Tower Hamlets Air Quality Annual Status Report for 2017
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This report provides a detailed overview of air quality in Tower Hamlets during 2016. It has been produced to meet the requirements of the London Local Air Quality Management statutory process[1].

Contact details

Stefanie Hughes, Air Quality Officer, Environmental Health & Trading Standards.
John Onslow House, 1 Ewart Place, Bow, E3 5EQ.
Environmental.protection@towerhamlets.gov.uk

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[1] LLAQM Policy and Technical Guidance 2016 (LLAQM.TG(16)). https://www.london.gov.uk/what-we-do/environment/pollution-and-air-quality/working-boroughs

CONTENTS

Tables

Abbreviations

AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQO	Air Quality Objective
BEB	Buildings Emission Benchmark
CAB	Cleaner Air Borough
CAZ	Central Activity Zone
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	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
	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
	40 µg m^{-3}	Annual mean	31 Dec 2004
Particles - $PM_{2.5}$	25 µg m^{-3}	Annual mean	2020
	Target of 15% reduction in concentration at urban background locations	3 year mean	Between 2010 and 2020
Sulphur Dioxide (SO_2)	266 µg m^{-3} not to be exceeded more than 35 times a year	15 minute mean	31 Dec 2005
	350 µg m^{-3} not to be exceeded more than 24 times a year	1 hour mean	31 Dec 2004
	125 µg m^{-3} mot to be exceeded more than 3 times a year	24 hour mean	31 Dec 2004

Note: [1]by which to be achieved by and maintained thereafter

1.   Air Quality Monitoring

1.1   Locations

Table B.   Details of Automatic Monitoring Sites for 2016

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance to kerb of nearest road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Monitoring technique
TH1	Poplar	537509	180867	Roadside	Y	N/A	4	NO2, PM10, O3	TEOM
TH2	Mile End	535927	182221	Roadside	Y	3	3	NO2	N/A
TH4	Blackwall	538290	181452	Roadside	Y	3	3	NO2, PM10, PM2.5, O3	FDMS
TH5	Victoria Park	536487	184238	Background	Y	300	2	NO2, SO2, PM10	TEOM
TH6	Millwall Park	538052	178559	Background	Y	60	1.5	NO2, PM10, O3	BAM

Table C.   Details of Non-Automatic Monitoring Sites for 2016

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA?	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	Colombia Rd/Gossett Street	533883	182815	Roadside	Y	1-2m	2	NO$_2$	N
2	Calvert Ave/Boundary	533507	182569	Roadside	Y	1-2m	2	NO$_2$	N

	Street								
3	Bethnal Grn Rd/ Brick Lane	533860	182442	Roadside	Y	1-2m	2	NO_2	N
4	Commercial St/Calvin St	533583	182066	Roadside	Y	1-2m	2	NO_2	N
5	Whitechapel High St (KFC)	533985	181426	Roadside	Y	1-2m	2	NO_2	N
6	Mansell St	533801	180726	Roadside	Y	1-2m	2	NO_2	N
7	St Katherine's Way	533984	180373	Background	Y	N/A	2	NO_2	N
8	Wapping High St/Sampson St	534444	180122	Roadside	Y	1-2m	2	NO_2	N
9	East Smithfield	533807	180658	Roadside	Y	1-2m	2	NO_2	N
10	Stepney Way/Turner Street	534621	181624	Roadside	Y	1-2m	2	NO_2	N
11	Brick Lane/Princelet St	533866	181860	Roadside	Y	1-2m	2	NO_2	N
12	Buckfast St/Bethnal Green Rd	534259	182580	Roadside	Y	1-2m	2	NO_2	N
13	Whitechapel Road	534579	181743	Roadside	Y	3-4m	2	NO_2	N
14	Warner Place/Hackney Rd	534255	183130	Roadside	Y	1-2m	2	NO_2	N
15	St Katherines Way	533762	180730	Roadside	Y	1-2m	2	NO_2	N
16	Paradise Row/Bethnal Green Rd	534959	182757	Roadside	Y	1-2m	2	NO_2	N
17	Finnis St/Three Colts Lane	534783	182385	Roadside	Y	1-2m	2	NO_2	N
18	Sidney St/Mile End Rd	534968	181878	Roadside	Y	1-2m	2	NO_2	N
19	Philpot St/Commercial Road	534816	181321	Roadside	Y	1-2m	2	NO_2	N
20	Dellow St/The Highway	534951	180779	Roadside	Y	1-2m	2	NO_2	N
21	Tower Hill	533762	180730		Y	1-2m	2	NO_2	N

22	Wapping Wall/Garnet St	535132	180337	Roadside	Y	1-2m	2	NO_2	N
23	Brodlove Lane	535598	180816	Roadside	Y	1-2m	2	NO_2	N
24	Jubilee Street/Commercial Rd	535150	181279	Roadside	Y	1-2m	2	NO_2	N
25	Cavell St/Stepney Way	534884	181667	Roadside	Y	1-2m	2	NO_2	N
26	Hannibal Rd/Mile End Rd	535392	182010	Roadside	Y	1-2m	2	NO_2	N
27	Tower Gardens	533720	180766	Roadside	Y	1-2m	2	NO_2	N
28	Bonner Road	535356	183223	Roadside	Y	1-2m	2	NO_2	N
29	Grove Rd/Old Ford Rd	535930	183385	Roadside	Y	1-2m	2	NO_2	N
30	Fieldgate Street	534232	181584	Roadside	Y	1-2m	2	NO_2	N
31	Whitechapel Market	534516	181744	Roadside	Y	1-2m	2	NO_2	N
32	Globe Rd/Mile End Rd	535295	182820	Roadside	Y	1-2m	2	NO_2	N
33	Stepney Green	535545	181604	Background	Y	10m	2	NO_2	N
34	Mansell Street	533821	180766	Roadside	Y	1-2m	2	NO_2	N
35	New Road	534512	181633	Roadside	Y	1-2m	2	NO_2	N
36	Locksley St/St Paul's Way	536702	181646	Roadside	Y	1-2m	2	NO_2	N
37	Rhodeswell Rd	536574	181338	Roadside	Y	1-2m	2	NO_2	N
38	Ben Johnson Road	536080	181721	Roadside	Y	1-2m	2	NO_2	N
39	Harford St/Mile End Rd	536089	182258	Roadside	Y	1-2m	2	NO_2	N
40	Tower Bridge	533763	180719	Roadside	Y	1-2m	2	NO_2	N
41	Ford Close/Roman Rd	536457	183301	Roadside	Y	1-2m	2	NO_2	N
42	Victoria Park	536494	184170	Background	Y	N/A	2	NO_2	Y
43	Victoria Park	536494	184170	Background	Y	N/A	2	NO_2	Y
44	Parnell Rd/Old Ford Rd	536874	183741	Roadside	Y	1-2m	2	NO_2	N
45	St Stephen's	536713	183070	Roadside	Y	1-2m	2	NO_2	N

	Rd/Tredegar Rd								
46	Rhondda Grove/Mile End Rd	536542	182589	Roadside	Y	1-2m	2	NO_2	N
47	Wentworth Mews	536452	182454	Roadside	Y	1-2m	2	NO_2	N
48	Ackroyd Drive	536767	181771	Roadside	Y	1-2m	2	NO_2	N
49	Dod St/Burdett Rd	537026	181227	Roadside	Y	1-2m	2	NO_2	N
50	Rich Street	536937	180987	Roadside	Y	1-2m	2	NO_2	N
51	Watney Market	534938	181257	Urban Background	Y	20m	2	NO_2	N
52	Wick Lane/Autumn St	537304	183619	Roadside	Y	1-2m	2	NO_2	N
53	Fairfield Road/Tredegar Road	537159	183415	Roadside	Y	1-2m	2	NO_2	N
54	Bow Rd /Glebe Terrace	537525	182887	Roadside	Y	1-2m	2	NO_2	N
55	TH Cemetery Park	536730	182363	Background	Y	10m	2	NO_2	N
56	Bow Common Lane/St Paul's Way	537248	181820	Roadside	Y	1-2m	2	NO_2	N
57	Turner Street	534619	181649	Roadside	Y	1-2m	2	NO_2	N
58	Dolphin Lane	537539	180688	Roadside	Y	1-2m	2	NO_2	N
59	Westferry Road/Limehouse Link jnct	537100	180791	Roadside	Y	1-2m	2	NO_2	N
60	Cascades, Westferry Road	537115	180074	Roadside	Y	1-2m	2	NO_2	N
61	Bow Rd/Alfred St	537056	182773	Roadside	Y	1-2m	2	NO_2	N
62	Mast House Terrace	537348	178690	Roadside	Y	1-2m	2	NO_2	N
63	Millwall Park	538259	178688	Background	Y	30m	2	NO_2	N
64	Limeharbour	537953	179357	Roadside	Y	1-2m	2	NO_2	N
65	Manchester Road/East Ferry Road	538033	178360	Roadside	Y	1-2m	2	NO_2	N
66	Millwall Park	538247	178689	Background	Y	30m	2	NO_2	N

