

**Royal Borough of Greenwich Air Quality Annual Status
Report for 2018**
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This report provides a detailed overview of air quality in the Royal Borough of Greenwich during 2018. It has been produced to meet the requirements of the London Local Air Quality Management statutory process¹.

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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>

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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	Date¹
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 not 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 2018

Site ID	Site Name	Easting	Northing	Site Type	In AQMA?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Inlet height (m)	Pollutants Monitored	Monitoring Technique
GR4	Eltham	543978	174655	Suburban	Y	Y (0)	N/A	3	NO ₂ PM ₁₀ PM _{2.5} SO ₂ (and O ₃)	FDMS
GN5 (Operational October 2017)	Hoskins St (Trafalgar Rd)	539018	178007	Roadside	Y	Y (0)	5	3	NO ₂ PM ₁₀ PM _{2.5}	TEOM
GB6	Falconwood	544997	175098	Roadside	Y	Y (5)	12	3	NO ₂ PM ₁₀ PM _{2.5} O ₃	TEOM
GR7	Blackheath Hill	538141	176710	Roadside	Y	Y (0)	20	3	NO ₂ PM ₁₀	FDMS
GR8	Woolwich Flyover	540200	178367	Roadside	Y	Y (0)	3	3	NO ₂ PM ₁₀ PM _{2.5} (and O ₃)	TEOM

GR9	Westthorne Avenue	541879	175016	Roadside	Y	Y (0)	12	3	NO ₂ PM ₁₀ PM _{2.5} (and O ₃)	FDMS
GNO Note- previously GR10	Burrage Grove	544084	178881	Roadside	Y	Y (1)	3	3	NO ₂ PM ₁₀ PM _{2.5}	FDMS
GN6 (operational July 2018)	John Harrison Way	539687	179123	Roadside	Y	Y (0)	3	3	NO ₂ PM ₁₀ PM _{2.5}	FDMS
GN3 Note - previously GR13	Plumstead High St	545560	178526	Roadside	Y	Y (0)	5	3	NO ₂ PM ₁₀ PM _{2.5} (and O ₃)	FDMS
GN4 Note- previously GR14	Fiveways Sidcup Rd	543582	172653	Roadside	Y	Y (5)	2	3	NO ₂ PM ₁₀	FDMS

Changes to the Greenwich Real Time Monitoring Stations

At the end of 2015, station GR5 on Trafalgar Road was closed. This was due to the sale of the premises where the station was located. A new site on Trafalgar Road at the junction with Hoskins St was identified and the station relocated in October 2017.

During construction works, the power supply to station GN2 (Millennium Village) was damaged. As the site on which the station was located was due to be redeveloped, the decision was taken not to repair the power supply but to seek a new location for the station. A new site was identified on John Harrison Way, and the station was relocated in January 2018. GN6 in John Harrison Way became fully operational in July 2018.

Table C. Details of Non-Automatic Monitoring Sites for 2018

Site ID	Site Name	Easting	Northing	Site Type	In AQMA?	Relevant Exposure? <i>(Y/N with distance (m) to relevant exposure)</i>	Distance to kerb of nearest road <i>(N/A if not applicable)</i>	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor? <i>(Y/N)</i>
GW23 (1)	Siebert Rd	540420	177706	Roadside	Y	Y	17.2		NO ₂	N
GW24 (2)	Plumstead Common Rd	543806	177951	Roadside	Y	Y	3.0		NO ₂	N
GW25 (3)	Eltham Rd	540099	174881	Roadside	Y	Y	3.0		NO ₂	N
GW26 (4)	Foots Cray Rd	544015	173139	Roadside	Y	Y	0.5		NO ₂	N
GW27 (5)	Charlton Village	541645	177874	Roadside	Y	Y	0.5		NO ₂	N
GW28 (58)	Dunblane Rd	542656	176207	Roadside	Y	Y	7.5		NO ₂	N
GW29 (6)	Woolwich Rd Charlton	541167	178512	Roadside	Y	Y	1.5		NO ₂	N
GW30 (53)	Indus Rd	541372	177070	Roadside	Y	Y	5.0		NO ₂	N
GW31 (57)	Deansfield School	543383	175664	Roadside	Y	Y	3.0		NO ₂	N

GW32 (7)	Banchory Rd	540664	177235	Roadside	Y	Y	17.1		NO ₂	N
GW33 (8)	Blackheath Hill	537971	176776	Roadside	Y	Y	1.5		NO ₂	N
GW34 (9)	Bannockburn School	545490	178543	Roadside	Y	Y	3.0		NO ₂	N
GW35 (10)	Woolwich Rd Greenwich	539527	178281	Roadside	Y	Y	1.5		NO ₂	N
GW36 (11)	Boord St	539320	179234	Roadside	Y	Y	30.0		NO ₂	N
GW37 (12)	De Lucy School	546630	179557	Background	Y	Y	215.0		NO ₂	N
GW38 (13)	Westhorne Avenue	541885	175045	Background	Y	Y	30.0		NO ₂	N
GW39 (14,15,16)	Bexley Rd ECC (Triplicate co-located site)	543986	174660	Background	Y	Y	65.0		NO ₂	Y
GW40 (17)	Shrewsbury House	544065	176996	Background	Y	Y	575.0		NO ₂	N
GW41 (18)	Sidcup Rd	543391	172765	Roadside	Y	Y	3.0		NO ₂	N
GW42 (19)	Greenwich Church St	538317	177652	Roadside	Y	Y	2.0		NO ₂	N
GW43 (20)	Creek Rd	537353	177632	Roadside	Y	Y	2.0		NO ₂	N
GW44	Eltham High St	543096	174439	Roadside	Y	Y	3.6		NO ₂	N

(21)										
GW48 (23)	Greenwich South St	538044	176960	Roadside	Y	Y	2.5		NO ₂	N
GW49 (24)	Woolwich High St	543472	179217	Roadside	Y	Y	1.0		NO ₂	N
GW50 (25,26,27)	Woolwich Flyover (Triplicate co-located site)	540203	178367	Roadside	Y	Y	3.5		NO ₂	Y
GW51 (28)	Bugsbys Way	539638	179024	Roadside	Y	Y	2.0		NO ₂	N
GW52 (29)	Woolwich High St	542842	179108	Roadside	Y	Y	1.5		NO ₂	N
GW53 (30)	Shooters Hill Rd	542181	176878	Roadside	Y	Y	1.5		NO ₂	N
GW54 (31)	Westthorne Av	541915	175039	Roadside	Y	Y	2.5		NO ₂	N
GW55 (32,33,34)	Crown Woods Way (Triplicate site)	545005	175097	Roadside	Y	Y	1.5		NO ₂	Y
GW56 (35)	Sidcup Rd	543679	172598	Roadside	Y	Y	1.5		NO ₂	N
GW57a (36)	Trafalgar Rd	538968	177955	Roadside	Y	Y	7.0		NO ₂	N

GW58 (39,40,41)	Blackheath Hill (Triplicate co-located site)	538143	176712	Roadside	Y	Y	4.0		NO ₂	Y
GW59 (42,43,44)	Westhorne Av (Triplicate co-located site)	541883	175016	Roadside	Y	Y	13.0		NO ₂	Y
GW60 (45,46,47)	Burrage Grove (Triplicate co-located site)	544086	178882	Roadside	Y	Y	16.9		NO ₂	Y
GW61 (50,51,52)	John Harrison Way (Triplicate co-located site)	539687	179123	Roadside	Y	Y	3.5		NO ₂	Y
GW101 (48)	Plumstead Rd	544727	178884	Roadside	Y	Y	1.0		NO ₂	N
GW102 (49)	Plumstead Rd	544075	178898	Roadside	Y	Y	1.0		NO ₂	N
GW103 (54)	Wricklemarsh Rd	540935	176575	Roadside	Y	Y	9.0		NO ₂	N
GW104 (55)	Sun Lane	540743	177072	Roadside	Y	Y	12.5		NO ₂	N
GW105 (56)	Cliftons Roundabout	541143	174294	Roadside	Y	Y	5.0		NO ₂	N
GW106 (22)	Grand Depot Rd	543505	178576	Roadside	Y	Y	1.0		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 NO₂ Ratified and Bias-adjusted Monitoring Results (µg m⁻³)

