London Borough of Brent Air Quality Annual Status Report for 2019
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This report provides a detailed overview of air quality in London Borough of Brent during 2019. It has been produced to meet the requirements of the London Local Air Quality Management statutory process[1].

Contact details

Juhaina Junaid
Environmental Health
Regulatory Services
London Borough of Brent

Peter Hayden
Environmental Health
Regulatory Services
London Borough of Brent

Brent Civic Centre
Engineers Way
Wembley
HA9 0FJ

Tel: 02089375252
ens.monitoring@brent.gov.uk

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

The London Borough of Brent operates three automatic monitoring stations situated at roadside (R) sites (BT4, BT6 and BT8) and one at an industrial (I) location (BT5). The Ikea site (BT4)[2] measures NO_2, PM_{10} (by TEOM, Tapered Element Oscillating Microbalances), and $PM_{2.5}$ (by TEOM); the Neasden Lane site (BT5) measures NO_2 and PM_{10} (by TEOM); the John Keble Primary School site (BT6) measures NO_2 and PM_{10} (by TEOM); and Ark Franklin Primary Academy site (BT8) measures NO2, PM_{10} (by TEOM), and $PM_{2.5}$ (by TEOM). All monitoring sites are within the Council's AQMA. The London Borough of Brent monitors annual mean NO_2 concentrations using passive diffusion tubes at 45 sites located throughout the Borough. In 2019, diffusion tubes were setup to include 43 roadside locations and 2 background locations (Site ID 33A and 71).

1.1   Locations

Table B.   Details of Automatic Monitoring Sites for 2019

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance from monitoring site to relevant exposure (m)	Distance to kerb of nearest road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Monitoring technique
BT4	IKEA	520866	185169	Roadside	Y	38	2	2.5	NO2, PM10, PM2.5, O3	Chemiluminescent, TEOM, VCM method
BT5	Neasden Lane	521511	185204	Industrial	Y	35	4	2.5	NO2, PM10	Chemiluminescent, TEOM
BT6	John Keble Primary School	521619	183554	Roadside	Y	10	2	2.5	NO2, PM10	Chemiluminescent, TEOM
BT8	Ark Franklin Primary Academy	523716	183030	Roadside	Y	10	2	2.5	NO2, PM10, PM2.5	Chemiluminescent, TEOM

[2] The Ikea site (BT4) is a King's College Supersite and in addition to the pollutants listed above it also measures carbon dioxide (CO_2) and ozone (O_3).

Table C.   Details of Non-Automatic Monitoring Sites for 2019

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance from monitoring site to relevant exposure (m)	Distance from monitoring site to kerb of nearest road ((m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor? (Y/N)
1	Junction of Kenton Rd / Upton Gardens	516929	188560	Roadside	Y	15	2	1.5	NO₂	N
2	Harrow Rd, Sudbury Court Drive	515793	186042	Roadside	Y	10	1	1.5	NO₂	N
4	Junction of Shaftesbury Avenue / Woodcock Hill	518240	187747	Roadside	N	6	1	1.5	NO₂	N
7	Bridgewater Rd / Ealing Road	517942	183721	Roadside	Y	17	2	1.5	NO₂	N
9	Junction of East Lane / Wembley Hill Road	518499	186168	Roadside	Y	20	2	1.5	NO₂	N
17	Old Church Lane junction with Neasden Lane	520480	186537	Roadside	Y	4	1	1.5	NO₂	N
21a	Central Way, Park Royal	520077	182853	Roadside	Y	4	1	1.5	NO₂	N
22	Junction of Kingsbury Road / Edgware Road	521447	188730	Roadside	Y	5	1	1.5	NO₂	N
23	Junction North Circular Rd / Chartley Avenue	521213	186125	Roadside	Y	10	2	1.5	NO₂	N
26	Dudden Hill Lane junction with High Road	522191	184821	Roadside	Y	19	1	1.5	NO₂	N
29	Junction Dollis Hill Lane / Cricklewood	523191	186571	Roadside	Y	12	1	1.5	NO₂	N
30	Chichele Road near Melrose Ave	523663	185353	Roadside	Y	9.8	1	1.5	NO₂	N
33a	Fryent Country Park	519572	187691	Urban background	Y	50	1	1.5	NO₂	N
41	R/O 246 Neasden Lane	521455	185920	Roadside	Y	3	4	1.5	NO₂	N
48	Kilburn Park Rd near junction with Shirland Rd	525196	182517	Roadside	Y	2	1	1.5	NO₂	N
52	IKEA, Hut, North Circular Rd (4 tubes)	520874	185173	Roadside	Y	40	1	1.5	NO₂	Y
53	Junction Ealing Road / High Road	518026	185028	Roadside	Y	15	1	1.5	NO₂	N
54	Ealing Road/Riverside Gardens	518236	183207	Roadside	Y	4	1	1.5	NO₂	N
60	Junction of Bridge Road/Forty Avenue	519475	186557	Roadside	Y	35	1	2	NO₂	N
61	Forty Lane, F/O Old Brent Town Hall	519762	186600	Roadside	Y	40	1	2	NO₂	N
62	Junction of Kings Drive/Forty Lane	519667	186604	Roadside	Y	40	1	2.5	NO₂	N
63	King's Drive, Opposite 37 King's Drive	519703	187007	Roadside	N	7	1	2.5	NO₂	N
64	The Paddocks, Opposite 9 The Paddocks	519824	186715	Roadside	Y	20	1	2.1	NO₂	N
65	Junction of Aybone Road/ NCR, Next to 517 NCR	521313	186529	Roadside	Y	7	1	2.2	NO₂	N
66	Junction of Heather Road/Tanfield Avenue	521912	186514	Roadside	Y	12	1	2.1	NO₂	N

67	Dawpool Road, F/O 24 Dawpool Road	521651	186611	Roadside	Y	5	1	2.1	NO_2	N
68	Junction of Randall Avenue/NCR, Next to 730 NCR	521448	186626	Roadside	Y	5	1	2.5	NO_2	N
69	Wrentham Avenue, F/O 65 Wrentham Avenue	523782	183527	Roadside	Y	8	1	2.1	NO_2	N
70	Junction of Peploe Road/Chevening Road, F/O 72 Chevening Road	523828	183338	Roadside	Y	5	1	2.1	NO_2	N
71	Queens Park recreational area, On CCTV camera post	524179	183232	Urban background	Y	25	45	2.1	NO_2	N
72	Harvist Road, F/O 139 Harvist Road	524142	183120	Roadside	Y	5	1	2.1	NO_2	N
73	Junction of Harvist Road/Salisbury Road, Opposite Kilburn Police Station	524607	183267	Roadside	Y	3	1	2.1	NO_2	N
74	Junction of Salisbury Road/Chevening Road	524283	183882	Roadside	Y	5	3	2.1	NO_2	N
75	Junction of Woodcock Hill/Woodcock Hill	517499	187778	Roadside	Y	15	3	2.2	NO_2	N
76	Lindsay Drive, near junction with Branksome way	518430	188406	Roadside	N	5	1	2.2	NO_2	N
77	Beverly Drive, near junction of Sandhurst road	519100	189827	Roadside	N	11	2	2	NO_2	N
78	Harrow Road junction of Watford Road	516721	185478	Roadside	Y	12	2	2.5	NO_2	N
79	Ark Franklin AQ station (collocated 3 tubes)	523721	183008	Roadside	y	10	2	1.5	NO_2	Y
BRT 42	Police Station, Craven Park	521131	183995	Roadside	Y	3	3	1.5	NO_2	N
BRT 43	Pitfield Way	520242	184541	Roadside	Y	20	2	1.5	NO_2	N
BRT 53	High Road Wembley	518303	185181	Roadside	Y	6	0.5	1.5	NO_2	N
BRT 55	High Street, Harlesden	521743	183361	Roadside	Y	3	0.5	1.5	NO_2	N
BRT 56	Chamberlayne Road	523635	183153	Roadside	Y	15	0.5	1.5	NO_2	N
BRT 57	Kilburn Bridge	525419	183612	Roadside	Y	8	0.5	1.5	NO_2	N
BRT 58	51 High Road, Willesden	523031	184655	Roadside	Y	2	0.5	1.5	NO_2	N

