The Royal Borough of Kingston Upon Thames Air Quality Annual Status Report for 2021

Date of publication: June 2022

This report provides a detailed overview of air quality in Royal Borough of Kingston upon Thames during 2021. It has been produced to meet the requirements of the London Local Air Quality Management (LLAQM) statutory process[1].

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

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Abbreviations

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

Table A.   Summary of National Air Quality Standards and Objectives

Pollutant	Standard / Objective (UK)	Averaging Period	Date[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	2021
Particles ($PM_{2.5}$)	Target of 15% reduction in concentration at urban background locations	3-year mean	Between 2010 and 2021
Sulphur dioxide (SO_2)	266 µg m^{-3} not to be exceeded more than 35 times a year	15-minute mean	31 Dec 2005
Sulphur dioxide (SO_2)	350 µg m^{-3} not to be exceeded more than 24 times a year	1-hour mean	31 Dec 2004
Sulphur dioxide (SO_2)	125 µg m^{-3} mot to be exceeded more than 3 times a year	24-hour mean	31 Dec 2004

Notes:

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

1. Air Quality Monitoring

1.1 Locations

Table B. Details of Automatic Monitoring Sites for 2021

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
KT4	Tolworth Broadway	519706	165885	Roadside	Y	7	4.2	1.6	NO_2, PM_{10}	Chemiluminescent; BAM
KT5	Cromwell Road	518562	169519	Roadside	Y	3	2.7	1.6	NO_2, PM_{10}	Chemiluminescent; BAM
KT6	Kingston Vale	521251	172166	Roadside	Y	10	3	1.6	NO_2, PM_{10}	Chemiluminescent; BAM

Table C. Details of Non-Automatic Monitoring Sites for 2021

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)
1	Guildhall Complex	517951	169029	Kerbside	Y	15	1	2.5	NO_2	N
2	17-19 Penrhyn Road	518067	168672	Roadside	Y	3	2	2.5	NO_2	N
3	52 Portsmouth Road	517565	167715	Roadside	Y	5	2	2.5	NO_2	N
4	88 Brighton Road	517532	167296	Kerbside	Y	4	0.5	2.5	NO_2	N
5	Victoria Road/Brighton Road	517765	167143	Kerbside	Y	1	3	2.5	NO_2	N
6	St. Mark's Hill/Ewell Road	518424	167604	Roadside	Y	2.5	5	2.5	NO_2	N
7	Victoria Road near Surbiton Station	518039	167346	Kerbside	Y	2	0.5	2.5	NO_2	N
8	Upper Brighton Road/Langley Road	518336	166655	Roadside	Y	2.5	2	2.5	NO_2	N
9	199 Douglas Road/Thornhill Road	518737	165768	Kerbside	Y	3	0.5	2.5	NO_2	N
10	Ewell Road near jct Elgar Avenue	519365	166230	Kerbside	Y	4	0.5	2.5	NO_2	N
11	53 Elgar Avenue	519664	166505	Kerbside	Y	6	0.5	2.5	NO_2	N
12	136 Tolworth Broadway/Serv ice Road	519714	165886	Roadside	Y	3	2	2.5	NO_2	N
13	Tolworth Roundabout (Sundial Court)	519808	165873	Kerbside	Y	1.5	1	2.5	NO_2	N
14	Kingston Road (near station)	519872	165692	Kerbside	Y	14	0.5	2.5	NO_2	N
15	A240 Kingston Road/Old Kingston Road	520192	165264	Kerbside	Y	30	0.5	2.5	NO_2	N

16	Hook Road South/Hunters Road	518087	165096	Kerbside	Y	6	1	2.5	NO$_2$	N
17	Hook Road (St Paul's Primary)	518026	164785	Roadside	Y	2.5	2	2.5	NO$_2$	N
18	Hook Centre	517991	164532	Kerbside	Y	4	0.5	2.5	NO$_2$	N
19	Garrison Lane/Reynolds Avenue	518155	163395	Kerbside	Y	5	0.5	2.5	NO$_2$	N
20	353 Malden Rushett Crossroads	517256	161578	Roadside	Y	2	2.5	2.5	NO$_2$	N
21	Opposite 148 Leatherhead Road	517683	163465	Roadside	Y	2	3	2.5	NO$_2$	N
22	Hook Rise North/Tolworth Rec Centre	518601	165270	Roadside	Y	3	1.5	2.5	NO$_2$	N
23	40 Fife Road	518147	169455	Kerbside	Y	4	0.5	2.5	NO$_2$	N
24	14 -16 Cromwell Road	518467	169509	Roadside	Y	2	2	2.5	NO$_2$	N
25	Queen Elizabeth Road/London Road	518533	169348	Kerbside	Y	4	0.5	2.5	NO$_2$	N
26	Richmond Road/Kings Road	518199	170056	Roadside	Y	4	1.5	2.5	NO$_2$	N
27	Fire Station, Richmond Road	517800	171423	Roadside	Y	12	1	2.5	NO$_2$	N
28	41 Kingston Hill	519353	169895	Kerbside	Y	3	1	2.5	NO$_2$	N
29	240 Kingston Vale near Robin Hood Lane	521107	172055	Kerbside	Y	6	0.5	2.5	NO$_2$	N
30	Coombe Hill School	520611	169889	Roadside	Y	10	2.5	2.5	NO$_2$	N
31	248 Malden Road near A3	521651	167397	Kerbside	Y	8	0.5	2.5	NO$_2$	N
32	South Lane	521252	166877	Kerbside	Y	7	0.5	2.5	NO$_2$	N
33	96 Burlingston Road	521873	168117	Roadside	Y	3	1.5	2.5	NO$_2$	N
34	66 New Malden High Street	521416	168373	Roadside	Y	7	1.5	2.5	NO$_2$	N
35	113 -115 Clarence Avenue	520708	169258	Roadside	Y	4	1	2.5	NO$_2$	N