Site ID	Site type	Valid data capture for monitoring period % ^a	Valid data capture 2018 % ^b	Annual Mean Concentration (µg m ⁻³)						
				2012 ^c	2013 ^c	2014 ^c	2015 ^c	2016 ^c	2017 ^c	2018 ^c
GR4 Eltham	Automatic	N/A	95	22	21	20	20	21	20	16
GR5 Trafalgar Road	Automatic	N/A	Closed	44	41	38	36	Closed	Closed	Closed
GN5 Hoskins Street (Operational October 2017)	Automatic	N/A	97	N/A	N/A	N/A	N/A	N/A	N/A	43
GN6 John Harrison Way (operational July 2018)	Automatic	N/A	43	N/A	N/A	N/A	N/A	N/A	N/A	34*
GB6 Falconwood	Automatic	N/A	99	47	51	45	41	45	40	39
GR7 Blackheath	Automatic	N/A	99	48	48	44	39	46	38	35
GR8 Woolwich Flyover	Automatic	N/A	96	71	64	75	66	64	65	57
GR9 Westhorpe Av	Automatic	N/A	96	44	46	43	40	42	39	38

Site ID	Site type	Valid data capture for monitoring period % ^a	Valid data capture 2018 % ^b	Annual Mean Concentration ($\mu\text{g m}^{-3}$)						
				2012 ^c	2013 ^c	2014 ^c	2015 ^c	2016 ^c	2017 ^c	2018 ^c
GN0 (GR10) Burrage Grove	Automatic	N/A	99	45	45	38	35	39	35	35
GN2(GR12) Millennium Village	Automatic	N/A	NA	37	38	36	28	30	Closed	Closed
GN3(GR13) Plumstead High St	Automatic	N/A	99	39	37	37	34	36	34	33
GN4(GR14) Fiveways	Automatic	N/A	99	52	58	53	44	46	41	40
GW23	Diffusion tube	N/A	100	42.2	46.0	42.7	41.5	41.43	36.6	31.1
GW24	Diffusion tube	N/A	100	54.9	58.3	54.8	53.5	54.95	50.1	45.8
GW25	Diffusion tube	N/A	92	47.1	48.9	45.2	38.4	38.79	35.1	32.2
GW26	Diffusion tube	N/A	92	31.6	32.2	31.2	28.6	28.26	28.4	23.8
GW27	Diffusion tube	N/A	100	51.1	49.8	43.7	39.7	41.48	38.6	31.9
GW28	Diffusion tube	N/A	100	39.7	36.4	36.9	35.8	41.03	32.6	31.3
GW29	Diffusion tube	N/A	100	<u>66.6</u>	<u>65.2</u>	<u>61.8</u>	<u>62.3</u>	58.14	56.2	53.8
GW30	Diffusion tube	N/A	75	52.0	39.3	38.3	35.0	40.47	35.9	33.6
GW31	Diffusion tube	N/A	100	37.9	37.9	37.5	35.7	40.37	30.3	26.3

Site ID	Site type	Valid data capture for monitoring period % ^a	Valid data capture 2018 % ^b	Annual Mean Concentration ($\mu\text{g m}^{-3}$)						
				2012 ^c	2013 ^c	2014 ^c	2015 ^c	2016 ^c	2017 ^c	2018 ^c
GW32	Diffusion tube	N/A	100	50.1	48.5	51.9	49.6	47.42	45.9	39.3
GW33	Diffusion tube	N/A	100	<u>64.1</u>	<u>62.7</u>	<u>63.4</u>	<u>60.8</u>	<u>60.96</u>	53.9	46.6
GW34	Diffusion tube	N/A	100	48.3	45.1	44.0	38.9	39.11	37.2	33.9
GW35	Diffusion tube	N/A	100	<u>73.2</u>	<u>72.3</u>	<u>69.4</u>	59.1	56.01	53.6	48.9
GW36	Diffusion tube	N/A	100	54.5	55.2	<u>60.1</u>	57.2	58.13	56.4	46.9
GW37	Diffusion tube	N/A	100	24.6	22.7	23.6	21.8	22.91	23.3	21
GW38	Diffusion tube	N/A	100	37.6	37.0	35.9	34.2	34.92	32.1	28.3
GW39	Diffusion tube	N/A	100	23.8	22.0	20.0	19.1	19.17	19.1	17.2
GW40	Diffusion tube	N/A	100	25.4	21.3	19.4	18.8	19.19	16.5	16.9
GW41	Diffusion tube	N/A	100	47.8	43.3	44.7	50.0	55.56	54.5	44.9
GW42	Diffusion tube	N/A	100	52.5	53.1	52.8	49.9	48.90	44.8	40.1
GW43	Diffusion tube	N/A	100	<u>66.8</u>	<u>60.4</u>	57.0	57.3	56.30	50.4	43.5
GW44	Diffusion tube	N/A	92	50.4	55.6	50.7	48.9	48.84	48.0	43.5
GW48	Diffusion tube	N/A	100	47.6	45.6	42.0	42.2	38.24	38.5	33.1

Site ID	Site type	Valid data capture for monitoring period % ^a	Valid data capture 2018 % ^b	Annual Mean Concentration ($\mu\text{g m}^{-3}$)						
				2012 ^c	2013 ^c	2014 ^c	2015 ^c	2016 ^c	2017 ^c	2018 ^c
GW49	Diffusion tube	N/A	100	48.5	43.4	44.6	44.2	54.80	58.1	41.8
GW50	Diffusion tube	N/A	100	<u>75.9</u>	<u>67.5</u>	<u>73.9</u>	<u>70.7</u>	<u>67.11</u>	69.5	54.3
GW51	Diffusion tube	N/A	92	49.3	43.3	46.9	44.9	45.80	43.6	37.0
GW52	Diffusion tube	N/A	100	45.7	44.9	43.9	39.6	39.03	39.2	37.2
GW53	Diffusion tube	N/A	100	41.8	34.2	37.0	36.1	37.08	34.0	29.0
GW54	Diffusion tube	N/A	100	63.6	57.5	56.4	52.5	52.08	48.7	50.6
GW55	Diffusion tube	N/A	100	58.1	<u>60.8</u>	57.6	51.7	58.78	44.6	42.1
GW56	Diffusion tube	N/A	100	56.2	56.1	56.7	51.0	51.31	47.5	40.6
GW57a	Diffusion tube	N/A	100	41.9	39.7	36.4	35.0	36.02	33.7	29.5
GW58	Diffusion tube	N/A	100	48.5	49.4	48.5	46.3	43.86	41.7	37.9
GW59	Diffusion tube	N/A	100	44.6	43.9	44.7	40.8	38.12	37.6	35.4
GW60	Diffusion tube	N/A	100	39.0	38.0	32.7	31.6	40.04	32.2	29.5
GW61	Diffusion tube	N/A	100	40.0	39.1	35.2	30.5	32.12	28.1	31.9
GW101	Diffusion tube	N/A	92	<u>78.8</u>	<u>79.5</u>	81.8	68.1	50.03	58.1	56.5

Site ID	Site type	Valid data capture for monitoring period % ^a	Valid data capture 2018 % ^b	Annual Mean Concentration ($\mu\text{g m}^{-3}$)						
				2012 ^c	2013 ^c	2014 ^c	2015 ^c	2016 ^c	2017 ^c	2018 ^c
GW102	Diffusion tube	N/A	92	<u>70.2</u>	<u>66.2</u>	67.1	57.7	43.76	48.0	50.5
GW103	Diffusion tube	N/A	100	52.8	46.3	47.3	48.9	43.87	41.2	35.9
GW104	Diffusion tube	N/A	92	58.5	50.5	52.0	53.1	48.96	49.8	43.7
GW105	Diffusion tube	N/A	100	55.7	53.9	55.7	52.2	46.79	52.4	46.5
GW106	Diffusion tube	N/A	100	41.9	47.5	45.4	39.9	43.44	38.4	35.5

