

London Borough of Southwark Air Quality Annual Status Report for 2023

Date of publication: October 2024



This report provides a detailed overview of air quality in Southwark during 2023. It has been produced to meet the requirements of the London Local Air Quality Management (LLAQM) statutory process¹.

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The following amendments to this report were made following an appraisal from Defra and GLA

Page	Table Reference	
17	Table E	Correction of a typo
23	Table G	Insertion of 2021 and 2022 Breathe London NO ₂ Data
28	New Figure	Figure 3 added, showing trend for diffusion tube sites located within Focus Areas
47	Table M	Insertion of 2021 and 2022 Breathe London PM _{2.5} Data
105	Figure 17 Figure 18 Figure 19	Numbering updated to account for new Figure 3 Addition of scale bars and north arrows

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

Contents

Abbreviations	7
1. Air Quality Monitoring.....	9
1.1 Locations.....	9
1.2 Comparison of Monitoring Results with AQOs	21
1.2.1 Nitrogen Dioxide (NO ₂)	21
Discussion of trends in annual mean NO ₂ at continuous monitors	26
Discussion of trends in annual mean NO ₂ at diffusion tube sites.....	31
Discussion of trends in hourly mean NO ₂	37
1.2.2 Particulate Matter (PM ₁₀)	38
Discussion of Trends in annual mean PM ₁₀	41
Discussion of trends for hourly and 24-hour mean PM ₁₀	45
1.2.3 Particulate Matter (PM _{2.5}).....	46
Discussion of Trends in PM _{2.5} concentrations.....	52
1.2.4 Ozone (O ₃).....	53
Discussion of Trends in O ₃ concentrations	57
2. Action to Improve Air Quality.....	58
3. Planning Update and Other New Sources of Emissions	90
4. Additional Activities to Improve Air Quality.....	94
Appendix A Details of Monitoring Site Quality QA/QC	97
A.1 Automatic Monitoring Sites.....	97
A.2 Diffusion Tubes	97
A.3 Breathe London Sensors.....	99
A.4 Adjustments to the Ratified Monitoring Data	103
Appendix B Full Monthly Diffusion Tube Results for 2023	105
Appendix C Map(s) of Monitoring Locations and AQMAs.....	109
Figure 17 - Map of Southwark's Automatic Monitoring Sites	109
Figure 18 - Map of NO ₂ Diffusion Tubes in Southwark in 2023 showing annual mean NO ₂ concentrations, µg/m ³	110
Figure 19 - Map of Breathe London Sensors in Southwark in 2023 showing annual mean NO ₂ concentrations, µg/m ³	111

Tables

Table A - Summary of National Air Quality Standards and Objectives	7
Table B - Summary of World Health Organisation global air quality guidelines published in 2021	8
Table C - Details of Automatic Monitoring Sites for 2023	10
Table D - Details of Non-Automatic Monitoring Sites for 2023	11
Table E - Details of Selected Breathe London Sensor Monitoring Sites for 2023.....	18
Table F - Annual Mean NO ₂ Ratified Monitoring Results from Automatic Monitoring sites.....	21
Table G - Annual Mean NO ₂ Monitoring Results from Breathe London Sensor Sites	24
Table H - Annual Mean NO ₂ Ratified and Bias-adjusted Monitoring Results from Diffusion Tube Sites	27
Table I - NO ₂ Automatic Monitoring Results: Comparison with 1-hour Mean Objective, Number of 1-Hour Means > 200µg.m ⁻³	33
Table J - Annual Mean PM ₁₀ Automatic Monitoring Results (µg.m ⁻³).....	38
Table K - PM ₁₀ Automatic Monitoring Results: Comparison with 24-Hour Mean Objective, Number of PM ₁₀ 24-Hour Means > 50 µg.m ⁻³	42
Table L - Annual Mean PM _{2.5} Automatic Monitoring Results (µg.m ⁻³).....	46
Table M - Annual Mean PM _{2.5} Monitoring Results from Breathe London Sensor Sites	50
Table N - O ₃ Automatic Monitoring Results: Comparison with Objective, Daily maximum 8-hour running mean > 100 µg.m ⁻³	53
Table O - Declared Air Quality Management Areas	59
Table P - Delivery of Air Quality Action Plan Measures	61
Table Q - Planning requirements met by planning applications Southwark Council in 2023	90
Table R - Factors from Local Co-location Studies	100
Table S - Bias Adjustment Factor	102
Table T - Short-Term to Long-Term Monitoring Data Adjustment of Southwark Nitrogen Dioxide Diffusion Data	104
Table U - Short-Term to Long-Term Monitoring Data Adjustment of Southwark Continuous Monitoring data – PM10.....	104
Table V - NO ₂ Fall off With Distance Calculations	104
Table W - NO ₂ 2023 Diffusion Tube Results (µg.m ⁻³).....	105

Figures

Figure 1 - Trend in Annual Mean NO ₂ Concentrations at Southwark's Existing Air Quality Monitoring Stations, 2017 – 2023	22
Figure 2 - Trend in annual mean NO ₂ concentrations at Southwark's existing and past continuous air quality monitoring stations, 2000 - 2023	23
Figure 3 - Trend in annual mean NO ₂ concentrations at Southwark's diffusion tube sites within Air Quality Focus Areas, 2017 - 2023.....	31
Figure 4 - Hourly NO ₂ Concentrations at Southwark's Continuous Air Quality Monitoring Stations: Comparison with 1-Hour Mean Objective	34
Figure 5 - Time-varied NO ₂ Concentrations at Southwark's Continuous Air Quality Monitoring Stations in 2023.....	35
Figure 6 – 1-hour NO ₂ Concentrations at Breathe London Sensor Sites in 2023	36
Figure 7 - Trend in Annual Mean PM ₁₀ Concentrations at Southwark's Existing Air Quality Monitoring Stations, 2017 – 2023	39
Figure 8 - Trend in Annual Mean PM ₁₀ Concentrations at Southwark's Existing and Past Air Quality Monitoring Stations, 2000 – 2023	40
Figure 9 – 24-hour PM ₁₀ Concentrations at Southwark's Continuous Air Quality Monitoring Stations: Comparison with 24-Hour Mean Objective	43
Figure 10 - Time-varied PM ₁₀ Concentrations at Southwark's Continuous Air Quality Monitoring Stations in 2023.....	44
Figure 11 - Trend in Annual Mean PM _{2.5} concentrations at Southwark's Existing Air Quality Monitoring Stations, 2017 – 2023	47
Figure 12 – 1-Hour PM _{2.5} Concentrations at Southwark's Continuous Air Quality Monitoring Stations.....	48
Figure 13 - Time-varied PM _{2.5} Concentrations at Southwark's Continuous Air Quality Monitoring Stations.....	49
Figure 14 – 1-Hour PM _{2.5} Concentrations at Breathe London Sensor Sites in 2023.....	51
Figure 15 - Trend in Annual Mean O ₃ Concentrations at Southwark's Existing Air Quality Monitoring Station, 2017 – 2023.....	54
Figure 16 - Trend in Annual Mean O ₃ Concentrations at Southwark's Existing And Past Air Quality Monitoring Stations, 2000 – 2023	55
Figure 17 – Daily Maximum 8-Hour Running Mean O ₃ Concentrations at Southwark's Continuous Air Quality Monitoring Station in 2023	56
Figure 18 - Map of Southwark's Automatic Monitoring Sites.....	109

Figure 19 - Map of NO₂ Diffusion Tubes in Southwark in 2023 showing annual mean NO₂ concentrations, µg/m³110

Figure 20 - Map of Breathe London Sensors in Southwark in 2023 showing annual mean NO₂ concentrations, µg/m³111

Abbreviations

Abbreviation	Description
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQMS	Air Quality Monitoring Station
AQO	Air Quality Objective
BEB	Buildings Emission Benchmark
BL	Breathe London
CAB	Cleaner Air Borough
CO _{2e}	Carbon Dioxide Equivalent
EPT	Environmental Protection Team
EV	Electric Vehicle
FA	(Air Quality) Focus Area
GLA	Greater London Authority
LAEI	London Atmospheric Emissions Inventory
LAQM	Local Air Quality Management
LBS	London Borough of Southwark
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

Pollutant	Standard / Objective (UK)	Averaging Period	Date ⁽¹⁾
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 not 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 2021².

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 µg.m ⁻³	24-hour
Sulphur dioxide (SO ₂)	40 µg.m ⁻³	24-hour

Note:

The Guideline values in **Table B** are currently 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 PM₁₀), 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

1. Air Quality Monitoring

1.1 Locations

In 2023, Southwark had six automatic air quality monitoring stations. Further details of these stations are provided in **Table C**. Two of the automatic monitoring stations are located in air quality Focus Areas; the location of the stations are shown in **Figure 17** in **Appendix C**. Southwark also has an extensive network of diffusion tubes monitoring NO₂. Spread throughout the borough there are 89 diffusion tubes at 85 sites across Southwark³. **Table D** provides the location information of Southwark Council's diffusion tube network.

Figure 18 in **Appendix C** shows the locations of the NO₂ diffusion tubes. As the Southwark's Air Quality Management Area (AQMA) has been extended to cover the whole borough, all the monitoring sites are within the AQMA. In 2023 one site was removed from the survey – it was SDT 162 at East Dulwich Primary School – the site was replaced by a Breathe London monitor.

This report also presents data from a network of Breathe London sensors, for those sites which achieved data capture of above 70%. Locations of the monitors are shown in **Table E** and **Figure 19**. These monitors provide indicative results only, and cannot be used to evaluate compliance with air quality objectives.

³ Two AQMS sites have three co-located NO₂ tubes: Elephant & Castle, and Old Kent Road. The remaining diffusion tube is used as a 'travel blank' necessary for accurate analysis.

Table C - Details of Automatic Monitoring Sites for 2023

Site ID	Site Name	Site Type	X (m)	Y (m)	Pollutants monitored	In Southwark AQMA?	Monitoring technique	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Inlet height (m)
SK5	Old Kent Road	Roadside	534844	177515	NO _x , NO ₂ , PM ₁₀	Yes	Chemiluminescence and BAM	1	5	2.0
SK6	Elephant & Castle	Urban Background	531884	178835	NO _x , NO ₂ , O ₃ , PM ₁₀ & PM _{2.5}	Yes	Chemiluminescence, UV Absorption & FIDAS	10	35	3.5
SK8	Tower Bridge Road	Roadside	533488	179804	NO _x , NO ₂ , PM ₁₀ & PM _{2.5}	Yes	Chemiluminescence & FIDAS	7	4	1.7
SK9	Old Kent Road	Roadside	534844	177515	PM ₁₀ , & PM _{2.5}	Yes	FIDAS	1	5	2.0
SKA	Lower Road	Roadside	535272	179331	NO _x , NO ₂ , PM ₁₀ & PM _{2.5}	Yes	Chemiluminescence & FIDAS	7	4	1.7
SKB	Vicarage Grove	Roadside	532904	176694	NO _x , NO ₂ , PM ₁₀ & PM _{2.5}	Yes	Chemiluminescence & FIDAS	0	3	4
SKC	South Circular Road	Roadside	533698	173268	NO _x , NO ₂ , PM ₁₀ & PM _{2.5}	Yes	Chemiluminescence & FIDAS	17	3	4

Notes:

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

(2) N/A if not applicable

Table D - Details of Non-Automatic Monitoring Sites for 2023

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Tube Co-located with a Continuous Analyser	Height (m)
SDT 1, SDT 2, SDT 3	Co - location Tube at Roadside Air Quality Monitoring Site Old Kent Road - Tube 3	Roadside	534849	177512	NO2	Southwark AQMA	1.0	5.0	Yes	2.5
SDT 4	Lamppost (141-02) Rotherhithe Old Road SE16	Kerbside	535675	178796	NO2	Southwark AQMA	2.0	0.5	No	2.5
SDT 5	Lamppost (180 - 31) Drummond Road SE16	Kerbside	534640	179336	NO2	Southwark AQMA	6.0	0.5	No	2.5
SDT 6	Lamppost (2330 - 37) adjacent to 168 Queens Road	Kerbside	535253	176679	NO2	Southwark AQMA	14.0	0.5	No	2.5
SDT 7	Lamppost (Unmarked) adjacent to 167A Rye Lane SE5	Kerbside	534333	176155	NO2	Southwark AQMA	2.0	0.5	No	2.5
SDT 8	Lamppost (2051 - 11) Dunstons Road adjacent to 215 Underhill Road	Kerbside	534553	174263	NO2	Southwark AQMA	8.0	0.5	No	2.5
SDT 9	Lamppost 05-35 Dulwich Common adjacent to 23 Hambledon Place	Kerbside	533470	173204	NO2	Southwark AQMA	3.0	0.5	No	2.5
SDT 10	Lamppost (2076 - L02) adjacent to 2 Village Way	Kerbside	532940	174392	NO2	Southwark AQMA	13.0	0.5	No	2.5
SDT 11	Post adjacent to 11 Camberwell Church Street	Kerbside	532663	176740	NO2	Southwark AQMA	2.0	0.5	No	2.5
SDT 12, SDT 13, SDT 14	Co - location Tube at Background Air Quality Monitoring Site Elephant & Castle - Tube 3	Urban Centre	531884	178836	NO2	Southwark AQMA	10.0	35.0	Yes	2.5
SDT 15	Lamppost (1390 - 58) Blackfriars Road	Kerbside	531641	180290	NO2	Southwark AQMA	3.0	0.5	No	2.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Tube Co-located with a Continuous Analyser	Height (m)
SDT 18	Tower Bridge Lamppost No1 East side	Roadside	533599	180062	NO2	Southwark AQMA	3.0	0.5	No	2.5
SDT 20	Tower Bridge school fence Tower Bridge Road East side	Kerbside	533520	179849	NO2	Southwark AQMA	0.5	2.5	No	2.5
SDT 24	Opposite Papa Johns west side - Lamppost 40	Kerbside	533444	179620	NO2	Southwark AQMA	3.0	0.5	No	2.5
SDT 29	Opposite Haddon Hall, west side	Kerbside	533105	179117	NO2	Southwark AQMA	2.0	0.5	No	2.5
SDT 31	Bricklayers Arms Roundabout - by St Olave's School, west side	Kerbside	532937	179043	NO2	Southwark AQMA	10.0	0.5	No	2.5
SDT 37	Wansey Street Lamppost	Kerbside	532340	178711	NO2	Southwark AQMA	10.0	0.5	No	2.5
SDT 38	Walworth Road opposite junction to Elephant Road - west side	Kerbside	532074	178825	NO2	Southwark AQMA	2.0	0.5	No	2.5
SDT 39	New Kent Road Lamppost 3 North Side (Metro Centre)	Kerbside	532053	179070	NO2	Southwark AQMA	10.0	0.5	No	2.5
SDT 41	New Kent Road Lamppost 29 Northside (Rodney Place)	Kerbside	532390	178974	NO2	Southwark AQMA	20.0	0.5	No	2.5
SDT 42	Peters Hills with St Mary's and St Paul's C of E Primary School - Salter Road	Kerbside	536037	180341	NO2	Southwark AQMA	10.0	0.5	No	2.5
SDT 48	Adjacent to Beechwood Court, 3 Crystal Palace Parade	Kerbside	533912	171366	NO2	Southwark AQMA	20.0	0.5	No	2.5
SDT 49	Lamppost 129-08 Lynton Road (west)	Kerbside	533873	178592	NO2	Southwark AQMA	10.0	0.5	No	2.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Tube Co-located with a Continuous Analyser	Height (m)
SDT 52	Kingsdale Foundation School Alleyn Park SE22	Kerbside	533150	172123	NO2	Southwark AQMA	10.0	0.5	No	2.5
SDT 53	Lamppost (2074 - 25) adjacent to Edward Alleyn Club, Burbage Road	Kerbside	532668	173998	NO2	Southwark AQMA	10.0	0.5	No	2.5
SDT 54	Lamppost 11 Camberwell Grove	Kerbside	532951	176417	NO2	Southwark AQMA	10.0	0.5	No	2.5
SDT 55	Lamppost 11A St Georges Way (South Side)	Kerbside	533350	177603	NO2	Southwark AQMA	3.0	0.5	No	2.5
SDT 57	Notre Dame RC School	Kerbside	531531	179256	NO2	Southwark AQMA	5.0	0.5	No	2.5
SDT 61	Junction of Brunel Road and Rupack Street	Kerbside	535176	179665	NO2	Southwark AQMA	3.0	0.5	No	2.5
SDT 66	Adjacent to Prince of Orange Lower Road	Kerbside	535384	179161	NO2	Southwark AQMA	3.0	0.5	No	2.5
SDT 77	Adjacent to steps to Park Street on Southwark Bridge Road	Kerbside	532294	180406	NO2	Southwark AQMA	10.0	0.5	No	2.5
SDT 81	Lamppost No 02 Borough High Street	Kerbside	532690	180212	NO2	Southwark AQMA	3.0	0.5	No	2.5
SDT 82	Lamppost no 01 Adjacent to 125 Borough High Street	Kerbside	532572	180029	NO2	Southwark AQMA	3.0	0.5	No	2.5
SDT 84	Little Dorritt Park Entrance Lamppost No 8	Kerbside	532487	179850	NO2	Southwark AQMA	5.0	0.5	No	2.5
SDT 87	Lamppost 0139-43 188A Lower Road	Kerbside	535795	178828	NO2	Southwark AQMA	3.0	0.5	No	2.5
SDT 88	Lamppost (52) Jamaica Road	Kerbside	534457	179454	NO2	Southwark AQMA	5.0	0.5	No	2.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Tube Co-located with a Continuous Analyser	Height (m)
SDT 89	School Fence St James' CoE Primary School Jamaica Road	Roadside	534241	179435	NO2	Southwark AQMA	0.5	2.0	No	2.5
SDT 90	Lamppost adjacent to 375 Old Kent Road	Kerbside	533800	178220	NO2	Southwark AQMA	5.0	0.5	No	2.5
SDT 91	Lampost adjacent to 221 Old Kent Road	Kerbside	533379	178556	NO2	Southwark AQMA	3.0	0.5	No	2.5
SDT 92	School Fence Ilderton Road SE16	Roadside	535222	178032	NO2	Southwark AQMA	0.5	2.0	No	2.5
SDT 93	Lamppost No 9 adjacent to 14 Hanover Park	Roadside	534243	176558	NO2	Southwark AQMA	2.0	0.5	No	2.5
SDT 95	Junction of Eynella Road & Court Lane Lamppost 2591 - 09	Kerbside	533700	173892	NO2	Southwark AQMA	2.0	0.5	No	2.5
SDT 97	Barry Road	Kerbside	533940	173998	NO2	Southwark AQMA	5.0	0.5	No	2.5
SDT 98	South Circular Road Junction with Underhill Road	Kerbside	534503	173251	NO2	Southwark AQMA	9.0	0.5	No	2.5
SDT 100	Post adjacent to 1d Calton Avenue	Kerbside	533159	174191	NO2	Southwark AQMA	2.0	0.5	No	2.5
SDT 101	Lampost 307 - 19 adjacent to 91 Herne Hill	Kerbside	532303	174756	NO2	Southwark AQMA	5.0	0.5	No	2.5
SDT 102	Lamppost (No1) De Crespigny Park	Kerbside	532599	176277	NO2	Southwark AQMA	5.0	0.5	No	2.5
SDT 103	Lamppost (369 - L07) Coldharbour Lane	Kerbside	532471	176388	NO2	Southwark AQMA	15.0	0.5	No	2.5
SDT 104	Lamppost (8) Newington Butts	Kerbside	531835	178686	NO2	Southwark AQMA	15.0	0.5	No	2.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Tube Co-located with a Continuous Analyser	Height (m)
SDT 105	Lamppost (2229 - L41) adjacent to Oliver Goldsmith School Southampton Way	Kerbside	533592	176851	NO2	Southwark AQMA	0.5	0.5	No	2.5
SDT 106	Post adjacent to 80 Camberwell Road	Kerbside	532409	177597	NO2	Southwark AQMA	18.0	0.5	No	2.5
SDT 107	Lamppost (1065 - L45) adjacent to 351 Walworth Road	Kerbside	532426	178051	NO2	Southwark AQMA	10.0	0.5	No	2.5
SDT 111	Lamppost 31A - 239 Walworth Road	Kerbside	532294	178354	NO2	Southwark AQMA	5.0	0.5	No	2.5
SDT 112	Adjacent to 3 West Square on Parking Sign	Kerbside	531621	179112	NO2	Southwark AQMA	3.0	0.5	No	2.5
SDT 113	Lamppost adjacent to 43 Westminster Bridge Road	Kerbside	531481	179421	NO2	Southwark AQMA	7.0	0.5	No	2.5
SDT 114	Lamppost No 1 Goose Green / East Dulwich Road	Kerbside	533799	175324	NO2	Southwark AQMA	10.0	0.5	No	2.5
SDT 132	Lamppost 2732 - 01 adjacent to 117 - 125 Rye Lane	Kerbside	534237	176363	NO2	Southwark AQMA	5.0	0.5	No	2.5
SDT 136	Lamppost (2160 - L12) adjacent to Dog Kennel Hill School	Kerbside	533232	175775	NO2	Southwark AQMA	10.0	0.5	No	2.5
SDT 137	Lamppost (2136 - L18) at the t-junction adjacent to Champion Hill	Kerbside	532988	175570	NO2	Southwark AQMA	10.0	0.5	No	2.5
SDT 138	Lamppost (2127 - L11) Pytchley Road	Kerbside	533364	175561	NO2	Southwark AQMA	8.0	0.5	No	2.5
SDT 139	Lamppost (2139 - L29) Grove Lane	Kerbside	533030	176022	NO2	Southwark AQMA	4.5	0.5	No	2.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Tube Co-located with a Continuous Analyser	Height (m)
SDT 140	Post near the Dog Kennel Hill school entrance on Dog Kennel Hill	Kerbside	533221	175715	NO2	Southwark AQMA	3.0	0.5	No	2.5
SDT 142	Lamppost 2640L05 Cheltenham Road	Kerbside	535321	175023	NO2	Southwark AQMA	11.0	0.5	No	2.5
SDT 143	Lamppost 005 adjacent to 34A Sydenham Hill	Kerbside	534540	172387	NO2	Southwark AQMA	26.0	0.5	No	2.5
SDT 144	Lamppost 2087L04 Dulwich Wood Park	Kerbside	533328	171601	NO2	Southwark AQMA	27.0	0.5	No	2.5
SDT 145	Lamppost 2544L08 Croxted Road	Kerbside	532768	172732	NO2	Southwark AQMA	16.0	0.5	No	2.5
SDT 146	Lamppost 423-23 Croxted Road	Kerbside	532486	173535	NO2	Southwark AQMA	5.5	0.5	No	2.5
SDT 147	Lamppost (1515 - L13) John Ruskin Street	Kerbside	532230	177756	NO2	Southwark AQMA	7.0	0.5	No	2.5
SDT 148	Lamppost (1515 - L38) John Ruskin Street	Kerbside	532002	177578	NO2	Southwark AQMA	21.0	0.5	No	2.5
SDT 149	Lamppost 1436L03 Kennington Park Place	Kerbside	531479	177990	NO2	Southwark AQMA	21.5	0.5	No	2.5
SDT 150	Lamppost 2302L14 Albany Road	Kerbside	533522	178187	NO2	Southwark AQMA	36.0	0.5	No	2.5
SDT 151	Junction of Townley Road & Lordship Lane Lamppost (2300 - 01)	Kerbside	533660	174480	NO2	Southwark AQMA	5.0	0.5	No	2.5
SDT 152	Lamppost (2300 - L19) Townley Road	Kerbside	533245	174655	NO2	Southwark AQMA	14.0	0.5	No	2.5
SDT 153	Lamppost (2292 - 27) Dulwich Village	Kerbside	533123	173780	NO2	Southwark AQMA	2.8	0.5	No	2.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Tube Co-located with a Continuous Analyser	Height (m)
SDT 154	Lamppost (1125 - L37) Portland Street	Kerbside	532836	177844	NO2	Southwark AQMA	5.0	0.5	No	2.5
SDT 155	Junction of East Street / Portland Street	Kerbside	532597	178433	NO2	Southwark AQMA	7.5	0.5	No	2.5
SDT 156	Junction of Stead Street / Flint Street	Kerbside	532643	178677	NO2	Southwark AQMA	5.0	0.5	No	2.5
SDT 157	Lamppost (1027 - L03) adjacent to Braganza Street	Kerbside	531648	178257	NO2	Southwark AQMA	3.0	0.5	No	2.5
SDT 158	Lamp Conduit Adjacent to Arch 12 Angel Lane	Kerbside	532195	178276	NO2	Southwark AQMA	3.0	0.1	No	2.5
SDT 159	Lamp Conduit Adjacent to Arch 4 Angel Lane	Kerbside	532167	178336	NO2	Southwark AQMA	3.0	0.1	No	2.5
SDT 160	Lamppost 423-44 Croxted Road	Kerbside	532202	173907	NO2	Southwark AQMA	4.0	0.5	No	2.5
SDT 161	Lamppost 2120-02 adjacent to 8 East Dulwich Grove	Kerbside	533771	175173	NO2	Southwark AQMA	3.0	0.5	No	2.5
SDT 162	On the southern downpipe at Harris East Dulwich Primary School, Lordship Lane	Kerbside	533737	174679	NO2	Southwark AQMA	0.0	5.5	No	2.5
SDT 163	Camberwell New Road	Kerbside	532025	177057	NO2	Southwark AQMA	6.0	0.5	No	2.5
SDT 164	Wyndham Road	Kerbside	532087	177193	NO2	Southwark AQMA	6.5	0.5	No	2.5

Table E - Details of Selected Breathe London Sensor Monitoring Sites for 2023

Site ID	Site Name	Site Type	X (m)	Y (m)	Pollutants monitored	In Southwark AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Inlet height (m)	Site Description
CLDP0037	Charlotte Sharman Primary School	Urban Background	531602	179165	NO ₂ & PM _{2.5}	Yes	0	29	2.7	Elephant and Castle area.
CLDP0022	Elephant & Castle (reference co-location)	Urban Background	531884	178835	NO ₂ & PM _{2.5}	Yes	N/A	43	2.5	Co-located with AQMS analysers.
CLDP0323	Elm Lodge Surgery	Roadside	532384	174290	NO ₂ & PM _{2.5}	Yes	N/A	5	4.2	The node is near the entrance of the surgery to assess the exposure of patients and staff visiting the surgery.
CLDP0080	Guy's Hospital	Roadside	532820	179990	NO ₂ & PM _{2.5}	Yes	0	2	3.5	A hospital site.
CLDP0448	Harris Primary Academy, East Dulwich	Roadside	533740	174682	NO ₂ & PM _{2.5}	Yes	0	5	3.0	A school site.
CLDP0384	Imperial War Museum	Urban Background	531357	179067	NO ₂ & PM _{2.5}	Yes	0	60	Tbc	This sensor unit is installed on the southern perimeter of the Imperial War Museum. It is part of the Breathe London Cultural Network sponsored by Bloomberg Philanthropies.

