

London Borough of Sutton Air Quality Annual Status Report for 2020

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This report provides a detailed overview of air quality in the London Borough of Sutton during 2020. It has been produced to meet the requirements of the London Local Air Quality Management (LLAQM) statutory process¹.

Contact details:

Lory Sillars-Powell – Environmental Protection Officer
Regulatory services
Kingston & Sutton Shared Environment Service
Tel: 020 8770 5547
environmentalhealth@sutton.gov.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
AQO	Air Quality Objective
BEB	Buildings Emission Benchmark
CAB	Cleaner Air Borough
EV	Electric Vehicle
GLA	Greater London Authority
LAEI	London Atmospheric Emissions Inventory
LAQM	Local Air Quality Management
LLAQM	London Local Air Quality Management
NRMM	Non-Road Mobile Machinery
PM ₁₀	Particulate matter less than 10 micron in diameter
PM _{2.5}	Particulate matter less than 2.5 micron in diameter
TEB	Transport Emissions Benchmark
TfL	Transport for London

Table A. Summary of National Air Quality Standards and Objectives

Pollutant	Standard / Objective (UK)	Averaging Period	Date⁽¹⁾
Nitrogen dioxide (NO ₂)	200 µg m ⁻³ not to be exceeded more than 18 times a year	1-hour mean	31 Dec 2005
Nitrogen dioxide (NO ₂)	40 µg m ⁻³	Annual mean	31 Dec 2005
Particles (PM ₁₀)	50 µg m ⁻³ not to be exceeded more than 35 times a year	24-hour mean	31 Dec 2004
Particles (PM ₁₀)	40 µg m ⁻³	Annual mean	31 Dec 2004
Particles (PM _{2.5})	25 µg m ⁻³	Annual mean	2020
Particles (PM _{2.5})	Target of 15% reduction in concentration at urban background locations	3-year mean	Between 2010 and 2020
Sulphur dioxide (SO ₂)	266 µg m ⁻³ not to be exceeded more than 35 times a year	15-minute mean	31 Dec 2005
Sulphur dioxide (SO ₂)	350 µg m ⁻³ not to be exceeded more than 24 times a year	1-hour mean	31 Dec 2004
Sulphur dioxide (SO ₂)	125 µg m ⁻³ not to be exceeded more than 3 times a year	24-hour mean	31 Dec 2004

Notes:

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

1. Air Quality Monitoring

1.1 Locations

Table B. Details of Automatic Monitoring Sites for 2020

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA? If so, which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Monitoring technique
ST4	Wallington	528925	163804	Kerbside	Y	5	0.8	1.5	NO ₂ , PM ₁₀	Chemiluminescent; BAM
ST5	Beddington Lane North	529400	167224	Industrial	Y	6	4.5	1.5	NO ₂ , PM ₁₀ , PM _{2.5}	Chemiluminescent; BAM
ST6	Worcester Park	522557	165787	Kerbside	Y	2	1.3	1.5	NO ₂ , PM ₁₀	Chemiluminescent; TEOM/FDMS
ST8 ^[1]	Beddington Lane	529781	166597	Industrial	Y	330	N/A	1.5	NO ₂ , PM ₁₀	Chemiluminescent; BAM
ST9 ^[2]	Beddington Village	530124	165323	Roadside	Y	15	5	1.9	NO ₂ , PM ₁₀	Chemiluminescent; BAM

Notes:

[1] Monitor was decommissioned and relocated 16th October 2020

[2] Monitor was relocated and installed 16th October 2020

Table C. Details of Non-Automatic Monitoring Sites for 2020

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA? If so, which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor. (Y/N)
ST21	Glastonbury Road	525567	166291	Urban Background	Y	6	2	8	2	NO ₂
ST22	Dorset Road, Belmont	525063	162474	Roadside	Y	12	2	14	2	NO ₂
ST23	Sandy Lane South	529734	163868	Roadside	Y	5	2	7	2	NO ₂
ST24	Derry Road	530130	165404	Roadside	Y	7	2	9	2	NO ₂
ST25	Staines Avenue	523874	165683	Roadside	Y	15	2	17	2	NO ₂
ST26	West Street	527683	164663	Roadside	Y	2	2	4	2	NO ₂
ST07	Hackbridge Primary	528401	166038	Urban background	Y	0	56	56	2	NO ₂

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA? If so, which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor. (Y/N)
ST08	Victor Seymour	527786	165021	Urban background	Y	0	33	33	2	NO ₂
ST29	Park Lane	528339	164615	Roadside	Y	2	6	8	2	NO ₂
ST10	Muschamp Priory	527284	165778	Urban background	Y	0	20	20	2	NO ₂
ST11	Sherwood Park School	529835	165041	Urban background	Y	0	35	35	2	NO ₂
ST32	Alcorn Close	525184	165845	Urban background	Y	40	25	65	2	NO ₂
ST33	Carshalton Road	526021	164025	Roadside	Y	3	1	4	2	NO ₂
ST34	Oakhill Road	525772	165118	Roadside	Y	10	1	11	2	NO ₂
ST35	Gander Green Lane	524782	165167	Roadside	Y	10	1	11	2	NO ₂

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA? If so, which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor. (Y/N)
ST36	Croydon Rd, Beddington	530645	164839	Roadside	Y	0	11	11	2	NO ₂
ST27	Haddon Road/St Nicholas Way	525691	164599	Roadside	Y	11	2	13	2	NO ₂
ST38	Brighton Road, Sutton	526046	163636	Roadside	Y	2	10	12	2	NO ₂
ST39	Rose Hill roundabout	526019	166469	Roadside	Y	6	2	8	2	NO ₂
ST40	38 High Street, Cheam	524357	163599	Roadside	Y	2	1	3	2	NO ₂
ST42	Royston Park	526605	165364	Urban Background	Y	20	95	115	2	NO ₂

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA? If so, which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor. (Y/N)
ST43	Chiltern Road	525883	162518	Roadside	Y	13	1	14	2	NO ₂
H1	Hackbridge Road	528359	166067	Roadside	Y	0.5	17	17.5	2	NO ₂
H2	Clover Way	528437	166275	Urban background	Y	0	25	25	2	NO ₂
H3	57 London Rd	528637	166021	Roadside	Y	0	5	5	2	NO ₂
BL	Beddington Lane	529400	167235	Roadside	Y	15	2	17	2	NO ₂