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

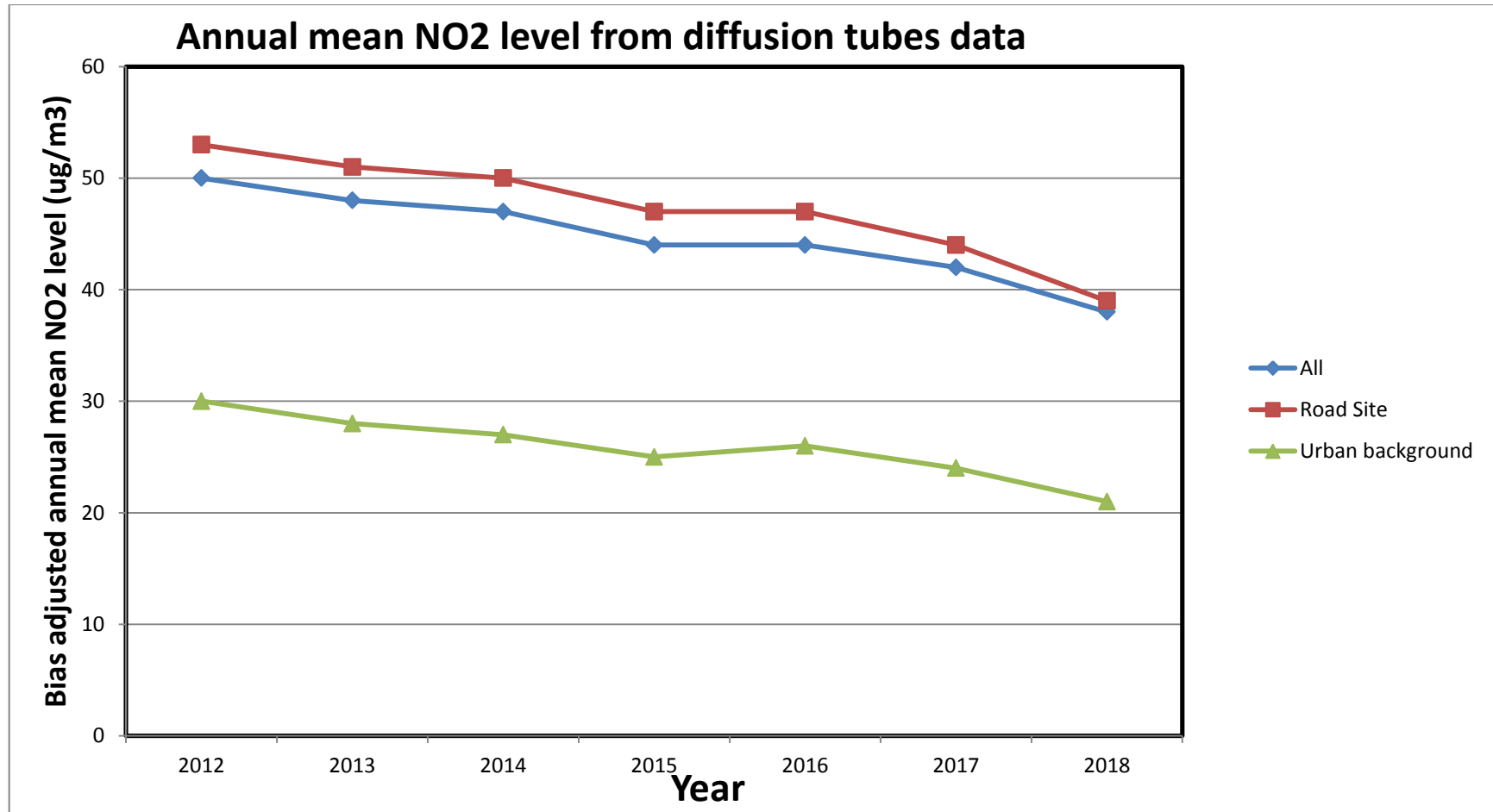
NO₂ annual means in excess of 60 $\mu\text{g m}^{-3}$, indicating a potential exceedance of the NO₂ hourly mean AQS objective are shown in bold and underlined.

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

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

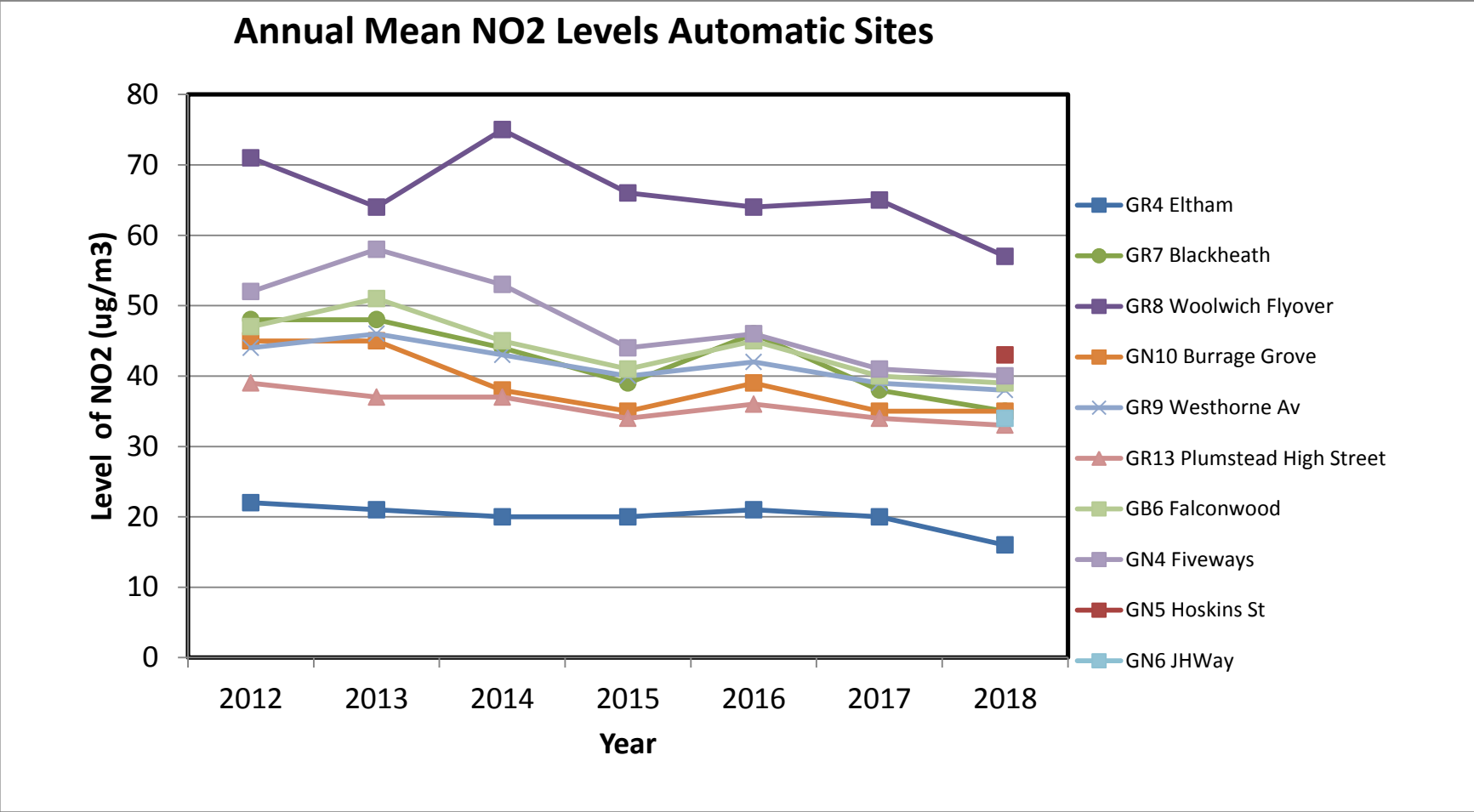
^c Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%.

*Note that the data set for GN6 has not been "annualised", see Appendix A.3.



Comment

Results from RB Greenwich diffusion tubes sites identify that 18 roadside sites still exceeds the annual objective after applying the adjustment factor



Comment

Results from RB Greenwich automatic monitoring sites identify that two roadside sites at GN5 (Hoskins Street) and GR8 (Woolwich Flyover) , record NO₂ levels above the level of 40ug/m3 set in the Air Quality Objectives.

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

Site ID	Valid data capture for monitoring period % ^a	Valid data capture 2018 % ^b	Number of Hourly Means > 200 µg m ⁻³						
			2012 ^c	2013 ^c	2014 ^c	2015 ^c	2016 ^c	2017 ^c	2018 ^c
GR4 Eltham	N/A	N/A	0	0	0	0	0	0	0
GR5 Trafalgar Road	N/A	N/A	0	0	5	0	Closed	Closed	Closed
GN5 Hoskins Street (operational Oct 2017)	N/A	97	N/A	N/A	N/A	N/A	N/A	N/A	1
GN6 John Harrison Way (operational July 2018)	N/A	43	N/A	N/A	N/A	N/A	N/A	N/A	0*
GB6 Falconwood	N/A	99	21	11	10	2	3	1	0
GR7 Blackheath	N/A	99	0	1	0	0	0	0	0
GR8 Woolwich Flyover	N/A	96	27	8	26	6	24	7	0

Site ID	Valid data capture for monitoring period % ^a	Valid data capture 2018 % ^b	Number of Hourly Means > 200 µg m ⁻³						
			2012 ^c	2013 ^c	2014 ^c	2015 ^c	2016 ^c	2017 ^c	2018 ^c
GR9 Westhorne Av	N/A	96	0	4	1	0	9	2	0
GN0 Burrage Grove	N/A	99	1	0	0	0	1	0	0
GN2 Millennium Village	N/A	N/A	2	2	0	0	0	Closed	Closed
GN3 Plumstead High St	N/A	99	0	0	0	0	0	0	0
GN4 Fiveways	N/A	99	1	7	2	1	0	0	0

Notes: Exceedance of the NO₂ short term AQO of 200 µg m⁻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%

*Note that the data set for GN6 has not been “annualised”, see Appendix A.3.