Site ID	Site Name	Site Type	X (m)	Y (m)	Pollutants monitored	In Southwark AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Inlet height (m)	Site Description
CLDP0175	London Wildlife Trust Centre For Wildlife Gardening	Urban Background	533799	175517	NO ₂ & PM _{2.5}	Yes	N/A	40	3.2	This is one of nine Nodes deployed at locations which are expected to have low pollution levels, but which are representative of large areas around them.
CLDP0357	Maudsley Hospital	Roadside	532618	176191	NO ₂ & PM _{2.5}	Yes	8	2	3	Maudsley monitor is 2m away from main road and near outpatients main entrance
CLDP0078	Oliver Goldsmith Primary School	Urban Background	533572	176787	NO ₂ & PM _{2.5}	Yes	0	11	2.4	Located between Peckham and Camberwell
CLDP0108	SWK-BL1 : Croxted Road / Guernsey Grove	Roadside	532183	173962	NO ₂ & PM _{2.5}	Yes	10	0.5	2.5	This Node is located in a residential area to monitor the air quality on a boundary road of L.B. Southwark and L.B. Lambeth Low Traffic Neighbourhood opposite Guernsey Grove

Site ID	Site Name	Site Type	X (m)	Y (m)	Pollutants monitored	In Southwark AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Inlet height (m)	Site Description
CLDP0107	SWK-BL2 : Croxted Road/Dalkeith Road	Roadside	532473	173581	NO ₂ & PM _{2.5}	Yes	6	0.5	2.5	This Node is located in a residential area to monitor the air quality on a boundary road of L.B. Southwark and L.B. Lambeth Low Traffic Neighbourhood opposite Dalkeith Road
CLDP0042	Tower Bridge Primary School	Roadside	533531	179864	NO ₂ & PM _{2.5}	Yes	0	3.4	2.3	It is located next to Tower Bridge.

1.2 Comparison of Monitoring Results with AQOs

1.2.1 Nitrogen Dioxide (NO₂)

Table F - Annual Mean NO₂ Ratified Monitoring Results from Automatic Monitoring sites

Site ID	Site type	Valid data capture for monitoring period % ^(a)	Valid data capture 2023 % ^(b)	2017	2018	2019	2020	2021	2022	2023
SK5	Automatic	97.4	97.4	42.4	40.6	38.0	25 ^a	28.5	26.2	24.2
SK6	Automatic	78.9	78.9	34.1	32.0	30.4	21.2	22.8	21.9	20.0
SK8	Automatic	99.4	99.4	-	-	-	29.9	31 ^a	29.9	29.1
SKA	Automatic	90.7	90.7	-	-	-	-	27.9	26 ^a	26.6
SKB	Automatic	96.3	96.3					40.4	32.4	30.8
SKC	Automatic	95.0	95.0					28 ^a	25.8	25.9

Notes:

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

Exceedances of the NO₂ annual mean AQO of 40 $\mu\text{g m}^{-3}$ are shown in **bold**.

NO₂ annual means in excess of 60 $\mu\text{g m}^{-3}$, indicating a potential exceedance of the NO₂ hourly mean AQS objective are shown in **bold and underlined**.

Means for diffusion tubes have been corrected for bias.

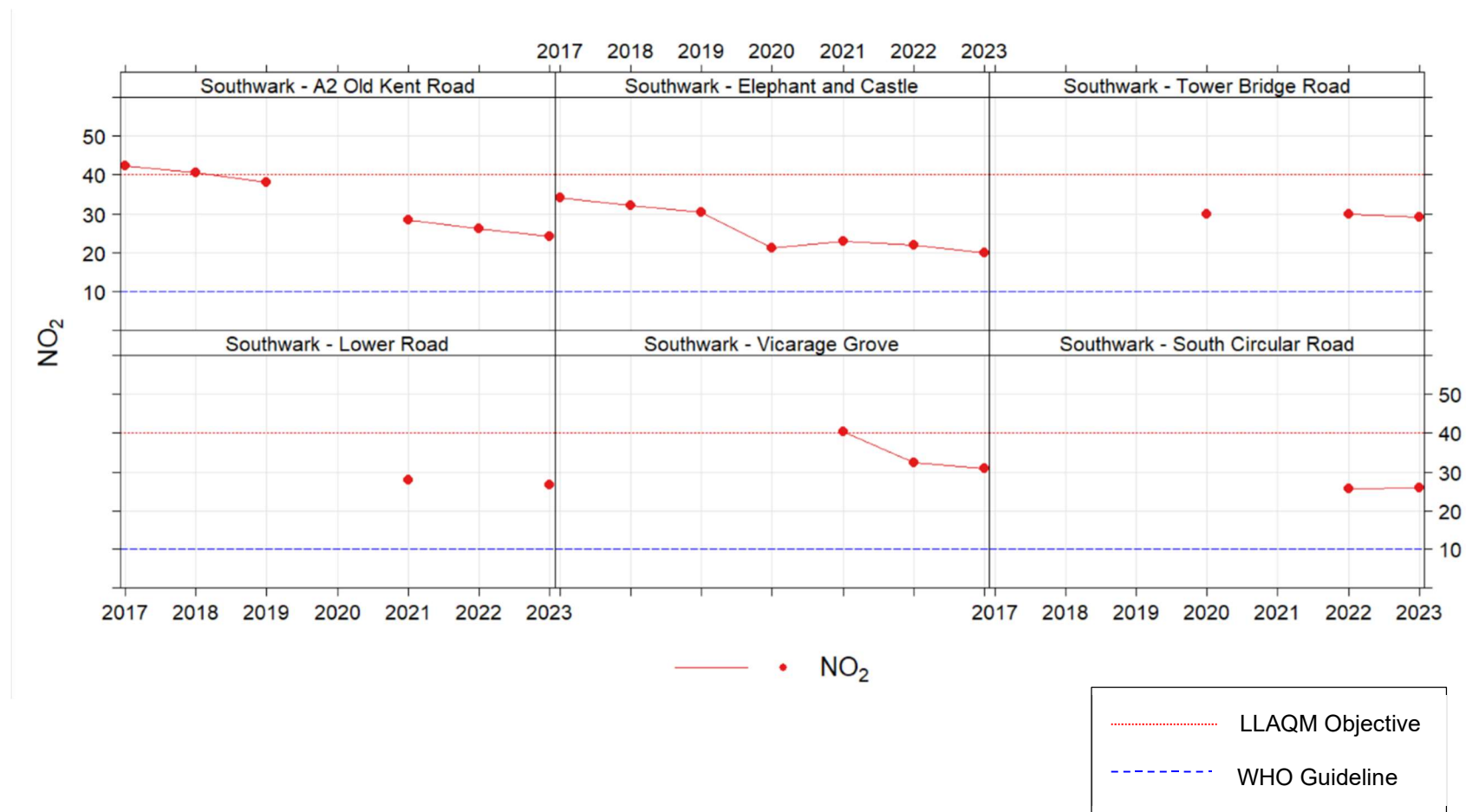
^a All means have been “annualised” in accordance with LLAQM Technical Guidance if valid data capture for the calendar year is less than 75% and greater than 25%. See **Appendix A** for details.

Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

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

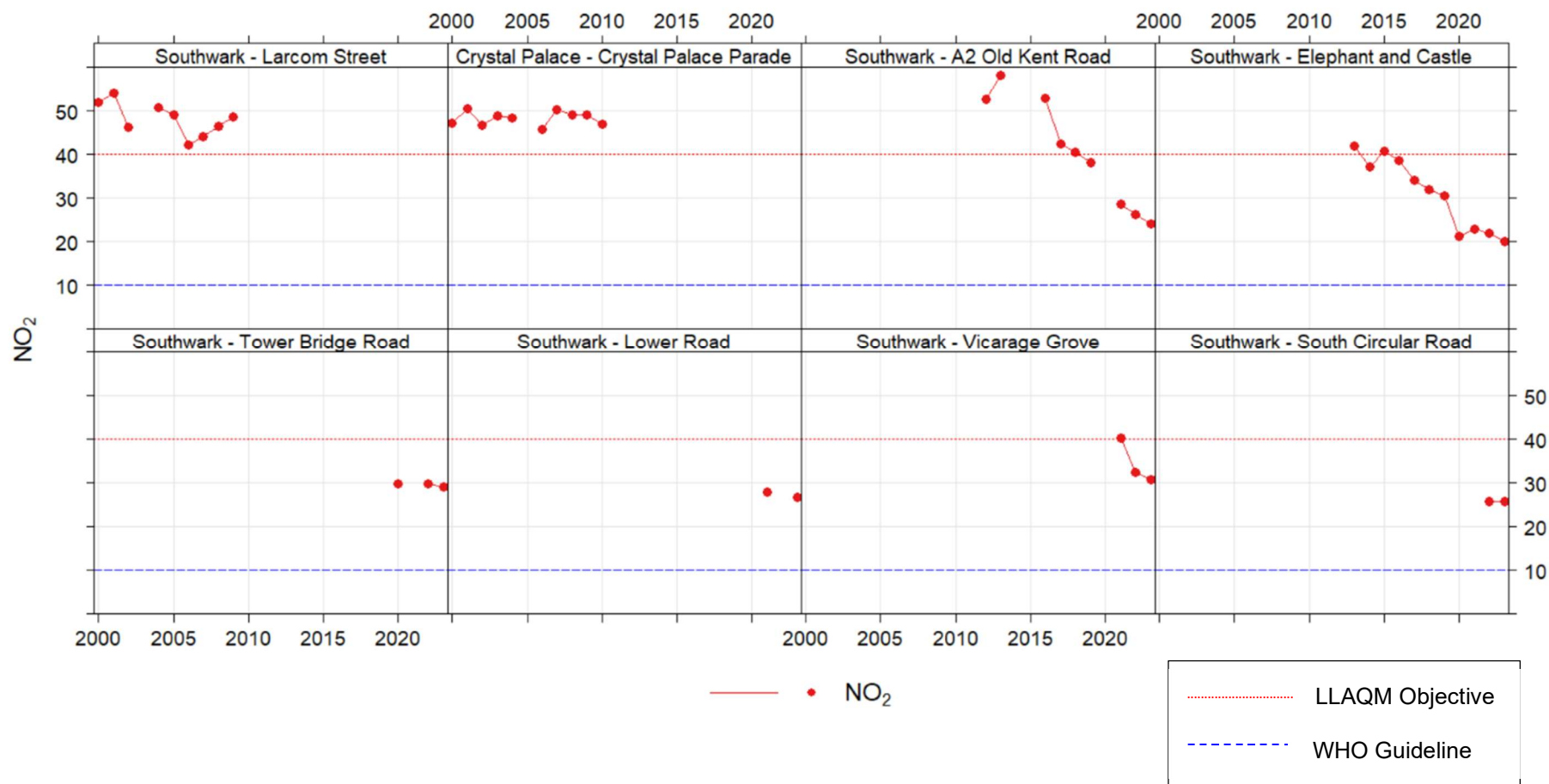
(b) Data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

Figure 1 - Trend in Annual Mean NO₂ Concentrations at Southwark's Existing Air Quality Monitoring Stations, 2017 – 2023



Note: Means below 75% data capture for the calendar year have been excluded from graph.

Figure 2 - Trend in annual mean NO₂ concentrations at Southwark's existing and past continuous air quality monitoring stations, 2000 - 2023



Note: Means below 75% data capture for the calendar year have been excluded from graph.

Table G - Annual Mean NO₂ Monitoring Results from Breathe London Sensor Sites

Site ID	Site Name	Site type	Monitoring Method	Valid data capture 2023 % ^(a)	2021	2022	2023
CLDP0037	Charlotte Sharman Primary School	Urban Background	Sensor	99	25.9	25.6	23.0
CLDP0022	Elephant & Castle (reference co-location)	Urban Background	Sensor	95	21.7	20.9	19.1
CLDP0323	Elm Lodge Surgery	Roadside	Sensor	98		25.7	24.0
CLDP0080	Guy's Hospital	Roadside	Sensor	99	25.5 (73%)	26.4	23.6
CLDP0448	Harris Primary Academy, East Dulwich	Roadside	Sensor	73			23.4
CLDP0384	Imperial War Museum	Urban Background	Sensor	97		29 (4%)	32.3
CLDP0175	London Wildlife Trust Centre For Wildlife Gardening	Urban Background	Sensor	98	22.3 (51%)	22.4	19.9
CLDP0357	Maudsley Hospital	Roadside	Sensor	95		35.3 (27%)	30.5
CLDP0078	Oliver Goldsmith Primary School	Urban Background	Sensor	97	27.0	26.7	23.6
CLDP0108	SWK-BL1 : Croxted Road / Guernsey Grove	Roadside	Sensor	98	26.0 (66%)	26.7	24.4
CLDP0107	SWK-BL2 : Croxted Road/Dalkeith Road	Roadside	Sensor	99	25.9 (42%)	27.3	28.4
CLDP0042	Tower Bridge Primary School	Roadside	Sensor	98	32.4	34.3	30.1

Notes:

These results are indicative only.

The annual mean concentrations are presented as µg m⁻³. Means are yearly averages and have not been “annualised”.

Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

Exceedances of the NO₂ annual mean AQO of 40 µg m⁻³ are shown in **bold**.

NO₂ annual means in excess of 60 µg m⁻³, indicating a potential exceedance of the NO₂ hourly mean AQS objective are shown in **bold and underlined**.

If the data capture for the year is less than 75% in 2021 or 2022, the data capture is shown in the brackets adjacent to the annual mean.

(a) 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%).

Discussion of trends in annual mean NO₂ at continuous monitors

The Council monitored NO₂ continuously at six locations during 2023. **Table F** compares the ratified and adjusted monitored NO₂ annual mean concentrations for the years 2017-2023 with the air quality objective of 40µg.m⁻³. Data capture was good (above 75%) during 2023 at all six sites and, as such, no annualisation has been required.

All six continuous monitoring sites met the national objective for annual mean NO₂ in 2023. **Figures 1 and 2** demonstrate a general downward trend in NO₂ concentrations over the monitoring period at the six sites; the reduction from 2021 is particularly noticeable at the Vicarage Grove site. Although the overall trend is downward, most sites have shown relatively stable concentrations in the last four years. Decreasing concentrations at roadside monitoring locations are in agreement with the national trend for roadside NO₂.

Sensors are an indicative method of monitoring. **Table G** shows that the sensor units at the Imperial War Museum, Maudsley Hospital and Tower Bridge School measured highest annual mean NO₂ levels in 2023 when compared to other BL sensor sites.

Table H - Annual Mean NO₂ Ratified and Bias-adjusted Monitoring Results from Diffusion Tube Sites

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2017	2018	2019	2020	2021	2022	2023
SDT 1- 3	534849	177512	Roadside	100.0	100.0	41.9	42.4	35.9	24.5	29.2	27.5	25.2
SDT 4	535675	178796	Kerbside	100.0	100.0	54.7	42.9	39.8	30.7	34.9	33.6	29.9
SDT 5	534640	179336	Kerbside	100.0	100.0	32.2	30.4	31.1	-	23.0	21.9	19.2
SDT 6	535253	176679	Kerbside	92.3	92.3	63.1	38.0	36.1	35.0	28.4	35.1	28.6
SDT 7	534333	176155	Kerbside	100.0	100.0	46.4	34.9	31.6	20.7	21.0	26.8	23.0
SDT 8	534553	174263	Kerbside	100.0	100.0	32.4	27.4	28.1	18.8	21.4	19.8	17.5
SDT 9	533470	173204	Kerbside	100.0	100.0	50.7	36.8	34.5	29.5	35.1	31.8	27.0
SDT 10	532940	174392	Kerbside	100.0	100.0	32.3	29.6	28.9	19.6	23.4	20.8	18.7
SDT 11	532663	176740	Kerbside	100.0	100.0	63.1	50.2	45.4	34.2	39.7	38.0	34.3
SDT 12- 14	531884	178836	Urban Centre	100.0	100.0	41.9	35.3	32.8	19.9	22.7	23.7	21.8
SDT 15	531641	180290	Kerbside	100.0	100.0	51.9	46.2	42.1	31.6	31.4	32.5	29.7
SDT 18	533599	180062	Roadside	100.0	100.0	60.6	54.2	54.6	35.6	37.5	37.0	41.6
SDT 20	533520	179849	Kerbside	100.0	100.0	60.0	52.3	48.6	32.9	36.1	35.1	31.2
SDT 24	533444	179620	Kerbside	92.3	92.3	68.3	53.6	51.1	38.8	40.3	39.1	38.8
SDT 29	533105	179117	Kerbside	90.4	90.4	73.9	57.0	50.5	37.5	39.0	38.7	37.2
SDT 31	532937	179043	Kerbside	100.0	100.0	46.5	41.4	38.6	27.5	31.9	31.7	28.0
SDT 37	532340	178711	Kerbside	90.4	90.4	32.5	31.1	27.4	19.2	22.6	21.9	21.2
SDT 38	532074	178825	Kerbside	100.0	100.0	63.6	44.9	40.1	30.4	34.5	34.8	32.5
SDT 39	532053	179070	Kerbside	100.0	100.0	46.2	40.0	35.6	25.1	30.1	32.2	26.6
SDT 41	532390	178974	Kerbside	100.0	100.0	46.0	39.8	37.6	35.1	30.7	35.3	31.3
SDT 42	536037	180341	Kerbside	100.0	100.0	36.2	34.9	35.6	24.0	28.1	27.7	26.8
SDT 48	533912	171366	Kerbside	100.0	100.0	32.2	29.3	28.0	29.5	32.8	31.3	27.8
SDT 49	533873	178592	Kerbside	92.3	92.3	33.0	29.0	27.5	19.2	22.1	20.8	19.2
SDT 52	533150	172123	Kerbside	100.0	100.0	33.7	26.1	26.0	18.1	19.7	18.2	15.4
SDT 53	532668	173998	Kerbside	100.0	100.0	28.1	25.3	23.8	16.6	18.0	16.6	14.7
SDT 54	532951	176417	Kerbside	100.0	100.0	32.4	29.4	28.3	19.1	23.4	21.5	19.1
SDT 55	533350	177603	Kerbside	92.3	92.3	35.0	34.1	31.4	19.8	22.7	19.5	15.5
SDT 57	531531	179256	Kerbside	100.0	100.0	44.0	39.8	34.8	24.8	27.4	26.3	23.8
SDT 61	535176	179665	Kerbside	100.0	100.0	35.9	34.3	32.9	23.0	25.8	25.8	23.4
SDT 66	535384	179161	Kerbside	100.0	100.0	33.3	33.8	30.4	21.9	25.6	23.7	21.5

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2017	2018	2019	2020	2021	2022	2023
SDT 77	532294	180406	Kerbside	90.4	90.4	49.0	45.2	41.0	26.8	27.2	31.3	27.8
SDT 81	532690	180212	Kerbside	100.0	100.0	68.4	59.0	52.7	39.6	39.4	34.7	39.1
SDT 82	532572	180029	Kerbside	92.3	92.3	61.2	50.4	45.2	30.9	32.2	34.0	31.8
SDT 84	532487	179850	Kerbside	100.0	100.0	50.2	40.9	39.1	29.3	29.7	29.4	27.5
SDT 87	535795	178828	Kerbside	92.3	92.3	57.0	46.5	46.2	34.7	35.0	36.0	37.4
SDT 88	534457	179454	Kerbside	100.0	100.0	52.3	45.5	42.7	34.4	32.4	35.6	32.5
SDT 89	534241	179435	Roadside	92.3	92.3	42.0	40.8	35.8	25.2	29.4	28.6	25.3
SDT 90	533800	178220	Kerbside	100.0	100.0	50.8	52.0	43.7	34.3	34.6	34.8	33.4
SDT 91	533379	178556	Kerbside	90.4	90.4	55.5	51.1	46.2	34.8	35.3	34.4	32.0
SDT 92	535222	178032	Roadside	100.0	100.0	57.6	48.7	45.2	27.0	32.1	28.6	26.8
SDT 93	534243	176558	Roadside	100.0	100.0	58.4	53.3	37.8	30.7	33.1	32.6	33.2
SDT 95	533700	173892	Kerbside	100.0	100.0	24.8	26.9	26.1	16.8	18.1	15.9	14.0
SDT 97	533940	173998	Kerbside	100.0	100.0	37.5	37.3	32.5	24.3	26.8	24.4	23.0
SDT 98	534503	173251	Kerbside	100.0	100.0	43.1	36.8	36.5	34.4	28.1	34.3	29.8
SDT 100	533159	174191	Kerbside	100.0	100.0	35.8	34.7	34.1	17.4	18.8	16.4	14.3
SDT 101	532303	174756	Kerbside	100.0	100.0	34.2	31.9	34.6	23.6	26.2	24.5	21.4
SDT 102	532599	176277	Kerbside	100.0	100.0	38.2	34.4	32.7	23.3	27.5	25.3	22.1
SDT 103	532471	176388	Kerbside	90.4	90.4	38.7	35.0	31.4	27.0	30.2	28.2	24.9
SDT 104	531835	178686	Kerbside	100.0	100.0	48.9	46.8	38.9	32.1	33.8	32.9	36.4
SDT 105	533592	176851	Kerbside	100.0	100.0	44.2	39.8	35.6	24.7	29.9	27.3	24.4
SDT 106	532409	177597	Kerbside	100.0	100.0	48.0	40.9	34.8	34.1	30.4	35.5	33.5
SDT 107	532426	178051	Kerbside	100.0	100.0	38.5	35.5	35.7	23.4	25.7	26.7	23.7
SDT 111	532294	178354	Kerbside	100.0	100.0	46.6	42.3	36.4	27.5	30.1	29.7	28.1
SDT 112	531621	179112	Kerbside	100.0	100.0	31.3	27.6	25.0	18.1	20.6	19.6	17.4
SDT 113	531481	179421	Kerbside	92.3	92.3	74.0	58.5	46.0	37.5	37.5	34.2	36.4
SDT 114	533799	175324	Kerbside	100.0	100.0	37.4	31.6	33.0	22.6	25.2	25.0	21.8
SDT 132	534237	176363	Kerbside	100.0	100.0	-	-	33.0	21.5	23.9	28.6	25.8
SDT 136	533232	175775	Kerbside	100.0	100.0	-	-	33.8	20.2	23.9	22.3	20.1
SDT 137	532988	175570	Kerbside	100.0	100.0	-	-	25.2	16.4	19.5	17.7	15.6
SDT 138	533364	175561	Kerbside	100.0	100.0	-	-	31.1	24.7	27.4	25.9	23.4
SDT 139	533030	176022	Kerbside	90.4	90.4	-	-	33.2	24.1	27.5		18.6
SDT 140	533221	175715	Kerbside	100.0	100.0	-	-	31.3	22.9	24.7	23.8	20.6
SDT 142	535321	175023	Kerbside	100.0	100.0	-	-	29.0	20.5	20.6	18.3	16.0

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2017	2018	2019	2020	2021	2022	2023
SDT 143	534540	172387	Kerbside	100.0	100.0	-	-	25.7	18.5	20.2	18.6	16.7
SDT 144	533328	171601	Kerbside	100.0	100.0	-	-	33.5	23.4	24.8	22.0	19.5
SDT 145	532768	172732	Kerbside	100.0	100.0	-	-	25.0	19.5	21.4	19.7	17.4
SDT 146	532486	173535	Kerbside	100.0	100.0	-	-	29.5	20.6	23.2	21.6	18.6
SDT 147	532230	177756	Kerbside	100.0	100.0	-	-	35.4	22.6	26.6	24.0	20.9
SDT 148	532002	177578	Kerbside	100.0	100.0	-	-	31.6	22.4	27.0	24.2	21.2
SDT 149	531479	177990	Kerbside	100.0	100.0	-	-	33.5	22.1	23.4	22.3	19.8
SDT 150	533522	178187	Kerbside	100.0	100.0	-	-	31.7	28.3	31.1	28.9	25.7
SDT 151	533660	174480	Kerbside	100.0	100.0	-	-	28.6	18.6	22.0	20.1	17.0
SDT 152	533245	174655	Kerbside	92.3	92.3	-	-	31.5	19.4	22.8	21.1	18.5
SDT 153	533123	173780	Kerbside	92.3	92.3	-	-	27.2	17.1	20.2	18.8	16.5
SDT 154	532836	177844	Kerbside	90.4	90.4	-	-	34.7	23.3	25.6	24.0	20.5
SDT 155	532597	178433	Kerbside	100.0	100.0	-	-	31.3	20.1	22.0	20.8	18.5
SDT 156	532643	178677	Kerbside	100.0	100.0	-	-	36.0	25.4	26.3	24.6	22.8
SDT 157	531648	178257	Kerbside	100.0	100.0	-	-	33.1	19.4	24.1	20.9	18.9
SDT 158	532195	178276	Kerbside	100.0	100.0	-	-	-	18.2	20.4	20.9	17.4
SDT 159	532167	178336	Kerbside	100.0	100.0	-	-	-	16.0	19.4	20.9	16.9
SDT160	532202	173907	Kerbside	100.0	100.0	-	-	-	-	23.1	22.5	20.5
SDT161	533771	175173	Kerbside	84.6	84.6	-	-	-	-	-	29.2	25.3
SDT 162	533737	174679	Kerbside	100.0	25.0	-	-	-	-	-	23.0	22.1 ^a
SDT 163	532025	177057	Kerbside	75.0	75.0	-	-	-	-	-	26.2	25.2
SDT164	532087	177193	Kerbside	75.0	75.0	-	-	-	-	-	23.4	19.9

^a Annualisation has been conducted where data capture is <75% and >25% in line with LLAQM.TG19

Diffusion tube data has been bias adjusted

Reported concentrations are those at the location of the monitoring site (bias adjusted and annualised, as required), i.e. prior to any fall-off with distance correction

Notes:

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

Exceedances of the NO_2 annual mean objective of $40 \mu\text{g.m}^{-3}$ are shown in **bold**.