67	Seyssel Street	538545	178767	Roadside	Y	1-2m	2	NO_2	N
68	Manchester Road/Ollife Street	538432	179044	Roadside	Y	1-2m	2	NO_2	N
69	Lawnhouse Close	538191	179750	Roadside	Y	1-2m	2	NO_2	N
72	Prestons Road/ Coldharbour	538364	180188	Roadside	Y	1-2m	2	NO_2	N
73	John Smith Mews	538742	180756	Roadside	Y	1-2m	2	NO_2	N
74	Stepney Way/Hospital	534742	181643	Roadside	Y	1-2m	2	NO_2	N
75	Hale Street	537661	180768	Roadside	Y	1-2m	2	NO_2	N
76	Chrisp Street/E India Dock Road	537940	181021	Roadside	Y	1-2m	2	NO_2	N
77	Morris/Barchester Street	537731	181761	Roadside	Y	1-2m	2	NO_2	N
78	Devons Road / Campbell Road	537577	182232	Roadside	Y	1-2m	2	NO_2	N
79	Hatfield Terrace/Fairfield Road	537356	183059	Roadside	Y	1-2m	2	NO_2	N
80	Wrexham Road	537581	183208	Roadside	Y	1-2m	2	NO_2	N
81	Bromley High Street/ St leonards	537868	182912	Roadside	Y	1-2m	2	NO_2	N
82	Devas Street /Devons road	537821	182332	Roadside	Y	1-2m	2	NO_2	N
83	Zetland Street/A12	538178	181747	Roadside	Y	1-2m	2	NO_2	N
84	Blair Street (End of Street)	538366	181180	Roadside	Y	1-2m	2	NO_2	N
85	Portree Street	538895	181296	Roadside	Y	1-2m	2	NO_2	N
86	Newport Avenue	538955	180872	Roadside	Y	1-2m	2	NO_2	N
87	Stepney Way	534555	181612	Roadside	Y	1-2m	2	NO_2	N
89	Thames Path Storers Quay	538730	178733	Background	Y	10m	2	NO_2	N
90	Sextant Avenue	538674	178887	Roadside	Y	1-2m	2	NO_2	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, the details of which are described in Appendix A.

Table D. Annual Mean NO$_2$ Ratified and Bias-adjusted Monitoring Results (μg m^{-3})

Site ID	Site type	Valid data capture for monitoring period % [a]	Valid data capture 2016 % [b]	Annual Mean Concentration (μgm^{-3})						
				2010 [c]	2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]
TH1 Poplar	Automatic	-	-	36	34 [c]	33	33	-	-	-
TH2 Mile End	Automatic	87%	100%	**65**	**57**	**60**	**57**	**62**	**53**	**51.7**
TH4 Blackwall	Automatic	88%	100%	**73**	**63**	**61**	**58**	**58**	**58**	**59.0**
TH5 Victoria Park	Automatic	63%	100%	-	-	33	33	44 [c]	33 [c]	32.0 [c]
TH6 Millwall	Automatic	90%	100%	-	-	-	-	-	26 [c]	25.3
1	Diffusion Tube	83%	100%	-	-	-	-	-	38	37
2	Diffusion Tube	83%	100%	-	-	-	-	-	**42**	**41**
3	Diffusion Tube	100%	100%	-	-	-	-	-	**47**	**46**
4	Diffusion Tube	92%	100%	-	-	-	-	-	**66**	**60**
5	Diffusion Tube	83%	100%	-	-	-	-	-	**72**	**64**
6	Diffusion Tube	67%	100%	-	-	-	-	-	**84**	**76**
7	Diffusion Tube	92%	100%	-	-	-	-	-	34	34
8	Diffusion Tube	83%	100%	-	-	-	-	-	35	36
9	Diffusion Tube	100%	100%	-	-	-	-	-	92	78
10	Diffusion Tube	92%	100%	-	-	-	-	-	37	38
11	Diffusion Tube	75%	100%	-	-	-	-	-	**42**	**44**
12	Diffusion Tube	100%	100%	-	-	-	-	-	**42**	**42**
13	Diffusion Tube	100%	100%	-	-	-	-	-	**44**	**44**
14	Diffusion Tube	100%	100%	-	-	-	-	-	**42**	**41**
15	Diffusion Tube	83%	100%	-	-	-	-	-	**46**	**47**

16	Diffusion Tube	92%	100%	-	-	-	-	-	**50**	**44**
17	Diffusion Tube	100%	100%	-	-	-	-	-	35	35
18	Diffusion Tube	67%	100%	-	-	-	-	-	**47**	**44**[c]
19	Diffusion Tube	100%	100%	-	-	-	-	-	**54**	**52**
20	Diffusion Tube	100%	100%	-	-	-	-	-	**69**	**58**
21	Diffusion Tube	92%	100%	-	-	-	-	-	**72**	**66**
22	Diffusion Tube	92%	100%	-	-	-	-	-	34	37
23	Diffusion Tube	100%	100%	-	-	-	-	-	**47**	**45**
24	Diffusion Tube	83%	100%	-	-	-	-	-	**68**	**65**
25	Diffusion Tube	100%	100%	-	-	-	-	-	**45**	**45**
26	Diffusion Tube	75%	100%	-	-	-	-	-	**72**	**50**
27	Diffusion Tube	67%	100%	-	-	-	-	-	**93**	**87**[c]
28	Diffusion Tube	92%	100%	-	-	-	-	-	39	**41**
29	Diffusion Tube	100%	100%	-	-	-	-	-	**47**	**48**
30	Diffusion Tube	58%	100%	-	-	-	-	-	**53**	**48**[c]
31	Diffusion Tube	92%	100%	-	-	-	-	-	**71**	**68**
32	Diffusion Tube	92%	100%	-	-	-	-	-	**55**	**54**
33	Diffusion Tube	92%	100%	-	-	-	-	-	34	34
34	Diffusion Tube	75%	100%	-	-	-	-	-	**65**	**54**
35	Diffusion Tube	83%	100%	-	-	-	-	-	**62**	**60**
36	Diffusion Tube	100%	100%	-	-	-	-	-	31	38
37	Diffusion Tube	100%	100%	-	-	-	-	-	35	39
38	Diffusion Tube	100%	100%	-	-	-	-	-	**41**	**45**
39	Diffusion Tube	75%	100%	-	-	-	-	-	**43**	**41**
40	Diffusion Tube	33%	100%	-	-	-	-	-	**69**	**64**[c]
41	Diffusion Tube	42%	100%	-	-	-	-	-	**41**	**41**[c]
42	Diffusion Tube	50%	100%	-	-	-	-	-	23	24[c]
43	Diffusion Tube	50%	100%	-	-	-	-	-	23	25[c]
44	Diffusion Tube	100%	100%	-	-	-	-	-	39	**41**
45	Diffusion Tube	92%	100%	-	-	-	-	-	**44**	**47**
46	Diffusion Tube	92%	100%	-	-	-	-	-	35	**41**
47	Diffusion Tube	100%	100%	-	-	-	-	-	**50**	**51**
48	Diffusion Tube	100%	100%	-	-	-	-	-	**45**	**44**
49	Diffusion Tube	92%	100%	-	-	-	-	-	37	38
50	Diffusion Tube	92%	100%	-	-	-	-	-	**42**	**45**
51	Diffusion Tube	75%	100%	-	-	-	-	-	38	37
52	Diffusion Tube	100%	100%	-	-	-	-	-	**44**	**45**
53	Diffusion Tube	100%	100%	-	-	-	-	-	**52**	**52**
54	Diffusion Tube	25%	100%	-	-	-	-	-	**67**	**49**[c]