Table F. Annual Mean PM₁₀ Automatic Monitoring Results ($\mu\text{g m}^{-3}$)

Site ID	Valid data capture for monitoring period % ^a	Valid data capture 2018 % ^b	Annual Mean Concentration ($\mu\text{g m}^{-3}$)						
			2012 ^c	2013 ^c	2014 ^c	2015 ^c	2016 ^c	2017 ^c	2018 ^c
GR4 Eltham	N/A	34	20	20	18	17	18	19	17
GR5 Trafalgar Road	N/A	N/A	23	23	20	19	Closed	Closed	Closed
GN5 Hoskins Street (operational Oct2017)	N/A	99	N/A	N/A	N/A	N/A	N/A	N/A	22
GN6 John Harrison Way (operational July 2018)	N/A	48	N/A	N/A	N/A	N/A	N/A	N/A	15*
GB6 Falconwood	N/A	98	26	30	25	17	18	18	21
GR7 Blackheath	N/A	98	28	30	27	25	24	23	22
GR8 Woolwich Flyover	N/A	99	33	32	29	29	30	25	25
GR9 Westhorpe Av	N/A	97	20	24	25	22	23	21	18

Site ID	Valid data capture for monitoring period % ^a	Valid data capture 2018 % ^b	Annual Mean Concentration ($\mu\text{g m}^{-3}$)						
			2012 ^c	2013 ^c	2014 ^c	2015 ^c	2016 ^c	2017 ^c	2018 ^c
GN0 Burrage Grove	N/A	99	27	28	23	22	23	18	18
GN2 Millennium Village	N/A	N/A	23	26	26	17	20	Closed	Closed
GN3 Plumstead High St	N/A	99	21	20	23	18	19	20	18
GN4 Fiveways	N/A	70	30	31	29	23	23	21	25

Notes: Exceedance of the PM₁₀ annual mean AQO of 40 $\mu\text{g m}^{-3}$ are shown in **bold**.

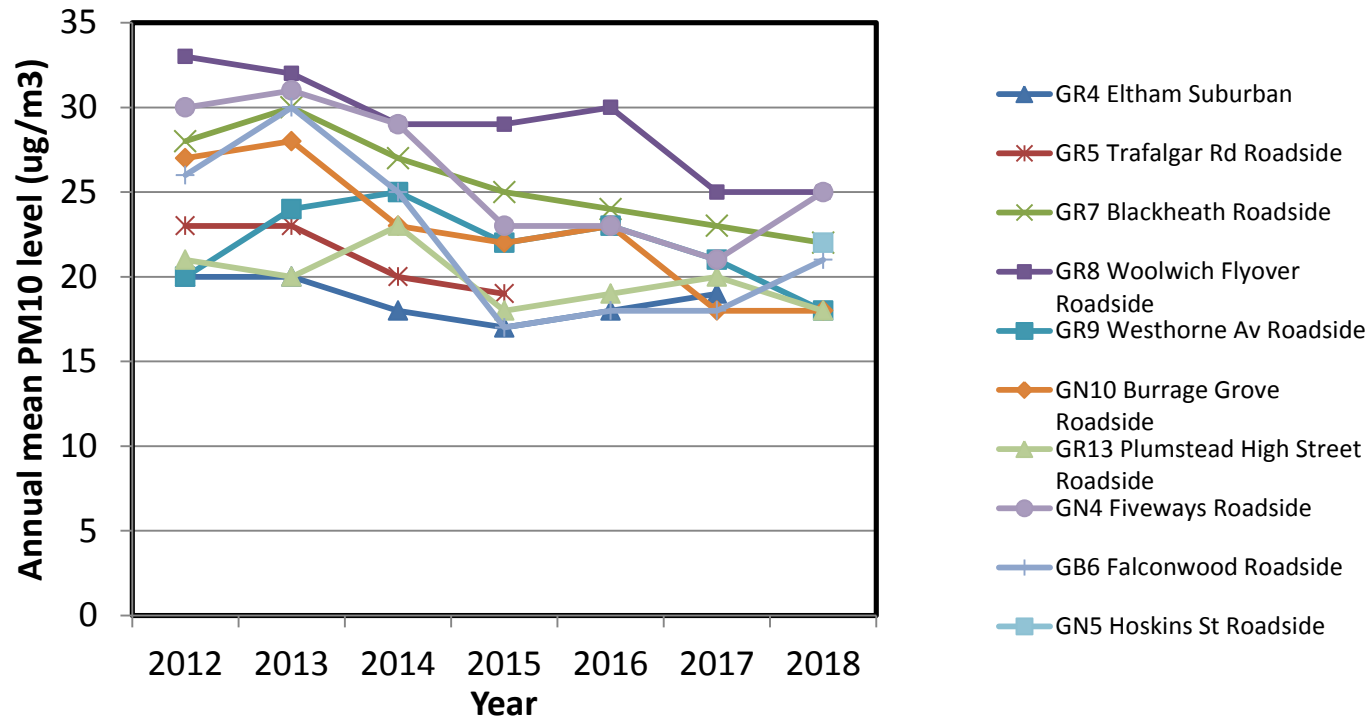
^a data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

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

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

*Note that the data set for GN6 has not been “annualised”, see Appendix A.3.

Annual mean PM10 level by monitoring sites



Comment

Results from RB Greenwich automatic monitoring sites identify that PM10 levels are below the level of 40ug/m3 set in the Air Quality Objectives.

Table G. PM₁₀ Automatic Monitor Results: Comparison with 24-Hour Mean Objective

Site ID	Valid data capture for monitoring period % ^a	Valid data capture 2018 % ^b	Number of Daily Means > 50 µg m ⁻³						
			2012 ^c	2013 ^c	2014 ^c	2015 ^c	2016 ^c	2017 ^c	2018 ^c
GR4 Eltham	N/A	34	9	5	7	4	6	4	1
GR5 Trafalgar Road	N/A	N/A	16	8	5	2	Closed	Closed	Closed
GN5 Hoskins Street (operational Oct2017)	N/A	99	N/A	N/A	N/A	N/A	N/A	N/A	4
GN6 John Harrison Way (operational July 2018)	N/A	48	N/A	N/A	N/A	N/A	N/A	N/A	0*
GB6 Falconwood	N/A	98	27	28	13	1	1	2	2
GR7 Blackheath	N/A	98	26	29	18	12	14	15	5
GR8 Woolwich Flyover	N/A	99	33	26	17	18	22	9	6
GR9 Westhorpe Av	N/A	97	16	17	19	9	15	16	4

Site ID	Valid data capture for monitoring period % ^a	Valid data capture 2018 % ^b	Number of Daily Means > 50 µg m ⁻³						
			2012 ^c	2013 ^c	2014 ^c	2015 ^c	2016 ^c	2017 ^c	2018 ^c
GN0 Burrage Grove	N/A	98	28	18	15	5	10	8	3
GN2 Millennium Village	N/A	N/A	20	20	16	1	6	Closed	Closed
GN3 Plumstead High St	N/A	99	8	3	14	3	8	2	1
GN4 Fiveways	N/A	70	24	31	25	3	2	1	10

Notes: Exceedance of the PM₁₀ short term AQO of 50 µg m⁻³ over the permitted 35 days per year or where the 90.4th percentile exceeds 50 µg m⁻³ are shown in **bold**. Where the period of valid data is less than 85% of a full year, the 90.4th percentile is shown in brackets after the number of exceedances.

^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%

*Note that the data set for GN6 has not been “annualised”, see Appendix A.3.