NO_2 annual means exceeding $60\mu\text{g.m}^{-3}$ indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

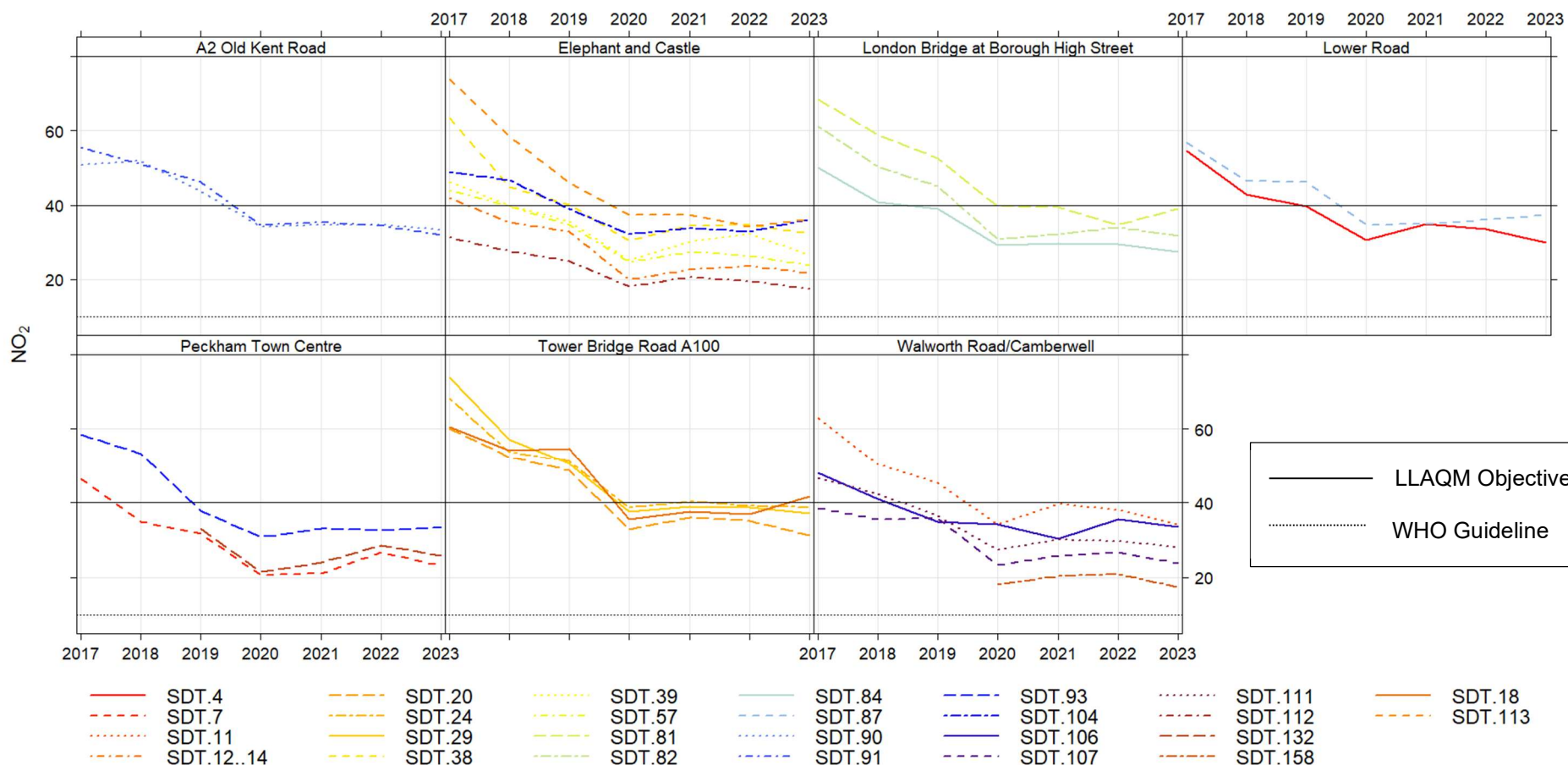
Means for diffusion tubes have been corrected for bias. All means have been “annualised” in accordance with LLAQM Technical Guidance if valid data capture for the calendar year is less than 75% and greater than 25%.

Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

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

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Figure 3 - Trend in annual mean NO₂ concentrations at Southwark's diffusion tube sites within Air Quality Focus Areas, 2017 - 2023



Note: The graph includes sites SDT 18 (adjacent to the Tower Bridge FA), and SDT 113 (adjacent to the Elephant and Castle FA).

Discussion of trends in annual mean NO₂ at diffusion tube sites

All diffusion tube sites but one showed compliance with the annual objective of 40µg.m⁻³ in 2023 (**Table H**). The site SDT18 at Tower Bridge Road exceeded the objective with a result of 41.6µg.m⁻³. However, the site was compliant when the result was corrected to the nearest residential exposure (see **Table V**).

Overall there has been a reduction of NO₂ levels in Southwark recorded by diffusion tubes in 2023. **Figure 3** confirms a decreasing trend for the sites located within the Air Quality Focus Areas (FAs).

Table I - NO₂ Automatic Monitoring Results: Comparison with 1-hour Mean Objective, Number of 1-Hour Means > 200µg/m³

Site ID	Valid data capture for monitoring period % ^(a)	Valid data capture 2023 % ^(b)	2017	2018	2019	2020	2021	2022	2023
SK5 Old Kent Road	97.4	97.4	0	0	0	0	0	0	0
SK6 Elephant & Castle	78.9	78.9	0	0	0	0	0	0	0 (91.6)
SK8 Tower Bridge	99.4	99.4	-	-	-	0	0	0	0
SKA Lower Road	90.7	90.7	-	-	-	-	0	0	0
SKB Vicarage Grove	96.3	96.3	-	-	-	-	0	0	0
SKC South Circular Road	95.0	95.0	-	-	-	-	0	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 NO₂ 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%)

Figure 4 - Hourly NO₂ Concentrations at Southwark's Continuous Air Quality Monitoring Stations: Comparison with 1-Hour Mean Objective

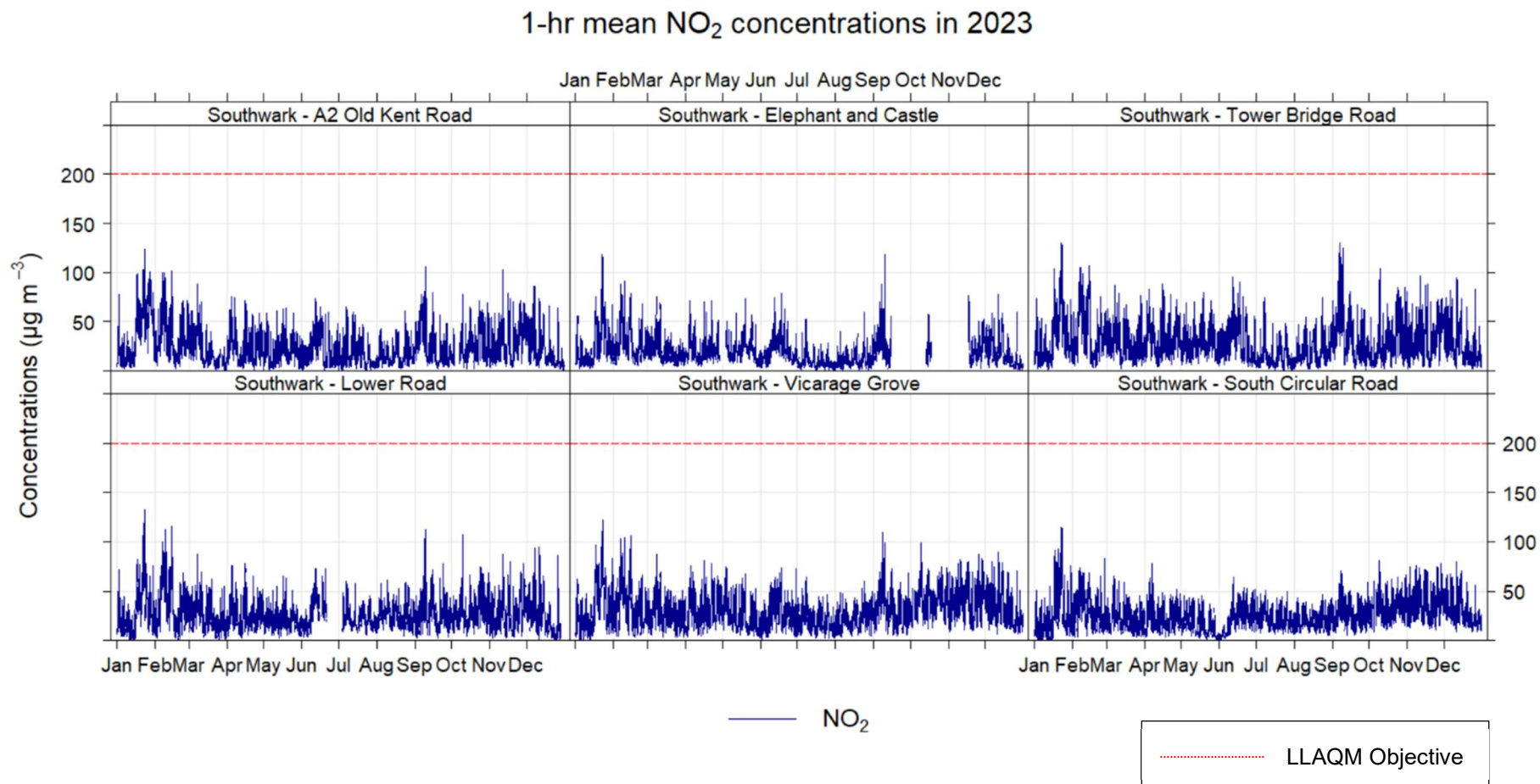


Figure 5 - Time-varied NO₂ Concentrations at Southwark's Continuous Air Quality Monitoring Stations in 2023

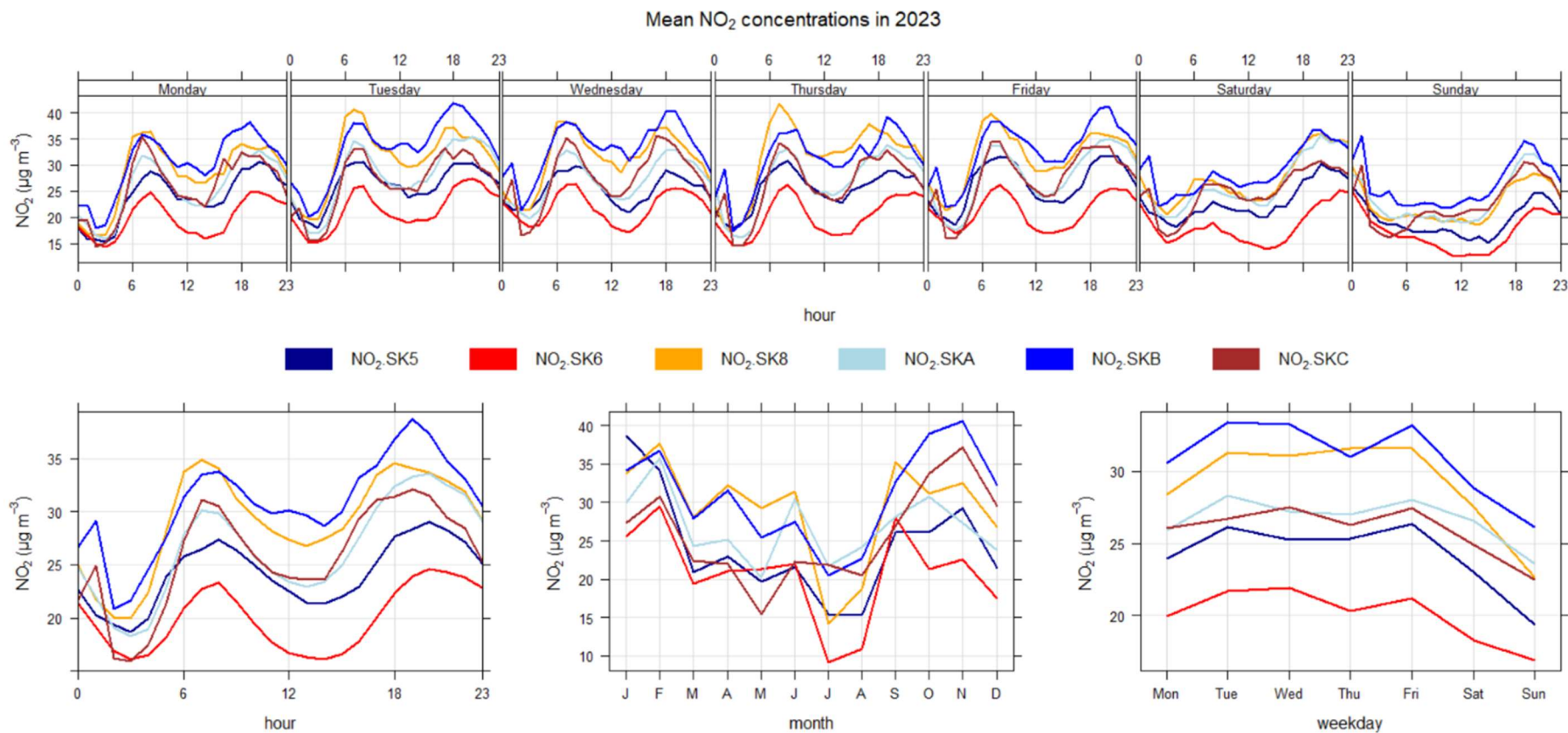
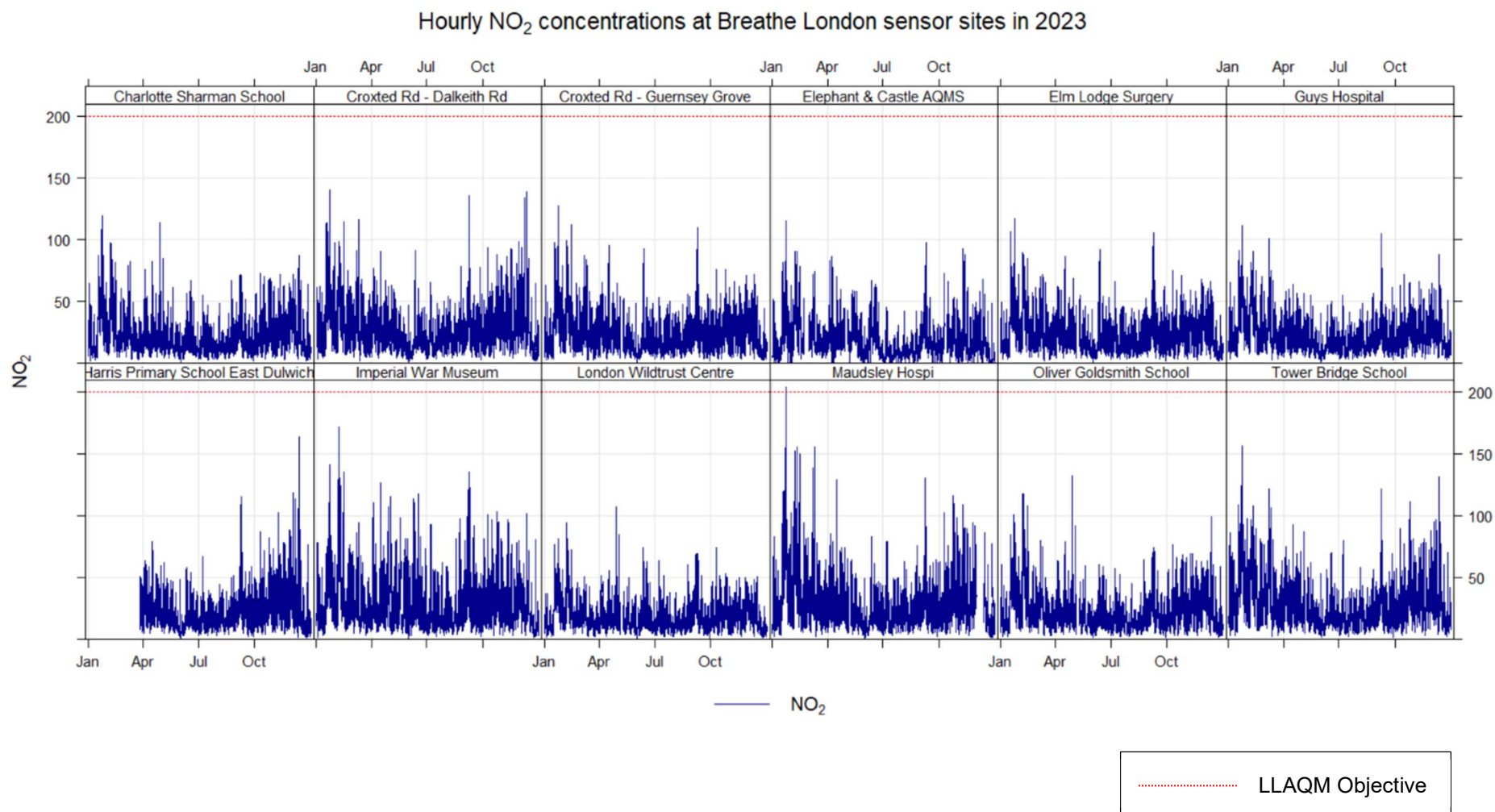


Figure 6 – 1-hour NO₂ Concentrations at Breathe London Sensor Sites in 2023



NB: Sensor results are indicative only.

Discussion of trends in hourly mean NO₂

The 7-year trend in short term NO₂ concentrations shows that all existing sites were compliant with the 200 µg.m⁻³.1-hour objective in 2023 and previous years (see **Table I** and **Figure 4**).

The variation in NO₂ levels for time of the day and month of the year is shown in **Figure 5**. The highest month-averaged concentrations in the year were generally recorded over the autumn and winter months, and the lowest over July and August. The analysis of hourly mean concentrations by day of the week indicates that the highest concentrations were recorded during afternoon traffic peaks throughout the working week from Monday to Friday. Weekend levels showed an evening peak after 6pm. The lowest levels for time of the day NO₂ were observed at the background site SK6 at Elephant ad Castle, whilst the site SKB at Vicarage Grove generally showed the highest levels in time-varied NO₂.

Indicative results from sensor units shown in **Figure 6** suggest that all the locations were below the 1-hour NO₂ objective in 2023.

1.2.2 Particulate Matter (PM₁₀)

Table J - Annual Mean PM₁₀ Automatic Monitoring Results (µg.m⁻³)

Site ID	Valid data capture for monitoring period % ^(a)	Valid data capture 2023 % ^(b)	2017	2018	2019	2020	2021	2022	2023
SK5 Old Kent Road (BAM)	72.3	72.3	21.5	22.4	23.6	22.2	20.5	21.1	22.3 ^a
SK6 Elephant & Castle	90.3	90.3	19.2	19.8	16.7	15.9	14.4	16.1	12.8
SK8 Tower Bridge	99.2	99.2	-	-	-	-	17.6	16.4	15.2
SK9 Old Kent Road (FIDAS)	96.9	96.9	-	-	-	-	16.6	17.8	16.8
SKA Lower Road	98.2	98.2	-	-	-	-	15.3	17.2	15.0
SKB Vicarage Grove	88.6	88.6	-	-	-	-	16.1	17.3	16.9
SKC South Circular Road	96.0	96.0	-	-	-	-	13 ^a	14.6	12.3

Notes

The annual mean concentrations are presented as µg.m⁻³.

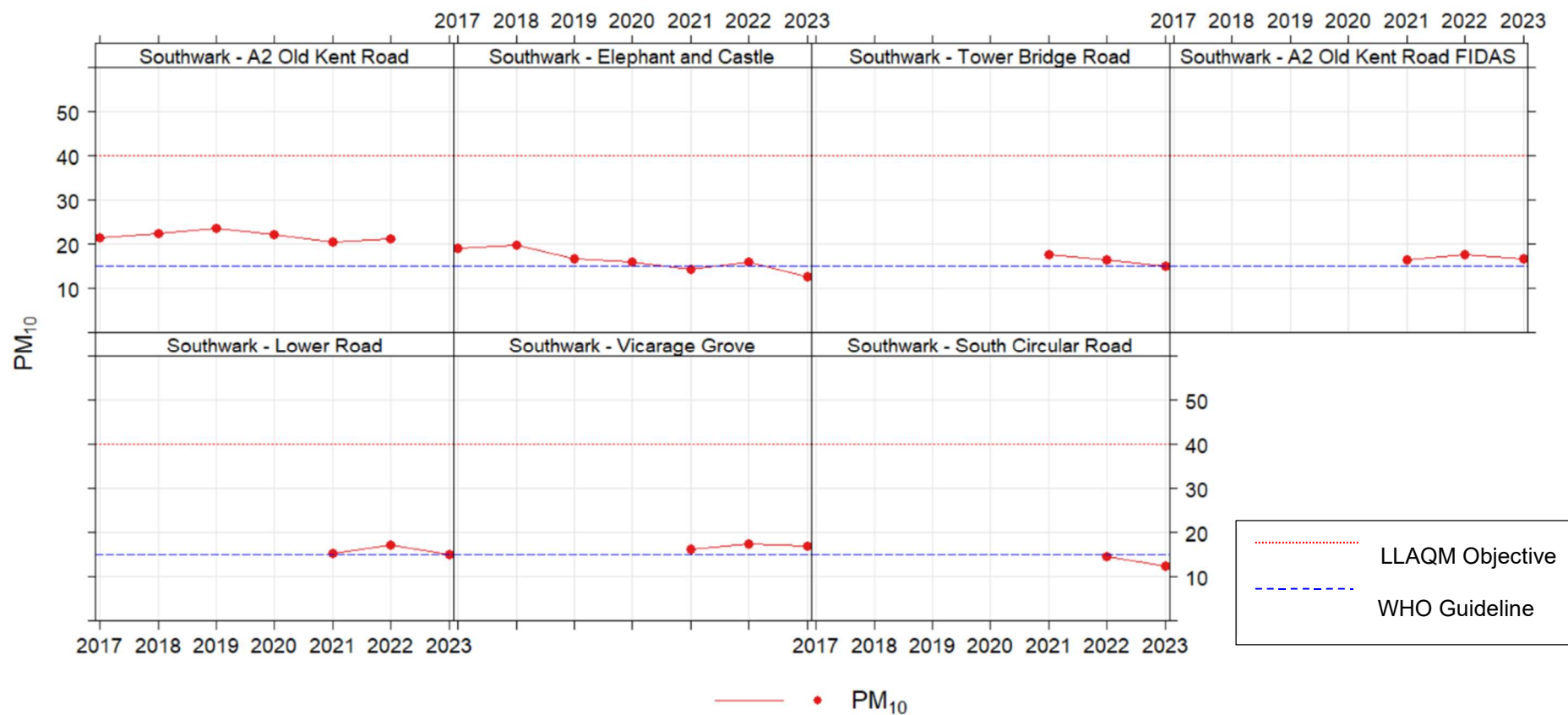
Exceedances of the PM₁₀ annual mean AQO of 40 µg.m⁻³ are shown in **bold**.

^a 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%).

Figure 7 - Trend in Annual Mean PM₁₀ Concentrations at Southwark's Existing Air Quality Monitoring Stations, 2017 – 2023



Note: Means below 75% data capture for the calendar year have been excluded from graph.

Figure 8 - Trend in Annual Mean PM₁₀ Concentrations at Southwark's Existing and Past Air Quality Monitoring Stations, 2000 – 2023



Note: Means below 75% data capture for the calendar year have been excluded from graph.

Discussion of Trends in annual mean PM₁₀

The Council monitored PM₁₀ continuously at six locations during 2023; it is worth noting that the site SK5 at Old Kent Road monitors PM₁₀ with two different monitoring methods – a BAM and a Fidas analyser. **Table J** compares the ratified and adjusted monitored PM₁₀ annual mean concentrations for the years 2017-2023 with the air quality objective of 40µg.m⁻³. Data capture was good (above 75%) during 2023 at all sites but one. Short-term to long-term data adjustment (annualisation) has been carried out for results from the BAM analyser in Old Kent Road (site SK5). Details of the annualisation can be found in **Appendix A**.

Automatic monitoring of PM₁₀ at the monitoring sites indicated that the annual mean was complied with in 2023 and all previous years (**Table J**). However, most sites have remained above the WHO guidelines. **Figures 7** and **8** show that the long-term trend for PM₁₀ is decreasing, whilst the short-term trend for the last three years remain unclear for some roadside sites, including SK5 Old Kent Road, SKA Lower Road, and SKB Vicarage Grove.

Table K - PM₁₀ Automatic Monitoring Results: Comparison with 24-Hour Mean Objective, Number of PM₁₀ 24-Hour Means > 50 µg.m⁻³

Site ID	Valid data capture for monitoring period % ^(a)	Valid data capture 2023 % ^(b)	2016	2017	2018	2019	2020	2021	2022	2023
SK5 Old Kent Road (BAM)	72.3	72.3	18	19	8	2	11	8	7	2 (32.9)
SK6 Elephant & Castle	90.3	90.3	21	1	2	14	3	2	4	0
SK8 Tower Bridge	99.2	99.2	-	-	-	-	2	6	6	1
SK9 Old Kent Road (FIDAS)	96.9	96.9	-	-	-	-	5	7	6	3
SKA Lower Road	98.2	98.2	-	-	-	-	-	2	5	1
SKB Vicarage Grove	88.6	88.6	-	-	-	-	-	2	6	5
SKC South Circular Road	96.0	96.0	-	-	-	-	-	0	2	0

Notes

Exceedances of the PM₁₀ 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%).