55	Diffusion Tube	92%	100%	-	-	-	-	-	25	26
56	Diffusion Tube	100%	100%	-	-	-	-	-	**41**	**43**
57	Diffusion Tube	83%	100%	-	-	-	-	-	37	39
58	Diffusion Tube	100%	100%	-	-	-	-	-	33	36
59	Diffusion Tube	58%	100%	-	-	-	-	-	**40**	39[c]
60	Diffusion Tube	100%	100%	-	-	-	-	-	**44**	**45**
61	Diffusion Tube	83%	100%	-	-	-	-	-	**42**	**44**
62	Diffusion Tube	100%	100%	-	-	-	-	-	32	35
63	Diffusion Tube	100%	100%	-	-	-	-	-	27	29
64	Diffusion Tube	100%	100%	-	-	-	-	-	**42**	**42**
65	Diffusion Tube	92%	100%	-	-	-	-	-	31	34
66	Diffusion Tube	92%	100%	-	-	-	-	-	27	30
67	Diffusion Tube	92%	100%	-	-	-	-	-	33	34
68	Diffusion Tube	100%	100%	-	-	-	-	-	29	34
69	Diffusion Tube	100%	100%	-	-	-	-	-	**44**	**41**
72	Diffusion Tube	75%	100%	-	-	-	-	-	**41**	39
73	Diffusion Tube	100%	100%	-	-	-	-	-	36	38
74	Diffusion Tube	92%	100%	-	-	-	-	-	38	38
75	Diffusion Tube	83%	100%	-	-	-	-	-	31	33
76	Diffusion Tube	58%	100%	-	-	-	-	-	**51**	**48**
77	Diffusion Tube	100%	100%	-	-	-	-	-	35	39
78	Diffusion Tube	100%	100%	-	-	-	-	-	**47**	**48**
79	Diffusion Tube	92%	100%	-	-	-	-	-	31	31
80	Diffusion Tube	100%	100%	-	-	-	-	-	**43**	**41**
81	Diffusion Tube	92%	100%	-	-	-	-	-	37	39
82	Diffusion Tube	92%	100%	-	-	-	-	-	**47**	**50**
83	Diffusion Tube	100%	100%	-	-	-	-	-	**66**	**63**
84	Diffusion Tube	92%	100%	-	-	-	-	-	**52**	**48**
85	Diffusion Tube	100%	100%	-	-	-	-	-	**48**	**48**
86	Diffusion Tube	100%	100%	-	-	-	-	-	33	34
87	Diffusion Tube	100%	100%	-	-	-	-	-	**41**	**44**
89	Diffusion Tube	100%	100%	-	-	-	-	-	-	31
90	Diffusion Tube	92%	100%	-	-	-	-	-	-	28

Notes: Exceedance of the NO_2 annual mean AQO of 40 μgm^{-3} are shown in **bold**.

NO_2 annual means in excess of 60 $\mu g\ m^{-3}$, indicating a potential exceedance of the NO^2 hourly mean AQS objective are shown in bold and underlined.

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

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

[c] Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

Table D above shows the NO_2 concentrations at our continuous monitors for the past 7 years. Within that period one station was closed (Poplar) and 2 others opened (Victoria Park & Millwall Park). From 2011, the two Roadside sites, Blackwall Tunnel and Mile End, have been fairly static in their results showing no increasing or decreasing trend. This has continued for Blackwall Tunnel in 2016 with the past 4 years measuring an annual average of 58-59 μgm^{-3}, however the Mile End Road site has shown a marked decrease in 2015 to 53 μgm^{-3}. This reduction has continued into 2016 with another small decrease to 52 μgm^{-3}. The results for Victoria Park have stayed the same since it was established in 2012 with the exception of 2014 (however data capture was very low this year) indicating that background concentrations in the borough have not decreased as expected over the past 5 years. 2016 has however shown a slight decrease with the annual concentration being reduced to 32 μgm^{-3}. Millwall Park station was opened towards the end of the year in 2015 therefore data capture for that year was particularly low. The result for 2016 showed that background concentrations are low at the south side of the Island at 25 μgm^{-3}.

The Diffusion tube monitoring network was resumed in 2015 and therefore currently we only have 2 years' worth of data, which is not long enough to establish any trends at this point. Some tubes have shown a slight increase in annual mean and some have shown a slight decrease. Table D shows the results of the diffusion tube monitoring and shows that the NO_2 objective is exceeded at many roadside sites across the borough. Concentrations at background locations such as tubes 33 in Stepney Green Park and 63 & 66 in Millwall Park are low and below the Annual Objective.

The two graphs below show the NO_2 concentrations at each diffusion tube monitoring point for 2015-2016.

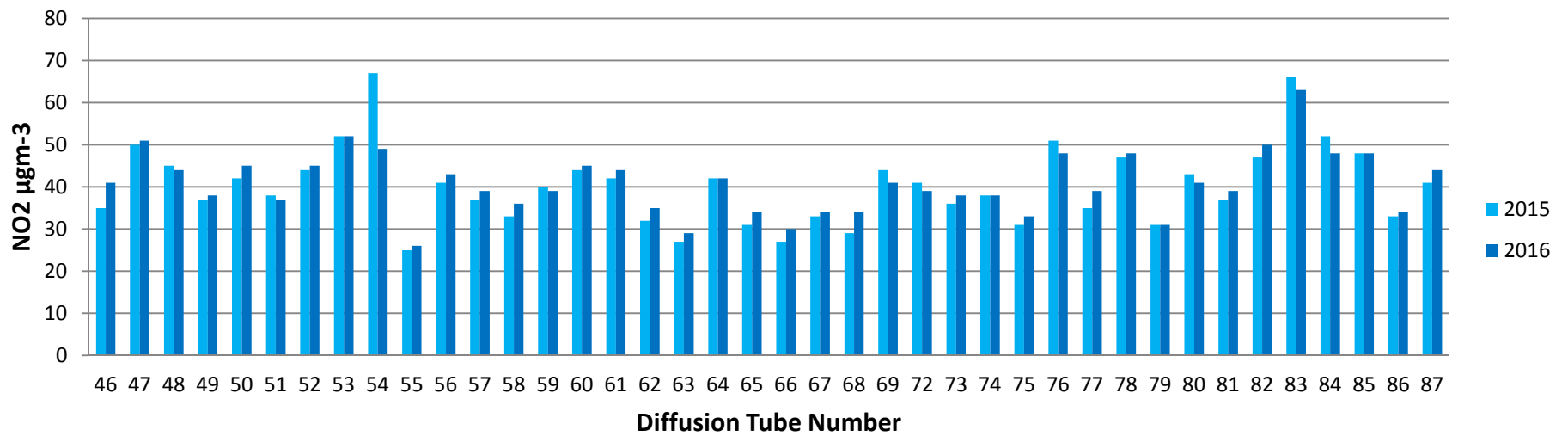NO2 Diffusion Tube Results 2015-2016
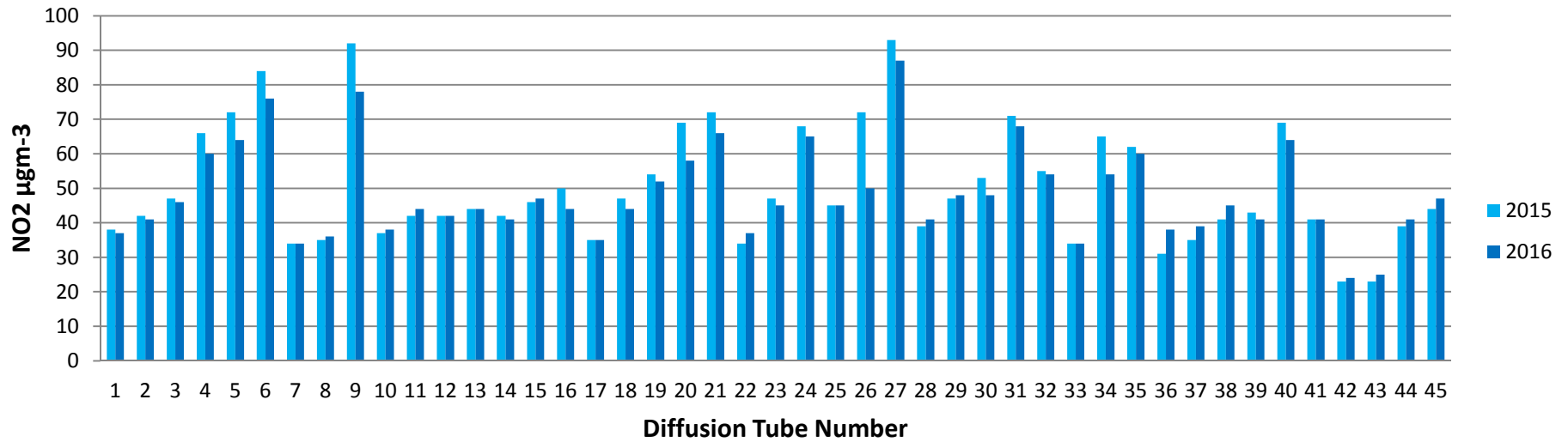
NO2 Diffusion Tube Results 2015-2016

Table E.NO₂ Automatic Monitor Results: Comparison with 1-hour Mean Objective

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2016 % [b]	Number of Hourly Means > 200 μgm^{-3}						
			2010 [c]	2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]
TH1Poplar	-	-	0	0	0	0	-	-	-
TH2 Mile End	87%	100%	5	0	2	0	1	0	0
TH4 Blackwall	88%	100%	7	0	0	0	1	0	**10**
TH5 Victoria	63%	100%	-	-	0	0	0	0	0 (105) [c]
TH6 Millwall	90%	100%	-	-	-	-	-	0	0

Notes: Exceedance of the NO₂ short term AQO of 200 μgm^{-3} over the permitted 18 days per year are shown in **bold**.
[a] data capture for the monitoring period, in cases where monitoring was only carried out for part of the year
[b] data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)
[c] Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

Table E shows the number of hours per year where the NO₂ measured at over 200 μgm^{-3}. The results for all sites have been consistently low over the past 7 years, with all monitoring sites measuring way below the hourly objective of 18 exceedances per year. The Blackwall Tunnel monitoring site is the only exception to this experiencing 10 hours of exceedance in 2016.