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

Site ID	Valid data capture for monitoring period % ^a	Valid data capture 2018 % ^b	Annual Mean Concentration ($\mu\text{g m}^{-3}$)						
			2012 ^c	2013 ^c	2014 ^c	2015 ^c	2016 ^c	2017 ^c	2018 ^c
GR4 Eltham	N/A	82	13.3	15.2	11.5	10.6	11.7	12	10
GN5 Hoskins Street (operational Oct2017)	N/A	99	N/A	N/A	N/A	N/A	N/A	N/A	9
GN6 John Harrison Way (operational July 2018)	N/A	48	N/A	N/A	N/A	N/A	N/A	N/A	10*
GB6 Falconwood	N/A	95	18.6	16.4	14.4	14.3	15.3	13	13
GR8 Woolwich Flyover	N/A	100	15.4	14.9	14.6	12.2	13.4	13.1	12
GR9 Westhorne Av	N/A	99	15.8	17.2	15.8	12.7	12.9	11	11
GN0 Burrage Grove	N/A	96	18.1	17.5	17.1	12.1	14.5	12	13
GN2 Millennium Village	N/A		15.2	15.4	15.5	11.5	11.4	Closed	Closed

Site ID	Valid data capture for monitoring period % ^a	Valid data capture 2018 % ^b	Annual Mean Concentration ($\mu\text{g m}^{-3}$)						
			2012 ^c	2013 ^c	2014 ^c	2015 ^c	2016 ^c	2017 ^c	2018 ^c
GN3 Plumstead High St	N/A	98	19.1	15.3	16.3	14.7	14	12	13

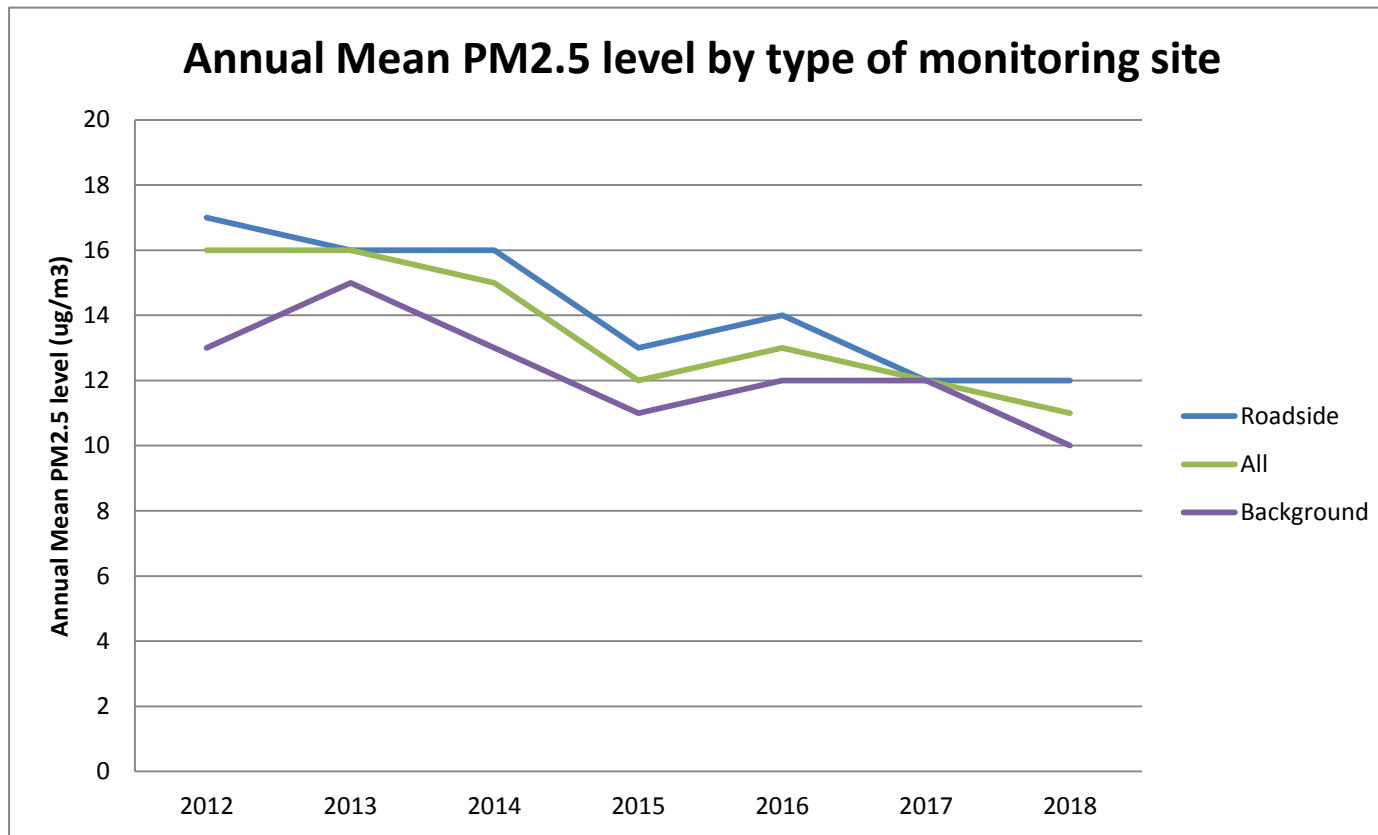
Notes: Exceedance of the PM_{2.5} annual mean AQO of 25 $\mu\text{g m}^{-3}$ are shown in **bold**.

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

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

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

*Note that the data set for GN6 has not been "annualised", see Appendix A.3.



Comment

Results from RB Greenwich automatic monitoring sites identify that PM2.5 levels are below the level of 25ug/m3 set in the Air Quality Objectives.

Table I. SO₂ Automatic Monitor Results: Comparison with Objectives

Site ID	Valid data capture for monitoring period % ^a	Valid data capture 2018 % ^b	Number of: ^c		
			15-minute means > 266 µg m ⁻³	1-hour mean > 350 µg m ⁻³	24-hour mean > 125 µg m ⁻³
GR4 Eltham	N/A	99	0	0	0

Exceedances of the SO₂ 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" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

2. Action to Improve Air Quality

2.1 Air Quality Action Plan Progress

The Royal Borough of Greenwich 2017-2021 Air Quality Action Plan priorities are to manage the impact of future growth in the borough, support healthier lifestyles for residents, reduce the impact of traffic on air quality and congestion, and reduce our own impact on air quality. The AQAP is subject to an annual review, appraisal of progress, and reports to the Member led Air Quality Task Force. Table J provides a brief summary of Royal Borough of Greenwich progress against the Air Quality Action Plan in 2018.

Table J. Delivery of Air Quality Action Plan Measures

Measure	Action	<p style="text-align: center;">Progress</p> <ul style="list-style-type: none"> • Emissions/Concentration data • Benefits • Negative impacts / Complaints
Measure 1. Agree condition / s106 approach to securing this action.	Action 2. Ensuring enforcement of NRMM air quality policies.	The standard condition for NRMM was agreed at the end of 2017 and is applied to all relevant permissions. Arrangements are in place to ensure that Environmental Health is consulted when conditions are

		discharged.
Measure 1. Ensure that Air Quality is considered for green space provision, and agree standards.	Action 6. Ensuring adequate, appropriate and well located green space and infrastructure is included in new developments.	<p>Planning currently secures green spaces (roofs, walls, buffer zones) in line with London Plan/Local Plan policies and supplementary guidance. This includes, as appropriate, green roofs, new amenity space and open space.</p> <p>During 2018, Parks, Estates and Open Spaces Department planted 944 trees (including street trees) across the borough, towards the Council's target to plant 2022 trees by 2022.</p> <p>The 'Towards a Greener Royal Greenwich – Green Infrastructure Study' was completed in May 2017. It provides a baseline assessment of all green infrastructure in the borough as part of the evidence base for plan production. Preparation of the new Local Plan will begin in mid-2019, and the preparation of a borough-wide Urban Design SPD is also scheduled for 2019. Both of these documents will seek to strengthen the policy framework for securing urban greening for air quality improvements, including the identification of standards, where justified. Additionally, the Site Allocations Local Plan is currently being prepared and, where relevant, this identifies requirements for new soft landscaped open space and/or encourages the use of green infrastructure to mitigate poor air quality.</p>
Measure 2. Build resource on effective planting for AQ improvement/ screening.	Action 6. Ensuring adequate, appropriate and well located green space and infrastructure is included in new developments.	<p>1. Local Improvement Scheme:</p> <p>The Mayor awarded funding to the Plumstead High Street Improvement Scheme (one of seven regeneration projects funded from his Greener City Fund) to provide additional greening. The high street</p>

