two AQMS sites have three 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.

Site ID	Site Name	X (m)	Y (m)	Site Type	In 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 9	Old Kent Road	534844	177515	Roadside	Yes	1	5	2.0	PM10,& $PM_{2.5}$	FIDAS
SWK A	Lower Road	535272	179331	Roadside	Yes	7	4	1.7	NO_x, NO_2, PM_{10} & $PM_{2.5}$	Chemiluminescence & FIDAS
SWK B	Vicarage Grove	532904	176694	Roadside	Yes	0	3	4	NOx, NO2, PM10 & PM2.5	Chemiluminescence & FIDAS
SWK C	South Circular Road	533698	173268	Roadside	Yes	17	3	4	NOx, NO2, PM10 & PM2.5	Chemiluminescence & FIDAS

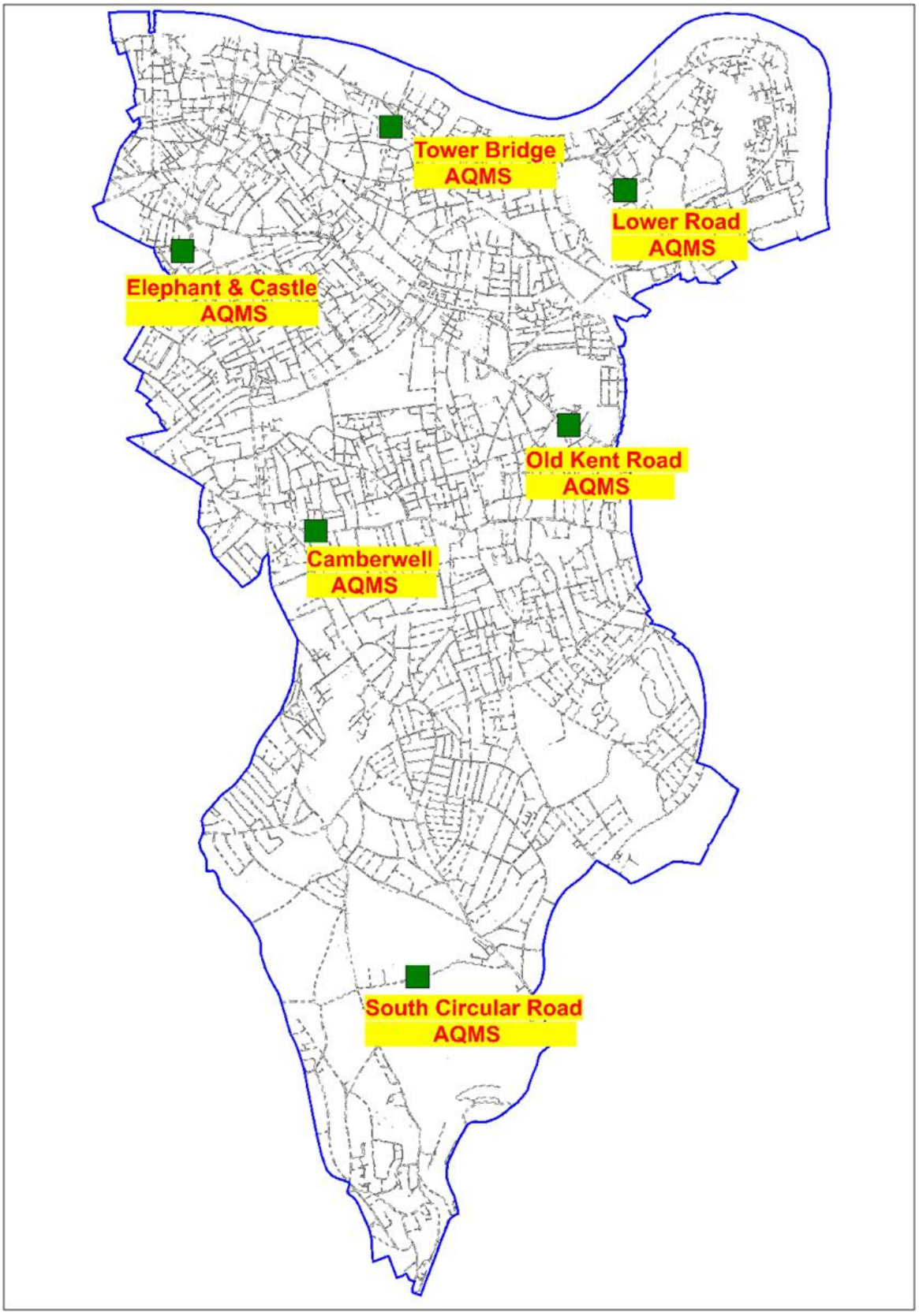

Figure 1 Location of Southwark's Automatic Air Quality Monitoring Stations

Table D Details of Non-Automatic Monitoring Sites for 2022

Site ID	Site Name	X (m)	Y (m)	Site Type	In Southwark AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor.
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

Site ID	Site Name	X (m)	Y (m)	Site Type	In Southwark AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor.
SDT 18	Tower Bridge Approach Tower Bridge Road	533599	180062	Roadside	Yes	3.0	0.5	2.5	NO_2	No
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	Yes	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	Yes	10.0	0.5	2.5	NO_2	No

Site ID	Site Name	X (m)	Y (m)	Site Type	In Southwark AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor.
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
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' C of E Primary School Jamaica Road	534241	179435	Roadside	Yes	0.5	2	2.5	NO_2	No

Site ID	Site Name	X (m)	Y (m)	Site Type	In Southwark AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor.
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
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	Yes	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

Site ID	Site Name	X (m)	Y (m)	Site Type	In Southwark AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor.
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
SDT 114	Lamppost 1 Goose Green / East Dulwich Road	533799	175324	Kerbside	Yes	10.0	0.5	2.5	NO_2	No
SDT 120	Grange Road adjacent to Boucher CoE Primary School	533681	179010	Kerbside	Yes	4.0	0.0	2.5	NO_2	No
SDT121	Rear Entrance to Boucher CoE Primary School	533598	179036	Kerbside	Yes	1.0	0.0	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

Site ID	Site Name	X (m)	Y (m)	Site Type	In Southwark AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor.
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 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	Yes	26.0	0.5	2.5	NO_2	No
SDT 144	Lamppost 2087L04 -Dulwich Wood Park	533328	171601	Kerbside	Yes	27.0	0.5	2.5	NO_2	No
SDT 145	Lamppost 2544L08 -Croxted Road	532777	172711	Kerbside	Yes	16.0	0.5	2.5	NO_2	No
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

Site ID	Site Name	X (m)	Y (m)	Site Type	In Southwark AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor.
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
SDT 160	Lamppost 423 - 44 Adjacent to 2 Hawarden Grove / Opposite 220 Croxted Road	532202	173907	Kerbside	Yes	5.0	0.1	2.5	NO_2	No
SDT 161	Lamppost 2120-02 adjacent to 8 East Dulwich Grove	533771	175173	Kerbside	Yes	4.0	0.5	2.5	NO_2	No
SDT 162	On the southern downpipe at Harris East Dulwich Primary School, Lordship Lane	533737	174679	Kerbside	Yes	0.0	5.5	2.5	NO_2	No

Site ID	Site Name	X (m)	Y (m)	Site Type	In Southwark AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor.
SDT 163	Camberwell New Road	532025	177057	Kerbside	Yes	6.0	0.5	2.5	NO_2	No
SDT164	Wyndham Road	532087	177193	Kerbside	Yes	6.5	0.5	2.5	NO_2	No

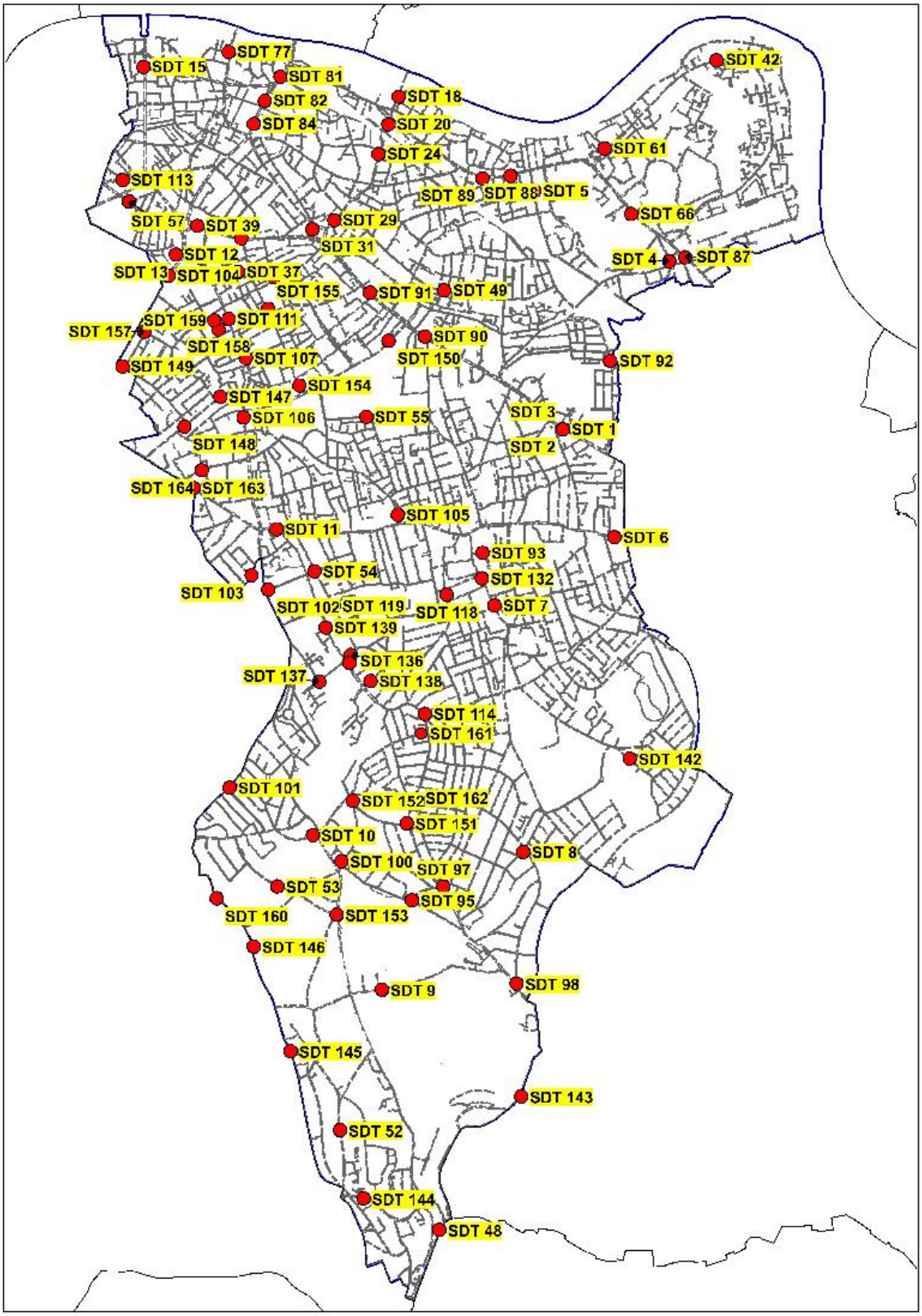

Figure 2 Location of NO_2 diffusion tubes in Southwark

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 E Annual Mean NO_2 Ratified and Bias-adjusted Monitoring Results