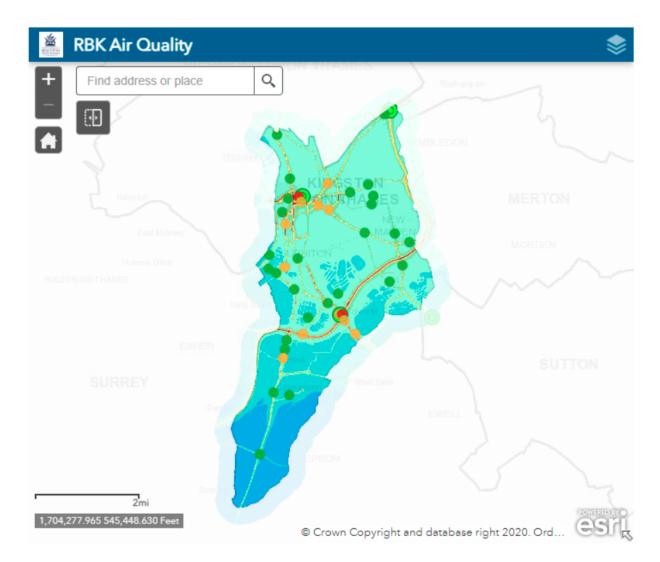| 36	38 Coombe Lane West near A3 junction	520047	169651	Roadside	Y	3	2	2.5	NO_2	N
37	51 Elm Road	520764	169525	Kerbside	Y	6	0.5	2.5	NO_2	N
38	Kingston Road (Carpet Right)	520503	168388	Roadside	Y	15	2	2.5	NO_2	N
39	Cambridge Road/Gloucest er Road	519372	169098	Kerbside	Y	1	8	2.5	NO_2	N
40	Cambridge Road/Hawks Road	519064	169244	Roadside	Y	1.5	1.5	2.5	NO_2	N

Figure 1A. Air Quality Monitoring Locations in the Royal London Borough of Kingston Upon Thames
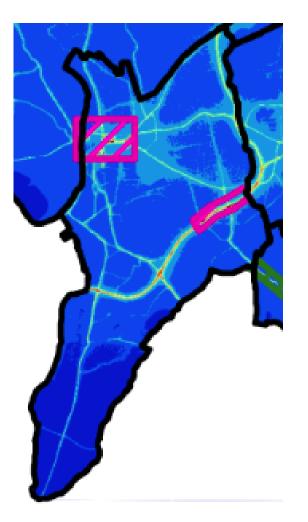
Figure 1B. Air Quality Focus Areas in the Royal London Borough of Kingston Upon Thames

1.2 Comparison of Monitoring Results with AQOs

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

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

Site ID	Site type	Valid data capture for monitoring period %[a]	Valid data capture 2021 %[b]	2015	2016	2017	2018	2019	2020	2021
KT4	Roadside	N/A	98	**48.50 (*c)**	**50.70 (*c)**	**48.9**	**44.00**	**41.41**	32.80	30.87
KT5	Roadside	N/A	96	-	-	-	**57 (*c)**	**57.22**	**44.7 (40.6)**	**50.51**
KT6	Roadside	N/A	100	-	-	-	36.00	33.18	24.6	25.54
1	Kerbside	100	100	25.17	25.03	21.61	21.65	20.09	16.27	15.16
2	Roadside	100	100	**44.48**	**46.48**	**40.27**	**44.03**	**40.95**	33.17	28.34
3	Roadside	100	100	35.09	38.65	34.55	30.72	28.57	23.14	22.22
4	Kerbside	100	100	28.56	32.90	26.46	27.55	25.62	20.75	19.58
5	Kerbside	100	100	**40.59**	**40.4**	35.82	36.93	34.34	27.82	26.49

Site ID	Site type	Valid data capture for monitoring period %[a]	Valid data capture 2021 %[b]	2015	2016	2017	2018	2019	2020	2021
6	Roadside	100	100	**40.75**	**42.99**	37.46	36.40	33.85	27.42	22.18
7	Kerbside	100	100	**49.92**	**48.97**	**44.25**	**43.53**	**40.48**	32.79	27.11
8	Roadside	100	100	**42.44**	**41.96**	38.14	37.62	34.99	28.34	26.03
9	Kerbside	100	100	25.67	26.99	24.7	22.15	20.60	16.69	16.97
10	Kerbside	100	100	**48.61**	**48.61**	**45.72**	38.06	35.40	28.67	26.32
11	Kerbside	100	100	28.82	30.74	26.71	26.08	24.25	19.65	17.67
12	Roadside	100	100	<u>67.18</u>	**55.22**	**51.28**	**43.75**	**40.69**	32.96	34.10
13	Kerbside	100	100	<u>72.22</u>	<u>**76.96**</u>	<u>72.24</u>	<u>65.06</u>	<u>60.51</u>	**42.7 (44.4)**	**45.56**
14	Kerbside	100	100	<u>62.4</u>	**59.73**	**54.34**	**41.55**	38.64	31.30	31.55
15	Kerbside	100	100	**42.78**	**46.32**	**46.40**	**41.00**	38.13	30.89	34.22
16	Kerbside	92	92	**43.41**	**45.57**	**40.57**	38.45	35.76	28.96	24.97
17	Roadside	92	92	38.18	39.66	35.98	36.98	34.39	27.86	22.75

Site ID	Site type	Valid data capture for monitoring period %[a]	Valid data capture 2021 %[b]	2015	2016	2017	2018	2019	2020	2021
18	Kerbside	92	92	**48.54**	**47.96**	**46.41**	**42.7**	39.71	32.17	24.65
19	Kerbside	100	100	27.43	28.89	27.35	29.48	27.42	22.21	19.43
20	Roadside	92	92	36.89	38.43	36.42	34.94	32.49	26.32	22.2
21	Roadside	100	100	37.94	38.51	35.07	36.05	33.53	27.16	24.21
22	Roadside	100	100	**52.57**	**50.12**	**54.57**	**44.8**	**41.66**	33.75	31.1
23	Kerbside	100	100	35.5	34.73	31.13	39.55	36.78	29.79	23.47
24	Roadside	92	92	<u>**93.97**</u>	<u>**90.62**</u>	<u>**84.52**</u>	<u>**75.91**</u>	<u>**70.60**</u>	<u>**60.10 (51.20)**</u>	**52.61**
25	Kerbside	92	92	**46.3**	**45.61**	**43.12**	**40.04**	37.24	30.16	25.06
26	Roadside	100	100	34.59	38.56	35.54	34.68	32.25	26.12	23.93
27	Roadside	100	100	35.07	36.04	31.61	34.84	32.4	26.24	14.13
28	Kerbside	100	100	**57.38**	**53.65**	**50.95**	**49.58**	**46.11**	37.35 (33.3)	**43.27**

Site ID	Site type	Valid data capture for monitoring period %[a]	Valid data capture 2021 %[b]	2015	2016	2017	2018	2019	2020	2021
29	Kerbside	100	100	39.19	**41.39**	34.73	31.53	29.32	23.75	21.32
30	Roadside	100	100	**40.65**	**40.56**	39.03	38.93	36.20	29.33	30.97
31	Kerbside	100	100	**45.22**	**45.63**	**41.95**	38.60	35.90	29.08	33.25
32	Kerbside	100	100	24.51	27.62	24.98	27.06	25.17	20.38	16.28
33	Roadside	100	100	**41.88**	**42.88**	**40.34**	38.92	36.20	29.32	31.24
34	Roadside	100	100	30.95	40.15	35.67	37.75	35.11	28.44	27.85
35	Roadside	100	100	31.13	32.65	29.93	30.65	28.50	23.09	24.9
36	Roadside	100	100	39.08	36.35	34.97	32.22	29.96	24.27	27.22
37	Kerbside	100	100	27.07	28.39	28.31	25.96	24.14	19.56	18.52
38	Roadside	100	100	31.43	38.16	32.94	36.08	33.55	27.18	33.79
39	Kerbside	100	100	**49.84**	**51.9**	**48.29**	**46.75**	**43.48**	35.22	35.12
40	Roadside	100	100	**43.79**	**45.63**	**43.56**	**42.3**	39.34	31.86	31.02

Notes:

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

Exceedances of the NO$_2$ annual mean AQO of 40 µg m^{-3} are shown in bold.