1.2   Comparison of Monitoring Results with AQOs

The results presented are after adjustments for "annualisation", 'bias'' and for 'distance correction' for 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 2019 % [b]	Annual Mean Concentration (µg m^{-3})						
				2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]	2018 [d]	2019 [c]
BT4	Automatic	98	98	N/A	**79.7**	**41.0**	**76**	**72**	**71**	**63**
BT5	Automatic	99	99	38.9	N/A	38.8	**44**	**45**	38	38
BT6	Automatic	97	97	37.5	N/A	N/A	**45**	**45**	39	37
BT8	Automatic	99	99	N/A	N/A	N/A	N/A	**54**	**46**	**41**
1	Diffusion tube	100	69	**41.0**	**41.9**	**40.1**	**41.13**	36.23	LD	30.3
2	Diffusion tube	100	69	**46.9**	**46.1**	**41.7**	**51.00**	**41.76**	LD	30.9
4	Diffusion tube	88	61	**45.3**	**47.9**	**40.3**	**51.08**	**42.74**	LD	30.8
7	Diffusion tube	75	50	**71.2**	**69.4**	**62.3**	**71.65**	**62.79**	LD	*39.5*
9	Diffusion tube	87	54	**50.5**	**53.9**	**47.3**	**57.11**	**49.86**	LD	*32.8*
17	Diffusion tube	100	69	**55.5**	**59.6**	**55.4**	**62.49**	**55.67**	LD	42.7
21A	Diffusion tube	100	70	**49.5**	**55.1**	**48.7**	**55.13**	**46.90**	LD	*37.2*
22	Diffusion tube	100	69	**57.9**	**64.7**	**56.7**	**65.05**	**58.14**	LD	*38.1*
23	Diffusion tube	88	61	**104.5**	**108.7**	**93.2**	**115.39**	**93.88**	LD	**59.7**
26	Diffusion tube	100	59	**65.4**	**68.9**	**63.9**	**73.69**	**61.93**	LD	30.4
29	Diffusion tube	100	70	**79.0**	**82.7**	**74.1**	**85.97**	55.58	LD	35.3
30	Diffusion tube	100	70	**62.5**	58.6	52.6	**62.63**	51.29	LD	31,2
33A	Diffusion tube	100	69	26.3	26.1	22.9	29.14	22.21	LD	24.3

Site ID	Site type	Valid data capture for monitoring period % [a]	Valid data capture 2019 % [b]	Annual Mean Concentration ($\mu g\ m^{-3}$)						
				2013[c]	2014[c]	2015[c]	2016[c]	2017[c]	2018[d]	2019[c]
41	Diffusion tube	100	61	**57.6**	**<u>65.7</u>**	**<u>60.7</u>**	**<u>74.41</u>**	**<u>60.05</u>**	LD	*39.3*
48	Diffusion tube	100	70	**<u>70.5</u>**	**<u>63.1</u>**	56.5	**<u>71.57</u>**	**<u>59.95</u>**	N/A	**40.6**
52	Diffusion tube	100	70	**<u>104.1</u>**	**<u>103.4</u>**	**<u>87.9</u>**	**102.10**	**86.59**	LD	*37.7*
53	Diffusion tube	100	61	**<u>64.4</u>**	**<u>70.0</u>**	**66.6**	**83.85**	**68.34**	LD	**44.8**
54	Diffusion tube	75	45	**47.0**	**50.3**	**47.1**	**52.49**	**46.00**	LD	*37.6*
60	Diffusion tube	75	45	N/A	N/A	N/A	N/A	N/A	LD	30.1
61	Diffusion tube	100	69	N/A	N/A	N/A	N/A	N/A	LD	33.7
62	Diffusion tube	100	69	N/A	N/A	N/A	N/A	N/A	LD	27.6
63	Diffusion tube	100	69	N/A	N/A	N/A	N/A	N/A	LD	26.0
64	Diffusion tube	100	69	N/A	N/A	N/A	N/A	N/A	LD	33.5
65	Diffusion tube	100	69	N/A	N/A	N/A	N/A	N/A	LD	35.9
66	Diffusion tube	100	69	N/A	N/A	N/A	N/A	N/A	LD	34.6
67	Diffusion tube	100	69	N/A	N/A	N/A	N/A	N/A	LD	33.4
68	Diffusion tube	100	69	N/A	N/A	N/A	N/A	N/A	LD	*37.6*
69	Diffusion tube	100	70	N/A	N/A	N/A	N/A	N/A	LD	34.6
70	**Diffusion tube**	**87**	**51**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**LD**	33.0
71	Diffusion tube	100	70	N/A	N/A	N/A	N/A	N/A	LD	30.2
72	Diffusion tube	100	70	N/A	N/A	N/A	N/A	N/A	LD	35.6

Site ID	Site type	Valid data capture for monitoring period % [a]	Valid data capture 2019 % [b]	Annual Mean Concentration (µg m^{-3})						
				2013[c]	2014[c]	2015[c]	2016[c]	2017[c]	2018[d]	2019[c]
73	Diffusion tube	100	70	N/A	N/A	N/A	N/A	N/A	LD	34.6
74	Diffusion tube	100	70	N/A	N/A	N/A	N/A	N/A	LD	31.4
75	Diffusion tube	100	69	N/A	N/A	N/A	N/A	N/A	LD	31.4
76	Diffusion tube	100	69	N/A	N/A	N/A	N/A	N/A	LD	25.9
77	Diffusion tube	100	69	N/A	N/A	N/A	N/A	N/A	LD	31.2
78	Diffusion tube	100	69	N/A	N/A	N/A	N/A	N/A	LD	33.6
79	Diffusion tube	100	69	N/A	N/A	N/A	N/A	N/A	N/A	34.8
BRT 42	Diffusion tube	100	69	**48.5**	**47.7**	**41.8**	**49.77**	**42.38**	LD	37.7
BRT 43	Diffusion tube	100	69	**_66.9_**	**_72.7_**	**_80.3_**	**_80.65_**	**_73.71_**	LD	**42.6**
BRT 53	Diffusion tube	100	70	**_75.0_**	**_77.1_**	**_75.7_**	**_80.77_**	**_64.95_**	LD	**49.8**
BRT 55	Diffusion tube	87	52	**_70.4_**	**_76.2_**	**_73.5_**	**_91.83_**	**_76.69_**	LD	**_67.1_**
BRT 56	Diffusion tube	100	69	**_70.1_**	**_67.7_**	**56.8**	**_69.43_**	**58.29**	LD	**41.3**
BRT 57	Diffusion tube	100	70	**_88.0_**	**_86.2_**	**_85.3_**	**_84.21_**	**_64.43_**	LD	**41.7**
BRT 58	Diffusion tube	100	70	**_65.4_**	**_65.6_**	**58.1**	**_65.73_**	**52.75**	LD	**41.7**

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

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

[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 "bias adjusted" and 'distance corrected' in accordance with current LLAQM Technical Guidance, if valid data capture is less than 8 months but more than 3 month then the means were 'annualised'.

Brent NO2 Diffusion Tube Locations 2019
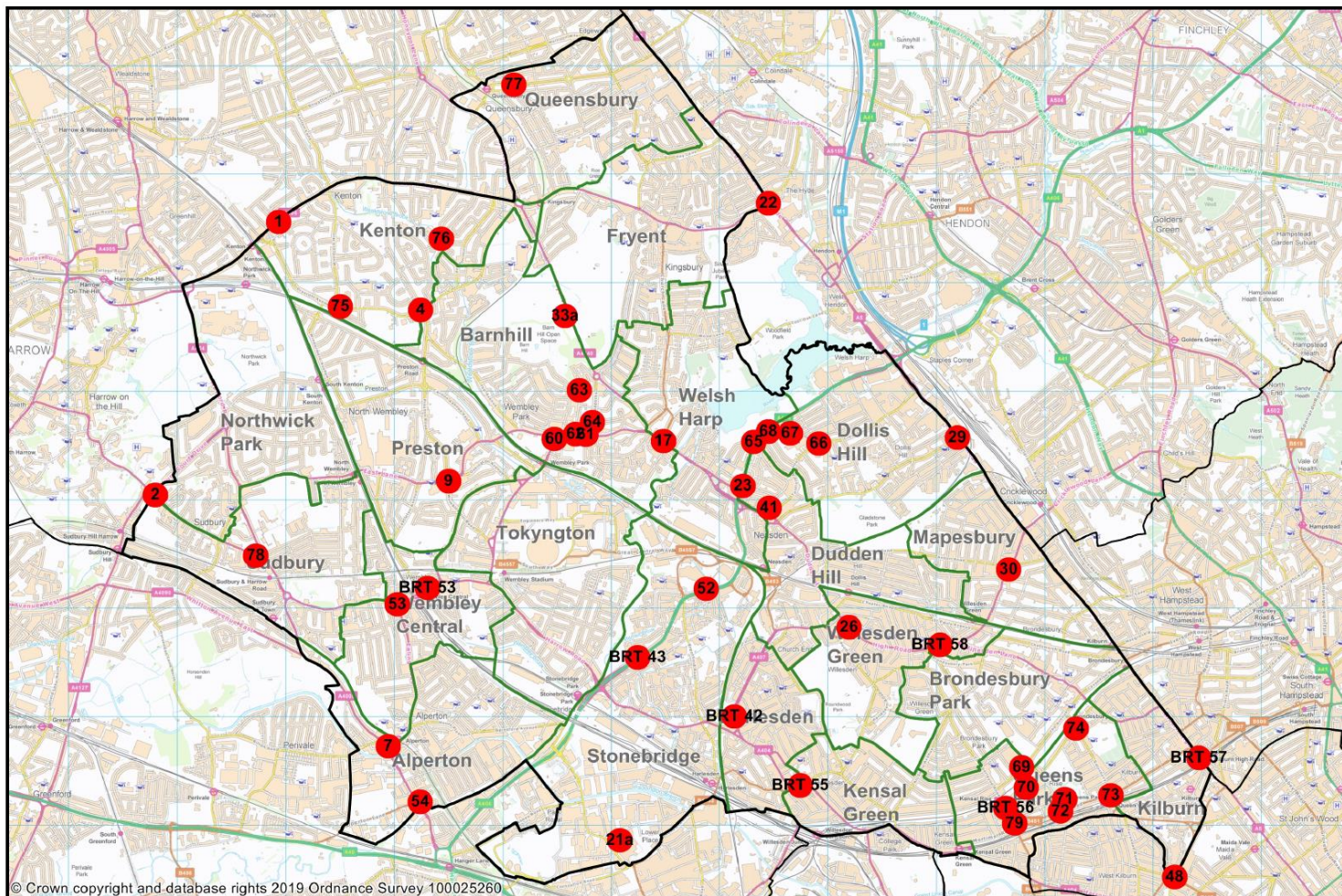
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Table E.   NO$_2$ Automatic Monitor Results: Comparison with 1-hour Mean Objective