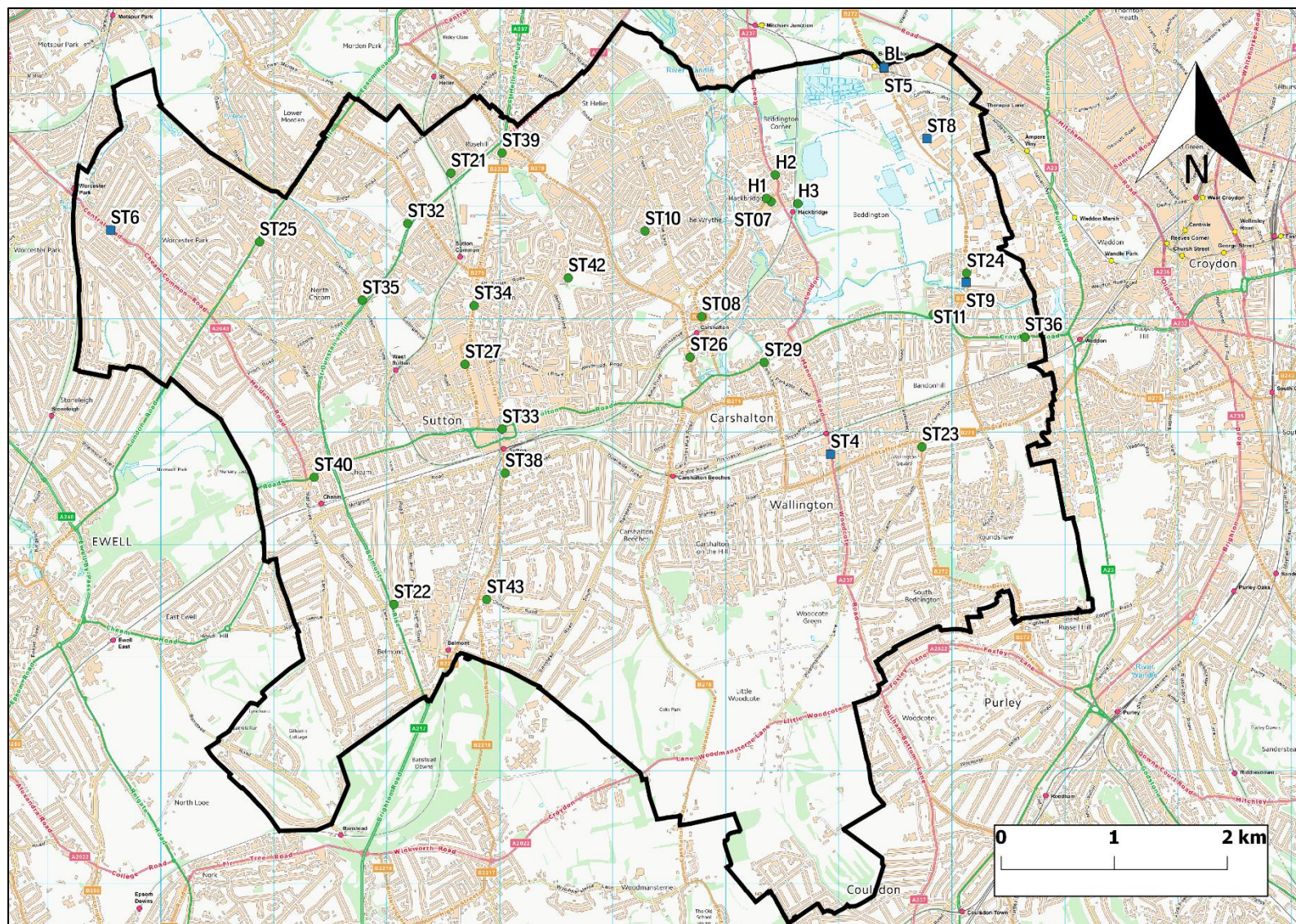


Figure 1. Air Quality Monitoring Locations in the London Borough of Sutton

1.2 Comparison of Monitoring Results with AQOs

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

Table D. Annual Mean NO₂ Ratified and Bias-adjusted Monitoring Results

Site ID	Site type	Valid data capture for monitoring period % ^(a)	Valid data capture 2020 % ^(b)	2014	2015	2016	2017	2018	2019	2020
ST4	Kerbside	N/A	92	<u>66.6</u> (c)	<u>61.4</u> (c)	<u>63</u>	53	47	45.86	40.76 (31.0)
ST5	Industrial	N/A	99	36.4 (c)	32	36	32	29	29.43	22.8
ST6	Kerbside	N/A	91	53.5	52	57	52	52	51.09	39.4 (34.9)
ST8 ^[1]	Industrial	69.84	55	30.5	27	30	25	25	25.1	19.14 (c)
ST9 ^[2]	Roadside	54.82	11	-	-	-	-	-	-	21.56 (*c)
ST21	Urban Background	N/A	75	-	27.32	32.07	27.15	29.37	26.84	20.6
ST22	Roadside	N/A	75	-	37.3	37.24	38.54	36.1	33.51	26.7
ST23	Roadside	N/A	75	-	32.15	35.02	33.64	36.99	34.87	27
ST24	Roadside	N/A	75	-	26.68	30.6	26.26	28.87	25.67	19.2

Site ID	Site type	Valid data capture for monitoring period % ^(a)	Valid data capture 2020 % ^(b)	2014	2015	2016	2017	2018	2019	2020
ST25	Roadside	N/A	75	-	32.02	34.65	32.57	31.61	29.74	23.9
ST26	Roadside	N/A	67.3	-	36.64	41.27	38.54	38.38	35.95	26 (c)
ST07	Urban background	N/A	57.7	22.3	21.87	24.17	21.98	22.35	20.5	15.6 (c)
ST08	Urban background	N/A	75	24.9	23.55	28.52	26.26	24.03	23.21	17.4
ST29	Roadside	N/A	75	-	37.85	41.48	39.52	38.93	35.7	29.6
ST10	Urban background	N/A	75	-	21.12	24.29	21.81	22.72	20.13	14.6
ST11	Urban background	N/A	75	26.6	23.39	26.43	24.48	24.46	22.55	18.6
ST32	Urban background	N/A	75	27	22.36	27	22.43	24.34	20.01	16.7
ST33	Roadside	N/A	75	42.8	37.34	38.79	33.2	34.46	34.15	27.7
ST34	Roadside	N/A	67.3	48.1	39.43	42.78	42.28	38.85	36.61	33.4 (c)
ST35	Roadside	N/A	67.3	46.3	31.5	34.06	30.53	31.06	28.66	21.3 (c)

Site ID	Site type	Valid data capture for monitoring period % ^(a)	Valid data capture 2020 % ^(b)	2014	2015	2016	2017	2018	2019	2020
ST36	Roadside	N/A	75	35.9	29.05	32.81	28.84	29.3	27.37	22.7
ST27	Roadside	N/A	75	-	36.78	39.56	36.05	35.59	34.66	28.1
ST38	Roadside	N/A	67.3	38.9	34.65	36.83	34.62	35.08	33.18	24 (c)
ST39	Roadside	N/A	67.3	36.2	37.07	39.32	38.89	40.71	41.8	36.2 (c) (35.5)
ST40	Roadside	N/A	67.3	48.3	42.9	44.85	39.87	41.14	42.05	31.5 (c)
ST42	Urban Background	N/A	67.3	24.7	20.98	21.82	23.05	19.86	17.35	13.6 (c)
ST43	Roadside	N/A	75	-	-	-	-	-	28.37	22.2
H1	Roadside	N/A	75	33.7	28.9	32.29	29.9	30.01	32.58	24.2
H2	Urban background	N/A	59.6	29.1	26.5	29.26	25.37	26.78	24.33	17.7 (c)
H3	Roadside	N/A	75	36.6	32.92	32.35	40.32	44.1	44.46	36.1 (36.1)
BL	Roadside	N/A	57.7	-	-	34.11	32.22	28.99	29.1	25.6 (c)

Notes:

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

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

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

Means for diffusion tubes have been corrected for bias.

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

Values in brackets calculated at relevant exposure for 2020 monitoring sites.

(*) Data capture is too low (<33%) for annualisation in accordance with LLAQM Technical Guidance

[1] Monitor was decommissioned and relocated 16th October 2020

[2] Monitor was relocated and installed 16th October 2020

Annual mean concentrations of NO₂ from 2014 to 2020 are displayed in Table D. Annual concentrations display an overall reduction in NO₂ in all reported years, with 2020 showing a fairly sharp reduction from the previous year. Figures 2 and 3 display the strong downward trend from continuous monitoring and diffusion tube monitoring sites across the borough. Worcester Park (ST6) has remained within the AQO of 40 µg m⁻³ for the first year since monitoring commenced in 2011. Only one monitoring site, ST4 (Wallington), exceeded the AQO with two diffusion tube sites calculated within 10% of the objective.