Site ID	Site type	Valid data capture for monitoring period %[(a)]	Valid data capture 2022 %[(b)]	2016	2017	2018	2019	2020	2021	2022
SWK 5	Automatic	92.00	92.00	**53** (80%)	**42 (97%)**	**41 (85%)**	35 (98%)	25	29	26
SWK 6	Automatic	93.00	93.00	39 (90%)	34 (97%)	32 (>90%)	30(97%)	21	23	22
SWK 8	Automatic	99.00	99.00	-	-	-	-	30	31	30
SWK A	Automatic	73.00	73.00	-	-	-	-	39	28	26.3
SWK B	Automatic	92.00	92.00						**40**	32
SWK C	Automatic	99.00	99.00						27.9	26
SDT 1- 3	Diffusion Tube	100.00	100.00	**50.6**	**41.9**	**42.4**	35.9	24.5	29.2	27.5
SDT 4	Diffusion Tube	100.00	100.00	**55.9**	**54.7**	**42.9**	39.8	30.7	34.9	33.6
SDT 5	Diffusion Tube	100.00	100.00	35.0	32.2	30.4	31.1	-	23.0	21.9
SDT 6	Diffusion Tube	92.31	92.31	**45.1**	**63.1**	38.0	36.1	35.0	28.4	35.1
SDT 7	Diffusion Tube	90.38	90.38	**45.9**	**46.4**	34.9	31.6	20.7	21.0	26.8
SDT 8	Diffusion Tube	100.00	100.00	31.1	32.4	27.4	28.1	18.8	21.4	19.8
SDT 9	Diffusion Tube	100.00	100.00	**46.0**	**50.7**	36.8	34.5	29.5	35.1	31.8
SDT 10	Diffusion Tube	100.00	100.00	30.1	32.3	29.6	28.9	19.6	23.4	20.8
SDT 11	Diffusion Tube	100.00	100.00	**65.8**	**63.1**	**50.2**	**45.4**	34.2	39.7	38.0
SDT 12- 14	Diffusion Tube	92.31	92.31	**53.5**	**41.9**	35.3	32.8	19.9	22.7	23.7
SDT 15	Diffusion Tube	100.00	100.00	**66.0**	**51.9**	**46.2**	**42.1**	31.6	31.4	32.5
SDT 18	Diffusion Tube	92.31	92.31	**65.2**	**60.6**	**54.2**	**54.6**	35.6	37.5	37.0
SDT 20	Diffusion Tube	92.31	92.31	**67.8**	**60.0**	**52.3**	**48.6**	32.9	36.1	35.1
SDT 24	Diffusion Tube	100.00	100.00	**70.4**	**68.3**	**53.6**	**51.1**	38.8	**40.3**	39.1
SDT 29	Diffusion Tube	100.00	100.00	**75.7**	**73.9**	**57.0**	**50.5**	37.5	39.0	38.7
SDT 31	Diffusion Tube	100.00	100.00	**50.5**	**46.5**	**41.4**	38.6	27.5	31.9	31.7

Site ID	Site type	Valid data capture for monitoring period %[a]	Valid data capture 2022 %[b]	2016	2017	2018	2019	2020	2021	2022
SDT 37	Diffusion Tube	100.00	100.00	37.2	32.5	31.1	27.4	19.2	22.6	21.9
SDT 38	Diffusion Tube	100.00	100.00	**87.8**	**63.6**	**44.9**	**40.1**	30.4	34.5	34.8
SDT 39	Diffusion Tube	100.00	100.00	**48.2**	**46.2**	**40.0**	35.6	25.1	30.1	32.2
SDT 41	Diffusion Tube	100.00	100.00	**50.8**	**46.0**	39.8	37.6	35.1	30.7	35.3
SDT 42	Diffusion Tube	100.00	100.00	36.4	36.2	34.9	35.6	24.0	28.1	27.7
SDT 48	Diffusion Tube	100.00	100.00	35.7	32.2	29.3	28.0	29.5	32.8	31.3
SDT 49	Diffusion Tube	100.00	100.00	35.4	33.0	29.0	27.5	19.2	22.1	20.8
SDT 52	Diffusion Tube	92.31	92.31	35.6	33.7	26.1	26.0	18.1	19.7	18.2
SDT 53	Diffusion Tube	100.00	100.00	31.2	28.1	25.3	23.8	16.6	18.0	16.6
SDT 54	Diffusion Tube	100.00	100.00	37.0	32.4	29.4	28.3	19.1	23.4	21.5
SDT 55	Diffusion Tube	92.31	92.31	37.9	35.0	34.1	31.4	19.8	22.7	19.5
SDT 57	Diffusion Tube	90.38	90.38	**51.6**	**44.0**	39.8	34.8	24.8	27.4	26.3
SDT 61	Diffusion Tube	100.00	100.00	37.9	35.9	34.3	32.9	23.0	25.8	25.8
SDT 66	Diffusion Tube	100.00	100.00	36.0	33.3	33.8	30.4	21.9	25.6	23.7
SDT 77	Diffusion Tube	100.00	100.00	**47.7**	**49.0**	**45.2**	**41.0**	26.8	27.2	31.3
SDT 81	Diffusion Tube	100.00	100.00	**79.4**	**68.4**	**59.0**	**52.7**	39.6	39.4	34.7
SDT 82	Diffusion Tube	82.69	82.69	**70.0**	**61.2**	**50.4**	**45.2**	30.9	32.2	34.0
SDT 84	Diffusion Tube	100.00	100.00	**55.9**	**50.2**	**40.9**	39.1	29.3	29.7	29.4
SDT 87	Diffusion Tube	100.00	100.00		**57.0**	**46.5**	**46.2**	34.7	35.0	36.0
SDT 88	Diffusion Tube	90.38	90.38		**52.3**	**45.5**	**42.7**	34.4	32.4	35.6
SDT 89	Diffusion Tube	100.00	100.00		**42.0**	**40.8**	35.8	25.2	29.4	28.6
SDT 90	Diffusion Tube	100.00	100.00		**50.8**	**52.0**	**43.7**	34.3	34.6	34.8
SDT 91	Diffusion Tube	100.00	100.00		**55.5**	**51.1**	**46.2**	34.8	35.3	34.4
SDT 92	Diffusion Tube	100.00	100.00		**57.6**	**48.7**	**45.2**	27.0	32.1	28.6
SDT 93	Diffusion Tube	100.00	100.00		**58.4**	**53.3**	37.8	30.7	33.1	32.6
SDT 95	Diffusion Tube	90.38	90.38		24.8	26.9	26.1	16.8	18.1	15.9
SDT 97	Diffusion Tube	82.69	82.69		37.5	37.3	32.5	24.3	26.8	24.4
SDT 98	Diffusion Tube	90.38	90.38		**43.1**	36.8	36.5	34.4	28.1	34.3
SDT 100	Diffusion Tube	100.00	100.00		35.8	34.7	34.1	17.4	18.8	16.4

Site ID	Site type	Valid data capture for monitoring period %[a]	Valid data capture 2022 %[b]	2016	2017	2018	2019	2020	2021	2022
SDT 101	Diffusion Tube	100.00	100.00		34.2	31.9	34.6	23.6	26.2	24.5
SDT 102	Diffusion Tube	84.62	84.62		38.2	34.4	32.7	23.3	27.5	25.3
SDT 103	Diffusion Tube	100.00	100.00		38.7	35.0	31.4	27.0	30.2	28.2
SDT 104	Diffusion Tube	92.31	92.31		**48.9**	**46.8**	38.9	32.1	33.8	32.9
SDT 105	Diffusion Tube	100.00	100.00		**44.2**	39.8	35.6	24.7	29.9	27.3
SDT 106	Diffusion Tube	100.00	100.00		**48.0**	**40.9**	34.8	34.1	30.4	35.5
SDT 107	Diffusion Tube	100.00	100.00		38.5	35.5	35.7	23.4	25.7	26.7
SDT 111	Diffusion Tube	100.00	100.00		**46.6**	**42.3**	36.4	27.5	30.1	29.7
SDT 112	Diffusion Tube	100.00	100.00		31.3	27.6	25.0	18.1	20.6	19.6
SDT 113	Diffusion Tube	100.00	100.00		**74.0**	**58.5**	**46.0**	37.5	37.5	34.2
SDT 114	Diffusion Tube	92.31	92.31		37.4	31.6	33.0	22.6	25.2	25.0
SDT 120	Diffusion Tube	100.00	23.08				32.1	19.9	23.8	19.1
SDT 122	Diffusion Tube	100.00	23.08				27.0	16.9	20.6	18.1
SDT 132	Diffusion Tube	100.00	100.00				33.0	21.5	23.9	28.6
SDT 136	Diffusion Tube	100.00	100.00				33.8	20.2	23.9	22.3
SDT 137	Diffusion Tube	100.00	100.00				25.2	16.4	19.5	17.7
SDT 138	Diffusion Tube	100.00	100.00				31.1	24.7	27.4	25.9
SDT 139	Diffusion Tube	90.38	90.38				33.2	24.1	27.5	
SDT 140	Diffusion Tube	92.31	92.31				31.3	22.9	24.7	23.8
SDT 141	Diffusion Tube	100.00	15.38				33.8	26.4	26.9	
SDT 142	Diffusion Tube	100.00	100.00				29.0	20.5	20.6	18.3
SDT 143	Diffusion Tube	90.38	90.38				25.7	18.5	20.2	18.6
SDT 144	Diffusion Tube	92.31	92.31				33.5	23.4	24.8	22.0
SDT 145	Diffusion Tube	100.00	100.00				25.0	19.5	21.4	19.7
SDT 146	Diffusion Tube	100.00	100.00				29.5	20.6	23.2	21.6
SDT 147	Diffusion Tube	100.00	100.00				35.4	22.6	26.6	24.0
SDT 148	Diffusion Tube	100.00	100.00				31.6	22.4	27.0	24.2
SDT 149	Diffusion Tube	100.00	100.00				33.5	22.1	23.4	22.3
SDT 150	Diffusion Tube	100.00	100.00				31.7	28.3	31.1	28.9

