The London Borough of Wandsworth Air Quality Annual Status Report for 2024

Date of publication: 30th May 2025

This report provides a detailed overview of air quality in in the London Borough of Wandsworth during 2024. It has been produced to meet the requirements of the London Local Air Quality Management (LLAQM) statutory process[1].

Contact details:
Jason Andrews
EH Pollution Manager (Air Quality), Regulatory Services Partnership (London Boroughs of Merton, Richmond upon Thames and Wandsworth)
Email: jason.andrews@merton.gov.uk

Maria Vaz
Principal Air Quality Officer, Regulatory Services Partnership (London Boroughs of Merton, Richmond upon Thames and Wandsworth)
Email: maria.vaz@merton.gov.uk

Sam Laity
Projects Officer (Air Quality), Regulatory Services Partnership (London Boroughs of Merton, Richmond upon Thames and Wandsworth)
Email: sam.laity@mertongov.uk

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

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Abbreviations

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

Table A. Summary of National Air Quality and International Standards, Objectives and Guidelines

Pollutant	Standard / Objective / Guideline	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
Nitrogen dioxide (NO_2)	WHO AQG[2]: 10 µg m^{-3}	Annual mean	
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})	WHO AQG[2]: 45 µg m^{-3} not to be exceeded more than 3-4 times a year	24-hour mean	
Particles (PM_{10})	40 µg m^{-3}	Annual mean	31 Dec 2004
Particles (PM_{10})	WHO AQG[2]: 15 µg m^{-3}	Annual mean	
Particles ($PM_{2.5}$)	10 µg m^{-3}	Annual mean	2040
Particles ($PM_{2.5}$)	London Mayoral Objective[3]: 10 µg m^{-3}	Annual mean	2030
Particles ($PM_{2.5}$)	WHO AQG[2]: 5 µg m^{-3}	Annual mean	
Particles ($PM_{2.5}$)	Target of 15% reduction in concentration at urban background locations	3-year mean	Between 2010 and 2021
Particles ($PM_{2.5}$)	WHO AQG[2]: 15 µg m^{-3}	24-hour mean	
Sulphur dioxide (SO_2)	266 µg m^{-3} not to be exceeded more than 35 times a year	15-minute mean	31 Dec 2005
Sulphur dioxide (SO_2)	350 µg m^{-3} not to be exceeded more than 24 times a year	1-hour mean	31 Dec 2004
Sulphur dioxide (SO_2)	125 µg m^{-3} mot to be exceeded more than 3 times a year	24-hour mean	31 Dec 2004
Sulphur dioxide (SO_2)	WHO AQG[2]: 40 µg m^{-3} not to be exceeded more than 3-4 times a year	24-hour mean	

Notes:

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

(2) 2021 World Health Organisation Air Quality Guidelines

(3) Environmental Target Regulations under the Environment Act 2021

(4) London Mayoral Objective

1. Air Quality Monitoring

Monitoring needs to be carried out over an extended period to show real-world trends. It is affected by temperature, weather, geography/local conditions, and wind direction. It is not necessarily accurate to compare one year's data with the next without considering all the variable factors. However, this does provide an 'indication' of local changes. In September 2023 an updated Air Quality Action Plan (AQAP) was approved by the Wandsworth Environment Committee. The new AQAP adopted the interim World Health Organization (WHO) targets: Nitrogen dioxide (NO_2) at an annual mean of 30µg m^{-3} and Particulate Matter $(PM)_{2.5}$ at an annual mean of 10 µg m^{-3}. The latest monitoring results for 2024 in the London Borough of Wandsworth at 10 sites exceeded the interim WHO targets for nitrogen dioxide (NO_2) and all sites exceeded the WHO guideline targets, which have been set at 10 µg m^{-3}. In terms of PM_{10}, all sites except one have exceeded the WHO guideline targets which have been set at an annual mean of 15µg m^{-3}.

Air quality is measured by three principal techniques in the London Borough of Wandsworth:

1. Continuous monitoring

There are five continuous monitoring stations located in Wandsworth, these monitoring stations all analyse NO_2 and PM_{10} (see table B for details).

The Council previously monitored NO_2 and PM_{10} at Wandsworth Town Hall (WA2) and Putney High Street facade (WA8) (ceased in early 2024), these are not included in this report. Please see previous Council reports for further information. The five continuous monitoring stations produce accurate, real-time data that feed into the London Air Quality Network (LAQN) and can be viewed on the LondonAir website (www.londonair.org.uk). These stations comprise of equipment which has been superseded by latest improved technology, therefore there have been challenges with maintenance and sourcing technical components and calibration gases.

2. Non-continuous monitoring using nitrogen dioxide (NO_2) diffusion tubes

In 2024 there were a total of 55 static monitoring locations across the borough. Diffusion tubes provide a comprehensive coverage of all hotspots including the borough's five air quality focus areas, the town centres and main roads. All sites are kept under constant review with changes taking effect annually in January. Diffusion tubes offer a relatively inexpensive and certified means of gauging NO_2 concentrations at multiple locations across the borough and are useful for trend analysis over a number of years.

In 2018, diffusion tubes along York Road and the Nine Elms areas were added. Diffusion tube locations were reviewed at the end of 2019, and 10 new locations were included. In 2020, 10 diffusion tubes were added and in 2021 a further 6 diffusion tubes were added. In 2022 an additional 3 diffusion tubes were added with a further 6 locations added to the network in 2023. In 2024, 1 location was added in Wandsworth Town Centre – this was to provide ongoing monitoring of levels of nitrogen dioxide in the area following the decommissioning of the background automatic monitoring site in the area. 4 diffusion tubes locations from the 2023 diffusion tube network were discontinued for the 2024 year. The following are the identification numbers of the discontinued diffusion tubes: W51 (Aldrington Road/North Drive), W53(Smeaton Road/Merton Road), W55(Burntwood Lane) and LR1 (Lower Richmond Road). These diffusion tubes were discontinued after 12 months of no exceedances being recorded.

3. Low-cost sensors using Breathe London Nodes

Most recently, commencing in late 2021, a network of Breathe London Nodes were installed across the borough to measure NO_2 and fine particulate matter ($PM_{2.5}$). The Breathe London network was run by the Environmental Research Group (ERG) at Imperial College London – the same provider who maintain the London Air Quality Network. The nodes provide a low-cost solution for real-time monitoring; however they are indicative, monitoring ambient $PM_{2.5}$ and for NO_2 across the borough.

Vodafone was awarded the contract going forward and the data from the network will be published in 2025

1.1 Locations

Table B. Details of Automatic Monitoring Sites for 2024

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
WA7	**Putney High Street**	Kerbside	524035	175334	NO_2, PM_{10}	Y	Chemiluminescent; TEOM	1	0.5	1.75
WA9	**Felsham Road, Putney**	Urban background	524044	175495	NO_2, PM_{10}	Y	Chemiluminescent; TEOM	4.8m from Felsham Road	1	2.75
WAA	**Thessaly Road, Battersea**	Roadside	529137	177249	NO_2, PM_{10}	Y	Chemiluminescent; TEOM	7.5m from Battersea Park Road	1	1.75
WAB	**Tooting High Street**	Roadside	527567	171628	NO_2, PM_{10}	Y	Chemiluminescent; TEOM	2	2	1.75
WAC	**Lavender Hill, Clapham Junction**	Roadside	527430	175454	NO_2, PM_{10}	Y	Chemiluminescent; TEOM	8m from Lavender Hill	1	1.75

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 C. Details of Non-Automatic Monitoring Sites for 2024

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Tube Co-located with a Continuous Analyser	Height (m)
W23	37 West Hill	Roadside	525111	174619	NO_2	Yes	2.2	3.0	No	2.52
W24	Putney Sign (MacDonald's)	Roadside	524045	175366	NO_2	Yes	2.4	2.4	No	2.3
W21	Felsham Road (tube 1)	Urban Background	524044	175495	NO_2	Yes	4.8	1.0	Yes - WA9	3.35
W22	Felsham Road (tube 2)	Urban Background	524044	175495	NO_2	Yes	4.8	1.0	Yes - WA9	3.35
W6	21 Daylesford Avenue	Urban Background	522270	175307	NO_2	Yes	11.0	2.4	No	2.85
W25	Roehampton Church School	Roadside	522542	173700	NO_2	Yes	2.5	0.6	No	2.25
W26	Replingham Road	Kerbside	524847	173282	NO_2	Yes	2.5	0.6	No	2.37
W27	68-70 Sutherland Grove (opposite St. Cecilia's School)	Urban Background	524633	173594	NO_2	Yes	2.0	0.7	No	2.83
W28	61 Summerley Street	Urban Background	526011	172869	NO_2	Yes	2.1	0.6	No	2.36
W29	Junction Skelbrook Street / Garratt Lane	Roadside	526099	172833	NO_2	Yes	0.7	3.3	No	2.27

W4	108 Mitcham Road	Kerbside	527688	171204	NO_2	Yes	3.0	0.6	No	2.65
W8	50 Bickely Street	Urban Background	527524	171239	NO_2	Yes	3.0	1.9	No	2.8
W30	11b Elmbourne Road	Urban Background	528900	172431	NO_2	Yes	4.5	0.5	No	2.56
W31	Junction Hildreth Street/Bedford Hill	Kerbside	528607	173333	NO_2	Yes	1.4	3.6	No	2.21
W32	2-3 Balham High Road	Kerbside	528436	173133	NO_2	Yes	4.4	0.7	No	2.30
W34	46 Shelgate Road	Urban Background	527569	174986	NO_2	Yes	2.1	0.4	No	2.38
W35	47 Northcote Road	Kerbside	527487	174981	NO_2	Yes	4.2	0.5	No	2.37
W36	208 St Anne's Hill (opposite St Anne's School)	Urban Background	525875	174616	NO_2	Yes	2.7	0.9	No	2.38
W37	302A Merton Rd (Riversdale School Gate)	Roadside	525278	173483	NO_2	Yes	17.3	3.4	No	2.33
W38	High View School, Plough Terrace, No Stopping Sign o/s school	Kerbside	526863	175239	NO_2	Yes	0.5	0.5	No	2.42
NE2	Chesterton School	Roadside	528043	176618	NO_2	Yes	2.9	2.9	No	2.20
NE3	Queenstown Road	Kerbside	528771	176819	NO_2	Yes	1.1	1.1	No	2.30

NE4	16 Lockington Road	Urban Background	528871	176943	NO_2	Yes	1.2	0.7	No	2.37
NE5	Kirtling Street	Kerbside	529252	177348	NO_2	Yes	0.5	0.5	No	2.35
NE6	Nine Elms Lane	Kerbside	529424	177501	NO_2	Yes	0.5	0.5	No	2.40
NE7	1 Nine Elms, Parry Street	Roadside	530129	177727	NO_2	Yes	0.5	0.5	No	2.35
NE8	Battersea Park (new location)	Urban Background	528023	177176	NO_2	Yes	420.0	420.0	No	2.37
YR1	Trafalgar House	Kerbside	526201	175340	NO_2	Yes	0.8	0.8	No	2.30
YR2	Royal Academy of Dance	Kerbside	526581	175731	NO_2	Yes	14.0	0.7	No	2.26
YR3	Cotton Row	Urban Background	526480	175930	NO_2	Yes	160.0	160	No	2.34
YR4	Falcon Road	Kerbside	527086	176119	NO_2	Yes	0.8	0.8	No	2.25
YR5	256 Battersea Park Road	Kerbside	527109	176022	NO_2	Yes	0.6	0.6	No	2.32
YR6	31-32 Battersea Square	Kerbside	526817	176686	NO_2	Yes	0.4	0.4	No	2.35
W39	Carlton Dr/Putney Hill	Kerbside	523898	174717	NO_2	Yes	18.0	0.5	No	2.2
W40	Roehampton High St/Roehampton Ln	Kerbside	522343	173805	NO_2	Yes	13.0	0.5	No	2.2
W41	Northcote Rd/Broomwood Rd	Kerbside	527675	174339	NO_2	Yes	2.0	0.7	No	2.2

W42	Bellevue Rd/Trinity Road	Roadside	527426	173249	NO_2	Yes	10.0	1.1	No	2.2
W43	Trinity Road Fitzhugh Community Clubroom	Roadside	526783	174250	NO_2	Yes	18.0	2.0	No	2.2
W44	Thessaly Rd (Marsh House)	Roadside	529425	176920	NO_2	Yes	26.0	1.5	No	2.2
W45	A24 Wimbledon Sewing Machines Lamppost	Roadside	528096	172439	NO_2	Yes	21.0	2.5	No	2.2
W46	Trinity Road/Outside 128	Kerbside	527639	172882	NO_2	Yes	11.0	0.8	No	2.2
W47	West Hill/ Outside no.3 (Barber Shop)	Kerbside	525243	174643	NO_2	Yes	5.0	0.7	No	2.2
W48	Rutherford House School Outside School	Kerbside	528263	172735	NO_2	Yes	22.0	0.5	No	2.2
W49	Garratt Ln/ Earlsfield Rd	Kerbside	525987	173077	NO_2	Yes	7.0	0.5	No	2.3
W50	Penwith Rd/Garratt Ln	Roadside	525945	173083	NO_2	Yes	13.0	1.1	No	2.2
W52	Medfield Street	Kerbside	522481	173792	NO_2	Yes	9.5	0.4	No	2.2
W54	Roehampton Ln/Medfield St	Kerbside	522382	173779	NO_2	Yes	2.2	1.0	No	2.4
W56	Boundaries Road	Kerbside	528382	173270	NO_2	Yes	4.1	0.4	No	2.2
SA1	Louisville Road	Kerbside	528160	172414	NO_2	Yes	9.5	0.4	No	2.3

WH 1	Roehampton Lane/Upper Richmond Road	Kerbside	522078	175466	NO_2	Yes	13.0	1.0	No	2.2
WH 2	Priory Lane/ Upper Richmond Road	Roadside	521752	175435	NO_2	Yes	13.0	2.5	No	2.1
WH 3	Clarence Ln/Roehampton Ln	Kerbside	522087	174262	NO_2	Yes	12.0	0.6	No	2.1
BW 1	Burntwood Ln (Tranmere/ Aboyne)	Kerbside	526506	172554	NO_2	Yes	6.0	0.7	No	2.4
BW 2	Burntwood Ln (Bridgford / France Court)	Kerbside	526335	172395	NO_2	Yes	5.2	1.0	No	2.4
New location added since January 2024										
W57	Wandsworth Town Hall	Kerbside	525734	174640	NO_2	Yes	3.0	0.6	No	2.4

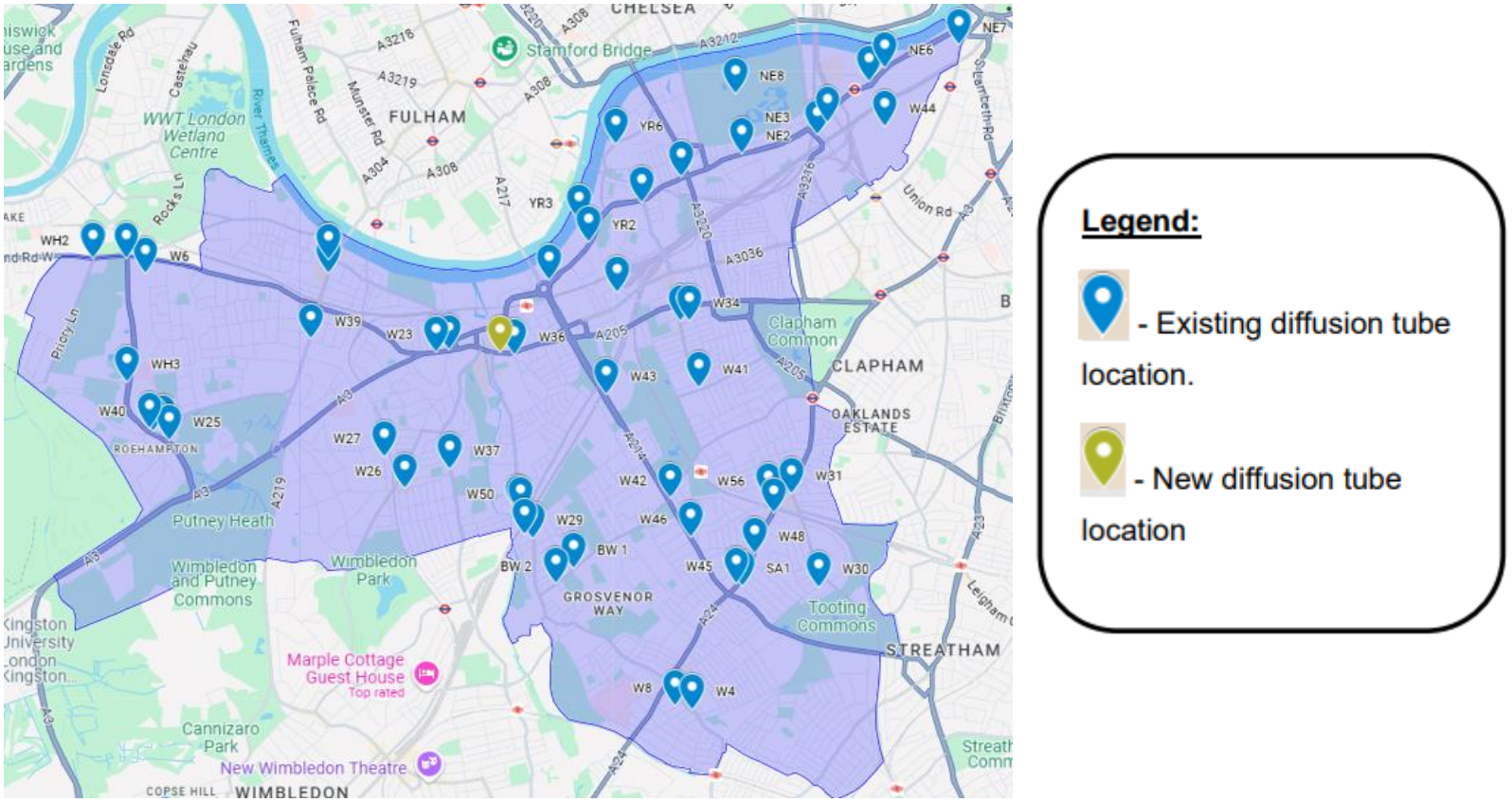
Notes:

(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.

Figure A below depicts locations of the diffusion tubes in 2024, including the one new location (shown in green). Figure M (Appendix C) has a map of the locations of the automatic monitoring stations.

Figure A: Map of Non-Automatic Monitoring Site(s) (Diffusion Tubes)



1.2 Comparison of Monitoring Results with AQOs

Concentration values are those at the location of the monitoring site (bias adjusted and annualised, as required), not those following any fall-off with distance correction.

Table D. Annual Mean NO_2 Monitoring Results: Automatic Monitoring (µg m^{-3})

Site ID/Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site type	Valid data capture for monitoring period %[(a)]	Valid data capture 2024 %[(b)]	2018	2019	2020	2021	2022	2023	2024
WA7 (Putney High Street)	524035	175334	Automatic	95	68	**68**	**69**	**58**	**62**	Insufficient valid data	Insufficient valid data	37
WA9 (Felsham Road)	524044	175495	Automatic	96	85	35	35	26	27	Insufficient valid data	Insufficient valid data	15
WAA (Thessaly Road, Battersea)	529137	177249	Automatic	53	53	33[c]	32	27	28	27	24	22
WAB (Tooting High Street)	527567	171628	Automatic	95	95	**53**	**50**	35c	34c	34[c]	33c	31
WAC (Lavender Hill, Clapham Junction)	527430	175454	Automatic	76	42	**42**	37c	31	35	Insufficient valid data	Insufficient valid data	28

Notes:

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

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

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

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

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

(c) Data has been "annualised" in accordance with LLAQM Technical Guidance.

All 2024 data from the automatic monitoring stations have been fully ratified. A data capture rate of above 75% was achieved at 2 of the 5 automatic monitoring stations: WA9 (Felsham Road) and WAB (Tooting High Street). The data capture for the WA7 (Putney High Street), WAA (Thessaly Road, Battersea) and WAC (Lavender Hill, Clapham Junction) automatic monitors is lower than 75% and higher than 25% and so the processing tool was used to annualise in accordance with the LLAQM Technical Guidance. The automatic monitoring data are subject to correction by the Environmental Research Group (ERG) at Imperial College London as part of the London Air Quality Network (LAQN).

Due to the age and failure of the automated infrastructure and a commitment to measuring $PM_{2.5}$ funding by the Council was agreed and the outdated infrastructure and monitoring equipment was updated with new equipment being installed. Along with the new equipment the enclosures themselves were also replaced throughout the borough as well as new plinths being installed. This should ensure that the monitors in the Borough of Wandsworth continue to accurately and reliable capture and report the concentrations of air pollution across the borough for years to come.