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

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2016 % [b]	Annual Mean Concentration (μgm^{-3})						
			2010 [c]	2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]
TH1 Poplar	-	-	22	23	22	23	-	-	-

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2016 % [b]	Annual Mean Concentration (μgm^{-3})						
			2010 [c]	2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]
TH4 Blackwall	93%	100%	29	28	26	28	29 [c]	22	23
TH5 Vic Park	61%	100%	-	-	18	21	22 [c]	19 [c]	18 [c]
TH6 Millwall	60%	100%	-	-	-	-	-	15 [c]	19 [c]

Notes: Exceedance of the PM_{10} annual mean AQO of 40 μgm^{-3} are shown in **bold**.
[a] data capture for the monitoring period, in cases where monitoring was only carried out for part of the year
[b] data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)
[c] Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

Table F shows the PM_{10} concentrations for 4 of our monitoring stations over the past 7 years. All stations are well within the Annual Objective for all years monitored. The results show that the roadside concentrations, at the Blackwall Tunnel site, have experienced an overall decrease over the past 7 years, with a large decrease in 2015 to 22 μgm^{-3}, from 29 μgm^{-3} the previous year. Victoria Park monitor has been slightly decreasing for the past 2 years after slightly increasing for the previous 3. Millwall Park shows an increase from 2015 to 16 however data capture from 2015 was very low due to the site only being installed towards the end of the year. The 2016 average concentration shows that background pollution levels are low in this area.

Table G. PM_{10} Automatic Monitor Results: Comparison with 24-Hour Mean Objective

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2016 % [b]	Number of Daily Means > 50 μgm^{-3}						
			2010 [c]	2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]
TH1 Poplar	-	-	6	16	14	4	-	**-**	-
TH4 Blackwall	93%	100%	18	32	24	25	16	8 (38.62)	10
TH5 Vic Park	61%	100%	-	-	2	5	6	2 (32.36) [c]	3 (28.6) [c]
TH6 Millwall	60%	100%	-	-	-	-	-	0 (22.04) [c]	1(27.9) [c]

Notes: Exceedance of the PM_{10} short term AQO of 50 $\mu g\ m^{-3}$ over the permitted 35 days per year or where the 90.4th percentile exceeds 50 $\mu g\ m^{-3}$ are shown in **bold**.
Where the period of valid data is less than 90% of a full year, the 90.4th percentile is shown in brackets after the number of exceedances.

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

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%)

Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

Table G shows that the number of days PM_{10} exceeding 50 μgm^{-3}. All monitoring sites are within the limit of 35 exceedances per year. The Victoria park site has been consistently low over the past 5 years. The Blackwall Tunnel Roadside site has varied results over the past 7 years but has been consistently declining for the past 4 to just 10 exceedances of the 50 μgm^{-3} daily average for 2016.

Table H.   **Annual Mean $PM_{2.5}$ Automatic Monitoring Results ($\mu g\ m^{-3}$)**

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2016 % [b]	Annual Mean Concentration (μgm^{-3})						
			2010 [c]	2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]
TH4 Blackwall	99%	17%	18.2	17.6	15.2	16.4	16.1	14.4	13.9

Notes: Exceedance of the $PM_{2.5}$ annual mean AQO of 25 μgm^{-3} are shown in **bold**.

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

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

[c] Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

Table H shows the annual mean concentration of PM2.5 for the past 7 years at the Blackwall Tunnel monitoring site. The levels have been consistently low over recent years showing a slight decreasing trend overall, this has continued with a slight decrease in PM2.5 levels in 2016 compared to previous years.

Table I.   **SO_2 Automatic Monitor Results for 2016: Comparison with Objectives**

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2016 % [b]	Number of: [c]		
			15-minute means > 266 μgm^{-3}	1-hour mean > 350 μgm^{-3}	24-hour mean > 125 μgm^{-3}
TH5 Victoria	62%	100%	0 (18.7) [c]	0 (15.9) [c]	0 (9.1) [c]

Exceedances of the SO_2 AQOs are shown in **bold** (15-min mean = 35 allowed a year, 1-hour mean = 24 allowed a year, 24-hour mean = 3 allowed / year)

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

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

[c] Means should be "annualised" as in Box 3.2 of TG(09) (http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38), if valid data capture is less than 75%

Table I shows that there have been no exceedances of the SO2 objectives.

2. Action to Improve Air Quality

Table J. Commitment to Cleaner Air Borough Criteria

Theme	Criteria		Achieved (Y/N)	Evidence
1. Political leadership	*1.a*	Pledged to become a Cleaner Air for London Borough (at cabinet level) by taking significant action to improve local air quality and signing up to specific delivery targets.	Y	A council motion was passed in December 2016 for all councillors to champion air quality, for the Mayor to ensure the new AQAP is ambitious in its commitments to improving air quality.
	1.b	Provided an up-to-date Air Quality Action Plan (AQAP), fully incorporated into LIP funding and core strategies.	Y	We have rewritten our Air Quality Action Plan and it is currently going through the council adoption process and consultation processes. The New AQAP should be approved and adopted by autumn.
2. Taking action	**2.a**	Taken decisive action to address air pollution, especially where human exposure and vulnerability (e.g. schools, older people, hospitals etc) is highest.	Y	We secured MAQF funding in 2016 and started the Anti Idling Action Day project in Nov 2016, with action days targeting areas of high exposure, schools and hospitals. 1 Action day was held in 2016 and 6 have been held in total to date.
	2.b	Developed plans for business engagement (including optimising deliveries and supply chain), retrofitting public buildings using the RE:FIT framework, integrating no engine idling awareness raising into the work of civil enforcement officers, (etc etc).	Y	In 2016 our already established Zero Emissions Network business engagement project was awarded MAQF money for phase 2. To date the Network has recruited 305 businesses in TH and implemented 126 project measures to reduce emissions from businesses. A ZEN pop-up event was held in 2016 to encourage more members and promote the project.
	2.c	Integrated transport and air quality, such as: improving traffic flows on borough roads to reduce stop/start conditions, improving the public realm for walking and cycling, and introducing traffic reduction measures.	Y	Considerable works took place to take forward the commitments in the Cycle Strategy in 2016. 3 schemes were introduce to improve cycle permeability through local streets by allowing them to cycle contraflow in one-way streets including Greatorex St (S), Old Montague St; and Buxton St. The first phase of works to deliver the Quietway 6 have also been delivered. 20 new Sheffield cycle parking stands have been installed on street in response to requests. The borough-wide 20mph zone has been made permanent in September.

