AIR QUALITY ANNUAL STATUS REPORT.

2022

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

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WE ARE NEWHAM.

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

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Contents

Tables

Figures

Abbreviations

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

Table A. Summary of National Air Quality Standards and Objectives

Pollutant	Standard / Objective (UK)	Averaging Period	Date[1]
Nitrogen dioxide (NO_2)	200 µg m^{-3} not to be exceeded more than 18 times a year	1-hour mean	31 Dec 2005
Nitrogen dioxide (NO_2)	40 µg m^{-3}	Annual mean	31 Dec 2005
Particles (PM_{10})	50 µg m^{-3} not to be exceeded more than 35 times a year	24-hour mean	31 Dec 2004
Particles (PM_{10})	40 µg m^{-3}	Annual mean	31 Dec 2004
Particles ($PM_{2.5}$)	20 µg m^{-3}	Annual mean	2020
Particles ($PM_{2.5}$)	10 µg m^{-3}	Annual mean	2040
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

Continuous monitoring of nitrogen dioxide (NO2) and fine particles (PM10 and PM2.5) is undertaken at four sites in the London Borough of Newham. There are three roadside sites at Cam Road (NM2), Hoola Tower (NM4) and Britannia Gate (NM5) and a background site at Wren Close (NM3). A further continuous monitoring site at East Ham Town Hall (NM6) was commissioned in late 2022, and this will be reported in more detail in next year's report.

There is an extensive array of passive NO2 monitoring devices (nitrogen dioxide diffusion tubes) across the entire borough including 99 schools (NHM-S 1–NM-S 99) and 16 long-term sites (NM1-NM21).

Monitoring in and around London City Airport is carried out at two automatic monitoring stations. One is to the north of Royal Albert Dock adjacent to the Newham Dockside building (LCA-ND) and the second is adjacent to King George V House (LCA-KGV). These automatic sites are supplemented by 16 nitrogen dioxide diffusion tubes LCA01-LCA021).

The monitoring station previously sited on the rooftop of City Aviation House (LCA-CAH) has been decommissioned and replaced by a new automatic nitrogen dioxide analyser located at King George V House, adjacent to the existing FIDAS PM10 analyser. This new analyser was installed on the 1st of June 2022, and underwent a period of testing, configuration and integration for approximately one month. Measured concentrations of nitrogen dioxide from LCA-CAH for 1st January 2022 – 31st May 2022 (inclusive) are reported, and at LCA-KGV from 1st July 2022 to 31st December 2022. This report presents some data derived from the London City Airport, Air Quality Monitoring Strategy Annual Report 2022, by Air Quality Consultants Limited dated April 2023 and is hereby acknowledged.

Table B1. Details of Automatic Monitoring Sites for 2022

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
NM2	Cam Rd	538661	183969	Roadside	Y	25	9	3.0	NO2, PM2.5, PM10	T200 Chemi-luminescent, BAM x2
NM3	Wren Close	539889	181469	Back-ground	Y	14	N/A	3.0	NO2, PM2.5, PM10	T200 Chemi-luminescent, BAM x2
NM4	Hoola Tower	539934	180810	Roadside	Y	15	3	1.5	NO2	Chemiluminescence
NM5	Britannia Gate	540324	180253	Roadside	Y	13	7	1.4	NO2, PM2.5	BAM

Table B2. Details of London City Airport Automatic Monitoring Sites for 2022

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
ND	Newham Dockside	542298	180709	Urban Background	Y	413	N/A	1.2	NO2	M200E TAPI chemiluminescence
CAH	City Aviation House *	542527	180203	Urban Background	Y	40	N/A	20*	NO2	M200E TAPI chemiluminescence
KGV	King George V House	542950	180215	Urban Background	Y	80	N/A	1.2	PM10, PM2.5	FIDAS

* On roof of City Aviation House

Table C1. Details of Non-Automatic Monitoring Sites for 2022

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 Rd (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor. (Y/N)
NHM-1	Temple Mill Lane	53828	18535	Kerbside	Y	67	0.3	2.3	NO2	N
NHM-2	o/s Salisbury School, Romford Rd	53957	184659	Roadside	Y	12	6	1.8	NO2	N
NHM-3	Fire Station Romford Rd	54195	18543	Urban background	Y	35	35	2.6	NO2	N
NHM-4	Wellington Rd/ Barking Rd Junct	542831	18361	Roadside	Y	1.5	10†	2.3	NO2	N
NHM-6	230B Grange Rd	53985	182655	Urban background	Y	28	28	1.5	NO2	N
NHM-7	General Hospital, Glen Rd	541492	182332	Urban background	Y	11*	N/A	1.5	NO2	N
NHM-8	High St South East Ham Mortuary	54268	18320	Urban background	Y	7	26	1.5	NO2	N
NHM-10	Tant Avenue	539747	181477	Urban background	Y	8	30	1.5	NO2	N
NHM-11	Brunel Hallsville Rd, traffic lights	542583	180201	Kerbside	Y	5	1	2.6	NO2	N
NHM-12	Galleons Roundabout	543762	180784	Urban background	Y	91	14	2.8	NO2	N
NHM-13	290-292 Green Street	541134	184098	Kerbside	Y	4	0.5	2	NO2	N
NHM-16	Opposite 99 Leytonstone Rd	539164	185158	Kerbside	Y	3	0.5	2.5	NO2	N
NHM-17	44 Browning Rd	542729	185047	Kerbside	Y	3.5	0.3	3.5	NO2	N
NHM-19	Beckton Arms, Newham Way	539906	18170	Kerbside	Y	15	5	2.4	NO2	N
NHM-20	Canning Town Roundabout	539456	181499	Roadside	Y	0.3	0.3	1.5	NO2	N
NHM-21	Cam Rd	538657	183973	Kerbside	Y	25	9	3	NO2	Y

*Cumberland School, †Barking Road

Table C2. Details of Non-Automatic Monitoring Sites at Schools for 2022

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)
NHM-S 1	Salisbury Primary School	542089	185416	-	Y	-	-	-	NO2	N
NHM-S 2	Avenue Primary School	542319	185428	-	Y	-	-	-	NO2	N
NHM-S 3	Sir John Heron Primary School	542564	185642	-	Y	-	-	-	NO2	N
NHM-S 4	Sheringham Primary School	542922	185830	-	Y	-	-	-	NO2	N
NHM-S 5	Susan Lawrence Nursery	543086	185713	-	Y	-	-	-	NO2	N
NHM-S 6	Dersingham Primary School	543086	185713	-	Y	-	-	-	NO2	N
NHM-S 7	St Winefride's RC Primary School	542880	185321	-	Y	-	-	-	NO2	N
NHM-S 8	Little Ilford School	542734	185179	-	Y	-	-	-	NO2	N
NHM-S 9	Essex Primary School	542549	185070	-	Y	-	-	-	NO2	N
NHM-S 10	Kensington Primary School	542701	184632	-	Y	-	-	-	NO2	N
NHM-S 11	Plashet School	542262	184348	-	Y	-	-	-	NO2	N
NHM-S 12	William Davies Primary School	541681	184582	-	Y	-	-	-	NO2	N
NHM-S 13	Monega Primary School	541797	184904	-	Y	-	-	-	NO2	N
NHM-S 14	Shrewsbury Nursery	541562	185194	-	Y	-	-	-	NO2	N
NHM-S 15	Sandringham Primary School	541172	185041	-	Y	-	-	-	NO2	N
NHM-S 16	Shaftesbury Primary School	541368	184294	-	Y	-	-	-	NO2	N
NHM-S 17	St Stephen's Nursery School	541543	184112	-	Y	-	-	-	NO2	N
NHM-S 18	Cleves Primary School	541828	183772	-	Y	-	-	-	NO2	N
NHM-S 19	Hartley Primary School	542253	183708	-	Y	-	-	-	NO2	N
NHM-S 20	Lathom Junior School	542492	184111	-	Y	-	-	-	NO2	N
NHM-S 21	Altmore Infant School	542831	183954	-	Y	-	-	-	NO2	N

NHM-S 22	Langdon Academy	543501	183538	-	Y	-	-	-	NO2	N
NHM-S 23	Nelson Primary School	543143	183468	-	Y	-	-	-	NO2	N
NHM-S 24	St Michael's Catholic Primary School	542827	183286	-	Y	-	-	-	NO2	N
NHM-S 25	Oliver Thomas Children's Centre	543279	183097	-	Y	-	-	-	NO2	N
NHM-S 26	Vicarage Primary School	542858	182778	-	Y	-	-	-	NO2	N
NHM-S 27	Roman Road Primary School	542858	182778	-	Y	-	-	-	NO2	N
NHM-S 28	Brampton Manor Academy	541628	182342	-	Y	-	-	-	NO2	N
NHM-S 29	Central Park Primary School	541919	183099	-	Y	-	-	-	NO2	N
NHM-S 30	St Edward's Catholic Primary School	541384	183505	-	Y	-	-	-	NO2	N
NHM-S 31	Selwyn Primary School	540494	183908	-	Y	-	-	-	NO2	N
NHM-S 32	Upton Cross Primary School	540915	183744	-	Y	-	-	-	NO2	N
NHM-S 33	St Antony's Catholic Primary School	540502	184400	-	Y	-	-	-	NO2	N
NHM-S 34	Stratford School Academy	540391	184416	-	Y	-	-	-	NO2	N
NHM-S 35	Elmhurst Primary School	540811	184261	-	Y	-	-	-	NO2	N
NHM-S 36	St Bonaventure's RC School	540592	184162	-	Y	-	-	-	NO2	N
NHM-S 37	St Angela's Ursuline School	540665	184510	-	Y	-	-	-	NO2	N
NHM-S 38	Park Primary School	539849	184421	-	Y	-	-	-	NO2	N
NHM-S 39	Earlham Primary School	540001	185106	-	Y	-	-	-	NO2	N
NHM-S 40	Kay Rowe Nursery School	540595	185247	-	Y	-	-	-	NO2	N
NHM-S 41	Woodgrange Infant School	540764	185503	-	Y	-	-	-	NO2	N
NHM-S 42	Godwin Junior School	540838	185646	-	Y	-	-	-	NO2	N
NHM-S 43	Forest Gate Community School	540359	185338	-	Y	-	-	-	NO2	N
NHM-S 44	Odessa Infant School	540099	185343	-	Y	-	-	-	NO2	N
NHM-S 45	St James' C of E Junior School	540011	185274	-	Y	-	-	-	NO2	N
NHM-S 46	Maryland Primary School	539326	185305	-	Y	-	-	-	NO2	N
NHM-S 47	Colegrave Primary School	538857	185210	-	Y	-	-	-	NO2	N
NHM-S 48	Education Links	538856	185408	-	Y	-	-	-	NO2	N