Site ID	Site type	Valid data capture for monitoring period %[a]	Valid data capture 2022 %[b]	2016	2017	2018	2019	2020	2021	2022
SDT 151	Diffusion Tube	92.31	92.31				28.6	18.6	22.0	20.1
SDT 152	Diffusion Tube	100.00	100.00				31.5	19.4	22.8	21.1
SDT 153	Diffusion Tube	100.00	100.00				27.2	17.1	20.2	18.8
SDT 154	Diffusion Tube	100.00	100.00				34.7	23.3	25.6	24.0
SDT 155	Diffusion Tube	100.00	100.00				31.3	20.1	22.0	20.8
SDT 156	Diffusion Tube	100.00	100.00				36.0	25.4	26.3	24.6
SDT 157	Diffusion Tube	100.00	100.00				33.1	19.4	24.1	20.9
SDT 158	Diffusion Tube	100.00	100.00					18.2	20.4	20.9
SDT 159	Diffusion Tube	100.00	100.00					16.0	19.4	20.9
SDT160	Diffusion Tube	100.00	100.00						23.1	22.5
SDT161	Diffusion Tube	100.00	100.00							29.2
SDT 162	Diffusion Tube	90.91	76.92							23.0
SDT 163	Diffusion Tube	100.00	76.92							26.2
SDT164	Diffusion Tube	100.00	76.92							23.4

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**.

Mean averages for diffusion tubes have been corrected for bias. Bias adjustment factors are presented in **Appendix A, Table O**.

All means have been "annualised" in accordance with LLAQM Technical Guidance if valid data capture for the calendar year is less than 75% and greater than 25%.

Results have been distance corrected where applicable.

(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%).

1.3 Discussion of Trends

Figure 3 demonstrates that there is a reduction in NO_2 concentrations at Southwark continuous monitoring stations. Site SWK B Vicarage Grove **had** the largest reduction of 25% from last year's results.

Overall there have been a reduction of NO_2 levels in Southwark recorded by diffusion tubes.

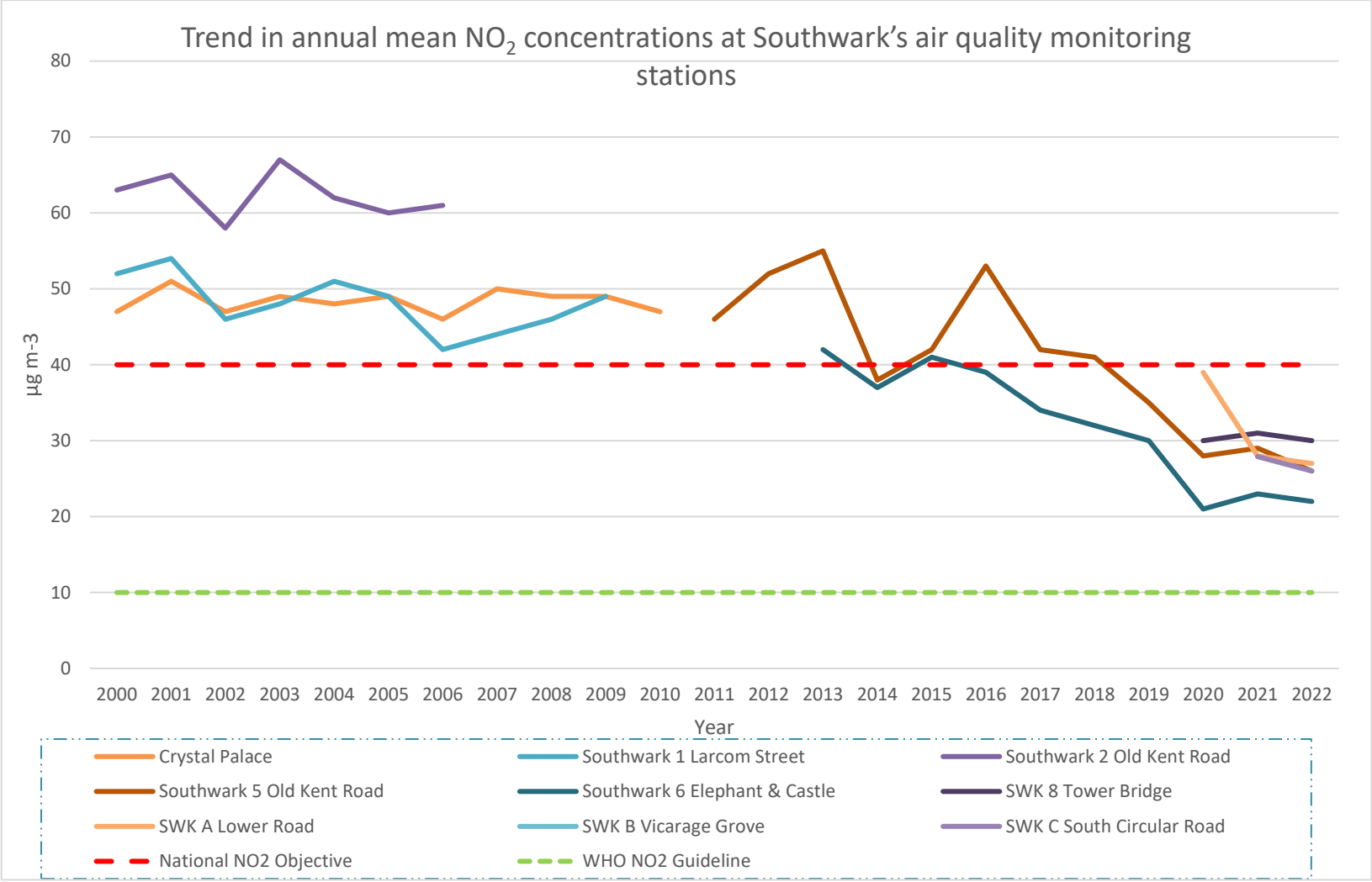

Figure 3 Trend in annual mean NO_2 concentrations at Southwark's continuous air quality monitoring stations

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

Site ID	Valid data capture for monitoring period %([a])	Valid data capture 2022 %([b])	2016	2017	2018	2019	2020	2021	2022
SWK 5 Old Kent Road	92	92	1	0	0	0	0	0	0
SWK 6 Elephant & Castle	93	93	0	0	0	0	0	0**Error! Bookmark not defined.**	0
SWK 8 Tower Bridge	99	99					0	0	0
SWK A Lower Road	73	73	-	-	-	-	-	0	0
SWK B Vicarage Grove	92	92	-	-	-	-	-	0	0
SWK C South Circular Road	99	99	-	-	-	-	-	0	0

Notes

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

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

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

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

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

Table G Annual Mean PM10 Automatic Monitoring Results (µg.m^{-3})

Site ID	Valid data capture for monitoring period %([a])	Valid data capture 2022 %([b])	2016	2017	2018	2019	2020	2021	2022
SWK 5 Old Kent Road (BAM)	88	88	24	22	22	24	22	21	21
SWK 6 Elephant & Castle	94	94	26	19	20	17	16	14	16
SWK 8 Tower Bridge	100	100						18	16
SWK 9 Old Kent Road (FIDAS)	98	98						17	18
SWK A Lower Road	99	99						15	17
SWK B Vicarage Grove	100	100						16	17
SWK C South Circular Road	93	93						13	15

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 mean averages have been "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75% and more than 25%.

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

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

1.4 Discussion of Trends

There have been no exceedances since 2016. However in the past year all but one site has increased.

2022 had a hot summer that resulted in long periods of dry conditions as well as a return to more normal traffic levels. This may have contributed to increased levels of PM_{10} being recorded due re-suspended particles.