				Y/N	
	2.d	Made additional resources available to improve local air quality, including by pooling its collective resources (s106 funding, LIPs, parking revenue, etc).		Y	Section 106 funding has been collected and used as match funding for our Zero Emissions Network Project. £30k match funding was sourced from S106 for 16/17 and there will be another 30K for 17/18 and also for 18/19.
3. Leading by example	**3.a**	Invested sufficient resources to complement and drive action from others.		Y	In 2016 the lead member for Air Quality recommended that a borough fund be designated for improving air quality. This was considered in the budget review and has been approved for the 17/18 budget a fund of £100k for air quality projects and an extra £100k to follow for 18/19.
	3.b	Maintained an appropriate monitoring network so that air quality impacts within the borough can be properly understood		Y	We have maintained our air quality monitoring network of 4 continuous monitoring stations and 90 diffusion tubes across the borough. Long term (3 year) contracts for data management and service and maintenance have been entered into to protect these services for the next couple of years.
	3.c	Reduced emissions from council operations, including from buildings, vehicles and all activities.		Y	The premises for the new Town Hall has been secured. Plans are beginning and it will be ensured that the new office will be as low emission as possible. This is included as an action in our new AQAP. 2x diesel cars replaced with hybrid petrol –electric cars in 2016 The fleet renewal programme plan has now been finalised, to begin in 2017. An Application was made to the Defra Air Quality Fund for upgrading several diesel vehicles to electric, unfortunately we were not successful.
	3.d	Adopted a procurement code which reduces emissions from its own and its suppliers activities, including from buildings and vehicles operated by and on their behalf (e.g. rubbish trucks).		Y	This has been added as an action point on the new AQAP that is currently going through the council adoption process.
4. Using the planning system	**4.a**	Fully implemented the Mayor's policies relating to air quality neutral, combined heat and power and biomass.		Y	All Planning applications are reviewed by the Air Quality Officer to ensure that the relevant Air Quality Policies are met. All developments must meet the GLA's CHP and Boiler NOx emissions standards. All major developments must meet the AQ Neutral requirements, developers will be asked to reconsider their choice of plant if it does not meet the building emissions requirements
	4.b	Collected s106 from new developments to ensure air quality neutral development, **where possible** .		N	None collected specifically in regards to Air Quality Neutral development in 2016, however communal S106 money has been used to fund our ZEN air quality project.
	4.c	Provided additional enforcement of construction and demolition guidance, with regular checks on medium and high risk building sites.		N	Currently do not have sufficient resources to provide additional enforcement. A reactive service is provided in regards to construction complaints.
5. Integrating air quality into the public health	**5**	Included air quality in the borough's Health and Wellbeing Strategy and/or the Joint Strategic Needs Assessment.		Y	The new Health and Wellbeing Strategy 2017-20 (yet to be published) has included air quality under the 'Creating a Healthy Place' section and has incorporated an action point on air quality to support the Air Quality Action Plan and to implement a targeted air quality communications campaign. Air Quality is included as a Key consideration in the Spatial Planning & Health JSNA: http://www.towerhamlets.gov.uk/Documents/Planning-and-building-control/Strategic-Planning/Local-

Measure		Action	Progress	Further information
system			Plan/Evidence_base_2016_Local_Plan/JSNA_Spatial_Planning_and_Health_Final_Draft_Reg_18.compressed.pdf	
6. Informing the public	6.a	Raised awareness about air quality locally.	Y	We have continued our membership of the AirText consortium and promote this to our residents. Moderate/high pollution alerts are shared on the TH Twitter account. AirText was shared on the head teacher's bulletin resulting in 31 schools now receiving daily air pollution alerts. Our new AQAP (yet to be published) includes an action for an air quality communications campaign.

2.1 Air Quality Action Plan Progress

Table K provides a brief summary of Tower Hamlets progress against the Air Quality Action Plan, showing progress made this year. New projects which commenced in 2016 are shown at the bottom of the table.
Our last Air Quality Action Plan was written in 2003 and as such a lot of the measures contained are now out of date or no longer relevant. As such we have drafted a new Air Quality Action Plan. The new AQAP is currently going through the council adoption process. Consultation will be held in June 2017 and then the new AQAP will be adopted later in the year. As unfortunately the new AQAP has not yet been approved this year we will have to report against the old AQAP.

Table K.   Delivery of Air Quality Action Plan Measures

Measure	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints	Further information
	Air Quality Monitoring		
2	Identify pollution trends and areas of high air pollution, prioritise and bring to the attention of targeted individuals and organisations.	This is being done by annual completion of the review and assessment reports submitted to Defra and now to the GLA. The reports are published on our website.	

3	Provide information to Defra and the GLA for research purposes	These data are reported to Defra/ GLA as part of the R&A process and made available on the Air Quality England website	http://www.airqualityengland.co.uk/
5	Continue to manage the Council's air pollution-monitoring network.	The Council has maintained its permanent continuous sites, with one discontinued site being relocated and restarted in 2015. We now have 4 stations operational. We are also maintaining the 90 non-continuous diffusion tube sites to assess pollutant concentrations across the Borough.	
	Planning and Policy Control		
13	Current policies that refer to air quality in the UDP will be formally reviewed. The UDP will in future take full account of the Air Quality Action Plan in prioritising land use and review the use of planning control mechanisms available to the Council to achieve sustainable development.	We are currently undergoing a review of the Local Plan and the air quality policies have been strengthened and embedded in other policy areas. The UDP has now been replaced by a Local Plan.	
14	Use GIS air quality information to prioritise areas for planning control.	We will use the air quality focus areas, determined by GIS mapping of air quality data for planning. We have produced interpolated surface maps of air quality data using GIS.	
	Physical Traffic Management: Speed and Flow		
17	Introduction of 20mph zone schemes and traffic calming measures such as speed cushions in the 6 worst accident zones in the Borough.	Whole borough 20mph limit imposed (excluding tfl roads) and made permanent in September 2016.	
	Routing Traffic and Road Hierarchy		
19	To work closely with the Mayor and the GLA to review London's road hierarchy and provide comprehensive and accurate local information.	The project is no longer relevant	
20	To ensure that Planning Officers are fully updated with road hierarchy information for the review and development of the UDP.	The project is no longer relevant	
21	Work together with Planning Services and the Environmental Health, Environmental Protection Division to review land use along Local Distributor Roads having regard to levels of air pollution and use of planning controls to improve traffic flow.	This is currently being achieved through the Local Plan process. The local distributer roads may no longer apply.	
	Parking Management and Control		
28	Regularly review parking fees and charges and increase levels where necessary to deter unnecessary	The Parking fees and charges are reviewed annually. New AQAP will include measures to review parking	

		car use.	fees to encourage uptake of low emission vehicles.	
	Encourage Local Cycling and Walking			
33	Continue to promote the use of and improve the facilities around the borough for cycling.	The council supported TFL with the upgrading of Cycle Super Highway 2 that runs through the borough. This is also done via our planning policies to implement walking and cycling infrastructure. The first phase of Cycle quiet-way 6 has been delivered in 2016. 3 one-way streets have had cycle contra flow lanes installed to improve cycle permeability.	
34	Liaise with cycling groups and schools	Mayflower Primary School achieved the Best Primary School for the Bike It Plus Award. 1500 pupils across 24 Primary schools received cycle traing. The cycle strategy was developed and implemented in conjunction with cycle groups including Tower Hamlets Wheelers.	
36	Improve road safety for cyclists.	The cycle superhighway upgrade has segregated the lanes and improved safety for cyclists at several junctions. The 20mph borough wide speed limit should also improve safety for cyclists. The new cycle quiet-way being delivered will provide a safe, quiet route for cyclists across the borough.	
37	Encourage walking. Devise and implement a walking strategy for the borough.	Ongoing implementation of the councils 'Walking Connections 2011-2021' plan.	http://www.towerhamlets.gov.uk/Documents/Planning-and-building-control/Strategic-Planning/Local-Plan/Evidence-base/LBTH-Walking-Plan-v7-final.pdf
	Partnerships and Travel Plans (Workplace and Schools)			
38	To produce a council Travel Plan.	A council travel plan has been produced.	http://towernet/staff_services/hr_workforce_development/travel_and_transport/
39	Implement the Safe Routes to School scheme and produce borough wide safer routes to school strategy	TH has a School Travel Plan officer to help schools develop travel plans and safer routes to school. All schools have an approved travel plan.	http://www.towerhamlets.gov.uk/lgnl/leisure_and_culture/walking/cycling_and_walking_to_school/sustainable_travel.aspx
40	Promote the development of sustainable transport schemes while achieving local regeneration	The updated Local Plan (not yet adopted) and planning policies include the requirement for the provision of sustainable transport measures for	