NO$_2$ annual means in excess of 60 µg m^{-3}, indicating a potential exceedance of the NO$_2$ hourly mean AQS objective are shown in bold and underlined.

Means for diffusion tubes have been corrected for bias.

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

Results have been distance corrected where applicable.

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

(b) data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
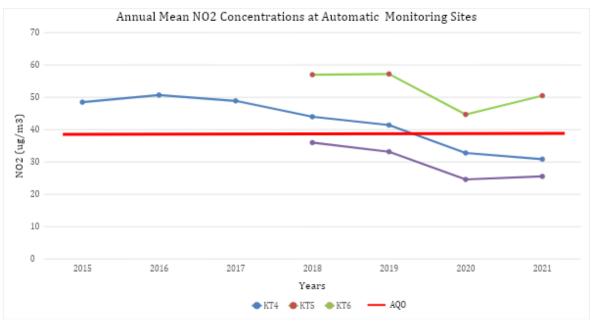
Figure 2. Trends in Annual Mean NO$_2$ Concentrations at Automatic Monitoring Sites

At automatic monitors, there was one exceedance of the annual mean NO$_2$ objective in 2021; annual mean NO$_2$ concentrations of 50.51 µg/m^3 was monitored at KT6. Whilst this represents an increase in concentrations in 2020, there is an overall decreasing trend since 2015 and concentrations have not returned to pre-pandemic levels.
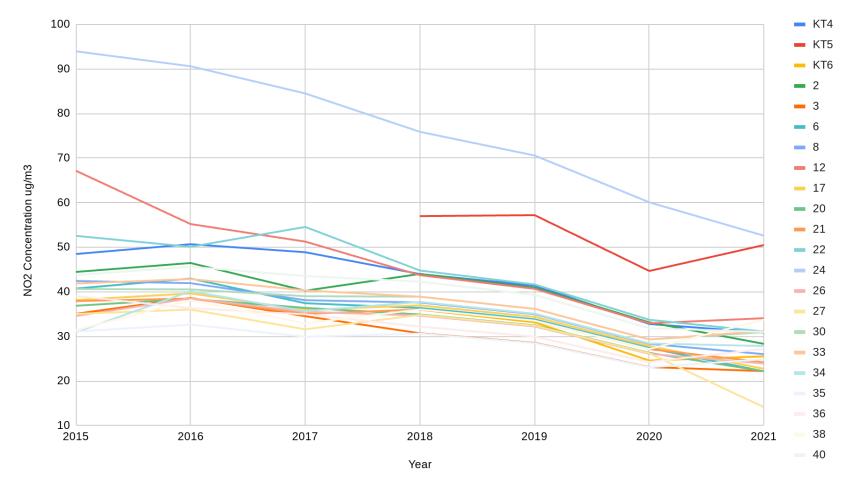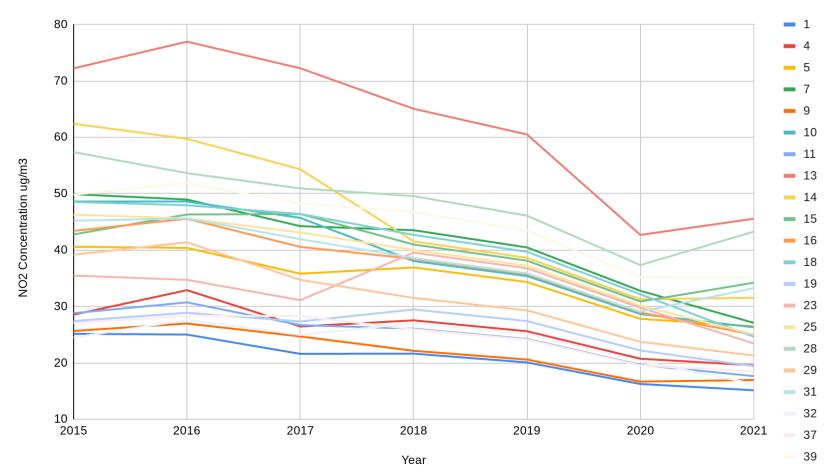
Annual Mean NO2 Concentrations for DT at Roadside Location

Figure 3A. Trend in Annual Mean NO$_2$ Concentrations at Roadside Location

Figure 3B. Trend in Annual Mean NO_2 Concentrations at Kerbside Location

Table E. NO$_2$ Automatic Monitoring Results: Comparison with 1-hour Mean Objective, Number of 1-Hour Means > 200 µg m^{-3}

Site ID	Valid data capture for monitoring period %([a])	Valid data capture 2021 %([b])	2015	2016	2017	2018	2019	2020	2021
Tolworth Broadway	N/A	98	0	5	8	0	0	0 (109.5)	0
Cromwell Road	N/A	96	-	-	-	1	5	0	0
Kingston Vale	N/A	100	-	-	-	0	0	0	0

Notes

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

Exceedance of the NO$_2$ short term AQO of 200 µg m^{-3} over the permitted 18 hours per year are shown in bold.

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 F.   Annual Mean PM$_{10}$ Automatic Monitoring Results (μg m^{-3})

Site ID	Valid data capture for monitoring period %([a])	Valid data capture 2021 %([b])	2015	2016	2017	2018	2019	2020	2021
Tolworth Broadway	N/A	99.9	20	24	23	23	22	21.7	21.6
Cromwell Road	N/A	98.4				30	26	23.9	27.7
Kingston Vale	N/A	98.3				22	20	17.7	17.7

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%).

Figure 4. Trends in Annual Mean PM$_{10}$ Automatic Monitoring Results

There were no exceedances of the annual mean PM$_{10}$ objective in 2021, with a maximum concentration of 27.7 µg/m^3 at KT4 (Cromwell Road). Compliance was achieved against the 24-hour mean PM$_{10}$ objective.