NHM-S 49	Ronald Openshaw Nursery School	538715	185203	-	Y	-	-	-	NO2	N
NHM-S 50	Chobham Academy	538263	185253	-	Y	-	-	-	NO2	N
NHM-S 51	Bobby Moore Academy (primary school)	537439	184122	-	Y	-	-	-	NO2	N
NHM-S 52	Bobby Moore Academy (secondary school)	537836	183828	-	Y	-	-	-	NO2	N
NHM-S 53	John F Kennedy Special School	538984	184024	-	Y	-	-	-	NO2	N
NHM-S 54	School 21	538964	184062	-	Y	-	-	-	NO2	N
NHM-S 55	Sarah Bonnell School	539379	184683	-	Y	-	-	-	NO2	N
NHM-S 56	West Ham Church Primary School	539469	183937	-	Y	-	-	-	NO2	N
NHM-S 57	Portway Primary School	539955	183624	-	Y	-	-	-	NO2	N
NHM-S 58	Ranelagh Primary School	539444	183264	-	Y	-	-	-	NO2	N
NHM-S 59	Manor Primary School	539265	183375	-	Y	-	-	-	NO2	N
NHM-S 60	East London Science School	538336	182808	-	Y	-	-	-	NO2	N
NHM-S 61	Abbey Lane Children's Centre	538373	183461	-	Y	-	-	-	NO2	N
NHM-S 62	Carpenters Primary School	538455	183877	-	Y	-	-	-	NO2	N
NHM-S 63	Curwen Primary School	540193	183176	-	Y	-	-	-	NO2	N
NHM-S 64	Eleanor Smith School	540581	183217	-	Y	-	-	-	NO2	N
NHM-S 65	Lister Community School	540793	183493	-	Y	-	-	-	NO2	N
NHM-S 66	Plaistow Primary School	540813	183333	-	Y	-	-	-	NO2	N
NHM-S 67	Southern Road Primary School	540944	183245	-	Y	-	-	-	NO2	N
NHM-S 68	Tollgate Primary School	541216	182059	-	Y	-	-	-	NO2	N
NHM-S 69	The Cumberland School	541272	182349	-	Y	-	-	-	NO2	N
NHM-S 70	Brampton Primary School	541989	182568	-	Y	-	-	-	NO2	N
NHM-S 71	New City Primary School	541501	182588	-	Y	-	-	-	NO2	N
NHM-S 72	Tunmarsh School	541094	182694	-	Y	-	-	-	NO2	N
NHM-S 73	Gainsborough Primary School	539258	182560	-	Y	-	-	-	NO2	N
NHM-S 74	Star Primary School	539315	182104	-	Y	-	-	-	NO2	N

NHM-S 75	Eastlea Community School	539561	182374	-	Y	-	-	-	NO2	N
NHM-S 76	Grange Primary School	539983	182470	-	Y	-	-	-	NO2	N
NHM-S 77	St Helen's Catholic Primary School	540108	182314	-	Y	-	-	-	NO2	N
NHM-S 78	Kaizen Primary School	540701	182157	-	Y	-	-	-	NO2	N
NHM-S 79	Ravenscroft Primary School	540443	182132	-	Y	-	-	-	NO2	N
NHM-S 80	Rokeby School	539893	181888	-	Y	-	-	-	NO2	N
NHM-S 81	St Luke's Primary School	539842	181328	-	Y	-	-	-	NO2	N
NHM-S 82	Hallsville Primary School	540113	181170	-	Y	-	-	-	NO2	N
NHM-S 83	Keir Hardie Primary School	540275	181638	-	Y	-	-	-	NO2	N
NHM-S 84	Rosetta Primary School	540855	181595	-	Y	-	-	-	NO2	N
NHM-S 85	Edith Kerrison Nursery School	540742	181507	-	Y	-	-	-	NO2	N
NHM-S 86	St Joachim's Catholic Primary School	540961	181074	-	Y	-	-	-	NO2	N
NHM-S 87	Britannia Village Primary	540676	180279	-	Y	-	-	-	NO2	N
NHM-S 88	New Directions	543536	180065	-	Y	-	-	-	NO2	N
NHM-S 89	Oasis Academy Silvertown	543202	180069	-	Y	-	-	-	NO2	N
NHM-S 90	Drew Primary School	542197	180233	-	Y	-	-	-	NO2	N
NHM-S 91	Royal Docks Academy	541233	181069	-	Y	-	-	-	NO2	N
NHM-S 92	Calverton Primary School	541712	181187	-	Y	-	-	-	NO2	N
NHM-S 93	Scott Wilkie Primary School	541504	181370	-	Y	-	-	-	NO2	N
NHM-S 94	Ellen Wilkinson Primary School	542061	181645	-	Y	-	-	-	NO2	N
NHM-S 95	Beckton and Royal Docks Children's Centre	541928	181706	-	Y	-	-	-	NO2	N
NHM-S 96	Kingsford Community School	542603	181523	-	Y	-	-	-	NO2	N
NHM-S 97	North Beckton Primary School	542805	181812	-	Y	-	-	-	NO2	N
NHM-S 98	Gallions Primary School	543635	181422	-	Y	-	-	-	NO2	N
NHM-S 99	Winsor Primary School	543208	181147	-	Y	-	-	-	NO2	N

Table C3. Details of Non-Automatic Monitoring Sites at London City Airport for 2022

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)
LCA01	Parker Road	542154	180286	Urban Background	Y	12	N/A	2	NO2	N
LCA02	Camel Road	541941	180303	Roadside	Y	3	1	2	NO2	N
LCA04	Newham Dockside east	542267	180710	Urban Background	Y	430	N/A	1.2	NO2	N
LCA05	Strait Road	542928	180911	Roadside	Y	6	1	2.8	NO2	N
LCA06	Gallions Way	543724	180867	Roadside	Y	7	12	2.6	NO2	N
LCA07	Landing Lights	543667	180461	Other	Y	183	N/A		NO2	N
LCA09	City Aviation House triplicate	542520	180190	Roadside	Y	40	N/A	20	NO2	Y
LCA10	Jet Centre	541760	180424	Other	Y	220	N/A		NO2	N
LCA11	University of East London	543570	180690	Urban Background	Y	25	N/A	2.4	NO2	N
LCA12	North side of runway	542192	180562	Other	Y	265	N/A		NO2	N
LCA13	Newham Dockside NW	542274	180768	Urban Background	Y	355	N/A	2.9	NO2	N
LCA14	Newham Dockside W	542066	180716	Urban Background	Y	340	N/A	1.9	NO2	N
LCA15	Royal Albert Way	542300	180862	Roadside	Y	200	N/A	1.9	NO2	N
LCA18	Newham Dockside triplicate	542267	180710	Urban Background	Y	430	N/A	1.2	NO2	Y
LCA20	Silvertown Quay	541634	180365	Roadside	Y	225	N/A	1.9	NO2	N
LCA21	Lamp post on Brixham Street	543100	180132	Roadside	Y		N/A		NO2	N

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 2022 %[b]	2016	2017	2018	2019	2020	2021	2022
NM2	Automatic	Not applicable	98	42	38	29	29	24	23	24
NM3	Automatic	Not applicable	98	33	30	28	28	20	21	22
NM4	Automatic	Not applicable	100						22	23
NM5	Automatic	Not applicable	99						26	25
ND	Automatic	Not applicable	86	29	27	25	27	20	21	22
CAH	Automatic	Not applicable	41	28	30	29	30	24	23	20
NHM-1	Diffusion tube	Not applicable	100	**42**	**40**	**43**	34	27	25	27
NHM-2	Diffusion tube	Not applicable	100	38	35	34	32	25	22	22
NHM-3	Diffusion tube	Not applicable	83	37	36	35	35	27	23	22
NHM-4	Diffusion tube	Not applicable	100	39	38	33	32	35	29	26
NHM-6	Diffusion tube	Not applicable	83	27	27	25	23	18	17	17
NHM-7	Diffusion tube	Not applicable	100	36	36	34	30	36	22	24
NHM-8	Diffusion tube	Not applicable	83	35	33	27	27	23	22	20
NHM-10	Diffusion tube	Not applicable	100	31	30	27	25	20	16	20
NHM-11	Diffusion tube	Not applicable	92	37	38	31	31	25	34	30
NHM-12	Diffusion tube	Not applicable	100	37	38	33	31	24	24	21
NHM-13	Diffusion tube	Not applicable	100	38	**41**	35	37	**43**	38	38
NHM-16	Diffusion tube	Not applicable	100	**54**	**60**	**51**	**43**	37	32	30
NHM-17	Diffusion tube	Not applicable	100	**44**	**42**	38	36	33	27	29
NHM-19	Diffusion tube	Not applicable	100	**54**	**59**	**47**	**50**	46	40	37

Site	Method		%							
NHM-20	Diffusion tube	Not applicable	100	**47**	**56**	**58**	**57**	33	29	33
NHM-21	Diffusion tube	Not applicable	100	37	39	34	**41**	25	23	23
LCA01	Diffusion tube	Not applicable	75	28	25	28	28	21	23	22
LCA02	Diffusion tube	Not applicable	92	31	28	29	31	22	22	23
LCA04	Diffusion tube	Not applicable	92	30	30	26	28	23	25	24
LCA05	Diffusion tube	Not applicable	92	26	24	24	26	21	22	21
LCA06	Diffusion tube	Not applicable	100	29	26	27	27	24	23	20
LCA07	Diffusion tube	Not applicable	83	34	30	31	32	22	21	24
LCA09	Diffusion tube	Not applicable	n/a	29	27	29	29	22	23	n/a
LCA10	Diffusion tube	Not applicable	100	35	29	33	33	23	25	26
LCA11	Diffusion tube	Not applicable	100	32	28	30	32	25	26	26
LCA12	Diffusion tube	Not applicable	91.7	29	32	24	29	22	22	23
LCA13	Diffusion tube	Not applicable	75	28	31	30	26	24	26	23
LCA14	Diffusion tube	Not applicable	100	32	29	31	33	26	28	27
LCA15	Diffusion tube	Not applicable	100	31	24	28	28	21	24	22
LCA18	Diffusion tube	Not applicable	100	28	30	25	26	20	22	22
LCA20	Diffusion tube	Not applicable	75			27	35	25	27	25
LCA21	Diffusion tube	Not applicable	100						20	19
NHM-S 1	Diffusion tube	Not applicable	83				29	24	27	24
NHM-S 2	Diffusion tube	Not applicable	100				24	20	19	18
NHM-S 3	Diffusion tube	Not applicable	100				27	21	19	18
NHM-S 4	Diffusion tube	Not applicable	100				29	22	21	20
NHM-S 5	Diffusion tube	Not applicable	92				28	21	21	18
NHM-S 6	Diffusion tube	Not applicable	100				32	26	28	25
NHM-S 7	Diffusion tube	Not applicable	100				**42**	33	32	30
NHM-S 8	Diffusion tube	Not applicable	100				33	26	25	25
NHM-S 9	Diffusion tube	Not applicable	75				26	21	19	19
NHM-S 10	Diffusion tube	Not applicable	75				27	22	25	20
NHM-S 11	Diffusion tube	Not applicable	75				35	29	38	**53**
NHM-S 12	Diffusion tube	Not applicable	100				26	20	17	18
NHM-S 13	Diffusion tube	Not applicable	100				29	22	20	19