		regeneration.	
	Urban Traffic Control System (UTCS)		
46	Continue with the monitoring and review of traffic signals to optimise signal timings to achieve the best balance for traffic flow and pedestrians.	Traffic lights are managed by TfL. TH are attending the TfL Retiming working group meetings.	
	Reallocated Road Space		
48	Review the introduction of further bus lanes and cycle lanes across the borough, prioritising review of areas where air quality is highest.	Bus lanes and cycle lanes are prioritised according to strategic network plans and congestion hotspots. This will be done in consultation with TFL.	
	Public Transport Initiatives - Bus		
50	Work with other boroughs to implement schemes to improve traffic flow on TfL roads	We will look into this for future schemes that may come now under the new mayor for example the expanded ULEZ.	
	Public Transport initiatives – Rail, Underground and DLR		
51	Support, encourage and facilitate public transport infrastructure projects to provide a cost effective and attractive alternative to the car.	Crossrail – we have a cabinet decision to support Crossrail and worked in collaboration with them to deliver the project in an environmentally sustainable manner. The project is on schedule and we will continue to support the delivery of it.	
	Maritime, ports and waterways.		
54	To support and encourage an increase in the use of the River Thames as a freight corridor for tower Hamlets and the centre of London.	This is ongoing as per LBTH Transport Strategy and in conjunction with TfL. We also secure this through planning conditions and are being dealt with through the local plan review which is currently underway.	
55	To actively support the movement of freight in and out of the Borough by water.	This is encouraged / supported where appropriate via the planning process. We are currently revising the Transport Strategy and this will be incorporated.	
56	To work closely with TfL to identify options for increasing the use of waterways that run through the Borough.	This is encouraged / supported where appropriate via the planning process. Potential air quality impacts of any proposed development that will increase river traffic will be adequately reviewed.	
	Air Transport Infrastructure		
57	In the event of Stansted Airport being expanded the Council will lobby for a substantial increase in rail infrastructure along the Lea Valley to accommodate airport traffic and the objective of achieving a metro-frequency for local services. In addition, a direct service would be required from Stratford, for	We're not aware of any current plans to expand Stanstead Airport, however we will support the improvement of transport infrastructure where needed.	

	connections to Canary Wharf, to cater for airport passengers and airport employees alike and to complement the Channel Tunnel Rail Link and CrossRail.		
60	The Council supports the opportunities afforded by a heavy rail link between Heathrow and east-London from CrossRail with interchanges at Whitechapel, and the Isle of Dogs.	Running to schedule and due for completion in 2017, we commented on the Whitechapel Masterplan with regards to air quality.	
	Fleet Management and Clean Fuels		
64	Maximise the potential from grant schemes to reduce the financial burden of introducing and using cleaner vehicles and technology.	An application was made to the Defra Air Quality Grant scheme 2016 to fund the upgrade of several council vehicles to electric, however this bid was not successful.	
	Domestic and Commercial Energy and Heating		
65	Encourage, support and develop Combined Heat and Power Schemes.	We are reviewing this in conjunction with the Carbon Management Plan and the Local Plan review. Preference will be given to non-polluting renewable heat provision such as ground source heat pumps.	
66	Work towards reducing fuel poverty across the Borough through the implementation of the Affordable Warmth Strategy.	Tackling fuel poverty was a priority in the 2016 Strategic Action Plan.	
67	Review the use of GIS to target action in areas of poorest air quality.	Ongoing, we produce GIS maps to identify areas of poor air quality to guide policy and target projects.	
68	Support and promote the replacement and of more efficient domestic boilers.	This is being addressed by planning and through the refurbishment of social housing stock.	
70	Encourage, support and develop initiatives, which promote the uptake of new alternative sources of energy	Through the planning process new developments must show they have investigated using renewable sources of energy and ensure they are installed where possible. This is reviewed by the sustainability team.	
	Industrial Sources		
71	Inspect all industrial processes bi-annually and dust producing industry quarterly.	All EPR installations are inspected in line with the Defra schedules. 100% of scheduled inspections were carried out in 16/17.	
73	Provide a rapid response to dust complaints arising from Authorised Industry.	We provide a reactive service to inspect dust complaints from permitted installations. This is ongoing. We have recently employed a new officer to carry out nuisance work.	
74	Review Authorisations to operate, progressing	Permits are reviewed in line with the Env Permitting	

	upgrading programmes as a priority.	Regs	
	Construction		
75	Incorporate the Council's Code of Construction Practice into the UDP, supplementary guidance, section 106 agreements, standard conditions and information for Planning Applications consent in respect of major developments.	We continue to implement the councils COCP through the planning process and under environmental health work	http://www.towerhamlets.gov.uk/Documents/Consumer-affairs/Investigation,-inspections-and-monitoring/Monitoring/cocp.pdf
76	Meet monthly with major developers, having submitted Environmental Impact Assessments at the planning stage, to review and assess dust control measures.	This is done by the submission and agreement of Environmental management Plans or CoCPs, via the planning process. Dust monitoring is undertaken for large construction sites.	
	Mayors Air Quality Fund Projects		
80	ZEN Project	Progress so far: 256 business registered IN LBTH 107 emission reducing measures delivered in LBTH New Website still under development 933 Twitter followers 32 ZEN Membership Card Partners Won two air quality awards. Funding was secured in 2016 for the second phase of the project which will run until 2019.	https://zeroemissionsnetwork.com/
81	Barts Health Project	Project now completed	
82	Tower Bridge Anti Idling Project	Project due for completion in the Autumn.	
83	Anti-Idling Project	MAQF funding was awarded for this project in 2016 and the project was started in late 2016 and completed in April 2017. 6 Anti-idling action days have been run in total.	

3.   Planning Update and Other New Sources of Emissions

Table L.   Planning requirements met by planning applications in Tower Hamlets in 2016

Condition	Number
Number of planning applications reviewed for air quality impacts	51
Number of planning applications required to monitor for construction dust	20
Number of CHPs/Biomass boilers refused on air quality grounds	2
Number of CHPs/Biomass boilers subject to GLA emissions limits and/or other restrictions to reduce emissions	18
Number of AQ Neutral building and/or transport assessments undertaken	31
Number of AQ Neutral building and/or transport assessments not meeting the benchmark and so required to include additional mitigation	5
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 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 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.	4 Conditions attached to apps approved in 2016. 1 development registered and compliant. 7 registered and have no info input/errors
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 at www.nrmm.london and that all NRMM used on-site is compliant with Stage IIIA of the Directive and/or exemptions to the policy.	4 Conditions attached to apps approved in 2016. 3 developments registered and compliant. 5 registered and have no info input/errors.

All Planning applications are reviewed by the Air Quality Officer to ensure that the developments do not have an adverse impact on air quality, that the development meets the Air Quality Neutral Standards and that the development does not contravene our Air Quality Action Plan. The Air Quality Officer will recommend air quality conditions where needed and review details submitted in pursuant to relevant conditions. The Planning teams have been briefed to ensure that the NRMM condition is added to the permission for all major developments. We have written an enforcement procedure for NRMM which we will be implementing this year.

3.1 New or significantly changed industrial or other sources

No new sources identified.

Appendix A   Details of Monitoring Site QA/QC

A.1 Automatic Monitoring Sites

Our permanent monitoring stations are regularly visited and calibrated. Roadside sites are calibrated fortnightly and background sites are monthly. The LSO provision and data management service is contracted out to Ricardo since our change of contract from Kings College in November 2016. During the contract handover there was unfortunately a period of around a month at the end of the year with data missing due to issues with the sites handover.
QA/QC audits are carried out twice per year for each monitoring station.

PM_{10} Monitoring Adjustment

- All TEOM data is corrected with the VCM model.

A.2 Diffusion Tube Quality Assurance / Quality Control

- Laboratory used for tube analysis: Environmental Scientifics Group, Southmead Ind Est, Didcot, Oxon, OX11 7HP
- Preparation method used: 50%TEA, 50% Acetone
- The lab follows the procedures set out in the Practical Guidance
- Laboratory tube precision: 96% good precision.
- WASP/AIR NO2 PT Scheme results: 100%
- Bias adjustment factor used for tubes 2016: **0.77** (2015 bias adjustment factor used was 0.79)
- The bias adjustment factor has been taken from the Defra National Bias Adjustment Spreadsheet 2016.
- A co-location study has not been carried out.

A.3   Adjustments to the Ratified Monitoring Data

Short-term to Long-term Data Adjustment

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

Victoria Park NO$_2$

Site	Site Type	Annual Mean (µg/m^3)	Period Mean (µg/m^3)	Ratio
Southwark – Elephant & Castle	Urban Background	38.60	36.75	1.050
Greenwich - Eltham	Suburban	21.24	21.25	0.999
Islington - Arsenal	Urban Background	33.04	30.40	1.087
			Average	1.045

Victoria Park PM$_{10}$

Site	Site Type	Annual Mean (µg/m^3)	Period Mean (µg/m^3)	Ratio
Southwark – Elephant & Castle	Urban Background	25.63	22.84	1.122
Greenwich - Eltham	Suburban	18.25	16.82	1.085
Islington - Arsenal	Urban Background	17.90	17.88	1.001
			Average	1.069

Millwall Park PM$_{10}$

Site	Site Type	Annual Mean (µg/m^3)	Period Mean (µg/m^3)	Ratio
Southwark – Elephant & Castle	Urban Background	25.63	22.37	1.146
Greenwich - Eltham	Suburban	18.25	16.66	1.095
Islington - Arsenal	Urban Background	17.90	17.73	1.010
			Average	1.084

Blackwall PM$_{2.5}$

Site	Site Type	Annual Mean (µg/m^3)	Period Mean (µg/m^3)	Ratio
City – Sir John Cass School	Urban Background	14.84	20.59	0.720
Greenwich - Eltham	Suburban	11.71	16.86	0.694
Harrow - Stanmore	Urban Background	11.17	16.46	0.679
			Average	0.698

Distance Adjustment

No distance adjustment has been carried out.