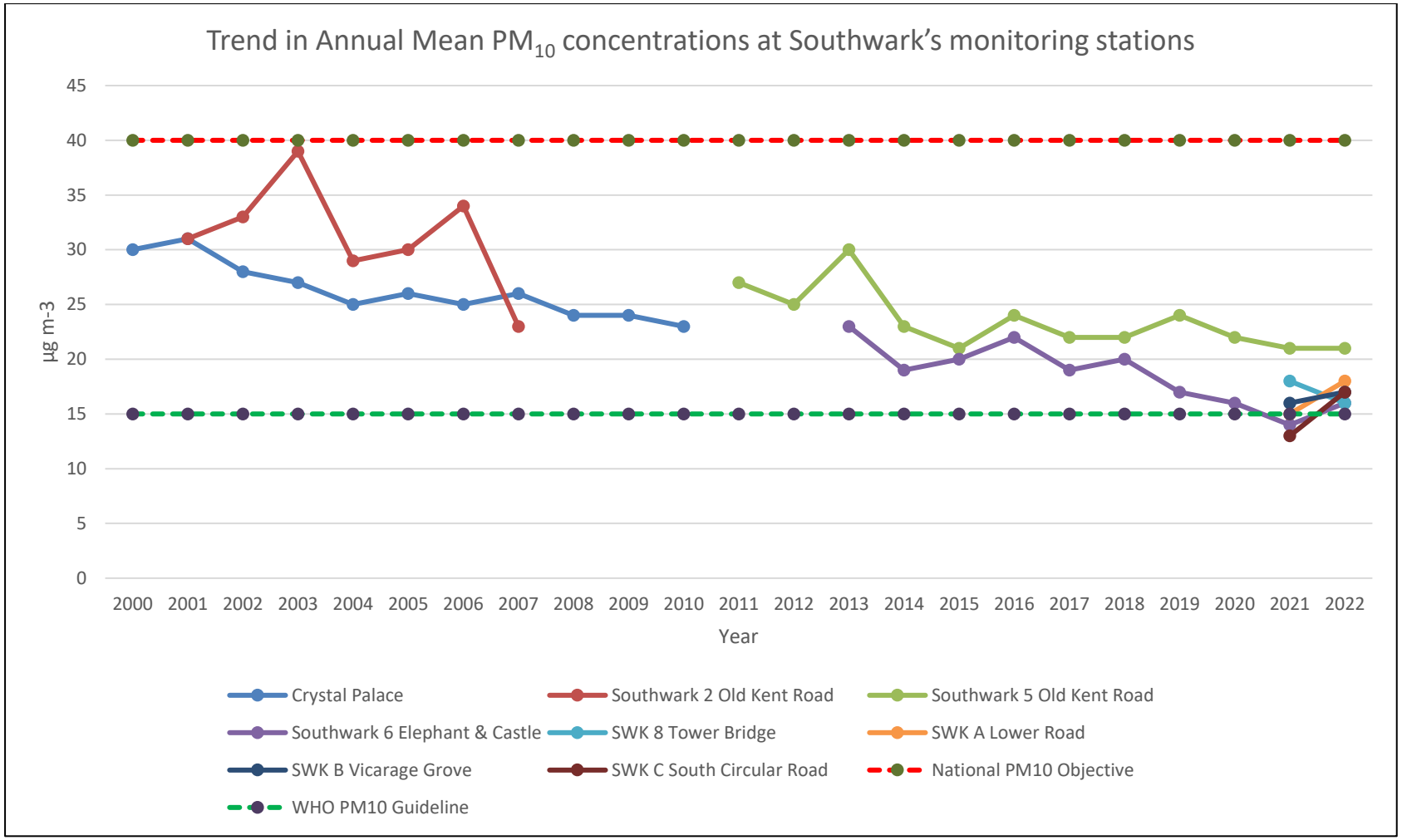

Figure 4 Trend in Annual Mean PM_{10} concentrations at Southwark's monitoring stations

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

Site ID	Valid data capture for monitoring period %[(a)]	Valid data capture 2022 %[(b)]	2016	2017	2018	2019	2020	2021	2022
SWK 5 - Old Kent Road (BAM)	88	88	18	19	8	2	11	8	7
SWK 6 - Elephant & Castle	94	94	21	1	2	14	3	2	4
SWK 8 - Tower Bridge Road	100	100	-	-	-	-	2	6	6
SWK 9 - Old Kent Road (FIDAS)	98	98	-	-	-	-	5	7	6
SWK A - Lower Road	99	99	-	-	-	-	-	2	5
SWK B - Vicarage Grove	100	100	-	-	-	-	-	2	6
SWK C – South Circular Road	93	93	-	-	-	-	-	0	2

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%).

Table I Annual Mean $PM_{2.5}$ Automatic Monitoring Results ($\mu g.m^{-3}$)

Site ID	Valid data capture for monitoring period %[(a)]	Valid data capture 2022 %[(b)]	2016	2017	2018	2019	2020	2021	2022
SWK 6 Elephant & Castle	94	94	-	-	-	-	9	9	9
SWK 8 Tower Bridge Road	100	100	-	-	-	-	8	10	9
SWK 9 Old Kent Road (FIDAS)	98	98	-	-	-	-	9	9	10
SWK A Lower Road	99	99	-	-	-	-	-	9	10
SWK B Vicarage Grove	100	100	-	-	-	-	-	10	10
SWK C South Circular Road	83	83	-	-	-	-	-	7	8

Notes

The annual mean concentrations are presented as $\mu g.m^{-3}$.

Exceedances of the $PM_{2.5}$ annual mean AQO of 20 $\mu g.m^{-3}$ are shown in **bold**.

1.5 Discussion of Trends

There are no exceedances of the national standards however the levels recorded are all above the updated WHO Air Quality Guidelines. The WHO guidelines establish a limit of 5 $\mu g.m^{-3}$ for an annual average concentration.

Action to Improve Air Quality

2.1 Air Quality Action Plan Progress

Table J provides a brief summary of Southwark Council progress against the Air Quality Action Plan, showing progress made this year.