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2019 % [b]	Number of Hourly Means > 200 µg m^{-3}						
			2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]	2018 [c]	2019 [c]
BT4	98	98	N/A	10	0	**33**	**33**	1	7
BT5	99	99	0	N/A	0	**25**	17	1	2
BT6	97	97	0	N/A	N/A	0	0	0	0
BT8	99	99	N/A	N/A	N/A	N/A	0	0	0

Notes: Exceedance of the NO$_2$ 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 "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

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

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2019 % [b]	Annual Mean Concentration (µg m^{-3})						
			2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]	2018 [c]	2019 [c]
BT4	97	97	34.1	28.6	29.2	33	33	32	30
BT5	99	99	26.5	24.1	31.3	31	30	28	26
BT6	83	83	25.3	21.2	16.9	20	20	20	19
BT8	98	98	N/A	N/A	N/A	N/A	19	19	18

Notes: Exceedance of the PM_{10} annual mean AQO of 40 µg m^{-3} are shown in **bold**.

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

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

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

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 2019 % [b]	Number of Daily Means > 50 µg m^{-3}						
			2013[c]	2014[c]	2015[c]	2016[c]	2017[c]	2018[c]	2019[c]
BT4	97	97	**38**	26	23	**45**	**41**	**37**	29
BT5	99	99	17	5	15	**37**	29	22	15
BT6	83	83	10	1	1	9	20	1	4
BT8	98	98	N/A	N/A	N/A	N/A	0	1	5

Notes: Exceedance of the PM_{10} 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 90.4[th] 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%

Table H.   Annual Mean PM$_{2.5}$ Automatic Monitoring Results (µg m^{-3})

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2019 % [b]	Annual Mean Concentration (µg m^{-3}) [Note: Not Reference Equivalent]						
			2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]	2018 [c]	2019 [d]
BT4	54	54	24	22.9	20.4	23.7	21.4	20	20.7
BT8	95	95	N/A	N/A	N/A	N/A	14.7	14.6	13.9

Notes: Exceedance of the PM$_{2.5}$ annual mean AQO of 25 µg m^{-3} are shown in **bold**.

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

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

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

[d] Not "annualised" due unavailability of an appropriate annualisation factor for the sites.

2.   Action to Improve Air Quality

2.1   Air Quality Action Plan Progress

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

Table J.   Delivery of Air Quality Action Plan Measures

Measure	Action	Progress
Cleaner Transport – increase provision of	Increase modal share for Walking and Cycling	Brent's Long Term Local Transport Plan 2015 – 2035, as well as the Local Implementation Plan, explicitly highlights a commitment to improving air quality. Two key objectives are: • Increase the uptake of sustainable and active modes of transport such as cycling and walking • Reduce exposure to pollution generated by the Brent transport network. A core aim of this strategy is also to reduce the environmental impacts of transport via:

sustainable transport and accelerate uptake of new low emission vehicles in borough fleet		• Provision of improved infrastructure for cycling and walking, • Maintenance, repair and improvements to highways infrastructure to eliminate pinch points • Introduce 20 mph zones • Improve traffic flows **Brent's Transport Strategy**: https://www.brent.gov.uk/media/16403671/transport-strategy-2016.pdf Brent won the gold award for "Excellence in Cycling and Walking" at the London Transport Awards in 2019. This award recognised the strong policy framework enabling sustainable transport and active travel options to be taken up by residents. https://www.brent.gov.uk/council-news/may-2019/brent-wins-gold-for-cycling-and-walking/ Current initiatives and Improved Infrastructure for walking and cycling in Brent include: • 6 km of cycle routes delivered in the borough since 2017 https://www.brent.gov.uk/services-for-residents/transport-and-streets/cycling/cycle-routes/ • Quietway 3, a pedestrian and bicycle-friendly route connecting Gladstone Park to Kilburn. • Brent was among the first boroughs in London to introduce Lime bikes. • Between 2016- 2019, six bike hangars installed • Free cycle training across Brent; 209 individuals trained in 2019 https://www.brent.gov.uk/services-for-residents/transport-and-streets/cycling/cycle-training-security-and-safety/ Planned Initiatives and Infrastructure for 2020 include: • Forty-nine extra bike hangars to be installed by March 2020. • Change to byelaws to allow cycling in parks across Brent • Kensal Corridor regeneration – new cycle lanes included in plans. https://www.brent.gov.uk/your-community/regeneration/kensal-corridor/ • Oaklands Road Liveable Streets – pedestrianizing a section of road by Cricklewood Broadway, (an air quality focus area) scheduled for Spring 2020. Walking and Cycling Targets:

		TfL estimated that from 2015 to 2018, 2% of trips were made by bike and 29% through walking.
		https://tfl.gov.uk/info-for/boroughs/brent
		Brent's targets (published in Brent's Transport, Cycle and Walking strategies):
		• Increase the pedestrian modal share to 30% by 2021/2022. • Increase the cycling modal share to 3% by 2021.
		Cycling Key objectives:
		• Develop a coherent network of cycle routes • Promote cycling as a convenient, safe, healthy, enjoyable and inclusive activity • Reduce the number of accidents on involving cyclists • Improve access to cycling for all residents and Businesses
		Walking Key objectives:
		• Provide a better environment for pedestrians and improve the experience of walking within the borough, ensuring it is accessible and inclusive for all • Promote walking as a healthy and sustainable way to travel as well as to increase personal activity • Improve the perceived and actual safety and security of pedestrians
		Brent's Walking Strategy: https://www.brent.gov.uk/media/16407830/brent-walking-strategy-2017-2022.pdf
		Cycling Strategy: https://www.brent.gov.uk/media/16407708/cycle-strategy-updated-april-2017.pdf
	Targeted reduction of vehicle diesel use in Brent	Brent Council's resident parking permits are carbon emissions based. The key policies are: • Vehicle emissions are graded as low, medium or high. The cost of the parking permit then depends on how the vehicle is graded. • There is a £50 diesel surcharge for resident and annual visitor on street parking permits for 2019, with annual increases planned: o April 2020 – surcharge will increase to £75

		○ April 2021 – surcharge will be increased to £100
		• Increased fees for residential parking permits for household's second and third vehicles https://www.brent.gov.uk/services-for-residents/parking/parking-permits/parking-charges/
		• The aim is to reward environmentally responsible behaviour.
		• Fees are designed to promote the modal shift from passenger vehicle use to active and sustainable travel.
	Increasing access to low emission or alternative fuels, speeding up the introduction of the cleanest vehicles to our fleet by upgrade or replacement	Brent's Inclusive Growth Strategy 2019 -2040 also prioritises sustainable travel and modal shift: https://www.brent.gov.uk/your-community/regeneration/inclusive-growth-strategy-2019-2040/ Brent seeks to reduce emissions from our own fleet wherever practicable. This includes the provision and use of electric and hybrid vehicles, the upgrade of all Brent Transport vehicles to Euro 6 and regular review of vehicle provision to identify opportunities for further reduction of vehicles in our fleet. The Council currently utilises ZipCar vehicles as part of our fleet, maximising opportunities for the efficient use of vehicles locally whilst reducing our contribution to local congestion and pollution. Included in the Council's fleet is one electric ZipCar. We continue to review locations to determine where demand is greatest and will factor this into future actions to be defined in the Car Club Management Plan and the emerging Procurement Policy.
	Encourage Car Clubs to use low emission and alternative fuel vehicles in their fleet	The Long Term Transport Strategy includes a commitment to create a Car Club Management Plan. The council continues to work with car club operators to identify options for increasing the take-up of car club vehicles and provision of the least polluting vehicles for use. We also identify opportunities for the provision of car clubs in new development schemes, in considering areas for controlled parking provision and in response to requests from residents.
	Cleaning Council Fleet	As part of the climate emergency, Brent have committed to develop a plan to achieve net zero carbon for the Council's own estate and operations by 2030. This includes reviewing the fleet and fleet policies to see how greener vehicles can be introduced. The council is working to develop a Green Fleet policy. This will support the transition of Brent's fleet to be ULEZ compliant. The aim of the policy will be to: • improve the efficiency & reduce the environmental impact of the fleet • reduce private car usage • increase journeys made by public transport • improve monitoring of staff business travel