Figure 9 – 24-hour PM₁₀ Concentrations at Southwark’s Continuous Air Quality Monitoring Stations: Comparison with 24-Hour Mean Objective

24-hr mean PM₁₀ concentrations in 2023

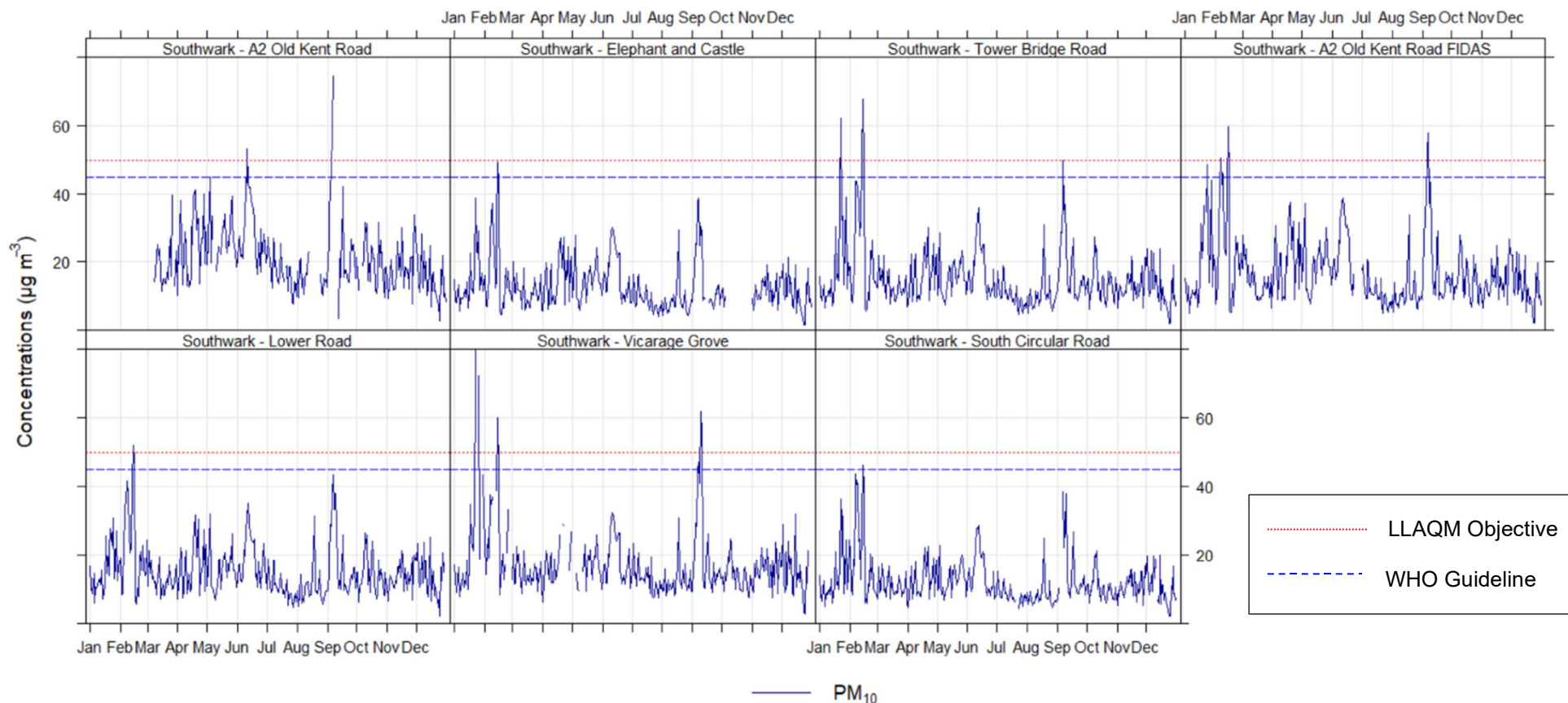
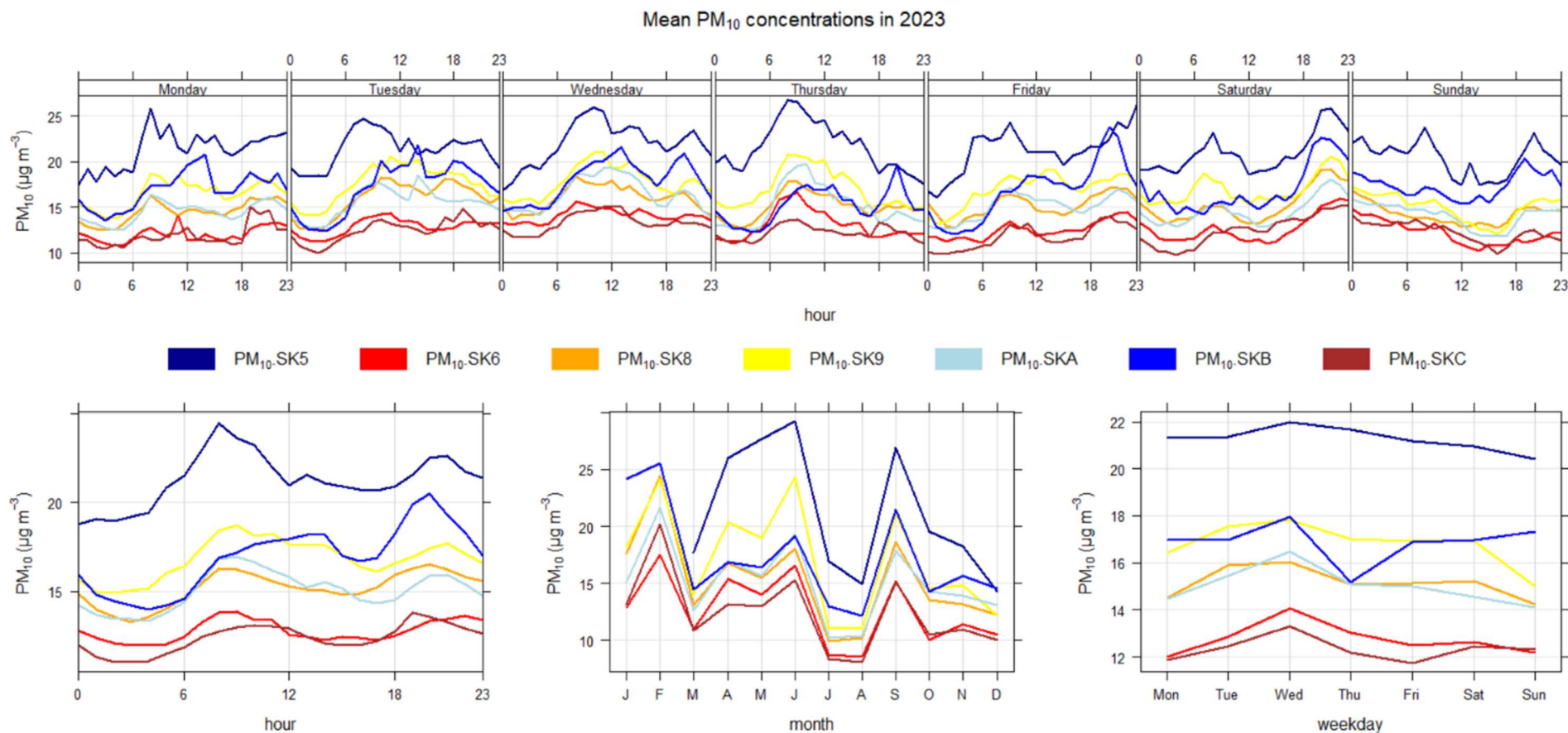


Figure 10 - Time-varied PM₁₀ Concentrations at Southwark's Continuous Air Quality Monitoring Stations in 2023



Discussion of trends for hourly and 24-hour mean PM₁₀

The 7-year trend in short term PM₁₀ concentrations shows that all existing sites were compliant with the 50µg.m⁻³.24-hour objective in 2023 and previous years (see **Table K**).

Peaks in concentrations of PM₁₀ at the monitoring sites were observed during regional episodes in January and February. The levels also peaked at most sites in September (**Figure 9**).

From the analysis of diurnal variation in hourly mean concentrations it is found that generally the morning and afternoon peaks were less pronounced than those for NO₂, and average concentrations measured on the weekends were not much lower when compared to weekdays (**Figure 10**).

1.2.3 Particulate Matter (PM_{2.5})

Table L - Annual Mean PM_{2.5} Automatic Monitoring Results (µg.m⁻³)

Site ID	Valid data capture for monitoring period % ^(a)	Valid data capture 2023 % ^(b)	2017	2018	2019	2020	2021	2022	2023
SK6 Elephant & Castle	89.0	89.0	-	-	-	9 ^a	9.1	9.4	7.7
SK8 Tower Bridge Road	99.2	99.2	-	-	-	8 ^a	10.4	9.3	8.4
SK9 Old Kent Road (FIDAS)	96.9	96.9	-	-	-	9 ^a	9.5	9.9	9.0
SKA Lower Road	98.2	98.2	-	-	-	-	9.3	9.7	8.3
SKB Vicarage Grove	88.6	88.6	-	-	-	-	9.9	10.1	9.9
SKC South Circular Road	96.0	96.0	-	-	-	-	7 ^a	8.5	7.1

Notes

The annual mean concentrations are presented as µg.m⁻³.

Exceedances of the PM_{2.5} annual mean AQO of 20 µg.m⁻³ are shown in **bold**.

^a All means have been “annualised” in accordance with LLAQM Technical Guidance, if valid data capture is less than 75% and more than 25%.

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

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

Figure 11 - Trend in Annual Mean PM_{2.5} concentrations at Southwark's Existing Air Quality Monitoring Stations, 2017 – 2023

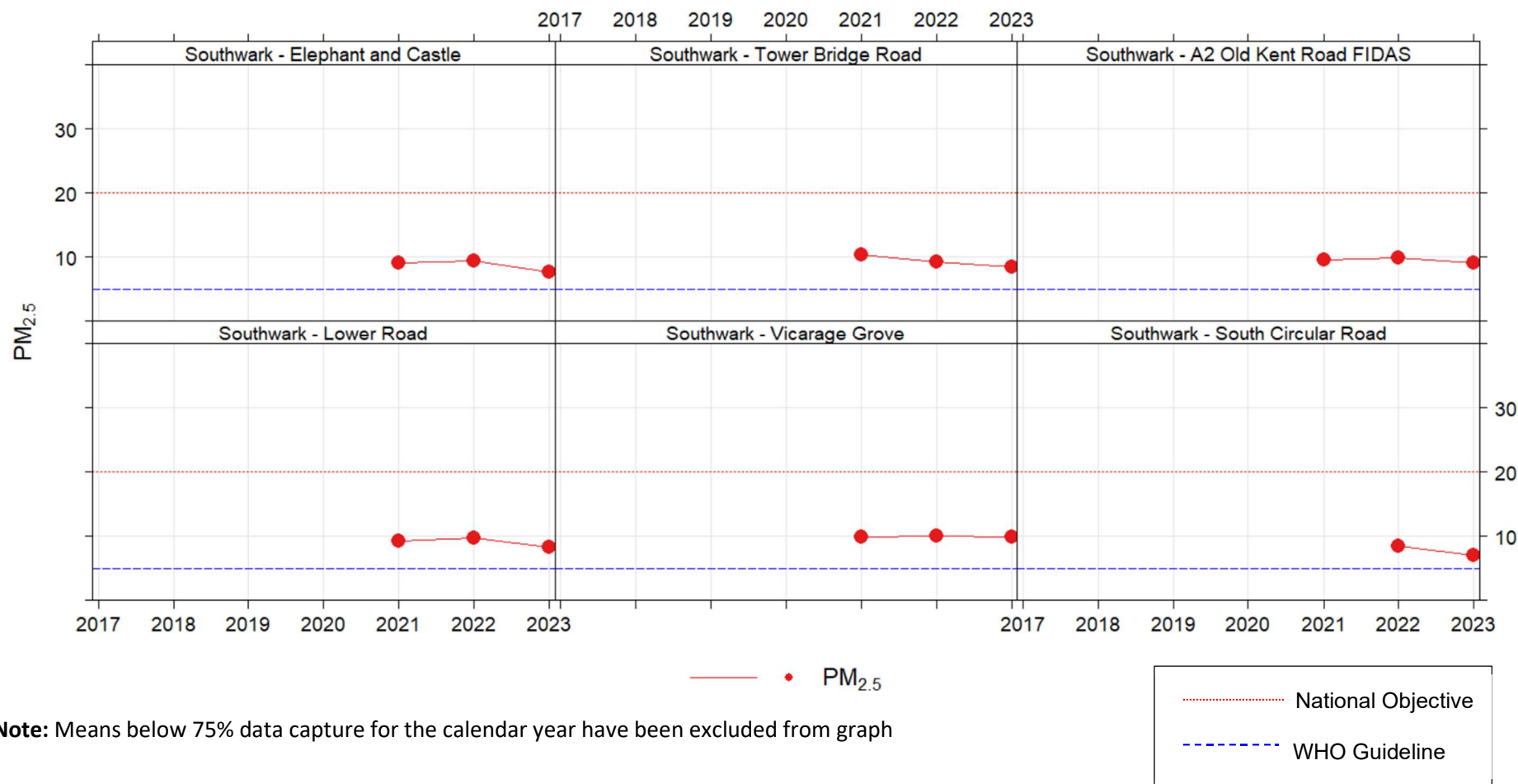


Figure 12 – 1-Hour PM_{2.5} Concentrations at Southwark’s Continuous Air Quality Monitoring Stations

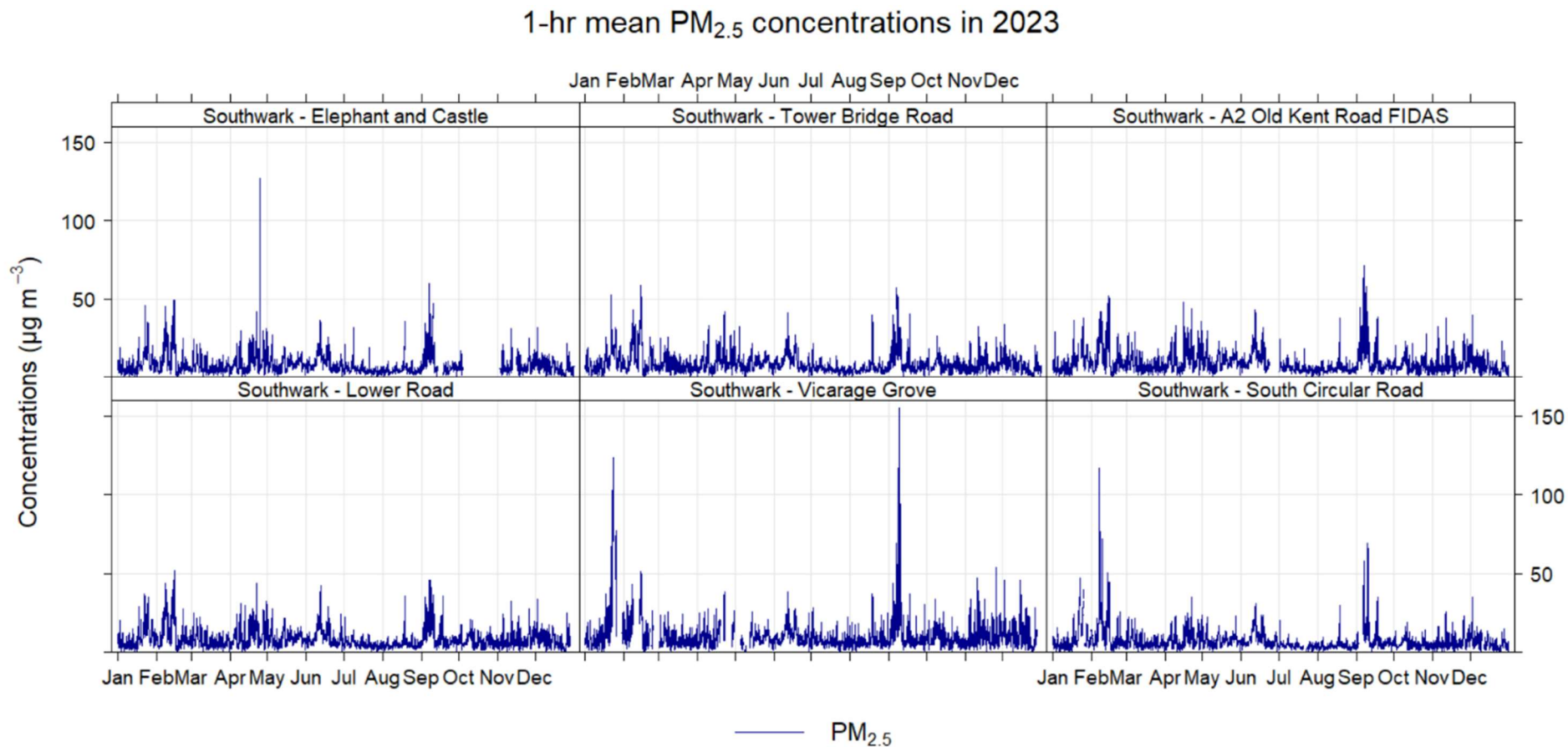


Figure 13 - Time-varied PM_{2.5} Concentrations at Southwark's Continuous Air Quality Monitoring Stations

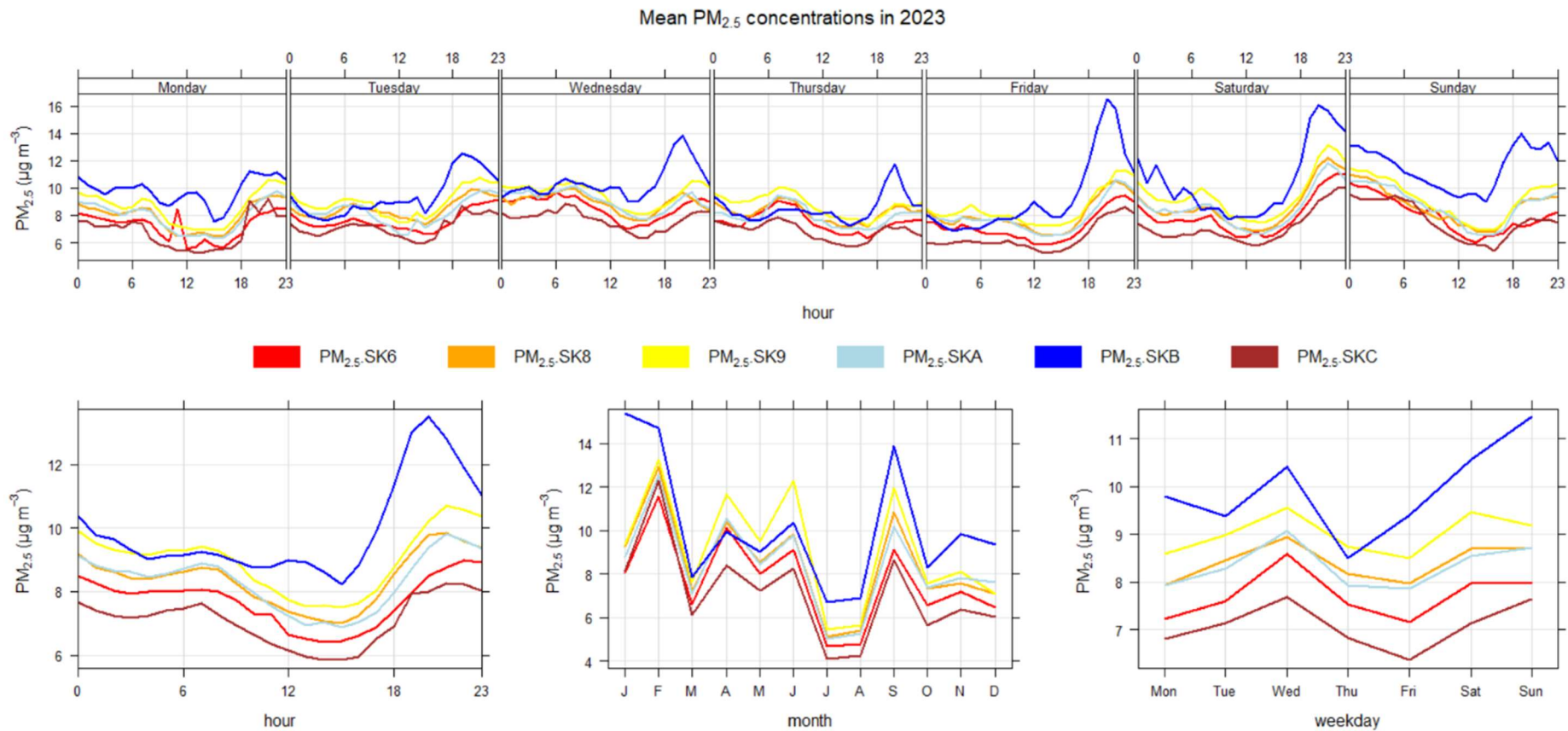


Table M - Annual Mean PM_{2.5} Monitoring Results from Breathe London Sensor Sites

Site ID	Site Name	Site type	Monitoring Method	Valid data capture 2023 % ^(a)	2021	2022	2023
CLDP0037	Charlotte Sharman Primary School	Urban Background	Sensor	99	8.6	8.8	8.1
CLDP0022	Elephant & Castle (reference co-location)	Urban Background	Sensor	97	9.1	9.0	7.9
CLDP0323	Elm Lodge Surgery	Roadside	Sensor	98		7.5 (55%)	7.2
CLDP0080	Guy's Hospital	Roadside	Sensor	99	10.4 (51%)	10.2	8.3
CLDP0448	Harris Primary Academy, East Dulwich	Roadside	Sensor	73			8.2
CLDP0384	Imperial War Museum	Urban Background	Sensor	97		7.6(4%)	7.5
CLDP0175	London Wildlife Trust Centre For Wildlife Gardening	Urban Background	Sensor	98	8.5 (58%)	8.4	7.6
CLDP0357	Maudsley Hospital	Roadside	Sensor	95		9.1 (27%)	7.9
CLDP0078	Oliver Goldsmith Primary School	Urban Background	Sensor	97	8.8	9.1	8.2
CLDP0108	SWK-BL1 : Croxted Road / Guernsey Grove	Roadside	Sensor	98	10.0 (71%)	10.0	7.9
CLDP0107	SWK-BL2 : Croxted Road/Dalkeith Road	Roadside	Sensor	99	9.6(42%)	9.7	8.7
CLDP0042	Tower Bridge Primary School	Roadside	Sensor	98	10.9	10.6	8.5

Notes:

These results are indicative only.

The annual mean concentrations are presented as $\mu\text{g m}^{-3}$. Means are yearly averages and have not been “annualised”.

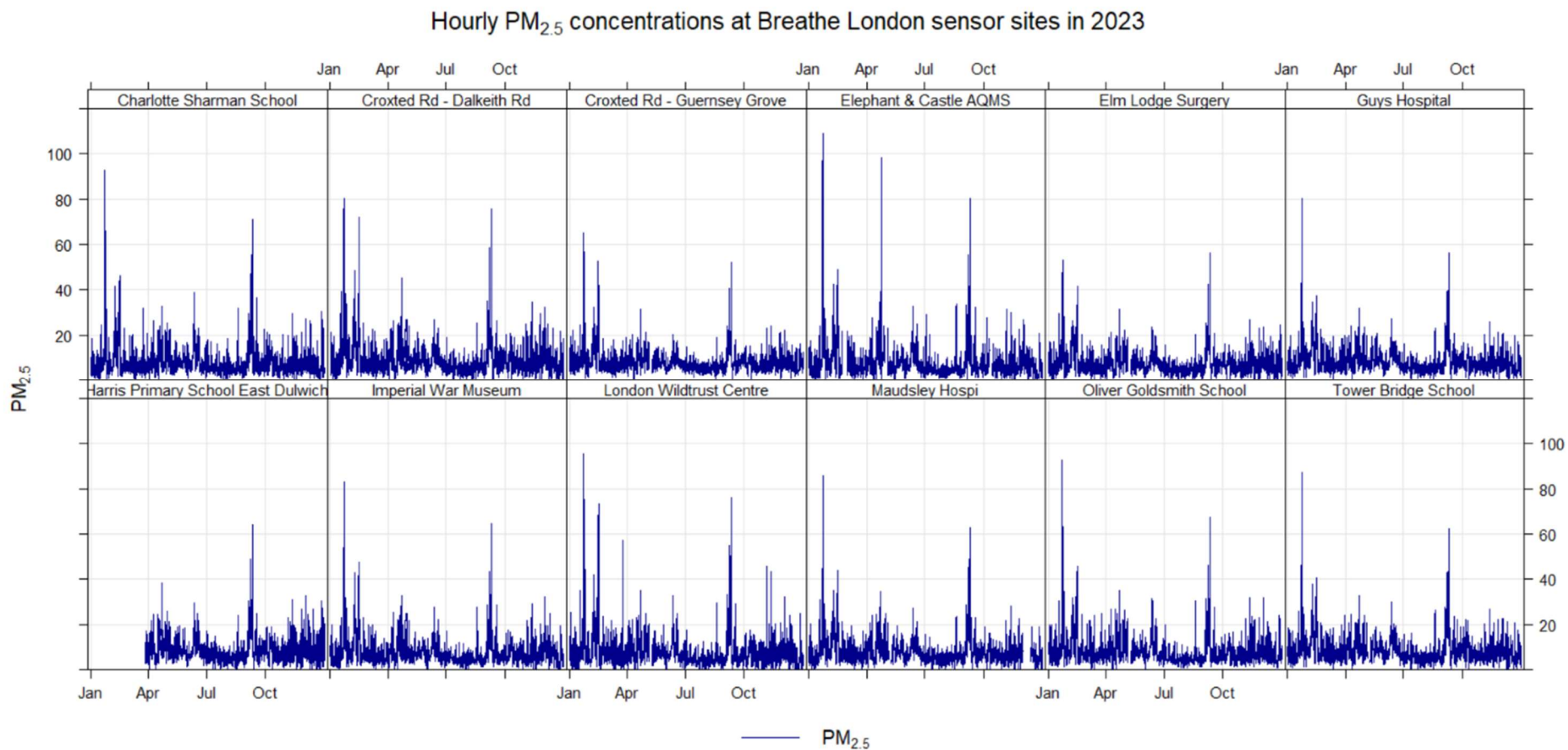
Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

If the data capture for the year is less than 75% in 2021 or 2022, the data capture is shown in the brackets adjacent to the annual mean.