Table J Delivery of Air Quality Action Plan Measures

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
1.1	Monitoring and other core statutory duties	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 was added to the network.	**Target met.**
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 further research is required to ascertain the impact on other parts of the road network.	**Action completed**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
1.5	Emissions from developments and buildings	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 2022.	**Target met**
1.6	Emissions from developments and buildings	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	Monitoring and other core statutory duties	London Local Air Quality Management Framework	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 completed the process for developing and approving a new AQAP for 2022 – 2027.	**Target met**
1.8	Public health and awareness raising		Have and continue to develop a communication plan and campaign of relevant air quality improvement topics	Devise an air quality communication plan and campaign	An air quality communications plan has been developed and is being continuously updated. Regular meetings are held between communication and the environmental protection team	**Target met**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
1.9	Cleaner transport		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**
1.10	Cleaner transport		Support the Mayor of London's call that the Government should modify the Vehicle Excise Duty regime to disincentive 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 disincentive the purchase of diesel vehicles.	**Action complete**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
1.11	Monitoring and other core statutory duties	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	Localised solutions		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**
1.13	Cleaner transport	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	Projects associated with river freight are being supported.	**Target met**
1.14	Cleaner transport				Current Trial using Bankside pier is being supported. This has included the implementation of a kerbside management scheme in this area.	**Target met**
1.15	Monitoring and other core statutory duties	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	The Environment Bill was given Royal assent on 9 November 2021.	**Action complete**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
1.16	Monitoring and other core statutory duties	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	The Clean Air (private members) Bills are being followed in their progress through Parliament.	**In progress.**
1.17	Monitoring and other core statutory duties	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 adoption of the WHO targets for $PM_{2.5}$ is included within the Authority's review of the air quality management area and was consulted on during 2022. A new AQAP was approved by cabinet in January 2023.	**Action Completed**
1.18	Localised solutions	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	Council still working on net gain policy. Focus is likely to be on tree and hedge planting.	**In progress**
1.19	Monitoring and other core statutory duties	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	A cross service air quality steering group has been established.	**Target met**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
2.1	Emissions from developments and buildings	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	Emissions from developments and buildings			Include the air quality technical guidance standards in an SPD	Air Quality Technical Guidance is being incorporated into the Climate Change and Environment SPD. This is currently in a draft form, consultation is expected to take place in summer 2023.	**In Progress**
2.3	Emissions from developments and buildings	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	Public health and awareness raising	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	A public campaign aligned with climate change is being developed to promote a reduction in emissions.	**In Progress**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
2.5	Cleaner transport	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 evaluation report is being drafted, the learnings from this will be considered in future low emission neighbourhood schemes.	**In Progress**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
3.1	Public health and awareness raising	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	Two new Silver Accreditations added. Schools were focused on developing their curriculum post Covid. Expect to see increase in next year. 4 new Gold Accreditations added.	**Target met.**
3.2						
3.3	Borough fleet		Encourage Southwark staff to commute by walking or cycling	Promote the Authority's Travel Plan	The travel plan was due for review at the end of 2022. No promotion occurred during 2022.	**Target not met**
3.4	Borough fleet			Provide greater access to cycles for staff by promoting the use of pool cycles &/or provide cycling offer annually	A supplier has been engaged to ensure that there are pool cycles available for staff.	**Target met.**
3.5	Borough fleet			Provide greater access to cycles for staff if the pool cycle demand exceeds capacity. Introduce additional pool cycles to meet demand	No new cycles have been introduced however a maintenance supplier has been engaged to ensure bikes are available for staff use.	**Target met.**
3.6	Public health and awareness raising		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 pandemic this action has been revised.	**See revised action at 3.17**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
3.7	Public health and awareness raising		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	Two weekly health walks are delivered by Everyone Health. This will continue throughout 2023. A series of active travel interventions are being delivered as part of the School Superzones programme. This has included the creation of several new walking maps, including ones co-designed by children for St Francis RC Primary and Haymerle Primary. A series of "fix-a-bike" workshops have also been delivered to give children more confidence to cycle. These have been embedded into the school travel plan as schools are supported to promote more active routes to and from school and in their community.	**Target met**
3.8	Public health and awareness raising	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	Council has been exploring ways to improve the current AirTEXT offer. Air quality tools have been promoted through the website.	**Target met**
3.9	Monitoring and other core statutory duties	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	Published a new air quality JSNA, summarising the evidence base and providing guidance on the health impacts of air quality and mitigating actions. This intelligence was used to inform the new AQAP and other council work.	**Target met**
3.10	Public health and awareness raising	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**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
3.11	Public health and awareness raising	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	Public health and awareness raising		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**
3.13	Monitoring and other core statutory duties		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	Public health and awareness raising	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	Environmental Protection Team have and regularly attend the SE London Children and Young People Asthma Network and have organised a workshop meeting between asthma specialists and council housing teams.	**Target partially met**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
3.15	Public health and awareness raising		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 air quality webpage/s. The School Air Quality Audit programme has been completed at Southwark schools. The audit recommendations are being implemented.	**Action completed**
3.16	Delivery servicing and freight	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. Activities have included direct engagement with business owners on business transport options.	**Target met**
3.17 (revised 3.6)	Delivery servicing and freight	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 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.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
4.1	Delivery servicing and freight	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	Delivery servicing and freight			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	Delivery servicing and freight			If the feasibility study is positive, evaluate the preferred solution	N/A	
4.4	Delivery servicing and freight		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	Delivery servicing and freight	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**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
4.6	Delivery servicing and freight	Reducing Emissions from Delivery and Servicing	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 feasibility of new technologies for smart deliveries	Plans for a virtual loading bay as part of the Walworth LEN project is being updated following the bankside trial. Engaged with Peddle me to place additional cargo bike in Southwark for use by business and residents. Development of a Sustainable Transport Strategy to support low and zero emission logistics.	**Target met**
4.7	Borough fleet	Reducing Emissions from Delivery and Servicing	Reduce Southwark commercial fleet emissions.	Switch to use of low or no emission vehicles	Current fleet renewal is due March 2023 and ongoing for relevant procurements thereafter. Sustainability evaluations are carried out for each vehicle to determine if low or no emission alternatives can be acquired. Currently extending our current fleet for 12-24 months so procurement will be delayed.	**Target met**
4.8				Produce mileage and efficiency guidance for services	Monthly fuel reports are sent out to Business Unit Managers.	**Target met**
4.9			Introduction of telematics on commercial fleet	Install telematics on commercial fleet	Discussion with Trade unions regarding the introduction of telematics policy.	**Target not met**
4.10			Smarter Driver Southwark fleets Training for all drivers	Introduce Smarter Driver training requirement for all current fleet drivers	Van smart course currently being organised for all current drivers to undertake.	**Target not met.**
4.11				Introduce Smarter Driver training requirement for all new fleet drivers		**Target not met.**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
4.12	Borough fleet	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	This is currently being reviewed alongside the return to work plan. No progress has been made on this review.	**In Progress**
4.13	Borough fleet			Review the Authority's Travel Plan		**Target not met**
4.14	Cleaner transport	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	There was no engagement from the GLA or TfL on introducing a requirement that all PCO licences include a Smarter Driver training.	**Target met**
4.15	Cleaner transport		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 for these installations is incomplete, with the various sources not providing consistent information. A new .Electric Vehicle strategy is being developed to help with targeting chargers in the right location.	**Target met**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
4.16	Cleaner transport	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	Cleaner transport	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 has occurred with proposals being made to extend out to M25.	**Action complete** **See measure 7.14**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
4.18	Cleaner transport	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 has been completed.	**Action complete**
4.19	Cleaner transport	Emissions from vehicles	Reduce re-suspension of road dust	Explore possibilities for more extensive wet road cleaning techniques	Joint MAQF project with Lambeth researching road dust has been completed. Project Report has been provided to the Greater London Authority to consider recommendations.	**Action complete**
4.20			Vehicle idling awareness	Run public awareness campaign	Campaign has been delivered	**Action complete**
4.21			Enforcement of the provisions of the Road Traffic Act	Authorise street based enforcement staff	Street based staff authorised	**Action Complete**
4.22				Enable the Parking Enforcement staff to undertake enforcement through current contract	Street based staff authorised	**Action Complete**
4.23				Authorise other street based staff to undertake enforcement	Not permitted to occur under current legislation.	**Action Complete**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
4.24	Cleaner transport	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. In addition a diesel surcharge is being applied to all non-ULEZ diesel vehicles with an on-street residential/business parking permit alongside existing discounts for electric and hybrid vehicles.	**Target met**
4.25				Review the charges for Housing Estate parking permits	A Project Manager has been appointed to undertake a review of Estate Parking. A benchmarking exercise will take place to better inform decisions in this area.	**Target not met**
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. A new electric vehicles strategy is being developed to help with decisions on the future placement of chargers.	**In progress**
4.27	Cleaner transport	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)	25 schools in the Borough have a School Street.	**Target met**
4.28	Public health and awareness raising		GLA Air Quality Audits for primary school/s	Air Quality Audit/s facilitated	Air quality audits programme completed.	**Action complete**
4.29	Localised solutions			Identify funding to implement the Air Quality Audit recommendations	Funding has been obtained from an internal capital bid.	**Action complete**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
4.30	Localised solutions	Air quality around schools	GLA Air Quality Audits for primary school/s	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 continue to monitor and encourage schools to 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	Schools audits have been offer to all schools and 24 audits have occurred. A final report is being prepared for publication.	**Target met**
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	A project is underway to implement the recommendations of the audit reports. Highways and Building are reviewing recommendations for future work programmes.	**Target met**
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	A mechanism has been built into the contract to ensure that the contract reports are received promptly	**Target met**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
4.36	Localised solutions		Southwark Air Quality Audits for primary schools	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 have worked with Global Action Plan (GAP) who operate the School Air Quality Helpdesk for the GLA. Information on School air quality audits were shared with GAP.	**Target met**
4.37	Cleaner transport	Reduce private vehicles in the Borough	Promote the use of shared mobility in Southwark	Continue to promote & encourage shared mobility systems	Promotion of shared mobility systems is in the proposed Sustainable Transport Strategy.	**Target met**
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	Information on Air Quality is shared with Highways and Transport Policy departments of Council to help inform decisions.	**In progress**
4.39			Reduce re-suspension of road dust	Explore possibilities for more extensive wet road cleaning techniques	Trials of different types of the Road Sweepers have been completed. Report has been provided to GLA.	**Target met**
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. This project is now under review.	**Target met**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
4.42	Cleaner transport			Lobby TfL to fund and develop a plan to refit the tunnel ventilation system	TfL are reviewing this project.	**In Progress**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
5.1	Emissions from developments and buildings	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**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
5.3	Emissions from developments and buildings	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	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**
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**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
5.5	Emissions from developments and buildings	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	Public health and awareness raising	Improve the energy efficiency in Southwark homes	Promote reduced energy consumption and bills	Promote low cost energy efficiency measures	Southwark Energy Savers Service commenced in December 2022 to offer advice on energy saving.	**Target met**
5.8	Emissions from developments and buildings		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	A Green Buildings Fund has been developed to deliver key carbon reduction projects, including the decarbonisation and retrofitting of community buildings, schools and council housing. Heat pumps have been fitted to some estates and project is underway for funding heat pump installation in schools.	**Target met**
5.9			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 installations during 2022.	**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	Heating Strategy updated. Heat pump installation has occurred at Consort, Newington and Wyndham estates.	**Target met**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
5.11	Emissions from developments and buildings	Improve the energy efficiency in Southwark homes	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	Councils housing improvement programme will form part of the Decarbonising Housing & Buildings action plan.	**In progress**
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 is reviewing the use of office space.	**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 air quality emissions using a tool developed in partnership with Council. Once completed officers will review how best we can reduce emissions from Council buildings.	**In progress**
5.14			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	Renewable energy opportunities are being identified through feasibility studies. Funding sources are being explored. Target remains the same and progress being made towards developing an expansion to the SELCHP district heating network.	**Target met**
5.15	Public health and awareness raising			Explore options to set up community energy schemes on estates	See above	**Target met**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
5.16	Emissions from developments and buildings	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	Explore use of low energy alternatives and motion sensor systems to major repairs to lighting systems on estates	Emergency lighting smart scan is continuing. Savings on CO_2 LED lighting and emergency lighting tests.	**Target met**
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 has been adopted. Policy P64 Air Quality sets out the standards that development must achieve to be acceptable. The policy achieve conformity with national and regional policy on air quality. Phase one of the Old Kent Road Air Quality Study has been completed.	**Target is partially 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	All of Southwark's SPDs are currently being reviewed. There will be a new housing and design SPD that will also incorporate air quality. It is expected to be substantially progressed or completed in 2023.	**In Progress**
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**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
5.20	Emissions from developments and buildings	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 being led 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	A Housing & Buildings forum is continuing to look at methods that can be applied to reduce emissions.	**Target 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 included in the review of Southwark's SPD's. There is also Air Quality positive approach being incorporated into the SPD. Work is occurring with planning in the development of SPD's is expected to be substantially progressed or completed in 2023	**In Progress**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
6.1	Public health and awareness raising	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	Promotion of the smoke control area will form part of the new air quality communications plan. Promotional materials are being developed through a London wide project that can be used to highlight air pollution caused by burning.	**In Progress**
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	Monitoring and other core statutory duties	Emissions from industrial premises	Regulation of EPA Part B processes	All IPPC premises in the Borough inspected in accordance with their risk assessment	The majority of IPPC premises in the Borough are Low Risk. Inspections are being undertaken in accordance with their risk assessment.	**Target met**
6.4	Localised solutions	Green infrastructure	Increase the amount of green infrastructure	Explore all opportunities to install green infrastructure	During 2022, green infrastructure was predominantly delivered alongside other projects. This is especially sustainable transport, which included delivery of 1.264km of cycle infrastructure (to TfL quality criteria) and more than 120 cycle hangars. This delivery included trees, greening of spaces and substantial changes to improve the public realm. Schemes like Liverpool Grove removed traffic and substantially enhanced the local environment for users with overwhelmingly positive feedback received. Linked to this is the programme to improve pedestrian access and encourage people to access sites in this way e.g. the pedestrian crossing delivery programme saw 5 new controlled crossings and 33 uncontrolled.	**Target met**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
6.5	Monitoring and other core statutory duties	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 developments and buildings	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, Construction and Demolition Environment Management Plans, NRMM and environmental law enforcement to work with contractors to minimise emissions from construction sites and their logistics. The Technical guides for construction and air quality are fundamental documents of reference in these processes and interactions	**Target met**
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 and support by Environmental Protection.	**In progress**
6.9	Monitoring and other core statutory duties	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 2022, no applications were received.	**Target met**
6.10	Monitoring and other core statutory duties		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 2022	**Target met**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
6.11	Monitoring and other core statutory duties	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 addressed in consort with the Environment Agency	**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.	**Complete**
6.13				Apply revised technical guidance standards with regards to complaints regarding emission from commercial kitchens		**Complete**
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 Protection and conditioned appropriately if granted	**Target met**