	Support the installation of on-street electric vehicle charge points throughout Brent Support the take-up of electric taxis and commercial vehicles.	Rapid Chargers: - Three installed in the Borough in 2019 Other Chargers installed throughout the Borough in 2019: - 15 fast chargers - 50 slow chargers Future plans: Around 60 lamp column chargers will be installed over 2020 Brent has recently consulted on 100 free standing chargers on 34 locations
	Implement a Strategy for Transport Planning that supports air quality objectives	The Air Quality Steering Group in Brent has key members of the Highways and Infrastructure transport team within it. The Air Quality Policy and Project Officer role within Brent Council is within the Highways and Infrastructure team. Hence, there is close alignment with transport and air quality projects. In exercise of our strategic objectives, Brent regularly reviews and updates our Local Transport Plan (as our Local Implementation Plan). A core aim is to reduce the environmental impacts of transport via provision of improved infrastructure for cycling and walking, maintenance, repair and improvements to highways infrastructure, and reduce traffic emissions via improved traffic flows. The draft Local Plan 2020 complements these strategies through for example its prioritisation of development in areas of high public transport accessibility, its emphasis on promoting sustainable travel as the predominant forms of movement, limited car parking standards and high cycle parking standards in new developments.
Cleaner Transport – Tackle unnecessary idling by taxis,	Raising local awareness of idling action	Brent continues to tackle idling near schools via the 'no-idling campaign' in local schools. Council recruited Community Air Quality Champions assist in raising awareness about idling at local taxi ranks, bus stands and schools. - **"No idling" pan-London campaign:** Holding "No-idling" events and engaging with local residents outside schools – four events held in 2019.

coaches and other vehicles		https://www.brent.gov.uk/services-for-residents/environment/air-quality/no-idling-campaign/ https://www.brent.gov.uk/services-for-residents/environment/air-quality/no-idling-campaign?tab=noidlingschoolscampaign • **Clean Air Day:** Event held in 2019 to engage with local residents, schools and businesses • **Car Free Day:** Event held in 2019 to engage with local residents, schools and businesses https://www.brent.gov.uk/council-news/press-releases/pr6973/
	Regulation of engine idling Reducing the number of complaints about local idling	Brent Council has signed up to the pan-London anti idling project • Committed to hold plan to eight anti-idling events, six at schools and two at the hospitals in Brent. • In 2019, four events were held • An Environmental Enforcement Officer has attended each event Environmental Enforcement Officers at Brent are trained to issue idling FPNs. No-idling signs have been installed at key locations around the Borough. • In 2019, No-Idling signs were installed across all schools in the Borough (92 schools and 157 signs in total) as part of the Breathe Clean programme. • A further 100 signs are planned to be installed across the Borough in early 2020 across health centres, rail station car bays and religious venues. https://www.brent.gov.uk/services-for-residents/environment/air-quality/no-idling-campaign/ Complaints logged with the council regarding engine idling were relatively very low compared to others in 2019. No formal enforcement actions were taken in respect of these complaints.
Public Health and Community Engagement	Raising awareness in the community	Brent publishes information about air quality on our website. We have maintained our membership of the London Air Quality Network annually throughout this time to ensure ready access to current air quality information is available to the public. **Brent Council Air Quality website:** Residents can access relevant reports and data. All Air Quality related data and reports for Brent are available via a dedicated webpage on Air Quality. This also includes live data on current AQ levels measured at all automatic stations. https://www.brent.gov.uk/airquality

Sharing live site data from the automatic monitoring stations via London's Air Quality Network: Ensuring this is available to residents on the Council and other regional air quality websites.

https://www.brent.gov.uk/services-for-residents/environment/air-quality/air-quality-monitoring-data/

https://www.londonair.org.uk/london/asp/publicbulletin.asp?la_id=4

Air Quality Management Areas: The Council annually reviews its Air Quality Management Areas using a range of data sources. We make this information available via our web pages and provide additional information upon request. In addition, we regularly attend residents meetings to advise and update about local air quality action.

Raising air quality awareness by Public Heath Team:

- In 2019, an Air Quality Steering group was set up, including the Public Health team to work together to improve air quality in Brent,
- Including the Public Health team in this group ensures they have input into the decision making process for air quality initiatives.
- The Brent Public Health Team has developed an air quality work stream. The following initiatives were in the planning stage in 2019/2020:
  o Air Quality in the Joint Strategic Needs Assessment refresh
  o Developing an online Public Health Dashboard to enable residents to access health data relating to air quality.
  o Ongoing work around the improvement of Indoor Air Quality in the local Mental Health Trust.
  o Working with the Brent Clinical Commissioning Group in examining the impact of air quality on unplanned health care use.

Planning for improving air quality around hospitals:

- In discussion over 2019 was a plan to investigate the Clean Air Hospital Framework at two sites in the borough (Northwick Park hospital and Central Middlesex hospital).

		• The Public Health Department also started work with the Trust in the implementing the NHS Long Term Plan own commitments with regard to reducing air quality with the aim of disease and symptom prevention.
	Engage with Local Business to reduce local air pollution	**1. Brent Climate Assembly and Brent Community and Environmental Action Network** • As part of declaring a Climate Emergency, Brent has coordinated a Climate Assembly • Businesses have been engaged as part of the emergent Brent Community and Environmental Action Network and have fed in to the recommendations to go to Cabinet. • The Brent Community and Environmental Action Network will be further developed over 2020. • As part of the Climate Emergency analysis of the green economy in Brent is underway. Policy options are being developed for consideration, such as discounts to or exemption from business rates in relation to emissions. https://www.brent.gov.uk/your-community/brent-going-green/climate-emergency/ **2. Scrutiny Report – Brent Breathes** • An air quality gap-analysis was conducted July – Dec 2019 • As part of this, local businesses were consulted including the Football Association at Wembley Park and Ace Café Wembley. **3. Car Free Day – business engagement** • Businesses were engaged as part of the 2019 Car Free Day event • Local business endorsed and also helped to promote the event by placing posters in their shop windows. • The Ealing Road / Wembley Chamber of Commerce also endorsed and supported the event. **4. Travel plans for organisations** • Brent promotes the use of travel plans to reduce the number of car journeys for an organisation https://www.brent.gov.uk/services-for-residents/transport-and-streets/road-safety-and-transport-policy/travel-plans/ **5. Small Business Saturday Awards 2019** • Brent held this award in 2019 – environmental issues are one of the award categories

		https://www.brent.gov.uk/business/brent-business-hub/small-business-saturday-awards-2019/
		https://www.brent.gov.uk/business/brent-business-hub/small-business-saturday-awards-2019?tab=awardcategoriesandcriteria
	Ensure schools join the school travel planning programme	All Brent schools have travel plans and we are currently working with those with existing travel plans to achieve higher levels of compliance, attain STARS accreditation or maintain existing gold accreditation in the same scheme. **STARs Accreditation (up until August 2019)** • At present, thirty-four schools in Brent (45%) have STARs accreditation ○ 55% of primary schools have STARs accreditation ○ 20% of secondary school have STARs accreditation • Of the schools with STARs accreditation: ○ 72% have been awarded Gold ○ 10% silver ○ 18% Bronze **Supporting STARs** • Brent reaches out to all schools in the Borough to put in place travel plans • Schools are encouraged to achieve higher levels of compliance, attain STARS accreditation or maintain existing gold accreditation. • Brent encourages schools to engage with this at least once in the academic year – workshops and assemblies are offered. • The School Travel Plan covers: ○ road safety ○ air quality ○ anti-idling ○ sustainable travel ○ modal shift • Brent has proactively added in environmental aspects to School Travel Plans • Youth Travel Ambassadors and Junior Road Safety Ambassadors are encouraged so schools can continue the programme throughout the year. • Healthy Streets officers (TFL funded) help give assistance for the hard to engage schools.

		https://www.brent.gov.uk/services-for-residents/transport-and-streets/road-safety-and-transport-policy/school-travel-plans/ Brent supports the following initiatives in schools: **Cycle training:** A Brent led initiative o Over 2019, 217 courses were run and 45 schools were involved and a total of 209 people were trained. https://www.brent.gov.uk/services-for-residents/transport-and-streets/cycling/cycling-for-children/ **Walk on Wednesdays (WOW):**Badge reward scheme if a pupil walks to school every Wednesday (or designated day) of that month **Walk to School Weeks campaigns**: Schools are given the support to focus on walking and sustainable transport activities in a fun way. **Bike It:** Dr bike and cycle clubs – educates on bike maintenance and use. **School rides**: Arranging park to park cycle rides with schools **Park and stride:** Encourage parents and children to park further way and walk the last section of the school run.