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

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

Figure 14 – 1-Hour PM_{2.5} Concentrations at Breathe London Sensor Sites in 2023



NB: Sensor results are indicative only.

Discussion of Trends in PM_{2.5} concentrations

PM_{2.5} objectives have been set out in the UK Air Quality Regulations. Results from the monitoring sites indicate that concentrations have remained well below the limit value of 20µg.m⁻³ in 2023 and all the years of monitoring (**Table L, Table M** and **Figure 11**). All sites were technically below the earlier WHO guideline value of 10µg.m⁻³ adopted in the London Plan, although compliance at SKB Vicarage Grove was marginal with a result of 9.9µg.m⁻³ (**Table L** and **Figure 11**). The latest WHO guideline of 5µg.m⁻³ has been exceeded at all sites.

The levels of PM_{2.5} have remained stable for the monitoring period.

Figure 12 shows peaks in PM_{2.5} levels in January (SK9 Old Kent Road, SKB Vicarage Grove, SKC South Circular Rd) – which corresponds with a particulate matter episode, February (SKC South Circular Rd), and September (SK8 Tower Bridge Rd, SK9 Old Kent Road, SKB Vicarage Grove, SKC South Circular Rd). The results from sensor sites presented in **Figure 14** indicate the concentrations peaking in January, February, April and September.

The analysis of average hourly concentrations by day of the week indicates that the levels peaked during evening hours throughout the week, with the highest peaks recorded on Fridays and Saturdays. The site which recorded the highest time-averaged levels was SKB Vicarage Grove (**Figure 13**).

1.2.4 Ozone (O₃)

Table N - O₃ Automatic Monitoring Results: Comparison with Objective, Daily Maximum 8-hour Running Mean > 100 µg.m⁻³

Site ID	Valid data capture for monitoring period % ^(a)	Valid data capture 2023 % ^(b)	2017	2018	2019	2020	2021	2022	2023
SK6 - Elephant & Castle	93.1	93.1	1	9	8	16	14	20	19

Notes

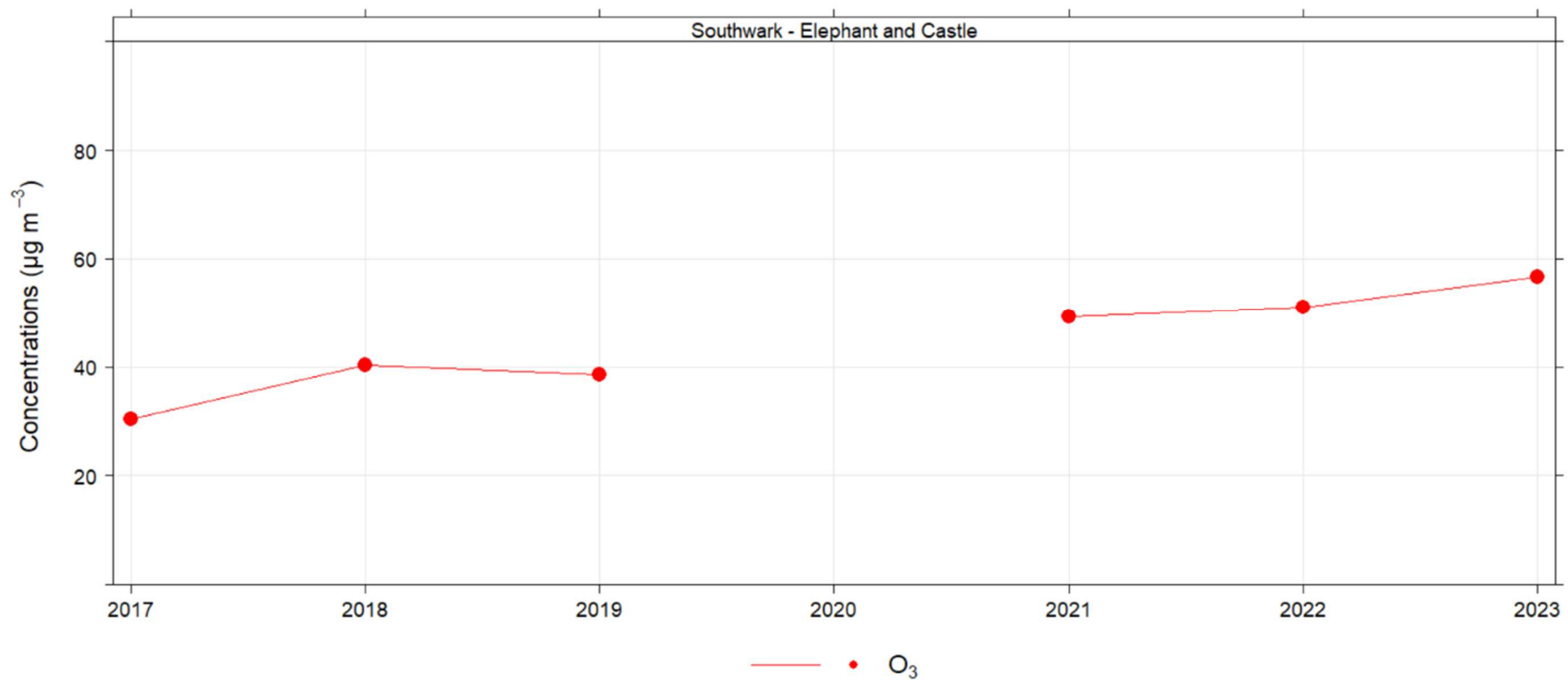
Exceedances of the O₃ 8 hourly running mean objective (100 µg.m⁻³ not to be exceeded more than 10 times a year) are shown in **bold**.

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

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

Figure 15 - Trend in Annual Mean O₃ Concentrations at Southwark's Existing Air Quality Monitoring Station, 2017 – 2023

Annual mean O₃ concentrations at Elephant & Castle



Note: Means below 75% data capture for the calendar year have been excluded from graph.

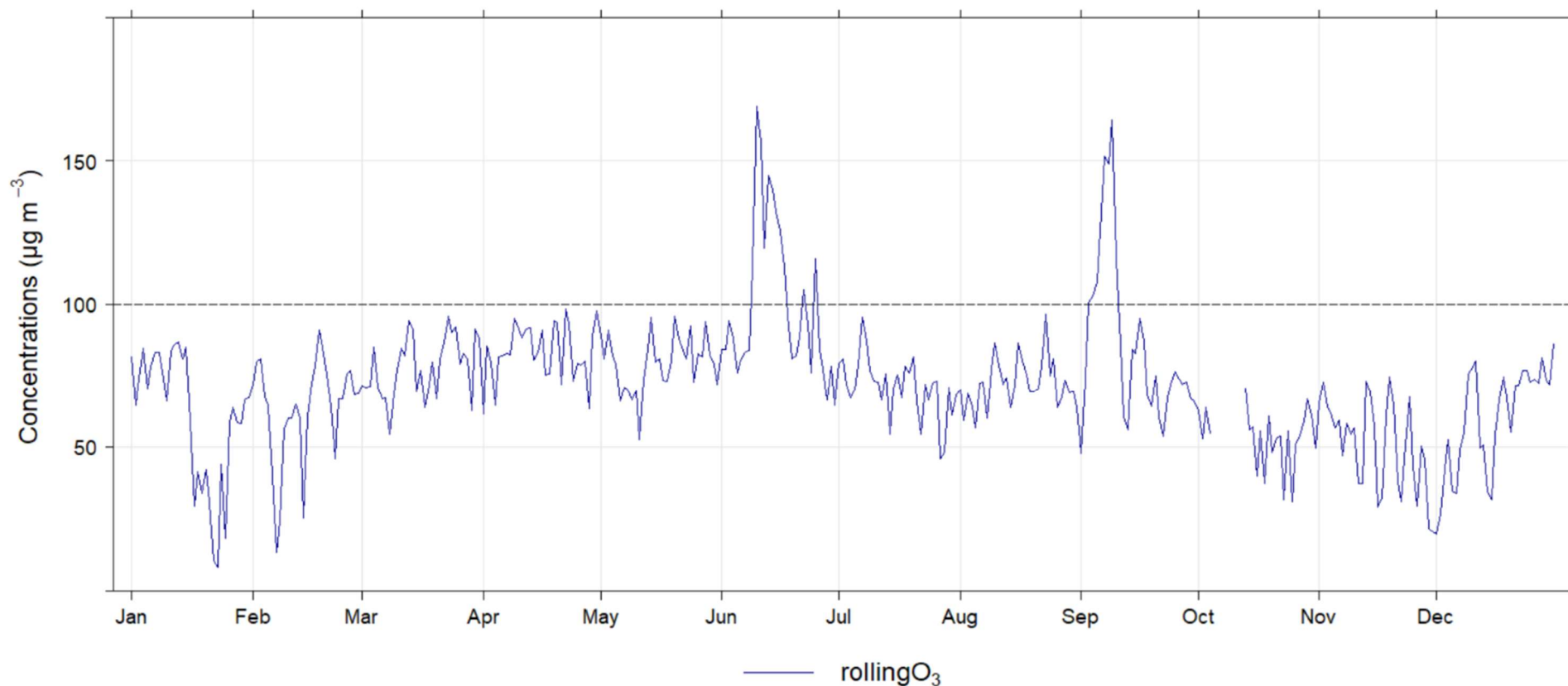
Figure 16 - Trend in Annual Mean O₃ Concentrations at Southwark's Existing And Past Air Quality Monitoring Stations, 2000 – 2023



Note: Means below 75% data capture for the calendar year have been excluded from graph.

Figure 17 – Daily Maximum 8-Hour Running Mean O₃ Concentrations at Southwark’s Continuous Air Quality Monitoring Station in 2023

Daily maximum 8-hour rolling mean O₃ concentrations at Elephant & Castle



Discussion of Trends in O₃ concentrations

Continuous monitoring of O₃ is undertaken at the Elephant and Castle background monitoring site. O₃ is a transboundary pollutant; the sources of O₃ are frequently spatially distant from the measured site of the concentrations. This pollutant does not have a prescribed air quality objective for LLAQM purposes; however, it has been reported as recommended by the GLA.

There has been a notable increase in O₃ concentrations in the recent years (**Table N** and **Figures 15 and 16**). There is no LLAQM standards for O₃, however, the national Air Quality Strategy standards establish a limit of 100 µg.m⁻³ not to be exceeded more than 10 times a year for the 8 hourly running mean. This limit has been consistently exceeded at the Elephant and Castle site since 2020 (**Table N**). **Figure 17** shows that two periods of elevated O₃ concentrations recorded in 2023 took place in June and September.

2. Action to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority should prepare an Air Quality Action Plan (AQAP) within 12 months. The AQAP should specify how air quality targets will be achieved and maintained, and provide dates by which measures will be carried out.

A summary of AQMAs declared by London Borough of Southwark can be found in **Table O**. The table presents a description of the AQMA that is currently designated within the Southwark Borough. Appendix C provides a map of the AQMA and also the air quality monitoring locations in relation to the AQMA. The air quality objectives pertinent to the current AQMA designation are as follows:

- NO₂ annual mean
- PM₁₀ 24-hour mean

Pollutant concentrations may vary significantly from one year to the next, due to the influence of meteorological conditions. Before considering revocation of the AQMA on the basis of measured pollutant concentrations, Southwark needs certainty that any future exceedances (that might occur in more adverse meteorological conditions) are unlikely. Southwark will not consider revocation of the Air Quality Management Area until measurements carried out over several years, national trends in emissions, local emissions factors and national monitoring information, all indicate that the AQMA should be revoked. **Tables H, J, K, L and O** indicate that these conditions have not yet been met. Furthermore, in order to avoid revocation of the Air Quality Management Area followed soon after by the need for re-declaration, Southwark will also consider the potential for air quality standards to be more strict in future, and for this purpose will consider changes in international guidance issued by the World Health Authority, alongside the UK national air quality standards and objectives.

Table O - Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
Southwark AQMA	Declared 01/06/2003, Amended 08/06/2023	NO ₂ – Annual Mean	Whole Borough	NO – LBS & TfL	43.0µg.m ⁻³ . (Southwark 1) 68.8µg.m ⁻³ . (Southwark 2)	41.6µg.m ⁻³ . (SDT 18) 39.1µg.m ⁻³ . (SDT 81) 38.8µg.m ⁻³ . (SDT 24) 37.4µg.m ⁻³ . (SDT 87) 37.2µg.m ⁻³ . (SDT 29) 36.4µg.m ⁻³ . (SDT 104) 36.4µg.m ⁻³ . (SDT 113)	Historical sites Southwark 1 and Southwark 2 were located in the north area of the district. Although those sites had been closed down, more recent monitoring continues to show that some locations remain above or close to the objective level. Compliance has been achieved in the south part of the district.	LBS AQAP 2022-2027, January 2023	LBS AQAP 2022-2027
Southwark AQMA	Declared 01/06/2003, Amended 08/06/2023	PM ₁₀ – 24-Hour Mean	Whole Borough	NO – LBS & TfL	32* (Southwark 1) 39* (Southwark 2)	5* (SKB Vicarage Grove) 3* (SK9 Old Kent Road) 1*	Monitoring has shown legal compliance with PM ₁₀ objectives, however WHO standards for particulate matter have not been met at some monitoring sites.	LBS AQAP 2022-2027, January 2023	LBS AQAP 2022-2027

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
						(SK8 Tower Bridge; SKA Lower Rd)			

* Number of exceedances of the 24-hour mean objective of 50 µg.m⁻³

- London Borough of Southwark confirm the information on UK-Air regarding their AQMA(s) is up to date
- London Borough of Southwark confirm that all current AQAPs have been submitted to GLA

2.2 Air Quality Action Plan Progress

Table P provides a brief summary of Southwark Council progress against the Air Quality Action Plan, showing progress made this year. New projects which commenced in 2023 are shown at the bottom of the table.

Table P - Delivery of Air Quality Action Plan Measures

LLAQM Action Matrix Theme - Monitoring and other core statutory duties

Action ID	Action	Outputs, Targets and KPIs	Progress <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
1.1	Maintain the Authority's automatic air quality monitoring stations in the Borough	All monitors maintained and over 90% data capture annually	<ul style="list-style-type: none"> • All stations were maintained, serviced and calibrated to current guidance. • No emissions / concentrations benefits but critical in terms of understanding emissions.
1.2	Maintain the Authority's Nitrogen Dioxide Diffusion Tube Survey in the Borough in accordance with current guidance	All diffusion tube results to be published within 5 weeks of collection on the website	<ul style="list-style-type: none"> • The diffusion tube network was maintained at 2022 level, and the in accordance with current guidance. • Data Analyst resource provided to progress creation of air quality dashboard. • No emissions / concentrations benefits but critical in terms of understanding emissions.
1.3	Work with the GLA Breathe London Project	Southwark has several sites in Borough, details to be reported annually.	<ul style="list-style-type: none"> • All sensor networks including Breathe London were maintained in accordance with current guidance. <ul style="list-style-type: none"> • Data can be accessed at https://www.breathelondon.org/

Action ID	Action	Outputs, Targets and KPIs	<p style="text-align: center;">Progress</p> <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
			<ul style="list-style-type: none"> • Data Analyst resource provided to progress creation of air quality dashboard. • No emissions / concentrations benefits but critical in terms of understanding emissions.
1.4	Prepare and produce all London Local Air Quality Management Framework reports as required.	<p style="text-align: center;">Submission of the Annual Status Report to the GLA</p> <p style="text-align: center;">KPI – Report submitted by the 31st May each year</p>	<ul style="list-style-type: none"> • All reports required by the London Local Air Quality Management Framework were produced and submitted. This report to be submitted by the new London-wide extended deadline of 31st July 2024. • No direct emissions / concentrations benefits but critical in terms of air quality work.
1.5	New publicly consulted Air Quality Action Plan every 5 years	<p style="text-align: center;">The next full revised Air Quality Action Plan is due 2028</p> <p style="text-align: center;">KPI – Report submitted by the 31st May each year</p>	<ul style="list-style-type: none"> • A final version of AQAP 2023-2027 was published in August 2022. • Reduction in emissions of Particulate Matter and Nitrogen Dioxide depending on the nature of the measures.
1.6	Review the Authority's Air Quality Management Area and air quality action plan annually	<p style="text-align: center;">Review every year when preparing the Annual Status Report</p> <p style="text-align: center;">ASR will have an annual progress note published within it</p>	<ul style="list-style-type: none"> • The AQMA designation for annual mean NO₂ was reviewed and approved by Cabinet in 2022, AQMA boundary amended on UK-Air website in June 2023. • The AQAP 2023–2027 is reviewed: a) quarterly through internal processes, and b) annually through the ASR reporting process. • No emissions / concentrations benefits but critical in terms of understanding emissions.
1.7	Respond to all appropriate air quality consultations	<p style="text-align: center;">Consultation to be responded within consultation timetable</p>	<ul style="list-style-type: none"> • The Environment Protection Team received and responded to all air quality related consultations during the year.

Action ID	Action	Outputs, Targets and KPIs	<p style="text-align: center;">Progress</p> <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
			<ul style="list-style-type: none"> • Possible reduction in emissions of Particulate Matter and Nitrogen Dioxide depending on the nature and outcome of the consultation.
1.8	Support the introduction of a new or revised Clean Air Act that improves public protection from atmospheric pollution	To lobby Government for the introduction of the Clean Air Act and / or GLA to introduce new Clean Air provisions within a London Local Authority Act	Measure complete. LBS was in support of changes to the smoke control area regime, which were implemented in the Environment Act 2021.
1.9	Respond to Defra's Environment Act 2021 consultation in setting a PM _{2.5} target to improve public protection from Particulate Matter (PM _{2.5}) atmospheric pollution	To lobby Government for the inclusion of WHO PM _{2.5} guidelines into the Environment Act 2021 regulations	Measure complete.
1.10	Promote delivery of information on pollen	AirTEXT distributes information on pollen, which is available through a daily text	<ul style="list-style-type: none"> • Pollen alerts are shared with the public through the AirText service. • No emissions / concentrations benefits.
1.11	To adopt the World Health Organization air quality guidelines	<p>L.B. Southwark to adopt the guidelines as part of Air Quality Action Plan and work with the Mayor of London towards meeting the standard by 2030</p> <p style="text-align: center;">KPI – Report annually</p>	<ul style="list-style-type: none"> • Guidelines were adopted in the new AQAP. • LBS is committed to achieving World Health Organisation targets for Particulate Matter in accordance with the targets in the London Plan and the Environment Strategy. • Medium to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
1.12	Review best practice and technical guidance on the use of Low Cost Sensors	QA and QC report on performance of low cost sensors will be published in the ASR	<ul style="list-style-type: none"> • The EPT team has taken part in surveys on the use of low-cost air quality sensors. • The team has supported and welcomed the publication of a Code of Practice for the selection, deployment, and quality control of low-cost air quality sensor systems in outdoor ambient air -

Action ID	Action	Outputs, Targets and KPIs	<p style="text-align: center;">Progress</p> <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
			<p style="text-align: center;">Low Cost AQ Sensor Code of Practice: PAS 4023:2023.</p> <ul style="list-style-type: none"> • No emissions / concentrations benefits but critical in terms of understanding emissions.
1.13	Embed air quality considerations in all new Council policies.	Report annually in the ASR	<ul style="list-style-type: none"> • When relevant policies are due to be updated, the policy is reviewed to ensure that air quality improvements are included in the revised document. • Small to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
1.14	Maintain the Authority's sensor network in the Borough in accordance with current guidance	All monitors maintained and data published on website	<ul style="list-style-type: none"> • A sensor monitoring survey was in operation throughout 2023. LBS have been investigating budget options for the QA/QC work. • Data Analyst resource provided to progress creation of air quality dashboard. • No emissions / concentrations benefits but critical in terms of understanding emissions.

LLAQM Action Matrix Theme - Emissions from developments and buildings

Action ID	Action	Outputs, Targets and KPIs	<p style="text-align: center;">Progress</p> <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
2.1	Ensuring emissions from construction are minimised by developers fully complying with Southwark's Technical Guidance for Demolition and Construction	<p>All major sites to submit an Air Quality Assessment in accordance the current version of the GLA's guidance "The Control of Dust and Emissions during Construction and Demolition Supplementary Planning Guidance".</p> <p>Review Highways standard contract terms in 2025-2026 to address idling at road works and generator types.</p> <p>KPI - All applications met the requirements of the technical guide.</p>	<ul style="list-style-type: none"> • EPT officers work plans ensure that the requirements are practically met. <ul style="list-style-type: none"> • All development must comply with Southwark's Technical Guidance for Demolition and Construction: https://www.southwark.gov.uk/assets/attach/3011/Technical-Guidance-for-Demolition-Construction.pdf • Medium to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
2.2	All Major development sites to submit a demolition management (DEMP) and / or Construction Management Plan (CEMP)	<p>Annual reporting of number of Demolition Management Plans and Construction Management Plans that have been reviewed</p> <p>KPI - Number of reviews of Demolition Management Plans and Construction Management Plans</p>	<ul style="list-style-type: none"> • This was required of all Major⁴ development. • 13 planning applications were approved in 2023 with a CEMP. • Medium to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
2.3	Ensuring all medium and high risk sites have real – time PM monitoring on site and that the information from this monitoring is easily accessible to the public	<p>Annual reporting of number of sites that are reporting site monitoring</p> <p>KPI - Number of construction sites with site monitoring</p>	<ul style="list-style-type: none"> • This was required of all Major⁵ development. • Medium to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.

⁴ A MAJOR development is defined by Town and Country Planning (Development Management Procedure) Order (England) 2015: <https://www.legislation.gov.uk/uksi/2015/595/article/2/made>

⁵ As above

Action ID	Action	Outputs, Targets and KPIs	<p style="text-align: center;">Progress</p> <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
		KPI - Review technical guide to ensure appropriate mitigation and dust management responses	
2.4	Ensuring emissions from construction are minimised by developers by submitting a transport logistics assessment in accordance with Transport for London's (TfL) Construction Logistics guidance	<p>All major sites to submit a Transport Logistics in accordance the current version of the TfL guidance</p> <p>Control of construction vehicles delivery times to reduce impact on local communities congestion and air quality</p> <p>KPI - 100% of all major sites</p>	<ul style="list-style-type: none"> • New requirement has been implemented for all development to have a Construction Logistics Plan. • Medium to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
2.5	Produce a construction code of practice for minor sites to be used as informative	<p>Information to be secured by either planning conditions or s106 agreements</p> <p>KPI - Annual reporting of informatives issued</p>	<ul style="list-style-type: none"> • The GLA's "The Control of Dust and Emissions during Construction and Demolition Supplementary planning guidance can be found at https://www.london.gov.uk/programmes-strategies/planning/implementing-london-plan/london-plan-guidance-and-spgs/control-dust-and#:~:text=The%20aim%20of%20this%20supplementary,for%20non%2Droad%20mobile%20machinery • LBS has scheduled this work stream for 2024. • Medium to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
2.6	Minimise emissions from construction by ensuring all construction site Non-Road Mobile Machinery (NRMM) comply with the	<p>All relevant Planning applications to include the appropriate NRMM condition</p> <p>KPI - 100% of all relevant applications</p>	<ul style="list-style-type: none"> • London Borough of Merton are contracted to undertake construction site NRMM inspection visits as part of a pan London project.

Action ID	Action	Outputs, Targets and KPIs	<p style="text-align: center;">Progress</p> <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
	London Environment Strategy Policy 4.2.3a	<p>Southwark to maintain an updated list of construction sites on a quarterly basis KPI - Four lists each year</p> <p>Southwark to subscribe to the Mayor's Air Quality Fund South London NRMM Enforcement Project KPI - Annual subscription paid</p> <p>Mayor's Air Quality Fund South London NRMM Enforcement Project to submit regular reports to Southwark KPI - Four reports each year</p> <p>Southwark's Environment Protection Team to investigate all non-compliant sites as reported by the NRMM Lead Authority KPI - All non – compliant sites investigated</p>	<ul style="list-style-type: none"> • Annual subscription to the pan-London project was paid. • LBS maintained a list of construction sites in 2023 and all sites found non-compliant were investigated. • Low to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
2.7	Ensuring emissions from construction and demolition sites are minimised by developers to comply with the London Environment Strategy Policy 4.2.3	<p>All major sites to submit an Air Quality Assessment in accordance the current version of the GLA's "The Control of dust and emissions during Construction and Demolition Supplementary Planning Guidance"</p> <p>KPI - 100% of all relevant applications</p> <p>KPI - Annual reporting of the number of NRMM conditions / s106 interventions</p>	<ul style="list-style-type: none"> • LBS secured funding for a Construction Monitoring Officer, whose role will be look to progress and report on all measures aimed at tackling emissions from construction sites and events. • EPT officers work plans ensure that the requirements are practically met. • Medium to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.