Automatic monitoring took place over the full 12-month period in 2024. Three of the continuous monitors had low capture rates for the year 2024. Monitor WAA (Thessaly Road) had a capture rate of 53%, monitor WA7 (Putney High Street) with 68% valid capture

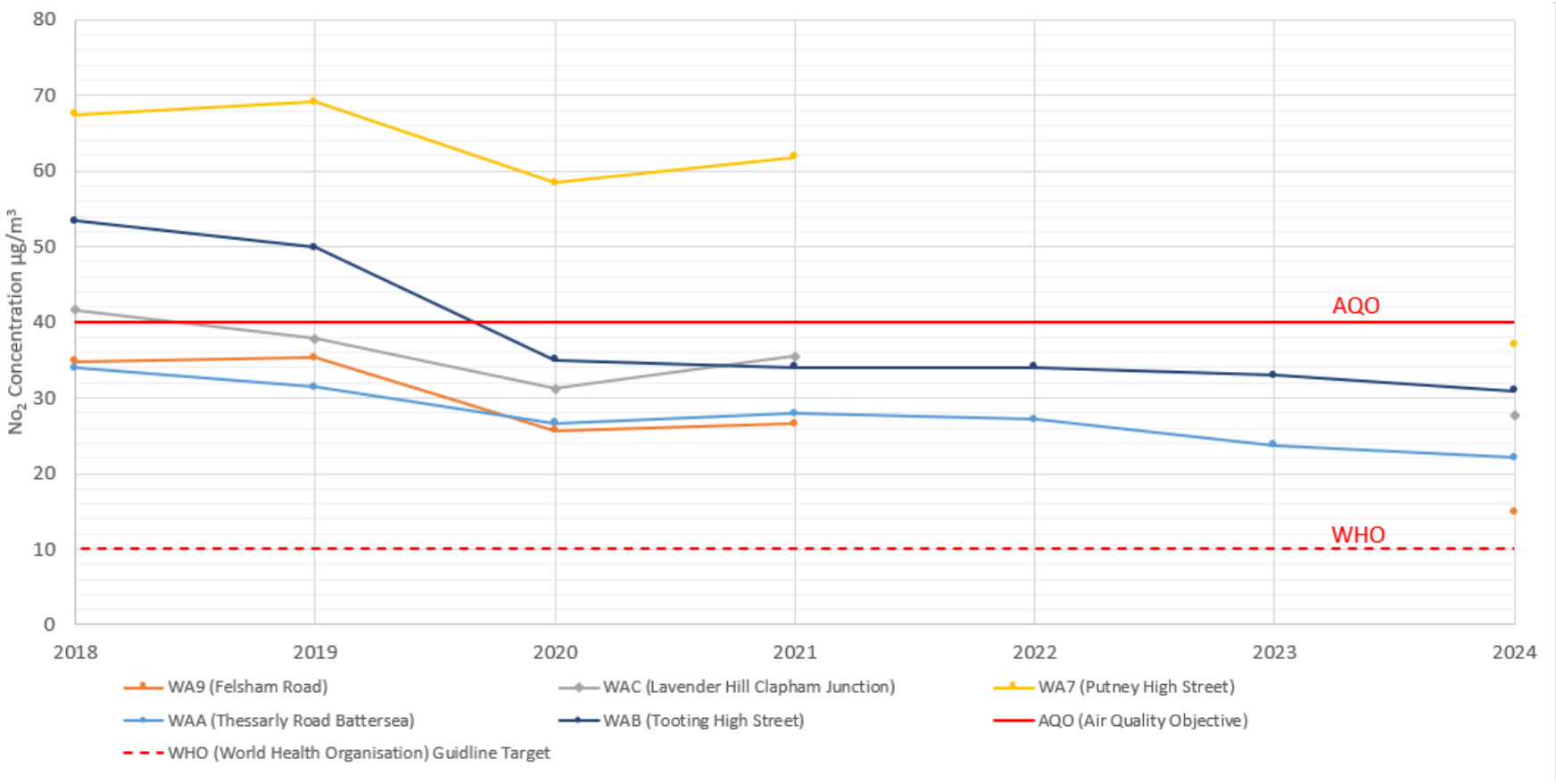
and monitor WAC (Lavender Hill Clapham Junction) had a capture rate of 52%. All three monitoring locations had periods of the year where technical issues were faced due to outdated infrastructure leading to the loss of data capture. There was also a loss of data capture during the installation of the new equipment due flow faults and loss of power.

The monitors had enough data for data to be annualised in accordance with LLAQM Technical Guidance as the valid data capture for the calendar year was less than 75% and greater than 25%.

Annual mean NO_2 concentrations measured at all the automatic monitoring stations have decreased since 2018, and more generally over the 7-year period (2018-2024) for which data have been reported. Data comparison for 2022 and 2023 shows a decrease in levels of NO_2 concentrations recorded at two of the automatic monitoring stations: WAA (Thessaly Road, Battersea) and WAB (Tooting High Street) for which data was available. WAA (Thessaly Road, Battersea) and WAB (Tooting High Street) have both shown a reduction of 2 $\mu g\ m^{-3}$.

Figure B depicts the trend of nitrogen dioxide recorded at the monitoring stations against the National Air Quality Objective and the WHO guideline target. The figure shows that levels of nitrogen dioxide of all the monitoring stations were below the national air quality objective and that all the continuous monitors exceeded the WHO guideline target.

Figure B: Automatic monitoring stations annual mean nitrogen dioxide (NO_2) trend chart 2018 - 2024



Notes

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

WHO interim target adopted by Wandsworth in September 2023 and incorporated in the AQAP: Ambient (outdoor) air pollution (who.int)

Table E. Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg m^{-3})

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%)	Valid Data Capture 2024 (%)	NO_2 Annual Mean Concentration (µg/m^3)						
							2018	2019	2020	2021	2022	2023	2024
W23	37 West Hill	525111	174619	Roadside	83	83	**55**	**49**	39	**45**	38	33	31
W24	Putney Sign (MacDonald's)	524045	175366	Roadside	93	93	**55**	**59**	**49**	**47**	**43**	38	34
W21	Felsham Road (tube 1)	524044	175495	Urban Background	100	100	33	30	23	24	21	19	17
W22	Felsham Road (tube 2)	524044	175495	Urban Background	100	100	30	31	23	24	23	19	18
W6	21 Daylesford Avenue	522270	175307	Urban Background	75	75	23	23	16	16	15	13	13
W25	Roehampton Church School (on corner of Roehampton Lane)	522542	173700	Roadside	93	93	29	27	20	21	19	18	16
W26	Replingham Road (corner of Heythrope street)	524847	173282	Kerbside	100	100	30	31c	21	19	17	16	14

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%)	Valid Data Capture 2024 (%)	NO_2 Annual Mean Concentration (µg/m^3)						
							2018	2019	2020	2021	2022	2023	2024
W27	68-70 Sutherland Grove	524633	173594	Urban Background	100	100	25	23	16	19	15	14	13
W28	61 Summerley Street	526011	172869	Urban Background	93	93	28	27	20	21	17	15	13
W29	Junction Skelbrook Street / Garratt Lane	526099	172833	Roadside	100	100	32	31	21	22	19	17	15
W4	108 Mitcham Road	527688	171204	Kerbside	83	83	**64**	**62**	**51**	**50**	**46**	**42**	34
W8	50 Bickely Street	527524	171239	Urban Background	91	91	31	28	22	24	21	20	19
W30	11b Elmbourne Road	528900	172431	Urban Background	100	100	31	29	21	23	19	17	16
W31	Junction Hildreth Street / Bedford Hill	528607	173333	Kerbside	100	100	39	36	26	29	25	23	22
W32	2-3 Balham High Road	528436	173133	Kerbside	91	91	**44**	39	31	31	28	24	23

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%)	Valid Data Capture 2024 (%)	NO_2 Annual Mean Concentration (µg/m^3)						
							2018	2019	2020	2021	2022	2023	2024
W34	46 Shelgate Road	527569	174986	Urban Background	100	100	30	31	21	22	19	17	16
W35	47 Northcote Road	527487	174981	Kerbside	100	100	35	32	24	25	21	19	19
W36	208 St Anne's Hill	525875	174616	Urban Background	100	100	33	31	23	23	20	19	19
W37	302A Merton Road	525278	173483	Roadside	100	100	37	37	27	25	22	19	18
W38	High View School, Plough Terrace	526863	175239	Kerbside	100	100	32	29	22	23	20	18	17
NE2	Chesterton School	528043	176618	Roadside	91	91	35	34	24	25	22	20	18
NE3	Queenstown Road	528771	176819	Kerbside	100	100	**63**	**59**	**42**	**40**	35	32	31
NE4	16 Lockington Road	528871	176943	Urban Background	100	100	34	31	24	25	22	19	18

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%)	Valid Data Capture 2024 (%)	NO_2 Annual Mean Concentration (µg/m^3)						
							2018	2019	2020	2021	2022	2023	2024
NE5	Kirtling Street	529252	177348	Kerbside	93	93	**46**	39	29	31	26	26	25
NE6	Nine Elms Lane	529424	177501	Kerbside	100	100	**54**	**48**	**40**	**40**	34	30	29
NE7	1 Nine Elms, Parry Street	530129	177727	Roadside	100	100	**49**	**47**	34	34	28	25	23
NE8	Battersea Park (new location)	528023	177176	Urban Background	93	93	24c	20	15	16	14	12	12
YR1	Trafalgar House	526201	175340	Kerbside	91	91	**53**	**44**	34	31	28	24	23
YR2	Royal Academy of Dance	526581	175731	Kerbside	93	93	**75**	**57**	37	36	36	35	32
YR3	Cotton Row	526480	175930	Urban Background	91	91	31	29	24	24	20	19	18
YR4	Falcon Road	527086	176119	Kerbside	100	100	**49**	**49**	38	38	31	28	25

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%)	Valid Data Capture 2024 (%)	NO_2 Annual Mean Concentration (µg/m^3)						
							2018	2019	2020	2021	2022	2023	2024
YR5	256 Battersea Park Road	527109	176022	Kerbside	100	100	**73**	**70**	**52**	**55**	**43**	**42**	37
YR6	31-32 Battersea Square	526817	176686	Kerbside	100	100	**44**	**43**	32	30	27	26	23
W39	Carlton Dr/Putney Hill	523898	174717	Kerbside	100	100	**Not Open**	**Not Open**	29	32	28	24	22
W40	Roehampton High St/Roehampton Ln	522343	173805	Kerbside	100	100	**Not Open**	**Not Open**	25	26	24	21	20
W41	Northcote Rd/Broomwood Rd	527675	174339	Kerbside	83	83	**Not Open**	**Not Open**	25	26	20	18	17
W42	Bellevue Rd/Trinity Road	527426	173249	Roadside	93	93	**Not Open**	**Not Open**	**48**	**45**	38	33	33
W43	Trinity Road Fitzhugh Community Clubroom	526783	174250	Roadside	100	100	**Not Open**	**Not Open**	28	28	25	22	22
W44	Thessaly Rd (Marsh House)	529425	176920	Roadside	100	100	**Not Open**	**Not Open**	21	22	19	18	18

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%)	Valid Data Capture 2024 (%)	NO_2 Annual Mean Concentration (µg/m^3)						
							2018	2019	2020	2021	2022	2023	2024
W45	A24 Wimbledon Sewing Machine	528096	172439	Roadside	100	100	**Not Open**	**Not Open**	31	31	27	26	23
W46	Trinity Road / Outside 128	527639	172882	Kerbside	100	100	**Not Open**	**Not Open**	38	37	30	26	27
W47	West Hill/ Outside no.3 (Barber Shop)	525243	174643	Kerbside	85	85	**Not Open**	**Not Open**	**58**	**64**	**60**	**53**	**48**
W48	Rutherford House School Outside School	528263	172735	Kerbside	100	100	**Not Open**	**Not Open**	27	27	23	21	19
W49	Garratt Ln/ Earlsfield Rd	525987	173077	Kerbside	75	75	**Not Open**	**Not Open**	**Not Open**	32	29	27	22
W50	Penwith Rd/Garratt Ln	525945	173083	Roadside	93	93	**Not Open**	**Not Open**	**Not Open**	32	26	22c	20
W52	Medfield Street	522481	173792	Kerbside	100	100	**Not Open**	**Not Open**	**Not Open**	**Not Open**	**Not Open**	25	25

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%)	Valid Data Capture 2024 (%)	NO_2 Annual Mean Concentration (µg/m^3)						
							2018	2019	2020	2021	2022	2023	2024
W54	Roehampton Lane/Medfield Street	522382	173779	Kerbside	85	85	Not Open	Not Open	Not Open	Not Open	Not Open	30	28
W56	Boundaries Road	528382	173270	Kerbside	100	100	Not Open	Not Open	Not Open	Not Open	Not Open	17	15
SA1	Louisville Road	528160	172414	Kerbside	100	100	Not Open	Not Open	Not Open	22	19	18	17
WH 1	Roehampton Lane/ Upper Richmond road	522078	175466	Kerbside	75	75	Not Open	Not Open	Not Open	32	27	27	26
WH 2	Priory Lane/ Upper Richmond Road	521752	175435	Roadside	42	42	Not Open	Not Open	Not Open	27	23	20	18c
WH 3	Clarence Ln/Roehampton Ln	522087	174262	Kerbside	100	100	Not Open	Not Open	Not Open	34	29	25	21
BW 1	Burntwood Ln (Tranmere/ Aboyne)	526506	172554	Kerbside	100	100	Not Open	Not Open	Not Open	Not Open	35	24	23
BW 2	Burntwood Ln (Bridgford / France Court)	526335	172395	Kerbside	93	93	Not Open	Not Open	Not Open	Not Open	22	20	18

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%)	Valid Data Capture 2024 (%)	NO_2 Annual Mean Concentration ($\mu g/m^3$)						
							2018	2019	2020	2021	2022	2023	2024
New location added since 2024													
W57	*Wandsworth Town Hall*	525734	174640	Kerbside	83	83	**Not Open**	**Not Open**	**Not Open**	**Not Open**	**Not Open**	**Not Open**	29

☒ **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 µg m^{-3}.

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

NO_2 annual means exceeding 60µg m^{-3}, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **red, 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%. This applied to WH2 (Priory Lane/ Upper Richmond Road).

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%).

(c) Data has been “annualised” in accordance with LLAQM Technical Guidance

The average data capture rate for 2024 was satisfactory (94%). Only one of the diffusion tube locations, WH2 (Priory Lane/Upper Richmond Road), had a data capture rate less than 75% and required annualising. The results from this tube were annualised in line with DEFRA guidance LAQM TG(19).

The diffusion tube results from the 2024 monitoring (Table E) show that the national air quality objective (NAQO) of 40 µg m^{-3} was exceeded at 1 monitoring location out of the total 55 locations that were being monitored; this has decreased from 3 exceedances from the previous year in 2023. The 40 µg m^{-3} annual mean objective was exceeded at:

- **W47 - West Hill = 48 µg m^{-3}**

The W47 location also exceeded the 40 µg m^{-3} threshold in 2023 with a value of 53 µg m^{-3}. The concentration value recorded in 2024 (48 µg m^{-3}) is a 5 µg m^{-3} reduction which equates to a 9% decrease from the 2023 value.

The overall monitoring results for the borough in 2023 show significant improvements toward borough wide compliance with the annual mean National Air Quality Objective for NO_2. To recap, 98% of monitoring locations achieved compliance at the point of monitoring, up from 95% in 2023. This then rises to 100% compliance following distance correction to relevant exposure of the exceeding diffusion tube site W47(West Hill) shown in Table O.

It should be noted that no sites exceeded the annual mean of 60 µg m-3 which indicates that the 1-hour mean objective was likely met at all sites for the second year in a row. Both 2023 and 2024 show a reduction from 2022 where one site exceeded this target. Data from the borough’s diffusion tube network between 2018 and 2024 have been charted in Figures C to H across six charts, the locations have been grouped in exceedances and air quality focus areas to aid comparison.
The impact of COVID-19 resulted in a drop in annual mean NO_2 concentrations at all monitoring locations in 2020. In 2019, 11 monitoring locations exceeded the annual mean NO_2 national air quality objective (NAQO) of 40 µg m-3, compared to 6 in 2020, a significant improvement. While NO_2 concentrations did rebound slightly in 2021, the downward trend continued in 2022 with NO_2 concentrations reducing across the borough as compared to 2021. The number of locations exceeding the NO_2 annual mean NAQO reduced to 4.
In 2023, the number of locations exceeding the annual mean NO_2 NAQO reduced to 3, equating to a compliance rate of 95% with the annual mean NO_2 NAQO. This reduced even further in 2024, to just the one location exceeding the annual mean NO_2 NAQO. This marks the continuous improvement in air quality across Wandsworth.

The lowest concentrations of NO_2 recorded in 2024 was at site NE8 (Battersea Park) with 12 µg m-3. This matches the concentration recorded for 2023 and means that currently, despite the improvements in air quality, no location monitored in Wandsworth has met the annual mean WHO guideline value of 10 µg m-3 set to protect the public from the health effects of gaseous nitrogen dioxide.

In 2023 Wandsworth Council refreshed its AQAP, adopting the interim WHO target levels – the interim targets provide a stepping stone to achieving compliance with the WHO guideline target.
The interim WHO target levels of 30 µg m^{-3} was exceeded at 8 monitoring locations in 2024, which is 15% of the total monitoring sites. The 30 µg m^{-3} annual mean objective was exceeded at:

Table F. Locations of 2024 interim 30 µg m^{-3} WHO target levels exceedances and the % change from 2023

Site ID	2023 NO_2 Concentrations (µg/m^3)	2024 NO_2 Concentrations (µg/m^3)	% decrease in NO_2 from 2023 to 2024
W4 (Mitcham Road)	42	34	19
YR5 (Battersea Park Road)	42	37	12
W47 (West Hill)	53	48	9
W42 (Bellevue Road)	33	33	0
YR2 (Royal Academy of Dance, York Road)	35	32	8
W23 (West Hill)	33	31	6
W24 (Putney McDonalds)	38	34	11
NE3 (Queenstown Road)	32	31	3

The 8 locations that exceeded the boroughs interim WHO target levels in 2024 were the same locations that exceeded in 2023. The values for the year 2023 and 2024 are given above with the % change also provided.

The number of sites exceeding this new objective remained consistent to the previous year at 8 sites, this equates to a compliance rate of 85% with the interim WHO target levels.

Of the 54 previously monitored locations 72% of the diffusion tubes had reductions of 1-3 µg m-3 from 2023 to 2024 (39 locations). 5 monitoring locations (9.3%) had a reduction of 4 - 5 µg m^{-3}. These were sites YR5, W24, W47, W49 and WH3, all these sites are roadside locations and are situated on busy main roads. W4 had a reduction of 8 µg m-3 from 2023 to 2024, this was the greatest reduction to be recorded in 2024. 8 locations (15%) saw no change in value from 2023 to 2024, these were W6, W35, W36, NE8, W42, W43, W44 and W52. One location (W46) recorded a concentration in 2024 that was 1 µg m^{-3} higher than in 2023. In 2024, 83% (45) of the locations monitored across the borough recorded a concentration lower than in 2023. 14.8% (8) locations had no change in concentration recorded and 1.9% (1) locations recorded a higher concentration in 2024 compared to 2023.

The London Borough of Wandsworth is classified as an inner London Borough and borders outer London boroughs to the south and west. It is in close proximity to central London with it being to the northeast of the borough. In 2021 the Ultra Low Emission Zone was extended to the south circular, incorporating part of the borough. Monitoring sites W21 and W22 (Felsham Road), W23 (West Hill), W24 (Putney McDonalds), YR1 (Trafalgar House), YR2 (Royal Academy of Dance), YR3 (Cotton Row), YR4 (York Road), YR5 (Battersea Park Road), YR6 (Battersea Square), NE2 (Chesterton School), NE3 (Queenstown Road), NE4 (Lockington Road), NE5 (Kirtling Street), NE6 (Nine Elms Lane), NE7 (1 Nine Elms), NE8 (Battersea Park), and W44 (Thessaly Road) all sit within this zone.

Putney High Street focus Area:

Focussing on site location W24 (Putney High Street), there has been a significant reduction in the levels of NO_2 since monitoring began in 2017. The most significant decrease occurred in 2020 when vehicle movements were drastically reduced due to the COVID-19 pandemic. The second largest reduction was in 2018 when low emission buses were introduced on Putney High Street – complying with the hourly mean objective for the first time. The impact of low emission vehicles on the levels of NO_2 can be further witnessed in the subsequent years of 2022, 2023 and finally 2024. 2022 was the first full year of the extended ultra-low emission zone. A reduction of 4 µg m-3 in 2022, 5 µg m^{-3} reduction in 2023 and then another 4 µg m^{-3} decrease was witnessed from the year 2023 to 2024. Since 2018 this site has seen a reduction of 21 µg m^{-3} a 38.2% reduction in NO_2.
Site location W42 had a 7 µg m^{-3} reduction in levels of nitrogen dioxide between 2021 and 2022. Whilst the site was not within the first extension of the ULEZ, it was within 2000 metres and around a 10-minute drive, therefore it could be speculated that many people in and around this area had switched to low or zero emission vehicles; there was a further reduction of 5 µg m-3 recorded in 2023. In 2024 there has been no further reduction, a concentration of 33 µg m^{-3} being recorded for the second year in the row.