Exposure Reduction	School Audit programme	Two primary schools in Brent were audited under The Mayor of London School Air Quality Audit Programme :
		• Ark Franklin Primary Academy
		• John Keble C of E Primary School
		
		The council has provided the match funding to implement action plans. The following work has now been completed:
		• Ark Franklin Primary Academy
		    • 690 trees planted along the school playground border by students within the last year.
		    • Double-glazed PVC windows installed for 3 reception classes
		    • Indoor air purification pilot initiated with wall mounted monitor and three active filtration units installed
		• John Keble C of E Primary School
		    • Installed 80m ivy green screen with irrigation systems
		    • School has now attained gold status on both Healthy Schools London and the TfL STARS scheme

		Brent presented a progress report for this at City Hall.
		Breathe Clean project - Extension of Mayor of London School Air Quality Audit
		Brent proactively extended school audit programme through the Breathe Clean project.
		• A citizen science and educational programme was delivered at the majority of primary schools within the Brent over 2019.
		• 66/94 schools took part (55 primary, 11 secondary). This involved:
		• Delivery of an initial assembly, educating on air pollution.
		• Schools were audited for indoor and outdoor air quality: A citizen science approach; the pupils set up NO2 diffusion tubes inside and outside classrooms
		• Delivery second assembly sharing NO2 readings and discussion of strategies the school can implement to improve air quality
		• Project is planned to be extended further
		http://www.mpsmartertravel.co.uk/projects/case-studies/item/50-brent-breathe-clean
	Identify and develop Low Emission Neighbourhoods where feasible	The council has begun work to explore options for the provision of measures which will contribute to local low emission neighbourhoods or areas. Initially will target action in four areas – Neasden Town Centre, Church End, Wembley and Tokyngton and the Kilburn Regeneration Area. Funding is currently being sought for these projects.
		Annual Car Free Day
		• Brent Council has committed to hold a yearly car free day event.
		• In 2019, Car Free Day events were held on eight streets in the borough on 22nd September, resulting in the temporary closure of these streets on the day.
		https://www.brent.gov.uk/council-news/press-releases/pr6973/
		School Streets
		• In 2019, there were two school streets to prohibit polluting cars from entering at the times children are travelling to and from school.
		• Planning has started for the expansion of this scheme in 2020

		https://www.brent.gov.uk/council-news/press-releases/pr7002/
		Play Streets
		• Brent encourages residents to sign up to the Play Streets scheme
		• Where residents commit to closing a road for a number of hours on a regular basis, this contributes to normalising a car free environment.
		• In 2019, eight streets were closed as part of a Play Streets/ Street Party campaign linked to Car Free Day.
		https://www.brent.gov.uk/playstreets
	Reduce emissions to air from industrial installations	The council regulates some polluting processes via the Environmental Permitting Regime to ensure businesses with the greatest polluting potential comply with the law. The council ensures that local emissions from the polluting of these installations are appropriately controlled. Each is inspected in accordance with an agreed regime and the council has completed all the inspections in year 2019. No enforcement action was taken in respect of these installations this year.
	Targeted upgrade of green infrastructure	Improving green infrastructure, as well as following a Healthy Streets approach, is central to Brent's 2019-2040 Inclusive Growth Strategy and Brent's 2019-2041 Local Implementation Plan. https://www.brent.gov.uk/your-community/regeneration/inclusive-growth-strategy-2019-2040/ In 2019, Brent won 11 London in Bloom awards for the Borough's green spaces, recognising Brent's commitment to improve and maintain green infrastructure. https://www.brent.gov.uk/council-news/october-2019/london-leading-parks-11-awards-for-brent-s-green-spaces/ **Green space in new developments:** Draft Local Plan 2020 includes policies to promote tree planting and secure new open space. • 40% of each residential development site needs to be capable of providing bio-diverse environments (Urban Greening Factor 0.4) • This is an extension of the London Plan, which only stipulates the Urban Greening Factor for larger developments. • Minimum open space requirements, e.g. number of Local Parks set out for new Growth Areas

Green Infrastructure Projects in 2019:

1. **Kensal Corridor:**
- In 2019, the Kensal Corridor regeneration scheme was consulted on
- The scheme includes proposals to:
    - Develop community greening schemes including greening to Station Terrace and a series of three pocket gardens along the high street.
    - Widen pavements to facilitate walking
    - Add new bus shelters and widen waiting areas to promote public transport

https://www.brent.gov.uk/your-community/regeneration/kensal-corridor/

2. **South Kilburn Regeneration**
- Large-scale urban regeneration project ongoing over 2019
- A new larger high quality urban park and improved public realm
- Improved environmental standards and a site-wide energy solution

https://www.brent.gov.uk/your-community/regeneration/south-kilburn-regeneration/what-is-happening-in-south-kilburn/

https://www.brent.gov.uk/your-community/regeneration/south-kilburn-regeneration/the-development-process/

3. **Kilburn High Road Liveable Neighbourhoods Proposal**
- Brent Council has commissioned to undertake a series of stakeholder and community engagement activities within the proposed Kilburn Area Liveable Neighbourhood area.
- Activities will elicit local understanding of the opportunities presented by Healthy Streets and identifying local issues to be addressed by the scheme.

https://www.brent.gov.uk/your-community/regeneration/kilburn-high-road/

4. **Bee Corridor**
- In May 2019, Brent planted 22 wildflower meadows to enhance the green space as well as to increase

		biodiversity.
		https://www.brent.gov.uk/council-news/press-releases/pr6968/
		5. Tree planting across the Borough
		• In 2018, Brent committed to doubling the number of trees planted – an increase from 260 to 520.
		• An i-tree survey has been commissioned for 2020, which aims to assess value of Brent's tree network in terms of ecosystem services. This analysis will promote the value of expanding green infrastructure in future developments.
		https://www.forestresearch.gov.uk/research/i-tree-eco/
		6. Oaklands Road Liveable Streets
		• Pedestrianising a section of Oaklands Road by Cricklewood Broadway scheduled for Summer 2020 (in an air quality focus area)
		https://consultation.brent.gov.uk/highways-and-infrastructure/oaklands-road-liveable-street-scheme/

	Promote air pollution forecasting and route planner tools	**Extending and improving monitoring network**
		
		 • Brent has extended its NOx diffusion tube network from 27 to 45 from 2018-2019.
		 • Analyser and station upgrade scheduled for Brent 4 (IKEA site, next to the North Circular Road) in 2020 to improve and retain good data capture.
		 • Brent are proactively seeking ways to further extend the monitoring network:
		    • Low-cost sensors and other monitoring technology have been discussed with Brent's Digital Transformation team with demos set up for 2020.
		
		 Raising awareness of air pollution for the residents of Brent is a priority. The main channels for raising awareness are:
		
		 Air Quality Live Data: All Air quality data for Brent is accecible by Brent's websits and also via regional websites like LondonAir.org.uk
		
		 AirTEXT: Brent has renewed AirTEXT subscription for 2019-2020.
		    • In 2018-2019, there were 25+ new subscribers for AirText for Brent alone.
		    • Brent has been part of the AirText consortium since it started.
		    • https://www.brent.gov.uk/services-for-residents/environment/air-quality/airtext/

		Route planners: We also continue to promote route planning applications such as Walkit to allow the community to make informed travel choices on high pollution days.
		Strategies and Public Consultations: The council ensures air quality impacts are communicated when promoting initiatives such as Walk and Stride and during public consultation of key documents such as the Cycling strategy and Long Term Transport Strategy etc.

Emissions from Developments and Buildings	Reduce construction emissions	All planning applications received by the council are assessed for potential air quality impacts by the Regulatory services team. If necessary, planning conditions are applied to manage potential emissions form construction dust and any other potential impacts on local air.
		
		Construction dust
		
		• Dust management plans required for all major construction sites.
		• Planning conditions required by Regulatory Services team where dust pollution likely.
		• Brent responds to all dust/particulate pollution complaints
		• Enforcement is undertaken using nuisance control legislations or planning legislations.
		• Brent is member of the London Low Emission Construction Partnership (LLECP)
		
		http://www.clec.uk/about/about-project/llecp-partners
		
		NRMM enforcement:
		
		• Brent is a member of the MAQF pan-London NRMM project
		• Twelve audits were conducted between April-September 2019
		    o Q1 2019 (April – June) - 6/6 sites were compliant.
		    o Q2 2019 (July – September) – 5/6 sites were compliant.

