

**London Borough of Brent**  
**Air Quality Annual Status Report for 2016**  
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This report provides a detailed overview of air quality in London Borough of Brent during 2016. It has been produced to meet the requirements of the London Local Air Quality Management statutory process<sup>1</sup>.

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

## CONTENTS

Abbreviations .....	3
1. Air Quality Monitoring .....	5
1.1 Locations .....	5
1.2 Comparison of Monitoring Results with AQOs .....	7
2. Action to Improve Air Quality .....	13
2.1 Air Quality Action Plan Progress .....	17
3. Planning Update and Other New Sources of Emissions .....	23
Table L. Planning requirements met by planning applications in London Borough of Brent in 2016 23	
3.1 New or significantly changed industrial or other sources .....	24
Appendix A Details of Monitoring Site QA/QC.....	25
A.1 Automatic Monitoring Sites .....	25
A.2 Diffusion Tube Quality Assurance / Quality Control .....	25
A.3 Adjustments to the Ratified Monitoring Data .....	25
Appendix B Full Monthly Diffusion Tube Results for 2016.....	26

### Tables

Table A. Summary of National Air Quality Standards and Objectives .....	4
Table B. Details of Automatic Monitoring Sites for 2016 .....	5
Table C. Details of Non-Automatic Monitoring Sites for 2016 .....	6
Table D. Annual Mean NO <sub>2</sub> Ratified and Bias-adjusted Monitoring Results (µg m <sup>-3</sup> ) .....	7
Table E. NO <sub>2</sub> Automatic Monitor Results: Comparison with 1-hour Mean Objective.....	10
Table G. PM <sub>10</sub> Automatic Monitor Results: Comparison with 24-Hour Mean Objective.....	11
Table J. Commitment to Cleaner Air Borough Criteria .....	13
Table K. Delivery of Air Quality Action Plan Measures .....	17
Table N. NO <sub>2</sub> Diffusion Tube Results.....	26

## **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 <sub>10</sub>	Particulate matter less than 10 micron in diameter
PM <sub>2.5</sub>	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**

<b>Pollutant</b>	<b>Objective (UK)</b>	<b>Averaging Period</b>	<b>Date<sup>1</sup></b>
Nitrogen dioxide - NO <sub>2</sub>	200 µg m <sup>-3</sup> not to be exceeded more than 18 times a year	1-hour mean	31 Dec 2005
	40 µg m <sup>-3</sup>	Annual mean	31 Dec 2005
Particles - PM <sub>10</sub>	50 µg m <sup>-3</sup> not to be exceeded more than 35 times a year	24-hour mean	31 Dec 2004
	40 µg m <sup>-3</sup>	Annual mean	31 Dec 2004
Particles - PM <sub>2.5</sub>	25 µg m <sup>-3</sup>	Annual mean	2020
	Target of 15% reduction in concentration at urban background locations	3 year mean	Between 2010 and 2020
Sulphur Dioxide (SO <sub>2</sub> )	266 µg m <sup>-3</sup> not to be exceeded more than 35 times a year	15 minute mean	31 Dec 2005
	350 µg m <sup>-3</sup> not to be exceeded more than 24 times a year	1 hour mean	31 Dec 2004
	125 µg m <sup>-3</sup> not to be exceeded more than 3 times a year	24 hour mean	31 Dec 2004

Note: <sup>1</sup>by which to be achieved by and maintained thereafter

## **1. Air Quality Monitoring**

The London Borough of Brent operates two automatic monitoring stations situated at roadside (R) sites (BT4 and BT6) and one at an industrial (I) location (BT5). The Ikea site (BT4)<sup>2</sup> measures NO<sub>2</sub>, PM<sub>10</sub> (by TEOM, Tapered Element Oscillating Microbalances), and PM<sub>2.5</sub> (by TEOM); the Neasden Lane site (BT5) measures NO<sub>2</sub> and PM<sub>10</sub> (by TEOM); and the John Keble Primary School site (BT6) measures NO<sub>2</sub> and PM<sub>10</sub> (by TEOM). All monitoring sites are within the Council's AQMA.

The London Borough of Brent also monitors annual mean NO<sub>2</sub> concentrations using passive diffusion tubes at 25 sites located throughout the Borough. One of these sites has triplicate tubes (site 52 A, B and C) which are co-located with the automatic monitoring site BT4 (Ikea). Diffusion tubes currently include 24 roadside locations and one background location (Tube ID 33A).