NHM-S 14	Diffusion tube	Not applicable	100				28	24	23	22
NHM-S 15	Diffusion tube	Not applicable	100				27	23	21	20
NHM-S 16	Diffusion tube	Not applicable	100				28	24	21	21
NHM-S 17	Diffusion tube	Not applicable	100				25	19	18	18
NHM-S 18	Diffusion tube	Not applicable	100				25	19	19	19
NHM-S 19	Diffusion tube	Not applicable	92				28	23	23	21
NHM-S 20	Diffusion tube	Not applicable	92				32	26	23	24
NHM-S 21	Diffusion tube	Not applicable	100				31	23	21	21
NHM-S 22	Diffusion tube	Not applicable	100				28	22	21	20
NHM-S 23	Diffusion tube	Not applicable	75				26	21	18	18
NHM-S 24	Diffusion tube	Not applicable	100				26	22	21	19
NHM-S 25	Diffusion tube	Not applicable	92				25	19	20	18
NHM-S 26	Diffusion tube	Not applicable	92				33	25	24	21
NHM-S 27	Diffusion tube	Not applicable	100				31	22	22	20
NHM-S 28	Diffusion tube	Not applicable	100				23	21	20	21
NHM-S 29	Diffusion tube	Not applicable	100				31	23	20	19
NHM-S 30	Diffusion tube	Not applicable	83				36	30	28	30
NHM-S 31	Diffusion tube	Not applicable	100				29	24	24	24
NHM-S 32	Diffusion tube	Not applicable	100				23	19	18	17
NHM-S 33	Diffusion tube	Not applicable	100				26	18	19	18
NHM-S 34	Diffusion tube	Not applicable	100				30	24	22	20
NHM-S 35	Diffusion tube	Not applicable	100				28	20	21	20
NHM-S 36	Diffusion tube	Not applicable	100				29	19	19	19
NHM-S 37	Diffusion tube	Not applicable	100				28	24	20	21
NHM-S 38	Diffusion tube	Not applicable	92				26	21	20	17
NHM-S 39	Diffusion tube	Not applicable	100				25	20	19	18
NHM-S 40	Diffusion tube	Not applicable	100				28	23	21	20
NHM-S 41	Diffusion tube	Not applicable	100				30	22	19	18
NHM-S 42	Diffusion tube	Not applicable	92				21	19	16	21
NHM-S 43	Diffusion tube	Not applicable	92				32	24	24	24
NHM-S 44	Diffusion tube	Not applicable	100				25	20	18	18

NHM-S 45	Diffusion tube	Not applicable	100				23	20	18	19
NHM-S 46	Diffusion tube	Not applicable	83				26	20	20	19
NHM-S 47	Diffusion tube	Not applicable	92				28	20	20	21
NHM-S 48	Diffusion tube	Not applicable	92				27	20	18	21
NHM-S 49	Diffusion tube	Not applicable	100				28	23	20	21
NHM-S 50	Diffusion tube	Not applicable	100				28	23	22	20
NHM-S 51	Diffusion tube	Not applicable	75				33	22	21	18
NHM-S 52	Diffusion tube	Not applicable	75				27	20	19	20
NHM-S 53	Diffusion tube	Not applicable	92				27	22	21	18
NHM-S 54	Diffusion tube	Not applicable	100				29	21	20	19
NHM-S 55	Diffusion tube	Not applicable	100				31	26	25	25
NHM-S 56	Diffusion tube	Not applicable	100				34	30	31	36
NHM-S 57	Diffusion tube	Not applicable	100				27	19	20	18
NHM-S 58	Diffusion tube	Not applicable	92				27	20	18	17
NHM-S 59	Diffusion tube	Not applicable	92				27	20	21	20
NHM-S 60	Diffusion tube	Not applicable	100				29	24	23	20
NHM-S 61	Diffusion tube	Not applicable	100				31	24	20	20
NHM-S 62	Diffusion tube	Not applicable	92				31	24	25	24
NHM-S 63	Diffusion tube	Not applicable	100				29	20	20	19
NHM-S 64	Diffusion tube	Not applicable	100				25	19	19	18
NHM-S 65	Diffusion tube	Not applicable	100				28	23	19	18
NHM-S 66	Diffusion tube	Not applicable	100				27	22	22	18
NHM-S 67	Diffusion tube	Not applicable	100				31[#]	19	19	18
NHM-S 68	Diffusion tube	Not applicable	100				31	25	23	23
NHM-S 69	Diffusion tube	Not applicable	58				32	25	25	22
NHM-S 70	Diffusion tube	Not applicable	92				28	21	21	20
NHM-S 71	Diffusion tube	Not applicable	92				31	25	22	21
NHM-S 72	Diffusion tube	Not applicable	92				22[#]	23	23	21
NHM-S 73	Diffusion tube	Not applicable	100				28	22	23	21
NHM-S 74	Diffusion tube	Not applicable	83				30	24	25	24
NHM-S 75	Diffusion tube	Not applicable	92				31	19	21	20

Site ID	Method									
NHM-S 76	Diffusion tube	Not applicable	100				24	21	18	18
NHM-S 77	Diffusion tube	Not applicable	100				32	25	22	21
NHM-S 78	Diffusion tube	Not applicable	100				30	23	23	24
NHM-S 79	Diffusion tube	Not applicable	100				29	22	21	21
NHM-S 80	Diffusion tube	Not applicable	100				36	33	27	27
NHM-S 81	Diffusion tube	Not applicable	83				30	24	23	20
NHM-S 82	Diffusion tube	Not applicable	83				28	24	21	25
NHM-S 83	Diffusion tube	Not applicable	100				26	22	21	21
NHM-S 84	Diffusion tube	Not applicable	100				26	21	21	19
NHM-S 85	Diffusion tube	Not applicable	100				27	20	19	19
NHM-S 86	Diffusion tube	Not applicable	92				26	20	19	19
NHM-S 87	Diffusion tube	Not applicable	100				24	20	20	20
NHM-S 88	Diffusion tube	Not applicable	75				27	20	19	20
NHM-S 89	Diffusion tube	Not applicable	100				30	25	20	20
NHM-S 90	Diffusion tube	Not applicable	92				29	22	19	21
NHM-S 91	Diffusion tube	Not applicable	100				*38*	27	27	32
NHM-S 92	Diffusion tube	Not applicable	83				24	19	18	19
NHM-S 93	Diffusion tube	Not applicable	100				24	22	18	17
NHM-S 94	Diffusion tube	Not applicable	92				24	23	20	19
NHM-S 95	Diffusion tube	Not applicable	83				*38*	23	22	23
NHM-S 96	Diffusion tube	Not applicable	92				25	19	16	17
NHM-S 97	Diffusion tube	Not applicable	92				21	20	19	17
NHM-S 98	Diffusion tube	Not applicable	100				29	23	21	20
NHM-S 99	Diffusion tube	Not applicable	75				27	22	20	20

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 1: **Four Year Air Quality Trend at all 99 Schools in Newham (NO2 concentrations Averaged by Ward)**
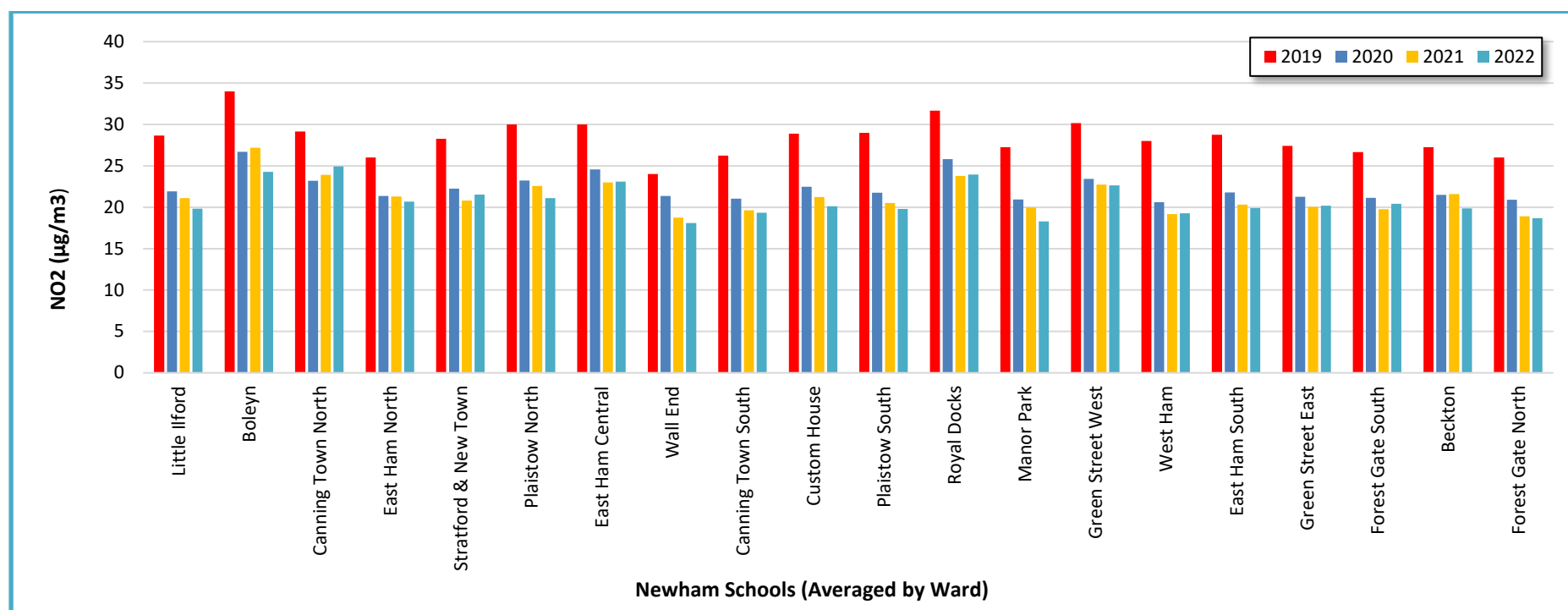
Figure 1 above illustrates in a bar chart, the annual trend in nitrogen dioxide concentrations at all 99 schools (averaged by ward). In the majority of wards, there has been a significant reduction in concentrations from 2019 over the subsequent 3 years. The reduction is not so significant for the years 2020 to 2022. Concentrations have risen this year in the wards Canning Town North, Stratford, Royal Docks, West Ham and Forest Gate South. All wards on average meet the air quality objective of 40µg/m3.

Figure 2 below is a box plot, which illustrates the annual trend in nitrogen dioxide concentrations at each of the non-automatic monitoring sites at Newham's 99 schools. The top and bottom whiskers of the plots include monitoring sites with the maximum and minimum annual concentrations, whilst the central blue boxes illustrate sites within the interquartile range. The white line shows the median concentration.

Evident in the plot is the significant reductions in concentrations during the Covid-19 pandemic (2019- 2020), with these reductions levelling off to 2022.

However, there is an opposite trend for a small number of outlying schools since 2020. These outliers present a significant year on year increase in concentrations. The schools reporting the highest increase in concentrations in 2022 were West Ham Church Primary School and Plashet School.