	Limit impact of new development using planning controls	The council reviews all new planning applications for potential air quality impacts and requires all new development have no additional impact on local air pollution as a minimum requirement. The council undertakes proactive assessment of the air quality impacts of new development, reviews construction method statements, enforces planning and environmental legislation and requires all new development to be air quality neutral or better. All major developments (10+ dwellings or 1000sq.m. +) within Growth Areas and Air Quality Focus Areas to be Air Quality Neutral (assessed with Air Quality Impact Assessments). More than 50 planning applications in 2019 were required to undertake such assessments.

		https://www.brent.gov.uk/services-for-residents/planning-and-building-control/before-you-make-a-planning-application/planning-pre-application-advice-service/
		Over 2019, Brent's draft Local Plan 2020 was developed and put to public consultation. It stipulates: • All major developments to be air quality positive. • All applicants complete an air quality impact assessment. Any requirements imposed require discharge of the conditions on completion. • All residential developments to achieve Urban Greening Factor of 0.4 • Healthy streets approach embedded • Supporting car free development where possible • Commercial development attaining BREEAM Excellent https://www.brent.gov.uk/services-for-residents/planning-and-building-control/planning-policy/shaping-brent-s-future-together/ https://www.brent.gov.uk/services-for-residents/planning-and-building-control/planning-policy/current-planning-policy-consultations/ **Masterplanning** Growth areas and most major site allocations require a masterplanning approach. This will promote high quality environments that provide good mix of uses and quality public realm to reduce the need to travel and support more sustainable forms of travel.
	Enforce Combined Heat and Power and biomass air quality policies	Any development proposal with planned CHPs are reviewed by the environmental health team to confirm low emission status. Sustainability checklist used to encourage uptake of greener energy sources. https://www.brent.gov.uk/media/154774/Sustainability%20Checklist%20v4%20Oct2011.xlsx
	Promote energy efficiency retrofitting projects in workplaces and homes	In July 2019, Brent Council declared a Climate Emergency: • Committed to aim for carbon neutrality by 2030. • Achieve zero carbon in Council buildings by 2030. https://www.brent.gov.uk/council-news/july-2019/climate-emergency-declared-by-brent/

Solar Together (RE:NEW scheme)

- Brent participates in the Mayor of London's Solar Together project, helping residents install solar panels.
- 400 applications in Brent (58 accepted)
- Installations due for completion by June 2020.
- In phases 1 and 2, there were 70 installations in Brent resulting in a CO_2 saving in Year 1 of 49 tonnes

https://www.brent.gov.uk/solartogether

EcoFurb

- Brent participates in EcoFurb, encouraging residents to refurbish homes to a high standard of energy efficiency.

Warmer Homes Advice Service

- Brent has signed up to this.
- Provides up to 125 Green Doctor visits in Brent.
    - complete home visits and advise how to reduce energy bills
    - A number of visits completed over 2019
- Service includes funded small measures e.g. replacement lighting and advises on bigger measures e.g. cavity and solid wall insulation.

https://www.brent.gov.uk/your-community/brent-going-green/in-your-home/home-insulation/

Energy emissions and new developments:

The council requires all new major developments use low and ultra-low emission as standard practice, via the planning regime. The council reviews all applications to ensure that all energy generating equipment such as boilers achieve the highest emission standards. The council proactively promotes initiatives to cut energy use, signpost commercial and residential building owners to assist them to replace old boilers and encourage them to adopt other measures to get the most out of energy they use.

- Brent follows the London Plan and its draft Local Plan 2020 identifies that district heating networks should be established in its new Growth Areas.

		• All major residential developments have a zero carbon target with a minimum requirement of 35% over building regulations. • From January 2019, major developments were required to assess their strategy against SAP10 emission standards (electricity emissions are lower than building regulations requirements). • Most major developments have zero local emission systems such as air source heat pumps. • Building regulations regulate emissions from plant, for both new build and where existing supplies are updated. These are low or even zero emission at source.
	Promote and enforce Smoke Control Zones	The whole of Brent Borough is a smoke control zone. Any complaints or reports related to violation of this is actioned by the Regulatory Service team under Clean Air Act. In 2019, 3 complaints logged and all were investigated. The council issues guidance to assist businesses and residents to make informed choices about the least polluting fuels and equipment they can use. During any complaint/ investigatory visits, environmental health officers advise and direct operators/residents/retailers. Guidance can be found at this URL under the "Smoke control area header: https://www.brent.gov.uk/services-for-residents/environment/air-quality/air-quality-management-area/
	Reduce emissions from the burning of waste and from waste facilities	The council actively discourages the domestic burning of waste and provides alternatives such as green waste collection service. Burning of waste on commercial premises and at waste facilities is prohibited. The council received 7 complaints in 2019 in relation to waste sites within the borough. The council effectively managed this via liaison with the regulatory authority, the Environment Agency, where appropriate. No formal enforcement action was required.
	Improve energy efficiency in council buildings	Brent council has streamlined all its energy usage and supplies to create a more efficient system for all Brent owned and operated buildings. Supplier contract renewals included requirements for greener energy sources. Our Civic Centre is officially recognised as the greenest public building in the UK, through its BREEAM Outstanding accreditation. Information about the sustainable elements of the Centre can be found in the building case study, which formed part of the BREEAM assessment. http://bregroup.com/press-releases/world-class-sustainable-buildings-celebrated-at-the-breeam-awards-2015/

		The council is currently reviewing energy use in Brent-owned buildings and associated operations to determine options for reducing emissions. **South Kilburn - neighbourhood heating** • A district energy network is being developed in South Kilburn to reduce total emissions. • Over 2019/2020, opportunities for low/zero carbon heat were investigated, e.g. waste heat from flues etc. https://www.brent.gov.uk/your-community/regeneration/south-kilburn-regeneration/the-development-process/neighbourhood-heating-system/ **RE:FiT** • In 2019, energy consumption for Brent's non-residential buildings have been ranked and improvements prioritised. • Brent is in the process of undertaking energy audits on own buildings and are aiming to use RE:FiT to manage works.
Delivery Servicing and Freight	Update our procurement policies	• The council is working to revise the procurement policy in alignment with having declared a Climate Emergency. • The current procurement strategy states that procurement activity will support the delivery of the green agenda by reducing carbon emissions, improving air quality and increasing the range of green products bought. https://www.brent.gov.uk/business/doing-business-with-us/tenders-and-contracts/
	Investigate options for less polluting deliveries	Since October 2017 the council has been supporting projects related to re-timing commercial deliveries to help reduce local vehicle emissions and congestions. Some night time deliveries has been allowed in Wembley Regeneration zone, after full assessment and confirmation that other environmental impacts such as noise can be minimised and managed.

3. Planning Update and Other New Sources of Emissions

Table K.   Planning requirements met by planning applications in Brent in 2019

Condition	Number
Number of planning applications where an air quality impact assessment was reviewed for air quality impacts	*53*
Number of planning applications required to monitor for construction dust	3
Number of CHPs/Biomass boilers refused on air quality grounds	0
Number of CHPs/Biomass boilers subject to GLA emissions limits and/or other restrictions to reduce emissions	0
Number of developments required to install Ultra-Low NO_x boilers	3
Number of developments where an AQ Neutral building and/or transport assessments undertaken	49
Number of developments where the AQ Neutral building and/or transport assessments not meeting the benchmark and so required to include additional mitigation	8+
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.	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.	Twelve audits were conducted between April-September 2019 • Q1 2019 (April – June) - 6/6 sites were compliant. • Q2 2019 (July – September) – 5/6 sites were compliant.

All Planning cases are assessed for potential environmental risk factors including air quality issues especially if they fall within or are adjacent to the AQMA in Brent. All major developments within the borough are subject to review at the pre-application stage as well as during the application process. A desk based assessment is carried out by the relevant officer and if necessary air quality assessments or additional actions are required using planning conditions. Mitigation or modifications of plans are often required following assessments where poor air quality or high exposure levels are highlighted.

Appendix A   Details of Monitoring Site QA/QC

A.1   Automatic Monitoring Sites

QA/QC for Brent's automatic monitoring stations is provided by ERG King's College London. These stations are calibrated fortnightly by local site operator LSO, with audits every 6 months. Calibrations are carried out by the Local Authority, EnviroTechnology and ERG King's College London. Audits are carried out by the National Physics Laboratory and are UKAS accredited.

A.2   Diffusion Tube Quality Assurance / Quality Control

All diffusion tubes are collected and set up by the local site operator (LSO) and analysed by Gradko International Ltd Laboratories (UKAS Accredited Methods) using the preparation method 20% Triethanolamine (TEA) in De-ionised Water absorbent. Blanks are subtracted for each exposure period prior to averaging to obtain the NO_2 annual average data. Annual averages have been bias adjusted using the bias adjustment factor for 2019 from the national database available on the LAQM website at http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html. For the 2019 data a bias adjustment factor of 0.91 was used which is derived from 27 studies nationwide for similar tubes.