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

Site ID	Valid data capture for monitoring period %[a]	Valid data capture 2021 %[b]	2015	2016	2017	2018	2019	2020	2021
Tolworth Broadway	N/A	99.9	1	9	6	2	7	6	5
Cromwell Road	N/A	98.4	-	-	-	15 (50)	15	9	14
Kingston Vale	N/A	98.3	-	-	-	2 (35)	4	3	2

Notes

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

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

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

(b) data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
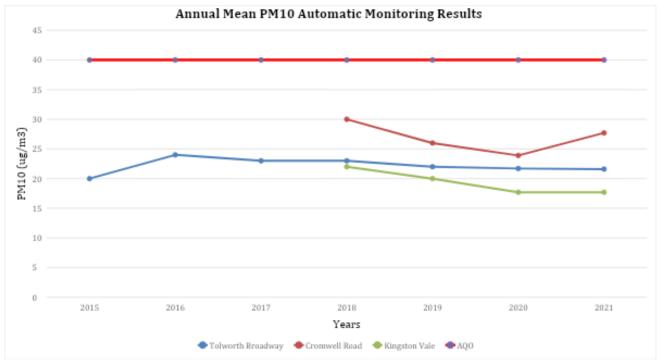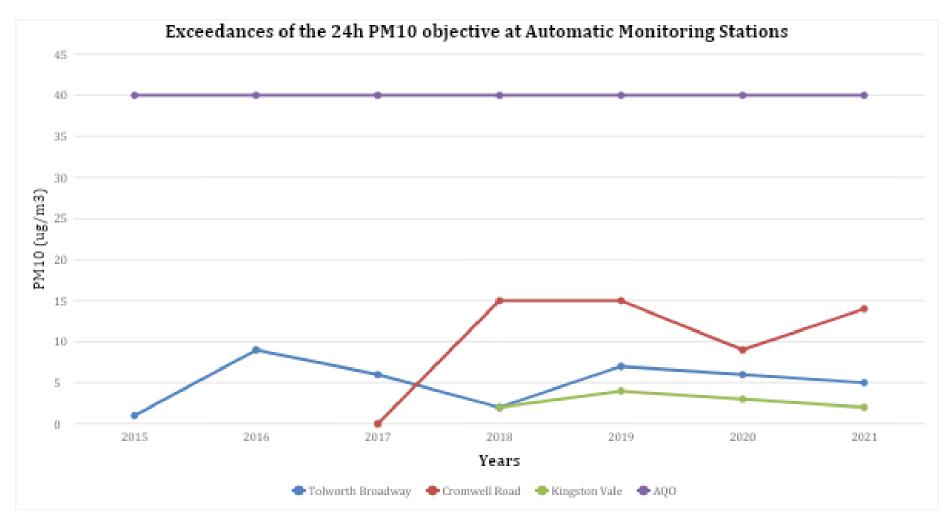
Figure 5. Trends in Exceedances of the 24h PM$_{10}$ Objective at Automatic Monitoring Stations

2. Action to Improve Air Quality

2.1 Air Quality Action Plan Progress

Table J provides a brief summary of the Royal Borough of Kingston Upon Thames progress against the Air Quality Action Plan, showing progress made this year. New projects which commenced in 2021 are shown at the bottom of the table.

Table J.   Delivery of Air Quality Action Plan Measures

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
Borough Fleet Actions	AfC	Ensure that all SEND Vehicles are Euro 6 Complaint with a reissued fleet of vehicles by Sept. 2021 and transition to all electric vehicles as soon as a suitable replacement is available to match current specification.	No progress
	Procurement	Kingston to sign the Clean Van Commitment from Global Action Plan and commit to swapping fleet vehicles for zero emission versions, where they exist and are suitable,	Dependent on type of vehicles and contract, so the relevant contract managers will need to advise on this i.e. Housing, Waste etc

Measure	LLAQM Action Matrix Theme	Action	Progress ● Emissions/Concentration data ● Benefits ● Negative impacts / Complaints
		by 2028. Kingston to lobby vehicle providers and con	
	Procurement	Replace all remaining housing fleet to electric when suitable cost-effective electric vehicles are available. Ensure that housing fleet vehicles for which like for like EV options do not yet exist are Euro VI-compliant.	Dependent on type of vehicles and contract, so the relevant contract managers will need to advise on this i.e. Housing, Waste etc.
	Environmental Protection	Devise and implement a driver training system to promote efficient driving practice amongst Council employees.	Funding was secured for the driver training system by the Defra Grant. Implementation in 2022.
Cleaner Transport	Sustainable Transport & Commissioning	Continue to lobby TfL and Surrey CC to increase the rate at which ultra-low emission buses are introduced in Kingston.	Continuing to communicate with TFL to introduce ultra-low emission buses

Measure	LLAQM Action Matrix Theme	Action	Progress ● Emissions/Concentration data ● Benefits ● Negative impacts / Complaints
	Sustainable Transport & Commissioning	Carry out a public consultation process to maximise quality of the bus service by optimising routes and frequencies.	Ongoing - bus services primarily operated by TfL and the pandemic has delayed progress on the Kingston Bus Review
	Assistant director for Highways, Transport and Regulatory Services	Lobby Transport for London and South Western Railways for changes to the zones system for Kingston, Surbiton and Chessington resulting in cheaper, Zone 5 fares.	No progress
	Sustainable Transport & Commissioning	Implement a public e-bike hire scheme in the borough in 2021	Delayed due requirement for formal procurement, expected to launch summer 2022.
	Sustainable Transport & Commissioning	Working with schools to carry out an Active Travel Challenge over one month with rewards on offer for entrants. Possibly	Incentives were to schools such as bike bells and pedometers with a short lead in time for Car Free Day and Bike to School Week last year with Sustrans funding. Schools were

Measure	LLAQM Action Matrix Theme	Action	Progress ● Emissions/Concentration data ● Benefits ● Negative impacts / Complaints
		targeting parents and guardians with children at schools with school streets	asked to upload activities to the STARS website but results are yet to be obtained. If funding is available, a plan will be put in place to establish the objective and to monitor and evaluate the success. Caroline, HSO. Deliver Bikeabiliy to all schools and make it count toward their plans
	Sustainable Transport & Commissioning	In conjunction with recommendation 4.3, run a rewards programme for Active Travel Employers, offering rewards to employers with the greatest commitment to active travel (e.g. showers at work, secure cycle parking, Cycle Scheme uptake, etc.).	No engagement with businesses on behaviour change during 2021 due to lack of resources/funding from TfL.
	Kingston Healthy and Safe	Encourage businesses to sign up to a green pledge for Kingston. Hold a healthy green	Part of the Climate Emergency Action Plan, Theme 6, Green Economy and the