To estimate the concentration at the nearest receptor, the procedure specified in LLAQM.TG (16) has been applied to all monitoring locations that record an annual mean concentration above the NO₂ annual mean objective of 40 µg m⁻³. The calculation has also been applied to monitoring locations that record an annual mean concentration that is within 10% of the NO₂ annual mean objective (i.e. above 36 µg m⁻³), to account for the inherent uncertainty in diffusion tube monitoring data. Sites that exceeded or remained within 10% of the AQO of 40 µg m⁻³. ST4, ST6 and ST39 were calculated to be below the AQO, however H3 remained with 10% of the objective as the diffusion tube is located the same distance from the kerb as the receptor.

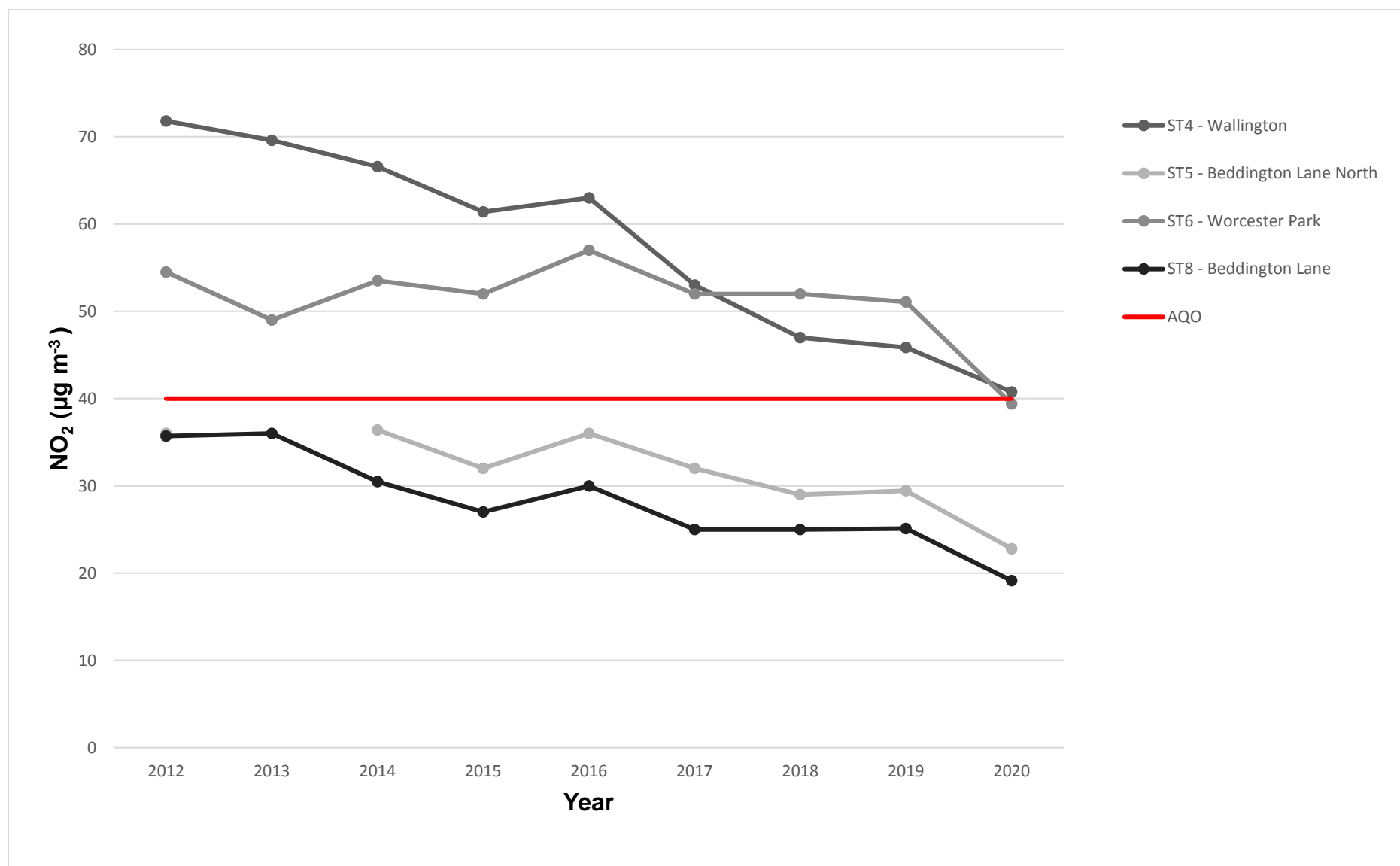


Figure 2. Annual Mean NO₂ Concentrations at Continuous Monitoring Sites

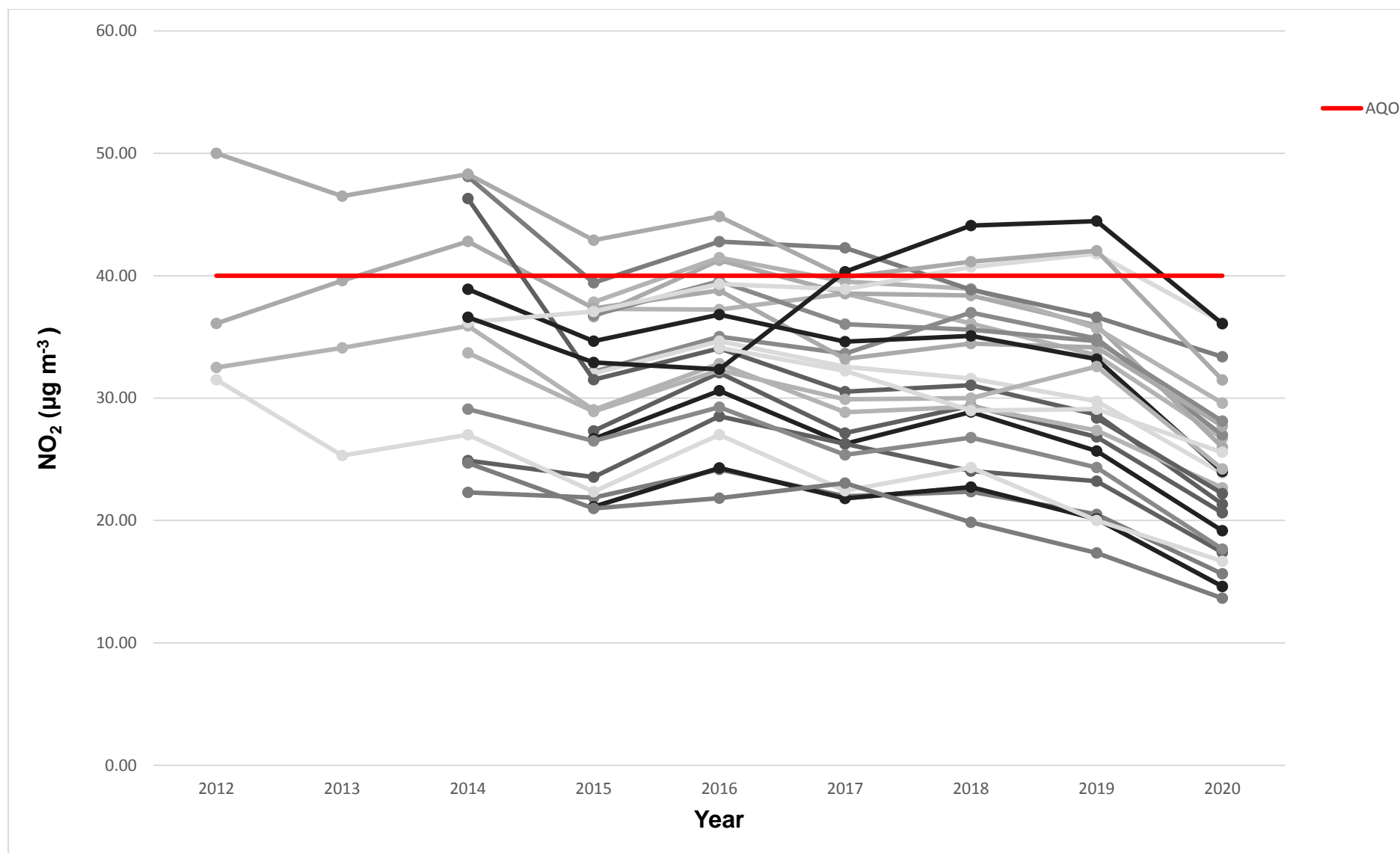


Figure 3. Annual Mean NO₂ Concentrations at Diffusion Tube Monitoring Sites

Table E. NO₂ Automatic Monitoring Results: Comparison with 1-hour Mean Objective, Number of 1-Hour Means >200 µg m⁻³

Site ID	Valid data capture for monitoring period % ^(a)	Valid data capture 2020 % ^(b)	2014		2015	2016	2017	2018	2019	2020
ST4 Wallington	N/A	92	10 (227.8)		9 (198.7)	22	1	0	0	0
ST5 Beddington Lane North	N/A	99	0		0 (99.8)	0	0	0	0	0
ST6 Worcester Park	N/A	91	3		11	24	11	7	9	0
ST8 Beddington Lane ^[1]	69.84	55	0		0	0	0	0	0	0 (73.1)
ST9 Beddington Village ^[2]	54.82	11	-		-	-	-	-	-	0 (72.1)

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 NO₂ 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%)

[1] Monitor was decommissioned and relocated 16th October 2020

[2] Monitor was relocated and installed 16th October 2020

The number of exceedances of the short term, 200 µg m⁻³ NO₂ AQO, show a downward trend throughout all report years with none recorded in 2020.