The continual fall in pollution in the Putney can be partly contributed to Wandsworth's continued work with TfL on exploring all avenues to improve capacity and smooth traffic flow. Despite the concerns over congestion and pollution the AQ monitoring shows a downward trend in pollution and the scheme has introduced significant improvements for walking and cycling in the area.
With the introduction of the northbound bus lane on Putney bridge there was an improvement in bus journey times and reduction in stationary time. The extension of bus lane hours to 7am-7pm on Putney Bridge Road improves bus journey times also provides additional facility for pedal cycles supporting active travel, modal shift and therefore leading to less pollution.

The public improvement scheme on Putney High Street took place from September to December 2024 with these changes:

- The design reduces the bottle neck at the start of Putney Bridge (northbound) by relocating the bus stops northwards and marking two lanes
- As part of resurfacing fine tuning of the lining was carried out to increase the length of the 2 lanes section on Putney High Street northbound by Weimar Street and to maximise the space for eastbound traffic on Lower Richmond Road
- Existing yellow box junction by the Embankment was shortened to maximise traffic lanes.
- TfL have completed the initial validation and set up of sensors. They are now optimising the scoot system and will be fine tuning until mid/late June
- Officer site observations have been fed back to TfL for consideration within the optimisation exercise
- Increased enforcement to reduce delays caused by illegal loading
- Correction of a Loading Bay. General loading restrictions limit activity to 7pm-7am. This bay had incorrect signage permitting loading in the daytime which had a negative effect on southbound flows.

Following the completion of phase 1 and 2, levels of air quality concentrations will continue to be monitored to assess the impact of the scheme.

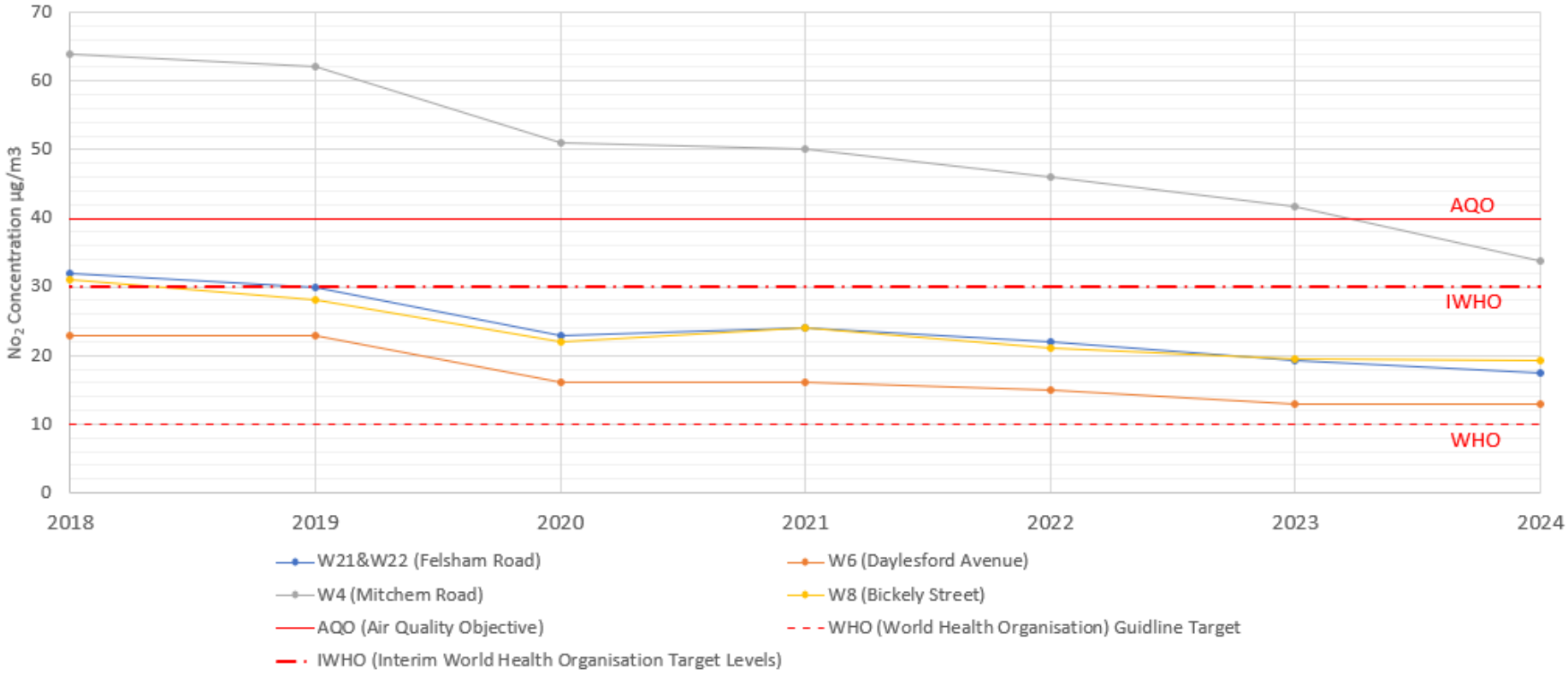
The main source of pollution in the borough remains road traffic. The updated London Atmospheric Inventory (LAEI 2019) released in 2022, estimates 60% of nitrogen oxide emissions originate from road transport, followed by industrial/commercial heat and power 20%, and domestic heat and power 12%.
As road transport is the largest contributor to NO2 emissions, many factors at all levels of central and local government have contributed to the reduction in emissions that we are observing.

According to the SMMT (Society of Motor manufacturers and Traders) 2024 witnessed a 2.6% overall increase in car sales in 2024 compared to 2023 up to nearly 2,000,000. Despite the fact that EV sales reached new record numbers, they failed to reach the mandated target of 22%, achieving 19.6% of all new car sales. (Manufacturers can shift EV sales to later years when demand is expected to be stronger). Increases were reported in EV, (electric vehicle), HEV (Hybrid Electric Vehicle) and PHEV (Plug-in Hybrid Electric Vehicle) whilst decreases were reported in petrol and diesel. Petrol still accounted for more than half of all car sales, more than 1,000,000 (56%), diesels dropped to around 120,000 (7.5% - now the smallest market share by fuel type) and combined EV, PHEV and HEV rose to over 810,000 (36.5%). The ZEV mandate appears to be working but some manufacturers think more government incentives are needed.

There are a number of Air Quality Action Plan measures that are directly linked to reducing road transport emissions and progress against these are reported in Table M In summary:

· There are 29 operational School Streets in the borough.
· Encouragement for modal shift away from private car onto bicycles, cargo bikes, walking, and public transport.
·. Wider cycle accessibility has been improved in Putney, Roehampton, Clapham Junction, Tooting and Town Centres
· Pedestrian accessibility and improvements have been increased in different part of the boroughs
· The expansion of the Our Bike Scheme, with new locations in Earlsfield and Roehampton.
· Planning applications are assessed to encouraged car free development in accordance with the London Plan.
· Electric vehicle charge points (EVCP’s) are conditioned in all possible planning applications and are being rolled out borough wide.
· Idling is still a priority in Wandsworth. Idling action events are delivered by the Air Quality Team which are attempting to increase driver awareness and behaviour change away from engine idling.

Figure C: Long term NO_2 concentration trends in Wandsworth 2018-2024 from non-automatic monitoring (diffusion tubes)

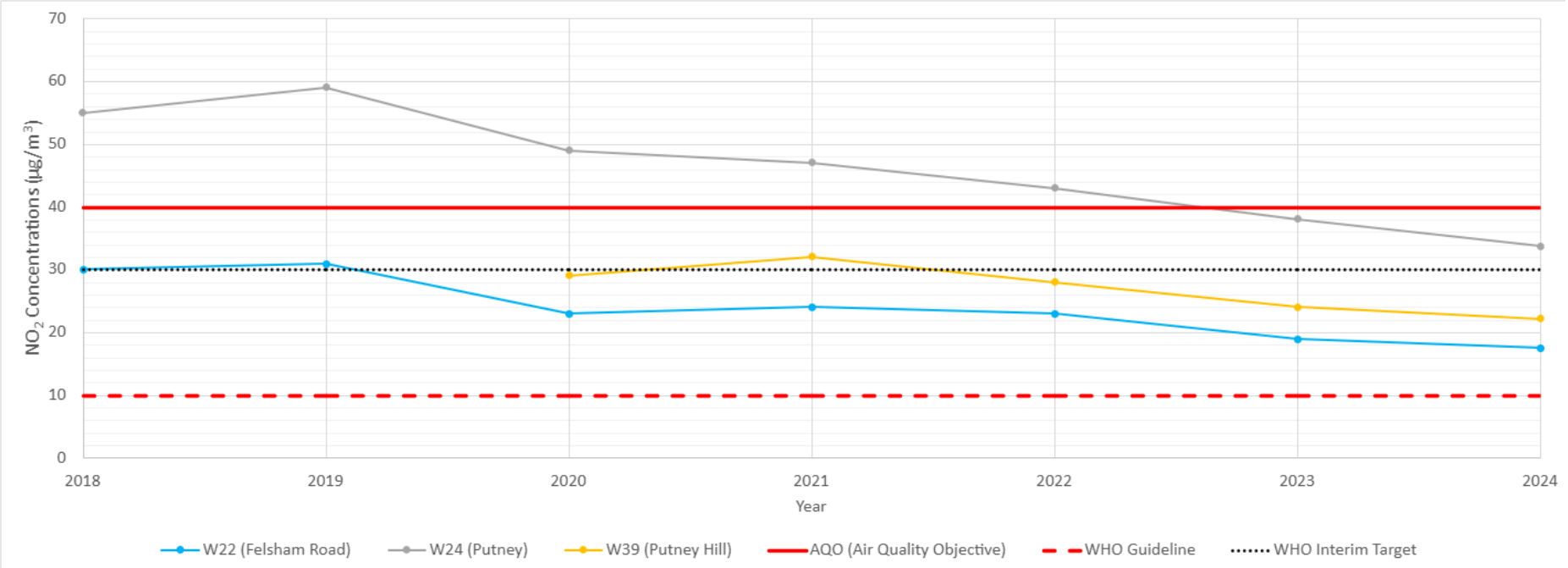


Notes

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

WHO interim target adopted by Wandsworth in September 2023 and incorporated in the AQAP: [Ambient (outdoor) air pollution (who.int)]

Figure D: Long term NO_2 concentration trends in Wandsworth 2018-2024 from non-automatic monitoring (diffusion tubes) in Putney High Street/Putney Bridge Road/Richmond Road focus area.



Notes The annual mean concentrations are presented as µg m^{-3} WHO interim target adopted by Wandsworth in September 2023 and incorporated in the AQAP: [Ambient (outdoor) air pollution (who.int)]

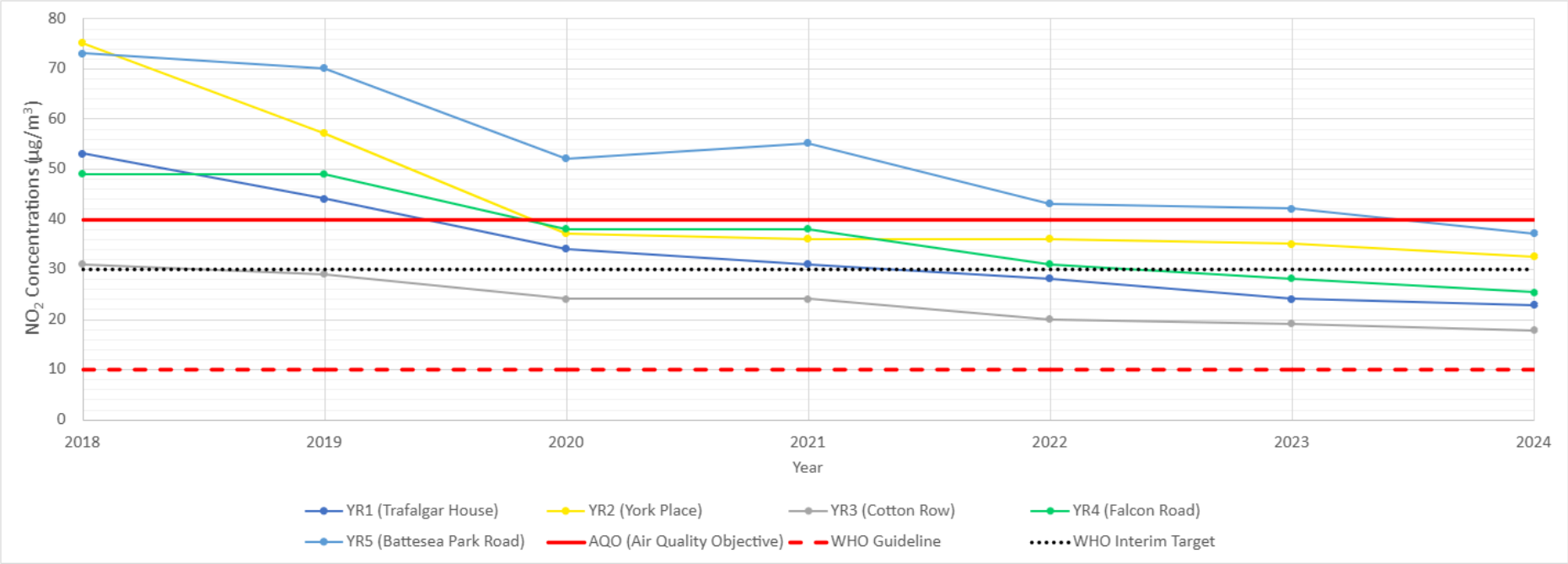
Figure E: Long term NO_2 concentration trends in Wandsworth 2018-2024 from non-automatic monitoring (diffusion tubes) Wandsworth Gyratory/Wandsworth High Street/ Armoury Way.

Notes

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

WHO interim target adopted by Wandsworth in September 2023 and incorporated in the AQAP: Ambient (outdoor) air pollution (who.int)

Figure F: Long term NO_2 concentration trends in Wandsworth 2018-2024 from non-automatic monitoring (diffusion tubes) York Road (A3205) from Wandsworth Bridge to Latchmere Road



Notes

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

WHO interim target adopted by Wandsworth in September 2023 and incorporated in the AQAP: [Ambient (outdoor) air pollution (who.int)]

Figure G: Long term NO_2 concentration trends in Wandsworth 2018-2024 from non-automatic monitoring (diffusion tubes) Clapham Junction Falcon Road/Northcote Road/ Battersea Rise/ Lavender Hill

Notes

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

WHO interim target adopted by Wandsworth in September 2023 and incorporated in the AQAP: [Ambient (outdoor) air pollution (who.int)]

Figure H: Long term NO_2 concentration trends in Wandsworth 2018-2024 from non-automatic monitoring (diffusion tubes) Tooting High Street and Upper Tooting Road

Notes

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

WHO interim target adopted by Wandsworth in September 2023 and incorporated in the AQAP: [Ambient (outdoor) air pollution (who.int)]

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

Site ID/Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Valid data capture 2024 %(b)	2018	2019	2020	2021	2022	2023	2024
WA7 Putney High Street	524035	175334	68	**26**	11	4	1	Insufficient valid data	Insufficient valid data	0 (98)
WA9 Felsham Rd; Putney	524044	175495	85	0	0	0	0	Insufficient valid data	Insufficient valid data	0 (58)
WAA Thessaly Rd, Battersea	529137	177249	53	0 (97)	0	8	0	0	0 (95)	0(83)
WAB Tooting High Street	527567	171628	95	2	3	0 (104)	0 (98)	0 (120)	0 (99)	0
WAC Lavender Hill, Clapham Junction	527430	175454	42	0	0	0	0	Insufficient valid data	Insufficient valid data	0(71)

Notes

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

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

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

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

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

Table G provides the results from the automatic monitoring stations for NO2 for the 1-hour mean objective of 200 µg m^{-3}. In 2024 there was no exceedances of the 1-hour mean objective for NO_2. This is the 4th year in a row for the WAA and WAB monitoring stations. This is also the 7th year in a row that the two monitor stations have been below the permitted 18 hours per year AQO of 200 µg m^{-3}.

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Valid data capture for monitoring period %([a])	Valid data capture 2024 %([b])	2018	2019	2020	2021	2022	2023	2024
WA7 Putney High Street	524035	175334	84	84	25	22	19	20	20	18	16
WA9 Felsham Road (Putney)	524044	175495	95	95	17	18	16	16	15	13	14
WAA Thessaly Road (Battersea)	529137	177249	80	80	25	23	25	23	20	16c	17
WAB Tooting High Street	527567	171628	93	90	23	23	21	23	21c	19	20

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Valid data capture for monitoring period %([a])	Valid data capture 2024 %([b])	2018	2019	2020	2021	2022	2023	2024
WAC Lavender Hill (Clapham Junction)	527430	175454	89	89	21	20 c	19	19	20	18	18

Notes

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

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

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

(c) Data has been "annualised" in accordance with LLAQM Technical Guidance.

All 2024 data from the automatic monitoring stations have been fully ratified. Data capture rate above 75% was achieved at all monitoring stations. Over the 7-year period from 2018–2024 PM_{10} concentrations have been relatively consistent with minor fluctuations. Although there has been a clear downward trend from 2021, there has been a slight increase in the PM_{10} values recorded at WAB, WAA and WA9 from 2023 to 2024. All these monitoring locations recorded an increase of 1 µg $m^{-3.}$ Even with this

slight increase, the National Air Quality annual mean objective of 40 µg m^{-3} was still comfortably achieved in 2024. With these measured concentrations at WA7 (Putney High Street), WAA (Thessaly Road), WAB (Tooting High Street) and WAC (Lavender Hill, Clapham Junction) the locations do still exceed the recommended World Health Organisation (WHO) guideline of 15 µg m-3. So to summarise. Whilst all five sites do meet the NAQO limit value (40 µg m^{-3}) only one site WA9 (Felsham Road) meets the new, stricter WHO guidelines (15 mg m-3) for PM_{10}.

There was a 2 µg m^{-3} decrease in the levels of annual mean PM_{10} concentrations recorded at WA7 (Putney High Street). The only monitoring location where the value recorded showed a decrease from 2023. The concentration at WAC (Lavender Hill, Clapham Junction) remained the same at a value of 18 µg m^{-3}. As mentioned previously WAA (Thessaly Road), WAB (Tooting High Street) and WA9 (Felsham Road) all recorded concentrations that had increased 1 µg m^{-3}. The annual mean PM_{10} results are further illustrated by Figure I. The red line indicates the air quality objective of no more than 40 µg m^{-3}. The inclusion of the red dashed line indicates the World Health Organisation target of 15 µg m^{-3}. The data capture rates for the automatic monitoring stations all achieved above 75%.

Around half of UK concentrations of all PMs comes from anthropogenic sources in the UK, such as wood burning and tyre and brake wear from vehicles. In Wandsworth, where wood burning fires are still popular, specific efforts are being made to reduce PMs from burning, (Table K). In Winter 2024 Wandsworth ran a wood burning campaign and continued to investigate complaints regarding unauthorised burning and non-compliant appliances. An added complication is the range of PM_{10} pollution, it is not confined to localised sources but can travel large distances. Often PM_{10} pollution episodes (periods of higher-than-normal particulate concentrations) often originate from agriculture and industry in continental Europe.

It will be a challenge to drive down particulate matter concentrations to these levels in Wandsworth based on borough monitoring data to date. The same can be said for all London Boroughs.