The roadside monitor outside Plashet School reported an annual value which may cause exposure above the legal limit value for the protection of human health at certain receptor locations (53 µg m^{-3}). This has been investigated further in section A.3.

It was unclear at the publication of this report what has been the cause of this rise, but it is likely to be road traffic related. This is one of a minority of Schools in Newham located on a busy road junction (between the 'B165' and 'A117') with a footbridge linking the school, which is split on each side of the road. The monitor is located near to a busy road junction and a bus stop. This topography has ruled out interventions such as healthy school streets and Low Traffic Neighbourhoods (LTN's). Plashet School has been identified as a priority school in Newham where further investigation work is required before appropriate measures can be identified.

Figure 2: Four Year Air Quality Trend at all 99 Schools (Annual NO2 Concentrations)
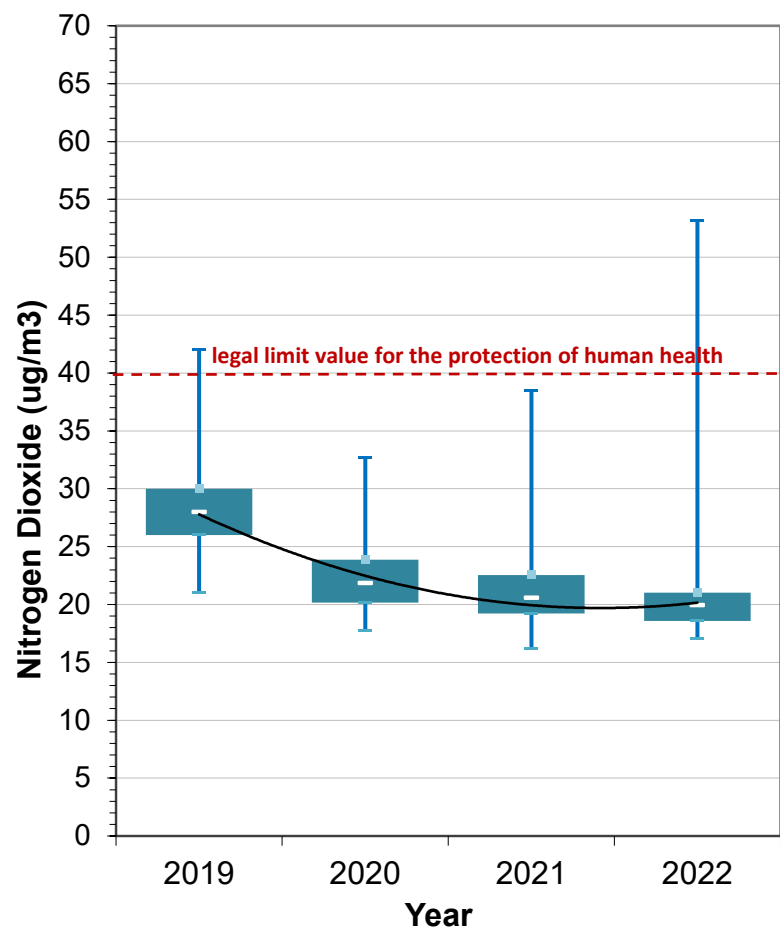
Figure 3: Eight Year Air Quality Trend at all 16 DEFRA reported sites (Annual NO2 Concentrations)
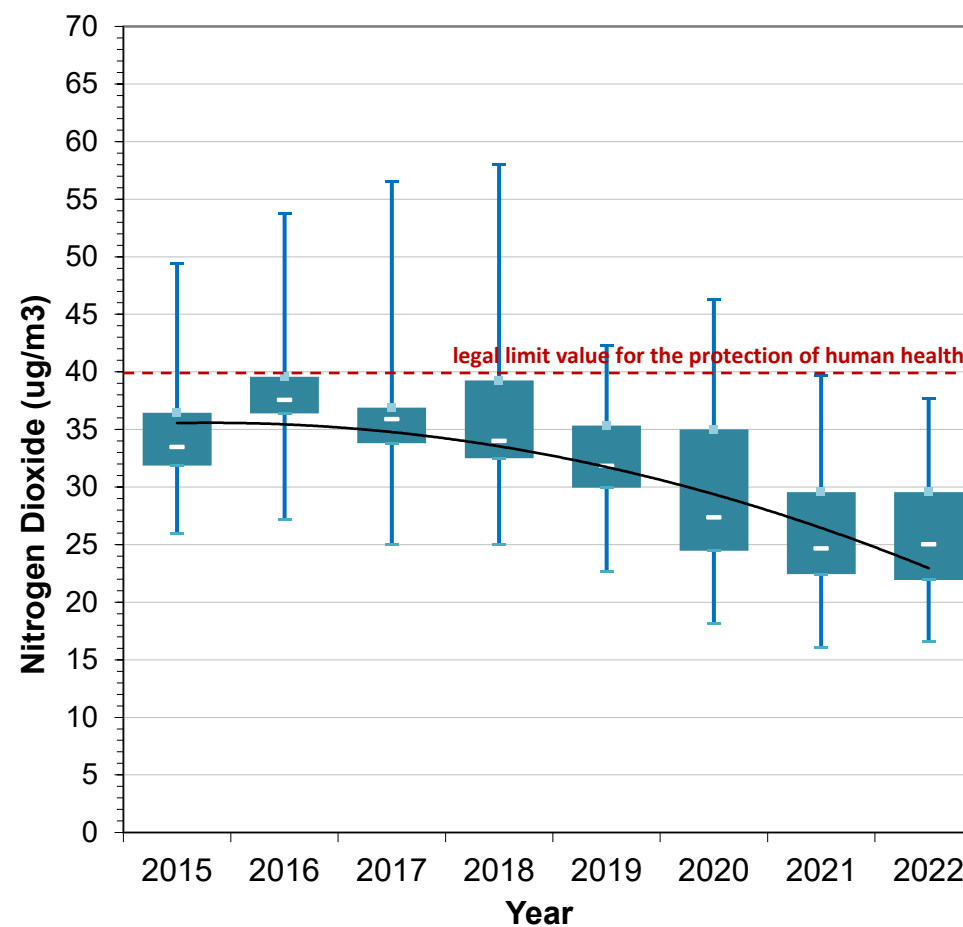
Figure 3 above is a box plot, illustrating the annual trend in nitrogen dioxide concentrations at all of the non-automatic monitoring sites in Newham that report to the London Wide Environment Programme (NHM-1 to NHM-21).

Evident in the plot is a consistent year on year reduction in average concentrations (illustrated by the black trend line) from 2017 until 2022.

The maximum concentration site was historically NHM-16 followed by NHM-20 and more recently NHM-19. These are all monitoring sites on Newham's busiest roads, namely the A106 and A13.

These sites also report a consistent reduction since 2017. This continues to be below the AQO of 40µg/m3 in 2022. The rate of change from 2020 to 2022 in less significant.

The lowest concentrations were recorded at NHM-6 and then more recently NHM-10. These are inside East London Crematorium and Cemetery and close to the automatic background monitor at Wren Close.

Automatic monitoring sites NM2-NM3 report a significant reduction in NO2 in the years 2016 to 2020 with the greatest reductions reported in 2020. This trend is in strong correlation with the majority of London boroughs and evidence suggests this is mainly due to movement restrictions in place during the Covid pandemic.   In the subsequent two years (2021-2022) for sites **NM2-NM4**, concentrations have been slightly increasing from the lower base, which in part can be explained by the easing of Covid restrictions. **NM5** has reported a slight reduction in concentrations during 2021-2022.

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 2022 %(^{b})	2016	2017	2018	2019	2020	2021	2022
NM2	Not applicable	98	0	0	0	0	0	0	0
NM3	Not applicable	98	0	13	0	0	0	0	0
NM4	Not applicable	100						0	0
NM5	Not applicable	99						0	0
ND	Not applicable	86	0	0	0	0	0	0	0
CAH	Not applicable	41	0	0	0	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 2022 %(^{b})	2016	2017	2018	2019	2020	2021	2022
NM2	Not applicable	94	19	17*	18	18	18	17	16
NM3	Not applicable	97	20*	16*	19	18	20	18	18
KGV	Not applicable	100				17	15	15	24

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%).

Table F reports that Annual mean concentrations of PM10 have increased over the past year at King George V dock (London City Airport) and remained level at Wren Close (Background). Cam Road (Roadside) reported a slight reduction in concentrations. All sites are below the legal limit value for the protection of human health.

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 2022 %[b]	2016	2017	2018	2019	2020	2021	2022
NM2	Not applicable	94	9	0	1	3	6	0	4
NM3	Not applicable	97		0	2	4	6	2	4
KGV	Not applicable	100				9	6	3	5

Notes

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

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

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

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

Table G reports that the number of high particulate episodes have slightly increased over the past year at three sites, Cam Road (roadside), Wren Close (background) and King George V dock (London City Airport). The number of high particulate episodes are within the legally permitted level.

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 2022 %[b]	2016	2017	2018	2019	2020	2021	2022
NM2	Not applicable	94					11	13	10
NM3	Not applicable	97					12	14	11
NM5	Not applicable	87						14	12
KGV	Not applicable	100				11	9	9	9

Notes

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

Exceedances of the PM$_{2.5}$ annual mean AQO of 20 µg m^{-3} are shown in **bold**.

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%).

Table H reports that the concentrations of fine particulates have declined at two sites, Cam Road (roadside) and Wren Close (background) or remained level (London City Airport). All sites are within the legal limit value; however, one of the sites (Wren Close) is above the recommended mean concentration of 10µg m^{-3}.

Table I. Air Quality Sensor Locations and Project Type

There are three air quality sensor networks operating in Newham containing 34 sensors monitoring for NO2, PM10 and PM2.5. The table below highlights the location of each of these sensors and the projects underway at each.