### **1.1 Locations**

**Table B. Details of Automatic Monitoring Sites for 2016**

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance 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	NO <sub>2</sub> , PM <sub>10</sub> , PM <sub>2.5</sub> , O <sub>3</sub>	Chemiluminescent, TEOM, VCM method
BT5	Neasden Lane	521511	185204	Industrial	Y	35	4	2.5	NO <sub>2</sub> , PM <sub>10</sub>	Chemiluminescent, TEOM, VCM method
BT6	John Keble Primary School	521619	183554	Roadside	Y	10	2	2.5	NO <sub>2</sub> , PM <sub>10</sub>	Chemiluminescent, TEOM, VCM method

<sup>2</sup> The Ikea site (BT4) is a King's College Supersite and in addition to the pollutants listed above it also measures carbon dioxide (CO<sub>2</sub>) and ozone (O<sub>3</sub>).

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

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 (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	2m	1.5	NO2	N
2	Harrow Rd, Sudbury Court Drive	515793	186042	Roadside	N	10	1m	1.5	NO2	N
4	Junction of Shaftesbury Avenue / Woodcock Hill	518254	187771	Roadside	N	6	1m	1.5	NO2	N
7	Bridgewater Rd / Ealing Road	517921	183716	Roadside	Y	17	2m	1.5	NO2	N
9	Junction of East Lane / Wembley Hill Road	518499	186168	Roadside	Y	20	2m	1.5	NO2	N
17	Old Church Lane junction with Neasden Lane	520480	186537	Roadside	Y	4	1m	1.5	NO2	N
21A	Central Middlesex Hospital, Central Way	520078	182857	Roadside	Y	4	1m	1.5	NO2	N
22	Junction of Kingsbury Road / Edgware Road	521447	188730	Roadside	Y	5	1m	1.5	NO2	N
23	Junction North Circular Rd / Chartley Avenue	521213	186125	Roadside	Y	10	2m	1.5	NO2	N
26	Dudden Hill Lane junction with High Road	522191	184821	Roadside	Y	19	1m	1.5	NO2	N
29	Junction Dollis Hill Lane / Cricklewood	523191	186571	Roadside	Y	12	1m	1.5	NO2	N
30	Chichele Road near Melrose Ave	523663	185353	Roadside	Y	9.8	1m	1.5	NO2	N

33A	Fryent Park Car Park area	519572	187691	Urban background	N	500	1m	1.5	NO2	N
41	R/O 246 Neasden Lane	521455	185920	Roadside	Y	3	4m	1.5	NO2	N
48	Kilburn Park Rd near junction with Shirland Rd	525196	182517	Roadside	Y	2	1m	1.5	NO2	N
52	IKEA, Hut, North Circular Road	520874	185173	Roadside	Y	40	1m	1.5	NO2	Y
53	Junction Ealing Road / High Road	518020	185043	Roadside	Y	15	1m	1.5	NO2	N
54	Ealing Road / Riverside Gardens	518221	183206	Roadside	Y	4	1m	1.5	NO2	N
BRT 42	Police Station, Craven Park	521155	184002	Roadside	Y	3	1m	1.5	NO2	N
BRT 43	Pitfield Way	520242	184541	Roadside	Y	20	2m	1.5	NO2	N
BRT 53	High Road Wembley	518303	185181	Roadside	Y	0	0.5m	1.5	NO2	N
BRT 55	High Street, Harlesden	521743	183361	Roadside	Y	3	0.5m	1.5	NO2	N
BRT 56	Chamberlayne Road	523635	183153	Roadside	Y	15	0.5m	1.5	NO2	N
BRT 57	Kilburn Bridge	525461	183558	Roadside	Y	8	0.5m	1.5	NO2	N
BRT 58	51 High Road, Willesden	523031	184655	Roadside	Y	2	0.5m	1.5	NO2	N

## 1.2 Comparison of Monitoring Results with AQOs

**Table D. Annual Mean NO<sub>2</sub> Ratified and Bias-adjusted Monitoring Results ( $\mu\text{g m}^{-3}$ )**

Site ID	Site type	Valid data capture for monitoring period % <sup>a</sup>	Valid data capture 2016 % <sup>b</sup>	Annual Mean Concentration ( $\mu\text{g m}^{-3}$ )						
				2010 <sup>c</sup>	2011 <sup>c</sup>	2012 <sup>c</sup>	2013 <sup>c</sup>	2014 <sup>c</sup>	2015 <sup>d</sup>	2016 <sup>c</sup>
BT1	Automatic	N/A	N/A	28.8	N/A	N/A	N/A	N/A	N/A	N/A