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

Site ID	Valid data capture for monitoring period % ^(a)	Valid data capture 2020 % ^(b)	2014	2015	2016	2017	2018	2019	2020
ST4 Wallington	N/A	86	20.6 (c)	16	23	25	23	21	18.7
ST5 Beddington Lane North	N/A	95	20.5 (c)	24	24	31	22	22	21.4
ST6 Worcester Park	N/A	65	26.2 (c)	23	22	20	20	21(c)	15.3 (c)
ST8 Beddington Lane ^[1]	69.8	38	22.8 (c)	19 (c)	23	23	22	17	14.5 (c)
ST9 Beddington Village ^[2]	54.8	20	-	-	-	-	-	-	14.5 (*c)

Notes

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

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

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

(*) Data capture is too low (<33%) for annualisation in accordance with LLAQM Technical Guidance

[1] Monitor was decommissioned and relocated 16th October 2020

[2] Monitor was relocated and installed 16th October 2020

PM₁₀ concentrations have remained relatively stable in all recorded years, however there is a slight downward trend, as shown in Figure 4. Concentrations have remained below the AQO of 40 µg m⁻³ in all reported years, with no exceedances of the PM₁₀ 24-hour mean objective.

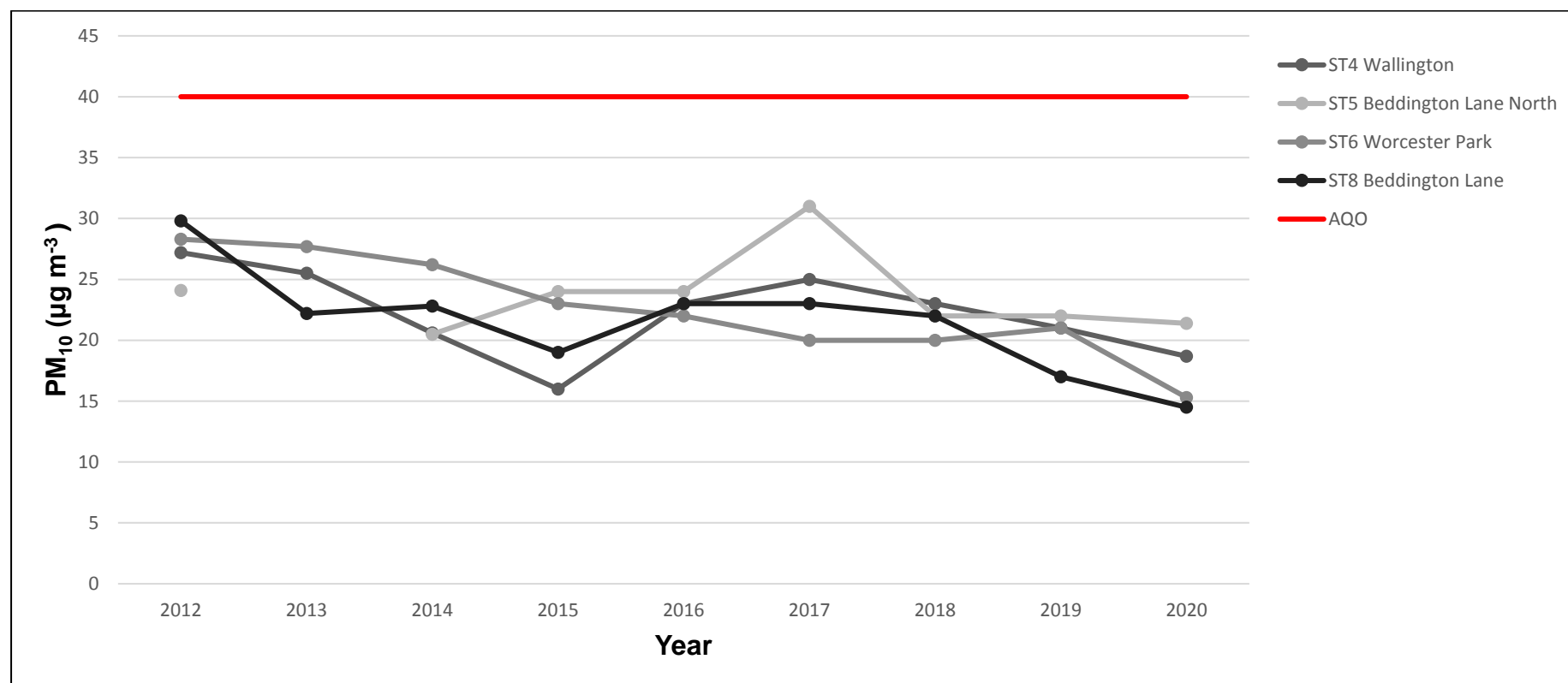


Figure 4. Annual Mean PM₁₀ Concentrations

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

Site ID	Valid data capture for monitoring period % ^(a)	Valid data capture 2020 % ^(b)	2014 c	2015	2016	2017	2018	2019	2020
ST4 Wallington	N/A	86	0 (27.5)	0 (25.3)	5	6	4	7	1
ST5 Beddington Lane North	N/A	95	7 (42.4)	13	5 (34)	21	2	13	8
ST6 Worcester Park	N/A	65	10 (35.9)	3 (33)	8	2	7	10 (44)	1 (22.6)
ST8 Beddington Lane	98.4	38	0 (30.4)	8	8 (37)	5	2	4	0 (23.3)
ST9 Beddington Village	99.9	20	-	-	-	-	-	-	1 (26.2)

Notes

Exceedances of the PM₁₀ 24-hour mean objective (50 µg m⁻³ over the permitted 35 days per year) are shown in **bold**.