Figure I: Automatic monitoring stations annual mean particulate matter (PM_{10}) trend chart 2018-2024

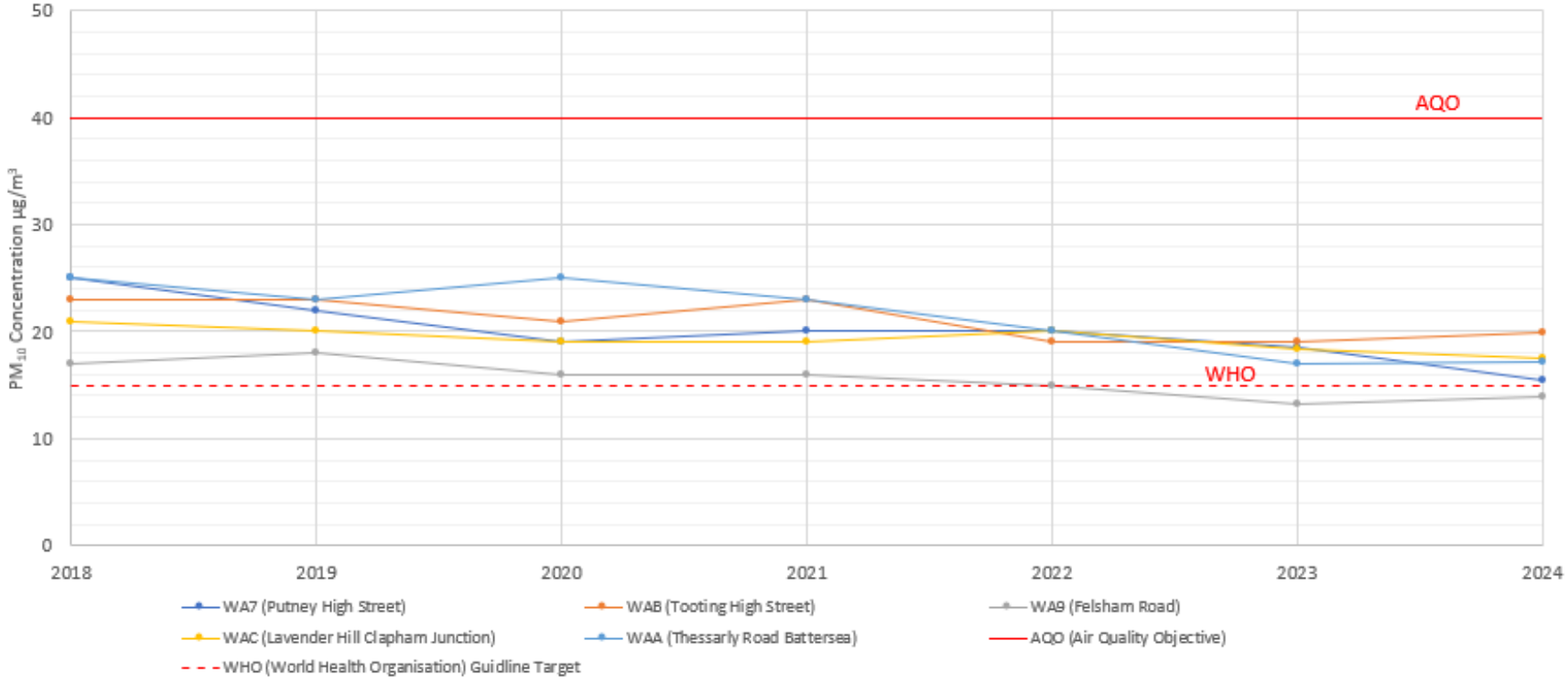


Table I. PM_{10} Automatic Monitoring Results: Comparison with 24-Hour Mean Objective, Number of PM_{10} 24-Hour Means > 50 µg m^{-3}

Site ID/Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Valid data capture for monitoring period %[a]	Valid data capture 2024 %[b]	2018	2019	2020	2021	2022	2023	2024
WA7 Putney High Street	524035	175334	84	84	3	9	2	3 (30)	2	4	0(26)
WA9 Felsham Road (Putney)	524044	175495	95	95	1	5	2	0 (23)	1	1	0
WAA Thessaly Road (Battersea)	529137	177249	80	80	10	14	23	9	7	2 (31)	0(30)
WAB Tooting High Street	527567	171628	93	90	3	9	4	4 (33)	0 (36)	3	2
WAC Lavender Hill (Clapham Junction)	527430	175454	89	89	3	2	5	0	1	3	0

Notes

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

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

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

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

Table I provides the comparison with the 24-hour mean objective for PM_{10}. The objective of no more than 35 days exceeding 50 µg m^{-3} was met at each site for all years since 2017. All the five sites exceeded the 24-hour mean objective at least once for the years reported. Overall, 2024 reported the lowest number of exceedances of the 24-hour mean objective at all sites and complies with the PM_{10} 24-hour mean objective (50 µg m^{-3} over the permitted 35 days per year) for the year 2024. In previous years WAA (Thessaly Road) in Battersea has recorded elevated levels, for both long term and short-term objectives, in comparison to the other monitoring station in the borough. Last year the levels have reduced further and for the first time in at least 7 years no exceedance was recorded at the site. This is down from the 2 days that were recorded exceeding the 50 µg m^{-3} in 2023 and the 7 days that were recorded for the year before in 2022. This continued reduction is likely to coincide with the decrease in localised construction site activity. Many of the active sites have now completed the stages where there is a high degree of risk for dust generation. Even with decreasing levels, vigilance is required. Construction sites are still active and many new developments within the local plan are yet to commence.

Funding has been agreed and the installation of new PM_{10} and $PM_{2.5}$ monitors across the borough has taken place, including 3 monitors in the Air Quality Focus Areas. This data will be included in the 2025 ASR documentation.

The Council, together with many other local authorities in London, did not have an automatic $PM_{2.5}$ monitor in 2024 but five were installed at the end of 2024, so reliable Council monitoring results should be available for future reports.

Breathe London measurement network ($PM_{2.5}$ and NO_2**)**

In addition to our statutory monitoring network, since 2021 LB Wandsworth has operated a network of indicative monitors using Breathe London monitoring devices (known as “nodes”), In 2024 there were 19 nodes across the London Borough of Wandsworth. 15 of these nodes were deactivated in November/December 2024 as a new phase of the Breathe London project was due to start in early 2025.

While these instruments measure both hourly $PM_{2.5}$ and NO_2, the measurements of NO_2 are considered less reliable due to interference from temperature and humidity, and these NO_2 measurements are not discussed further. In 2024, one was located at an Urban Background site, and the remainder at Roadside (6) and Kerbside (8) sites (see Table J. Wandsworth Annual PM2.5, where > 80% Breathe London data, by site type. Errors shown are based on the standard deviation.Table J).

We have used the 80% cut off as a quality control measure for annual averages. In 2021, no nodes achieved this. In 2022, 6 nodes achieved 80% or better valid hourly measurements for $PM_{2.5}$, in 2023 12, in 2024 15.

Analysis and Observations

The annual mean was calculated for each site for each year where there were 80% or greater measurements. To estimate uncertainty in the mean, we use the standard deviation of the mean annual values at each group of sites, though the small number of nodes in the sample means this is only indicative.

This analysis suggests that:

- While in 2022, average $PM_{2.5}$ exceeded the Mayor of London's target of 10µg/m^3, in 2023 were within this, and everywhere in 2024. In 2023 and 2024 the average was well inside this limit. And in 2024 some locations showed values approaching the WHO safe level of 5µg/m^3.
- There was a consistent pattern of decrease in measured $PM_{2.5}$ across the years.
- Measured $PM_{2.5}$ has decreased by an average of 4µg/m^3 between the years 2022 and 2024 averaged across all site.
- The most pronounced reduction was at Roadside sites, 7µg/m^3.
- The reduction at kerbside locations was 3µg/m^3.
- The concentration at the urban background site was already the lowest in 2022, but also did not change significantly over the year.

Mapping of the data also shows significant changes, comparing Figure J: LB Wandsworth Breathe London network in 2024 and Figure K below. For clarity, we have provided zoomable maps online.[1]

Table J. Wandsworth Annual $PM_{2.5}$, where > 80% Breathe London data, by site type. Errors shown are based on the standard deviation.

Site type	n 2022	n 2023	n 2024	Mean 2022	Mean 2023	Mean 2024
All	6	12	15	12.47 ± 2.04	8.83 ± 1.53	8.11 ± 1.04
Kerbside	3	6	8	11.76 ± 1.16	8.58 ± 1.14	8.26 ± 1.08
Roadside	2	5	6	14.34 ± 2.66	8.89 ± 2.08	7.63 ± 0.75
Urban background	1	1	1	10.86	9.99	9.71

Table K. Wandsworth Annual mean $PM_{2.5}$, where > 80% Breathe London data

Site	Lon	Lat	% data 2022	% data 2023	% data 2024	Mean 2022	Mean 2023	Mean 2024
CLDP0103	-0.139	51.5	97.2	94.1	87.8	10.5	8.4	7.61
CLDP0123	-0.151	51.4	99.7	97.4	91.9	12	9.81	8.93
CLDP0172	-0.158	51.5	99.9	96.4	91.3	10.9	9.99	9.71
CLDP0236	-0.237	51.5	99.5	100	83.3	12.8	10.2	8.58
CLDP0271	-0.1	51.4	96.3	85.1		16.2	12.5	
CLDP0272	-0.0957	51.4	86.5	70.6		12.5		
CLDP0319	-0.218	51.5	63.1	90.6	95		8.22	6.71
CLDP0333	-0.102	51.4	53.2	86.8			8.68	
CLDP0334	-0.102	51.4	53.3	87			8.0	
CLDP0336	-0.0947	51.4	53.3	87			7.34	
CLDP0337	-0.0936	51.4	53.3	85.3			7.44	
CLDP0339	-0.0968	51.4	14.3	76.9				
CLDP0344	-0.204	51.5	24.7	98.9	98.7		7.71	6.84
CLDP0393	-0.146	51.5		85.6	82.3		7.68	6.24
CLDP0458	-0.194	51.5		64.2	81.5			9.01
CLDP0459	-0.239	51.4		65.4	82.4			7.86
CLDP0460	-0.186	51.5		65.4	82.6			7.85
CLDP0462	-0.138	51.5		65.2	82			7.43

CLDP0463	-0.148	51.5		66.1	78.8			
CLDP0464	-0.168	51.4		65.5	82.8			7.79
CLDP0465	-0.15	51.5		60.8	48.5			
CLDP0471	-0.216	51.5		60	91.3			8.75
CLDP0472	-0.215	51.5		61.2	93.1			9.57
CLDP0473	-0.217	51.5		62.7	82.5			8.7

[1] https://swlonrsp.github.io/LBW_Map_PM25_BL.html.

Figure J: LB Wandsworth Breathe London network in 2024

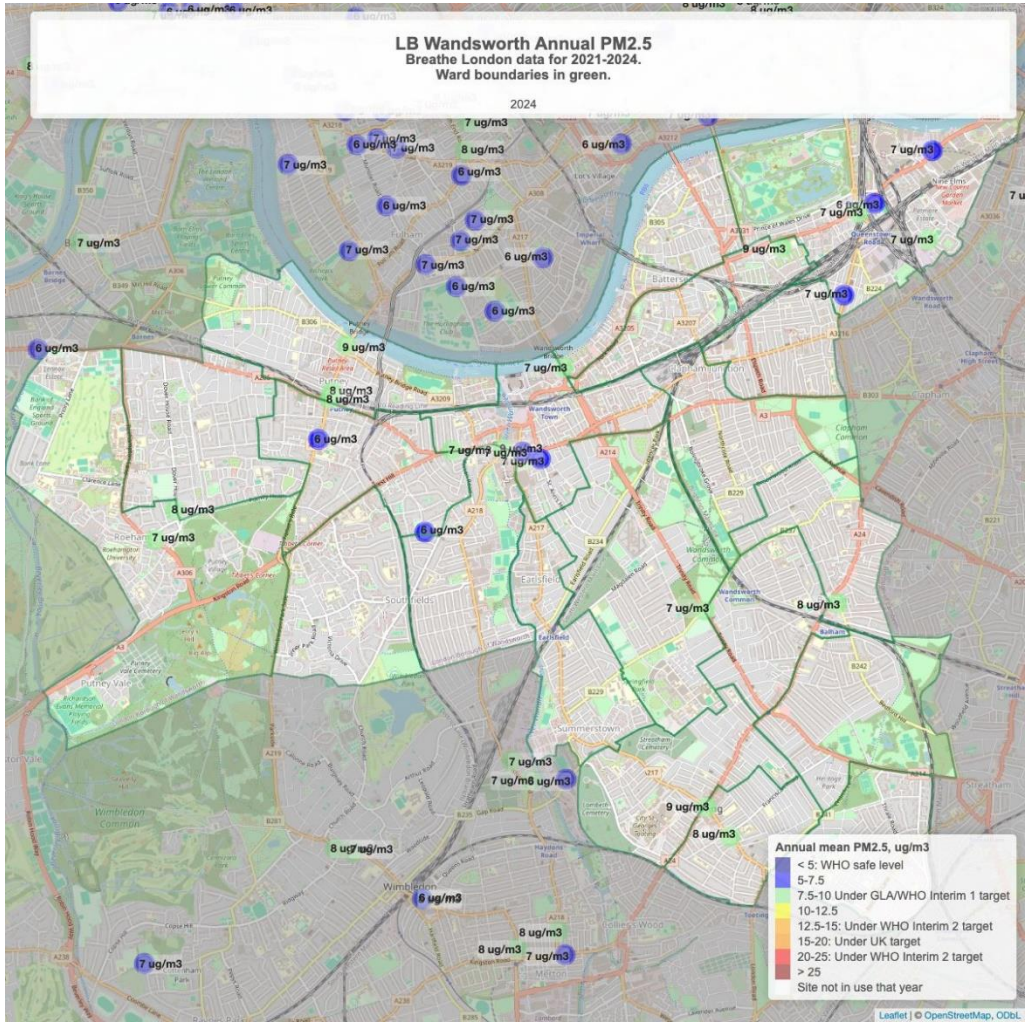
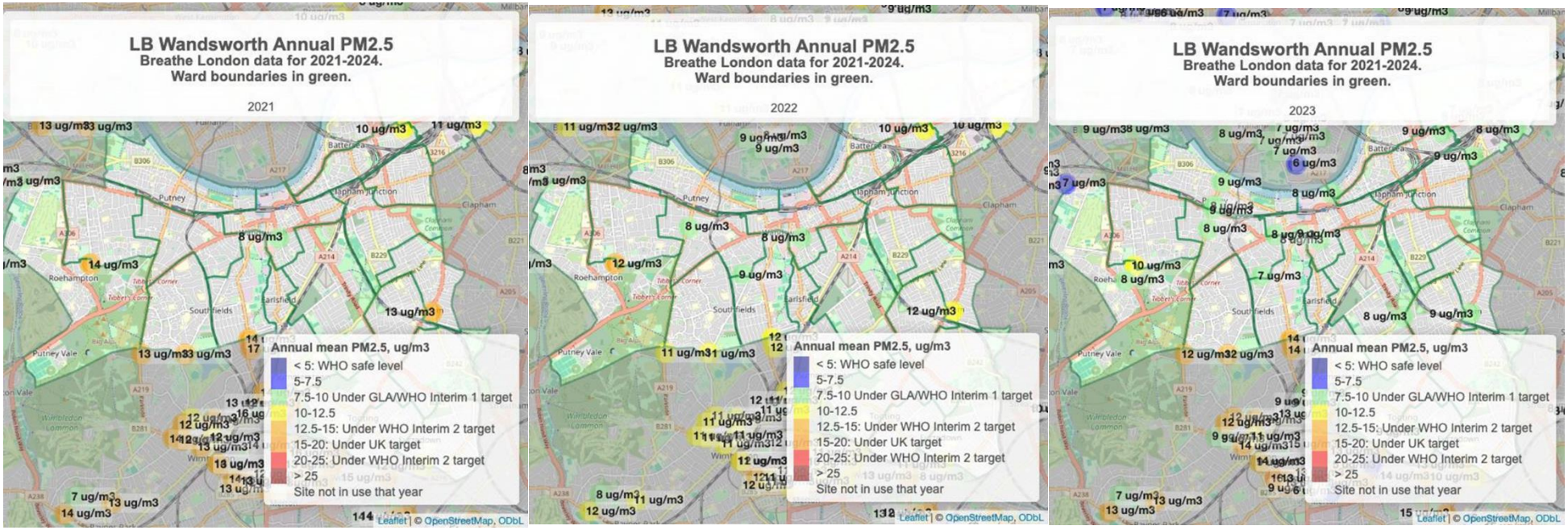


Figure K: LB Wandsworth Breathe London network in 2021, 2022 and 2023 colour coded by annual mean



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 the London Borough of Wandsworth can be found in Table L. The table presents a description of the AQMA that is currently designated within the London Borough of Wandsworth. Appendix C provides maps of 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:

- NO_2 annual mean
- PM_{10} 24-hour mean

Table L. 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
Wandsworth AQMA	Declared 01/01/2001	Nitrogen dioxide NO_2 – Annual mean Particulate Matter PM_{10} – 24 hour mean	The whole borough	NO	Information not available	NO_2 annual mean-48 µg m^{-3} measured at West Hill (W47) non-automatic site. PM_{10} 24 hour mean compliant 8 years	Not compliant	Wandsworth Council AQAP, September 2023	Wandsworth AQAP

☒ **The London Borough of Wandsworth confirm the information on UK-Air regarding their AQMA(s) is up to date.**

☒ **The London Borough of Wandsworth confirm that all current AQAPs have been submitted to GLA.**

2.2 Air Quality Action Plan Progress

A new Air Quality Action Plan was approved by Environment Committee in September 2023. The Air Quality Action Plan used the recommendations of the Wandsworth Air Quality Citizens' Assembly as the basis for creating the new Action Plan.

The Citizens' Assembly produced a recommendation report with 53 recommendations, which was presented by members of the Citizens' Assembly to the Environment Committee in June 2023, alongside a launch event featuring members of the Citizens' Assembly in July 2023.

The new Air Quality Action Plan established a new target for air quality that is aligned to WHO standards as well as increased engagement and communication on the risks of poor air quality and what residents, communities and businesses can do to improve it. The Air Quality Action Plan also includes actions around improving transport, walking and cycling, supporting businesses, parks and green space, protecting children and the most vulnerable as well as reducing air pollution from homes and buildings.

Ongoing engagement with members of the Citizens' Assembly is in place with the development of the Air Quality Ambassadors programme and an annual meeting.

Table M provides a brief summary of the London Borough of Wandsworth's progress against the Air Quality Action Plan, showing progress made this year. New projects which commenced in 2024 are shown at the bottom of the table.

Table M. Delivery of Air Quality Action Plan Measures

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
50	Protecting Our Children and The Most Vulnerable	Establish a programme of Air Quality Ambassadors to be led by the Council's Air Quality Champion. Launch an engagement and communication programme for schools to increase awareness and activity regarding air quality and climate change.	2024	Local Authority Environmental Health, Local Authority Transport Dept, County Council. Community groups	Ongoing
25	Air Quality Monitoring	Update all automated sites to include the monitoring of PM2.5	2025	Regulatory Services Partnership	Complete
2	Leading by example	Adopt WHO Guidelines on Air Quality, with interim $PM_{2.5}$ target of 10 µg m^{-3}, and interim NO_2 target of 30 µg m^{-3}.	2023	<Local Authority Environmental Health, Local Authority Transport Dept. >	In September 2023 the AQAP 2023-2028 was approved by Environment Committee. The AQAP established a new target for air quality that is aligned to WHO standards.
1	Leading by example	Support extension of London's Ultra-Low Emission Zone, with Wandsworth's £1million sustainable transport fund	April 2025	Local Authority Transport Dept.	The Council has to date assisted 129 households to replace their vehicles with £1,000 grants over and above the TfL scrappage scheme
2	Leading by example	Adopt WHO Guidelines on Air Quality, with interim $PM_{2.5}$ target of 10 µg m^{-3}, and interim NO_2 target of 30 µg m^{-3}.	2023	<Local Authority Environmental Health, Local Authority Transport Dept. >	In September 2023 the AQAP 2023-2028 was approved by Environment Committee. The AQAP established a new target for air quality that is aligned to WHO standards.

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
3	Leading by example	Roll out an Air Quality Ambassadors programme, building on the outcomes of the Citizens Assembly.	2024	Regulatory Services/ Environmental Health	The Council has implemented two teams of Air Quality Ambassadors. The first focusses on schools aiming to deliver a range of engagement, education and awareness. The second group deliver a variety of independent projects within the local community, benefiting from enthusiasm and knowledge of local ambassadors with ongoing technical and other support from the Council's air quality officers.
4	Leading by example	Campaign against the Heathrow 3rd Runway expansion plan.	Ongoing	<Local Authority Environmental Health, Local Authority Transport Dept. >	The Council remains opposed to any plans to expand operations at Heathrow. On the 18th of April 2024, officers attended the annual forum hosted by the Council for the Independent Scrutiny of Heathrow Airport which included a discussion on night flight restrictions and airspace modernisation
5	Leading by example	Deliver our Decarbonisation Strategy to reduce emissions from Council Buildings, extending it beyond GHGs to include unhealthy air pollutants.	Ongoing	Property Services	Work on the Decarbonisation Strategy for operational buildings has been progressed throughout the year, with Heat Decarbonisation Plans developed for top-consuming council sites to inform the development of the strategy. A draft is developed and will

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
					be taken to Finance Committee in 2025. The asset review process is ongoing and is being coordinated with the Decarbonisation Strategy. For the current reporting year, the council has overseen a reduction of 17% in total gross emissions (including location-based emissions) from buildings from the baseline year (18/19). The change in emissions can be attributed to: • A 13% decrease in Scope 1 emissions from natural gas consumption • A 24% decrease in Scope 2 emissions (including location-based) resulting from electricity usage in communal areas of our social housing stock and other corporate assets. 25% of emissions is from the operational buildings (excluding landlord supply and streetlights) • 24% of emissions within the section is from the top 35 consuming sites The completed works for 2024 are as below:

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
					• Roehampton Leisure Centre has had an Air Source Heat Pump (ASHP) installed within 2024 • Yvonne Carr centre has had works completed (ASHP) • Balham Leisure Centre has reached the tendering stage for a new Building Management System and ventilation • Three schools (Riversdale Primary, Smallwood Primary and Garratt Park Primary) have had works completed as part of the LED pilot programme • Monks residence works have completed, installing a full electric heating system and insulation.
6	Leading by example	Perform our statutory and regulatory duties to ensure smoke control zones are identified and enforced, permitting of Part B emissions sources, and management of air quality relating to construction and construction sites.	Ongoing	Regulatory Services	The Council remains committed to raise awareness about the smoke control order in the whole borough and that the use of some solid fuel is prohibited. All complaints investigated by Environment Health officers on unauthorised burning and appliances.