Site ID	Site type	Valid data capture for monitoring period % <sup>a</sup>	Valid data capture 2016 % <sup>b</sup>	Annual Mean Concentration ( $\mu\text{gm}^{-3}$ )						
				2010 <sup>c</sup>	2011 <sup>c</sup>	2012 <sup>c</sup>	2013 <sup>c</sup>	2014 <sup>c</sup>	2015 <sup>d</sup>	2016 <sup>c</sup>
BT4	Automatic	91	91	<u>74.0</u>	<u>74.9</u>	<u>76.1</u>	N/A	<u>79.7</u>	41.0	<u>76</u>
BT5	Automatic	55	55	39.4	41.2	44.0	38.9	N/A	38.8	44
BT6	Automatic	60	60	52.7	44.8	41.1	37.5	N/A	N/A	45
BT7	Automatic	N/A	N/A	35.3	N/A	N/A	N/A	N/A	N/A	N/A
1	Diffusion tube	87	87	44.3	38.7	37.9	41.0	41.9	40.1	41.13
2	Diffusion tube	84	84	47.5	42.1	42.2	46.9	46.1	41.7	51.00
4	Diffusion tube	100	100	43.0	40.4	41.8	45.3	47.9	40.3	51.08
7	Diffusion tube	88	88	<u>70.7</u>	56.7	59.7	<u>71.2</u>	<u>69.4</u>	<u>62.3</u>	<u>71.65</u>
9	Diffusion tube	92	92	49.9	44.3	46.6	50.5	53.9	47.3	57.11
17	Diffusion tube	100	100	53.6	54.1	52.8	55.5	59.6	55.4	<u>62.49</u>
21A	Diffusion tube	100	100	N/A	43.1	47.1	49.5	55.1	48.7	55.13
22	Diffusion tube	94	94	<u>60.7</u>	51.6	54.1	57.9	<u>64.7</u>	56.7	<u>65.05</u>
23	Diffusion tube	78	78	<u>86.8</u>	<u>82.1</u>	<u>92.8</u>	<u>104.5</u>	<u>108.7</u>	<u>93.2</u>	<u>115.39</u>
26	Diffusion tube	100	100	<u>60.6</u>	58.1	<u>60.4</u>	<u>65.4</u>	<u>68.9</u>	<u>63.9</u>	<u>73.69</u>
29	Diffusion tube	82	82	<u>64.1</u>	<u>63.5</u>	<u>75.8</u>	<u>79.0</u>	<u>82.7</u>	<u>74.1</u>	<u>85.97</u>
30	Diffusion tube	100	100	<u>68.6</u>	59.1	<u>64.6</u>	<u>62.5</u>	58.6	52.6	<u>62.63</u>
33A	Diffusion tube	78	78	N/A	22.2	24.7	26.3	26.1	22.9	29.14



Site ID	Site type	Valid data capture for monitoring period % <sup>a</sup>	Valid data capture 2016 % <sup>b</sup>	Annual Mean Concentration ( $\mu\text{g m}^{-3}$ )						
				2010 <sup>c</sup>	2011 <sup>c</sup>	2012 <sup>c</sup>	2013 <sup>c</sup>	2014 <sup>c</sup>	2015 <sup>d</sup>	2016 <sup>c</sup>
41	Diffusion tube	71	71	57.8	57.8	<u>61.6</u>	57.6	<u>65.7</u>	<u>60.7</u>	<u>74.41</u>
48	Diffusion tube	100	100	<u>65.7</u>	<u>69.3</u>	<u>76.6</u>	<u>70.5</u>	<u>63.1</u>	56.5	<u>71.57</u>
52	Diffusion tube	100	100	<u>84.2</u>	<u>87.7</u>	<u>102.8</u>	<u>104.1</u>	<u>103.4</u>	<u>87.9</u>	<u>102.10</u>
53	Diffusion tube	100	100	N/A	<u>66.9</u>	<u>66.9</u>	<u>64.4</u>	<u>70.0</u>	<u>66.6</u>	<u>83.85</u>
54	Diffusion tube	84	84	N/A	41.9	49.7	47.0	50.3	47.1	52.49
BRT 42	Diffusion tube	100	100	43.2	43.6	45.1	48.5	47.7	41.8	49.77
BRT 43	Diffusion tube	100	100	52.2	58.1	<u>64.2</u>	<u>66.9</u>	<u>72.7</u>	<u>80.3</u>	<u>80.65</u>
BRT 53	Diffusion tube	94	94	46.3	48.1	<u>64.8</u>	<u>75.0</u>	<u>77.1</u>	<u>75.7</u>	<u>80.77</u>
BRT 55	Diffusion tube	75	75	<u>66.9</u>	<u>70.6</u>	<u>76.2</u>	<u>70.4</u>	<u>76.2</u>	<u>73.5</u>	<u>91.83</u>
BRT 56	Diffusion tube	84	84	<u>62.5</u>	<u>66.5</u>	<u>75.2</u>	<u>70.1</u>	<u>67.7</u>	56.8	<u>69.43</u>
BRT 57	Diffusion tube	94	94	<u>76.3</u>	<u>81.6</u>	<u>100.8</u>	<u>88.0</u>	<u>86.2</u>	<u>85.3</u>	<u>84.21</u>
BRT 58	Diffusion tube	88	88	54.1	<u>60.3</u>	<u>68.2</u>	<u>65.4</u>	<u>65.6</u>	58.1	<u>65.73</u>

Notes: Exceedance of the NO<sub>2</sub> annual mean AQO of 40  $\mu\text{g m}^{-3}$  are shown in **bold**.