Appendix B   Full Monthly Diffusion Tube Results for 2016

Table N.   NO$_2$ Diffusion Tube Results

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2016 % [b]	Annual Mean NO$_2$												Annual mean – raw data [c]	Annual mean – bias adjusted [c]
			Jan	Feb	March	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec		
1	Colombia Rd/Gossett Street	83%	66.4	55.0	48.1	47.8	35.5	45.9	39.9	42.6	48.8	56.8	Missing	Missing	48.68	37.48
2	Calvert Ave/Boundary Street	83%	63.0	Missing	70.0	39.6	47.8	47.5	46.2	45.6	Missing	54.0	60.7	57.8	53.22	**40.98**
3	Bethnal Green Rd/ Brick Lane	100%	72.6	65.7	52.4	46.6	56.2	58.6	51.4	50.6	58.6	56.4	67.6	73.0	59.14	**45.54**
4	Commercial St/Calvin St	92%	78.5	69.7	89.4	75.8	missing	69.1	69.9	38.2	87.6	99.2	94.2	86.2	77.9	**60.05**
5	Whitechapel High St (KFC)	83%	79.3	Missing	Missing	86.6	80.8	85.4	80.4	82.7	30.9	97.5	106.4	95.3	82.53	**63.55**
6	Mansell St	67%	Missing	88.7	105.8	99.0	missing	91.1	108.9	86.0	Missing	66.3	90.8	Missing	99.19 c	**76.30**
7	St Katherine's Way	92%	48.5	44.4	40.7	39.4	40.4	33.6	Missing	32.2	44.3	43.7	56.4	56.5	43.65	33.61
8	Wapping High St/Sampson St	83%	59.5	49.2	35.1	40.8	37.8	34.8	Missing	Missing	38.5	52.3	59.7	62.2	46.99	36.18
9	East Smithfield	100%	114.4	107.1	103.1	87.6	109.8	107.0	92.5	87.7	109.4	104.9	88.0	97.0	100.7	**77.54**
10	Stepney Way/Turner Street	92%	57.1	52.3	48.9	38.3	46.9	39.3	39.7	37.5	Missing	57.7	66.0	64.3	49.8	38.35

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			Jan	Feb	March	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual mean – raw data [c]	Annual mean – bias adjusted [c]
11	Brick Lane/Princelet St	75%	67.5	54.0	Missing	48.2	missing	45.2	43.6	77.2	57.3	56.7	Missing	67.0	57.41	**44.21**
12	Buckfast St/Bethnal Green Rd	100%	62.7	62.7	48.2	48.2	44.7	43.1	47.9	46.5	51.3	59.8	70.1	65.7	54.24	**41.77**
13	Whitechapel Road	100%	64.0	52.5	54.7	50.5	61.3	46.2	41.5	42.8	49.2	71.8	77.6	67.7	56.6	**43.58**
14	Warner Place/Hackney Rd	100%	68.6	58.1	54.0	49.2	44.3	40.4	39.0	44.4	53.8	49.3	67.6	72.6	53.44	**41.15**
15	St Katherines Way	83%	65.6	60.4	54.1	53.7	Missing	Missing	51.5	53.2	55.0	65.5	73.8	74.5	60.7	**46.74**
16	Paradise Row/Bethnal Green Rd	92%	Missing	65.5	59.4	51.3	45.2	50.5	43.6	46.5	56.0	64.2	70.0	77.4	57.24	**44.07**
17	Finnis St/Three Colts Lane	100%	54.2	53.3	44.1	41.6	34.2	34.9	35.9	37.9	39.1	52.1	60.0	60.4	45.64	35.14
18	Sidney St/Mile End Rd	67%	72.2	66.8	52.2	56.2	missing	49.6	Missing	Missing	Missing	67.4	72.8	75.7	57.77 c	**44.48**
19	Philpot St/Commercial Road	100%	70.8	63.6	58.2	56.1	60.7	57.5	61.3	60.5	73.1	67.5	86.3	89.5	67.09	**51.66**
20	Dellow St/The Highway	100%	93.3	78.8	63.9	69.6	87.0	68.9	71.8	65.9	81.4	67.2	82.6	73.3	75.31	**57.99**
21	Tower Hill	92%	78.3	80.1	93.4	65.5	101.8	76.5	Broken	81.5	77.3	93.1	109.4	95.6	85.6	**65.91**
22	Wapping Wall/Garnet St	92%	57.6	broken	48.1	36.2	40.1	34.4	36.6	37.9	46.1	61.2	61.9	62.3	47.49	36.57
23	Brodlove Lane	100%	66.8	59.4	50.7	50.0	54.4	57.2	61.8	53.0	60.1	56.0	66.1	69.0	58.71	**45.21**

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			Jan	Feb	March	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec		
24	Jubilee Street/Commercial Rd	83%	Missing	91.9	73.6	missing	64.5	78.9	82.2	72.1	80.1	96.2	109.5	89.7	83.87	**64.58**
25	Cavell St/Stepney Way	100%	71.2	70.4	60.1	56.3	46.4	48.7	48.4	51.3	57.2	63.3	59.3	73.6	58.85	**45.31**
26	Hannibal Rd/Mile End Rd	75%	Missing	60.7	58.7	58.3	74.7	58.0	59.8	57.1	Missing	Missing	81.1	76.3	64.97	**50.02**
27	Tower Bridge Approach	67%	114.8	101.7	114.5	102.8	123.5	Missing	96.6	98.8	102.9	Missing	Missing	Missing	113.2 c	**87.17**
28	Bonner Road	92%	56.6	54.4	49.0	66.2	missing	48.7	41.7	45.0	49.6	54.8	64.2	57.3	53.41	**41.13**
29	Grove Rd/Old Ford Rd	100%	64.5	66.4	61.8	56.9	44.1	50.5	58.2	52.7	72.3	69.1	77.1	71.0	62.05	**47.78**
30	Fieldgate Street	58%	Missing	Missing	Missing	missing	62.7	45.4	50.2	54.5	Missing	61.7	66.3	73.5	62.34 c	**48.00**
31	Whitechapel Market	92%	96.3	89.6	75.9	81.2	72.7	81.7	80.4	Missing	89.4	97.5	103.9	107.5	88.74	**68.33**
32	Globe Rd/Mile End Rd	92%	86.2	65.7	68.8	60.2	65.5	61.4	64.2	58.4	Missing	80.2	78.6	83.0	70.20	**54.05**
33	Stepney Green	92%	60.2	50.5	43.8	39.0	29.4	33.5	31.7	32.4	44.3	50.0	64.3	Missing	43.55	33.54
34	Mansell Street	75%	71.6	Missing	69.4	63	73.7	Missing	64.9	69.4	Missing	68.3	76.3	76.6	70.4	**54.208**
35	New Road	83%	79.9	90.4	74.6	74.3	70.7	77.2	68.4	68.9	Missing	81.6	90.5	Missing	77.6	**59.75**
36	Locksley St/St Paul's Way	100%	46.9	57.1	52.3	51.8	33.2	38.2	37.4	44.5	41.6	63.0	60.4	67.0	49.45	38.08
37	Rhodeswell Rd	100%	55.6	53.6	53.5	48.7	32.7	40.6	37.5	43.3	47.4	63.7	68.8	63.7	50.76	39.08
38	Ben Johnson Road	100%	67.9	59.4	55.8	55.9	40.8	44.2	47.6	51.1	57.8	69.4	76.1	74.0	58.33	**44.92**