ID	Location	Sensor Network	Project	Install Year
1	Alma Street	Breathe London	Greener Together Program	2021
2	Silvertown Way	Breathe London	Sponsor: MoL	2021
3	Newham University Hospital	Breathe London	Sponsor: MoL	2021
4	Ellen Wilkinson Primary Sch.	Breathe London	Sponsor: Bloomberg Philan	2023
5	Central Park	Breathe London	Sponsor: BEMIN	2023
6	Maryland/Odessa/Atherton	Aadra	Low Traffic Neighbourhood	2022
7	Maryland/Odessa/Atherton	Aadra	Low Traffic Neighbourhood	2022
8	Maryland/Odessa/Atherton	Aadra	Low Traffic Neighbourhood	2022
9	Maryland/Odessa/Atherton	Aadra	Low Traffic Neighbourhood	2022
10	Maryland/Odessa/Atherton	Aadra	Low Traffic Neighbourhood	2022
11	Maryland/Odessa/Atherton	Aadra	Low Traffic Neighbourhood	2022
12	Maryland/Odessa/Atherton	Aadra	Low Traffic Neighbourhood	2022
92	N Woolwich Rd (L15)	EarthSense	Road Improvement Works	2019
190	Sheringham Nursery	EarthSense	Healthy Schools Streets	2020
196	Cam Road Co-location	EarthSense	Co-location Study	2019
221	N Woolwich Rd (L80)	EarthSense	Road Improvement Works	2019
222	Hartley Primary School	EarthSense	Healthy Schools Streets	2020
223	Plaistow Primary School	EarthSense	Healthy Schools Streets	2020
228	Woodgrange Infant School	EarthSense	Healthy Schools Streets	2019
230	Lathom Junior School	EarthSense	Healthy Schools Streets	2019
240	Southern Road Primary Sch.	EarthSense	Healthy Schools Streets	2020
243	Essex Primary School	EarthSense	Healthy Schools Streets	2019
274	Park Primary School	EarthSense	Healthy Schools Streets	2020
275	Carpenters Primary School	EarthSense	Healthy Schools Streets	2019
280	Keir Hardie Primary School	EarthSense	Healthy Schools Streets	2019
289	N Woolwich Rd (47)	EarthSense	Road Improvement Works	2019
292	Chobbham Acadamy	EarthSense	Healthy Schools Streets	2020
300	Salisbury Primary School	EarthSense	Healthy Schools Streets	2020
606	Lister Community School	EarthSense	Healthy Schools Streets	2020
616	Browning Road	EarthSense	Low Traffic Neighbourhood	2019
618	Kay Row Nursery	EarthSense	Healthy Schools Streets	2020
683	Newham Dockside	EarthSense	Background Monitor	2021
723	Kaizen Primary School	EarthSense	Healthy Schools Streets	2021
724	Brampton Primary School	EarthSense	Healthy Schools Streets	2021

2. Action to Improve Air Quality

2.1   Air Quality Action Plan Progress

Table J provides a brief summary of London Borough of Newham progress against the Air Quality Action Plan, showing progress made this year. New projects which commenced in 2022 are shown at the bottom of the table (where applicable).

Table J.   Delivery of Air Quality Action Plan Measures

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
1	Monitoring and other core statutory duties	Maintain & expand an appropriate AQ monitoring network (currently 165 diffusion tube sites (NO2), 5 automatic monitoring sites (PM10, 2.5 & NOx), 1 NO2 diffusion tube co-location study & 34 low cost sensors)) so that AQ impacts within the Borough can be properly understood.	34 low cost monitors have been deployed by a selection of suppliers operating on different networks. Some are being used to support the Council's Low Traffic Neighbourhoods and School streets. This data has already been used in justifying traffic reduction schemes, such as the Browning Bridge Closure and Heathy School Streets. There are currently 5 Breathe London monitors, 7 Aadra monitors and 22 Earthsense monitors deployed in Newham. As part of a planning agreement with London City Airport, three real-time monitors (2 NO2 & 1 PM10 & PM2.5), together with 17 NO2 diffusion tubes are deployed around the airport. In December 2022 a new real time monitoring station measuring PM2.5 & NO2 was installed at East Ham Town Hall.

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			99 of our NO2 diffusion tubes have been deployed outside the boroughs schools. TfL have set up two real time monitors to assess the impact of the Silvertown Tunnel (currently under construction)
2	Emissions from developments and buildings	Ensuring emissions from construction are minimised.	Environmental Control review all major applications for air quality related issues.
3	Emissions from developments and buildings	Ensuring enforcement of non-road mobile machinery (NRMM) AQ policies.	Minor applications where NRMM is likely to be used have a condition requiring compliance with GLA SPG. Newham contribute to the pan-London Non-Road Mobile Machinery scheme. 28 new sites were registered on the GLA NRMM web site in 2022, while 16 inspections were made by the London wide NRMM service in the financial year 2022-3, of which 3 were non-compliant
4	Emissions from developments and buildings	Reducing emissions from combined heat & power (CHP).	No new applications for CHP plants received in 2022
5	Emissions from developments and buildings	Air Quality Neutral development – as per London Plan & Local Plan, all new development should be at least AQ neutral (as per GLA definition). Additionally, seek to implement the AQ positive provisions of the	The Council has provided comments on the GLA consultation on air quality positive and neutral and regrets the exclusion of deliveries from the assessment. This is a particular problem when assessing the impact of delivery depots.

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
		new London Plan (applying to all EIA-applicable development).	Newham's current local plan specifies compliance with air quality neutral and the revision of the plan is looking to close the loophole in the GLA guidance. New Travel Plan Guidance for major developments to encourage sustainable travel newham-travel-plan-guidance-2022 Newham's Local Plan is being refreshed to include more pollution and climate-friendly objectives.
6	Localised solutions	Maximising the AQ benefits of Green Infrastructure (GI) in new development.	This will be delivered through implementation of the new Local Plan, in line with the new London Plan 2020, and by acknowledging the limitations of delivering shared spaces in all developments.
7	Monitoring and other core statutory duties	Declaring Smoke Control Areas & ensuring they are fully promoted & enforced.	In 2022 the Council took the decision to replace multiple SCAs with a single borough-wide SCA. The formal legal process of consultation leading to declaration should be complete by September 2023. A new publicity drive on social media was launched in January 2023.

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
8	Emissions from developments and buildings	Promoting & delivering energy efficiency & energy supply retrofit projects in workplaces & homes through EFL retrofit programmes such as RE:FIT, RE:NEW & through Borough carbon offset funds.	Promoting & delivering energy efficiency & energy supply retrofit projects in workplaces & homes. These include the London Community Energy Fund; Social Housing Decarbonisation Fund; Eco4 Funding & Home Upgrade Grant Newham Council awarded £1.7million funding to kick start renovation on Hamara Ghar sheltered housing scheme – Newham Council Newham gets £1.45m in Green Homes funding to upgrade fuel poor homes – Newham Council An eco-mooring project for canal boats is under consideration, with funds available from LLDC Section 106 allocated funds. Community Energy pilot in Newham. The technical feasibility studies for 6 identified sites were paid by the GLA's Community Energy Grant. The installation has the potential to generate 579,125 kWh of renewable electricity every year, equivalent to powering 215 London homes and save 122 tonnes of CO2 emissions every year and create estimated annual savings of ~ £4,595 Create a combined community fund of ~ £300,00 over the 20-year life of the project

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			Promoting & delivering retrofit projects in social & leasehold homes across the borough via the HRA Capital Programme Identifying and utilising grant funding to extend budget and scope of works. These include the London Community Energy Fund; Social Housing Decarbonisation Fund (SHDF); Eco4 Funding, Home Upgrade Grant. £1,777,744.24 awarded for the Harama Ghar flagship retrofit project via the SHDF. Signed up up to the Retrofit Credits financing scheme, whereby we are receiving finance for each completed retrofit in the borough based on emissions reduction achieved. Undertaking a borough-wide heat decarbonisation feasibility study, to coordinate our decarbonisation approach, looking at the potential for heat networks versus other approaches to decarbonisation. Establishing multiple pilots to trial different technologies to support in our transition to net-zero, including infrared heating, environmental sensors to detect damp and mould risk and ground source heat pumps. Private sector housing are enforcing better insulation in rented homes and providing grants to improve insulation.

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			Minimum Energy Efficiency Standards, investigations into 177 F rated and 60 G Rated properties resulted in 136 Compliance Notices and 81 Penalty Notices being issued. Through these investigations, 130 properties were improved to EPC E or higher, of these 87 were indirect improvements, meaning the improvements were made before a Penalty Notice was sent and 43 were Direct, meaning they were made following a Penalty Notice being sent.
			ECO3 energy efficiency installations in the borough for eligible residents - 40 properties upgraded up to the end of September, 21 with loft/cavity/underfloor insulation. £220k of insulation works are now completed. £1.2 million LAD Phase 2 Green homes grant awarded to Newham for delivery of energy efficiency improvements in 2022 (From April 2021 – April 2022), for 125 properties across all tenures. LAD 3/ Sustainable Warmth 351 properties from all tenures to receive energy efficiency improvements between April 2022 and April 2023.
			We are now into ECO4 and a pilot scheme is planned for a street in Canning Town, focusing on Fabric First Energy Efficiency Improvements, such as external wall insulation and loft insulation.
			In December 2022, we ran a Free Energy Saving Support session at East Ham Library. This was an opportunity for residents to get free energy advice and

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			had advisors from Our Newham Money, Green Doctors and Citizens Advice. Free Energy Advice – Energy and sustainability – Newham Council
9	Cleaner transport	Healthy Streets approaches.	Healthy School Streets: This involves closure of roads outside school entrances in the morning when children arrive at school and in the afternoon when children leave school. Monitoring has shown a significant reduction in air pollution during the hours when the street is closed. Healthy School Streets cannot be set up where the school entrance is on a on major road. There are 5 permanent school streets in Phase 1, 6 experimental in Phase 2 and 5 experimental in Phase 3 Healthy School Streets – Newham Council
10	Public health and awareness raising	Public Health department taking shared responsibility for Borough AQ issues & implementation of Air Quality Action Plans	Air Quality in 50 Steps for a Healthy Newham Healthy School Streets. This involves closure of roads outside school entrances in the morning when children arrive at school and in the afternoon when children leave school. Monitoring has shown a significant reduction in air pollution during the hours when the

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			street is closed. Healthy School Streets cannot be set up where the school entrance is on a on major road. [Healthy School Streets – Newham Council](#) London Healthy Schools Programme. The Newham Healthy Schools team have developed a range of toolkits, including one for '*Active Travel & Air Quality'.* This provides activity ideas, supporting information and resources for Newham schools who are completing their Silver plan, with active travel and air quality as a priority area Physical Activity Gamification Initiative - The Public Health and Sustainable Transport Teams are looking to appoint a Technology-Based Specialist (provider) to deliver an innovative mobile application or digitally interactive platform centered on incentivizing physical activity and active travel. Breaking Ground. Funding to launch a community led programme, to create safer and more accessible spaces for play and exercise and tackle broader issues related to social and environmental inequalities. The primary purpose and criteria are to help the people from lower incomes and from Black, Asian and minority ethnic groups who are disproportionately affected by issues such as poor air quality, lack of access to green spaces, overheating and flash flooding. The Harberson Road community have received an £18k grant to fund

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			local coordinators, incentives, initial engagement and events. Clean Air and Climate Champions scheme (with Public Health) & DEFRA Air Quality Awareness Programme: In collaboration with the London Borough of Hackney, Tower Hamlets and the City of London, Newham was awarded £313,720 by DEFRA's Air Quality Fund, to address the issue of low public awareness around air pollution and how individuals can reduce their exposure to air pollution. The aim is to work in partnership with communities most affected by poor air quality, through establishing an air quality champions network and delivering community engagement activities and events, train relevant health professionals to increase their knowledge and confidence in advising patients about air pollution and develop an interactive web tool to provide relevant air quality information in an easy-to-use and engaging way. See Clean Air and Climate Champions' programme launches – Newham Council
11	Monitoring and other core statutory duties		In December a new real time monitoring station measuring PM2.5 &NO2 was installed at East Ham Town Hall. Smoke Control Area for the whole borough under consultation until 30th April. Barring any objections, the new Order will come into effect on 15th September 2023