Action ID	Action	Outputs, Targets and KPIs	<p style="text-align: center;">Progress</p> <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
2.8	Continue to control emissions from permitted processes via inspection and enforcement	<p>Annual reporting of number of inspections in accordance with LAPPC risk regime and number of enforcement notices.</p> <p>KPI - Report to be submitted to Defra by the due date</p>	<ul style="list-style-type: none"> • LBS complied with the inspection schedule. • The report will be submitted in 2024. • Low reduction in emissions of Particulate Matter and Nitrogen Dioxide.
2.9	Enforce Air Quality Neutral Policy and Air Quality Positive Policy	KPI - All Planning applications with boilers or other heat sources to be given a standard planning condition which requires pre-occupation information or testing reports to be submitted to Planning.	<ul style="list-style-type: none"> • This measure was agreed in principle with Planning in 2023. • LBS received one air quality positive application in 2023 and it was accepted (see application ref. 23/AP/1854). • All planning applications that were granted permission in 2023 met the air quality neutral requirements. • Low to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
2.10	Master planning and redevelopment areas aligned with the Air Quality Positive and Healthy Streets approach	<p>KPI - Complete review of Southwark Plan in the context of air quality</p> <p>KPI - Respond to the Sustainable Transport Plan consultation to include improvements to air quality in 2022 – 2023</p>	<ul style="list-style-type: none"> • Planners have programmed the review in late 2024. • EH team responded to the Sustainable Transport Plan consultation. • See Southwark Plan Policy 65 and Climate Change Action Plan A.1.iii ⁶

⁶ <https://www.southwark.gov.uk/assets/attach/128550/Climate-Change-Action-Plan-Accessible.pdf>

Action ID	Action	Outputs, Targets and KPIs	<p style="text-align: center;">Progress</p> <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
			<ul style="list-style-type: none"> • Low to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
2.11	Promoting and delivering energy efficiency and energy supply retrofitting projects in all buildings through Energy for Londoners (EfL) retrofit programmes such as RE:FIT, RE;NEW, DEEP and through Borough carbon offset funds.	<p>KPI - Implement improvements to Council Medium Combustion Plant (MCP) to reduce emissions and improve monitoring by 2025</p> <p>KPI - Retrofit to improve energy efficiency at five libraries and three children centres by 2024</p>	<ul style="list-style-type: none"> • All MCP boilers underwent emission tests in 2023. • Retrofit work for the libraries and children centres commenced in 2023 and is in progress. • See Climate Change Action Plan D.1.iii, D.1.iv, D.1.vii, D.2.ix, & E.2 ⁷ • Low to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
2.12	Southwark's Smoke Control Area (SCA) is fully promoted and enforced (GLA mandatory action)	<p>Enforce the requirements of the Clean Air Act in the Borough</p> <p>KPI - 100% of service requests investigated</p> <p>Enforce the requirements of the Environment Act in the Borough to control the sale of unauthorised solid fuels.</p> <p>KPI - At least one campaign per year.</p> <p>KPI - When appropriate formal action to be taken in 100% of cases.</p> <p>Publicise on a regular basis that whole of Southwark is a Smoke Control Zone</p> <p>KPI - At least one campaign per year.</p>	<ul style="list-style-type: none"> • Southwark's Smoke Control Area can be found at https://www.southwark.gov.uk/assets/attach/1468/smoke-control-order-2009.pdf • A grant application was submitted to Defra in July 2023 and was approved in principle in November 2023 to extend the SCA to inland waterways. • Full attendance of the GLA Wood Burning Group meetings and participation in the pan-London campaigns. • Smoke enforcement action was taken for all relevant cases and appropriate notices served. • Low to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.

⁷ <https://www.southwark.gov.uk/assets/attach/128550/Climate-Change-Action-Plan-Accessible.pdf>

Action ID	Action	Outputs, Targets and KPIs	<p style="text-align: center;">Progress</p> <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
		Attend the GLA Wood Burning Working Group and contribute to the outcomes of the group.	
2.13	Ensuring adequate, appropriate and well located green space and infrastructure is included in new and existing developments	<p>KPI - The number of new green infrastructure granted through the planning process in the year</p> <p>KPI - The number of new green infrastructure implemented in the year</p>	<ul style="list-style-type: none"> • This KPI needs changing as the data is not collected in this way. Green infrastructure projects has not been defined. Figures that are available include a Net Gain in the Number of Trees, and Biodiversity Net Gain (not commenced in 2023). • Low to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
2.14	Reducing emissions from all Combustion Plant	<p>All developments to comply with the London Plan heating hierarchy and that air quality and carbon emissions are fully assessed in planning applications</p> <p>KPI - 100% of all relevant applications</p> <p>KPI - Annual reporting of the number of conditions / s106 interventions</p> <p>KPI - Number of ultra-low NOX boilers / heat pumps installed in the year</p>	<ul style="list-style-type: none"> • The work plan of the Development Control Officers contains requirement to ensure that London Plan heating hierarchy is met and assessed. • There were no S106 deeds signed in 2023 which contain a specific air quality contribution. • Conditions relating to “combustion plant” or 'heating networks' were attached to two planning approvals – see ref. 22/AP/1063 and ref. 23/AP/0768 • Low to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
2.15	To reduce emissions of Particulate Matter from commercial kitchens especially PM _{2.5}	Devise and complete a pilot project to produce technical guidance for kitchen operators to reduce emissions of PM _{2.5} .	<ul style="list-style-type: none"> • LBS explored options for a pilot project to produce technical guidance for kitchen operators to reduce emissions of PM_{2.5}. Not progressed due to resources at present. • LBS to contact any catering chains with a Southwark Home Authority agreement, to discover whether they

Action ID	Action	Outputs, Targets and KPIs	<p style="text-align: center;">Progress</p> <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
			<p>may have any interest in participating in a project to validate the current air quality modelling due to commercial catering in the London Atmospheric Emissions Inventory. See comment above.</p> <ul style="list-style-type: none"> • Low to Medium reduction in emissions of Particulate Matter and Nitrogen Dioxide.
2.16	Embed air quality in designs of estates	<p>KPI - Number of Design Briefs produced that include air quality principles</p> <p>KPI - Number of Air Quality Positive Estates built in the year</p>	<ul style="list-style-type: none"> • No design briefs produced in 2023. • No Air Quality Positive Estates were proposed during 2023, however one air quality positive development was proposed in 2023: ref. 23/AP/1854. • Highways and regeneration teams would have included air quality in project design. • Low to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
2.17	Reducing emissions from Combustion Plant in heating networks	<p>Officers to regularly update the borough – level energy masterplan and identify opportunities for new heat networks as well as extending or inter-connecting existing networks to support cleaner, lower carbon heat supply.</p> <p>Installation of heat pumps on site in three locations - Consort, Newington & Wyndham</p> <p>KPI: Confirmation of the completion of all 3 sites</p> <p>KPI: Annual reporting of the number of conditions / s106 interventions</p>	<ul style="list-style-type: none"> • Three sites completed for the installation of ASHP: Consort, Newington & Wyndham. • An Energy Use review has been carried for operational buildings, it planned to repeat the review for state schools and the housing estate. • Regular meetings were held with s106 Compliance Manager.

Action ID	Action	Outputs, Targets and KPIs	<p style="text-align: center;">Progress</p> <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
		<p>Regular meetings held throughout the year with the s106 compliance manager</p> <p>Complete feasibility studies (with input from residents) which will allow every estate in the borough to design plans to move away from gas as an energy source</p> <p>KPI: Procurement of ten detailed feasibility studies to set the scope for upcoming major decarbonisation works at high priority estates. Southwark will be consulting with residents as part of the works process.</p> <p>Identifying combustion sources where cost effective carbon reduction with substantial air quality benefits</p> <p>KPI: Annual reporting of energy use in Council owned buildings.</p>	<ul style="list-style-type: none"> • The total carbon emissions from LBS operational buildings for 2021/22 were estimated at 5,997 tCO₂e⁸. • See Climate Change Action Plan E.2.ii and E.2.iii ⁹ • Low to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.

⁸ Draft *Operational Buildings Decarbonisation Strategy 2024*, London Borough of Southwark, 2024.

⁹ <https://www.southwark.gov.uk/assets/attach/128550/Climate-Change-Action-Plan-Accessible.pdf>

LLAQM Action Matrix Theme - Public health and awareness raising

Action ID	Action	Outputs, Targets and KPIs	<p style="text-align: center;">Progress</p> <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
3.1	Public Health having shared responsibility for borough air quality issues	<p>Director of Public Health to chair Air Quality Steering Group KPI - Annual progress report</p> <p>The Public Health - Place & Health Improvement Team actively involved with Air Quality Projects KPI- Annual progress report</p> <p>Biennial review of Southwark's Joint Strategic Needs Assessment (Air Quality) ('Air Quality JSNA'). KPI - Annual progress report</p> <p>Air Quality is a Health and Wellbeing Board priority KPI - Annual report to the Health and Wellbeing Board</p>	<ul style="list-style-type: none"> • The Director of Public Health chairs the Air Quality Steering Group. Public Health have been involved with air quality work across the council, including with EPT, Construction, Housing, and schools. EH have supported Public Health's air quality work, including the Annual Public Health Report 2023 which focuses on air quality. Projects include co-developing training to support construction compliance officers to comply with air quality regulations, offering schools and care homes funding to install air filter units, supporting the redesign of the airTEXT service, and improving air quality through school Superzones. • The air quality JSNA was published in 2022. It was reviewed in 2023 when it fed into the Annual Public Health Report about air quality. • The Health and Wellbeing Board were updated on air quality action at a board meeting in 2023. The Annual Public Health Report was presented to board members, focusing on indoor and outside air quality along with recommendations for stakeholders working on air quality. • Low reduction in emissions of Particulate Matter and Nitrogen Dioxide.
3.2	Work with the Public Health Team to strengthen engagement with Southwark Clinical Commissioning Group and GP surgeries	To promote the Airtext service through the GP's and other health providers KPI - Report annually on the progress	<ul style="list-style-type: none"> • The Public Health team is part of the air quality alerts cascade system in the council. Public Health is also an active member of the airTEXT review project which will be used to promote airTEXT through health services.

Action ID	Action	Outputs, Targets and KPIs	<p style="text-align: center;">Progress</p> <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
			<ul style="list-style-type: none"> • Reduction in emissions of Particulate Matter and Nitrogen Dioxide by undertaking the measures in this Action Plan.
3.3	Engagement on air quality issues with Business through the Borough's Business Improvement Districts.	KPI - Number of businesses actively engaged on air quality KPI - Number of businesses acting to reduce emissions	<ul style="list-style-type: none"> • Launch of Thriving High Streets Fund (THSF) in Q1 2023/24. Developed to support thriving town centres and high streets in Southwark. Grants of up to £25k available with a focus on a greener Southwark and healthy and safe high streets as cross cutting themes. In total, 50 applications were received in Round 1 and grants awarded to 11 projects across the borough. Round 2 of THSF to launch in Q4 2023/24. • Low reduction in emissions of Particulate Matter and Nitrogen Dioxide.
3.4	Southwark supports Airtext and promotes and shares the GLA high pollution alert services (GLA mandatory action)	Southwark annual subscription to the Airtext service operated by Cambridge Environmental Research Consultants (CERC) To promote the Airtext service through the GP's and other health providers KPI - Number of Airtext subscribers in the Borough To cascade the London Mayor's High and very High pollution alerts KPI - 100% High and Very High alerts cascaded	<ul style="list-style-type: none"> • At the end of 2023, Southwark had 431 subscribers receiving air quality alerts by SMS text message (289 subscribers), email (118 subscribers) and voicemail (24 subscribers). • This represents an increase of 37 (9.4%) compared with the end of 2022, when there were 394 Southwark airTEXT subscribers (269 text, 101 email and 24 voicemail). • All four of the High and Very High alerts in 2023 were cascaded to the schools and the public. • No emissions / concentrations benefits but helps avoid or mitigate the effects of high exposure.
3.5	Improve the uptake of Air Quality information to	Implementation of recommendations in the Air Alert Discovery project	<ul style="list-style-type: none"> • Further Discovery took place in 2023, and engagement with the community for the airTEXT Alerts project commenced in 2024.

Action ID	Action	Outputs, Targets and KPIs	<p style="text-align: center;">Progress</p> <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
	vulnerable persons in the Borough	KPI - Annual Communication Plan and campaign of relevant air quality improvement topics	<ul style="list-style-type: none"> • No measurable emissions / concentrations benefits but helps avoid or mitigate the effects of high exposure.
3.6	Provide air quality information leaflets at health care facilities, libraries, pharmacies and other frequently used facilities	KPI - Annual progress reports	<ul style="list-style-type: none"> • A set of ten 'top tips' to help people protect themselves from air pollution was developed. These are published on the council's website as part of the Annual Public Health Report 2023 and was circulate to a number of local stakeholders. Air quality information will also be circulated to libraries and GP surgeries, who have confirmed they are happy to do so. In addition, a pilot was running throughout 2023 to offer schools and care homes air filter units to improve air quality. As part of the evaluation, settings will receive information on air quality related to air filter units. • No measurable emissions / concentrations benefits but helps avoid or mitigate the effects of high exposure.
3.7	Promote School Air Quality Audits to all schools in the Borough (GLA mandatory action)	<p>To promote the London Mayor's School Pollution Helpdesk and GAP's online 'school air quality audit' and other promotion materials to all schools.</p> <p>A school audit evaluation report will be produced</p>	<ul style="list-style-type: none"> • A Final report for the Southwark School Air Quality Audit Programme 2020-2022 was published in April 2023. • Low reduction in emissions of Particulate Matter and Nitrogen Dioxide.
3.8	Reducing pollution in and around schools (GLA mandatory action)	<p>Implementation of recommendations from the Southwark Schools' Air Quality Audits</p> <p>At least one recommendation from each air quality audit is implemented annually</p> <p>Idling signage will be offered to all schools</p>	<ul style="list-style-type: none"> • A list for new school streets has been prepared. This has now been complete and has formed the basis for 24/25 programme. • A list of schools that would benefit from green screens was completed and will be shared with the air quality team to assess before contact made with Schools.

Action ID	Action	Outputs, Targets and KPIs	Progress <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
		Develop priority list for new schools streets to be put in place Develop a list of schools that would benefit from green screens KPI - Implement 9 new school streets before 2026	<ul style="list-style-type: none"> • Six new timed closures for school streets were implemented in 2023/24; these are: <ul style="list-style-type: none"> • St John's & St Clements, Goodrich Primary School, Dulwich Wood Primary School, James Allen Girls School (JAGS), Lyndhurst Primary School and Surrey Square Primary School. • Low to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
3.9	Encourage schools to join the TfL STARS accredited travel planning programmes	Proportion of schools in Southwark with STARS Bronze, Accreditation each year Proportion of schools in Southwark with STARS Silver Accreditation each year Proportion of schools in Southwark with STARS Gold Accreditation each year	<ul style="list-style-type: none"> • The total number of schools in Southwark is 94. At present we have: <ul style="list-style-type: none"> - 36 Gold accredited schools - 4 Silver accredited schools - 12 Bronze accredited schools <ul style="list-style-type: none"> • The work is ongoing. • Low reduction in emissions of Particulate Matter and Nitrogen Dioxide.
3.10	Assess the feasibility of Street Space measures around educational and health premises	KPI - Annual progress report Implement additional 3 school streets every year. Review of all schools to determine any potential measures to reduce traffic near schools to be undertaken completed before 2024.	<ul style="list-style-type: none"> • Six School Streets implemented in 2023. • Upgrade of streetspace outside Comber Grove Primary School complete. Plans in place to improve streetspace outside a number of other schools where timed closures are not feasible. • Review of all schools to determine any potential measures to reduce traffic near schools has been carried out and forms the basis of 2024/25 Highways Programme.

Action ID	Action	Outputs, Targets and KPIs	Progress <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
			<ul style="list-style-type: none"> • See Climate Change Action Plan G.4.iv ¹⁰ • Medium reduction in emissions of Particulate Matter and Nitrogen Dioxide.
3.11	To create school super zones in the Borough	Annual progress report KPI – Number of School Super zones in the Borough	<ul style="list-style-type: none"> • LBS has three superzones: Ark Walworth (created in 2022), St Francis (created in 2022) and Surrey Square (created in 2024). • Public Health has plans to create three more; these will be Bacons College, Keyworth and one more (to be decided). • Low to Medium reduction in emissions of Particulate Matter and Nitrogen Dioxide.
3.12	To create school walking maps for all schools in the Borough	Annual progress report KPI - Number of School Walking Maps in the Borough	<ul style="list-style-type: none"> • All Walking Maps are located here: www.southwark.gov.uk/school-walking-map • The maps are in alphabetical order per school. We have 50 maps in total, 25 maps produced in 22/23 and 25 maps in 23/24, this year. Further 25 maps will be made in 24/25. • The maps are offered to primary, SEN and nursery schools. The Highways team targets those in the high obesity/deprivation area first; then offer to those taking part in the timed school street closure programme and/or working towards their travel plan accreditation.

¹⁰ <https://www.southwark.gov.uk/assets/attach/128550/Climate-Change-Action-Plan-Accessible.pdf>

Action ID	Action	Outputs, Targets and KPIs	Progress <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
			<ul style="list-style-type: none"> • Low to Medium reduction in emissions of Particulate Matter and Nitrogen Dioxide.
3.13	Raising awareness about indoor air quality	<p>To produce a toolkit on domestic and commercial indoor air pollution and how to reduce personal exposure</p> <p>KPI - Indoor Air Quality toolkit produced</p>	<ul style="list-style-type: none"> • Joint applications for funding by the Central London Cluster Air Quality Group were unsuccessful so the project is waiting for funding. • Low to Medium reduction in emissions of Particulate Matter and Nitrogen Dioxide.
3.14	<p>Review the progress of recommendation 13 of the Chief Medical Officers report 2017</p> <p>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</p> <p>b) Public Health England should aggregate and analyse progress</p>	<p>KPI - Annual progress report</p> <p>Work with NHS to develop a method to analyse air quality and correlation with admission and outpatient presentation data for air pollution related conditions</p>	<ul style="list-style-type: none"> • Meeting held with ICS colleague working on climate change to discuss areas to collaborate. Actions to date include further introductions to NHS colleagues working on air pollution and climate change, and sharing relevant networks or pieces of work. • No emissions / concentrations benefits but critical in terms of understanding impacts of air pollution.

Action ID	Action	Outputs, Targets and KPIs	Progress <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
	annually for a national public report to NHS England		

LLAQM Action Matrix Theme - Delivery servicing and freight

Action ID	Action	Outputs, Targets and KPIs	<p style="text-align: center;">Progress</p> <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
4.1	Develop guidance to support procurements and contracts that impact air quality.	<p>Council approach to consider impacts of air quality in Southwark when procuring goods and services</p> <p>Develop guidance for all departments to consider the impact of their procurement on air quality in Southwark</p> <p>Air quality considerations included within the specification or terms of procurement or contracts as most appropriate</p> <p>Develop a robust monitoring process to review effectiveness of air quality guidance on the procurement process KPI - Guidance developed</p> <p>Report on the number of contracts with air quality criteria as a specification of the contract on an annual basis</p> <p>Review TfL report findings into fleet vehicle speed limiters and consider inclusion in Fleet procurement policy</p>	<ul style="list-style-type: none"> • The procurement guide is under development. • Low to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
4.2	Installing bookable permit only loading bays at pilot projects.	<p>Annual progress reporting</p> <p>KPI – Number of bookable permit holder only Loading Bays in the Borough</p>	<ul style="list-style-type: none"> • Trial in Bankside (Kerb dock) - involving two virtual loading bays to be booked by local operators with a potential to link up with river freight- ended in 2023. However, the bays have remained in place and bookable. An evaluation report, signed off by Impact On Urban Health. An executive summary with action plan based on the consultation of workshops was produced. Project page and links to the documents: https://gridsmartercities.com/kerb-dock-project/

Action ID	Action	Outputs, Targets and KPIs	<p style="text-align: center;">Progress</p> <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
			<ul style="list-style-type: none"> • Grid Smarter Cities have continued working with the Swan pub and operators in the area to see them use the bays at Bankside. <ul style="list-style-type: none"> • Project page and the links to the documents: https://gridsmartercities.com/kerbdock/ • Trial in Walworth LEN – five bookable loading bays and one associated virtual bay - started in January 2024. • Low to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
4.3	Explore with the Port of London Authority (PLA) the methods of control of shipping emissions and use of shipping to mitigate land based emissions	<p style="text-align: center;">Annual progress reporting</p> <p style="text-align: center;">KPI: Reduction in NO_x, PM₁₀ & PM_{2.5} emissions</p> <p>Review riverside hotspot indicated by LAEI and consider further actions</p> <p>Submit consultation response on any future revision of PLA Air Quality Strategy</p>	<ul style="list-style-type: none"> • The PLA published its first Air Quality Strategy (AQS) in 2018, later updated in 2020. It contains a 5-year action plan to reduce emissions across the PLA's jurisdiction. An action from the AQS is the monitoring of emissions on the Thames. An AQMesh sensor with two NO₂ diffusion tubes has been collecting data at Tower Pier. • Specific classes of vessel must be fitted with Thames AIS (Automatic Identification System). The data, collected by the PLA, can be used for boat emission estimation. Emissions are also tracked through PLA's Maritime Emissions Portal (MEP). <ul style="list-style-type: none"> • EPT awaiting a revised AQAP from the PLA. • Medium to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
4.4	Support and engagement with river and rail movement projects.	Participation in three projects associated with river freight	<ul style="list-style-type: none"> • LBS supported Cross River Partnership in their river freight trial at Bankside Pier, and have worked with them in applying the lessons of this trial and supporting the development of freight traffic on the Thames.

Action ID	Action	Outputs, Targets and KPIs	<p style="text-align: center;">Progress</p> <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
			<ul style="list-style-type: none"> • See Climate Change Action Plan I.2.ii ¹¹ • Medium to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
4.5	Reducing emissions from delivering to local businesses and residents	<p>Percentage increase in Ultra Low emission Vehicles in Southwark</p> <p>Monitor survey information from cargo bikes e.g. bikes from bikes for business. Support click and collect projects</p> <p>Use connections to businesses and markets to facilitate shorter supply and distribution chains KPI - Work with the Business Improvement Districts to understand best practice in supporting local supply chains and how this can be rolled out to other areas of the borough</p> <p>Develop and deliver a Sustainable Freight and Last Mile Delivery Hubs Plan by 2026 that prioritises areas of greatest need and potential Support businesses to switch to zero pollution delivery vehicles, working with them to shift more local deliveries to electric cargo bikes Support and engage in all available projects that increase the use of cargo bikes and e-cargo vehicles KPI - Number of projects that supported</p>	<ul style="list-style-type: none"> • Internal working group convened to progress cargo bike funding in Southwark. • Streets for People included the support for the increase use of low- and ultra low emission vehicles in freight and servicing. These are being developed as part of the forthcoming Freight Plan. • Monthly monitoring data from the four cargo bikes in Southwark were received and are available on request. • See Climate Change Action Plan S.3.i, S.3.ii, S.3.iii ¹² • Low to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.

¹¹ <https://www.southwark.gov.uk/assets/attach/128550/Climate-Change-Action-Plan-Accessible.pdf>

¹² As above

LLAQM Action Matrix Theme - Borough fleet

Action ID	Action	Outputs, Targets and KPIs	<p>Progress</p> <ul style="list-style-type: none"> Emissions/Concentration data <ul style="list-style-type: none"> Benefits Negative impacts / Complaints
5.1	Reducing emissions from Council Fleets (GLA mandatory action)	<p>Smarter Driver training for all fleet drivers KPI - All new drivers to receive training within six months of starting in Southwark</p> <p>Monitor the mileage and fuel use reports passed to Business Unit Managers KPI - Reduce the fossil fuel usage by 10% per year</p> <p>Every commercial vehicle procured to undergo full sustainability evaluation Climate Change Action Plan K.3.i KPI - Reduction of fossil fuel combustion vehicles in accordance with targets in the fleet strategy</p> <p>KPI - Proportion of vehicles within the Fleet that are electric, hydrogen, or hybrid.</p> <p>Fleet Strategy to promote sustainable travel KPI - Monitor and report on the EVCP at Tooley Street and Queens Road monthly</p> <p>Review of services to determine if activities can be replaced with e-bike or cargo bike.</p> <p>Identify new locations as part of EV strategy Design and implement a strategic plan to trial low emissions vehicles into the LGV/HGV fleet (including waste and highways)</p>	<ul style="list-style-type: none"> Fleet services started meetings with Business unit managers regarding the next procurement of fleet whilst going through mileage reports/ major repairs reports and seeing where possible to reduce fleet or change to EV. Fleet Services held meetings with all Business unit managers to discuss requirements and also explain the need for reduction of emissions within the next Fleet vehicles. EVCPs at Queens Road and Tooley Street are monitored for usage data. See Climate Change Action Plan K.3.i, K.3.ii, K.3.iii ¹³ Medium to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.

¹³ <https://www.southwark.gov.uk/assets/attach/128550/Climate-Change-Action-Plan-Accessible.pdf>

LLAQM Action Matrix Theme - Localised solutions

Action ID	Action	Outputs, Targets and KPIs	Progress <ul style="list-style-type: none"> • Emissions/Concentration data • Benefits • Negative impacts / Complaints
6.1	Green infrastructure	<p>Monitoring and reporting of the impact of Green Infrastructure projects. KPI - Number of Green Infrastructure projects implemented by Southwark during the year</p> <p>Identify potential green corridors between key green spaces/Sites of Importance for Nature Conservation</p> <p>KPI - Review definition of green corridors within the early review of New Southwark Plan and consult on including within formal planning policy</p>	<ul style="list-style-type: none"> • This information has been requested and is pending. • A Diversity Net Gain is a new target that LBS can start reporting on under the Green Infrastructure KPI. <ul style="list-style-type: none"> • See Climate Change Action Plan V.2.i ¹⁴ • Low reduction in emissions of Particulate Matter and Nitrogen Dioxide.
6.2	Street Space Measures	<p>Complete the MAQF Low Emission Neighbourhood scheme in the Walworth Area</p> <p>Explore the opportunities to introduce further Streetspace Measures in Southwark when funding is available</p> <p>KPI - Review the 10 Streetspace Measures over the next 18 months</p>	<ul style="list-style-type: none"> • Low Emission Neighbourhood scheme in Walworth has been completed. <ul style="list-style-type: none"> • Based on community input, LBS adopted a comprehensive “Streets for People” strategy to improve street space measures. • See Climate Change Action Plan F.1.iv ¹⁵ • Low to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
6.3	Explore the feasibility with the Environment Agency to stop issuing D7 waste exemption:	KPI - Annual Reporting on progress	<ul style="list-style-type: none"> • The action has been achieved. The EP team will report the findings to the AQAP Steering Group.