Measure	LLAQM Action Matrix Theme	Action	Progress ● Emissions/Concentration data ● Benefits ● Negative impacts / Complaints
		workplaces conference to encourage the use of sustainable transport	Corporate Head of Strategy and Engagement is responsible for the Delivery: https://www.kingston.gov.uk/downloads/file/1694/kingston-s-climate-action-plan
	Sustainable Transport	Investigate simplifying payment methods for newly installed charge points in the borough. This is likely to take the form of a 'one app' approach to payments. This aim will be taken into consideration for all future procurement of charging points.	Officers aware of this as a potential benefit to reduce the number of apps needed. Note however the Gov. intends to consult on non-phone based payment methods on public charging points 7.1kw, so 'one-app' approach may be superseded. There is a system called Zap-Pay which seeks to do this, however as yet few charging point operators are signed up.
	Environmental Protection	Discouraging unnecessary idling through continued participation with the Idling Action	RBK is participating in the pan-London Anti-idling project funded by the MAQF. As

Measure	LLAQM Action Matrix Theme	Action	Progress ● Emissions/Concentration data ● Benefits ● Negative impacts / Complaints
		campaign if possible, installation of anti-idling road signs at known hotspots, promotion of anti-idling online workshops provided by Idling Action with schools, businesses, and borough drivers.	part of this project, 4 schools have so far been visited. In 2021, numerous sites were identified for anti-idling signs. Suitable sites are under investigation on case-by-case basis.
	Sustainable Transport & Commissioning	Assess the feasibility of changing all borough residential roads to 20mph.	Over 1300 residents took part in the consultation on Kingston Let's Talk and over 400 commented via email, social media, postcard or at a drop-in session. The delivery of the schemes are subject to availability of funding and ongoing discussions with Transport for London (TfL).
	Sustainable Transport & Commissioning	Increasing the proportion of electric and hydrogen vehicles and low emission vehicles in Car Clubs	We are planning to go to market on public car club and expecting a commitment to EV"s

Measure	LLAQM Action Matrix Theme	Action	Progress ● Emissions/Concentration data ● Benefits ● Negative impacts / Complaints
			by 2026. Corporate car club not looking so clear so tbc on that one.
	Sustainable Transport & Commissioning	4 Very Important Pedestrian Days a year on weekdays leading to trials of play streets in residential areas. In business areas, target one a year on a Sunday.	Feasibility phase
	Parking	Surcharge on diesel vehicles below Euro 6 standards for Resident's and Controlled Parking Zone permits	Is there a surcharge?
	Sustainable Transport & Commissioning	Installation of 100 resident charge points close to homes on targeted residential streets in 2021	Delivered
	Parking	Installation of rapid electric vehicle chargers in 3 RBK town centre car parks	The Town Centre Parking Study is being reviewed and the Parking team are

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			assessing options and working with colleagues in Highways & Transport and Property
	Sustainable Transport & Commissioning	Reallocation of road space; reducing parking in accessible destinations and or restricting parking on congested high streets and busy roads to improve bus journey times, cycling experience, and reduce emissions caused by congested traffic.	Early stages of working with Kingston colleagues and officers in other boroughs on what a Kerbside Management Strategy might look like for Kingston.
	Sustainable Transport & Commissioning	Provision of infrastructure to support walking and cycling.	Awaiting outcome of bids for cycle parking. Bid to Levelling Up fund for extension of Go routes was unsuccessful. We expect to work on a new bid to this fund for submission in July 2022. That bid would probably contain

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			more walking/placemaking elements than the previous bid. Contact Helen Millier.
Delivery Servicing & Freight	Procurement	Update of local authority Procurement policies to include a requirement for suppliers with large fleets to have attained silver FORS accreditation	Procurement Policy is needs to be refreshed. Currently trying to recruit a policy officer and/or manager who will lead on updating all of our policies. Once in post this can be fed back to them. In immediate term, recommend that this is communicated to all contract managers with fleet responsibilities (Housing, Waste etc.) so that it can be included in any future specifications.
	Procurement	Update of Procurement policies to ensure sustainable logistical measures are	Procurement Policy is needs to be refreshed. Currently trying to recruit a policy officer

Measure	LLAQM Action Matrix Theme	Action	Progress ● Emissions/Concentration data ● Benefits ● Negative impacts / Complaints
		implemented (and include requirements for preferentially scoring bidders based on their sustainable criteria)	and/or manager who will lead on updating all of our policies. Once in post this can be fed back to them. In immediate term, recommend that this is communicated to all contract managers with fleet responsibilities (Housing, Waste etc.) so that it can be included in any future specifications, evaluation criteria etc.
	Sustainable Transport & Commissioning	Secure delivery and servicing plans and monitoring via planning obligations for large traffic generators, including commercial developments, new and expanded schools, other community facilities and major residential developments.	Standard Activity for the team responsible. We already request Planning to condition a DSP for all larger developments and review them once submitted.

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
Emissions from developments and buildings	Sustainable Transport & Commissioning	Construction Management Plans imposed by planning obligation on all major and other sensitive development in consultation with advice from Transport/Highways and Air Quality. GLA	Standard Activity for the team responsible. Planning request to condition a DSP for all larger developments and review them once submitted
	Planning	London Plan policies on energy efficiency applied to relevant development; Aspiration to adopt BREEAM target policies for development in RBK new Local Plan in Q4 2023 subject to viability testing.	Ongoing
	Environmental Protection	Ensuring enforcement of Non Road Mobile Machinery (NRMM) air quality policies through continuing membership of the NRMM enforcement project.	The use of our standard NRMM planning condition during 2021 is summarised in Table K. Additionally, the Council is taking part in the pan-London NRMM project, funded by the MAQF. Construction Logistics

Measure	LLAQM Action Matrix Theme	Action	Progress ● Emissions/Concentration data ● Benefits ● Negative impacts / Complaints
			Plans also form part of the new draft Sustainable Transport Strategy, consulted on between January and March 2021
	Planning	Apply London Plan CHP and biomass air quality policies to relevant development.	Ongoing
	Planning	Applying London Plan 2021 Air Quality Neutral policies to new major development.	Ongoing
	Planning	Urban Greening Factor requirement for relevant development in line with London Plan; Maintenance plans for green infrastructure secured by planning condition.	Ongoing
	Environmental Protection	Ensuring that Smoke Control Zones are fully promoted and enforced through investigating complaints of smoke,	The consolidation of historic Smoke Control Orders has been agreed at a council level.