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
12	Public health and awareness raising	Supporting a direct alert service such as airTEXT, & promotion & sharing of high pollution alert services.	Our communications team signed up to GLA Air Quality Alerts and re-tweet where relevant to Newham residents
13	Public health and awareness raising	Encourage schools to join the TfL STARS accredited travel planning program to reduce congestion, improve road safety & improve health & wellbeing of our schoolchildren	Participation in STARS scheme to encourage active travel to school School travel plans – Newham Council with a new dedicated member of staff in place to engage with schools on their sustainable travel initiatives. For the academic year 2021-22, we currently have 13 gold, 9 silver, and 38 bronze schools. Healthy Route Maps for some schools showing how to get to school whilst avoiding the most polluted areas Money received from London City Airport Community Fund, to pilot a new program: net zero schools, including £3k for two trial schools - St Lukes & St Lukes Primary School themed event for Clean Air Day held at Newham Dockside
14	Public health and awareness raising	Air quality in & around schools & extend the school audits GLA framework to all polluted schools.	All Newham schools were offered audits, but none accepted. In 2019 NO2 diffusion tubes were installed outside all the borough's schools. See data in monitoring above We are introducing the Zero Carbon Schools programme to support schools in reducing their carbon

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			emissions. From October 2023, over the course of 26 weeks students will learn about the climate crisis and have a chance to respond by designing and leading a project to reduce their school's carbon footprint, focusing on energy, transport, food and purchasing
15	Localised solutions	Update of Procurement policies to reduce pollution from logistics & servicing.	No progress made
16	Cleaner transport	Reducing emissions from deliveries to local businesses & residents.	Newham applied for external funding for a cargo bike trial but was unsuccessful. We have now decided to fund this from our capital funding in 2023/24. Our intention is to work with the Stratford Business Improvement District to help identify businesses to take part in 2023/24.
17	Borough fleet Reducing emissions from council fleets, including a switch to zero emission vehicles	Borough fleet Reducing emissions from council fleets, including a switch to zero emission vehicles	Plan to either electrify our vehicle fleet or move away from diesel as a fuel by 2030 The Council's Fleet now consists of 53 fully electric vehicles. Further vehicle procurements are being carried out with an initial review of whether electric vehicles are fit for purpose and practically possible. Replaced our existing van fleet with 137 mild hybrid vehicles & operate all our vehicle fleet on gas-to-liquid fuel (not conventional diesel).

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			Replacing our existing refuse fleet vehicles & although they are not fully electric, they will have fully electric bin lifting equipment. Installed additional charging units in our Folkestone Road Depot. Our Green Fleet Management will identify and rectify driver behaviour. Areas such as carbon footprints, idling and speeding will be monitored for all council vehicles. This will be achieved through a telematics system for all new vehicles. Fleet services have been accredited 'Clean Van Commitment' and pledged to Engines Off.
18	Localised solutions Green infrastructure delivery (GI). Beyond the promotion and protection of GI through the planning regime	Localised solutions Green infrastructure delivery (GI). Beyond the promotion and protection of GI through the planning regime (identified in action 6 above), LBN can seek to deliver GI through its other responsibilities.	Nature-Friendly Schools programme. The purpose of this programme is to address issues surrounding lack of access to green spaces and look at ways in which the schools could be improved to become healthier and more environmentally friendly spaces. The programme aims to bring children closer to nature and in turn benefit their learning, health and wellbeing. Better AQ information (with Public Health): a joint bid, funded by DEFRA, to improve the dissemination of air quality information DEFRA Air Quality Awareness Programme – Air quality in Newham – Newham Council
19	Cleaner transport Low Emission Neighbour	Cleaner transport Low Emission Neighbour hoods (LENs) including low traffic schemes.	Low Traffic Neighbourhoods (LTN). These eliminate through-traffic from neighbourhoods in the borough and

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
	hoods (LENs) including low traffic schemes.		enable and encourage more walking and cycling. 30 out of 65 eligible areas are LTNs in Newham (or around 40% coverage of all eligible streets, a 10 percentage point increase since 2020), with five further schemes in development. Monitoring has shown a reduction in air pollution where LTNs have been set up. Low Traffic Neighbourhoods – Newham Council
20	Cleaner transport.	Ensuring that Transport & Air Quality policies & projects are integrated.	The Pollution Control Team work closely with Highways to ensure that highways interventions have a positive effect on air quality. Monitoring surveys are carried out before and after highways works to check the effect on air quality
21	Cleaner transport	Discouraging vehicle idling	No progress
22	Cleaner transport	Regular temporary Car Free Days & pedestrianisation schemes.	
23	Cleaner transport	Using parking policy to reduce pollution emissions.	Emission based parking charges: Introduced from 6th January 2021, with charges based on individual vehicle CO2 emissions. Emissions based charging – Newham Council. This will be supplemented further with the introduction of emissions-based pay-by-phone charges for kerbside visitor parking across the borough in Spring 2023
24	Cleaner transport	Installation of Ultra-Low Emission Vehicle (ULEV) infrastructure (electric vehicle	Electric Vehicle Charging points Electric vehicle charging points – Newham Council Existing

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
		charging points, rapid electric vehicle charging point & hydrogen refuelling stations).	80 free-standing pillar charging units available on street for residents; 60 lamp column chargers Future 200 double-charging units provide via Uber funding to be delivered by June 2023; 20 LEVI fully accessible charging funded units (subject to bid approval) to be delivered by September 2023; Part of an accessible charging point trial to ensure adoption of EV's by residents with a disability; ORCS bid for a further 120 residential chargers for submission to ORCS by April 2023 (funding not yet confirmed) Work is ongoing on soft market engagement on a cost neutral procurement exercise in Autumn 2023, to obtain a CPO partner to invest capital and operate further residential chargers by means of a longer concession contract. Council property partners are also engaging with rapid charge point providers to identify Council land adjacent to highways where small charging hubs can be implemented by means of a long-term land lease to the operator.

Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
25	Cleaner transport	Provision of infrastructure to support walking & cycling.	Cycle Network Development to enable modal shift: Works are underway on a number of strategic cycleway schemes, including the Royal Docks Corridor (Silvertown Way and North Woolwich Road), Romford Road, the Newham Greenway and Mitchell Walk. Design work progressing on a large number of other routes, including Westfield Avenue, Leyton Road, Leytonstone Road, Honour Lea Avenue, Celebration Avenue, Penny Brookes Street, Liberty Bridge Road, Pool Street, Woolwich Manor Way and Barking Road.

3. Planning Update and Other New Sources of Emissions

Table K. Planning requirements met by planning applications in London Borough of Newham in 2022

Condition	Number
Number of planning applications where an air quality impact assessment was reviewed for air quality impacts	19
Number of planning applications required to monitor for construction dust	34
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[2]	58
Number of developments where an AQ Neutral building and/or transport assessments undertaken	19
Number of developments where the AQ Neutral building and/or transport assessments not meeting the benchmark and so required to include additional mitigation	0
Number of planning applications with S106 agreements including other requirements to improve air quality	0
Number of planning applications with CIL payments that include a contribution to improve air quality	0
NRMM: Central Activity Zone , Canary Wharf and Opportunity Areas	
Number of conditions related to NRMM included.	30
Number of developments registered and compliant.	8 registered in 2022
Number of audits (data from London wide NRMM project led by Merton for financial year 2022-23)	4
% of sites unregistered prior to audit	Information not available
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 Stage IV of the Directive and/or exemptions to the policy.	The data relating to registration is correct. Information on compliance assumes 100% inspection of sites which has not been made

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[2] Low NOX boiler included in planning conditions

NRMM: Greater London (excluding Central Activity Zone, Canary Wharf and Opportunity Areas)	
Number of conditions related to NRMM included.	128
Number of developments registered and compliant	21 registered in 2022
Number of audits	15
% of sites unregistered prior to audit	Information not available
Please include confirmation that you have checked that the development has been registered at www.nrmm.london and that all NRMM used on-site is compliant with Stage IIIB of the Directive and/or exemptions to the policy.	The data relating to registration is correct. Information on compliance assumes 100% inspection of sites which has not been made

The Environmental Control Team reviews all 'major' planning applications. Where it is evident from the application that construction machinery will be involved a condition requiring registration is recommended to be placed on the decision notice should the application be reviewed.

3.1 New or significantly changed industrial or other sources

No new sources identified.

4. Additional Activities to Improve Air Quality

4.1 London Borough of Newham Fleet

Newham has 53 electric vehicles, which is 7.4% of the vehicle fleet.

4.2 NRMM Enforcement Project

Newham will not be sponsoring the NRMM programme in 2023-4.

4.3 Air Quality Alerts

Newham supports *air*TEXT (https://www.airtext.info/)

Appendix A   Details of Monitoring Site Quality QA/QC

A.1   Automatic Monitoring Sites

The four sites are representative of relevant exposure in Newham. The sites are connected to the London Air Quality Network and therefore the standards of QA/QC are similar to those of the government's AURN sites. Monthly calibrations are carried out by a council air quality officer and independent audits are undertaken through a data management and QA/QC contract with Environmental Research Group.

PM_{10} Monitoring Adjustment

The TG16 guidance highlights that any PM10 monitoring undertaken must conform to criteria relating to the gravimetric European reference method or its approved equivalent, the Council deployed FDMS analysers at Wren Close and Cam Road until May 2018, which were found to be equivalent. The heated BAM 1020 analysers have been deployed at Wren and Cam Road since May 2018. The relevant correction factors are applied to BAM data by the data service provider.

A.2   Diffusion Tubes

The diffusion tubes were exposed as a part of the London Wide Environment Programme (LWEP).

The diffusion tubes were supplied and analysed by Gradko International Ltd, with a preparation method using 50% TEA in acetone. Gradko is a UKAS accredited laboratory and participates in the new AIR-PT Scheme (a continuation of the Workplace Analysis Scheme for Proficiency (WASP)) for NO2 tube analysis and the Annual Field Inter-Comparison Exercise.

Factor from Local Co-location Studies

Diffusion tubes are known to exhibit bias when compared to results from automatic analysers. Therefore, diffusion tube results need to be adjusted to account for this bias. The council has triplicate tubes located at the Cam Road (NM2) automatic monitoring station. The bias adjustment factors below are derived from this co-location study and validated alongside the National Diffusion Tube Bias Adjustment studies using the same analytical method and laboratory.

A bias adjustment factor for 2022 of **0.80** (0.80 in 2021) was derived from the Local co-location study with 'good overall precision' and 'good overall data capture' for the 2022 monitoring period.

The diffusion tubes exposed at London City Airport are also supplied and analysed by Gradko International Ltd but a different laboratory method is used (20% TEA in water). A separate bias adjustment factor is therefore calculated for this study using a local study with triplicate tubes co-located at LCA-CAH and duplicate tubes at LCA-ND.

At LCA-ND there were no missing diffusion tube data and the automatic monitor had a good level of data capture for 2022 as did the LCA-CAH automatic monitor had good data capture for 2022. Only one month of data for one of the three diffusion tubes was missing across the whole period. The overall factor used for the airport sites was **0.85**.

Discussion of Choice of Factor to Use

A comparison with the local bias adjustment factors calculated from previous years shows a close comparison and this year's local bias adjustment compares closely with the national adjustment of 0.83.   As such, the adjustment factors listed in Table L have been considered appropriate to use.