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
					All permitted processes inspected and compliant. CSCO working with developers to ensure best practice and GLA compliance. Non-road mobile machinery (NRMM) working across boroughs. 18 construction sites were audited in 2024 and all were compliant in regards to NRMM regulations.
7	Leading by example	Reduce the health impact of high ozone episodes, including them in our plan to treat the Climate Emergency as a Health Emergency.	Ongoing	Public Health / Regulatory Services/ Environmental Health	Climate Change and Air Quality Make Every Contact Count (MECC) Training Modules have been developed for all Adult Social Care and Public Health (ASCPH) staff to complete via the MECC Training Platform, the uptake is being monitored. Currently there have been 47 completions across the Climate Change Module and Air Pollution modules by ASCPH from April to December. Carbon Literacy training sessions were delivered in June by the Climate Change team to help raise climate change awareness. An interactive Climate Change and Air Quality workshop was delivered at the Senior Leadership team in March on the format of 'Stories, Hurdles and

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
					Ideas' theme which informed the new ASCPH Climate Change Action plan. Further work is in progress to implement the action plan. A behavioural insights project in July involved vulnerable groups in the borough as well as GPs to help gather information on their perceptions of climate change and its impact on health. This project targeted information to vulnerable groups to highlight health impacts and measures that they could undertake to adapt and mitigate. The project was completed at the end of November, after which a report based on the findings from the project is being produced. This report will act as a guide for the Council and NHS SWL ICB to help better tailor communications on the health impacts of climate change for vulnerable groups.
8	Leading by example	Construction Low Emissions Zone and London Council's Non-Road Mobile Machinery programme.	Ongoing	Regulatory Services/ Environmental Health	18 construction sites were audited in 2024, and all were made compliant in regard to NRMM regulations.
9	Leading by example	Lead on local events to promote the Councils climate and air quality work.	Ongoing	Regulatory Services/ Environmental	For Clean Air Day in June 2024 air quality events took place in

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
					Wandsworth High Street and Tooting High Street which included air quality information, police bike marking, and a free cargo bike taxi service. Air quality officers were joined by air quality ambassadors, and members of the climate change team. Advice to members of the public on how to reduce their exposure to and their impact on air pollution, whilst linking the effects of climate change and air pollution. Termly online Schools Sustainability Forums were run promoting the council and partner organisation programmes supporting schools. The council launched the Wandsworth Climate Action Microgrant programme with 60 applications received and 35 projects funded. In September a 'Sustainable September' programme of events promoting council and local organisation activities and ways for residents to get involved was held. Public Health have developed an air pollution engagement strategy, which will be rolled out from 2024.

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
10	Leading by example	Develop and deliver local climate & air quality newsletter	Ongoing	Assistant Chief Exec	A quarterly air quality newsletter is distributed to stakeholders. The newsletters give an update on project work throughout the borough. A monthly climate newsletter has been sent out to our subscriber list throughout the year, with our subscriber list increasing to over 3,000.
11	Leading by example	Establish an expert network to connect local sustainability experts with local businesses and community groups	2023	Assistant Chief Exec	The climate change team lead a Wandsworth Net Zero Summit in March 2024 promoting the Council's commitment towards Net Zero and reducing emissions across the borough, with key stakeholders and partners. There were 3 Wandsworth Sustainability Network (formerly Partnership) events in 2024.
12	Leading by example	Help our staff to travel sustainably for work by walking, cycling or public transport	Ongoing	Assistant Chief Executive / Corporate	Information on sustainable travel options is available on the internal staff website including staff benefits, the seasonal ticket loan and EV leasing scheme. It includes links to the TfL Journey Planner page promoting public transport, cycling and walking routes.

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
13	Leading by example	Improve collaboration and partnership on climate change across health and social care.	2030	Regulatory Services/ Environmental	There has been continued involvement with the SWL ICS including attendance of meetings and workshops linked to the Green Plan. This has included highlighting the work undertaken by the council including the climate change risk map to help review impact on NHS estate, the climate change behavioural insights project, raising awareness of the Make Every Contact Count (MECC) training module on climate change and air pollution for NHS staff, and contributing ideas for the development of the NHS Green Plan.
14	Leading by example	Improve the sustainability of parks contractors by upgrading their fleet to zero tailpipe emissions and use of electric tools	Ongoing	Contracts and Leisure (Enable)	Continental Landscapes has and will continue to use cargo bikes for litter picking on Wandsworth Common and Tooting Common whilst Enable will use them to support the delivery of volunteering sessions. The use of EVs will continue for Continental Landscapes supervisors. A “watching brief” will continue the developments of commercial EV (Electric Vehicle) – currently there are no viable options that meet the required capacity and / or towing needs for Continental Landscapes and tree maintenance and planting contractors.

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
15	Leading by example	Increase the number of contracts that are commissioned and procured sustainably, also minimising unhealthy air pollutant emissions.	2025	Procurement and Finance dept.	Following the completion of the fleet transition plan by consultants Cenex, a vehicle decarbonisation strategy was developed in collaboration with Procurement and Finance. The strategy formalises the process for decarbonisation the fleet, including the centralisation of all vehicle procurement through the Procurement team, scrutinising the need for vehicles, and ensuring new vehicles are electric vehicles. The strategy was approved at Directors Board in October 2024. The centralisation of vehicle procurement will enable the monitoring of the decarbonisation of the fleet.
16	Leading by example	Maintain and build on Wandsworth Sustainability Partnership for public sector partners, businesses and community groups to facilitate knowledge sharing, networking and increased.	2023	Assistant Chief Executive	The council's climate change team has continued to deliver partnership events via the Wandsworth Sustainability Network, with meetings hosted in the community aimed at community groups and climate active residents. The July meeting focused on retrofit and energy while the October meeting was focused on climate adaptation and resilience. “Climate chats” were launched to explore a more accessibly monthly format for connection with local interested parties.

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
17	Leading by example	Procure new waste fleet which will be lower emission than the previous waste fleet and establish infrastructure needs for an EV heavy waste fleet.	2024	Waste	Wandsworth has delivered the rollout of a new, modern fleet reducing that runs on HVO fuel, which will reduce carbon emissions from the fleet by 90% as well as reducing air pollutants. A waste fleet decarbonisation analysis is underway which will look at options for further reductions in carbon emissions from the fleet, including options for electrification.
18	Leading by example	Promote energy efficiency and decarbonisation of buildings for schools, considering air quality.	2026	Property Services	10 schools have had LED lighting upgrades to date. Work began in December 2024 at three schools (has been undertaken at 3 schools (Granard Primary School, Swaffield Primary School and Alderbrook Primary School) to upgrade them before Christmas The council's climate change team have successfully applied for over £170,000 from the government funded Low Carbon Skills Fund (LCSF) to undertake the development of Heat Decarbonisation Plans (HDP) for twenty-two schools in the borough. These HDPs will identify how each school can

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
					become zero carbon through the installation of energy efficiency and renewable energy technologies, along with indicative costs for implementation along with high-level financial and carbon benefits. The Public Sector Decarbonisation Scheme (PSDS) opened in November 2024. The HDPs are being used to aid in applying for this money for eligible schools.
19	Leading by example	Roll out a programme of energy efficiency, GHG and air quality emissions improvements across our estates, buildings and homes.	Ongoing	Property Services	A new Housing Asset Management Strategy was presented to the environment committee in July 2024. The costs from a pilot property were very high, which had an impact on the ability to realistically replicate the scheme across the housing stock. Funding was secured from the Social Housing Decarbonisation Fund, enabling whole streets to be targeted and an archetype approach to retrofit developed.

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
20	Leading by example	Transition the Council's vehicle fleet to low and zero emission vehicles	Ongoing	Financial Services/ Assistant Chief	The first phase of the Cleaner Borough Plan has been delivered. This guaranteed weekly waste collections, saw the rollout of a new, modern fleet which has reduced emissions by 90% and will see a reduction in costs of over £1m per year which will be reinvested into services. A vehicle decarbonisation started was developed in 2024. The strategy formalises the process for decarbonisation the fleet, including the centralisation of all vehicle procurement through the Procurement team, scrutinising the need for vehicles, and ensuring new vehicles are electric vehicles. The strategy was approved at Directors Board in October 2024. The centralisation of vehicle procurement will enable the monitoring of the decarbonisation of the fleet.
21	Raising awareness, enabling protection	Widely share the data collected by the Council to help residents understand air quality in their neighbourhoods, for example through Citizen Science projects and outside schools.	Ongoing	Regulatory Services in Partnership with the AQ Ambassadors	Data from the Annual Status report is shared with the general public at awareness raising community events.

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
22	Raising awareness, enabling protection	Deliver a unified anti-idling campaign across the borough.	Ongoing	Regulatory Services/ Environmental	An Anti-Idling Action Plan (AIAP) was created in 2021, the plan covers internal and external partner engagement, communications, signage, and events. The plan aims to deliver one event each month of the year (excluding July and August). Events are primarily delivered by Air Quality Officers and focus on idling hotspots such as town centres and schools but also in response to complaints. The officers are also supported by students at school idling action events, who approach drivers and encourage them to switch off. 11 anti-idling events were delivered during 2024, five of which took place around school sites. The civil enforcement officers in the London Borough of Wandsworth conducted 4547 engagements with drivers of idling vehicles.
23	Raising awareness, enabling protection	Roll out a programme of awareness raising on air pollution and climate, promoting other information sources such as airTEXT	Ongoing	Regulatory Services/ Environmental Health / Climate Change & Sustainability	The council continues to support airTEXT
24	Raising awareness, enabling protection	Work with health professionals so they have the right information to provide to those most vulnerable to air pollution including how people can protect themselves, including within their homes and workspaces.	2026	Regulatory Services/ Environmental	The Air Quality and Health project started in 2024. This projects links air quality team, the council's public health team and NHS employees.

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
25	Raising awareness, enabling protection	Continue our air quality monitoring at 89 locations and extend this where its practical to do so. This monitoring network includes regulatory standard automatic sensors, low cost, lower accuracy automatic sensors and diffusion tube monitors.	Ongoing	Regulatory Services/ Environmental	Ongoing Automatic monitoring stations upgraded to include new equipment and $PM_{2.5}$ analysers.
26	Improving Transport	We will work with the Mayor, other boroughs and London Councils to campaign for the protection and improvement of public transport services.	2024	Assistant Chief Executive	The Council has started conversations with TfL and Boroughs to improve public transport services across the borough following the inclusion of action 26 in the new AQAP.
27	Improving Transport	We will work with the Mayor to improve and electrify the bus fleet and add our support to his voice at Government level for more improvements.	Ongoing	Public Transport Policy and Access	The Council regularly responds to consultations on changes to buses in the borough and objected on proposed cuts while consistently advocating for bus electrification in the borough and actively supporting many station improvement schemes across the borough.
28	Improving Transport	We will install 525 more EV charging points in Wandsworth in 2023 to enable greater use of electric and hybrid electric vehicles, and a total of 2000 more by 2033.	2025	Planning and Transport	In 2024 a total of 1470 EV chargers installed across the borough; 1155 lamp column 5kW; 156 Source London 7kW; 128 Believ 22kW; 20 fast charges (7/22kW) on housing estates; and 11 TfL rapid 50kW.
29	Improving Transport	Continue our work to improve connections between TfL, Network Rail and walking and cycling facilities,	Ongoing	Planning and Transport	A consultation on 13 proposed quiet cycle routes, including 3 routes from Roehampton and routes through

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
		so they are more accessible and attractive			Tooting Common and Wandsworth Common, ran from 6 August to 22 September 2024 with 7 routes prioritised, including a route through Tooting Common in the first phase. Phase 1 and phase 2 of the Putney High Street Improvement Project were completed. The council worked with TfL to implement pedestrian areas, cycle paths and parking spaces in a bid to improve traffic flow and, in turn, reduce levels of pollutants.
30	Walking and Cycling	Action to improve accessibility on foot	Ongoing	Planning and Transport	Pedestrian improvements have included: • Battersea Riverwalk: The following measures were installed in May 2024, improved eye level pedestrian priority signage, new footway pedestrian priority paving slabs, planters in key locations to narrow widths to reduce cycle speeds, rumble strips added in key locations to reduce cycle speeds, a go slow zone implemented for the hire e-bikes, convex mirrors to help with blind corners and cobble stones to

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
					move people to a more central position for better visibility. • Chestnut Grove: Both zebra crossings have been delivered with snagging and remedial works pending. Expected completion by end of November. • Falcon Road: Design competition in partnership with the London Festival of Architecture has progressed well and shortlisted entries have submitted concept designs which are currently being exhibited to the community. Successful party will be appointed end of November, to commence detailed design. Construction still forecast for summer/autumn 2025. Paper No. 24-321 provides a full project update. Recently completed controlled crossings include a zebra crossing outside Heathmere Primary School on Alton Road in May 24, a zebra crossing outside Hurlingham School on Putney Bridge Road in August 24. Upcoming zebra crossing projects

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
					include Princes Way, Augustus Road and Blackshaw Road.
31	Walking and Cycling	Action to improve all active travel methods	Ongoing	Planning and Transport	An update of the Council's walking and cycling was considered in February 2024. Designs for quiet cycle routes have been produced for consultation in 2024
32	Walking and Cycling	Support rollout of dockless e-bikes and cargo bikes, monitor their use and expand availability based on usage.	2025	Planning and Transport	11 designated parking bays were installed in phase 1 in Summer 2024. A further 65 bays are due to be installed by early 2025 as phase 2. Phase 3 will be taken forward in 2025. From 30 September new mandatory parking zones were introduced for e-bikes. E-scooter trial expected to be launched in early 2025. 1400 cycle training sessions have been completed so far in 2024.
33	Walking and Cycling	Use our Healthy Street Forums to explore whether Liveable Neighbourhoods can work for Wandsworth residents	Ongoing	Planning and Transport	A meeting of the Healthy Streets Forum was held in October and November
34	Walking and Cycling	Annual Car Free Sunday	Ongoing	Planning and Transport / Regulatory Services / Regulatory Services/ Environmental Health	Car free day saw 19 streets closed across the borough over Saturday 23rd September and Sunday 24th September. This enabled families to come together and enjoy a range of outdoor community celebrations with the focus on play and neighbourhood

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
					get-togethers. Small grants of £50 were offered to the first 30 streets to apply to go towards equipment and non-alcoholic refreshments. With London Play encouraging people to take part by running its Swap your Car for a Spacehopper campaign – providing free play equipment like spacehoppers, toys and games to the first 100 streets that get in touch
35	Walking and Cycling	Provide new and improve existing quiet routes for walking and cycling, through action to improve local connections, signage, traffic calming and maintenance of roads and footpaths	2025/6	Planning and Transport	A consultation on 13 proposed quiet cycle routes, including 3 routes from Roehampton and routes through Tooting Common and Wandsworth Common, ran from 6 August to 22 September 2024 with 7 routes prioritised, including a route through Tooting Common in the first phase
. 36	Walking and Cycling	Promote our free cycle training offer to adults and primary school children and seek opportunities to grow the council's bike stock for these training sessions.	Ongoing	Planning and Transport	Approximately 447 children received level 2 bikeability training, across 41 schools and 423 adults/families received 1-2-1 training in 2024-25 (April to March).
37	Supporting Our Businesses	Support our businesses to improve their sustainability across all domains, including air quality, with a pilot programme providing sustainability audits for businesses. This will include use of an Environmental Management System to enable them	Ongoing	Climate Change & Sustainability	During 2024, the Enterprise and Business Growth Team within the economic development section of Wandsworth Council, commissioned Carbon Architecture to deliver a Greening Your Business Programme in

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
		show their credentials to their retail and business customers.			LB Wandsworth. This programme has been delivering support to 35 businesses in Wandsworth, helping them to become more sustainable, to reduce their carbon emissions and to help them to achieve Level 1 accreditation of the Green Mark. In parallel with this programme, we are also encouraging our local businesses to adopt more sustainable business practices through our main business support programmes and to engage with the newly formed Wandsworth Sustainability Network
38	Supporting Our Businesses	To help improve air pollution in workplaces, we will purchase indoor air quality monitors so employers can test the air quality in workplaces and take action if needed.	Ongoing	Climate change and sustainability	Tooting Indoor Markets have been identified as a public space that is subject to very high levels or $PM_{2.5}$. Although the council is limited in its powers we are currently working with the Businesses and local groups to improve air quality in workplaces. Air quality sensors have been deployed, and audits have been commissioned. See paragraph 3.1 for more details.
39	Supporting Our Businesses	Support and grow Wandsworth's cargo bike delivery projects, including new hub at Southside Shopping Centre	Ongoing	Regulatory Services/ Environmental Health with Cross River Partnership	The Our Bike community cargo bike scheme added a bike in Earlsfield in July 2024 and in Roehampton in October 2024, expanding to its fourth and fifth locations in the borough. The e-cargo delivery hub trial was

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
					successfully implemented and currently considering next steps.
40	Supporting Our Businesses	Work with other councils to identify cost effective ways to reduce $PM_{2.5}$ emissions from commercial kitchens, and lobby Government to improve standards and legislation.	2024	Regulatory Services/ Environmental Health	An indoor LA's working group has been established and we are sharing best practice with colleagues on a regular basis.
41	Supporting Our Businesses	Work to eliminate high pollution pockets through transport emissions management and improvements from point source emissions such commercial kitchens, as well as the Low Emissions Logistics Project, Tooting Town Centre projects, Clapham Junction projects, and by applying lessons learned from Putney High Street to Clapham Junction and Tooting High Street.	Ongoing	Regulatory Services / Planning & Transport	Please refer to page 45 and paragraph 3.1.
42	Protecting and Improving Our Parks and Green Spaces	Every year plant 300 new trees on streets prioritising areas with the fewest trees.	ongoing	Contracts and Leisure (Enable)	1,000 trees were ordered and plans were developed to plant them in the planting season over winter 2024/25.
43	Protecting and Improving Our Parks and Green Spaces	Plant 700 trees across the borough in 2023/24, including replacements and new trees.	2023	Contracts and Leisure (Enable)	Achieved – 800 planted overall this year Framework delivered and available here Together on nature - Wandsworth Borough Council
44	Protecting and Improving Our Parks and Green Spaces	Protect and improve our green spaces during planning, using the Neighbourhood Community	Ongoing	Housing Horticultural Services	7 sites achieved green Flag status. And new green spaces have been progressed for the following locations:

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
		Infrastructure Levy to improve local neighbourhoods.			• Swaffield Pocket Park: Following the consultation exercise the preferred option has been further amended and has been submitted for planning approval. • Thessaly Road Open Space – an engagement report has been produced following engagement exercises in the summer. Next steps to be determined. The project is planned to be delivered in the early part of 2026
45	Protecting and Improving Our Parks and Green Spaces	Collaborate with community groups to trial community orchards, empowering them and others to cultivate their fruit. Enhance collaboration with council teams and community groups on biodiversity projects.	Ongoing	Contracts and Leisure (Enable)	Discussions underway with one group for a possible orchard on a council greenspace
46	Protecting and Improving Our Parks and Green Spaces	Promote the Wandsworth Local Fund and Wandsworth Grant Fund to bolster the number of local environment projects and support the grant application process	Ongoing	Contracts and Leisure (Enable)	One bid submitted for improved interpretation of biodiversity on a greenspace.
47	Protecting and Improving Our Parks and Green Spaces	Provide more information to residents about conserving and enhancing biodiversity throughout the borough.	Ongoing	Contracts and Leisure (Enable)	A full citizens science programme was implemented across 2024 to support volunteer biological recorders.