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
		consolidating the smoke control zones into a single zone that encompasses the entire borough, and investigating fuel retailers for compliance.	The consultation is in progress due to implementation by Autumn 2022.
	Property Services	Promoting and delivering energy efficiency retrofitting projects in workplaces and homes using the GLA RE:NEW and RE:FIT programmes to replace old boilers /top-up loft insulation in combination with other energy conservation measures.	Energy efficiency improvements delivered within Council's own buildings. Percentage of the borough's energy needs being met from renewable or community sources compared to 2018 baseline.
	Planning	Ensure that planning and development within the borough are compliant with relevant planning policies in relation to air quality in order to mitigate the potential impacts of	Ongoing

Measure	LLAQM Action Matrix Theme	Action	Progress ● Emissions/Concentration data ● Benefits ● Negative impacts / Complaints
		development on air quality and to protect the health and amenity of the population.	
Localised Solutions	Environmental Protection	Carry out air quality audits on the three schools in Kingston where NO_2 concentrations are the highest in accordance with the GLA audit toolkit. Promote Schools Pollution Helpdesk and GLA audit toolkit.	Due to limited resources this project has not commenced. Aim to start in 2022
	Sustainable Transport & Commissioning	Bid for funding to be able to implement 3 experimental schools streets per year and seek to make existing experimental schemes permanent.	Funding secured for 2022/23 & we will continue to bid each year.
	Sustainable Transport & Commissioning	Liaise with South West London boroughs not covered by the inner London ULEZ	Note Mayor of London looking to consult on expanding ULEZ to cover greater London by 2023

Measure	LLAQM Action Matrix Theme	Action	Progress ● Emissions/Concentration data ● Benefits ● Negative impacts / Complaints
		regarding the potential for a south London ULEZ	
	Sustainable Transport & Commissioning	Carry out study to assess feasibility of implementing Kingston's first Zero Emissions Zone	Ongoing discussions
	Sustainable Transport & Commissioning	Continue to ensure that streets are designed in line with Healthy Streets Guidance with a specific focus on promoting sustainable transport by making highways safer, more accessible, and attractive through design, maintenance and greening. Implement a framework to ensure that all planned maintenance works consider Healthy Streets impacts.	Ongoing

Measure	LLAQM Action Matrix Theme	Action	Progress ● Emissions/Concentration data ● Benefits ● Negative impacts / Complaints
	Sustainable Transport & Commissioning	Carry out feasibility study to assess feasibility of implementing a Low Emission Neighbourhood in Kingston	Mayor of London plans to consult on expanding ULEZ to cover greater London by 2023, so this action is redundant
Monitoring and other core statutory duties	Environmental Protection	Collect and publish air quality monitoring data in line with the requirements of the London Local Air Quality Management framework.	Internet of things project through Breathe London. Aqualine, roll out 6 monitors across RBK Borough
Public Health and Awareness Raising	Strategy and Engagement	Design and deliver a clean air communications campaign to raise awareness of the harm caused by poor air quality and how individuals can take action to reduce their emissions.	Each year the council supports the Idling Action London #EngineOffEveryStop campaign to educate motorists about the dangers of engine idling and the health impacts it causes. The campaign ois promoted n social media, in the resident's e-newsletter and have previously taken out

Measure	LLAQM Action Matrix Theme	Action	Progress ● Emissions/Concentration data ● Benefits ● Negative impacts / Complaints
			adverts in the Surrey Comet and on the JCDecaux advertising board network
	Strategy and Engagement	Develop a communications strategy which raises awareness of the harm caused by solid fuel burning. Material to be published early every winter for maximum impact.	Delayed due to the COVID-19 pandemic
	Environmental Protection	Implement a schools outreach programme designed to raise awareness of the impacts of air pollution and help them to create clean air route plans. Provide this service to at least five schools in the borough and produce an article outlining findings for the head's newsletter.	We are working on collecting air quality data at school streets and at other locations through our Internet of Things project with South London Partnership. If funds allow we will seek to add extra sensors at extra locations to feed into this action
	Environmental Protection	Ensure that the Director of Public Health is fully briefed on the content of the Annual	Air Quality has been included in section 4 of the borough's JSNA. Air Quality Action Plan

Measure	LLAQM Action Matrix Theme	Action	Progress ● Emissions/Concentration data ● Benefits ● Negative impacts / Complaints
		Status Reports on air quality in relation to the current situation in our local authority area, actions that have been taken thus far, and what is needed to reduce the health impacts of poor air quality in the future.	working group meetings are chaired by the director of public health and held every two months. Minutes are taken.
	Public Health	DPH will be consulted on all relevant air quality projects to liaise with key stakeholders.	We are not aware of being contacted to sign off or review any air quality projects in 2021 other than the Heathrow Design Principles report.
	Public Health	In relevant Public Health publications and in the statutory Annual Public Health Report, the Public Health DPH will have responsibility to ensure inclusion of up to date information on air quality impacts on the population.	Due to Public Health's lead role in our pandemic response, we have not published an Annual Public Health Report since 2020. This report focused on place and it's impact on the health and wellbeing of residents. This included looking at the impact of streets

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			and transport on our health (including air quality). See Kingston Data for the latest report. https://data.kingston.gov.uk/jsna/annual-public-health-reports/
	Public Health	Strengthening co-ordination with Public Health by ensuring that at least one Consultant grade public health specialist within the borough has air quality responsibilities outlined in their job profile (as part of a wider role, not a dedicated air quality post).	This will be strengthened by the role of the Health in All Policies lead, supported by the Public Health Consultant and DPH. The Health in All Policies role was paused during the outbreak response.
	Public Health	Director of Public Health/relevant CHoS to sign off Statutory Annual Status Reports and all new Air Quality Action Plans	We are not aware of being contacted to sign off or review any air quality plans other than Heathrow Design Principles draft (November

Measure	LLAQM Action Matrix Theme	Action	Progress ● Emissions/Concentration data ● Benefits ● Negative impacts / Complaints
			2021) which was reviewed by Laura Maclehose, Public Health Consultant.
	Environmental Protection	Provide a briefing which can be disseminated amongst the Transport team detailing their responsibilities in relation to air quality improvement as well as risks and opportunities relevant to their service area that relate to air quality.	Due to limited resources this project has not commenced. Aim to start in 2022
	Environmental Protection	Promotion of availability of airTEXT air pollution alert system on the website, doctor's surgeries, hospitals, and schools. Mayor's air quality alerts to be disseminated using social media.	The Council website to promote 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.

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			Doctor's surgeries, hospitals and schools aim to be contacted in 2022.
	Sustainable Transport & Commissioning	Support five schools to join and achieve bronze accreditation in the TfL STARS accredited travel planning programme by providing information on the benefits to schools and supporting the implementation of such a programme.	Ongoing. In 2021 RBK benefited from the services of a Healthy Streets Officer which helped ensure we met this target.