All 45 sites required annualisation due to their overall data capture being under 75%. This has been completed using the Defra Annualisation Tool, with details of the Continuous Monitoring Inputs and Annualisation Summary shown in a screen shot at the end this report in Figure 001.

Distance correction has been completed using the NO2 fall-off with distance calculator at monitoring locations with non-relevant exposure, and where the annual mean NO2 concentration was greater than 36 ug/m3. Background mapped concentrations have been derived from the 2019 Defra Background Maps (2018 reference year). Details are provided in Figure 002 which is a copy of the table in the Distance Correction Calculator.

A.3   Adjustments to the Ratified Monitoring Data

Short-term to Long-term Data Adjustment

A final measurement data set was produced by King's College following retrospective ratification of the measurements using procedures which exceed the requirements given by LLAQM.TG(16). During ratification, information from regular calibrations, audits and daily manual validation were used to establish an operational and calibration history of the instruments. The pollution measurements were then corrected to establish traceability to National Meteorological Standards. Details of the monitoring site and the final dataset can be found at www.londonair.org.uk.

Where data capture is less than 75% of a full calendar year (less than 9 months), the mean has been "annualised" – i.e. adjusted using the methodology outlined in LLAQM.TG(19) before being compared to annual mean objectives. Table L shows the long-term site (BT4) was chosen, where there are 4 co-located diffusion tubes (site 52) for calculation of R. Annualisation factor of 0.99 used to convert all period mean (May 2019 to Dec 2019) to NO2 annual mean.Table L.

Short-Term to Long-Term Monitoring Data Adjustment: NO_2 Annualisation Ratio

Site	Site Type	Annual Mean ($\mu g/m^3$)	Period Mean ($\mu g/m^3$)	Ratio
BT 4 (automatic) and 52 (collocated 4 diffusion tubes)	Roadside	63	63.9	0.99
			Average	0.99

Appendix B   Full Monthly Diffusion Tube Results for 2019

Table M.   NO$_2$ Diffusion Tube Results

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2019 % [b]	Jan	Feb	March	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Period mean – raw data	Annualised and bias adjusted (0.91) c	Annual Mean Distance corrected
															Annual Mean NO$_2$		
1	88%	58%						39.5	33.6	33.9	38.6	38.0	**46.3**	**43.8**	39.1	39.8	30.3
2	100%	67%					35.7	38.9	31.5	31.6	42.5	**43.8**	**49.0**	39.6	39.1	**40.6**	30.9
4	88%	58%					32.6	39.7		29.3	39.6	**45.1**	**41.1**	**41.3**	38.4	37.9	30.8
7	62%	42%						38.3	58.7	**43.4**	49.5			**43.9**	46.8	**56.2**	*39.5*
9	75%	50%					38.2	**45.0**	38.8			49.9	60.2	**54.7**	47.8	47.4	32.8*
17	100%	67%					**41.5**	46.0	44.8	48.2	51.0	53.7	59.2	52.9	49.7	51.6	**42.7**
21A	100%	67%					34.6	40.9	32.2	29.6	43.4	44.0	56.2	40.0	40.1	41.6	*37.2*
22	88%	58%						49.1	43.0	37.2	46.5	47.3	57.0	42.4	46.1	46.9	*38.1*
23	100%	67%					71.7	84.5	18.5a	102.3	75.4	90.3	89.0	75.6	<u>84.1</u>	83.1	**59.7**
26	88%	59%						35.5	35.7	27.9	40.3	**43.8**	**49.9**	39.0	38.9	39.5	30.4
29	88%	59%						29.6	18.5	31.3	38.6	**42.3**	**47.9**	34.7	34.7	35.3	
30	100%	67%					30.7	35.6	31.3	31.3	39.3	**43.0**	**47.0**	32.4	36.3	37.7	31.2
33A	88%	58%						37.4	24.8	34.8	**44.8**	41.4	49.3	44.5	39.6	**40.2**	24.3*
41	88%	58%					25.3	34.0	29.9		38.5	**44.0**	**66.5**	56.4	42.1	42.3	39.3
48	100%	67%					36.4	37.1	27.5	**40.0**	42.7	41.9	52.8	43.5	40.2	41.8	40.6
52	100%	67%					**63.8**	**69.5**	63.8	65.3	72.4	69.9	76.6	62.7	<u>68.0</u>	70.6	*37.7*

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2019 % [b]	Annual Mean NO$_2$												Period mean – raw data	Annualised and bias adjusted (0.91) c	Annual Mean Distance corrected
			Jan	Feb	March	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec			
53	88%	58%					32.9	**65.8**	38.6	**65.4**	**73.6**	**80.6**		**81.8**	<u>62.7</u>	**71.5**	**44.8**
54	62%	42%					35.4			36.7	**42.5**	**44.3**		**43.2**	40.4	**42.3**	*37.6*
60	62%	42%					**56.8**				**48.0**	**52.4**	**60.9**	50.3	53.7	47.9	30.1*
61	100%	67%					38.7	**63.2**	53.4	**62.4**	**68.7**	**70.3**	**77.9**	65.9	<u>62.5</u>	**65.0**	33.7*
62	88%	58%						34.1	31.6	36.4	**42.8**	**45.4**	**45.5**	43.3	*39.8*	**40.6**	27.6*
63	100%	67%					17.2	18.3	16.2	21.2	25.2	29.8	**41.1**	31.4	25.0	26.0	
64	100%	67%					24.9	27.0	24.5	28.5	33.6	**43.8**	38.8	36.7	32.2	33.5*	
65	100%	67%					34.4	**47.8**	35.8	36.6	**46.2**	**54.7**	**48.3**	43.9	43.4	**45.1**	35.9
66	100%	67%					21.9	27.5	25.7	28.7	36.5	**43.9**	**48.7**	33.5	33.3	34.6	
67	100%	67%					25.2	23.7	22.0	28.7	33.6	40.0	**47.4**	36.7	32.2	33.4	
68	100%	67%					**43.0**	**45.9**	37.4	**52.0**	**45.9**	**47.4**	33.7	**47.7**	**44.1**	**45.8**	*37.6*
69	100%	67%					29.2	27.6	29.3	29.6	34.1	39.6	**41.9**	34.6	33.2	34.6	
70	88%	58%					23.1	23.3	21.1	24.7	29.9	29.0a	**64.0**		31.0	33.0	
71	100%	67%					22.6	22.3	19.8	26.4	30.8	33.4	**41.0**	36.2	29.1	30.2*	
72	100%	67%					26.6	30.2	26.4	33.7	35.4	**40.9**	**43.3**	38.0	34.3	35.6	
73	100%	67%					29.4	33.3	31.3	31.5	37.7	**45.2**	48.9	36.3	36.7	38.1	34.6
74	100%	67%					25.3	27.2	23.6	23.9	31.6	35.0	**40.9**	34.5	30.2	31.4	
75	100%	67%					27.8	24.5	24.6	25.2	34.0	30.4	**42.5**	32.8	30.2	31.4	
76	88%	58%						17.8	18.3	18.0	26.1	28.9	36.4	33.0	25.5	25.9	

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2019 % [b]	Annual Mean NO$_2$												Period mean – raw data	Annualised and bias adjusted (0.91) [c]	Annual Mean Distance corrected
			Jan	Feb	March	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec			
77	100%	67%					19.7	24.3	22.4	22.9	32.2	32.4	**47.3**	39.3	30.1	31.2	
78	88%	58%						34.7	31.8	**40.3**	**42.1**	**45.7**	**58.9**	**48.0**	**43.1**	**43.8**	33.6
79	100%	66%					**40.4**	39.4	35.0	32.2	**42.5**	**44.0**	**52.4**	39.4	**40.7**	**42.2**	34.8
BRT 42	100%	66%					38.0	33.8	29.9	36.5	**40.8**	**43.9**	**51.8**	34.9	38.7	**40.2**	37.7
BRT 43	75%	50%					**54.2**	**56.3**		**65.6**	**52.9**	**66.3**		**57.0**	**58.6**	**63.8**	**42.6***
BRT 53	100%	66%					**66.5**	**54.3**	**53.1**	**61.8**	**68.6**	**71.6**	**67.9**	**67.0**	<u>**63.8**</u>	**66.3**	**49.8**
BRT 55	100%	66%					**86.5**	**92.5**	**83.2**	**75.0**	**89.0**	**92.8**	**105.0**	**74.4**	<u>**87.4**</u>	<u>**88.4**</u>	<u>**67.1**</u>
BRT 56	88%	66%					**66.4**	**59.6**	**63.9**	**67.1**	**65.0**	**73.7**	**58.5**	**60.2**	<u>**64.3**</u>	**67.5**	**41.3**
BRT 57	100%	58%						**50.5**	**47.6**	**57.2**	**58.7**	**60.8**	**61.9**	**56.9**	**56.2**	**55.2**	**41.7**
BRT 58	100%	66%					**45.0**	38.7	**40.6**	**47.6**	**49.7**	**51.5**	**56.9**	44.7	**46.8**	**48.6**	**41.7**