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

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

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

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

Site ID	Valid data capture for monitoring period % ^(a)	Valid data capture 2020 % ^(b)	2014	2015	2016	2017	2018	2019	2020
ST5 Beddington Lane North	N/A	99	12.7 ^(c)	14.8	14.4	15.2 ^(c)	12	11.7	9.4

Notes

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

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

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

PM_{2.5} concentrations have remained relatively stable in all recorded years. However, there has been a 38% reduction in PM_{2.5} since its peak of 15.2 µg m⁻³ in 2017.

2. Impact of COVID-19 upon LAQM

The COVID-19 pandemic has allowed for the rapid deployment of a number of sustainable travel programmes and air quality improvement measures within the borough.

TfL's mode share report for 2020 shows cycling at 1.1% (decrease of 0.4% since 2019) and walking at 25.6% (increase of 1.6% since 2019). Footway widening in town centres took place as part of our London Streetspace response and our emergency and experimental School Streets encouraged children and guardians to use safer walking routes to school.

In 2020 LBS implemented five Low Traffic Neighbourhoods and 12 School Streets under the GLA's Streetspace for London scheme. However, these were all removed as a result of a ruling against the GLA in the High Court.

Some air quality awareness programmes have been able to be conducted remotely, this includes the Idling Action project team producing web-based workshops. These have been used as a standard response to complaints of idling made against specific businesses as well as being promoted more widely through the borough and its schools. In person events such as those held in 2019 were not possible due to the pandemic.

No detailed analyses of air pollutant concentrations has been conducted, however annual concentrations of air pollutants have reduced in line with ongoing trends. March to May 2020 had no NO₂ diffusion tube monitoring in the borough due to the impact of COVID-19 on laboratories and the councils ability to deploy diffusion tubes during this period, this has made it difficult to identify any trends of reduced traffic from this period.

3. Action to Improve Air Quality

3.1 Air Quality Action Plan Progress

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

Table I. Delivery of Air Quality Action Plan Measures

Measure	LLAQM Action Matrix Theme	Action	Progress <ul style="list-style-type: none"> Emissions/Concentration data Benefits Negative impacts / Complaints
1	Cleaner Transport	Discourage unnecessary engine idling	LBS is participating in the pan-London Anti-idling project funded by the MAQF. As part of this project, two schools have so far been visited. In 2020, no further sites were identified for anti-idling signs. Suitable sites are under investigation on case-by-case basis.
2		Ensure that Transport and air quality policies and projects are integrated	The consideration of schemes for inclusion in the LIP annual programme is based on a number of factors, which will include encouraging the use of alternate modes of transport, thus reducing car usage. However the LIP programme for 2020/21 was effectively cancelled due to the COVID pandemic, and LIP projects replaced with Streetspace projects that sought to offer similar benefits delivered in a different and accelerated way, including the creation of low traffic areas to reduce through traffic in residential areas. One of the key elements of these experimental schemes was data monitoring, and a process was put in place to use the traffic data collected to allow us determine what that meant in terms of air quality impacts.

Measure	LLAQM Action Matrix Theme	Action	Progress <ul style="list-style-type: none"> Emissions/Concentration data Benefits Negative impacts / Complaints
3		Implement measures to control speeds and smooth traffic flows in residential areas where pedestrians and cyclists are to be given greater priority	Temporary measures were put in place in response to the COVID-19 pandemic to encourage cycling and walking across the borough. LBS implemented five Low Traffic Neighbourhoods and 12 School Streets under the GLA's Streetspace for London scheme. These were all removed as a result of a ruling against the GLA in the High Court. There are Plans to deliver two 20mph schemes in 2021.
4		Encourage car sharing by promoting Car Clubs in order to reduce vehicle ownership and increase the proportion of electric, hydrogen and ultra-low emission vehicles within Car Clubs	Draft Sustainable transport Strategy consultation delayed until 2021. Draft STS consultation took place between 14 Jan and 25 March 2021. Responses being reviewed, with revised document due to be presented to Environment & Sustainable Transport Committee in autumn 2021
5		Support communities wishing to enact temporary road closures, encourage Play Streets and run campaigns to raise awareness of benefits of not using a private motor vehicle	No further Play Streets are scheduled to take place due to the pandemic and social distancing measures
6		Offer residents free or discounted parking charges for zero emission vehicles (e.g. electric) within Council-run car parks and free or discounted parking permits for zero emission vehicles	Concessions for electric/hybrid vehicles in car parks (multi-story car parks in Sutton and surface car parks in Wallington, Carshalton and Cheam) are in place and can be viewed here . CO ₂ based charging structure implemented in existing CPZs (Sutton and Belmont) providing cheaper permits for lower emitting vehicles. Expansion of permit criteria to new Permit Parking Areas in Hackbridge, Carshalton and St Helier being implemented. Any new schemes being implemented as part of the Geographical Area 2 and 3 of the Parking Strategy, which involve resident permits, will have the same charging structure.
7		Use parking policies to help reduce pollution emissions	CO ₂ based charging structure implemented in existing CPZs (Sutton and Belmont) providing cheaper permits for lower emitting vehicles.

Measure	LLAQM Action Matrix Theme	Action	Progress <ul style="list-style-type: none"> Emissions/Concentration data Benefits Negative impacts / Complaints
			Expansion of permit criteria to new Permit Parking Areas in Hackbridge, Carshalton and St Helier being implemented. Any new schemes being implemented as part of the Geographical Area 2 and 3 of the Parking Strategy, which involve resident permits, will have the same charging structure.
8		Installation of ULEV infrastructure including both standard and rapid electric vehicle charging points	The Council website is now fully up to date in respect of on-street charging and for those in public car parks (see here). It includes details of the rapid chargers, including two new ones installed in 2020, and discussions with Source London over the London-wide charging network expansion, of which the total is presently 22, with passive provision for a further five.
9		Review of road space allocation to identify opportunities for improving bus journey times, public transport options and the cycling experience while minimising impacts of emissions caused by congestion	The LIP programme for 2020/21 was effectively cancelled due to the COVID pandemic, and LIP projects replaced with Streetspace projects that sought to offer similar benefits delivered in a different and accelerated way. These schemes and other temporary schemes sought to improve local conditions for vulnerable road users, however were removed in February 2021. The LIP programme for 21/22 revisits some of these projects - with feasibility work for Area wide schemes in Worcester Park and Butter Hill. There is also funding in place to look at improvements to the Foresters Drive Corridor, with the intention of assisting cyclists.
10		Provision of infrastructure and support to encourage a modal switch to walking and cycling	TfL's mode share report for 2020 shows cycling at 1.1% (decrease of 0.4% since 2019) and walking at 25.6% (increase of 1.6% since 2019). Footway widening in town centres took place as part of our London Streetspace response and our emergency and experimental School Streets encouraged children and guardians to use safer walking routes to school.