3. Planning Update and Other New Sources of Emissions

<u>Table K.   Planning requirements met by planning applications in the Royal London Borough of Kingston Upon Thames in 2021</u>

Condition	Number
Number of planning applications where an air quality impact assessment was reviewed for air quality impacts	23
Number of planning applications required to monitor for construction dust	30
Number of CHPs/Biomass boilers refused on air quality grounds	0
Number of CHPs/Biomass boilers subject to GLA emissions limits and/or other restrictions to reduce emissions	0
Number of developments required to install Ultra-Low NO$_x$ boilers	5
Number of developments where an AQ Neutral building and/or transport assessments undertaken	24
Number of developments where the AQ Neutral building and/or transport assessments not meeting the benchmark and so required to include additional mitigation	7
Number of planning applications with S106 agreements including other requirements to improve air quality	6
Number of planning applications with CIL payments that include a contribution to improve air quality	6
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.	N/A
NRMM: Greater London (excluding Central Activity Zone and Canary Wharf) Number of conditions related to NRMM included. Number of developments registered and compliant. Please include confirmation that you have checked that the development has been registered through the NRMM webpage and that all NRMM used on-site is compliant with Stage IIIA of the Directive and/or exemptions to the policy.	22 conditions included 15 registered and compliant 4 unregistered/non compliant and being chased.

The Royal Borough of Kingston Upon Thames Planning Department consults the Environmental Protection 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.

3.1   New or significantly changed industrial or other sources

No new sources identified

4. Additional Activities to Improve Air Quality

4.1 The Royal London Borough of Kingston Upon Thames Fleet

There is currently no zero emission and zero emission capable vehicles there are within the borough's fleet in 2021.

4.2 NRMM Enforcement Project

The Royal London Borough of Kingston Upon Thames is continuing to support the NRMM Enforcement project in 2022 – 23.

4.2 Air Quality Alerts

The Council website to promote 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 2021, borough residents subscribing to AirTEXT increased to 137.

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.

PM_{10} 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 0.84 for the year 2020 has been derived from the national bias adjustment calculator dated March 2022.

London Borough of Sutton did not conduct any co-location studies in 2021, so it was not possible to calculate a local adjustment factor. As a result, the national adjustment factor of 0.84 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 NO_2 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 NO_2 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 2021 for 100% of samples submitted by Gradko were deemed satisfactory.

The laboratory has also achieved a "good" precision result for 2021. 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 L.   Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2021	National	03/22	0.84
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

National Diffusion Tube Bias Adjustment Factor Spreadsheet

Spreadsheet Version Number: 03/22

Follow the steps below **in the correct order** to show the results of **relevant** co-location studies

Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods

Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet

This spreadhseet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated at the end of June 2022

LAQM Helpdesk Website

The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.

Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.

Step 1:	Step 2:	Step 3:	Step 4:							
Select the Laboratory that Analyses Your Tubes from the Drop-Down List	Select a Preparation Method from the Drop-Down List	Select a Year from the Drop-Down List	Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in blue at the foot of the final column.							
If a laboratory is not shown, we have no data for this laboratory.	If a preparation method is not shown, we have no data for this method at this laboratory.	If a year is not shown, we have no data[2]	If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953							
Analysed By[1]	Method	Year[5]	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) ($\mu g/m^3$)	Automatic Monitor Mean Conc. (Cm) ($\mu g/m^3$)	Bias (B)	Tube Precision[6]	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	20% TEA in water	2021	R	Belfast City Council	12	38	27	39.4%	G	0.72
Gradko	20% TEA in water	2021	UB	Dudley MBC	12	20	15	36.0%	G	0.74
Gradko	20% TEA in water	2021	R	Dudley MBC	12	30	29	4.2%	G	0.96
Gradko	20% TEA in water	2021	R	Dudley MBC	12	42	40	5.5%	G	0.95
Gradko	20% TEA in Water	2021	R	Lambeth	10	91	62	46.6%	G	0.68
Gradko	20% TEA in water	2021	R	Lancaster City Council	13	38	32	18.4%	G	0.84
Gradko	20% TEA in water	2021	R	Lancaster City Council	13	28	27	4.9%	G	0.95
Gradko	20% TEA in water	2021	**Overall Factor[3] (32 studies)**					**Use**		**0.84**

Figure 6. National Diffusion Tube Bias Adjustment Factor Spreadsheet

A.3   Adjustments to the Ratified Monitoring Data

<u>Short-term to Long-term Data Adjustment</u>

Where data capture is less than 75% and greater than 25% of a full calendar year (between 3 and 9 months), the mean should be "annualised" – i.e. adjusted using the methodology outlined in LLAQM.TG(19) before being compared to annual mean objectives.

In 2021, all monitoring sites had data capture of 75% or more. No annualisation was required.

<u>Distance Adjustment</u>

The exceedances that are measured at the monitoring sites which is not representative of public exposure, the procedure specified in LLAQM.TG(19) is used to estimate the concentration at the nearest receptor.

Table N is completed using the outputs from the NO_2 fall off with distance tool.

Table N. NO$_2$ Fall off With Distance Calculations

The results presented in the table below are after adjustments for bias adjustment, annualisation and distance to a location of relevant public exposure. 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 NO$_2$ annual mean objective of 40ug/m3.

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 36ug/m3), to account for the inherent uncertainty in diffusion tube monitoring data.

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted (µg m^{-3})	Background Concentration (µg m^{-3})	Concentration Predicted at Receptor (µg m^{-3})	Comments
KT5	2.7	1	50.51	24.87	45.7	Predicted concentration at Receptor within 10% of the AQO
13	1	1.5	45.56	25.99	41.9	Predicted concentration at Receptor within 10% of the AQO
24	2	2	52.61	24.87	48.1	Predicted concentration at Receptor within 10% of the AQO
28	1	3	43.27	22.27	37.1	Predicted concentration at Receptor within 10% of the AQO

The calculations have been carried out in accordance with LLAQM Technical Guidance in order to provide information on the concentrations at which relevant exposure occurs. The data shows that there is all of the site identified above are in exceedance of the annual mean objective.