		<p>improvement project will incorporate green infrastructure which goes beyond traditional street tree planting, to activate underused spaces, soften the environment through planting, provide play space and opportunities for resident gardening, create a sense of arrival in the town centre and strengthen the unique identity of the area. Projects started in June 2018 and the Greener City Fund elements of the projects will be completed by March 2020.</p> <p>2. Plumstead Good Growth:</p> <p>Through the Mayor of London's Good Growth Fund, more than £2.5million has been secured, matched by an equal amount from the Royal Borough of Greenwich, making £5.2million in total. The project will be delivered in partnership with the local community and local stakeholders and will see public realm improvements and increased green infrastructure through two strands:</p> <ul style="list-style-type: none"> • Plumstead High Street improvement schemes • Redevelopment of the Plumstead Power Station into a business and workspace hub. <p>Planning commenced in September 2018 and delivery will commence in 2019.</p>
<p>Measure 1. Better promotion of Smoke Control Zone's on the website.</p>	<p>Action 7. Ensuring that smoke control zones are appropriately identified and fully promoted and enforced.</p>	<p>The Air Quality Officer produced web content in relation to SCZ; this content was uploaded in February 2018 onto the RBG website's air quality webpage. The webpage received 1136 unique page views in 2018.</p>

		The standard bonfire letter was updated to be more consistent with the website guidance.
Measure 3. Promotion of RBG garden waste collection service	Action 7. Ensuring that smoke control zones are appropriately identified and fully promoted and enforced	The Air Quality Officer produced web content for RBG website to promote garden waste collection service, which was uploaded in February 2018. Additionally, waste and recycling services were promoted throughout 2018 via the Greenwich Info newsletter; social media; and engagement events such as the Great Get Together and Recycle Week.
Measure 2. Expand Solar PV installed capacity on Council owned properties by supporting community energy efficiency retrofitting projects.	Action 9. Promoting and delivering energy efficiency retrofitting projects in workplaces and homes using the GLA RE:NEW and RE:FIT programmes to replace old boilers /top-up lost insulation in combination with other energy conservation measures.	<p>Council has supported South East London Community Energy in commencing a project to install renewable energy on Thamesmere and Coldharbour Leisure centres, which is at planning stage.</p> <p>Over the last 2 years, through its capital programme, the Council has delivered energy efficiency measures on its own housing stock, including retrofitting over 300 properties with increased loft insulation; upgrading over 1200 boilers to A rated boilers; and installing external wall insulation and Solar PV to two blocks containing over 80 properties.</p>
Measure 6. Retrofit energy efficiency measures to up to five Council blocks in the East Greenwich area as part of the European Horizon2020 smart cities programme.	Action 9. Promoting and delivering energy efficiency retrofitting projects in workplaces and homes using the GLA RE:NEW and RE:FIT programmes to replace old boilers /top-up lost insulation in combination with other energy conservation	In 2018 a procurement process was undertaken for the installation of energy efficiency measures and new technologies in 2 social housing estates in the East Greenwich area, this will include the exploration of an innovative water source heat pump heating system, providing a first of its kind low emission source of heating. Works are expected to begin in summer 2019.

	measures.	
Measure 7. Promote energy efficiency in both council and private homes.	Action 9. Promoting and delivering energy efficiency retrofitting projects in workplaces and homes using the GLA RE:NEW and RE:FIT programmes to replace old boilers /top-up lost insulation in combination with other energy conservation measures.	<p>The borough has been working with organisations that undertake home visits (under the GLA funded Fuel Poverty Advise Service) to help all residents, both council and private, improve energy efficiency in their homes. The total number of visits in 18/19 was 105, and many more unique referrals were made.</p> <p>The Council has a Stay Warm Stay Safe team, and the scheme includes an energy efficiency assessment and advice and help on keeping fuel bills down to residents who are over 60, caring for a young or vulnerable person or having problems paying their winter fuel bills. Public Health promotes the Stay Warm Stay Safe scheme through the Live Well Greenwich website, the Greenwich Community Directory and communications campaigns.</p>
Measure 1. Explore these links and use them where appropriate and consistent with data protection requirements.	Action 11. Public Health Teams should be supporting engagement with local stakeholders (businesses, schools, community groups and healthcare providers). They should be asked for their support via the DsPH when projects are being developed.	In September 2018 RBG agreed to participate in the Superzone pilot which involves working with local stakeholders to identify actions to improve the urban environment in the 400m radius around schools to make safer, healthier places for children to grow up in. The pilot defines health in its broadest sense, including consideration of air quality and gambling as well as food, physical activity, alcohol, smoking and mental wellbeing. RBG work with Peabody, the main land owner in Thamesmead, on improvements to the physical environment and Hawksmoor school in Thamesmead Moorings. Public Health surveyed parents and carers at the school and it was agreed that all interventions will be in response to the insight information from the survey. The pilot will continue into 2019/20.
Measure 2. Explore the	Action 11. Public Health	A poster board on air quality in the RBG was produced and provides

<p>development of a campaign to educate vulnerable groups on the cause and effect of poor air quality and how they can protect their own health.</p>	<p>Teams should be supporting engagement with local stakeholders (businesses, schools, community groups and healthcare providers). They should be asked for their support via the DsPH when projects are being developed.</p>	<p>information on what air pollution is; the potential health impacts; the RBG Air Quality Action Plan; and what residents can do to protect their health. This engagement material along with a pledge tree has been used at Car Free Day (22nd September 2018) and Library Week (11th October 2019), to encourage behavioural change. A total of 58 pledges were made at the air quality stand.</p>
<p>Measure 1. Air Quality officers in RBG maintain close working relationships with colleagues in Transport planning and ensure that policies are aligned to achieve air quality benefits.</p>	<p>Action 15. Ensure that the Head of Transport and Head of Planning is fully briefed on the Public Health duties and the fact that all directors (not just Director of Public Health) are responsible for delivering them, as well as on air quality opportunities and risks related to transport in the borough. Provide a briefing which can be disseminated amongst the Transport and Planning teams.</p>	<p>There has been continued collaboration between Public Health, Planning, Transportation, Environmental Health and Digital Greenwich colleagues with respect to air quality and transport issues e.g. Air Quality Audits at Primary Schools and Nurseries; Member questions; Clean Air Strategy 2018 consultation response; Clean Air Day; ASR 2017; and air quality press releases.</p> <p>At the September 2018 Task Force meeting, the power of maintaining good health and wellbeing was discussed, and it was explained that this is not just something for Public Health but something applicable to other areas of the Council too.</p>
<p>Measure 2. Transport planners are also members of the Air Quality Task Force.</p>	<p>Action 15. Ensure that the Head of Transport and Head of Planning is fully briefed on</p>	<p>Head of Transport and other Transport colleagues continue to be involved in the Air Quality Task Force, which took place in June 2018 and September 2018.</p>

	<p>the Public Health duties and the fact that all directors (not just Director of Public Health) are responsible for delivering them, as well as on air quality opportunities and risks related to transport in the borough. Provide a briefing which can be disseminated amongst the Transport and Planning teams.</p>	
<p>Measure 2. Enhanced presence on website.</p>	<p>Action 17. Promotion of availability of airTEXT and the London Air Quality Network.</p>	<p>The Air Quality Officer created content for the RBG website (uploaded February 2018) and the Greenwich Community Directory (uploaded June 2018) to better promote both airTEXT and the London Air Quality Network.</p> <p>The Live Well Greenwich website, which provides local information, events and support to improve health and wellbeing, launched a webpage on the 6th September 2018 dedicated to air pollution and health. The page includes the promotion of airTEXT and the London Air Quality Network. Between 1st September 2018 and 31st December 2018, the page had 42 views.</p>
<p>Measure 1. Identify barriers for schools to participate in active travel initiatives and work towards improvement.</p>	<p>Action 18. Encourage schools to join the TfL STARS accredited travel planning programme by providing information on the benefits to schools and supporting the</p>	<p>In 2018, 50 schools achieved STARS accreditation: 8 x Bronze; 9 x Silver; and 33 x Gold. In addition, another 24 schools engaged in at least one active travel activity.</p> <p>As part of Transportation's work to encourage active and sustainable travel to school, the Transport team launched a trial School Streets</p>

	implementation of such a programme including reducing car use.	<p>scheme for six months, to remove motor vehicles from outside school gates at peak times. The trial scheme will be reviewed in 2019.</p> <p>Roads outside the following four schools were closed to motor vehicles:</p> <p>De Lucy School - the whole of Cookhill Road from Tuesday 30 October 2018</p> <p>Gordon School - Grangehill Road between Earlshall Road and Craigton Road from Tuesday 30 October 2018</p> <p>Haimo School - Haimo Road between Froissart Road and South Circular (A205) Slip Road from Tuesday 30 October 2018</p> <p>St Joseph's School - Commerell Street until Pelton Road from 28 November 2018.</p>
Measure 1. Maintain current accreditation and work towards improvement.	Action 24. Assess and gain accreditation for RBG's fleet and fleet management against schemes such as the Fleet Operator Recognition Scheme (FORS), aiming for Gold accreditation; and the EcoStars accreditation.	<p>In 2018, the Royal Greenwich Corporate Fleet team won the award for the most sustainable fleet management department at the Local Authority Plant and Vehicles annual Future Fleet Forum awards.</p> <p>RBG have retained FORS bronze accreditation for a fourth year running.</p>
Measure 1. Continue to invest in improving the environmental and air quality impact of the refuse collection	Action 25. Increasing the number of hydrogen, electric, hybrid, bio-methane and cleaner (e.g. Euro VI) vehicles	<p>All RCVs purchased in 2018 meet Euro VI standard.</p> <p>The world's first retrofitted electric 26t refuse collection vehicle began</p>