Measure	LLAQM Action Matrix Theme	Action	Progress <ul style="list-style-type: none"> Emissions/Concentration data Benefits Negative impacts / Complaints
11		Work with Transport for London and other relevant providers to improve public transport connections, availability for passengers and a cleaner fleet mix	This work is ongoing.
12		Promote awareness of Low Emission Zones and creation of local Low Emission Zones	In 2020 LBS implemented five Low Traffic Neighbourhoods and 12 School Streets under the GLA's Streetspace for London scheme. These were all removed as a result of a ruling against the GLA in the High Court.
13	Delivery servicing and freight	Encourage existing contractors providing Council services to be members of the Fleet Operator Recognition Scheme and obtain Gold accreditation	The procurement guidance includes mandatory instructions to follow the sustainability and social value strategies. This objective will be supported by this process on a case by case basis.
14		Update local authority procurement policies to encourage contractors with fleets of more than 10 vehicles providing Council services to reduce emissions from their fleets and reduce pollution from logistics and servicing	Policy not yet updated - will form a part of Environmental Strategy which is being reviewed to respond to the climate emergency. It will be prioritised in 2021. The Strategy will inform how tenders are assessed.
15		Retiming of freight deliveries to commercial centres	Following last year's successful trial, this action has been postponed due to the Covid-19 impact and Council's priority changes in order to respond to the pandemic. With many of the premises not trading for much of the year we were unable to progress this. However our intention would be to explore further options to expand on the trial in 2021 and beyond.
16		Reduce emissions from deliveries through e.g. promotion of consolidation and/or Virtual Loading Bays with priority loading for ultra-low emission delivery vehicles	Croydon Sutton Electric Freight electric van project aimed to give firms in two neighbouring boroughs with a different business profile the opportunity to use an electric van for 6-24 months and learn how they worked in practice as part of a fleet, and day to day operations in all four seasons of the year. The 2017-2020 project has highlighted the limitations of the commercial vehicles available in the UK to date, the slow progress by all parties towards understanding

Measure	LLAQM Action Matrix Theme	Action	Progress <ul style="list-style-type: none"> • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			<p>and acceptance of electric vehicles and their complex charging needs, and the sheer delight from drivers for whom the electric van became their vehicle of choice. Suitable sites for freight consolidation are still being sought and discussions are ongoing. The procurement guidance includes mandatory instructions to follow the sustainability and social value strategies. This objective will be supported by this process on a case by case basis.</p>
17	Borough fleet actions	Procurement policies to be developed to encourage new contractors providing Council services to only use vehicles that meet Euro VI emissions standards	<p>The procurement guidance includes mandatory instructions to follow the sustainability and social value strategies. This objective will be supported by this process on a case by case basis.</p>
18		Increase the number of hydrogen, electric, hybrid, bio-methane and cleaner vehicles in the borough's fleet	<p>The procurement guidance includes mandatory instructions to follow the sustainability and social value strategies. This objective will be supported by this process on a case by case basis.</p>
19	Emissions from developments and buildings	Ensure emissions from construction and/or demolition are minimised	<p>Planning conditions relating to air quality are summarised in Table J. Officers apply relevant air quality conditions when consulted on planning applications. In addition, new guidance has been written for our website regarding controlling emissions through the planning approval process. This guidance clarifies to developers which sites will be reviewed for air quality, it stipulates compliance with the SPGs for Control of Dust and Emissions during Construction and Demolition, and Sustainable Design and Construction Practice, and it recommends the structure of a standard air quality assessment and recommends compliance with relevant IAQM guidance on assessment of risk.</p> <p>The procurement guidance includes mandatory instructions to follow the sustainability and social</p>

Measure	LLAQM Action Matrix Theme	Action	Progress <ul style="list-style-type: none"> • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			value strategies. This objective will be supported by this process on a case by case basis.
20		Ensure enforcement of Non-Road Mobile Machinery (NRMM) air quality policies	The use of our standard NRMM planning condition during 2020 is summarised in Table J. Additionally, the Council is taking part in the pan-London NRMM project, funded by the MAQF. Construction Logistics Plans also form part of the new draft Sustainable Transport Strategy, consulted on between January and March 2021
21		Reduce emissions from Combined Heat & Power (CHP) including through enforcement of air quality policies on energy sources in new developments	Zero planning applications for biomass boilers were received and zero were approved in 2019-20 or 2020-21. Zero planning applications for CHP plants over 500kW were received or approved in 2019-20 or 2020-21. Sutton's Authority Monitoring Report (AMR) currently reports on the capacity of energy supply systems implemented as part of completed developments within the borough (such as biomass and CHP) but it is intended to extend this monitoring to planning applications received and permissions from 2020-21 onwards.
22		Enforce Air Quality Neutral policies	Quantitative assessment of the Council's performance against this action can be found in Table J of this report. Assessment of a developments performance against Air Quality Neutral policy is expected of any major development in the borough. Our air quality website clarifies this requirement for developers.
23		Ensure that Air Quality Positive and Healthy Streets approaches are incorporated within future master-planning and redevelopment areas	There are currently no master planning or major site planning being undertaken by Strategic Planning. All major planning applications must meet Policy SI 1 of the 2019 Intend to Publish London Plan, which requires all new development to be "at least Air Quality Neutral" in other words air quality positive.

Measure	LLAQM Action Matrix Theme	Action	Progress <ul style="list-style-type: none"> • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			The policy also requires that Air Quality Assessments should be submitted with major applications. Transport for London is a consultee on certain planning applications and its representations do request the implementation of Healthy Streets principles, where necessary. No training has yet been arranged for Council officers.
24		Ensure adequate, appropriate and well located green space and infrastructure is included in new developments	All four (100%) major residential developments granted planning permission during the 2019-20 financial year and all seven major residential developments granted during 2020-21 have been supported by evidence in support of the planning application to demonstrate that the landscape strategy will achieve the minimum Green Space Factor (GSF) score of +0.2 required by Local Plan Policy 33 and in the Technical Guidance Note. From July 2020 onwards, developers have been required to submit the necessary supporting evidence 'in front' at the planning application stage rather than at a later stage through the use of pre-commencement conditions.
25		Ensure that Smoke Control Areas are appropriately identified and fully promoted and enforced	Four complaints of smoke from a fixed appliances were investigated. The Council's website was published in 2020 and includes a page detailing the Smoke Control Area and its legal implications for residents. Consolidation of historic Smoke Control Orders was postponed due to the impact of the Coronavirus. Consolidation is now scheduled for Autumn, 2021.
26		Promote and deliver energy efficiency and energy supply retrofitting projects in workplaces and homes through retrofit programmes such as RE:NEW, RE:FIT and through borough carbon offset funds	Sutton Housing Partnership has begun work on transforming up to 100 homes using the Energiesprong approach with the first eight homes to be completed by summer 2021.

Measure	LLAQM Action Matrix Theme	Action	Progress <ul style="list-style-type: none"> Emissions/Concentration data Benefits Negative impacts / Complaints
27	Public health and awareness raising	Director of Public Health to be fully briefed on air quality issues, to sign off Statutory Annual Status Reports and new Air Quality Action Plans and to support joint working across Council departments on tackling air pollution	Air Quality has been included in section 4 of the borough's JSNA. Air Quality Action Plan working group meetings are chaired by the director of public health and held every two months, however have been suspended due to the Covid-19 pandemic. .
28		Work with Public Health Team on stakeholder engagement to raise awareness of health effects of air pollution and reducing exposure	During 2020 the Idling Action project team produced web-based workshops. These have been used as a standard response to complaints of idling made against specific businesses as well as being promoted more widely through the borough and its schools. Our new webpages also contain a large amount of information and links to external sources to highlight the public health impacts of air pollution and how to improve the situation. Car Free Day and Clean Air Day activities were not possible because of the pandemic.
29		Engagement with businesses to reduce emissions from associated activities including employees travel to/from and within work	Due to Covid-19 lockdown no Dr Bike checks or workplace engagement was able to take place at Sutton workplaces in 2020
30		Promotion of sources of information about air quality and health including LoveCleanAir, AirTEXT and Walkit.com and ensuring people are advised when an air pollution episode is forecast	In 2020 the Council's new air quality web pages were published as a central hub for information on air pollution in the borough. The new site promotes the AirTEXT service as well as recommending ways in which residents can reduce their exposure to, and emissions of, air pollution. The Council has also shared pollution episode alerts from the GLA forecasting service. During 2020, borough residents subscribing to AirTEXT increased by 11 to 183.
31		Encourage schools to join the TfL STARS accredited travel planning programme and supporting its implementation	28 schools have STARS accredited travel plans, the pandemic prevented much of the work that would normally have been undertaken to improve this number.