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
48	Protecting and Improving Our Parks and Green Spaces	Develop action and project plans to implement our Biodiversity Strategy that protects our local wildlife species and habitats	2025	Environment and Community Services	Biodiversity Action Plan development underway.
49	Protecting and Improving Our Parks and Green Spaces	Increase information available to residents on how they can protect and improve biodiversity across the borough.	Ongoing	Contracts and Leisure (Enable)	A resident survey was undertook to understand existing provision for wildlife in residential gardens. There were over 700 responses with a report to be published in early 2025. This will determine the detail of information to be provided to residents to support biodiversity.
50	Protecting Our Children and The Most Vulnerable	Establish a programme of Air Quality Ambassadors to be led by the Council's Air Quality Champion. Launch an engagement and communication programme for schools to increase awareness and activity regarding air quality and climate change.	2024	Regulatory Services/ Environmental Health	The Council has implemented two teams of Air Quality Ambassadors. The first focusses on schools aiming to deliver a range of engagement, education and awareness. The second group deliver a variety of independent projects within the local community, benefiting from enthusiasm and knowledge of local ambassadors with ongoing technical and other support from the Council's air quality officers. The Wandsworth School Air Quality Ambassadors are a group of residents and individuals that work in the borough of Wandsworth who are keen to help clean up Wandsworth air

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
					and specifically work around schools, nurseries, and children's centres. The ambassadors raise awareness with teachers, parents, and pupils of actions they can take to improve air quality. The ambassadors engage, inform, and share information with community groups, schools, and youth centres so people can understand and relate to the issues. The ambassadors promote the council-run air quality assessments, pollution workshops and idling events through their networks and this has led to the air quality team connecting with schools and delivering the free air quality package on offer. Ambassadors also join and support at council air quality events as well as creating their own. All schools have been offered assessments and AQ engagements and the Ambassadors have now started an accreditation scheme for schools ranked on Air Quality. 32 air pollution workshops were delivered in 2024 – 3 of these were attended by air quality ambassadors.

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
51	Protecting Our Children and The Most Vulnerable	Make school air quality information available, including through variable message signage outside schools, and through school events with the Air Quality Ambassadors.	2026	Regulatory Services/ Environmental	Explored in 2024 again. Technology has now become available. Will be going through procurement in 2025 for Interactive screens.
52	Protecting Our Children and The Most Vulnerable	School Streets.	Ongoing	Planning and Transport	There are 29 schemes serving 31 schools that are already in operation and were completed under the first 5 phases. Phase 5 has been delivered with trials for three school streets launched in June 2024 (Heathmere Belleville Webbs Site, and Brandlehow) and trials for an additional two school streets started in October 2024 (Belleville Meteor Site and All Saints). Engagement with Phase 6 schools started in September 2024 and is ongoing. Enhancements to existing school streets remain ongoing.
53	Protecting Our Children and The Most Vulnerable	Conduct air quality and climate audits at every school and at other key locations such as care homes, sharing the information directly and through the Air Quality Ambassadors, and acting on recommendations.	Ongoing	Regulatory Services/ Environmental	In 2024 the air quality team conducted an additional 9 air quality audits. These included 2 schools, 5 children's centres, 1 hospital and 1 church. All schools were offered an air pollution workshop and 5 schools had an idling action event. The air quality ambassadors attended 1 air quality audit and 3 workshops

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
54	Protecting Our Children and The Most Vulnerable	Work with TfL so that bus routes passing schools are prioritised for electrification.	Ongoing	Planning & Transport	The Council regularly responds to consultations on changes to buses in the borough and objecting on proposed cuts while consistently advocating for bus electrification in the borough and actively supporting many station improvement schemes across the borough.
55	Improving Our Homes and Buildings	Provide advice and support for energy efficiency improvements, including solar and other renewable energy, insulation and retrofit to homes able to fund it installation themselves	Ongoing	Assistant Chief Executive	The retrofit advice tool work progressed throughout late 2023 and into 2024 in the form of user research being conducted on behalf of the South London Partnership, being shared with SLP Growth Directors and Net Zero Officers from across the South London Partnership in Spring 2024. The insights and recommendations from this research are currently being explored within the Net Zero Officers group, with consideration for how to align this work with insights and software available at a pan-London level. A South London retrofit taskforce in partnership with South London Partnerships was launched to support the work across the sub-region. Increased information on retrofit and information for residents forms part of

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
					the updated information on the Council website on climate change.
56	Improving Our Homes and Buildings	Provide energy efficiency advice and help for residents to address the Cost-of-Living crisis.	Ongoing	Housing Services	There have been 1129 Warm Home Packs distributed, going beyond the initial target set out. An additional 760 Warm Hime Packs us on the Alton Estate area, with 760 additional Warm Home Packs distributed in the area. All residents reciving the Warm Home Packs have been given energy efficiency advice. The Cost of Living recommendations have informed the development of the Retrofit Strategy.
57	Improving Our Homes and Buildings	Replacing heating systems with renewable, low-emission alternatives.	Ongoing	Housing Services	Reports have been completed on three of the largest networks (Doddington, Arndale Main, Arndale Sudbury) through the Heat Network Optimisation Opportunities (HNOO) programme with funding yet to be released to the partnering consultant for the remaining assessments. Information from the pilot properties is still being evaluated to see whether this is a technology that we would wish to extend across the stock. As appropriate updates on progress will be reported to Committee.

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
58	Improving Our Homes and Buildings	Apply Air Quality Neutral, Air Quality Positive, CHP and biomass air quality policies for new construction, as appropriate, and require strict standards on dust and other emissions during building demolition, and during construction of new buildings	2023	Regulatory Services/ Environmental Health	Air Quality Neutral Assessments in line with the Sustainable Design and Construction SDP being undertaken. In 2024, within the Environmental Protection Team, officers reviewed planning applications in terms of air quality for both minor and major developments. The Air Quality Team reviewed air quality assessments, air quality neutral reports, dust management plans, construction environmental management plans, schemes for monitoring dust on construction sites, method statements for the reduction of emissions from construction vehicles in compliance with the London Low Emission Zone, schemes of air pollution mitigation measures to protect future occupiers from air pollution exposure.
59	Improving Our Homes and Buildings	Implement the Future Homes Standards when these come into force.	2025	Housing Services	Fossil fuel powered heating system at Holmleigh court is to be replaced by am ASHP lead system supported by solar panels, part funded by the Heat Network Efficiency Scheme (HNES). Further work is continuing improving the efficiency of the heat networks

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					serving the Arndale estate and Doddington Estate through the Heat Network Efficiency Opportunities fund (HNOO). The council is also in communication with district heat network operators to examine the role of large heat networks in the Council's decarbonisation plans.
60	Improving Our Homes and Buildings	Improve the energy efficiency of our social housing stock	Ongoing	Housing Services	A new Housing Asset Management Strategy was presented to the Environment committee in July An initial pilot property had very high costs, impacting on the realistic prospect of delivery being replicated across the housing stock. The Social Housing Decarbonisation Fund (SHDF) 3.0 has been secured and has been utilised to capture more properties. This has allowed whole streets to be targeted and an archetype approach to retrofit developed.
61	Improving Our Homes and Buildings	Discourage use of wood burning stoves with a targeted information campaign, while we lobby Government for powers to eliminate wood burning in Wandsworth.	Ongoing	Regulatory Services/ Environmental	The council are part of the GLA's wood burning steering group and lobby central government to eliminate wood burning in Wandsworth.

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
62	Improving Our Homes and Buildings	Link together the air quality and climate change agendas.	2023	Climate Change & Sustainability, Assistant Chief Exec	The climate change and air quality teams worked closely on the air quality citizens' assembly and development of the new Wandsworth Air Quality Action Plan. One of the outcomes of this new plan was the recruitment of a Partnership and Engagement Officer (Climate Change and Air Quality) who works across both teams, increasing the collaborative work across the climate change and air quality teams. Funding for retrofit and energy efficiency has been delivered via the Council's Cost of Living Programme. Over 2,800 eligible residents received a Warm Homes Pack. A further 169 homes received home visits with associated installations of small measures and 96 residents receiving telephone advice. In addition, SW Leap have continued their programme of energy advice events. Thinking Works funding has been extended to provide a handyman service and additional fuel vouchers to 100 homes in Wandsworth via

Measure	LLAQM Action Matrix Theme	Action	Estimated / Actual Completion Date	Organisations Involved	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
					the WRAP service to have more impactful interventions, with a focus on securing warmth for homes. A bid has been put in for the MCS Foundation's Local Authority Retrofit Accelerator project, and there is a commitment to develop a Retrofit Strategy for Wandsworth over the coming year.

New Projects for 2024	Project description and updates
Indoor Air Quality Project – Training for Professionals	Indoor Air Quality – A Guide for Professionals Visiting Residents at Home The Air Quality Team developed a comprehensive training package aimed at professionals who conduct home visits, to raise awareness of indoor air pollution and its health impacts. The package included six webinars and supporting printed and digital materials, delivered across London. The target audience included Adult Social Care staff, asthma nurses, Primary Care Trust (PCT) and NHS personnel, care workers, MASCOT, the London Fire Brigade, Metropolitan Police Safer Neighbourhood Teams, Environmental Health Officers, and Occupational Health Officers. The webinars were delivered in 2025, and the associated materials will be hosted on the Love Clean Air website upon the completion of Phase 1 of the project in Summer 2025. The training has been well received, with participants expressing gratitude for the increased awareness it provides around indoor air pollution. Positive feedback has been abundant, highlighting the value of the sessions.
Beyond Construction Project	The Mayor's Air Quality Fund Round 4 enabled commencement of the Beyond Construction project, led by the London Borough of Wandsworth, with activities planned to continue through 2026/27. The project focuses on establishing baseline fleet profiles for Waste Transfer, Events, and Street Works across London.
Healthy Waterways	The Mayor's Air Quality Fund Round 4 enabled 11 borough partners to collaborate to encourage the boating community to make positive changes to reduce CO_2 emissions and exposure and contribution to air pollution by transitioning to electricity for heating and cooking

3. Planning Update and Other New Sources of Emissions

Table N. Planning requirements met by planning applications in the London Borough of Wandsworth in 2024

Condition	Number
Number of planning applications where an air quality impact assessment was reviewed for air quality impacts	42
Number of planning applications required to undertake construction dust monitoring and reporting (Please specify how you get access to dust monitoring data i.e. online tool or CSV file)	24 Exceedances are reported via a pro forma within 24 hours. High risk sites submit monthly reports with QA and QC
Number of CHPs/Biomass boilers refused on air quality grounds	0
Number of CHPs/Biomass boilers subject to GLA emissions limits and/or other restrictions to reduce emissions as detailed in Air Quality Neutral LPG (london.gov.uk) point 3.1.5.	0
Number of developments required to install Ultra-Low NO_X boilers	4 The majority of developments install Air Source Heat Pumps
Number of developments where an AQ Neutral building and/or transport assessments undertaken	37
Number of developments where the AQ Neutral building and/or transport assessments not meeting the benchmark and so required to include additional mitigation	4
Number of planning applications with S106 agreements including other requirements to improve air quality	0
Number of planning applications with CIL payments that include a contribution to improve air quality	0
NRMM: Central Activity Zone, Canary Wharf and Opportunity Areas Number of planning applications with conditions related to NRMM included. Number of developments registered at www.nrmm.london. Number of audits (based on the pan-London project report and / or inhouse auditing programme) % of sites unregistered prior to audit % of sites compliant with Stage IV of the Directive and/or exemptions to the policy.	17

<table>
<tr><th>Condition</th><th>Number</th></tr>
<tr><td>NRMM: Greater London (excluding Central Activity Zone, Canary Wharf and Opportunity Areas)

Number of planning applications with conditions related to NRMM included.

Number of developments registered at www.nrmm.london.

Number of audits (based on the pan-London project report and / or inhouse auditing programme)% of sites unregistered prior to audit

% of sites compliant with

Stage IIIB of the Directive and/or exemptions to the policy.</td><td>7 conditions included

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<tr><td>Total Audits</td><td>18</td></tr>
<tr><td>*Self-compliant</td><td>6</td></tr>
<tr><td>**Compliant</td><td>5</td></tr>
<tr><td>Non-compliant</td><td>0</td></tr>
<tr><td>No NRMM</td><td>7</td></tr>
<tr><td>Site Complete</td><td>0</td></tr>
<tr><td>Pending</td><td>0</td></tr>
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 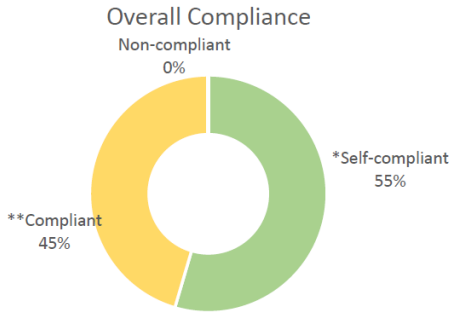

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<tr><td>Central Activity Zone (CAZ)</td><td>1</td></tr>
<tr><td>Greater London (GL)</td><td>12</td></tr>
<tr><td>Opportunity Areas (OA)</td><td>5</td></tr>
</table>
</td></tr>
</table>

3.1 New or significantly changed industrial or other sources

Tooting Indoor Markets have been identified as a public space that is subject to very high levels or $PM_{2.5}$. Although the council is limited in its powers we are currently working with the Markets and local groups to tackle the issue at source, it is thought that the cause of the problem is lack of ventilation from cooking activities.

The project will increase knowledge of air quality in indoor environments where commercial cooking occurs. We will implement a range of mitigation measures, with monitoring undertaken before and after to enable the benefits of different measures to be assessed. The knowledge derived will be transferable to other indoor markets and communicated to local authorities and industry bodies.

Engaging with the market operators and stall holders on the impacts of $PM_{2.5}$ on health, sources within the market, and mitigation measures is a key part of the project. The food outlets are generally micro businesses, with few resources to mitigate their impacts.

Initial monitoring undertaken by the council in 2024 has demonstrated very high levels of $PM_{2.5}$ in the two indoor markets. The project will include continuous static to understand the levels in the markets and the audits of the cooking units. A range of mitigation measures will be implemented and assessed. More details and the outcomes will be included in the Annual Status Report.

4. Additional Activities to Improve Air Quality

4.1 London Borough of Wandsworth Fleet

All details have been taken from the London Borough of Wandsworth's Commissioned Fleet List 2025 (April/May 2025).
The fleet compiles of the following

- 12 Full electric vehicles (a)
- 15 Hybrid Vehicles (b)
- 168 Fleet vehicles

This makes up a **Fleet** of 64 Owned, 36 Hired and 68 Leased Vehicles if relevant

Hybrid Vehicles - are 1 Leased, 12 Owned and 2 Hired

Electric Vehicles - are 3 Leased, 6 Owned and 3 Hired

This is a percentage of just under 20% Electric/Hybrid vehicles of the whole fleet (Owned, Leased, Hired)
There is a reported reduction of electric vehicles from 2023 – this could be due to a transition of new vehicle deliveries against older ones to be disposed/returned.

A vehicle decarbonisation started was developed in 2024. The strategy formalises the process for decarbonisation the fleet, including the centralisation of all vehicle procurement through the Procurement team, scrutinising the need for vehicles, and ensuring new vehicles are electric vehicles. The strategy was approved at Directors Board in October 2024. The centralisation of vehicle procurement will enable the monitoring of the decarbonisation of the fleet.

4.2 Planning Enforcement

All major developments, and developments where there is likely to be an increase in emissions or receptors, are passed to the Air Quality Officers in the Pollution Team for comment. All major developments are required to submit an Air Quality Assessment. All relevant national, Mayoral and Wandsworth local policies are applied by the Pollution Team to all relevant planning consultations. Sites are considered for construction dust on a case-by-case basis, particulate matter (PM_{10}) monitoring required, and locations agreed, where a moderate or high risk to receptors are identified. CHP/biomass are not recommended and actively discouraged, developers are urged to select non-combustion or at least ultra-low NOx heating systems. We are observing over time that more developments are proposing non-combustion, maximum insulation and renewables to increase BREEAM ratings. The largest contribution to emissions from development coming from transport and not buildings.

Air Quality Neutral Assessments are required as part of the planning process to assess the building and transport nitrogen dioxide and fine particulate matter ($PM_{2.5}$)

emissions from a proposed development. Where emissions exceed the benchmark, mitigation is required to reduce the excess emissions. Where emissions cannot be reduced a Section 106 agreement may be considered to offset emissions.

NRMM condition recommended to be attached to all planning applications where construction and demolition is proposed. NRMM is a standard planning condition applied to all major developments.

4.3 Pan-London NRMM Auditing Project

The London Borough of Wandsworth has committed to supporting the NRMM Enforcement project until March 2028. The London Borough of Wandsworth has also committed in supporting the Beyond Construction – a project funded by the Mayors Air Quality Fund. Beyond construction looks at regulating emissions from Non-Road Mobile Machinery for highways, waste sites and events.

Standard NRMM planning condition:

> *"All Non-Road Mobile Machinery (NRMM) used during the course of the development that is within the scope of the Greater London Authority 'Control of Dust and Emissions during Construction and Demolition' Supplementary Planning Guidance (SPG) dated July 2014, or any subsequent amendment or guidance, shall comply with the emission requirements therein."*

The NRMM wording is applied in the Decision Notice. The NRMM planning condition is applied to all major planning applications and any planning applications where the air quality officer requests it i.e. schools.

4.4 Air Quality Alerts

We continue to support airTEXT and its expansion in the borough. It is however clear from pilot work carried out by the Regulatory Services Partnership that there is a clear gap in information about local and internal air quality and the impact on the vulnerable. We coordinated a DEFRA bid on behalf of 15 London Boroughs, but this was not successful. It is anticipated that this work will be picked up locally by the borough in mid-2024 and coordinated though Public Health and comms.

4.5 Air Quality Positive

The London Borough of Wandsworth has no innovative mitigation measures committed as part of a submitted Air Quality Positive Matrix which aligns with the Air Quality Positive London Plan Guidance.

5. Appendix A Details of Monitoring Site Quality QA/QC

A.1 Automatic Monitoring Sites

All data undergo rigorous quality assurance and quality control (QA/QC) procedures to ensure the highest standards of accuracy and reliability. Continuous automatic monitoring was conducted throughout the entire 12-month period in 2024.

NO_2 Monitoring

The NO_2 chemiluminescent continuous analyser is checked regularly online by Imperial College London and calibrated by the newly appointed contractor, We Care 4 Air (WC4A), (appointed on 1st April 2024) by the London Borough of Wandsworth for Local Support Officer (LSO) and Service and Maintenance visits during 2024. Regular 4 weekly calibration visits were maintained throughout 2024.There is a need for frequent calibration adjustments as the gradual build-up of dirt within the analyser reduces the response rate. This fall off in response needs appropriate correction, to ensure the recording of the true concentrations.

Calibration involves comparing the analyser's readings against a known concentration of span gas. The span gas used is nitric oxide, certified to an accuracy of ±5%. This avoids the less precise permeation tube method.

Additionally, the NO_2 continuous analyser is serviced biannually by WC4A and audited every six months by the Ricardo. These activities are part of the London Air Quality Network (LAQN) quality assurance and quality control (QA/QC) procedures, managed by the Environmental Research Group (ERG) at Imperial College London, to maintain high data quality standards.

The data capture for WA7 (Putney High Street), WA9 (Felsham Road) and WAC (Lavender Hill, Clapham Junction) was low due to multiple failures in the equipment. These include low converter efficiencies, valve leaks, pump repairs and replacements, the fitting of new filters and loss of power to the unit found upon audits. The monitors also experienced over-heating issues, sampling problems and poor record-keeping by the LSO.

Wandsworth Council completed the procurement process to refresh the monitoring network, and the installation 4 new monitoring stations has taken place

PM_{10} Monitoring Adjustment

PM_{10} particulates are measured using Tapered Element Oscillating Microbalance (TEOM) analysers, with the data reported as gravimetric equivalents. These instruments are not subject to automatic or fortnightly calibrations; instead, calibration occurs during routine servicing and through regular independent audits.

The ongoing performance of each monitor is remotely assessed by the Duty Officer at the Environmental Research Group (ERG), Imperial College London. During

fortnightly visits, the Local Support Officer (LSO) conducts more detailed performance checks and is also available on standby to replace the TEOM's monitoring filter as needed, based on filter loading.

Since 2009, TEOM data have been routinely adjusted using the Volatile Correction Method (VCM), which compensates for the loss of volatile compounds driven off by the heat in the instrument's inlet column. These corrections are applied by Imperial College London before data dissemination.

The TEOM analysers are serviced every six months by WC4A and audited biannually by Ricardo as part of the London Air Quality Network (LAQN) quality assurance and control procedures managed by Imperial. Both monitoring sites are part of the LAQN, with Imperial responsible for the daily data collection, storage, validation, and publication via the LAQN website (www.londonair.org.uk). Data are periodically ratified by Imperial, using long-term data reviews alongside results from LSO checks, servicing, and audits to ensure data integrity and accuracy.

For the monitoring data collected from the monitoring stations located in Putney High Street (WA7), Thessaly Road (WAA), Tooting High Street (WAB) and Lavender Hill (WAC), the Volatile Correction Method (VCM) has been used to correct the data. An FDMS was installed at the Felsham Road (WA9) monitoring station until 21 January 2015. This has now been converted to a TEOM, and therefore from 2019 the Volatile Correction Method (VCM) was used to correct the data.