<p>fleet, including: Rolling review each time a vehicle is replaced to seek ultra-low emission vehicle replacement, where available.</p>	<p>in the boroughs' fleet.</p>	<p>its first trial in the Borough from August 2018 and collected in the Low Emission Neighbourhood amongst other areas. Performance data will continue to be collected into 2019 to measure the vehicle's effectiveness.</p>
<p>Measure 2. Increasing the mix of clean fuel types in the fleet, such as electric powered vans and increasing provision of electric vehicle infrastructure at the Birchmere Centre.</p>	<p>Action 25. Increasing the number of hydrogen, electric, hybrid, bio-methane and cleaner (e.g. Euro VI) vehicles in the boroughs' fleet.</p>	<p>The vehicle replacement programme has replaced 6 diesel fleet vehicles with electric alternatives in 2018 and a further 5 are in the process of being ordered.</p> <p>20 charging points have been installed in the Birchmere Centre to support electrification of the fleet.</p>
<p>Measure 2. Investigate how and where the Royal Borough's Green Infrastructure may be enhanced and improved, including how the Borough's urban green spaces such as land on estates, or other similar Council owned parcels of land, may better contribute to this network.</p>	<p>Action 28. Green Infrastructure.</p>	<p>'Towards a Greener Greenwich' report was published on the Council website in October 2018. The report provides evidence on green infrastructure, open space and biodiversity. It assessed all forms of Green Infrastructure and aimed to provide an understanding of the specific needs and opportunities, including quantitative and/or qualitative deficits or surpluses, and made recommendations e.g. priorities for management and investment, and delivery mechanisms.</p>
<p>Measure 1. Produce case studies of lessons learned from pilot LEN area to roll out</p>	<p>Action 29. Low Emission Neighbourhoods (LENs).</p>	<p>Low emission and shared transport projects were run as part of the Low Emission Neighbourhood and Sharing Cities schemes. The</p>

<p>to other parts of the Borough (and securing funding to do so).</p>		<p>programmes included a great range of measures. Reporting on these measures is provided directly to Poppy Lyle (GLA) and Suzanne Godsell (TfL), which provides full details. Final monitoring results and lessons learned will be available in late summer 2019.</p>
<p>Measure 1. Discouraging unnecessary idling of vehicle engines (e.g. through anti-idling campaigns and enforcement activity).</p>	<p>Action 30. Discouraging unnecessary idling of vehicle engines (e.g. through anti-idling campaigns and enforcement activity).</p>	<p>The Royal Borough of Greenwich is tackling idling in the borough as a member of the London-wide Idling Action campaign, which is raising awareness of the issue of idling across London through running anti-idling events aimed at educating drivers.</p> <p>RBG has introduced a Vehicle Anti-Idling Policy (employees who drive must switch off their engines when parked, loading or waiting at the roadside and turning the engine off if they anticipate being stationary for more than one minute in traffic except for the listed exceptional cases) across the Council's fleet. RBG utilises tracking and telematics data to help enforce the policy with its own fleet.</p>
<p>Measure 1. Continue the expansion of car clubs in the Borough to reduce the number of privately owned, and older higher polluting, vehicles.</p>	<p>Action 32. Expanding Car Clubs and increasing the proportion of electric, hydrogen and ultra-low emission vehicles in their fleet.</p>	<p>An electric car club for everyone in the borough launched on the 28th June 2018.</p>
<p>Measure 2. Car free events (e.g. in conjunction with the O2, or Charlton Athletic).</p>	<p>Action 33. Very Important Pedestrian Days (e.g. no vehicles on certain roads on a Sunday) and similar initiatives.</p>	<p>Launched a number of initiatives around National Bike Week in June and car free day in September 2018 to encourage a mode shift towards cycling, including the following: women's ride; Royal Greenwich Get Together feeder rides and bike parade; Dr Bikes (full week programme across 6 locations during Bike Week); Bike Bus Pilot at Charlton Manor Primary School; RBG Staff sessions.</p>

		Clean Air Day 2018 included an early evening cycle tour, and the Missing Link on the Thames Path official opened the day before. Both of these were promoted via website articles and twitter posts.
Measure 3. Consider Car Free Days as promotional tool to support other actions (e.g. new cycle paths etc.).	Action 33. Very Important Pedestrian Days (e.g. no vehicles on certain roads on a Sunday) and similar initiatives.	On the 22nd September 2018, Car Free Day, two main roads in Greenwich Town Centre (College Approach and King William Walk) were closed to traffic, creating a traffic free space which was filled with fun activities aimed at families and residents of all ages. There was an emphasis on mode-shift at the event. Healthy street checks were completed for before and during and wider monitoring of economic activity took place.
Measure 2. Provision of road space and pavement space to support charging infrastructure.	Action 36. Installation of residential electric charge points.	Installation of coach parking bays and electric vehicle charge bays began in August 2018. 39 residential charge points installed in 18/19 financial year, including 4 rapids.
Measure 1. Identify suitable locations and secure funding to expand the electric vehicles charging infrastructure network.	Action 37. Installation of rapid chargers to help enable the take up of electric taxis, cabs and commercial vehicles (in partnership with TfL and/or OLEV).	In 2018, 20 suitable locations for rapid chargers were identified and submitted to TfL. Four of these locations have been prioritised and will be taken forward for installation in 2019.
Measure 4. Promotion of infrastructure enhancements as they come on line.	Action 39. Provision of infrastructure to support walking and cycling	Completion of the 'Missing Link' in April 2018 - a £1.5m scheme delivered to create an elevated walkway structure to overcome an existing severance in the Thames Path from the Thames Barrier to Woolwich Dockyard. Previously pedestrians and cyclists had to divert on to a heavily trafficked dual carriageway (A206). This new connection

		<p>provides a safe connection away from the dual carriageway and reduces exposure to heavy traffic and poor air quality. The scheme is in the immediate vicinity of a primary and secondary school and provides a safer, healthier route to access these sites.</p> <p>The Missing Link was promoted via articles and social media and incorporated into Clean Air Day advertisement.</p>
<p>Measure 6. Identify the major infrastructure projects needed to be delivered in the medium and longer term in order to help meet our sustainable transport objectives, and we will lobby TfL and other partners to help us complete those schemes.</p>	<p>Action 39. Provision of infrastructure to support walking and cycling.</p>	<p>CS4, Greenwich Town Centre Liveable Neighbourhood, 6 Cycleway Routes (includes 4 routes previously referred to as Quietways).</p> <p>RBG have commissioned a cycle network analysis and a walking network analysis to develop the key priorities for the coming years. A cycling strategy and walking strategy are being prepared and will provide a delivery plan to the findings of these commissions.</p>

3. Planning Update and Other New Sources of Emissions

Table K. Planning requirements met by planning applications in Royal Greenwich in 2018