No.	LLAQM Action Matrix Theme	Measure		Action		Progress	Further information
7.1	Monitoring and other core statutory duties	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	Consultation on Peckham Rye street space scheme with decision being made in July 2022 to make the scheme permanent. Work undertaken to improve experience of those walking and cycling.	**Target met**
7.3					GLA AQ Focus Area 148 – Tower Bridge Road	A feasibility study has been undertaken on the placement of Heat Pumps at Tower Bridge School. A specification is being worked on to install Air Sourced Heat Pumps at this school.	**Target met**
7.4					GLA AQ Focus Area 149 – London Bridge Area	Work on the permanent widening of pavements in this area has commenced. TfL introduced a 0700-1900 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	Air Quality Modelling has been completed in the area. Planning has commenced on a cargo bike project to operate in this area.	**Target met**
7.6					GLA AQ Focus Area 151 – Elephant & Castle	Monitoring of air quality in the focus area is continuing. Opportunities for projects in the area are being explored.	**Target met**

No.	LLAQM Action Matrix Theme	Measure		Action		Progress	Further information
7.7	Monitoring and other core statutory duties	GLA Air Quality Focus Areas			GLA AQ Focus Area 152 – Walworth Road / Camberwell Road	Work has been completed at Liverpool Grove turning this into a pedestrian area.	**Target met**
7.8					GLA AQ Focus Area 153 – Lower Road	Phase 1 of the lower road traffic scheme has commenced. Phase 1 is the creation of improved cycle and pedestrian routes. Air quality monitoring using low cost sensors will occur as part of this project.	**Target met**
7.9	Cleaner transport			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	Monitoring and other core statutory duties			Ensure that the air quality improvement projects in GLA Air Quality Focus Areas are assessed		Projects are assessed in GLA areas.	**In progress**
7.11				Ensure that local air quality projects in the GLA Air Quality Focus Areas are comprehensively evaluated		Evaluation reports are created following completion of the project.	**In progress**
7.12				Ensure that air quality projects implemented in the GLA Air Quality Focus Areas are regularly reviewed		Reviews are held as part of the regular air quality meetings within Environmental Protection.	**In progress**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
7.13	Monitoring and other core statutory duties	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	Clean Air Borough programme has been withdrawn by the GLA.	**Target Completed**
7.14	Cleaner transport	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	Monitoring and other core statutory duties	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	GLA Air Quality Positive and Neutral Guidance documents were published in February 2023. These documents will be incorporated into the Southwark's climate change and environment SPD's. They have been included in the application criteria of planning application.	**Target met**
7.16	Localised solutions	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**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
7.17	Monitoring and other core statutory duties	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, on projects designed to improve air quality and responded to all relevant air quality consultations	**Target met**
7.18	Public health and awareness raising	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 is being evaluated.	**Target met**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
8.1	Monitoring and other core statutory duties	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	A review of the JSNA has been completed and has been published.	**Action completed**
8.3	Public health and awareness raising	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. The Director of Public Health is the chair of the Air Quality Steering group that has been established.	**Target met**
8.4	Monitoring and other core statutory duties	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	When 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. This was reviewed in 2022.	**Action complete**
8.6	Public health and awareness raising			Continue to develop the air quality communications plan	A communications plan has been developed and incorporates different activities to be focused on in each month. A member of Councils communications team is helping to deliver on this plan.	**Target met**
8.7				Maintain and strengthen the poor air quality alert cascade	SWOT analysis of GLA AQ Alert system and Southwark system undertaken with recommendations. This has been incorporated into the DEFRA funded air quality project reviewing AirText.	**Target met**
8.8	Public health and awareness raising		Each organisation receiving GLA AQ alerts should provide feedback to the GLA	Encourage the GLA to request feedback	SWOT analysis of GLA AQ Alert system and Southwark system undertaken with recommendations. GLA are being kept informed of the DEFRA funded air quality project reviewing AirText.	**Target met**

No.	LLAQM Action Matrix Theme	Measure		Action	Progress	Further information
8.9	Monitoring and other core statutory duties	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 recommendations were incorporated in the revised air quality action plan.	**Target met**
8.10	Monitoring and other core statutory duties			Review the air quality section of the JSNA bi-annually	The JSNA was reviewed and updated in 2022.	
8.11	Public health and awareness raising	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	This measure has been replaced by the work that the London Air Quality and Health Programme Office are undertaking for UK Health and Security Agency (formally PHE).	**Action Completed**

Planning Update and Other New Sources of Emissions

Table K Planning requirements met by planning applications Southwark Council in 2022

Condition	Number
Number of planning applications where an air quality impact assessment was reviewed for air quality impacts	34
Number of planning applications required to monitor for construction dust	51
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	5
Number of developments where an AQ Neutral building and/or transport assessments undertaken	70
Number of developments where the AQ Neutral building and/or transport assessments not meeting the benchmark and so required to include additional mitigation	0
Number of planning applications with S106 agreements including other requirements to improve air quality	1
Number of planning applications with CIL payments that include a contribution to improve air quality	0
NRMM: Central Activity Zone , Canary Wharf and Opportunity Areas	
Number of conditions related to NRMM included.	11
Number of developments registered and compliant.	39
Number of audits	7
% of sites unregistered prior to audit	28%
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 IV of the Directive and/or exemptions to the policy.	The NRMM website is used to confirm the development has been registered with the GLA.
NRMM: Greater London (excluding Central Activity Zone, Canary Wharf and Opportunity Areas)	
Number of conditions related to NRMM included.	23
Number of developments registered and compliant.	21
Number of audits	14
% of sites unregistered prior to audit	14%
Please include confirmation that you have checked that the development has been registered at www.nrmm.london and that all NRMM used on-site is compliant with Stage IIIB of the Directive and/or exemptions to the policy.	The NRMM website is used to confirm the development has been registered with the GLA

The Environmental Protection Team (EPT) review planning applications for air quality implications, and comments and recommendations are communicated to planning officers. EPT queried the planning reporting systems to produce the data shown in **Table K.** The data has been extracted from the planning systems and will undergo further review and refinement.

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

3.1 New or significantly changed industrial or other sources

No new sources of significance identified in the Borough during 2022.

Additional Activities to Improve Air Quality

4.1 London Borough of Southwark Fleet Replacement Strategy

Southwark has a policy of reviewing and replacing vehicles with electric where possible. Council is currently working to develop a Fleet Replacement Strategy. This work will include the development of a robust vehicle selection process and criteria to establish the needed commercial fleet. Southwark's fleet consist of 241 vehicles and 15 are electric meaning 6% of our fleet is electric. Further tranches of renewed fleet will include electric vehicles, if the appropriate vehicles are available for purchase.

4.2 NRMM Enforcement Project

Southwark continues to support the NRMM Enforcement project. The status of construction sites are reviewed by officers and any changes are noted and reported. Any non-compliances from the audits that are undertaken are actioned by the Environmental Protection Team at Southwark.

4.3 Air Quality Alerts

We continue to support the airTEXT notification system. Southwark has commenced a Defra Air quality fund project to improve this notification system, including better engagement with vulnerable communities.

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 ESU1. They are contracted to calibrate 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 (2022 = 0.84) (See **Table N**Table N). The results presented in section 1.2 of this report has had the bias value applied. **Appendix B** presents the Southwark network's monthly results in **Table S**.

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 NO_2 PT rounds AR001, to AR042

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**	**AR042**	**AR043**	**AR045**
Round conducted in the period	Jan – Feb 2020	May – Jun 2020	Jul – Aug 2020	Sept – Oct 2020	Jan – Mar 2021	May – June 2021	July – Aug 2021
Gradko International	75%	No Results[4]	No Results[3]	75%	25%	100%	100%
Air PT Round	**AR046**	**AR049**	**AR050**				
Round conducted in the period	Sept – Oct 2021	Jan – Feb 2022	May – Jun 2022				
Gradko International	100%	100%	100%				

[4] Round was cancelled due to pandemic.

Southwark Council southwark.gov.uk

Table M Gradko Laboratory summary performance April 2009 – March 2023

Summary of Precision Results for the National Nitrogen Dioxide Diffusion Tube Collocation Studies, for Gradko Laboratory (20% TEA in Water)

2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G	2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G	2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G	2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G	2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G	2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G	2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G	2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G	2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G	2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G	2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G	2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G	2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G	2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G	2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G	2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
2008	G	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G	2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
2008	P	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G	2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
2008	P	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G	2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
2008	P	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G	2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
2008	P	2009	G	2010	G	2011	G	2012	G	2013	G	2014	G	2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
		2009	G	2010	G	2011	G	2012	G	2013	G	2014	G	2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
		2009	G	2010	G	2011	G	2012	G	2013	G	2014	G	2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
		2009	G	2010	G	2011	G	2012	G	2013	G			2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
		2009	G	2010	G	2011	G	2012	G	2013	G			2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
		2009	G	2010	G	2011	G	2012	G	2013	G			2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
		2009	P	2010	G	2011	G	2012	G	2013	G			2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
		2009	P	2010	G	2011	G	2012	G	2013	G			2015	G	2016	G	2017	G	2018	G	2019	G	2020	G	2021	G	2022	G
		2009	P	2010	G	2011	G	2012	G	2013	G			2015	G	2016	G	2017	G	2018	G	2019	G			2021	G		
		2009	P	2010	G	2011	G	2012	G	2013	G			2015	G	2016	G	2017	G	2018	G	2019	G			2021	G		
				2010	G	2011	G	2012	G	2013	G			2015	P	2016	G	2017	G	2018	G	2019	G			2021	G		
				2010	G	2011	G	2012	G	2013	G					2016	G	2017	G	2018	G	2019	P			2021	G		
				2010	G	2011	G	2012	G	2013	G					2016	P	2017	G	2018	G					2021	G		
				2010	G	2011	G	2012	P	2013	G							2017	G	2018	G					2021	G		
				2010	P	2011	G	2012	P	2013	G							2017	G	2018	G					2021	G		
				2010	P	2011	G			2013	P							2017	G	2018	G								
				2010	P	2011	G			2013	P							2017	G	2018	G								
						2011	P											2017	G	2018	G								
						2011	P													2018	G								

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 v3.0 accessed at Diffusion Tube Data Processing Tool | LAQM (defra.gov.uk) 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	12	10
Bias Adjustment Factor A	0.81 (0.75 - 0.88)	0.9 (0.8 – 1.5
Diffusion Tube Bias B	23% (14% – 33%)	11% (-4% - 26%)
Diffusion Tube Mean (µg.m^{-3})	32.2	26.8
Mean CV (Precision)	2.7%	4.6%
Automatic Mean (µg.m^{-3})	26.1	24.3
Data Capture	99%	98%
Adjusted Tube Mean (µg.m^{-3})	26 (24 – 28)	24 (21 – 28)

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

Discussion of Choice of Factor to Use

The factor has been calculated using DEFRA NO_2 data processing tool. Southwark has decided that this report uses the Local co-location factor, as it provides a higher degree of certainty and relevance of the local air quality.