¹⁴ <https://www.southwark.gov.uk/assets/attach/128550/Climate-Change-Action-Plan-Accessible.pdf>

¹⁵ As above

Action ID	Action	Outputs, Targets and KPIs	Progress <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
	burning waste in the open registration.		<ul style="list-style-type: none"> • Low reduction in emissions of Particulate Matter and Nitrogen Dioxide.
6.4	To lobby the Central Government and the GLA for policy changes to improve air quality in Southwark	<p>KPI - Annual Reporting on progress</p> <p>Create evidence base for case to TfL for reducing emissions from buses. To include mapping all major traffic derived pollution areas including bus stops/interchanges.</p>	<ul style="list-style-type: none"> • A study was commissioned by EPT and Highways to assess the contribution of bus emissions to total pollutant concentrations in Southwark. At locations where the modelled annual average NO₂ objective is exceeded, buses may contribute to less than 10% of the total NO_x, as seen along Old Kent Road. In contrast, at Elephant Square and St. George's Circus, buses can be responsible for over 40% of total NO_x. This highlights key areas where improving bus infrastructure would result in tangible improvements to air quality. • See Climate Change Action Plan H.1.i and H.1.iv ¹⁶ • Low to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
6.5	Apply for Mayor's Air Quality Funds and Defra Air Quality Grant to deliver air quality projects in Southwark	KPI - Annual Reporting on progress and project reports.	<ul style="list-style-type: none"> • Defra withdrew the Air Quality grant 2023/24. • When the application window opened for MAQF bids in November 2023 LBS prepared and submitted an application for a school project involving air quality monitoring and engagement for students suffering from asthma. The bid was successful, and the project will commence in 2024. • Low reduction in emissions of Particulate Matter and Nitrogen Dioxide.

¹⁶ <https://www.southwark.gov.uk/assets/attach/128550/Climate-Change-Action-Plan-Accessible.pdf>

Action ID	Action	Outputs, Targets and KPIs	Progress <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
6.6	To align the measures in Southwark's Climate Strategy and this action plan	KPI - Alignment of Councils strategies and Plans	<ul style="list-style-type: none"> • A number of actions in the Climate Change and Air Quality Plans were aligned and plans are under way to ensure updates to both plan take place concurrently. • Strategies (Streets for People, Walking Plan and Cycling Plan) were aligned. • Low to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.

LLAQM Action Matrix Theme - Cleaner transport

Action ID	Action	Outputs, Targets and KPIs	Progress <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
7.1	Transport and air quality policies and projects are integrated	KPI - The number of Healthy Streets projects delivered during the year KPI - The number of walking and cycling infrastructure projects delivered during the year	<ul style="list-style-type: none"> • The number of Healthy Streets implemented is four: Cycleway 4 (Lower Road), Sydenham Hill 20mph, Southwark Spine (P4) and Browning Street. • All Highways schemes are set up to improve walking or cycling or both. Highways implemented 24 projects aimed at improving walking/cycling. • Low to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
7.2	Discouraging unnecessary idling by taxis and other vehicles	KPI - Percentage of drivers complying with requests from Civil Enforcements Officers to switch the vehicle's engine off KPI - Respond to consultations on Public Carriage Vehicles KPI - Lobby Government on strengthening idling legislation	<ul style="list-style-type: none"> • Civil enforcement ceased in 2023 due to concerns about legality of anti-idling signage. • Low reduction in emissions of Particulate Matter and Nitrogen Dioxide.
7.3	Regular temporary car free days and pedestrianisation schemes in line with proposal 4.2.1a of the London Environment Strategy	KPI - Undertake 8 car free events. KPI - Number of new controlled pedestrian crossings (annual target) – 5 per year KPI - Number of level access/dropped kerb uncontrolled pedestrian crossings installed (annual target)	<ul style="list-style-type: none"> • Car free events organised in 2023 were: Mums for Lungs Carnival of Clean Air; Comber Grove school event; Ewer Street Event; St Barnabas Church Christmas procession. Car free events will continue into 2024. • Highways installed 7 controlled pedestrian crossings during the 23/24. • Information on the number of uncontrolled pedestrian crossings was requested and is pending.

Action ID	Action	Outputs, Targets and KPIs	Progress <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
			<ul style="list-style-type: none"> • Low reduction in emissions of Particulate Matter and Nitrogen Dioxide.
7.4	Support the London Mayor to extend the Ultra-Low Emission Zone to the current LEZ boundary	KPI - Support implementation of ULEZ extension KPI - Respond to consultations on road charging.	<ul style="list-style-type: none"> • LBS was in support of the ULEZ expansion beyond the South Circular; the ULEZ was expanded on 29 August 2023. • There has been no consultation on road charging. • Low to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
7.5	Using parking policy to reduce pollution emissions	Implement borough-wide controlled Parking regime KPI - Coverage of 94% of the Borough by 2025	<ul style="list-style-type: none"> • LBS parking policy can be found in the Streets for People Policy: <ul style="list-style-type: none"> • <u>Streets for People - Southwark Council</u> • Borough-wide Controlled Parking Zones are planned for 2030 or sooner. <ul style="list-style-type: none"> • See Climate Change Action Plan G.4.iii ¹⁷ • Low to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
7.6	Installation of ultra – low emission vehicle infrastructure charging points	KPI - Percentage of electric vehicles registered in Southwark KPI - Install a further 1000 Electric Vehicle charging points in Southwark by 2026	<ul style="list-style-type: none"> • 1000 EV charge points were fully delivered in 2022/23. LBS new EV plan discusses other EV infrastructure needed to enable higher adoption rates of EV vehicles by residents.

¹⁷ <https://www.southwark.gov.uk/assets/attach/128550/Climate-Change-Action-Plan-Accessible.pdf>

Action ID	Action	Outputs, Targets and KPIs	Progress <ul style="list-style-type: none"> • Emissions/Concentration data <ul style="list-style-type: none"> • Benefits • Negative impacts / Complaints
		KPI - Implement a borough-wide strategy for EV infrastructure by 2023	<ul style="list-style-type: none"> • Low to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
7.7	Provision of infrastructure to support walking and cycling (GLA mandatory action)	<p>KPI - At least 1 kilometre of new segregated cycle lane installed every year</p> <p>KPI - Number of new cycle-hire docking stations in the Borough</p> <p>Improve access to walking in the borough and actively promote this as a zero-carbon method of transport</p> <p>Deliver the Equal Pavements Pledge, working with older people, those with disabilities and limited mobility to make sure Southwark's streets are accessible for everyone</p> <p>KPI - Number of Equal Pavement Pledge projects associated with improving walking</p> <p>Provide free cycle training for residents, including for young people, those with disabilities and cargo bike training</p>	<ul style="list-style-type: none"> • 1.3 km delivered under the Lower Road (C4) scheme. <ul style="list-style-type: none"> • No new cycle-hire docking stations has been implemented in 2023. • Cycling Plan consulted on, consultation closed 31st January 2024. Adoption planned for July 2024. • Request for more KPI statistics has been sent and the information is pending. • See Climate Change Action Plan F.1.i, F.1.ii, F.1.iv, F.1.vi ¹⁸ • Low to High reduction in emissions of Particulate Matter and Nitrogen Dioxide.
7.8	Review ability for bus lanes on borough roads to be used by non-emergency ambulances for patient transport.	KPI - Annual report of progress	<ul style="list-style-type: none"> • LBS decided not to take part in the Non-Emergency Bus Lane trial that took place as there was no sufficient evidence on the benefits of the trial to support the proposal. From an air quality perspective the concern was that the scheme would increase congestion in the bus lane. <ul style="list-style-type: none"> • Measure complete.

¹⁸ <https://www.southwark.gov.uk/assets/attach/128550/Climate-Change-Action-Plan-Accessible.pdf>

3 Planning Update and Other New Sources of Emissions

Table Q - Planning requirements met by planning applications Southwark Council in 2023

Condition	Number
Number of planning applications where an air quality impact assessment was reviewed for air quality impacts	36 (Returns records in the Planning database where an Air Quality Assessment was submitted as part of the application)
Number of planning applications required to monitor for construction dust	29 (Returns records in the Planning database where permission has been granted subject to a dust monitoring condition)
Number of CHP/Biomass boilers refused on air quality grounds	0 (Returns records in the Planning database where the proposal description contains 'CHP', 'heat', 'power' or 'biomass' and permission was refused citing air quality as a reason)
Number of CHPs/Biomass boilers subject to GLA emissions limits and/or other restrictions to reduce emissions	0 (Returns records in the Planning database where the proposal description contains 'CHP', 'heat', 'power' or 'biomass' and permission was granted subject to a condition containing the words 'reduce' and 'emission')
Number of developments required to install Ultra-Low NO _x boilers	2 (Returns records in the Planning database where the proposal description contains 'CHP', 'heat', 'power' or 'biomass' and permission was granted subject to a condition containing the words 'low', 'nox' and 'boiler')
Number of developments where an AQ Neutral building and/or transport assessments undertaken	15
Number of developments where the AQ Neutral building and/or transport assessments not meeting the benchmark and so required to include additional mitigation	1
Number of planning applications with S106 agreements including other requirements to improve air quality	There were no S106 deeds signed in 2023 which contain a specific air quality contribution. However, there were 3 schemes that had

	their S106 deed signed in the 2023 with a CEMP.
Number of planning applications with CIL payments that include a contribution to improve air quality	0
<p>NRMM: Central Activity Zone , Canary Wharf and Opportunity Areas Number of conditions related to NRMM included.</p> <p>Number of developments registered and compliant. Number of audits % of sites unregistered prior to audit 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.</p>	<p>13 (Returns records in the Planning database where site constraints shows it to be within the CAZ and permission was granted subject to a condition containing 'NRMM')</p> <p>16 11 1 (6%) The NRMM website is used to confirm the development has been registered with the GLA.</p>
<p>NRMM: Greater London (excluding Central Activity Zone, Canary Wharf and Opportunity Areas) Number of conditions related to NRMM included.</p> <p>Number of developments registered and compliant. Number of audits % of sites unregistered prior to audit 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.</p>	<p>32 (Returns records in the Planning database where site constraints shows it to be NOT within the CAZ and permission was granted subject to a condition containing 'NRMM')</p> <p>19 10 2 (9%) The NRMM website is used to confirm the development has been registered with the GLA</p>

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 Q**. 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

Amended sources of significance identified in the Borough during 2023 were the following:

Amended Source	Details
<p>Veolia ES Southwark Limited Clements Road Bermondsey London SE16 4DW</p> <p>Grid Reference 534443, 179140</p>	<p>Permit number: EPR/RP3028SH To operate a medium combustion plant - Three 5.86 MWth (rated thermal input) boilers</p>
<p>Land Securities Group PLC The Forge The Phosphor Building 133 Park Street Southwark London SE1 9EA</p> <p>Grid Reference 532253, 180389</p>	<p>Permit number: EPR/AP3722SR To operate a back – up generator of 1.83 MWth (rated thermal input)</p>
<p>PricewaterhouseCoopers Services 7 More London London SE1 2RT</p> <p>Grid Reference 533266, 180158</p>	<p>Permit number: EPR/RB3399YL To operate two Combined Heat Power 0.693 MWth (rated thermal input) units</p>

4. Additional Activities to Improve Air Quality

4.1 London Borough of Southwark Fleet Replacement Strategy

Southwark has a policy of reviewing its fleet, and replacing vehicles with electric where possible. Southwark Council's Fleet Replacement Strategy is under development. This work includes the development of a robust vehicle selection process and criteria to establish the needed commercial fleet. Southwark's fleet consists of 330 vehicles, which includes 18 electric and 7 hybrid, 5% and 2% of the total respectively¹⁹. 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.

LBS have a construction condition (for a Construction Environmental Management Plan - CEMP) that goes on any major applications. That condition requires a CEMP that will include air quality / dust control measures and NRMM commitment. CEMP documents submitted to the LPA will be shared with Environmental Health for review and comments. Requirements for NRMM are also set out within the Construction guidance²⁰.

The wording of LBS CEMP condition is copied below. This condition is applied at planning application stage to go onto the decision notice. LBS also have CEMP / DEMP conditions for s106 agreements. It applies to all Major sites, and also any Minor sites where officers consider there to be a large impact from construction works and/or very sensitive receptors.

¹⁹ <https://moderngov.southwark.gov.uk/documents/s116747/Report%20GW0%20-%20Commercial%20Fleet%20Services.pdf>

²⁰ <https://www.southwark.gov.uk/environment/environmental-protection/construction>

No development shall take place, including any works of demolition, until a written CEMP has been submitted to and approved in writing by the Local Planning Authority. The CEMP shall oblige the applicant, developer and contractors to commit to current best practice with regard to construction site management and to use all best endeavours to minimise off-site impacts, and will include the following information:

- A detailed specification of demolition and construction works at each phase of development including consideration of all environmental impacts and the identified remedial measures;
- Site perimeter continuous automated noise, dust and vibration monitoring;
- Engineering measures to eliminate or mitigate identified environmental impacts e.g. hoarding height and density, acoustic screening, sound insulation, dust control measures, emission reduction measures, location of specific activities on site, etc.;
- Arrangements for a direct and responsive site management contact for nearby occupiers during demolition and/or construction (signage on hoardings, newsletters, residents liaison meetings, etc.)
- A commitment to adopt and implement of the ICE Demolition Protocol and Considerate Contractor Scheme; Site traffic – Routing of in-bound and outbound site traffic, one-way site traffic arrangements on site, location of lay off areas, etc.;
- Site waste Management – Accurate waste stream identification, separation, storage, registered waste carriers for transportation and disposal at appropriate destinations.
- A commitment that all NRMM equipment (37 kW and 560 kW) shall be registered on the NRMM register and meets the standard as stipulated by the Mayor of London

To follow current best construction practice, including the following:-

- Southwark Council's Technical Guide for Demolition & Construction at <http://www.southwark.gov.uk/construction>
- Section 61 of Control of Pollution Act 1974,
- The London Mayors Supplementary Planning Guidance 'The Control of Dust and Emissions During Construction and Demolition',
- The Institute of Air Quality Management's 'Guidance on the Assessment of Dust from Demolition and Construction' and 'Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites',
- BS 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites. Noise',
- BS 5228-2:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites. Vibration'
- BS 7385-2:1993 Evaluation and measurement for vibration in buildings. Guide to damage levels from ground-borne vibration,
- BS 6472-1:2008 'Guide to evaluation of human exposure to vibration in buildings - vibration sources other than blasting,

- Relevant Stage emission standards to comply with Non-Road Mobile Machinery (Emission of Gaseous and Particulate Pollutants) Regulations 1999 as amended & NRMM London emission standards <http://nrmm.london/>

All demolition and construction work shall be undertaken in strict accordance with the approved CEMP and other relevant codes of practice, unless otherwise agreed in writing by the Local Planning Authority.

Reason

To ensure that occupiers of neighbouring premises and the wider environment do not suffer a loss of amenity by reason of pollution and nuisance, in accordance with the Southwark Plan 2022 Policy P56 (Protection of amenity), and the National Planning Policy Framework 2021.

4.3 Air Quality Alerts

We continue to support the airTEXT notification system. Southwark has continued with 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 is ratified in accordance with 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.

PM₁₀ Monitoring Adjustment

Ratified data would have been corrected by the data management team at Imperial College London by dividing the data by a slope correction factor of 1.035.

A.2 Diffusion Tubes

Diffusion Tube Bias Adjustment Factors

Appendix B presents the Southwark network's raw monthly results .

A national bias adjustment factor was obtained from Defra national bias adjustment factor database (spreadsheet version number 03/24 published in March 2024) based on 23 co-location studies. The bias adjustment factor given for this methodology was 0.81, and was applied to the results presented in section 1.2 of this report.

The Authority incorporates two local co-location diffusion tube studies, by exposing triplicate tubes at two 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 a combined local bias adjustment factor of 0.77 derived from the two co-location studies (**Table O**). However this factor was not used to adjust the results – see the Discussion of Choice of Factor to Use section below.

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.

Laboratories participate in two QA/QC schemes. The new Air Proficiency Testing (AIR-PT) Scheme - a continuation of the Workplace Analysis Scheme for Proficiency (WASP) - is run by LGC and supported by the Health & Safety Laboratory. The other scheme is a monthly field Inter-comparison Exercise operated by the National Physics Laboratory (NPL). Defra advises that local authorities should use diffusion tubes supplied by laboratories that have demonstrated satisfactory performance under the QA/QC schemes.

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.

Gradko International is a UKAS accredited laboratory and participates in both QA/QC schemes described above. The list of those laboratories which have performed satisfactorily in the AIR-PT scheme is provided to local authorities on the LAQM Support website²¹. In the latest available AIR-PT results Gradko has scored 100% in rounds AR055 (January to February 2023), AR056 (May to June 2023), AR058 (July to August 2023) and AR059 (September to October 2023).

²¹ https://laqm.defra.gov.uk/wp-content/uploads/2023/11/LAQM-NO2-Performance-data_Up-to-Oct-2023_V1_Final.pdf

The percentage score reflects the results deemed to be satisfactory based upon the z-score of $< \pm 2$.

Regarding the inter-comparison co-location study from Marylebone Road, it was rated as 'good' (tubes are considered to have "good" precision where the coefficient of variation of duplicate or triplicate diffusion tubes for eight or more periods during the year is less than 20%). Precision Summary Results for the laboratory for the last three years can be found on the LAQM Support website²².

A.3 Breathe London Sensors

Details of the QA/QC procedures for Breathe London sensors can be obtained from Imperial College. The website for the network states the following "Every Breathe London Node is co-located at London Air reference sites and checked by researchers at Imperial before deployment. Once deployed, the data is continually cross-checked against reference sites on the London Network in real-time to ensure the data from every sensor is as good as it can be"²³.

²² <https://laqm.defra.gov.uk/air-quality/air-quality-assessment/precision-and-accuracy/>

²³

<https://www.breathelondon.org/about#:~:text=Every%20Breathe%20London%20Node%20is%20co%20located%20at%20London%20Air,good%20as%20it%20can%20be.>

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 R** below is an extract from the from the LAQM Diffusion Tube Data Processing Tool v4.0 accessed at [Diffusion Tube Data Processing Tool | LAQM \(defra.gov.uk\)](https://diffusion-tube-data-processing-tool.laqm.defra.gov.uk/) showing the local bias co-location studies.

Table R - Factors from Local Co-location Studies

	STEP 3a Local Bias Adjustment Input 1	STEP 3b Local Bias Adjustment Input 2	STEP 3c Local Bias Adjustment Input 3	STEP 3d Local Bias Adjustment Input 4	STEP 3e Local Bias Adjustment Input 5	STEP 3f Local Bias Adjustment Input 6	STEP 3g Local Bias Adjustment Input 7
Periods used to calculate bias	12	9					
Bias Adjustment Factor A	0.78 (0.69 - 0.89)	0.76 (0.65 - 0.91)					
Diffusion Tube Bias B	29% (13% - 45%)	32% (10% - 53%)					
Diffusion Tube Mean ($\mu\text{g}/\text{m}^3$)	31.2	25.8					
Mean CV (Precision)	3.9%	4.6%					
Automatic Mean ($\mu\text{g}/\text{m}^3$)	24.2	19.6					
Data Capture	97%	93%					
Adjusted Tube Mean ($\mu\text{g}/\text{m}^3$)	24 (22 - 28)	20 (17 - 23)					
Overall Diffusion Tube Precision	Good Overall Precision	Good Overall Precision					
Overall Continuous Monitor Data Capture	Good Overall Data Capture	Poor Overall Data Capture					
Combined Local Bias Adjustment Factor	0.77	Warning - One or more Co-location studies has Poor Overall Continuous Monitor Data Capture (i.e. <90%). Local Bias Adjustment Factor should be treated with caution.					

Discussion of Choice of Factor to Use

The diffusion tube data presented within the 2023 ASR have been corrected for bias using an adjustment factor (**Table S**). Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LLAQM.TG19 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO₂ continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

The combined local bias factor has been calculated at 0.77 using DEFRA NO₂ data processing tool. However, given that data capture for Elephant & Castle was below 90%, Southwark has used the national database co-location factor of 0.81 in this report, as it provides a higher degree of certainty. This is also a more conservative factor.

Table S - Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	National	03/24	0.81
2022	Local	N/A	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.4 Adjustments to the Ratified Monitoring Data

Short-term to Long-term Data Adjustment (annualisation)

Where data capture is less than 75% and greater than 25% 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.

The short to long term data adjustment has been undertaken for the diffusion tube monitoring site SDT162 at Harris East Dulwich Primary School, which closed down in April 2023. The calculations presented in **Table T** were carried out using the Diffusion Tube Data Processing Tool²⁴ in line with LAQM Technical Guidance LLAQM Guidance TG(19) Box 4.3.

Regarding continuous data, annualisation, in line with Box 4.2 of LLAQM TG(19), was applied to PM₁₀ results for site SK6 Elephant and Castle. Details are provided in **Table U**.

Distance Adjustment

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

Distance correction should be considered at any monitoring site where the annual mean concentration is greater than 36µg.m⁻³ and the monitoring site is not located at a point of relevant exposure (taking into account the limitations of the Data Processing Tool/NO₂ fall-off with distance calculator).

Southwark Diffusion tube data was distance adjusted using the Diffusion Tube Data Processing Tool²⁵. The data is provided in **Table V** below.

²⁴ [Diffusion Tube Data Processing Tool | LAQM \(defra.gov.uk\)](#)

²⁵ [Diffusion Tube Data Processing Tool | LAQM \(defra.gov.uk\)](#)

Nitrogen Dioxide

Table T - Short-Term to Long-Term Monitoring Data Adjustment of Southwark Nitrogen Dioxide Diffusion Data

Diffusion Tube ID	Annualisation Factor London Bloomsbury	Annualisation Factor London Westminster	Annualisation Factor Lewisham Deptford	Annualisation Factor Westminster Covent Garden	Average Annualisation Factor	Raw Data Simple Annual Mean ($\mu\text{g.m}^{-3}$)	Annualised Data Simple Annual Mean ($\mu\text{g.m}^{-3}$)
SDT 162	0.7537	0.7691	0.7170	0.7700	0.7525	29.4	22.1

Particulate Matter PM₁₀

Table U - Short-Term to Long-Term Monitoring Data Adjustment of Southwark Continuous Monitoring data – PM₁₀

Site ID	Annualisation Factor London Bloomsbury	Annualisation Factor London N. Kensington	Annualisation Factor London Honor Oak Park	Annualisation Factor Tower Hamlets Jubilee Park	Annualisation Factor Southwark - Elephant & Castle	Average Annualisation Factor	Raw Data Simple Annual Mean ($\mu\text{g.m}^{-3}$)	Annualised Data Simple Annual Mean ($\mu\text{g.m}^{-3}$)
SK6	1.04	1.07	1.06	1.04	1.04	1.05	21.3	22.3

Table V - NO₂ Fall off With Distance Calculations

Diffusion Tube ID	Distance (m)		NO ₂ Annual Mean Concentration ($\mu\text{g.m}^{-3}$)			Comment
	Monitoring Site to Kerb	Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted ($\mu\text{g m}^{-3}$))	Background Concentration ($\mu\text{g m}^{-3}$)	Concentration Predicted at Receptor ($\mu\text{g m}^{-3}$)	
SDT 18	0.5	3.5	41.6	34.6	39.2	Predicted concentration at receptor within 10% of the AQS objective
SDT 24	0.5	3.5	38.8	28.2	35.2	
SDT 29	0.5	2.5	37.2	28.2	34.6	
SDT 81	0.5	3.5	39.1	34.7	37.6	Predicted concentration at receptor within 10% the AQS objective
SDT 87	0.5	3.5	37.4	22.6	32.3	
SDT 104	0.5	15.5	36.4	26.3	30.3	
SDT 113	0.5	7.5	36.4	30.0	33.4	