During the annual data ratification process due to ongoing issues with the monitoring equipment, a portion of the data was void reducing the valid data capture for WAA (Thessaly Road, Battersea) to 53% for 2024.

As part of a network refresh of the monitoring stations across the borough the installation of new $PM_{2.5}$ BAM (1020) analysers at Putney High Street (WA7), Battersea (WAA), Tooting High Street (WAB), Lavender Clapham Junction (WAC).

A.2 Diffusion Tubes

Directive 2008/50/EC of the European Parliament and Council on ambient air quality and cleaner air for Europe (EC, 2008) establishes air quality standards for NO_2, along with other pollutants. Under this directive, annual mean NO_2 concentration data obtained from diffusion tube measurements must meet an accuracy requirement of ±25% to be comparable with the NO_2 air quality objectives.

To ensure high-quality NO_2 concentration data, it is essential to meet stringent performance criteria through comprehensive quality assurance (QA) and quality control (QC) procedures. Several factors influence the performance of NO_2 diffusion tubes, including the laboratory conducting the analysis and the method used to prepare the tubes (AEA, 2008). As such, QA and QC procedures are a fundamental part of any monitoring programme, minimizing data uncertainties and ensuring the most accurate estimate of true concentrations.

Our NO_2 diffusion tubes are analysed by Gradko, using the 50% TEA in acetone preparation method. Gradko actively contributes to the development of rigorous QA and QC procedures to maintain the highest level of confidence in their laboratory measurements. They played a key role in the creation of the Harmonisation Practical Guidance for NO_2 diffusion tubes (AEA, 2008) and have adhered to these guidelines since January 2009. Additionally, since April 2014, Gradko has participated in the AIR-PT scheme, which combines two long-established proficiency testing schemes: the LGC Standards STACKS PT scheme and the HSL WASP PT scheme.

This section contains details of Gradko International Ltd.'s Results of laboratory precision.

- Performance in Air NO_2 PT Scheme (February 2023 to February 2025)
- Summary of Precision Scores for 2023-2025
- United Kingdom Accreditation Service (UKAS) schedule of accreditation (December 2024)

Gradko International Ltd is a UKAS-accredited laboratory that actively participates in laboratory performance and proficiency testing schemes. These schemes establish rigorous performance standards for participating laboratories, ensuring that the reported NO_2 concentrations are of the highest quality.

Summary of Laboratory Performance in AIR NO_2 Proficiency Testing Scheme (February 2023 to February 2025)

Gradko participates in the AIR-PT scheme for NO_2 diffusion tube analysis, which involves the quarterly testing of laboratory performance using artificially spiked diffusion tubes. This scheme is designed to help laboratories meet the requirements of the European Standard. In 2024, Gradko demonstrated satisfactory performance for the 50% TEA in acetone preparation method.

The laboratory adheres to the procedures outlined in the *Harmonisation Practical Guidance* and is an active participant in the AIR-PT proficiency testing scheme. Prior to AIR-PT, Gradko took part in the Workplace Analysis Scheme for Proficiency (WASP) for NO_2 diffusion tube analysis. DEFRA and the Devolved Administrations recommend that diffusion tubes used for Local Air Quality Management (LAQM) should be sourced from laboratories that have shown consistent, satisfactory performance in the AIR-PT scheme.

Gradko's laboratory performance is further evaluated by the National Physical Laboratory (NPL), which assesses results from the AIR-PT scheme in conjunction with data from the monthly NPL Field Inter-Comparison Exercise, conducted at Marylebone Road in central London. Laboratories are assigned a 'z' score, where a score of ±2 or less indicates satisfactory performance. Gradko International Ltd.'s performance in 2024 is covered under AIR-PT rounds AR062 to AR068.

Based on the latest available data, the five-round performance window used to evaluate Gradko's laboratory quality spans AIR-PT rounds AR055 to AR068.

Table 1: Laboratory summary performance for AIR NO_2 PT rounds AR055, 56, 58, 59, 62, 63, 65, 66 and 68

The following table lists those UK laboratories undertaking LAQM activities that have participated in recent AIR NO_2 PT rounds and the percentage (%) of results submitted which were subsequently determined to be **satisfactory** based upon a z-score of ≤ ± 2 as defined above.

AIR PT Round	AIR PT AR055	AIR PT AR056	AIR PT AR058	AIR PT AR059	AIR PT AR062	AIR PT AR063	AIR PT AR065	AIR PT AR066	AIR PT AR068
Round conducted in the period	January – February 2023	May – June 2023	July – August 2023	September – October 2023	January – February 2024	April – June 2024	July – August 2024	September – October 2024	January – February 2025
Aberdeen Scientific Services	0 %	100 %	100 %	75 %	100 %	100 %	100 %	100 %	100 %
Cardiff Scientific Services	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Edinburgh Scientific Services	100 %	75 %	100 %	50 %	100 %	100 %	100 %	100 %	100 %
SOCOTEC	100 % [1]	100 % [1]	100 % [1]	100 % [1]	100 % [1]	100 % [1]	100 % [1]	100 % [1]	87.5 % [1]
Exova (formerly Clyde Analytical)	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Glasgow Scientific Services	100 %	100 %	100 %	100 %	75 %	100 %	100 %	100 %	100 %
Gradko International	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	50 %
Kent Scientific Services	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Kirklees MBC	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Lambeth Scientific Services	0 %	75 %	50 %	0 %	50 %	50 %	50 %	50 %	100 %
Milton Keynes Council	50 %	75 %	100 %	100 %	100 %	NR [2]	50 %	100 %	100 %
Northampton Borough Council	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Somerset Scientific Services	100 %	75 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
South Yorkshire Air Quality Samplers	NR [2]	NR [2]	NR [2]	NR [2]	NR [2]	NR [2]	NR [2]	NR [2]	NR [2]
Staffordshire County Council, Scientific Services	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Tayside Scientific Services (formerly Dundee CC)	NR [2]	100 %	NR [2]	NR [2]	NR [2]	NR [2]	100 %	NR [2]	NR [2]
West Yorkshire Analytical Services	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]

[1] Participant subscribed to two sets of test results (2 x 4 test samples) in each AIR PT round.
[2] NR, No results reported.
[3] Cardiff Scientific Services, Exova (formerly Clyde Analytical), Kent Scientific Services, Kirklees MBC, Northampton Borough Council and West Yorkshire Analytical Services; no longer carry out NO2 diffusion tube monitoring and therefore did not submit results.

During this time, 100% of the results submitted by Gradko were determined to be satisfactory other than the results for Jan-Feb 2025

Precision Summary Results

The summary of diffusion tube precision results is provided below, outlining the total number of good and bad precision results over the past three years for laboratories currently conducting diffusion tube analysis.

2022 - 2024 Summary of Precision Results for Nitrogen Dioxide Diffusion Tube Collocation Studies UK Laboratories including for Gradko Laboratory 50% TEA in Acetone

Precision Summary Table

Diffusion Tube Preparation Method	2022 Good	2022 Bad	2023 Good	2023 Bad	2024 Good	2024 Bad
Gradko, 50% TEA in Acetone	16	0	16	0	11	0
Gradko, 20% TEA in Water	33	0	25	0	26	0
ESG Didcot / SOCOTEC, 50% TEA in Acetone	29	0	33	2	30	3
ESG Didcot / SOCOTEC, 20% TEA in Water	11	0	8	0	1	0
Staffordshire Scientific Services	13	0	12	0	16	0
Glasgow Scientific Services	3	3	1	0	1	0
Edinburgh Scientific Services	1	0	4	2	1	1
Milton Keynes Council	1	0	1	0	1	0
Tayside Scientific Services	1	0	1	0	1	0
Lambeth Scientific Services	6	4	10	1	2	0
Aberdeen Scientific Services	7	0	7	0	6	0
ESG Glasgow, 50% TEA in Acetone	1	0	1	0	1	0
ESG Glasgow, 20% TEA in Water	1	0	1	0	1	0
Somerset County Council	14	0	12	0	4	0

Numerical results for this data are contained in the National Bias Adjustment Spreadsheet version 04/25

Numerical results for this data are contained in the National Bias Adjustment Spreadsheet version 04/25. In 2024, the tube precision for NO_2 Annual Field Inter-Comparison for Gradko International using the 50% TEA in acetone method was 'good' for the results of 11/12 participating local authorities, no participating local authorities were deemed to be 'bad'.

Analysed By	Method	Year	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (mg/m^3)	Automatic Monitor Mean Conc. (Cm) (mg/m^3)	Bias (B)	Tube Precision	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	50% TEA in Acetone	2024	UB	City Of London Corporation	10	26	21	26.8 %	G	**0.79**
Gradko	50% TEA in Acetone	2024	R	City Of London Corporation	12	34	30	12.1 %	G	**0.89**
Gradko	50% TEA in Acetone	2024	UB	Falkirk Council	11	13	13	-1.6 %	G	**1.02**
Gradko	50% TEA in acetone	2024	SU	Redcar And Cleveland Borough Council	12	12	9	35.4 %	G	**0.74**
Gradko	50% TEA in acetone	2024	KS	Marylebone Road Intercomparison	11	43	36	20.8 %	G	**0.83**
Gradko	50% TEA in acetone	2024	R	Sandwell Mbc	12	30	25	24.2 %	G	**0.81**
Gradko	50% TEA in acetone	2024	UB	Sandwell Mbc	12	19	17	8.0 %	G	**0.93**
Gradko	50% TEA in acetone	2024	R	Sandwell Mbc	12	20	20	-2.6 %	S	**1.03**
Gradko	50% TEA in Acetone	2024	R	London Borough Of Merton	12	27	22	25.7 %	G	**0.80**
Gradko	50% TEA in acetone	2024	UB	London Borough Of Wandsworth	10	19	14	31.7 %	G	**0.76**
Gradko	50% TEA in acetone	2024	R	London Borough Of Richmond Upon Thames	12	18	19	-9.1 %	G	**1.10**
Gradko	50% TEA in acetone	2024	B	London Borough Of Richmond Upon Thames	12	13	13	5.0 %	G	**0.95**
Gradko	50% TEA in acetone	2024		**Overall Factor[3] (12 studies)**				**Use**		**0.88**

Schedule of Accreditation issued by United Kingdom Accreditation Service (UKAS)

Gradko is UKAS-accredited for the analysis of NO_2 diffusion tubes, utilising ultra-violet spectrophotometry for the analysis of exposed tubes. The relevant test is outlined in the UKAS Schedule of Accreditation, issued on 23 December 2024 which is provided on the next page.

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

UKAS TESTING

2187

Accredited to ISO/IEC 17025:2017

Gradko International Ltd
(Trading as Gradko Environmental)

Issue No: 027 **Issue date:** 23 December 2024

St Martins House
77 Wales Street
Winchester
Hampshire
SO23 0RH

Contact: Mr A Poole
Tel: +44 (0)1962 860331
Fax: +44 (0)1962 841339
E-Mail: diffusion@gradko.co.uk
Website: www.gradko.co.uk

Testing performed at the above address only

DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
ATMOSPHERIC POLLUTANTS Collected on diffusion (sorbent) tubes and monitors	<u>Chemical Tests</u>	Documented In-House Methods
	Ammonia as ammonium (NH_4^+)	GLM 8 by Ion Chromatography
	Benzene Toluene Ethyl benzene Xylene	GLM 4 by Thermal Desorption/ FID Gas Chromatography
	Hydrogen chloride as chloride (Cl^-) Nitrogen dioxide as nitrite (NO_2^-) Sulphur dioxide as sulphate (SO_4^{2-}) Hydrogen fluoride as fluoride (F^-)	GLM 3 by Ion Chromatography
	Hydrogen sulphide	GLM 5 by Colorimetric determination (UV Spectrophotometry)
	Ozone as nitrate (NO_3^-)	GLM 2 by Ion Chromatography
	Nitrogen Dioxide as nitrite (NO_2^-)	GLM 7 by Colorimetric determination (UV Spectrophotometry)
	Sulphur dioxide as sulphate (SO_4^{2-})	GLM 1 by Ion Chromatography
	Formaldehyde as formaldehyde-DNPH	GLM 18 by HPLC
	Volatile Organic Compounds including: Benzene Toluene Ethylbenzene p-Xylene o-Xylene	GLM 13 by Thermal Desorption GC-Mass Spectrometry

Assessment Manager: RR1 Page 1 of 2

UKAS TESTING 2187 Accredited to ISO/IEC 17025:2017	**Schedule of Accreditation** issued by **United Kingdom Accreditation Service** 2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK **Gradko International Ltd** **(Trading as Gradko Environmental)** **Issue No:** 027 **Issue date:** 23 December 2024

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
ATMOSPHERIC POLLUTANTS Collected on diffusion (sorbent) tubes and monitors (cont'd)	Chemical Tests (cont'd)	
	Qualitative Analysis and Estimation of Volatile Organic Compounds on diffusion (sorbent) tubes and monitors	GLM 13 by Thermal Desorption GC-Mass Spectrometry with estimations in accordance with ISO standard 16000-6
	Naphthalene Tetrachloroethylene Trichloroethylene Styrene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Chlorobenzene 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene	GLM 13-1 by Thermal Desorption GC-Mass Spectrometry
	1,3-Butadiene	GLM 13-6 by Thermal Desorption GC-Mass Spectrometry
	Carbon Disulphide	GLM 13-7 by Thermal Desorption GC-Mass Spectrometry
	Flexible scope for quantitative analysis of Volatile Organic Compounds on diffusion (sorbent) tubes and monitors in accordance with methods developed and validated by in-house procedure LWI 47	LWI 47 by Thermal Desorption GC-Mass Spectrometry
END		

NO_2 diffusion tube analysis method

NO_2 diffusion tubes are passive monitoring devices composed of a Perspex cylinder, two stainless steel mesh discs, and a polythene cap sealed onto one end of the tube. The discs are coated with a triethanolamine (TEA) absorbent. These tubes operate on the principle of molecular diffusion, where gas molecules move from an area of higher concentration (the open end of the tube) to an area of lower concentration (the absorbent end of the tube) (AEA, 2008). NO_2 diffuses into the tube due to the concentration gradient and is absorbed by the TEA coating on the discs at the sealed end of the tube.

All the London Borough of Wandsworth's NO_2 diffusion tubes are prepared by Gradko using a 50% v/v solution of TEA in acetone as the absorbent. To prevent premature absorption, an opaque polythene cap is placed over the end of the diffusion tube opposite the TEA-coated discs before and after sampling. The tubes are labelled and stored in plastic bags, refrigerated, both prior to and after exposure.

In the laboratory, the steel mesh is removed and washed with distilled water, which is then analysed. The concentration of nitrogen dioxide is determined by passing ultraviolet (UV) light through the water sample. The amount of light absorbed correlates to the concentration of nitrogen dioxide present in the air during the monitoring period.

Factor from Local Co-location Studies

A co-location study using 2 nitrogen dioxide diffusion tubes has been carried out at the Felsham Road, Putney (automatic monitoring site ID: WA9; non- automatic monitoring site IDs: W21 and W22).

Discussion of Choice of Factor to Use

In 2024, the London Borough of Wandsworth conducted a co-location study at one continuous NO_2 monitoring site, using Duplicate NO_2 diffusion tubes at the following location: Felsham Road, Putney, an urban background site. The annual mean for the Felsham Road diffusion tubes (sites W21, W22) was 17.5 µg/m³, while the mean for the continuous monitoring station (WA9) was 15 µg/m³. The national bias adjustment factor (0.88) was selected to adjust the data.

All data from the London Borough of Wandsworth was submitted on time for the co-location questionnaire and is included in the database of bias adjustment factors (version 04/25).

Discussion of Choice of Factor to Use

The choice of bias adjustment factor was carefully considered. Both local and national bias adjustment factors were available for 2024. The national bias adjustment factor of 0.88 was chosen to correct the diffusion tube data, as it is

considered more representative, being based on a larger number of studies (12). Additionally, the national factor is more conservative than the local factor of 0.76.

Table O below shows a history of adjustment factors used in the London borough of Wandsworth from 2017-2024.

The local bias adjustment factor at the Felsham Road automatic monitoring station was calculated to a value of 0.76. The overall continuous monitor data capture was rated at ‘poor overall data capture’. As a result, we have used the nationally derived bias adjustment factor of 0.88 as per diffusion Tube Bias Factor s/s 04/2025 for consistency as has been applied in the previous 6 years. As the guidance states, the use of nationally derived bias adjustment factor will provide the best estimate of the true annual mean concentration as it is based on more studies than a locally derived one.

Table O. Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2024	National	04/25	0.88
2023	National	03/24	0.83
2022	National	03/23	0.82
2021	National	03/22	0.83
2020	National	03/21	0.82
2019	National	03/20	0.93
2018	National	03/19	0.93
2017	National	03/18	0.89

A.3 Adjustments to the Ratified Monitoring Data

Short-term to Long-term Data Adjustment

For monitoring sites where data capture is less than 75% of a full calendar year (less than 9 months), the mean of the 'raw' concentrations should be "annualised" in accordance with Box 7.10 of the LLAQM Technical Guidance (TG19) before being compared to annual mean objectives.

It is not always possible to collect data for an entire year to calculate an annual mean for a pollutant. Instrument malfunctions or data quality issues can sometimes result in missing data, preventing the completion of a full year of measurements. For monitoring sites with data capture between 25% and 75% of a full calendar year (i.e., between 3 and 9 months), the mean of the 'raw' concentrations is "annualised" in accordance with Box 4.3 of the LLAQM Technical Guidance (TG19) before being compared to annual mean objectives. This was only necessary for one of the London Borough of Wandsworth's non-automatic (diffusion tube) site in 2024, WH2 (Priory Lane/ Upper Richmond Road) as data capture was only 42% for the year. Details of the annulisation are below.

NO_2 Adjustment (Diffusion tube Site ID WH2)

Data adjustment (annualisation) was required for one diffusion tube monitoring location, as the data capture rate was 42% in 2024. Annualisation is required when data capture falls below 75%. The LAQM annualisation tool was used to ensure the correct methodology for the annualisation off diffusion tubes. An annualisation summary is provided in the screenshot of the Defra's Diffusion Tube Data Processing Tool below in Table P.

NO_2 Adjustment (Automatic Monitoring Site ID WA7, WAA and WAC)

Short-Term to Long-Term Monitoring NO_2 Data Adjustment for the continuous monitoring station WA7 (Putney Highstreet), WAA (Thessaly Road) and WAC (Lavender Hill)

NO_2 data at the continuous monitoring stations WA7 (Putney Highstreet), WAA (Thessaly Road) and WAC (Lavender Hill) had data capture rate of 68%, 53% and 42%, respectively, for the calendar year. Therefore, NO_2 data have been "annualised" using the methodology outlined in LLAQM.TG(19) before being compared to annual mean objectives.

The workings for this can be found in Table Q below.

WA7 Original Annual Mean : 36.4

WA7 Annualised Mean: 37.0

WAA Original Annual Mean : 24.3

WAA Annualised Mean: 22.1

WAC Original Annual Mean : 24.6

WAC Annualised Mean: 27.7

PM_{10} Automatic Site Adjustment

No sites required PM_{10} annulisation as all had a capture rate above 75%

Short-Term to Long-Term Monitoring PM_{10} Data Adjustment for the continuous monitoring station

PM_{10} data at the continuous monitoring stations had a data capture rate greater than 75% for the calendar year. Therefore, PM_{10} data did not have to be "annualised" using the methodology outlined in LLAQM.TG(19) before being compared to annual mean objectives.

The recorded values for 2024 for PM_{10} for the monitors were as follows WA9 = 13.9 µg m^{-3}, WA7 = 15.5 µg m^{-3}, WAA = 17.1 µg m^{-3}, WAB = 19.9 µg m^{-3} and WAC = 17.5 µg m^{-3}.

Distance Adjustment

The results presented in the Table E have been adjusted to represent exposure at the nearest façade. To estimate the concentration at the nearest receptor, the procedure specified in LLAQM.TG(19) has been applied to all monitoring locations that record an annual mean concentration above the NO_2 annual objective of 40 µg m^{-3}. The calculation has been applied also to monitoring locations that recorded an annual mean concentration within 10% of the NO_2 annual objective of 40 µg m^{-3} (i.e. above 36 µg m^{-3}), to account for the inherent uncertainty in diffusion tube monitoring concentration data.

The methodology consists of comparing the monitored annual mean NO_2 concentrations at a given point against known relationships between NO_2 concentrations and the distance from a road source.

The monitored annual mean values used in the calculation are derived from the background site diffusion tube NE8 (Battersea Park). The results for this can be seen in Table R below.