The data capture for the local air quality monitors has improved from previous years.

Table O Bias Adjustment Factor

Year	Local or National	If Local, Version of National Spreadsheet	Adjustment Factor
2022	Local		0.85
2021	National	04/22	0.84
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 A data capture for 2022 was 73% for the full calendar year. The result was annualised in line with Box4.2 of LLAQM TG(19). The data from the London Air Quality Network Annualisation Tool and 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 v3.0 accessed at Diffusion Tube Data Processing Tool | LAQM (defra.gov.uk) 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 v3.0 accessed at Diffusion Tube Data Processing Tool | LAQM (defra.gov.uk) The data is provided in **Table R** below.

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

Nitrogen Dioxide

Background Site	Annual mean 2022 (A_m)	Period Mean 2022 (P_m)	Ratio (A_m/P_m)
City Of London - The Aldgate School	22.8	23.8	0.962
Lewisham - Deptford	19.1	19.3	0.989
Southwark - Elephant and Castle	21.9	22.4	0.976
			0.976

Table Q Annualisation of Southwark Nitrogen Dioxide Diffusion Data

Diffusion Tube ID	Annualisation Factor Elephant and Castle	Annualisation Factor Aldgate School	Annualisation Factor Deptford	Average Annualisation Factor	Raw Data Simple Annual Mean ($\mu g.m^{-3}$)	Annualised Data Simple Annual Mean ($\mu g.m^{-3}$)	Comments
SDT 120	0.7533	0.7207	0.7220	0.7320	30.5	22.3	
SDT 122	0.7533	0.7207	0.7220	0.7320	29.0	21.2	

The above table was extracted from the LAQM Diffusion Tube Data Processing Tool v3.0 accessed at

Diffusion Tube Data Processing Tool | LAQM (defra.gov.uk)

Table R NO_2 Fall off With Distance Calculations

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	39.3	34.6	38.0	Predicted concentration at receptor within 10% the AQS objective
SDT 18	0.5	3.5	41.5	28.2	37.0	Predicted concentration at receptor within 10% the AQS objective
SDT 24	0.5	3.5	44.8	28.2	39.1	Predicted concentration at receptor within 10% the AQS objective
SDT 29	0.5	2.5	40.3	34.7	38.7	Predicted concentration at receptor within 10% the AQS objective
SDT 81	0.5	3.5	41.0	22.6	34.7	
SDT 87	0.5	3.5	41.0	26.3	36.0	
SDT 90	0.5	3.5	38.4	30.0	34.8	
SDT 91	0.5	3.5	36.6	30.0	34.4	
SDT 93	0.5	2.5	36.4	22.6	32.6	
SDT 104	0.5	15.5	42.0	27.1	32.9	
SDT 113	0.5	7.5	40.8	27.1	34.2	

The above table was extracted from the LAQM Diffusion Tube Data Processing Tool v3.0 accessed at https://laqm.defra.gov.uk/air-quality/air-quality-assessment/diffusion-tube-data-processing-tool/

Appendix B Full Monthly Diffusion Tube Results for 2022

Table S NO_2 Diffusion Tube Results

Site ID	Valid data capture for monitoring period %[a]	Valid data capture 2022%[b]	Jan	Feb	Mar /	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual Mean – Raw Data	Bias Adjusted and Annualised Annual Mean
SDT 1	100.00	100.00	43.3	23.2	40.6	34.0	23.1	23.4	28.9	34.3	33.9	27.9	31.5	37.9	32.2	-27.5
SDT 2	100.00	100.00	43.7	22.8	40.8	35.8	25.1	23.3	30.5	32.5	34.1	25.9	32.5	39.2		
SDT 3	100.00	100.00	45.0	25.3	41.5	34.5	24.4	23.3	29.8	34.1	35.1	26.9	33.5	37.8		
SDT 4	100.00	100.00	47.5	29.4	49.8	38.4	33.9	31.2	43.1	42.7	41.7	35.8	37.7	41.0	39.4	33.6
SDT 5	100.00	100.00	37.2	22.5	29.8	22.7	22.7	17.5	17.3	18.4	25.1	28.2	30.8	35.8	25.7	21.9
SDT 6	92.31	92.31	89.7		45.9	36.5	34.6	28.4	34.5	35.7	40.6	26.0	39.8	40.6	**41.1**	35.1
SDT 7	90.38	90.38	45.1	24.7	40.4	30.4	22.6	21.8	27.4	30.9	34.3		30.7	36.8	31.4	26.8
SDT 8	100.00	100.00	36.1	19.7	31.5	23.1	16.9	15.7	15.1	20.8	23.8	21.2	24.6	30.1	23.2	19.8
SDT 9	100.00	100.00	45.1	28.0	50.9	35.6	29.0	31.6	35.8	39.1	39.6	35.7	37.5	37.9	37.1	31.8
SDT 10	100.00	100.00	35.1	20.0	31.3	24.1	19.8	16.4	19.8	23.1	25.4	21.4	25.8	30.5	24.4	20.8
SDT 11	100.00	100.00	52.3	38.2	58.8	47.9	44.1	40.8	42.1	49.0	47.7	39.9	44.0	47.6	**46.0**	39.3
SDT 12	92.31	92.31	36.3	25.1	28.6	23.6	21.1	22.0	22.6	24.4	31.1	29.0		37.5	27.8	23.7
SDT 13	100.00	100.00	37.2	22.9	31.4	23.3	21.3	24.0	22.3	25.0	32.6	29.1	31.6	34.7		
SDT 14	92.31	92.31	37.8		26.0	24.2	23.4	19.2	20.5	23.5	33.0	27.8	33.8	36.7		
SDT 15	92.31	92.31	58.9	37.1	42.0	34.9	28.2	25.6		27.2	37.1	41.9	43.6	41.8	38.0	32.5
SDT 18	90.38	90.38	51.8	43.5	50.7	43.8		49.0	51.6	26.9	52.7	58.8	52.9	53.0	**48.6**	**41.5**
SDT 20	100.00	100.00	44.0	35.9	46.9	42.8	35.6	36.2	39.5	28.6	44.3	55.3	42.3	41.7	**41.1**	35.1
SDT 24	100.00	100.00	67.7	55.7	41.9	45.6	55.1	54.1	51.1	45.3	56.7	39.0	58.7	57.7	**52.4**	**44.8**
SDT 29	100.00	100.00	60.8	47.8	44.3	44.3	42.1	43.6	42.1	41.7	49.4	44.7	50.6	53.6	**47.1**	**40.3**
SDT 31	100.00	100.00	49.3	29.1	44.8	34.5	34.5	30.0	30.7	31.6	39.3	38.4	42.1	41.4	37.1	31.7
SDT 37	100.00	100.00	40.4	23.2	33.1	23.4	18.0	17.3	18.0	19.7	25.4	25.3	30.0	33.6	25.6	21.9
SDT 38	100.00	100.00	48.6	35.3	41.7	37.1	38.5	39.2	36.9	38.1	45.1	39.5	45.0	44.3	**40.8**	34.8
SDT 39	100.00	100.00	52.4	33.7	39.0	34.2	33.6	33.0	30.6	29.1	41.4	41.8	42.2	40.6	37.6	32.2