Appendix B   Full Monthly Diffusion Tube Results for 2021

Table O.   NO$_2$ Diffusion Tube Results

Site ID	Valid data capture for monitoring period %[a]	Valid data capture 2021 %[b]	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual mean – raw data	Annual mean – bias adjusted[a]
1	100	100	22.57	23.66	18.75	17.64	13.69	13.55	14.25	11.36	19.32	18.27	23.35	20.17	18.05	15.16
2	100	100	**42.2**	37.88	29.98	31.11	31.73	30.32	30.86	29.23	**41.42**	**40.95**	39.39	19.85	33.74	28.34
3	100	100	31.42	33.44	25.95	23.28	23.2	20.44	22.28	18.36	30.86	24.74	32.52	31.00	26.46	22.22
4	100	100	29.25	33.09	23.90	21.91	18.87	19.03	18.77	15.09	24.87	20.34	27.55	27.06	23.31	19.58
5	100	100	32.4	**41.23**	29.20	30.35	31.22	28.19	28.95	20.63	35.49	31.63	33.94	35.26	31.54	26.49
6	100	100	31.15	32.98	24.84	24.63	23.04	23.75	24.17	18.91	28.61	27.24	30.32	27.21	26.40	22.18

7	100	100	39.74	36.38	30.59	29.10	26.89	30.96	27.37	24.73	30.99	33.97	37.99	38.58	32.27	27.11
8	100	100	34.35	35.38	30.44	24.95	26.18	34.17	27.74	27.74	32.56	32.12	35.18	31.09	30.99	26.03
9	100	100	28.41	24.58	21.23	19.33	14.88	14.94	13.82	12.20	21.16	21.07	25.74	25.01	20.20	16.97
10	100	100	30.78	33.32	29.42	32.36	28.49	30.09	25.88	24.46	33.22	31.06	39.14	37.74	31.33	26.32
11	100	100	26.83	26.3	23.01	21.42	15.41	16.28	15.81	11.95	21.66	19.42	28.63	25.70	21.03	17.67
12	100	100	**46.11**	**43.58**	37.63	39.99	37.5	38.35	35.70	32.00	**45.24**	**42.22**	**44.84**	**44.02**	**40.60**	34.10
13	100	100	**55.46**	**58.96**	**50.4**	**52.24**	**50.32**	**48.79**	**50.81**	**46.33**	<u>66.79</u>	**59.08**	**54.31**	**57.43**	**54.24**	**45.56**
14	100	100	**40.56**	**46.2**	34.43	39.95	31.83	37.34	33.31	30.01	**44.76**	34.56	39.90	37.87	37.56	31.55
15	100	100	**47.36**	**41.83**	**42.25**	38.01	**41.87**	**40.89**	35.11	37.38	**42.29**	39.53	**42.10**	40.24	**40.74**	34.22

16	92	92	35.61	36.36	32.31	27.78	27.07	30.56	28.71	28.31	35.02	36.34	38.67	0.00	29.73	24.97
17	92	92	34.18	33.5	28.5	26.12	24.3	27.54	24.63	25.95	30.99	32.13	37.18	0.00	27.09	22.75
18	92	92	29.75	36.67	32.51	30.97	29.44	30.22	29.19	26.56	34.21	31.44	**41.23**	0.00	29.35	24.65
19	100	100	29.90	28.12	22.54	21.74	18.59	22.1	19.07	17.15	24.85	20.87	28.37	24.33	23.14	19.43
20	92	92	33.23	30.91	30.58	27.96	23.89	29.23	25.86	25.97	29.11	28.51	31.89	0.00	26.43	22.20
21	100	100	32.60	31.97	31.05	28.76	22.05	28.97	23.2	26.61	27.25	28.30	36.20	28.91	28.82	24.21
22	100	100	**49.00**	**41.87**	**40.59**	28.64	31.16	33.26	30.44	28.68	28.74	**41.55**	**47.00**	**43.40**	37.03	31.10
23	100	100	33.26	38.59	27.1	28.44	24.23	20.21	19.71	19.01	33.33	28.18	31.85	31.37	27.94	23.47
24	92	92	**73.74**	**64.59**	**63.79**	**55.32**	**80.01**	**64.4**	**62.02**	**64.14**	**76.87**	0.00	**66.86**	**79.77**	**62.63**	**52.61**
25	100	100	38.57	38.9	31.29	30.92	29.68	27.42	27.29	27.88	36.38	33.39	0.00	36.36	29.84	25.06

26	100	100	34.49	35.26	27.03	28.71	23.97	24.14	24.14	20.18	30.83	30.77	31.59	30.72	28.49	23.93
27	100	100	24.33	21.15	16.51	16.29	13.57	11.65	12.66	9.15	16.85	16.56	22.64	20.45	16.82	14.13
28	100	100	_62.73_	**52.72**	**56.48**	**47.85**	**44.17**	**51.15**	**43.07**	**42.25**	**59.32**	**54.39**	**52.35**	**51.67**	**51.51**	**43.27**
29	100	100	29.71	29.29	26.70	26.75	23.32	22.70	21.15	18.75	27.22	23.31	28.73	26.88	25.38	21.32
30	100	100	**48.18**	35.85	35.97	32.69	31.08	34.99	31.66	33.86	35.47	37.93	**44.31**	40.52	36.87	30.97
31	100	100	**46.58**	**41.60**	**41.93**	**40.90**	35.95	36.74	35.97	30.89	**43.82**	39.48	**40.57**	**40.62**	39.59	33.25
32	100	100	28.18	26.34	22.28	20.31	12.91	14.38	4.92	12.28	20.67	19.31	25.99	24.94	19.38	16.28
33	100	100	**43.19**	**43.71**	37.76	34.00	34.89	33.69	33.25	26.77	**42.39**	38.11	38.28	**40.22**	37.19	31.24
34	100	100	38.99	35.67	32.01	33.37	32.68	28.80	27.87	23.81	38.77	33.80	35.12	36.95	33.15	27.85

35	100	100	39.57	36.02	31.71	32.16	24.01	24.02	22.34	21.37	18.34	30.52	36.29	39.42	29.65	24.90
36	100	100	37.56	34.81	35.00	30.71	29.06	27.74	26.03	24.56	33.63	31.49	**41.21**	37.09	32.41	27.22
37	100	100	29.36	25.58	24.34	22.01	16.41	16.00	15.92	13.69	22.86	23.16	29.18	26.02	22.05	18.52
38	100	100	**45.26**	**45.04**	**42.9**	**42.47**	39.11	37.49	32.34	32.96	**44.03**	38.50	**41.46**	**41.14**	**40.22**	33.79
39	100	100	**48.97**	**44.53**	**44.34**	**42.13**	39.21	38.77	33.47	37.38	**44.95**	38.96	**46.49**	**42.50**	**41.81**	35.12
40	100	100	**46.72**	**41.52**	**38.01**	34.76	34.47	32.79	31.00	29.87	38.01	39.61	37.68	38.75	36.93	31.02

Notes

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

Exceedances of the NO$_2$ annual mean AQO of 40 µg m^{-3} are shown in bold.

NO$_2$ annual means in excess of 60 µg m^{-3}, indicating a potential exceedance of the NO$_2$ hourly mean AQS objective are shown in bold and underlined.

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

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

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