Table P. Non-Automatic Monitoring Data Adjustment

Diffusion Tube ID	Annualisation Factor Site 1: Merton - Morden Civic Centre 2	Annualisation Factor Site 2: Richmond Upon Thames - Castelnau	Annualisation Factor Site 3: Lambeth - Brixton Road	Annualisation Factor Site 4: Westminster - Elizabeth Bridge	Average Annualisation Factor	Raw Data Simple Annual Mean (µg/m³)	Annualised Data Simple Annual Mean (µg/m3)	Comments
WH 2	0.9897	0.9723	0.9722	0.9971	0.9828	20.2	19.9	

Table Q. Automatic NO_2 Monitoring Data Adjustment

Background Site	Annual Data Capture	Annual Mean (A_m)	WA7		WAA		WAC	
			Period Mean (P_m)	Ratio (A_m/P_m)	Period Mean (P_m)	Ratio (A_m/P_m)	Period Mean (P_m)	Ratio (A_m/P_m)
Site 1: Tower Hamlets - Jubilee Park	98.0	15.9	16.2	0.978	16.4	0.965	15.0	1.058
Site 2: Bexley - Belvedere	94.2	14.9	14.7	1.015	16.7	0.894	13.1	1.136
Site 3: Lambeth - Streatham Green	99.5	17.2	16.8	1.026	19.0	0.905	15.8	1.089
Site 4: Islington - Arsenal	99.4	15.0	14.2	1.054	16.9	0.885	12.3	1.218
Average (R_a)			**1.018**		**0.912**		**1.125**	
Raw Data Annual Mean (M)			**36.4**		**24.3**		**24.6**	
Annualised Annual Mean (M x R_a)			**37.0**		**22.1**		**27.7**	

Table R. NO_2 Fall off With Distance Calculations

Diffusion Tube ID	Distance (m)		NO_2 Annual Mean Concentration ($\mu g/m^3$)			Comment
	Monitoring Site to Kerb	Receptor to Kerb	Bias Adjusted and Annualised	Background	Predicted at Receptor	
YR5	0.6	1.2	37.1	11.8	33.9	
W47	0.7	5.7	47.5	11.8	33.4	

Appendix B Full Monthly Diffusion Tube Results for 2024

Table S. NO_2 2024 Diffusion Tube Results (µg m^{-3})

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m^3)												Simple Annual Mean (µg/m^3)			Comment
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.88) and Annualised	Distance Corrected to Nearest Exposure	
W23	525111	174619	39.5	30.7	33.5		33.6	33.3	35.4	33.2	41.4	36.2	39.1		35.6	31.3	-	
W24	524045	175366	42.6	43.4	38.5	33.9	37.0	44.5	40.2	38.1		35.9	40.0	28.0	38.4	33.8	-	
W21	524044	175495	26.5	22.4	22.3	15.3	18.4	14.3	17.3	14.1	20.4	24.8	26.8	15.1	19.8	17.4	-	
W22	524044	175495	25.9	20.8	22.0	17.4	17.4	14.4	17.7	14.3	20.8	26.0	26.0	16.7	19.9	17.6	-	
W6	522270	175307	20.9				11.5	10.5	9.4	10.5	15.0	17.6	22.8	13.5	14.6	12.9	-	
W25	522542	173700	21.6	17.7	17.7	14.9	16.8		14.1	13.8	17.9	18.4	24.4	16.3	17.6	15.5	-	
W26	524847	173282	23.5	17.7	16.2	12.8	16.2	12.7	12.8	11.6	16.0	20.8	25.4	10.7	16.4	14.4	-	
W27	524633	173594	23.0	16.0	14.2	11.3	13.3	10.1	9.8	10.1	14.9	16.9	25.4	16.6	15.1	13.3	-	
W28	526011	172869		16.0	14.2	12.5	14.1	11.4	11.1	10.3	17.0	19.0	26.4	15.8	15.3	13.4	-	
W29	526099	172833	21.1	18.4	19.6	15.5	3.8	13.5	13.0	12.3	19.6	20.8	28.3	18.3	17.0	15.0	-	
W4	527688	171204	43.4	43.6	36.7	17.9	39.4	40.9			41.5	41.0	44.9	35.2	38.4	33.8	-	
W8	527524	171239	27.5		21.6	37.5	16.8	16.0	13.5	15.1	21.7	23.9	29.0	18.3	21.9	19.3	-	
W30	528900	172431	24.8	21.3	17.6	11.9	15.0	12.9	12.7	13.7	19.4	21.7	27.8	18.0	18.1	15.9	-	
W31	528607	173333	32.5	26.3	23.5	16.9	24.4	22.7	20.5	21.9	23.3	26.6	32.6	24.9	24.7	21.7	-	
W32	528436	173133	32.5	28.0	27.3	20.2		21.2	21.0	19.3	27.5	29.4	37.0	27.1	26.4	23.2	-	
W34	527569	174986	21.9	20.1	19.2	14.3	18.0	14.2	13.1	12.8	19.5	21.8	28.2	20.6	18.6	16.4	-	
W35	527487	174981	28.6	17.7	19.5	17.8	22.4	17.5	16.6	15.0	22.8	25.2	31.2	19.9	21.2	18.6	-	
W36	525875	174616	30.2	19.6	20.8	17.6	20.1	17.2	16.5	16.1	22.0	23.6	33.1	17.7	21.2	18.7	-	

W37	525278	173483	26.5	22.4	21.0	14.4	20.0	17.3	16.9	14.8	23.6	24.6	31.2	18.8	21.0	18.4	-	
W38	526863	175239	23.0	17.2	20.5	14.2	18.6	14.0	15.9	14.3	21.2	24.5	31.6	17.0	19.3	17.0	-	
NE2	528043	176618	26.1		19.8	17.7	20.0	17.7	17.4	17.6	20.6	22.9	27.1	19.0	20.5	18.1	-	
NE3	528771	176819	34.5	31.4	34.7	33.4	36.9	33.4	32.5	28.6	40.6	38.1	41.7	31.0	34.7	30.6	-	
NE4	528871	176943	21.0	18.9	21.1	15.6	18.8	15.4	16.4	16.3	20.2	26.0	29.2	20.2	19.9	17.6	-	
NE5	529252	177348	30.4	27.7	25.0		25.2	22.1	26.0	25.8	31.3	34.7	36.4	25.3	28.2	24.8	-	
NE6	529424	177501	27.2	27.5	28.2	26.1	32.7	34.1	31.1	33.9	41.7	37.2	40.0	28.4	32.3	28.5	-	
NE7	530129	177727	28.6	25.6	24.0	20.1	25.7	19.6	22.6	22.4	29.4	28.3	40.5	25.6	26.0	22.9	-	
NE8	528023	177176	18.7	12.5	13.0	9.3	11.9	10.2		11.1	14.9	14.9	18.5	12.4	13.4	11.8	-	
YR1	526201	175340	28.3	22.0	22.2	24.0	28.6	27.7	24.4	22.4	28.1		37.0	21.0	26.0	22.9	-	
YR2	526581	175731		34.5	35.5	34.9	36.1	41.6	34.9	35.8	39.8	38.2	42.9	30.8	36.8	32.4	-	
YR3	526480	175930	25.9	22.7	18.2	14.4	17.0	15.6	15.1	15.8	21.0	23.6	31.5		20.1	17.7	-	
YR4	527086	176119	30.5	32.0	28.1	24.3	26.4	25.0	26.4	26.0	29.8	32.4	38.5	25.6	28.7	25.3	-	
YR5	527109	176022	43.7	38.3	36.5	36.7	46.2	46.4	41.4	40.5	48.1	42.8	51.9	33.3	42.1	37.1	33.9	
YR6	526817	176686	30.5	27.0	29.8	24.0	28.3	25.7	27.9	25.0	14.2	31.4	33.8	21.4	26.6	23.4	-	
W39	523898	174717	31.3	25.9	27.3	19.6	24.1	23.0	23.6	18.0	22.9	35.4	29.7	21.3	25.2	22.1	-	
W40	522343	173805	21.7	25.7	24.0	18.3	22.6	20.6	19.5	18.3	22.5	25.8	27.2	21.8	22.3	19.6	-	
W41	527675	174339	24.8			14.2	17.9	14.4	14.2	14.1	20.2	22.8	30.2	20.4	19.3	17.0	-	
W42	527426	173249		49.1	37.2	30.2	37.7	39.8	37.4	23.4	39.6	42.7	40.2	31.1	37.1	32.7	-	
W43	526783	174250	29.7	25.3	22.8	22.8	26.4	22.2	20.3	20.0	25.4	27.0	33.3	23.4	24.9	21.9	-	
W44	529425	176920	27.5	19.7	20.1	14.7	20.8	14.9	16.4	15.6	21.7	24.4	25.9	21.9	20.3	17.9	-	
W45	528096	172439	30.1	31.2	26.7	19.1	24.1	20.5	20.1	24.7	25.5	25.7	36.7	25.2	25.8	22.7	-	

W46	527639	172882	31.1	28.3	27.6	23.1	26.6	26.7	25.4	38.8	29.9	31.4	38.2	33.7	30.1	26.5	-	
W47	525243	174643	53.3	58.5		52.3	55.3	59.0	62.0	65.9	57.3	36.4		39.9	54.0	**47.5**	33.4	
W48	528263	172735	27.1	22.3	23.7	17.4	21.1	18.7	17.5	16.1	24.8	22.7	29.1	20.6	21.8	19.1	-	
W49	525987	173077	32.1	29.1	22.7	24.4	30.5	23.0	21.8	22.1				20.7	25.1	22.1	-	
W50	525945	173083	30.8	21.5	23.8	17.3	24.7	22.6	18.5	17.8		23.9	27.6	16.7	22.3	19.6	-	
W52	522481	173792	30.8	24.7	26.7	25.1	30.2	29.5	25.6	28.3	32.7	25.9	34.5	26.6	28.4	25.0	-	
W54	522382	173779	38.6	26.9	33.3	28.2	35.0	33.0	29.2	27.9		36.6		23.4	31.2	27.5	-	
W56	528382	173270	19.8	17.6	19.2	12.2	16.1	11.9	12.8	12.3	17.7	20.5	26.7	16.5	16.9	14.9	-	
W57	525734	174640			24.4	29.3	36.4	32.1	29.0	25.3	39.7	53.1	38.5	26.9	33.5	29.4	-	
SA1	528160	172414	23.9	20.8	19.3	15.6	15.8	14.5	13.2	15.3	20.0	20.3	28.5	19.9	18.9	16.7	-	
WH 1	522078	175466	34.6	29.8	33.4	28.0			24.9	24.5	31.5		34.1	23.3	29.3	25.8	-	
WH 2	521752	175435	27.1			9.4				17.6	23.2	23.6			20.2	17.5	-	
WH 3	522087	174262	27.7	24.1	23.9	17.8	25.1	21.9	20.8	20.0	29.2	26.0	24.3	19.1	23.3	20.5	-	
BW 1	526506	172554	26.3	22.9	19.6	22.4	29.5	24.7	24.1	21.6	29.1	29.7	35.9	23.1	25.7	22.6	-	
BW 2	526335	172395	26.1	16.5		16.2	18.8	16.5	16.7	17.7	23.5	25.6	30.1	19.3	20.6	18.2	-	

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table S.**

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

☒ **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 Wandsworth confirm that all 2024 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

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

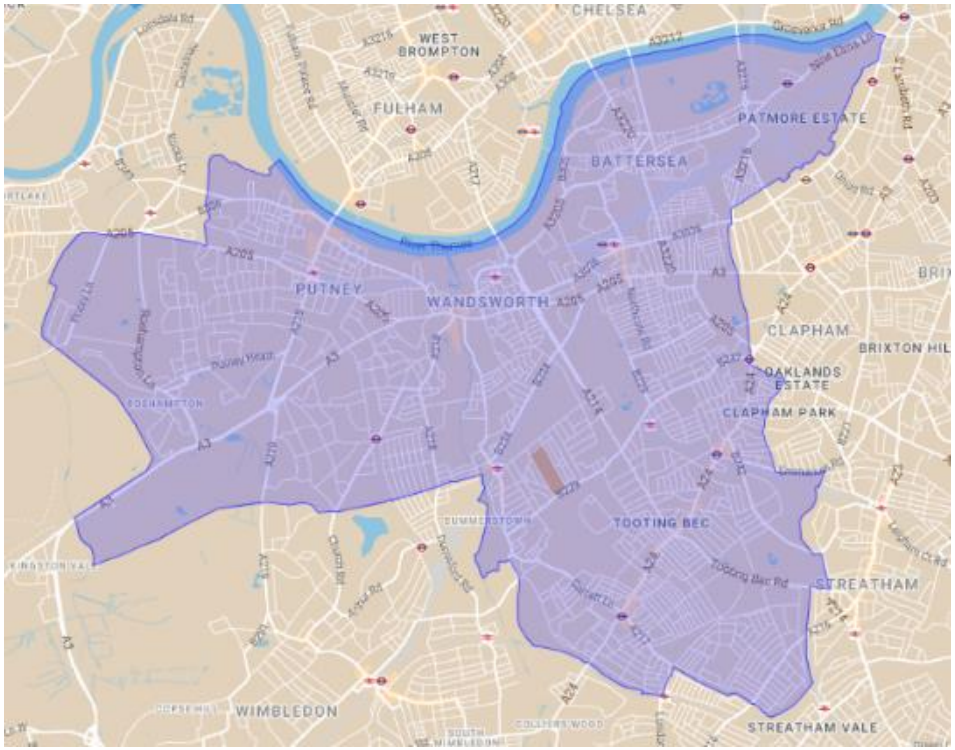
NO_2 annual means exceeding 60µg m^{-3}, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

See Appendix C for details on bias adjustment and annualisation.

Appendix C Map(s) of Monitoring Locations and AQMAs

An Air Quality Management Area covers the whole of the borough therefore all monitoring sites, both non-automatic and automatic, sit within an AQMA this can be seen in Figure L below.

Figure L: Map of Air Quality Management area



Legend:

The Air Quality management area in Wandsworth highlighted.

Figure M and Figure N depicts the locations of the automatic monitoring stations.

Figure M: Map of Automatic Monitoring Sites: Reference monitors

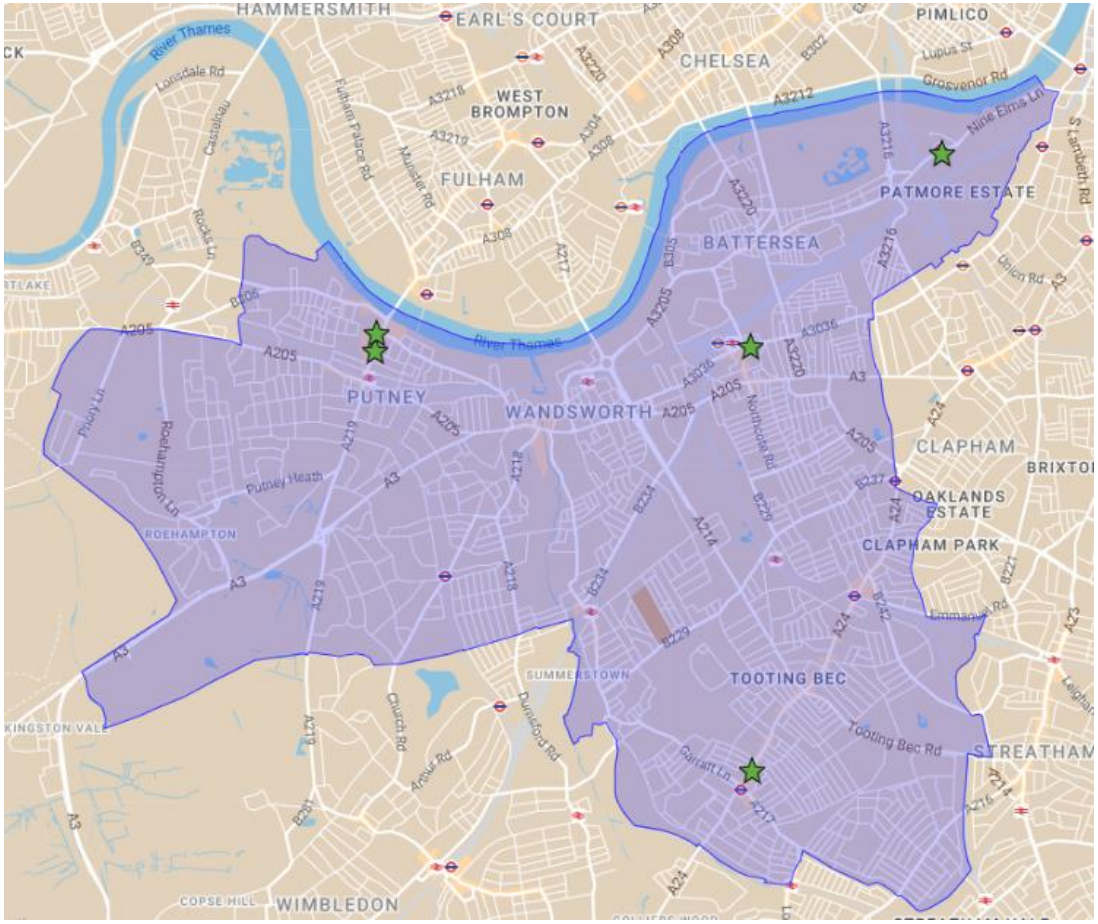
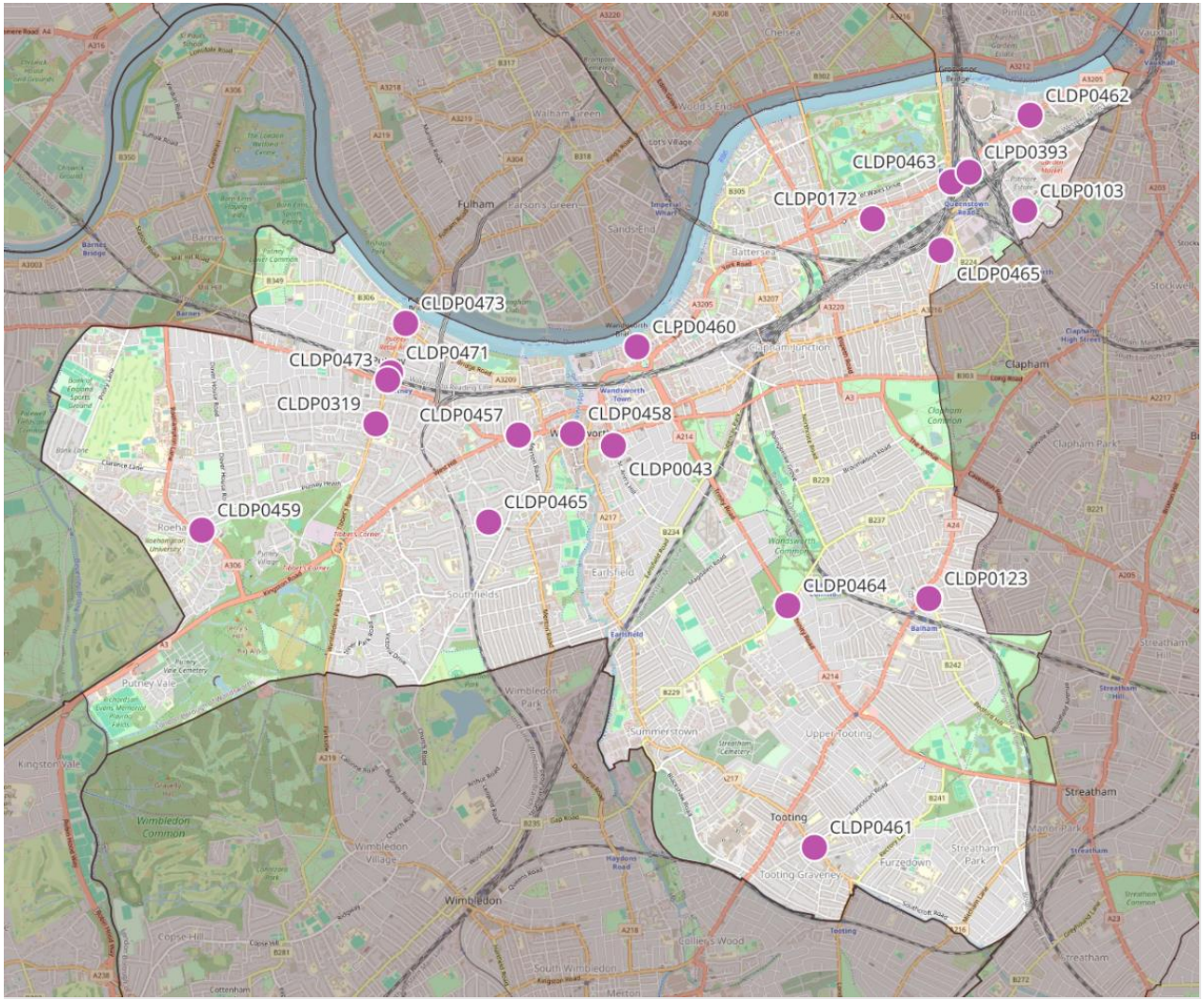


Figure N: Map of Automatic Monitoring Sites: Breathe London sensors.



Legend:

- The location of an automatic Breathe London sensor

Figure O: Map of Non - Automatic Monitoring Sites: Diffusion Tubes' NO_2 concentrations