Appendix B Full Monthly Diffusion Tube Results for 2023

Table W - NO₂ 2023 Diffusion Tube Results (µg.m⁻³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (National Bias = 0.81)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
SDT 1	534849	177512	38.3	37.6	31.5	33.4	33.2	32.0	25.7	26.1	28.2	30.0	31.4	22.8	-	-		Triplicate Site with SDT 1, SDT 2 and SDT 3 - Annual data provided for SDT 3 only
SDT 2	534849	177512	40.2	40.6	29.9	33.2	34.9	33.7	25.3	27.9	29.8	30.8	32.2	21.9	-	-		Triplicate Site with SDT 1, SDT 2 and SDT 3 - Annual data provided for SDT 3 only
SDT 3	534849	177512	36.1	39.2	30.7	34.6	34.8	32.6	21.1	26.6	30.5	31.1	30.4	24.2	31.2	25.2		Triplicate Site with SDT 1, SDT 2 and SDT 3 - Annual data provided for SDT 3 only
SDT 4	535675	178796	39.9	43.1	35.0	40.8	38.0	40.2	28.6	32.5	40.1	39.4	39.1	26.1	36.9	29.9		
SDT 5	534640	179336	35.7	34.7	26.2	21.7	18.7	17.9	15.9	19.8	25.6	26.1	22.3	20.3	23.7	19.2		
SDT 6	535253	176679	38.9		36.4	38.0	36.0	33.6	28.6	30.5	39.4	39.2	38.3	28.8	35.2	28.6		
SDT 7	534333	176155	35.4	34.2	26.1	29.0	27.6	31.0	17.6	24.9	28.2	30.4	33.5	22.4	28.4	23.0		
SDT 8	534553	174263	31.6	30.5	20.9	22.3	21.0	17.9	11.6	16.9	19.7	22.5	27.0	16.9	21.6	17.5		
SDT 9	533470	173204	37.8	40.7	34.4	36.3	32.8	34.2	24.5	25.9	39.9	36.0	34.8	22.6	33.3	27.0		
SDT 10	532940	174392	32.9	29.5	22.7	23.1	23.3	23.2	14.4	19.3	21.6	21.9	26.7	18.4	23.1	18.7		
SDT 11	532663	176740	46.0	48.4	41.8	49.0	48.7	47.3	31.5	39.0	43.3	43.1	40.2	30.2	42.4	34.3		
SDT 12	531884	178836	36.6	35.4	26.3	26.2	23.2	22.8	18.0	21.7	26.8	30.5	39.6	25.8	-	-		Triplicate Site with SDT 12, SDT 13 and SDT 14 - Annual data provided for SDT 14 only
SDT 13	531884	178836	38.0	34.6	26.1	26.2	23.1	19.0	17.4	25.9	24.4	30.6	32.1	22.9	-	-		Triplicate Site with SDT 12, SDT 13 and SDT 14 - Annual data provided for SDT 14 only
SDT 14	531884	178836	36.1	35.6	26.7	25.8	21.9	20.9	16.6	21.1	24.7	28.9	33.3	23.2	26.9	21.8		Triplicate Site with SDT 12, SDT 13 and SDT 14 - Annual data provided for SDT 14 only
SDT 15	531641	180290	45.5	47.4	34.4	43.9	26.8	28.8	38.7	27.3	30.7	39.3	42.7	35.0	36.7	29.7		
SDT 18	533599	180062	51.6	56.3	52.3	51.7	51.1	55.2	47.8	48.1	57.8	55.9	49.8	38.5	51.3	41.6	39.2	
SDT 20	533520	179849	39.6	45.1	38.8	41.2	42.0	39.8	46.0	25.3	38.5	40.4	37.7	28.3	38.6	31.2		
SDT 24	533444	179620	55.0	56.9	50.6	42.0	45.0	42.5		44.1	54.5	44.9	44.3	47.2	47.9	38.8	35.2	
SDT 29	533105	179117	52.2	54.7	46.8	45.0	44.9		39.2	40.0	43.1	47.9	50.1	41.0	45.9	37.2	34.6	
SDT 31	532937	179043	34.1	42.9	34.2	35.1	31.6	30.1	26.7	32.1	38.4	41.4	39.7	28.9	34.6	28.0		
SDT 37	532340	178711	34.3	35.3		27.0	30.0	26.7	14.3	18.9	21.9	27.3	31.0	21.6	26.2	21.2		
SDT 38	532074	178825	47.1	47.6	38.7	30.2	36.6	35.8	34.1	36.7	41.6	50.0	45.6	38.0	40.2	32.5		
SDT 39	532053	179070	41.7	45.5	33.1	30.2	27.8	25.7	25.0	26.8	30.2	37.0	40.8	30.8	32.9	26.6		
SDT 41	532390	178974	43.8	46.4	42.0	43.6	30.2	36.2	30.6	35.0	38.1	42.5	44.3	31.7	38.7	31.3		
SDT 42	536037	180341	41.0	44.9	31.3	30.2	26.5	26.1	26.2	27.2	37.3	37.8	39.2	28.9	33.0	26.8		
SDT 48	533912	171366	44.7	37.4	33.2	32.8	27.9	32.8	32.5	32.5	37.6	35.7	37.0	27.6	34.3	27.8		

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (National Bias = 0.81)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
SDT 49	533873	178592	32.3	33.2	24.0	22.1	18.4	18.4		18.5	22.4	22.6	28.0	21.0	23.7	19.2		
SDT 52	533150	172123	24.0	27.8	19.1	17.0	16.0	14.2	11.7	15.7	19.6	21.2	26.1	15.3	19.0	15.4		
SDT 53	532668	173998	27.6	26.1	18.6	17.0	15.5	15.2	10.6	13.3	15.8	18.3	24.9	15.2	18.2	14.7		
SDT 54	532951	176417	33.7	33.5	25.0	21.9	17.0	17.0	15.1	19.0	23.0	25.8	30.4	21.7	23.6	19.1		
SDT 55	533350	177603	31.7		21.2	20.8	16.5	15.2	10.5	15.8	18.8	20.4	24.3	15.8	19.2	15.5		
SDT 57	531531	179256	34.1	39.3	28.2	31.3	28.4	27.6	18.9	24.5	28.7	33.8	33.2	24.8	29.4	23.8		
SDT 61	535176	179665	34.2	37.7	26.4	28.5	23.4	24.6	22.0	25.9	32.4	33.0	34.0	24.1	28.8	23.4		
SDT 66	535384	179161	31.0	35.2	27.1	29.8	26.0	25.7	15.8	22.2	28.1	27.2	29.9	20.6	26.6	21.5		
SDT 77	532294	180406	47.4	45.1		30.3	27.8	29.0	24.1	28.7	33.9	39.2	36.8	35.0	34.3	27.8		
SDT 81	532690	180212	53.3	56.5	47.5	57.8	55.5	52.7	25.0	45.8	50.2	48.7	47.6	39.3	48.3	39.1	37.6	
SDT 82	532572	180029	43.0		41.4	42.9	34.9	38.3	36.3	34.3	41.0	45.1	40.4	33.9	39.2	31.8		
SDT 84	532487	179850	44.3	43.5	35.8	32.6	28.2	32.3	30.2	27.9	34.6	36.1	35.9	26.5	34.0	27.5		
SDT 87	535795	178828	48.5	51.3	42.9	40.7	39.9	51.2	49.3	46.2		51.8	49.3	37.1	46.2	37.4	32.3	
SDT 88	534457	179454	46.1	50.4	40.0	36.9	33.9	33.4	36.2	36.5	45.0	48.3	41.9	32.8	40.1	32.5		
SDT 89	534241	179435	38.4	38.3	30.8	34.7		32.4	19.5	28.4	32.8	32.3	35.4	21.3	31.3	25.3		
SDT 90	533800	178220	47.2	28.9	43.7	46.1	47.7	46.3	29.1	38.9	45.6	45.3	46.6	29.4	41.2	33.4		
SDT 91	533379	178556	45.6	45.2	38.3	46.2	45.0	43.3	28.6	35.5	39.1	39.3		28.8	39.5	32.0		
SDT 92	535222	178032	37.8	41.8	31.9	34.4	34.3	33.2	22.0	30.1	36.1	35.6	34.9	24.9	33.1	26.8		
SDT 93	534243	176558	44.4	46.4	39.7	41.5	39.2	38.6	36.4	40.6	46.0	45.7	33.5	40.1	41.0	33.2		
SDT 95	533700	173892	26.9	26.2	16.9	16.0	14.4	13.4	9.3	13.9	15.6	18.2	22.3	14.4	17.3	14.0		
SDT 97	533940	173998	35.7	35.0	27.5	25.9	22.0	23.8	23.4	27.9	31.4	31.4	32.9	24.1	28.4	23.0		
SDT 98	534503	173251	44.5	46.3	35.0	38.3	33.9	34.2	28.4	33.8	39.8	36.5	41.1	29.5	36.8	29.8		
SDT 100	533159	174191	26.6	24.8	17.2	15.3	13.9	13.8	10.5	14.2	16.4	19.6	23.8	15.4	17.6	14.3		
SDT 101	532303	174756	34.2	31.3	25.0	25.6	22.7	24.1	18.2	22.1	30.3	29.4	31.7	22.2	26.4	21.4		
SDT 102	532599	176277	37.3	35.7	28.3	26.9	23.8	23.3	18.9	22.6	27.1	29.5	32.3	22.0	27.3	22.1		
SDT 103	532471	176388	36.7	40.9	31.9	29.0	28.8		23.2	25.1	28.5	30.3	35.7	28.0	30.7	24.9		
SDT 104	531835	178686	45.6	55.1	47.5	49.5	45.3	41.2	34.4	38.9	49.2	51.5	46.5	34.9	45.0	36.4	30.3	
SDT 105	533592	176851	37.2	36.6	27.4	26.7	26.0	25.9	24.5	25.8	35.2	36.6	33.7	26.2	30.1	24.4		
SDT 106	532409	177597	45.4	49.7	42.8	41.3	42.7	38.6	30.9	35.7	41.5	46.1	44.4	37.5	41.4	33.5		
SDT 107	532426	178051	35.9	36.6	28.1	29.8	26.0	25.2	20.1	24.8	29.3	34.5	35.0	26.6	29.3	23.7		
SDT 111	532294	178354	41.7	43.2	33.7	35.8	31.6	31.5	22.2	31.0	34.7	40.3	41.8	28.2	34.6	28.1		
SDT 112	531621	179112	31.3	31.3	21.3	21.2	17.7	17.3	12.0	17.1	19.4	24.4	27.3	18.1	21.5	17.4		
SDT 113	531481	179421	44.4	49.8	45.8	34.7	34.8	44.3		41.3	56.7	52.1	46.6	44.4	45.0	36.4	33.4	
SDT 114	533799	175324	34.1	33.9	28.0	25.0	22.0	19.9	17.3	21.4	25.5	27.7	45.0	23.5	26.9	21.8		
SDT 132	534237	176363	37.2	41.0	30.5	33.5	33.5	24.9	23.6	29.3	34.0	32.9	36.7	25.6	31.9	25.8		

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (National Bias = 0.81)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
SDT 136	533232	175775	34.2	32.1	24.0	22.8	25.2	20.7	15.0	21.2	26.6	27.9	28.0	20.2	24.8	20.1		
SDT 137	532988	175570	27.8	29.0	18.4	17.2	17.0	14.5	9.8	15.5	17.7	20.0	28.6	15.6	19.3	15.6		
SDT 138	533364	175561	37.8	39.3	27.8	25.3	22.7	23.2	25.3	26.4	32.4	34.8	24.6	27.4	28.9	23.4		
SDT 139	533030	176022	33.8	30.6	23.3	23.7	21.2	19.5	13.5	20.1	22.3	24.8		19.8	23.0	18.6		
SDT 140	533221	175715	35.5	36.2	25.9	28.2	20.3	24.0	15.0	20.0	24.0	25.7	30.3	19.5	25.4	20.6		
SDT 142	535321	175023	28.0	29.1	19.8	19.6	18.0	16.8	10.7	15.3	19.2	20.0	24.9	16.2	19.8	16.0		
SDT 143	534540	172387	30.3	27.6	20.6	18.7	18.1	18.4	15.9	17.6	20.6	13.2	27.4	19.4	20.7	16.7		
SDT 144	533328	171601	31.0	31.1	22.7	25.8	27.0	25.7	16.1	21.9	23.1	22.7	26.2	15.4	24.1	19.5		
SDT 145	532768	172732	35.0	29.4	21.0	19.5	16.0	19.6	14.5	16.5	19.7	23.1	25.8	17.0	21.4	17.4		
SDT 146	532486	173535	29.3	31.2	22.8	23.2	21.8	20.9	16.4	19.7	24.6	24.9	23.4	17.8	23.0	18.6		
SDT 147	532230	177756	34.6	35.3	23.8	24.5	20.8	22.3	17.9	21.7	26.7	28.7	31.5	22.3	25.8	20.9		
SDT 148	532002	177578	33.0	35.3	26.2	25.9	23.3	22.5	18.7	20.2	26.1	31.1	30.1	21.7	26.2	21.2		
SDT 149	531479	177990	33.4	35.5	24.4	23.8	21.0	19.1	16.2	19.1	23.1	27.5	31.0	19.5	24.5	19.8		
SDT 150	533522	178187	38.6	36.2	30.5	33.7	31.9	32.9	24.3	26.9	33.8	34.0	33.9	24.5	31.8	25.7		
SDT 151	533660	174480	27.0	26.4	21.1	19.9	18.3	18.3	11.9	18.0	21.5	24.3	28.1	17.2	21.0	17.0		
SDT 152	533245	174655	33.2	29.4	21.8	19.9	20.0	19.3	14.0	18.9	22.1	25.1	27.7		22.9	18.5		
SDT 153	533123	173780		27.0	20.3	19.9	19.6	20.5	15.0	19.0	21.1	21.3	25.6	14.2	20.3	16.5		
SDT 154	532836	177844	34.9	34.6		23.5	19.9	18.5	15.9	20.4	26.8	29.6	31.7	22.0	25.3	20.5		
SDT 155	532597	178433	30.0	32.2	22.1	21.8	18.2	17.2	13.6	19.0	20.9	27.4	31.0	20.7	22.8	18.5		
SDT 156	532643	178677	36.1	40.5	27.8	27.7	22.7	21.0	17.9	21.3	27.8	32.0	36.8	26.3	28.1	22.8		
SDT 157	531648	178257	32.3	31.5	21.9	21.6	18.4	19.2	16.1	18.9	22.6	26.7	30.0	20.7	23.3	18.9		
SDT 158	532195	178276	30.0	30.9	20.3	22.1	18.6	18.5	11.6	17.9	20.1	25.2	26.7	16.7	21.5	17.4		
SDT 159	532167	178336	30.3	30.5	18.9	21.4	18.1	16.8	11.7	16.6	18.4	23.6	27.6	16.1	20.8	16.9		
SDT 160	532202	173907	33.2	32.0	24.2	24.7	22.0	21.7	18.2	19.2	26.4	28.4	31.7	21.3	25.2	20.5		
SDT 161	533771	175173	41.0	42.0	30.4	33.9	33.5	31.3	20.3	26.9			31.2	21.9	31.2	25.3		
SDT 162	533737	174679	31.7	31.7	24.9										29.4	17.9		
SDT 163	532025	177057				33.3	28.8	30.1	25.9	28.0	35.9	36.2	35.3	26.3	31.1	25.2		
SDT 164	532087	177193				24.3	22.9	21.5	17.3	21.8	28.3	32.0	31.0	22.6	24.6	19.9		

- All erroneous data has been removed from the NO₂ diffusion tube dataset presented in Table W
- Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22
- Local bias adjustment factor used
- National bias adjustment factor used
- Where applicable, data has been distance corrected for relevant exposure in the final column

☒ London Borough of Southwark confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System

Notes:

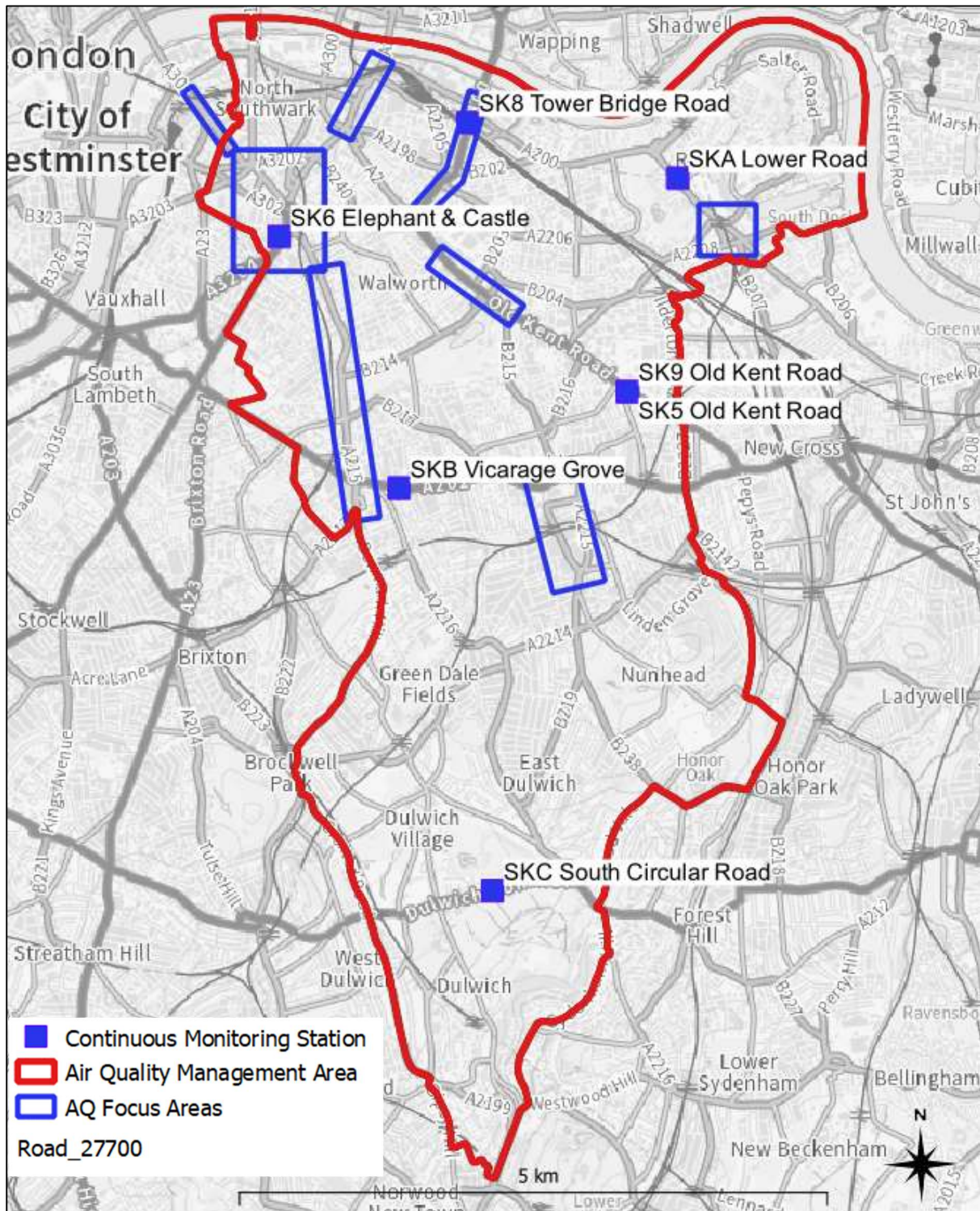
Exceedances of the NO₂ annual mean objective of 40µg.m⁻³.are shown in **bold**.

NO₂ annual means exceeding 60µg.m⁻³., indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

See **Appendix A** for details on bias adjustment and annualisation.

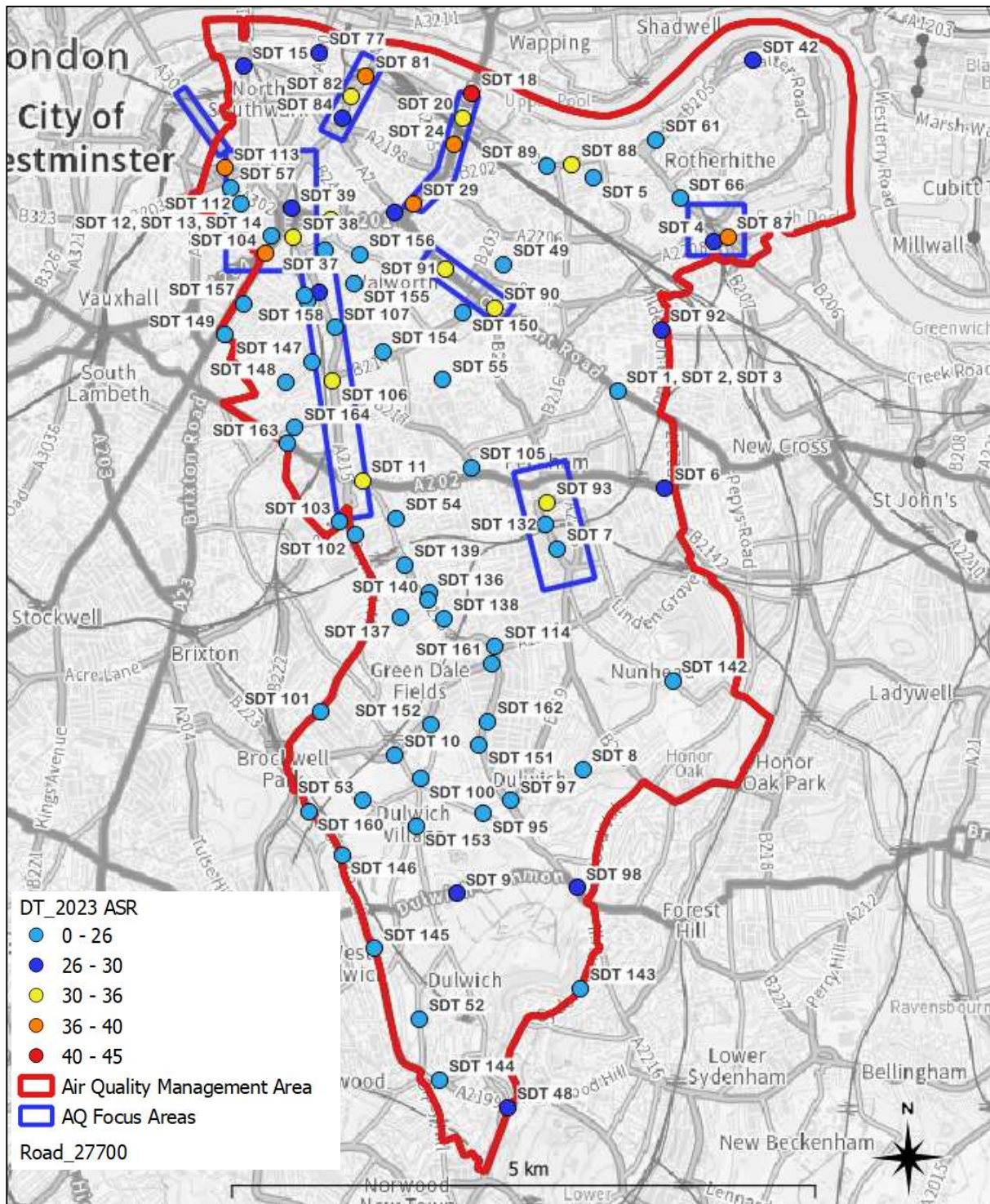
Appendix C Map(s) of Monitoring Locations and AQMAs

Figure 18 - Map of Southwark's Automatic Monitoring Sites



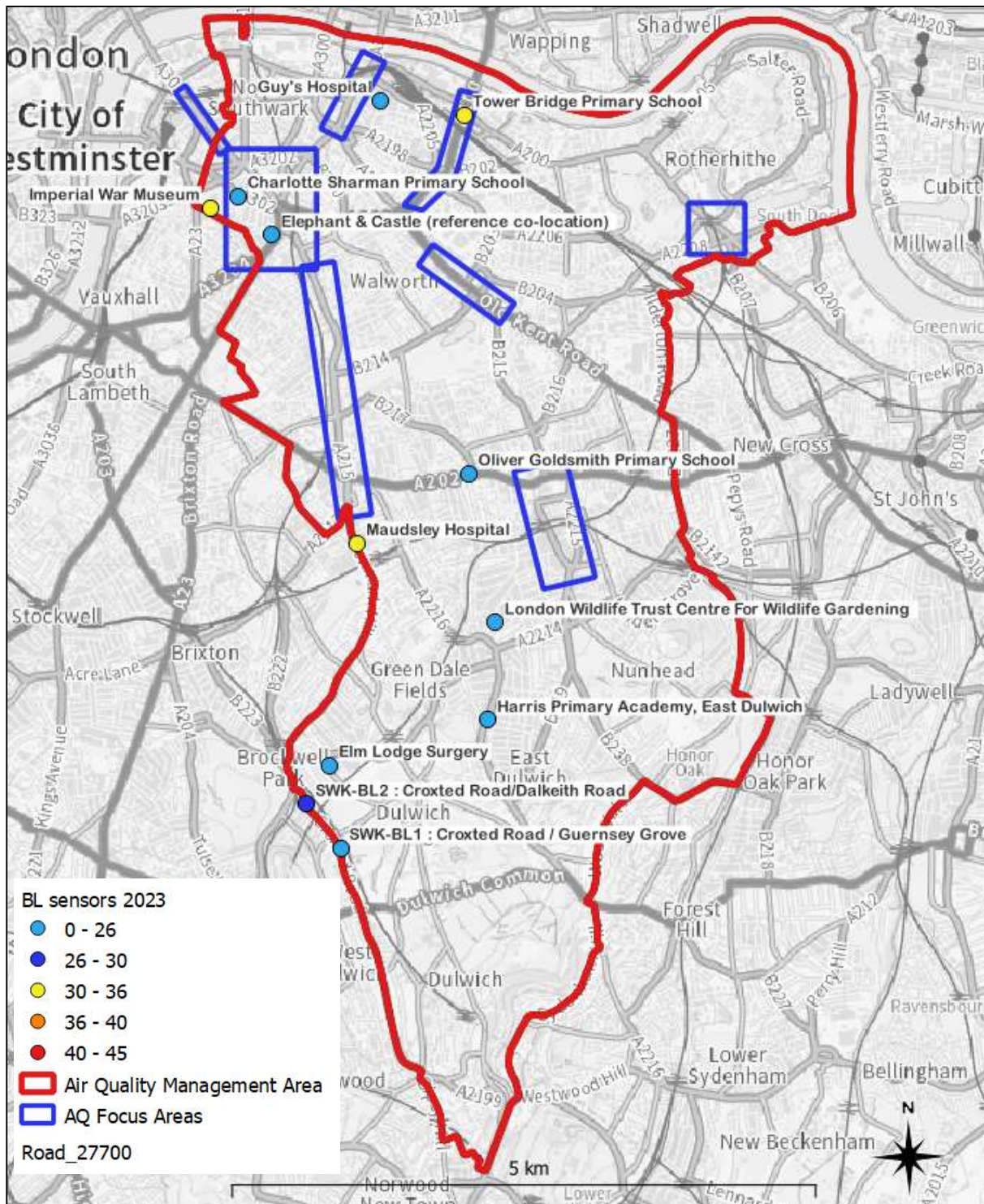
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Figure 19 - Map of NO₂ Diffusion Tubes in Southwark in 2023 showing annual mean NO₂ concentrations, µg/m³



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Figure 20 - Map of Breathe London Sensors in Southwark in 2023 showing annual mean NO₂ concentrations, µg/m³



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NB: Sensor results are indicative only.