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			Jan	Feb	March	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec		
39	Harford St/Mile End Rd	75%	64.9	Missing	58.7	52.2	41.0	43.5	45.4	48.5	Missing	Missing	67.7	57.0	53.21	**40.97**
40	Tower Gardens	33%	Missing	76.3	83.0	Missing	Missing	Missing	Missing	83.3	Missing	Missing	114.6	Missing	83.4 c	**64.22**
41	Ford Close/Roman Rd	42%	63.8	Missing	Missing	missing	41.6	missing	Missing	48.9	Missing	Missing	72.8	65.0	52.7 c	**40.58**
42	Victoria Park	50%	Missing	34.5	Missing	missing	19.2	missing	Missing	Missing	30.7	39.9	45.4	48.1	30.90 c	23.79
43	Victoria Park	50%	Missing	Missing	34.0	missing	21.5	missing	Missing	Missing	31.6	40.3	50.2	49.7	32.12 c	24.73
44	Parnell Rd/Old Ford Rd	100%	52.5	56.4	57.4	44.3	35.6	45.8	44.3	46.2	58.4	60.9	72.0	70.2	53.67	**41.32**
45	St Stephen's Rd/Tredegar Rd	92%	73.8	68.8	64.2	65.8	31.8	49.2	47.0	Missing	52.0	66.5	78.5	70.7	60.75	**46.78**
46	Rhondda Grove/Mile End Rd	92%	58.2	47.9	50.3	44.2	missing	43.6	37.5	48.2	55.4	55.9	67.6	72.0	52.80	**40.66**
47	Wentworth Mews	100%	73.9	66.6	77.6	61.8	41.3	54.7	45.8	65.8	63.1	86.5	74.1	78.7	65.83	**50.69**
48	Ackroyd Drive	100%	62.2	43.3	44.6	54.8	47.7	54.4	48.3	51.6	61.7	74.3	69.2	68.1	56.68	**43.65**
49	Dod St/Burdett Rd	92%	47.8	41.7	54.6	44.8	missing	42.6	39.3	40.4	49.9	61.7	65.2	60.2	49.84	38.37
50	Rich Street	92%	58.1	58.7	61.8	56.8	missing	48.4	45.4	57.8	54.9	62.7	70.4	64.3	58.12	**44.75**
51	Watney Market	75%	48.6	49.2	48.6	missing	40.7	36.9	37.7	Missing	49.1	Missing	65.1	60.5	48.49	37.34
52	Wick Lane/Autumn St	100%	67.2	61.6	50.5	54.0	41.8	48.5	43.1	53.5	61.5	68.2	71.6	74.1	57.97	**44.63**
53	Fairfield Road/Tredegar Road	100%	74.8	68.8	75.0	64.3	39.7	56.8	57.5	67.0	67.3	81.7	81.6	77.3	67.65	**52.09**

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			Jan	Feb	March	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec		
54	Bow Rd /Glebe Terrace	25%	Missing	Missing	Missing	missing	66.5	missing	Missing	Missing	Missing	Missing	91.2	87.4	63.26 c	**48.71**
55	TH Cemetery Park	92%	44.8	36.8	35.8	30.9	24.0	36.9	26.4	29.4	Missing	26.3	45.3	41.6	34.38	26.47
56	Bow Common Lane/St Paul's Way	100%	70.5	55.1	57.9	49.8	50.3	56.6	45.9	49.9	50.2	62.7	63.2	55.7	55.65	**42.85**
57	Turner Street	83%	61.6	Missing	40.6	40.8	Missing	41.5	41.1	37.7	45.6	65.0	68.0	70.7	51.26	39.47
58	Dolphin Lane	100%	61.8	48.3	42.7	42.3	35.9	36.6	35.1	38.4	40.8	55.6	58.3	60.2	46.33	35.68
59	Westferry Road/Limehouse Link jnct	58%	61.7	58.7	Missing	missing	44.4	missing	Missing	Missing	48.6	61.2	66.7	67.9	50.03 c	38.52
60	Cascades, Westferry Road	100%	68.3	56.3	52.2	52.4	41.6	48.6	50.9	52.7	62.2	76.4	74.6	68.9	58.76	**45.24**
61	Bow Rd/Alfred St	83%	72.2	65.5	47.6	52.5	35.8	44.9	43.3	Missing	Missing	61.5	69.0	72.9	56.52	**43.52**
62	Mast House Terrace	100%	42.6	43.7	43.3	41.6	31.6	34.7	33.7	40.3	46.1	56.5	62.8	67.5	45.37	34.93
63	Millwall Park	100%	54.2	38.0	37.2	33.1	25.6	27.8	25.1	30.0	35.7	41.7	49.7	56.2	37.86	29.15
64	Limeharbour	100%	58.0	56.2	52.5	57.3	39.8	42.2	47.1	50.8	48.3	65.5	71.3	63.8	54.40	**41.89**
65	Manchester Road/East Ferry Road	92%	48.6	36.2	43.6	42.5	missing	31.6	30.0	35.8	43.8	58.0	56.9	63.4	44.58	34.33
66	Millwall Park	92%	62.8	42.3	36.5	34.0	missing	26.7	26.5	29.9	34.2	28.4	51.8	60.9	39.45	30.38
67	Seyssel Street	92%	50.6	43.4	45.9	40.1	missing	35.1	31.3	37.9	41.3	51.9	53.4	57.3	44.38	34.17
68	Manchester Road/Ollife Street	100%	47.2	45.8	50.7	32.9	31.0	31.8	30.1	40.8	44.7	56.3	59.1	58.2	44.05	33.92

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69	Lawnhouse Close	100%	64.2	56.6	53.0	45.2	41.0	41.7	37.8	47.5	45.4	61.6	70.8	68.3	52.76	**40.62**
72	Prestons Road/ Coldharbour	75%	54.3	54.5	58.7	44.2	missing	46.8	40.6	52.1	56.3	Missing	Missing	44.2	50.19	38.65
73	John Smith Mews	100%	58.5	52.1	47.4	40.7	40.4	39.2	36.5	39.3	45.7	58.9	65.7	62.4	48.90	37.65
74	Stepney Way/Hospital	92%	62.8	47.7	46.6	40.0	42.9	Missing	34.5	36.5	42.3	64.6	64.5	67.2	49.96	38.47
75	Hale Street	83%	Missing	Missing	40.3	36.3	32.1	18.0	31.6	38.9	47.3	55.2	65.9	69.1	43.47	33.47
76	Chrisp Street/E India Dock Road	58%	61.1	71.4	62.6	63.9	32.1	missing	Missing	Missing	65.4	Missing	Missing	81.5	62.57	**48.18**
77	Morris/Barchester Street	100%	49.0	57.2	51.2	47.6	36.4	37.6	38.6	45.4	47.2	58.6	67.6	67.8	50.35	38.77
78	Devons Road / Campbell Road	100%	69.5	58.0	62.1	59.8	52.8	51.8	50.0	56.2	54.0	77.2	73.8	77.0	61.85	**47.62**
79	Hatfield Terrace/Fairfield Road	92%	30.5	43.0	44.6	42.6	29.0	31.4	27.3	39.4	36.9	57.1	Missing	56.5	39.85	30.68
80	Wrexham Road	100%	52.9	55.7	57.5	54.6	39.8	35.5	35.4	55.9	43.6	88.6	66.0	57.0	53.54	**41.23**
81	Bromley High Street/ St leonards	92%	53.9	47.4	47.6	49.1	missing	36.6	32.7	45.2	44.0	79.4	59.4	67.6	51.17	39.40
82	Devas Street /Devons road	92%	70.5	70.6	51.4	65.1	missing	43.7	47.2	55.1	64.7	82.6	84.4	80.4	65.06	**50.10**
83	Zetland Street/A12	100%	85.8	72.3	80.2	72.7	62.8	75.4	68.5	84.8	90.9	115.2	88.0	83.6	81.68	**62.90**
84	Blair Street (End of Street)	92%	87.0	71.7	58.2	55.6	56.7	58.9	57.8	58.1	56.8	63.3	60.8	Missing	62.26	**47.94**

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85	Portree Street	100%	66.9	68.6	65.5	56.8	41.8	51.6	49.0	52.8	60.4	80.8	75.3	72.9	61.87	**47.64**
86	Newport Avenue	100%	47.1	47.7	43.6	35.8	38.2	31.5	32.8	38.0	41.9	60.5	58.5	58.9	44.54	34.30
87	Stepney Way	100%	65.1	64.4	54.5	65.1	42.9	38.9	41.1	45.6	64.4	66.6	70.4	62.2	56.77	**43.71**
89	Thames Path Storers Quay	100%	44.7	39.7	41.3	35.8	33.4	27.2	26.7	32.7	35.6	53.4	58.7	48.0	39.77	30.62
90	Sextant Avenue	92%	36.3	38.6	38.0	30.4	missing	22.9	22.0	29.1	30.9	46.9	48.4	49.3	35.71	27.50

Exceedance of the NO$_2$ annual mean AQO of 40 μgm^{-3} are shown in **bold**.

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

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

[c] Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%