Action	Number	Notes
a) Number of planning applications where an air quality impact assessment was reviewed for air quality impacts	16	<i>The Environmental Health database used to record this information was changed in October 2018. Subsequently there may be some margin of error in the data provided as it has not been possible to search all of the migrated data for the information required.</i>
b) Number of planning applications required to monitor for construction dust	27	<i>The Environmental Health database used to record this information was changed in October 2018. Subsequently there may be some margin of error in the data provided as it has not been possible to search all of the migrated data for the information required.</i>
c) Number of CHPs/Biomass boilers refused on air quality grounds	0	<i>The Environmental Health database used to record this information was changed in October 2018. Subsequently there may be some margin of error in the data provided as it has not been possible to search all of the migrated data for the information required.</i>
d) Number of CHPs/Biomass boilers subject to GLA emissions limits and/or other restrictions to reduce emissions	3	<i>The Environmental Health database used to record this information was changed in October 2018. Subsequently there may be some margin of error in the data provided as it has not been possible to search all of the migrated data for the information required.</i>
e) Number of developments required to install Ultra-Low NO _x boilers	40	<i>The Environmental Health database used to record this information was changed in October 2018. Subsequently there may be some margin of error in the data provided as it has not been possible to search all of the migrated data for the information required.</i>
f) Number of developments where an AQ Neutral building and/or transport assessments undertaken	8	<i>The Environmental Health database used to record this information was changed in October 2018. Subsequently there may be some margin of error in the data provided as it has not been possible to search all of the migrated data for the information required.</i>
g) Number of developments where the AQ Neutral building and/or transport assessments not meeting	0	<i>The Environmental Health database used to record this information was changed in October 2018. Subsequently there may be some margin of error in the data provided as it has not been possible to search all of</i>

the benchmark and so required to include additional mitigation		<i>the migrated data for the information required.</i>
h) Number of planning applications with S106 agreements including other requirements to improve air quality	0	<i>More general contributions for Environmental Health are requested through the S106 process but this approach is under review.</i>
Number of planning applications with CIL payments that include a contribution to improve air quality	49 planning permissions granted that have had a liability notice issued	<i>Due to the nature of CIL, none of the payments were collected for air quality, but are collected into a central pot to be spent in accordance with the Regulation 123 list.</i>
i) NRMM: Central Activity Zone and Canary Wharf	N/A	N/A
NRMM: Greater London (excluding Central Activity Zone and Canary Wharf) Number of conditions related to NRMM included. Number of developments registered and compliant. Please include confirmation that you have checked that the development has been registered 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.	24 conditions included 16 developments registered in 2018 1 uncompliant and being chased	<i>The data does not correlate well. The NRMM planning conditions only come into force once the planning consent has been implemented, therefore the 16 registered developments are not necessarily from the 24 conditions applied this year. Some sites on NRMM register have not included start dates or planning references. 41 developments were registered at the time of this report with either no start date, or no end date, or both. 10 developments had an end date of 2018.</i>

All planning officers send email requests for comments to the Environment Protection Team, for allocation to specialist air quality officers to review and comment. Specialist air quality officers are requested to attend pre-application meetings for major developments. Environment Protection Officers regulate dust emissions from construction sites, and work closely with Planning Enforcement. Where required, major construction sites, often with COPA 1974 section 61 Construction Site Noise agreements in place, provide dust monitoring results.

3.1 New or significantly changed industrial or other sources

In 2018 Greenwich Council received an application under the Environmental Permitting regulations for the operation of the following new installation and process:

Greenwich Energy centre, Land off Millenium Way, Greenwich Peninsula

The process is the combustion of natural gas in either a conventional boiler(s) or a spark ignition engine (CHP plant)

A permit for its operation has been issued and emission limits are set and in compliance with current guidance and practice.

Appendix A Details of Monitoring Site QA/QC

A.1 Automatic Monitoring Sites

A Local Site Operator (LSO) visits the monitoring sites every two weeks to visually inspect and check the site operation and to carry out zero/span calibration of the gas analysers. Six monthly UKAS accredited independent equipment audits are carried out by the National Physical Laboratory (NPL) which also carry out on-site certification of gas cylinders. Additionally, six monthly equipment service visits are carried out by Enviro Technology Services Plc.

PM₁₀ Monitoring Adjustment

PM10 measurements are automatically recalculated as EU reference equivalent using the Volatile Correction Model (VCM) – Correction applied to TEOM measurements

A.2 Diffusion Tube Quality Assurance / Quality Control

- Diffusion Tubes are prepared and analysed by UKAS accredited Gradko International Ltd
- Diffusion Tubes are prepared using 50% triethanolamine with acetone method and analysed using UV spectrometry
- The lab follows the procedures set out in the Defra Technical Guidance for LAQM TG(16)
- For details attaining to 'results' – precision, bias adjustment factors; and reference methods please refer to - 'London Wide Environment Program Nitrogen Dioxide diffusion tube survey report,2018:

https://www.royalgreenwich.gov.uk/downloads/download/183/air_quality_reports

Factor from Local Co-location Studies

For details of the full monthly diffusion tube results, please see Monthly and Annual Mean NO₂ Concentrations: All Sites, "2018: "London Wide Environment Program Nitrogen Dioxide diffusion tube survey report, 2018 available at:

https://www.royalgreenwich.gov.uk/downloads/download/183/air_quality_reports

Discussion of Choice of Factor to Use

The Royal Borough of Greenwich has used the London Wide Environment Program (LWEP) Bias Adjustment Factor of 0.85 because it's the factor used across Greater London as part of the London Wide Environment Program. The impact of this will mean that our readings will be 7% lower than the National Bias Adjustment Factor.

A.3 Adjustments to the Ratified Monitoring Data

Short-term to Long-term Data Adjustment

The data capture rate for all of our diffusion tube sites is between 75 – 100%. The data capture rate for all of our automatic monitoring sites is between 95 – 100%, with the exception of site GN6 (John Harrison Way), which has a data capture rate of 48%. This is due to station GN6 being relocated, and only becoming operational in July 2018. Given this, we acknowledge that GN6s' data is an incomplete data set that has not been annualised, and it should be used for information purposes only.

Distance Adjustment

For the diffusion tube sites that are not representative of public exposure, the calculation to estimate the concentration at the nearest receptor has been carried out. The results are presented in the table below.

Specifically, the results have been calculated by applying a distance value of 12 metres from the nearest receptor to the kerb. For those sites near junctions or industrial areas, results have not been generated due to the probability of inaccurate results.

Site Name/ID	Distance (m)		NO ₂ Annual Mean Concentration (µg/m ³)			Comment
	Monitoring Site to Kerb	Receptor to Kerb	Background	Monitored at Site	Predicted at Receptor	
GW24	3	12	25	46	38	Predicted concentration at Receptor within 10% the AQS objective.
GW29	2	12	25	54	41	Predicted concentration at Receptor above AQS objective.
GW32	17	12	25	39	42	Predicted concentration at Receptor above AQS objective. Warning: your monitor is more than 10m further from the kerb than your receptor - treat result with caution.

GW33	2	12	25	47	37	Predicted concentration at Receptor within 10% the AQS objective.
GW35	2	12	25	49	38	Predicted concentration at Receptor within 10% the AQS objective.
GW36	30	Industrial	25	47	<u>not calculated</u>	Industrial area - not calculated
GW41	3	12	25	45	38	Predicted concentration at Receptor within 10% the AQS objective.
GW42	2	12	25	40	34	
GW43	2	Junction	25	44	<u>not calculated</u>	site is close to a junction so calculation would be invalid
GW44	4	12	25	44	37	Predicted concentration at Receptor within 10% the AQS objective.
GW49	1	12	25	42	33	
GW50	4	Junction	25	54	<u>not calculated</u>	site is close to a junction so calculation would be invalid

GW51	2	12	25	37	32	
GW52	2	12	25	37	32	
GW54	3	Junction	25	51	<u>not calculated</u>	site is close to a junction so calculation would be invalid
GW55	2	Junction	25	42	<u>not calculated</u>	site is close to a junction so calculation would be invalid
GW56	2	12	25	41	34	site is close to a junction so calculation would be invalid
GW58	4	12	25	38	34	
GW101	1	12	25	57	41	Predicted concentration at Receptor above AQS objective.
GW102	1	12	25	51	38	Predicted concentration at Receptor within 10% the AQS objective.
GW103	9	12	25	36	35	
GW104	13	Junction	25	44	<u>not calculated</u>	site is close to a junction so calculation

						would be invalid
GW105	5	Junction	25	47	<u>not calculated</u>	site is close to a junction so calculation would be invalid

Appendix B Full Monthly Diffusion Tube Results for 2018

For details of the full monthly diffusion tube results, please see Monthly and Annual Mean NO2 Concentrations: All Sites, “2018: “London Wide Environment Program Nitrogen Dioxide diffusion tube survey report, 2018 available at:

https://www.royalgreenwich.gov.uk/downloads/download/183/air_quality_reports