Measure	LLAQM Action Matrix Theme	Action	Progress <ul style="list-style-type: none"> Emissions/Concentration data Benefits Negative impacts / Complaints
32		Raise awareness of air quality through education within schools	Web-based training resources created by Idling Action London have been promoted to schools in the borough. In person events such as those held in 2019 were not possible due to the pandemic. In 2020, no further locations were identified for anti-idling signs.
33	Localised solutions	Increase use of vegetation and tree planting to help reduce exposure to air pollutants	In 2020, LBS felled 720 and planted 806 Trees.
34		Target areas for implementing package of measures aimed at reducing emissions: Low Emission Neighbourhoods (LENs)	In 2020 LBS implemented five Low Traffic Neighbourhoods and 12 School Streets under the GLA's Streetspace for London scheme. These were all removed as a result of a ruling against the GLA in the High Court.
35	Monitoring and other core statutory duties	Collect and publish air quality monitoring data	LBS air quality monitoring data is available on the Council's website. Our Annual Status Reports are also available via our website. In addition to our permanent monitoring network, further passive monitoring has been carried out in 2020 around specific highways improvements.
36		Continue working with Environment Agency on joint approach to regulation of waste management sites including regular inspections and reviewing of monitoring data	Representatives of the Borough's Pollution Control Team regularly attend the Beddington ERF Community Liaison Group which the Environment Agency is invited to.

4. Planning Update and Other New Sources of Emissions

Table J. Planning requirements met by planning applications in the London Borough of Sutton in 2020

Condition	Number
Number of planning applications where an air quality impact assessment was reviewed for air quality impacts	8
Number of planning applications required to monitor for construction dust	7
Number of CHPs/Biomass boilers refused on air quality grounds	0
Number of CHPs/Biomass boilers subject to GLA emissions limits and/or other restrictions to reduce emissions	0
Number of developments required to install Ultra-Low NO _x boilers	6
Number of developments where an AQ Neutral building and/or transport assessments undertaken	8
Number of developments where the AQ Neutral building and/or transport assessments not meeting the benchmark and so required to include additional mitigation	1
Number of planning applications with S106 agreements including other requirements to improve air quality	1
Number of planning applications with CIL payments that include a contribution to improve air quality	0
NRMM: Central Activity Zone and Canary Wharf Number of conditions related to NRMM included. Number of developments registered and compliant. Please include confirmation that you have checked that the development has been registered with the GLA through the relevant NRMM website and that all NRMM used on-site is compliant with Stage IIIB of the Directive and/or exemptions to the policy.	8 condition recommended 11 registered and compliant 0 unregistered/uncompliant and being chased.

Development Management Service consults the Pollution Control Team on all major planning applications as well as some non-major applications that are likely to be of interest. Applications are reviewed by officers within the team in respect of contaminated land, noise and air quality. Typically, one officer coordinates the team's response and records data such as the air quality conditions that were recommended.

The enforcement of air quality conditions is largely the responsibility of the Planning Enforcement Team unless environmental nuisance issues arise. However, NRMM enforcement is carried out by the LB Merton-led pan-London NRMM enforcement project, funded by the Mayor's Air Quality Fund.

4.1 New or significantly changed industrial or other sources

No new sources identified.

Appendix A: Details of Monitoring Site Quality QA/QC

A.1 Automatic Monitoring Sites

The Council's monitoring stations form part of the London Air Quality Network and QA/QC standards are delivered accordingly. These are considered close, if not equivalent to, the AURN standards. QA/QC is carried out by contractors

PM₁₀ Monitoring Adjustment

The monitoring stations in the London Borough of Sutton are part of the London Air Quality Network and the data is collected and managed (including ratification) by ERG (Environmental Research Group).

A.2 Diffusion Tubes

The diffusion tubes used by the London Borough of Sutton are supplied and analysed by Gradko utilising the 20% triethanolamine (TEA) in water preparation method. A bias adjustment factor of 0.81 for the year 2020 has been derived from the nation bias adjustment calculator dated March 2021.

London Borough of Sutton did not conduct any co-location studies in 2020, so it was not possible to calculate a local adjustment factor. As a result, the national adjustment factor of 0.81 is applied to diffusion tube monitoring results in this report.

Gradko International Ltd is a UKAS accredited laboratory and participates in laboratory performance and proficiency testing schemes. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO₂ concentrations reported are of a high calibre. The lab follows the procedures set out in the Harmonisation Practical Guidance. Gradko previously participated in the Workplace Analysis Scheme for Proficiency (WASP) for NO₂ diffusion tube analysis Page 38 and the Annual Field Inter Comparison Exercise. In April 2014, a new scheme, AIR PT13, was introduced. This is an independent analytical proficiency-testing (PT) scheme, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL). AIR PT combines two long running PT schemes: LGC Standards STACKS PT scheme and HSL WASP PT scheme.

Laboratory performance in AIR PT is also assessed by the National Physical Laboratory (NPL) alongside laboratory data from the monthly NPL Field Intercomparison Exercise carried out at Marylebone Road, central London. A laboratory is assessed and given a 'z' score. A score of 2 or less indicates satisfactory laboratory performance.

Gradko International Ltd.'s performance for 2020 for 75% of samples submitted by Gradko were deemed satisfactory.

The laboratory has also achieved a “good” precision result for 2020. Tubes are considered to have "good" precision where the coefficient of variation of duplicate or triplicate diffusion tubes for eight or more periods during the year is less than 20%, and the average CV of all monitoring periods is less than 10%.

Table K. Bias Adjustment Factor

Year	Local or National	If Local, Version of National Spreadsheet	Adjustment Factor
2020	National	03/21	0.81
2019	National	03/20	0.93
2018	National	03/19	0.93
2017	National	03/18	0.89
2016	National	04/17	0.94

A.3 Adjustments to the Ratified Monitoring Data

Short-term to Long-term Data Adjustment

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

In 2020, 10 no. of NO₂ diffusion sites, 2 no. of NO₂ continuous monitoring sites, and 3 no. PM₁₀ continuous monitoring sites required annualisation. Lost data from diffusion tubes was due to an inability to change over diffusion tubes during the COVID-19 pandemic and tampering or contamination of monitoring tubes. The annualisation of the continuous monitoring site was required due to the relocation of ST8 to ST9 in October 2021. However, the valid data capture for ST9 was too low for annualisation. ST6 continuous PM₁₀ monitoring required annualisation due to a low valid data capture in 2020.

Distance Adjustment

Four sites were identified for distance adjustments. The continuous NO₂ monitoring sites of ST4 and ST6 as well as the NO₂ diffusion tubes monitoring sites, ST39 and H3. ST4 exceeded the AQO of 40 µg m⁻³ with ST6, ST39 and H3 calculated within 10% of the objective. Annual mean NO₂ concentrations for these sites were calculated at relevant exposure receptors using the NO₂ fall off with distance calculator. ST4, ST6 and ST39 were calculated to be below the AQO. H3 remained with 10% of this objective as the diffusion tube is located the same distance from the kerb as the receptor.