Site ID	Valid data capture for monitoring period %[a]	Valid data capture 2022%[b]	Jan	Feb	Mar /	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual Mean – Raw Data	Bias Adjusted and Annualised Annual Mean
SDT 41	100.00	100.00	52.8	36.0	47.8	38.5	38.3	34.1	39.1	37.0	44.4	41.5	42.1	43.9	**41.3**	35.3
SDT 42	100.00	100.00	46.7	30.8	38.6	27.6	26.0	21.2	27.0	28.6	32.6	34.6	38.2	37.6	32.5	27.7
SDT 48	100.00	100.00	43.7	33.3	38.0	31.2	32.7	32.1	33.7	34.8	39.3	41.0	39.5	39.9	36.6	31.3
SDT 49	100.00	100.00	38.8	21.4	30.4	22.6	17.6	15.8	17.3	19.2	23.1	25.3	28.0	32.6	24.3	20.8
SDT 52	92.31	92.31	35.5	18.6	24.1	16.6	17.3	15.3	15.8	17.7	22.8	21.4		29.3	21.3	18.2
SDT 53	100.00	100.00	31.8	19.1	26.1	18.5	14.1	13.2	12.4	15.6	19.1	14.3	21.0	27.2	19.4	16.6
SDT 54	100.00	100.00	40.6	25.3	31.9	23.9	19.3	17.4	17.4	17.3	23.2	25.4	28.2	32.6	25.2	21.5
SDT 55	92.31	92.31	32.3		34.5	23.8	18.6	13.7	14.5	16.8	20.8	21.3	25.6	29.6	22.9	19.5
SDT 57	90.38	90.38	41.0	26.5	33.5		25.0	23.2	26.3	28.8	33.9	31.7	33.9	34.9	30.8	26.3
SDT 61	100.00	100.00	41.1	27.4	33.3	25.9	25.9	22.8	25.5	26.9	28.9	36.5	33.6	34.0	30.1	25.8
SDT 66	100.00	100.00	34.7	22.2	41.0	28.4	19.4	20.0	23.4	26.7	28.4	28.3	26.8	33.1	27.7	23.7
SDT 77	100.00	100.00	41.9	31.7	33.1	37.3	32.7	29.2	27.9	31.3	43.6	41.2	44.2	44.6	36.6	31.3
SDT 81	100.00	100.00	53.4	38.3	48.6	56.2	43.1	40.0	52.7	51.4	50.7	45.3	50.1	45.9	**48.0**	**41.0**
SDT 82	82.69	82.69	40.9	34.3	40.7		35.2	32.2	37.0		43.8	42.3	45.2	46.1	39.8	34.0
SDT 84	100.00	100.00	44.4	34.1	37.7	34.4	30.7	30.2	31.0	32.1	19.0	38.3	41.8	39.4	34.4	29.4
SDT 87	100.00	100.00	53.8	45.1	50.6	43.2	46.8	43.9	47.6	45.3	50.8	52.4	49.0	47.6	**48.0**	**41.0**
SDT 88	90.38	90.38	51.6	33.9	44.3	38.9		34.9	39.2	40.0	42.2	43.8	45.9	43.6	**41.7**	35.6
SDT 89	100.00	100.00	47.0	27.5	42.1	31.9	27.3	24.3	32.3	35.3	37.5	29.6	30.3	37.1	33.5	28.6
SDT 90	100.00	100.00	57.1	33.7	58.7	50.7	39.4	37.0	43.7	32.7	48.7	41.4	46.2	49.7	**44.9**	38.4
SDT 91	100.00	100.00	52.3	32.9	53.7	42.4	39.2	30.0	42.7	48.7	49.2	39.3	41.0	42.9	**42.8**	36.6
SDT 92	100.00	100.00	44.0	26.2	40.8	33.0	25.7	25.4	28.0	33.9	36.2	31.5	36.9	40.0	33.5	28.6
SDT 93	100.00	100.00	50.6	42.3	51.7	40.8	40.9	20.0	39.1	44.1	42.9	43.4	47.7	47.4	**42.6**	36.4
SDT 95	90.38	90.38	31.6	15.5	25.2		13.1	11.2	12.7	15.0	17.8	17.5	19.5	25.2	18.6	15.9
SDT 97	82.69	82.69	40.6	26.1	29.6	22.2		24.7	23.4	25.5	27.7	29.9		36.0	28.6	24.4
SDT 98	90.38	90.38	52.3	35.6	43.4	38.9	38.9	36.5	38.5	37.2	40.7		40.3	39.4	**40.1**	34.3
SDT 100	100.00	100.00	31.7	17.5	24.3	18.8	14.1	13.7	12.6	14.8	18.0	18.1	20.2	27.0	19.2	16.4
SDT 101	100.00	100.00	40.4	22.8	37.6	25.9	22.7	21.8	22.0	24.8	28.2	30.1	31.4	36.0	28.6	24.5
SDT 102	84.62	84.62	43.1	27.5	36.3	26.8	22.0	22.7	23.6			27.8	30.1	36.3	29.6	25.3

Southwark Council
southwark.gov.uk

Site ID	Valid data capture for monitoring period %[a]	Valid data capture 2022%[b]	Jan	Feb	Mar /	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual Mean – Raw Data	Bias Adjusted and Annualised Annual Mean
SDT 103	100.00	100.00	47.2	28.9	40.6	34.6	29.0	26.8	24.1	30.2	32.1	30.1	31.9	40.6	33.0	28.2
SDT 104	92.31	92.31	52.9	48.1	56.5	46.4	44.0		43.7	46.9	49.2	47.6	54.5	50.8	**49.2**	**42.0**
SDT 105	100.00	100.00	44.0	30.8	34.8	26.2	28.4	24.7	26.2	27.4	32.2	34.3	36.6	38.3	32.0	27.3
SDT 106	100.00	100.00	54.7	39.1	46.8	37.5	34.9	35.9	37.7	40.9	42.3	37.5	44.9	45.9	**41.5**	35.5
SDT 107	100.00	100.00	45.2	27.2	42.3	26.1	25.1	23.5	25.0	26.1	31.2	31.3	34.3	37.4	31.2	26.7
SDT 111	100.00	100.00	48.6	29.3	44.7	21.3	29.9	28.4	31.7	31.5	38.1	34.2	37.4	41.5	34.7	29.7
SDT 112	100.00	100.00	34.5	22.8	27.1	21.1	17.0	14.1	16.0	18.0	22.5	22.9	27.4	31.3	22.9	19.6
SDT 113	100.00	100.00	57.9	36.5	46.1	47.2	45.2	44.3	46.6	41.2	48.8	55.5	56.4	46.8	**47.7**	**40.8**
SDT 114	92.31	92.31	37.9	27.4	35.1	24.8	21.7	28.2		21.4	27.9	30.1	31.8	35.6	29.3	25.0
SDT 120	100.00	23.08	38.1	21.6	31.8										30.5	19.1
SDT 122	100.00	23.08	35.3	21.1	30.5										29.0	18.1
SDT 132	100.00	100.00	44.3	31.1	42.6	31.6	29.6	24.5	30.8	37.0	20.7	33.0	38.3	38.2	33.5	28.6
SDT 136	100.00	100.00	38.8	24.1	32.7	22.5	19.5	18.9	20.5	21.0	25.3	27.8	29.0	32.4	26.0	22.3
SDT 137	100.00	100.00	35.2	16.4	27.9	20.7	15.3	12.2	12.5	17.4	20.9	19.3	21.2	29.3	20.7	17.7
SDT 138	100.00	100.00	47.3	34.1	34.8	27.0	26.9	24.8	23.5	16.1	31.2	23.6	34.5	39.4	30.3	25.9
SDT 139	90.38	90.38	44.0	26.8	37.1	30.7		17.5	20.3	22.7	26.2	23.3	27.3	30.6	27.9	23.8
SDT 140	92.31	92.31	38.2	22.3	36.9	26.5	21.5		22.2	27.0	29.0	23.6	29.1	35.8	28.4	24.2
SDT 141	100.00	15.38	42.7	26.8											-	-
SDT 142	100.00	100.00	32.7	19.4	29.4	20.6	15.0	12.9	16.7	18.8	20.7	20.7	21.0	29.0	21.4	18.3
SDT 143	90.38	90.38	33.0	18.5	23.6	20.6	16.8	15.1	17.9	19.0	21.7		25.1	28.0	21.7	18.6
SDT 144	92.31	92.31	36.6	18.8	31.1	26.4	22.9	21.6	23.9	26.2		22.9	23.6	29.7	25.8	22.0
SDT 145	100.00	100.00	36.8	21.6	27.8	20.4	18.3	16.6	16.9	18.3	21.7	21.2	25.8	31.2	23.0	19.7
SDT 146	100.00	100.00	34.2	23.4	29.5	24.6	19.7	17.1	20.7	22.3	26.0	23.8	30.6	31.0	25.2	21.6
SDT 147	100.00	100.00	36.1	26.9	35.5	24.4	23.7	21.5	22.9	22.1	27.0	29.9	31.7	34.5	28.0	24.0
SDT 148	100.00	100.00	41.6	26.3	37.5	28.6	21.4	20.2	21.9	22.7	26.2	26.5	30.7	36.0	28.3	24.2
SDT 149	100.00	100.00	41.7	23.0	33.2	23.3	19.8	18.5	19.6	21.2	24.3	24.9	28.0	36.0	26.1	22.3
SDT 150	100.00	100.00	39.3	28.1	38.8	31.2	26.9	25.9	28.3	47.7	32.2	28.0	38.8	40.4	33.8	28.9
SDT 151	92.31	92.31	36.0	21.2	31.3	22.8	15.9	15.9	17.0	20.2	24.4	23.5		30.2	23.5	20.1

Site ID	Valid data capture for monitoring period %[a]	Valid data capture 2022%[b]	Jan	Feb	Mar /	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual Mean – Raw Data	Bias Adjusted and Annualised Annual Mean
SDT 152	100.00	100.00	40.7	21.3	30.4	23.1	18.7	17.7	17.7	19.3	24.0	24.2	27.0	33.1	24.7	21.1
SDT 153	100.00	100.00	30.4	17.3	28.3	21.5	18.3	17.2	18.5	20.7	20.5	20.5	22.7	28.5	22.0	18.8
SDT 154	100.00	100.00	40.0	24.0	35.3	23.7	24.4	21.0	19.8	21.7	27.9	29.5	34.1	35.2	28.1	24.0
SDT 155	100.00	100.00	39.6	20.5	31.8	21.3	18.2	15.8	17.4	18.5	24.1	24.9	29.5	31.0	24.4	20.8
SDT 156	100.00	100.00	47.4	28.6	36.1	25.3	21.0	19.4	11.2	23.7	27.9	32.0	34.1	38.3	28.7	24.6
SDT 157	100.00	100.00	39.6	23.8	29.3	21.6	19.6	17.2	17.8	17.9	23.1	24.1	27.0	33.0	24.5	20.9
SDT 158	100.00	100.00	34.8	20.6	31.5	33.1	17.5	14.2	16.6	20.7	23.7	22.9	26.9	30.6	24.4	20.9
SDT 159	100.00	100.00	35.0	20.0	28.6	21.7	16.1	44.9	14.8	17.6	21.4	20.3	24.2	29.0	24.5	20.9
SDT 160	100.00	100.00	37.6	21.9	33.6	25.4	20.0	19.6	20.8	21.5	27.3	24.1	30.4	33.1	26.3	22.5
SDT 161	100.00	76.92	55.7	31.1	42.2	37.6	29.7	15.9	30.3	36.9	19.7	32.6	36.4	42.1	34.2	29.2
SDT162	90.91	76.92			38.3	26.9	22.0	19.4	20.6		27.8	25.6	29.0	32.8	26.9	23.0
SDT 163	100.00	76.92				32.4	27.1	28.5	27.7	22.4	26.4	32.7	38.8	40.2	30.7	26.2
SDT 164	100.00	100.00				25.9	23.0	22.3	22.2	30.1	27.1	28.7	31.9	35.7	27.4	23.4

Notes

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

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

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

All means have been "annualised" in accordance with LLAQM Technical Guidance if valid data capture for the calendar year is less than 75% and greater than 25%.

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

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