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

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

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

[c] Means "annualised" and "bias adjusted" in accordance with LLAQM Technical Guidance, updated June 2020

*Receptor more than 20m further from the kerb than the monitor, treat result with caution

FIGURE 001

Continuous   Monitoring   Inputs   and   Annualisation   Summary

Diff Tube ID	Annualisation Factor Bloomsbury	Annualisation Factor Acton Vale	Annualisation Factor Stanmore	Annualisation Factor Priory Park South	Average Annualisation Factor	Raw Data Simple Annual Mean (µg/m3)	Annualised Data Simple Annual Mean (µg/m3)
1	1.1319	1.0992	1.1375	1.1017	1.1176	39.1	43.7
2	1.1383	1.1181	1.1595	1.1483	1.1410	39.1	44.6
4	1.0923	1.0612	1.0988	1.0890	1.0853	38.4	41.7
7	1.2990	1.3188	1.3385	1.3222	1.3196	46.8	61.7
9	1.0930	1.0649	1.1122	1.0900	1.0900	47.8	52.1
17	1.1383	1.1181	1.1595	1.1483	1.1410	49.7	56.7
21A	1.1383	1.1181	1.1595	1.1483	1.1410	40.1	45.8
22	1.1319	1.0992	1.1375	1.1017	1.1176	46.1	51.5
23	1.0923	1.0612	1.0988	1.0890	1.0853	84.1	91.3
26	1.1319	1.0992	1.1375	1.1017	1.1176	38.9	43.4
29	1.1319	1.0992	1.1375	1.1017	1.1176	34.7	38.8
30	1.1383	1.1181	1.1595	1.1483	1.1410	36.3	41.4
33A	1.1319	1.0992	1.1375	1.1017	1.1176	39.6	44.2
41	1.1056	1.0785	1.1240	1.1090	1.1043	42.1	46.5
48	1.1383	1.1181	1.1595	1.1483	1.1410	40.2	45.9
52	1.1383	1.1181	1.1595	1.1483	1.1410	68.0	77.6
53	1.2262	1.2311	1.2767	1.2814	1.2539	62.7	78.6
54	1.1286	1.1354	1.1671	1.1676	1.1497	40.4	46.5
60	0.9933	0.9608	0.9949	0.9767	0.9814	53.7	52.7
61	1.1383	1.1181	1.1595	1.1483	1.1410	62.6	71.4
62	1.1319	1.0992	1.1375	1.1017	1.1176	39.9	44.6

63	1.1383	1.1181	1.1595	1.1483	1.1410	25.1	28.6
64	1.1383	1.1181	1.1595	1.1483	1.1410	32.2	36.8
65	1.1383	1.1181	1.1595	1.1483	1.1410	43.4	49.6
66	1.1383	1.1181	1.1595	1.1483	1.1410	33.3	38.0
67	1.1383	1.1181	1.1595	1.1483	1.1410	32.2	36.7
68	1.1383	1.1181	1.1595	1.1483	1.1410	44.1	50.3
69	1.1383	1.1181	1.1595	1.1483	1.1410	33.2	37.9
70	1.1750	1.1418	1.1998	1.2089	1.1814	30.7	36.3
71	1.1383	1.1181	1.1595	1.1483	1.1410	29.1	33.2
72	1.1383	1.1181	1.1595	1.1483	1.1410	34.3	39.2
73	1.1383	1.1181	1.1595	1.1483	1.1410	36.7	41.9
74	1.1383	1.1181	1.1595	1.1483	1.1410	30.3	34.5
75	1.1383	1.1181	1.1595	1.1483	1.1410	30.2	34.5
76	1.1319	1.0992	1.1375	1.1017	1.1176	25.5	28.5
77	1.1383	1.1181	1.1595	1.1483	1.1410	30.1	34.3
78	1.1319	1.0992	1.1375	1.1017	1.1176	43.1	48.1
79	1.1383	1.1181	1.1595	1.1483	1.1410	40.7	46.4
BRT 42	1.1383	1.1181	1.1595	1.1483	1.1410	38.7	44.2
BRT 43	1.1786	1.1738	1.2146	1.2227	1.1974	58.6	70.1
BRT 53	1.1383	1.1181	1.1595	1.1483	1.1410	63.9	72.9
BRT 55	1.1383	1.1181	1.1595	1.1483	1.1410	85.1	97.1
BRT 56	1.1383	1.1181	1.1595	1.1483	1.1410	65.0	74.2
BRT 57	1.1319	1.0992	1.1375	1.1017	1.1176	54.2	60.6
BRT 58	1.1383	1.1181	1.1595	1.1483	1.1410	46.8	53.4

Figure 002

Site Name/ID	Distance (m)		NO2 Annual Mean Concentration (µg/m3)			Comment
	Monitoring Site to Kerb	Receptor to Kerb	Background	Monitored at Site	Predicted at Receptor	
1.0	2.0	17.0	20.8	39.8	30.3	
2.0	1.0	11.0	20.6	40.6	30.9	
4.0	1.0	7.0	19.7	37.9	30.8	
7.0	2.0	19.0	24.6	56.2	39.5	Predicted concentration at Receptor within 10% the AQS objective.

9.0	2.0	22.0	21.4	47.4	32.8	**Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.**
17.0	1.0	5.0	24.1	51.6	42.7	**Predicted concentration at Receptor above AQS objective.**
21A	1.0	5.0	28.1	41.6	37.2	**Predicted concentration at Receptor within 10% the AQS objective.**
22.0	1.0	6.0	22.6	46.9	38.1	**Predicted concentration at Receptor within 10% the AQS objective.**
23.0	2.0	12.0	27.4	83.1	59.7	**Predicted concentration at Receptor above AQS objective.**
26.0	1.0	20.0	24.5	39.5	30.4	

29.0	1.0	13.0	25.4	35.3	30.2	
30.0	1.0	11.0	24.3	37.7	31.2	
33A	1.0	50.0	20.0	40.2	24.3	**Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.**
41.0	3.0	7.0	28.5	42.3	39.3	**Predicted concentration at Receptor within 10% the AQS objective.**
48.0	2.0	3.0	28.7	41.8	40.6	**Predicted concentration at Receptor above AQS objective.**

52.0	1.0	41.0	26.6	70.6	37.7	**Predicted concentration at Receptor within 10% the AQS objective. Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.**
53.0	1.0	16.0	23.8	71.5	44.8	**Predicted concentration at Receptor above AQS objective.**
54.0	1.0	5.0	27.7	42.3	37.6	**Predicted concentration at Receptor within 10% the AQS objective.**

60.0	1.0	36.0	23.2	47.9	30.1	Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.
61.0	1.0	41.0	23.2	65.0	33.7	Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.
62.0	1.0	41.0	23.2	40.6	27.6	Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.
63.0	1.0	8.0	20.0	26.0	23.5	

64.0	1.0	21.0	23.2	33.5	27.2	**Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.**
65.0	1.0	8.0	23.2	45.1	35.9	
66.0	1.0	13.0	23.2	34.6	28.7	
67.0	1.0	6.0	23.2	33.4	29.7	
68.0	1.0	6.0	23.2	45.8	37.6	**Predicted concentration at Receptor within 10% the AQS objective.**
69.0	1.0	9.0	24.5	34.6	30.1	
70.0	1.0	6.0	24.5	33.0	29.9	

71.0	45.0	25.0	25.7	30.2	32.5	**Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution. Warning: your monitor is more than 10m further from the kerb than your receptor - treat result with caution.**
72.0	1.0	6.0	25.7	35.6	32.0	
73.0	1.0	4.0	25.7	38.1	34.6	
74.0	3.0	8.0	25.7	31.4	30.0	
75.0	3.0	15.0	19.4	31.4	26.4	
76.0	1.0	6.0	20.0	25.9	23.8	
77.0	2.0	13.0	19.8	31.2	26.2	

78.0	2.0	14.0	21.4	43.8	33.6	
79.0	2.0	12.0	24.5	42.2	34.8	
BRT42	3.0	6.0	26.4	40.2	37.7	Predicted concentration at Receptor within 10% the AQS objective.
BRT43	2.0	22.0	26.0	63.8	42.6	Predicted concentration at Receptor above AQS objective. Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.

BRT53	**0.5**	**4.5**	**23.8**	**66.3**	**49.8**	**Predicted concentration at Receptor above AQS objective.**
BRT55	**0.5**	**3.5**	**26.4**	**88.4**	**67.1**	**Predicted concentration at Receptor above AQS objective.**
BRT56	**0.5**	**15.5**	**24.4**	**67.5**	**41.3**	**Predicted concentration at Receptor above AQS objective.**
BRT57	**0.5**	**8.5**	**28.3**	**55.2**	**41.7**	**Predicted concentration at Receptor above AQS objective.**

BRT58	0.5	2.5	24.3	48.6	41.7	Predicted concentration at Receptor above AQS objective.