Table L. Short-Term to Long-Term Monitoring Data Adjustment

Site ID (NO₂ Diffusion Tube Sites)	Annualisation Factor Streatham Green – LB6	Annualisation Factor Putney – WA9	Annualisation Factor Wandsworth Town hall – WA2	Annualisation Factor N/A	Average Annualisation Factor	Raw Data Annual Mean (µg m⁻³)	Annualised Annual Mean (µg m⁻³)	Comments
ST26	1.0365	0.9822	1.0256	-	1.0148	31.6	32.1	
ST07	0.9235	0.9172	0.9095	-	0.9168	21.1	19.3	
ST34	1.0365	0.9822	1.0256	-	1.0148	40.6	41.2	
ST35	0.9875	0.9539	0.9702	-	0.9705	27.1	26.3	
ST38	0.9899	0.9434	0.9773	-	0.9702	30.5	29.6	
ST39	0.9899	0.9434	0.9773	-	0.9702	46.0	44.7	
ST40	1.0365	0.9822	1.0256	-	1.0148	38.3	38.9	
ST42	0.9875	0.9539	0.9702	-	0.9705	17.4	16.9	
H2	0.9976	0.9685	0.9567	-	0.9743	22.4	21.8	
BL	0.9649	0.9497	0.9493	-	0.9547	33.1	31.6	
Site ID (NO₂ Continuous Monitoring Site)	Annualisation Ratio Streatham Green – LB6	Annualisation Ratio Putney – WA9	Annualisation Ratio Wandsworth Town hall – WA2	Annualisation Factor N/A	Average Annualisation Factor	Raw Data Annual Mean (µg m⁻³)	Annualised Annual Mean (µg m⁻³)	Comments
ST8	1.048379	1.109973	1.049485	-	1.06927927	17.9	19.14	
Site ID (PM10 Continuous Monitoring Site)	Annualisation Ratio Streatham Green – LB6	Annualisation Ratio Putney – WA9	Annualisation Factor Elephant & Castle – SK6	Annualisation Factor N/A	Average Annualisati on Factor	Raw Data Annual Mean (µg m⁻³)	Annualised Annual Mean (µg m⁻³)	Comments
ST6	1.049124	1.066079	1.061974	-	1.05905927	14.44	15.31	
ST8	1.036386	1.000745	1.010321	-	1.01581689	14.2	14.48	

Table M. NO₂ Fall off With Distance Calculations

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted ($\mu\text{g m}^{-3}$))	Background Concentration ($\mu\text{g m}^{-3}$)	Concentration Predicted at Receptor ($\mu\text{g m}^{-3}$)	Comments
ST4	0.8	5.8	40.76	15.33	31.0	
ST6	1.3	3.3	39.4	16.79	34.9	
ST39	8.0	9.0	36.2	18.0	35.5	
H3	5.0	5.0	36.1	16.54	36.1	Predicted concentration at Receptor within 10% of the AQO.

Appendix B: Full Monthly Diffusion Tube Results for 2020

Table N. NO₂ Diffusion Tube Results

Site ID	Valid data capture for monitoring period % ^(a)	Valid data capture 2020 % ^(b)	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual mean – raw data	Annual mean – bias adjusted
ST21	75	75	31.05	28.76	-	-	-	20.34	15.69	22.05	25.23	26.28	33.77	26.08	25.47	20.6
ST22	75	75	39.71	39.58	-	-	-	27.3	23.23	29.76	33.54	33.44	37.65	32.71	32.99	26.7
ST23	75	75	39.87	32.56	-	-	-	28.26	22.61	33.17	34.42	33.57	39.68	35.64	33.31	27
ST24	75	75	27.87	23.22	-	-	-	18.84	14.35	23.2	25.75	22.67	31.08	25.96	23.66	19.2
ST25	75	75	34.68	34.76	-	-	-	21.24	20.09	24.83	28.34	30.66	37.21	33.3	29.46	23.9
ST26	67	67	<0.62	40.8	-	-	-	27.76	22.17	32.28	31.48	35.41	32.02	31.02	31.62	26 (c)
ST07	58	58	24.32	20.45	-	-	-	13.6	-	-	20.48	20.29	27.21	21.1	21.06	15.6 (c)
ST08	75	75	27.72	23.39	-	-	-	14.71	14.44	18.56	22.83	20.79	26.32	24.49	21.47	17.4
ST29	75	75	44.72	39.48	-	-	-	33.69	26.1	37.11	41.49	37.87	33.2	35.2	36.54	29.6
ST10	75	75	24.01	19.59	-	-	-	11.58	9.72	14.17	17.97	19.2	23.54	22.64	18.05	14.6

Site ID	Valid data capture for monitoring period % ^(a)	Valid data capture 2020 % ^(b)	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual mean – raw data	Annual mean – bias adjusted
ST11	75	75	29.48	25.68	-	-	-	17.53	13.87	20.3	22.59	23.73	28.27	24.78	22.91	18.6
ST32	75	75	22.67	20.01	-	-	-	19.38	11	18.17	21.27	21.06	27.21	24.49	20.58	16.7
ST33	75	75	36.73	32.28	-	-	-	30.17	19.28	38.13	38.67	40.65	33.27	38.77	34.22	27.7
ST34	67	67	-	44.16	-	-	-	33.06	32.64	40.36	43.79	43.05	50	37.79	40.61	33.4 (c)
ST35	67	67	36.36		-	-	-	23.5	15.67	22.56	25.37	27.48	35.04	31.19	27.15	21.3 (c)
ST36	75	75	33.05	27.35	-	-	-	22	18.94	26.21	26.88	27.91	38.08	31.51	27.99	22.7
ST27	75	75	42.09	37.13	-	-	-	29.67	23.17	32.65	30.85	34.99	41.75	40.08	34.71	28.1
ST38	67	67	30.21	28.51	-	-	-	-	20.19	32.54	32.04	31.83	37.14	31.83	30.54	24 (c)
ST39	75	75	47.89	42.39	-	-	-	181.76	37.69	44.14	50.1	47.47	51.41	47.27	61.12	36.2 (c)
ST40	67	67	-	47.89	-	-	-	39.75	28.86	41.3	41.67	34.92	36.5	35.63	38.32	31.5 (c)
ST42	67	67	20.48	-	-	-	-	11.22	9.62	13.58	17.55	18.72	25.22	22.51	17.36	13.6 (c)
ST43	75	75	31.53	28.42	-	-	-	21.65	20.24	22.99	29.73	30.5	34.1	27.53	27.41	22.2
H1	75	75	33.8	31.05	-	-	-	24.95	20.6	26.54	31.93	30.14	37.77	32.17	29.88	24.2

Site ID	Valid data capture for monitoring period % ^(a)	Valid data capture 2020 % ^(b)	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual mean – raw data	Annual mean – bias adjusted
H2	58	58	25.78	-	-	-	-	17.61	15.16	21.03	23.73	26.48	-	26.93	22.39	17.7 (c)
H3	75	75	55.7	55.7	-	-	-	41.85	32.4	42.76	43.85	25.56	54.74	48.45	44.56	36.1
BL	58	58	38.59	29.07	-	-	-	24.84	19.47	-	-	47.29	38.62	33.61	33.07	25.6 (c)

Notes

Concentrations are presented as $\mu\text{g m}^{-3}$.

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

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

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