Table L.   Bias Adjustment Factor (LWEP)

Year	Local or National	If Local, Version of National Spreadsheet	Adjustment Factor
2022	Local	04/23	0.80
2021	Local	03/22	0.80
2020	Local	06/21	0.85
2019	National	-	0.86
2018	National	-	0.89

Bias Adjustment Factor (London City Airport)

Year	Local or National	If Local, Version of National Spreadsheet	Adjustment Factor
2022	Local	Air Quality Consultants	0.87
2021	Local	Air Quality Consultants	0.85
2020	Local	Air Quality Consultants	0.78
2019	Local	Air Quality Consultants	0.80
2018	Local	Air Quality Consultants	0.78

A.3 Adjustments to the Ratified Monitoring Data

Distance Adjustment: The monitoring sites have been distance adjusted as per Technical Guidance LAQM.TG19 where an exceedance is measured at a monitoring site which is not representative of public exposure.

In these instances, the concentration has been estimated at the nearest receptor and presented in Table N using the outputs from the NO_2 fall off with distance calculations.

Table N. NO_2 Fall off with Distance Calculations

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb*	Monitored Concentration (Annualised and Bias Adjusted ($\mu g\ m^{-3}$)	Background Concentration ($\mu g\ m^{-3}$)	Concentration Predicted at Receptor ($\mu g\ m^{-3}$)	Comments
NHM 13	4	0.5	38	23	32	
NHM 19	15	5	37	23	31	
NHM-S 11 **(R1)**	0.5	4.5	53	23	42	Predicted concentration above AQS objective
NHM-S 11 **(R2)**	0.5	11	53	23	36	Predicted concentration within 10% of AQS
NM-S 56	0.5	4.5	36	23	31	

*See description of sensitive receptors below

Site	Sensitive Receptor
NHM13	Residential above retail at 294-298 Green Street
NM19	Residential flats within 20m of the A13 dual carriageway
NMS-11	**(R1)** flats alongside Plashet School, 247 Plashet Road, **(R2)** Plashet School, nearest classroom facade
NMS-56	West Ham Church Primary School (playing fields)

Short-Term to Long-Term Monitoring Data Adjustment

The monitoring sites have been annualised as per Technical Guidance LAQM.TG22 (Defra, 2022a) in instances where valid data capture was less than 75% (and at least 25%). Annualisation was required for both LCA-CAH and LCA-KGV nitrogen dioxide concentrations (London City Airport). These calculations are summarised below.

Site ID	Annualisation Factor			
	Bexley, Belvedere West	**Bexley - Slade Green**	**Camden - Bloomsbury**	**Newham, Wren Close**
CAH period mean Pm	18.0	19.7	23.0	24.3
KGV period mean Pm	15.2	17.3	19.6	21.0
Annual mean	15.9	17.6	20.7	21.8
CAH ratio	1.05	1.02	1.05	1.04
CAH average(Ra)	0.89			
KGV Average (Ra)	1.04			

Appendix B   Full Monthly Diffusion Tube Results for 2022

Table O.   NO$_2$ Diffusion Tube Results

Site ID	Valid data capture 2022 %[b]	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual mean – raw data
NHM-1	100	42.2	28.4	43.9	30.9	28.5	26.0	29.6	30.7	31.2	36.7	38.8	44.7	34.3
NHM-2	100	39.8	28.0	31.2	22.2	23.6	19.4	21.1	23.2	24.3	27.2	34.7	38.2	27.7
NHM-3	83	40.2	23.1	32.9	27.2	25.0	18.6		27.5	29.4	26.8	28.7		27.9
NHM-4	100	44.7	31.3	38.3	34.9	30.7	28.6	33.5	33.2	16.2	29.4	36.5	36.3	32.8
NHM-6	83	27.5	21.1	21.0	17.5	15.2			14.2	18.6	20.2	24.4	27.9	20.8
NHM-7	100	36.8	32.3	31.5	24.2	26.2	20.2	24.8	25.3	28.6	32.6	38.2	36.5	29.8
NHM-8	83	35.7	21.1		25.7	26.8	15.0	19.4	22.4	32.6		24.8	24.3	24.8
NHM-10	100	28.5	19.8	18.7	18.3	16.2	15.7	38.1	19.6	21.8	23.6	29.1	51.7	25.1
NHM-11	92	42.2		40.8	32.0	33.8	34.6	17.6	36.3	45.6	41.6	51.2	31.3	37.0
NHM-12	100	37.5	26.1	31.2	24.9	22.5	18.6	21.0	22.3	21.2	26.2	33.3	32.2	26.4
NHM-13	100	58.1	40.4	45.0	38.3	44.6	40.1	45.3	43.4	50.8	50.9	51.4	57.1	**47.1**
NHM-16	100	46.1	11.0	43.6	34.8	33.5	32.2	39.3	35.5	40.8	38.7	41.1	46.5	36.9
NHM-17	100	44.3	35.1	42.2	32.8	31.8	29.7	30.4	33.9	34.1	36.2	42.8	36.1	35.8
NHM-19	100	61.4	49.3	54.3	38.2	41.5	34.7	43.7	40.9	39.6	43.4	45.5	56.8	**45.8**
NHM-20	100	47.3	32.4	37.9	35.4	32.3	24.7	33.1	33.3	36.2	36.0	68.5	83.7	**41.7**
NHM-21	100	36.4	23.8	33.8	28.5	24.4	20.3	24.0	26.0	29.7	27.4	31.9	36.2	28.5

LCA01	75	40.3	27.3	34.9		18.6	16.9	19.9	22.9	24.0	25.5			24.7
LCA02	91.7	38.8	25.2	35.1		18.1	21.2	18.2	23.9	26.1	27	27.4	30.6	26.0
LCA04	91.7	38.6		31.7	22.8	22.1	20	20	22.1	25.5	34.1	34.3	34.6	27.4
LCA05	91.7	37	24.2	32.5	22.8	18.2	18.5	17.7	20.3	23.3	29.2	26.8		24
LCA06	100	36.9	16.4	30.4	22.2	18.3	18	16.6	19.9	25.6	25.7	20.9	25.8	22.6
LCA07	83.3	38.3		31.9	23.3	21.2	21.1	22.5	22.9	29.1		33.1	31.9	27.1
LCA10	100	42.4	29.8	38.7	27.9	22.0	18.6	24.4	27.1	23.0	31.9	35.9	35.9	29.4
LCA11	100	43.5	34.9	35.6	24.9	21.3	21.6	20.9	19.7	27.2	32.6	38.0	37.5	29.4
LCA12	91.7	37	28.7	34.9	20		23.6	19.8	11.3	28.8	29.3	33.5	31.8	26.9
LCA13	75	41.5	26.3	33.4		16.8	18.7	19.9	20.6			30.8	34	26.3
LCA14	100	44.5	35.6	39.2	25.2	20.4	22.4	21.9	23.4	28.5	36.1	36.7	38.8	30.6
LCA15	100	42.2	25.6	35.2	24.2	17.7	19.2	18.8	19	22	29.3	27.6	32.3	25.6
LCA18a	100	38.8	24.6	31.1	21.9	17.8	17.9	18.9	19.4	24.7	30.3	28.9	30.6	24.9
LCA18b	100	38.1	23.9	34.7	21.9	18.1	17.8	19.2	18.7	23.9	27.2	30.1	26.9	24.5
LCA20	75	39.4		45		20.9	26.3	29.4	11.7	27.8	36.4	31.8		29
LCA21	100	33.9	23.3	27	19.6	14.9	15.1	16.2	17	20.2	23.3	22.8	28.1	21.4
NHM-S 1	83	43.3	27.3	30.2	31.6	30.5	16.5	29.2	23.5			31.7	33.2	29.7
NHM-S 2	100	33.8	22.7	24.3	20.9	20.9	11.6	16.1	15.4	16.6	30.4	23.5	29.3	22.1
NHM-S 3	100	36.0	23.6	23.9	20.2	21.8	11.3	15.8	15.9	17.7	28.4	27.3	29.1	22.6
NHM-S 4	100	38.3	27.7	25.7	23.4	23.6	12.0	18.0	19.3	19.9	31.9	28.6	31.2	25.0
NHM-S 5	92		25.0	22.3	22.7	22.3	12.2	16.7	17.8	18.8	32.8	26.7	29.5	22.4
NHM-S 6	100	41.3	32.4	33.0	29.4	29.6	17.4	25.3	27.9	25.4	39.0	38.0	29.5	30.7
NHM-S 7	100	56.2	36.3	40.7	18.3	41.5	24.8	35.3	27.7	34.3	55.7	44.2	39.1	37.8
NHM-S 8	100	41.9	27.6	32.6	27.1	30.4	15.9	24.8	18.8	27.9	52.6	35.5	36.8	31.0
NHM-S 9	75	35.8	25.5	27.2	20.9		10.6	15.6	18.0			24.5	31.3	23.3
NHM-S 10	75	37.7	30.4	23.1	22.0	22.6	12.1	17.6				28.6	31.7	25.1
NHM-S 11	75	76.7	54.5	58.1	68.8	66.5	33.4	66.6			76.4		97.3	**66.5**

NHM-S 12	100	36.4	21.5	23.8	20.4	20.6	10.6	16.1	16.4	16.1	28.6	25.0	27.1	21.9
NHM-S 13	100	36.8	23.1	26.9	23.2	22.0	11.4	16.8	18.4	17.4	31.2	25.6	30.7	23.6
NHM-S 14	100	37.8	28.4	28.4	25.1	27.4	15.5	21.8	22.0	20.3	38.1	26.9	30.3	26.8
NHM-S 15	100	39.5	24.8	28.8	25.7	23.0	13.8	18.0	20.3	26.9	24.9	28.4	32.4	25.5
NHM-S 16	100	32.5	26.8	27.6	24.5	24.6	12.5	19.6	21.0	19.4	37.5	28.4	33.3	25.6
NHM-S 17	100	35.1	21.2	24.4	20.0	20.8	11.0	16.1	17.0	16.8	32.6	22.7	29.0	22.2
NHM-S 18	100	32.9	23.3	26.9	22.9	21.0	10.5	17.9	18.1	16.5	32.4	26.5	30.2	23.3
NHM-S 19	92	35.2	31.0	28.5	24.1	24.0		20.3	19.3	18.5	31.0	25.6	31.3	26.3
NHM-S 20	92	42.6		29.1	27.3	30.8	15.7	22.8	21.4	21.5	42.3	32.5	38.1	29.5
NHM-S 21	100	38.2	26.0	27.6	23.3	24.3	13.0	19.6	19.2	18.1	39.3	29.8	36.4	26.2
NHM-S 22	100	40.6	26.9	28.2	23.3	25.8	12.5	19.8	19.5	17.5	34.6	26.7	31.2	25.5
NHM-S 23	75	31.6	20.7	25.5		19.0	10.1	16.6			30.5	22.8	27.5	22.7
NHM-S 24	100	30.7	23.0	28.6	23.4	24.4	12.7	18.3	19.1	16.3	31.5	27.4	29.0	23.7
NHM-S 25	92	35.7	23.9	25.7	20.2	21.3	11.0	18.1	18.3	16.1	27.5	25.9		22.2
NHM-S 26	92	37.5	27.6	28.8	24.4	26.8	13.5	22.1	20.3	18.5	36.5	25.7		25.6
NHM-S 27	100	33.4	24.9	27.7	25.0	23.6	14.6	20.5	20.8	15.1	31.5	27.6	33.5	24.9
NHM-S 28	100	35.2	30.9	26.8	20.8	26.6	12.0	16.8	20.4	27.0	29.6	27.2	41.5	26.2
NHM-S 29	100	37.3	5.8	27.6	25.8	24.9	12.7	18.5	17.4	17.8	32.2	25.0	36.0	23.4
NHM-S 30	83	46.6	34.9	38.3	37.6	39.5	25.6	35.3	32.9	29.4	49.5			37.0
NHM-S 31	100	43.1	30.8	33.8	30.6	31.9	16.3	24.8	23.9	29.3	29.6	30.2	40.3	30.4
NHM-S 32	100	32.2	18.9	24.4	20.5	21.3	10.3	14.6	16.3	20.7	24.3	22.3	30.0	21.3
NHM-S 33	100	31.6	22.9	24.4	20.1	21.8	10.9	15.6	15.8	21.3	25.0	22.1	34.9	22.2
NHM-S 34	100	34.2	24.8	25.7	24.4	24.8	12.0	18.9	19.1	23.0	29.4	24.7	37.8	24.9
NHM-S 35	100	34.4	25.7	26.3	22.2	23.0	12.1	18.5	18.4	23.7	28.8	26.7	39.2	24.9
NHM-S 36	100	35.2	22.8	26.0	22.5	22.4	11.1	18.0	17.9	19.4	26.5	24.5	34.9	23.4
NHM-S 37	100	40.5	27.2	27.1	24.9	26.8	12.3	18.9	18.8	24.2	29.7	25.2	39.6	26.3
NHM-S 38	92	33.6	21.9	24.9	22.9	19.1	9.6		15.3	20.3	19.3	20.1	31.6	21.7

NHM-S 39	100	34.0	21.6	27.1	22.2	21.1	10.9	16.2	16.3	21.1	22.9	22.9	34.2	22.5
NHM-S 40	100	37.5	25.3	24.0	22.3	24.0	12.1	17.9	16.8	23.7	25.4	24.8	38.8	24.4
NHM-S 41	100	32.8	23.4	24.2	20.2	25.3	10.3	14.0	15.4	23.3	23.2	22.1	33.9	22.3
NHM-S 42	92	41.6	25.9	25.1	21.6	21.0	12.1	19.1		21.4	28.6	28.4	38.2	25.7
NHM-S 43	92	39.4	26.4	35.6	32.3	28.3	15.2	17.7	27.3	26.4		32.5	45.7	29.7
NHM-S 44	100	34.6	23.5	20.7	19.4	20.3	11.1	18.8	18.3	18.7	29.3	20.5	40.5	23.0
NHM-S 45	100	32.7	23.3	22.8	21.1	23.1	12.2	17.2	18.2	19.3	32.4	21.1	43.5	23.9
NHM-S 46	83	33.6	25.3	21.4			12.1	18.9	17.2	18.8	27.0	21.0	40.5	23.6
NHM-S 47	92	35.2	24.6	23.3	23.0	22.4	12.8		19.6	22.1	31.4	20.9	46.4	25.6
NHM-S 48	92	39.1		23.3	19.0	21.7	14.0	17.9	20.4	21.5	30.8	26.1	49.6	25.8
NHM-S 49	100	35.6	25.2	25.4	23.3	21.1	13.6	19.1	21.5	22.2	33.0	24.5	45.6	25.9
NHM-S 50	100	40.5	28.8	23.8	24.1	22.1	11.9	19.5	22.4	21.7	31.4	18.9	38.8	25.3
NHM-S 51	75		24.6	23.8			13.0	15.8	20.0	20.3	25.3	21.7	38.8	22.6
NHM-S 52	75	35.1	24.9	25.3	23.1		11.3	18.3	21.8			23.4	39.7	24.8
NHM-S 53	92		26.9	19.8	22.2	21.0	12.1	17.1	19.1	20.3	27.9	21.2	40.4	22.6
NHM-S 54	100	34.7	21.9	22.4	22.4	20.2	12.7	17.8	20.4	21.1	29.2	22.5	41.3	23.9
NHM-S 55	100	45.2	33.1	32.3	30.7	27.9	17.3	20.4	25.3	28.5	32.5	26.4	51.9	31.0
NHM-S 56	100	49.6	41.3	44.5	44.2	46.8	31.4	40.8	43.6	45.6	50.9	39.7	62.5	**45.1**
NHM-S 57	100	36.3	24.9	23.3	21.2	18.4	12.0	15.3	17.5	21.1	25.4	19.8	40.4	23.0
NHM-S 58	92	25.7		31.8	21.0	17.8	10.1	13.7	16.4	23.6	20.4	21.7	32.1	21.3
NHM-S 59	92	34.7	23.3	27.6	21.0	19.3	11.2		18.5	24.5	24.8	24.9	38.7	24.4
NHM-S 60	100	32.5	28.4	25.1	22.1	28.9	11.9	16.0	20.7	24.9	26.0	24.7	39.2	25.0
NHM-S 61	100	33.6	28.5	23.9	24.8	24.1	12.1	17.3	20.7	24.4	26.8	27.0	35.9	24.9
NHM-S 62	92	36.2		34.2	29.2	29.5	15.4	21.8	27.7	26.7	35.2	30.2	44.2	30.0
NHM-S 63	100	32.5	21.5	27.8	24.2	19.1	12.6	17.4	16.7	25.9	28.7	22.4	35.6	23.7
NHM-S 64	100	29.2	21.5	21.8	21.9	18.5	11.9	14.5	15.8	21.7	26.2	23.2	37.9	22.0
NHM-S 65	100	33.3	21.7	23.6	24.5	18.7	11.8	15.4	15.0	23.3	25.6	22.9	37.2	22.8

NHM-S 66	100	12.1	24.6	27.9	26.9	22.0	10.9	16.0	19.0	21.7	28.5	25.9	39.6	22.9
NHM-S 67	100	30.4	22.0	23.8	21.7	18.5	12.9	15.2	17.2	22.6	24.2	24.7	33.0	22.2
NHM-S 68	100	37.6	30.9	31.5	27.9	27.5	14.6	20.9	22.0	28.9	32.2	32.6	33.3	28.3
NHM-S 69	58	37.6		30.6	26.8	24.3	14.9	25.1					32.1	27.3
NHM-S 70	92	35.8		25.3	27.2	23.1	13.6	21.3	17.9	16.8	29.3	23.7	37.3	24.7
NHM-S 71	92	35.6	24.9	32.6	28.3	23.8	14.6	22.6	19.9	24.5	28.7	28.3		25.8
NHM-S 72	92	36.3	24.8	28.8	29.3	23.2	15.0	23.0	22.1	26.0	32.4	27.2		26.2
NHM-S 73	100	36.3	26.6	27.0	26.7	19.2	16.1	19.5	19.9	26.8	28.4	24.4	44.6	26.3
NHM-S 74	83	41.6		31.9	33.2		21.4	23.1	23.8	30.8	25.5	21.2	50.5	30.3
NHM-S 75	92	35.6		26.9	25.9	16.4	14.4	17.2	18.4	24.0	26.7	23.3	48.2	25.2
NHM-S 76	100	32.8	24.2	26.0	24.3	16.0	13.7	15.5	18.3	22.0	25.2	22.0	34.3	22.9
NHM-S 77	100	38.8	25.7	28.3	28.2	17.4	17.0	19.7	19.6	26.9	27.0	23.0	42.5	26.2
NHM-S 78	100	41.8	29.3	29.0	31.5	21.7	18.6	23.7	22.5	29.0	28.3	26.0	52.7	29.5
NHM-S 79	100	41.1	27.0	24.0	28.3	18.9	15.9	18.8	21.0	27.8	25.9	24.5	44.8	26.5
NHM-S 80	100	45.6	36.5	33.3	40.2	27.7	21.7	25.2	27.4	33.3	35.0	26.0	53.7	33.8
NHM-S 81	83		27.5	29.6	32.6	22.7	17.6	20.1	24.7	26.2	29.5	24.2		25.5
NHM-S 82	83	43.9	27.2	31.0		27.3	25.0	27.3	26.1	38.7	36.1	25.2		30.8
NHM-S 83	100	39.2	26.3	26.7	32.6	19.0	14.9	19.6	23.8	27.0	25.0	22.8	42.9	26.7
NHM-S 84	100	36.4	22.3	22.6	28.0	17.1	14.8	17.9	18.3	25.4	24.4	20.7	37.5	23.8
NHM-S 85	100	38.3	23.2	24.5	23.0	15.5	14.0	16.4	20.7	24.8	24.7	21.2	38.7	23.8
NHM-S 86	92	35.9		26.7	24.0	16.8	14.4	15.2	18.0	23.5	27.5	23.3	40.5	24.2
NHM-S 87	100	37.5	27.3	28.3	22.0	23.9	11.2	17.6	18.7	25.2	30.6	29.6	31.8	25.3
NHM-S 88	75	38.0			21.9	24.0	10.9	17.2	17.7		25.8	28.5	37.6	24.6
NHM-S 89	100	43.4	25.6	23.5	25.0	24.7	13.1	19.6	19.7	23.6	26.8	28.3	28.6	25.2
NHM-S 90	92	38.9		29.1	26.5	24.2	13.8	22.6	20.5	26.4	27.0	29.3	31.5	26.3
NHM-S 91	100	51.2	31.7	34.4	42.2	33.1	29.6	40.4	41.9	50.3	39.3	32.1	55.1	**40.1**
NHM-S 92	83	35.8	20.4	22.5	23.6		12.4	14.7		21.4	22.9	19.4	38.3	23.1

NHM-S 93	100	37.2	20.5	23.8	21.7	15.0	12.1	13.7	16.0	21.7	21.7	17.8	35.8	21.4
NHM-S 94	92	31.8		23.6	24.6	18.2	14.7	19.0	19.2	21.7	22.0	17.1	44.9	23.3
NHM-S 95	83			32.9	38.9	25.6	20.0	28.1	27.8	32.2	27.2	24.1	36.0	29.3
NHM-S 96	92	32.4	20.0	23.6	24.0	13.4		16.5	17.9	19.8	20.9	15.8	33.2	21.6
NHM-S 97	92	36.0	17.3	25.1	26.1	16.1	13.4	15.3	19.7	19.4	26.5	20.9		21.4
NHM-S 98	100	38.4	21.0	25.5	30.1	13.4	18.1	21.5	22.5	27.3	24.1	20.0	41.6	25.3
NHM-S 99	75	33.6	22.3		26.2	21.5			19.9	22.5	20.2	22.8	30.8	24.4

Notes

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

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

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

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

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

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