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

<sup>a</sup> data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

<sup>b</sup> 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%)

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

<sup>d</sup> Arithmetic Means only: Not "annualised" (as per TG16), due to extremely low data capture or unavailability of an appropriate annualisation factor

**Table E. NO<sub>2</sub> Automatic Monitor Results: Comparison with 1-hour Mean Objective**

Site ID	Valid data capture for monitoring period % <sup>a</sup>	Valid data capture 2016 % <sup>b</sup>	Number of Hourly Means > 200 µg m <sup>-3</sup>						
			2010 <sup>c</sup>	2011 <sup>c</sup>	2012 <sup>c</sup>	2013 <sup>c</sup>	2014 <sup>c</sup>	2015 <sup>d</sup>	2016 <sup>c</sup>
BT1	Automatic	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A
BT4	Automatic	91	7	10	<b>32</b>	<b>N/A</b>	10	0	<b>33</b>
BT5	Automatic	55	0	2	0	0	<b>N/A</b>	0	<b>25</b>
BT6	Automatic	60	12	0	0	0	<b>N/A</b>	<b>N/A</b>	0
BT7	Automatic	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A

Notes: Exceedance of the NO<sub>2</sub> short term AQO of 200 µg m<sup>-3</sup> over the permitted 18 days per year are shown in **bold**.

<sup>a</sup> data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

<sup>b</sup> 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%)

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

<sup>d</sup> Not “annualised” (as per TG16), due to extremely low data capture in 2015 or unavailability of an appropriate annualisation factor

**Table F. Annual Mean PM<sub>10</sub> Automatic Monitoring Results (µg m<sup>-3</sup>)**

Site ID	Valid data capture for monitoring period % <sup>a</sup>	Valid data capture 2016 % <sup>b</sup>	Annual Mean Concentration (µg m <sup>-3</sup> )						
			2010 <sup>c</sup>	2011 <sup>c</sup>	2012 <sup>c</sup>	2013 <sup>c</sup>	2014 <sup>c</sup>	2015 <sup>c</sup>	2016 <sup>c</sup>
BT1	N/A	N/A	19.3	N/A	N/A	N/A	N/A	N/A	N/A
BT4	94	94	32.6	34.5	32.9	34.1	28.6	29.2	33

Site ID	Valid data capture for monitoring period % <sup>a</sup>	Valid data capture 2016 % <sup>b</sup>	Annual Mean Concentration ( $\mu\text{g m}^{-3}$ )						
			2010 <sup>c</sup>	2011 <sup>c</sup>	2012 <sup>c</sup>	2013 <sup>c</sup>	2014 <sup>c</sup>	2015 <sup>c</sup>	2016 <sup>c</sup>
BT5	85	85	36.1	34.3	32.5	26.5	24.1	31.3	31
BT6	98	98	25.7	25.5	24.4	25.3	21.2	16.9	20
BT7	N/A	N/A	19.8	N/A	N/A	N/A	N/A	N/A	N/A

Notes: Exceedance of the PM<sub>10</sub> annual mean AQO of 40  $\mu\text{g m}^{-3}$  are shown in **bold**.

<sup>a</sup> data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

<sup>b</sup> 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%)

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

**Table G. PM<sub>10</sub> Automatic Monitor Results: Comparison with 24-Hour Mean Objective**

Site ID	Valid data capture for monitoring period % <sup>a</sup>	Valid data capture 2016 % <sup>b</sup>	Number of Daily Means > 50 $\mu\text{g m}^{-3}$						
			2010 <sup>c</sup>	2011 <sup>c</sup>	2012 <sup>c</sup>	2013 <sup>c</sup>	2014 <sup>c</sup>	2015 <sup>c</sup>	2016 <sup>c</sup>
BT1	N/A	N/A	2	N/A	N/A	N/A	N/A	N/A	N/A
BT4	94	94	31	<b>46</b>	35	<b>38</b>	26	23	<b>45</b>
BT5	85	85	<b>63</b>	<b>62</b>	<b>57</b>	17	5	15	<b>37</b>
BT6	98	98	8	15	11	10	1	1	9
BT7	N/A	N/A	2	N/A	N/A	N/A	N/A	N/A	N/A

Notes: Exceedance of the PM<sub>10</sub> short term AQO of 50  $\mu\text{g m}^{-3}$  over the permitted 35 days per year or where the 90.4th percentile exceeds 50  $\mu\text{g m}^{-3}$  are shown in **bold**.

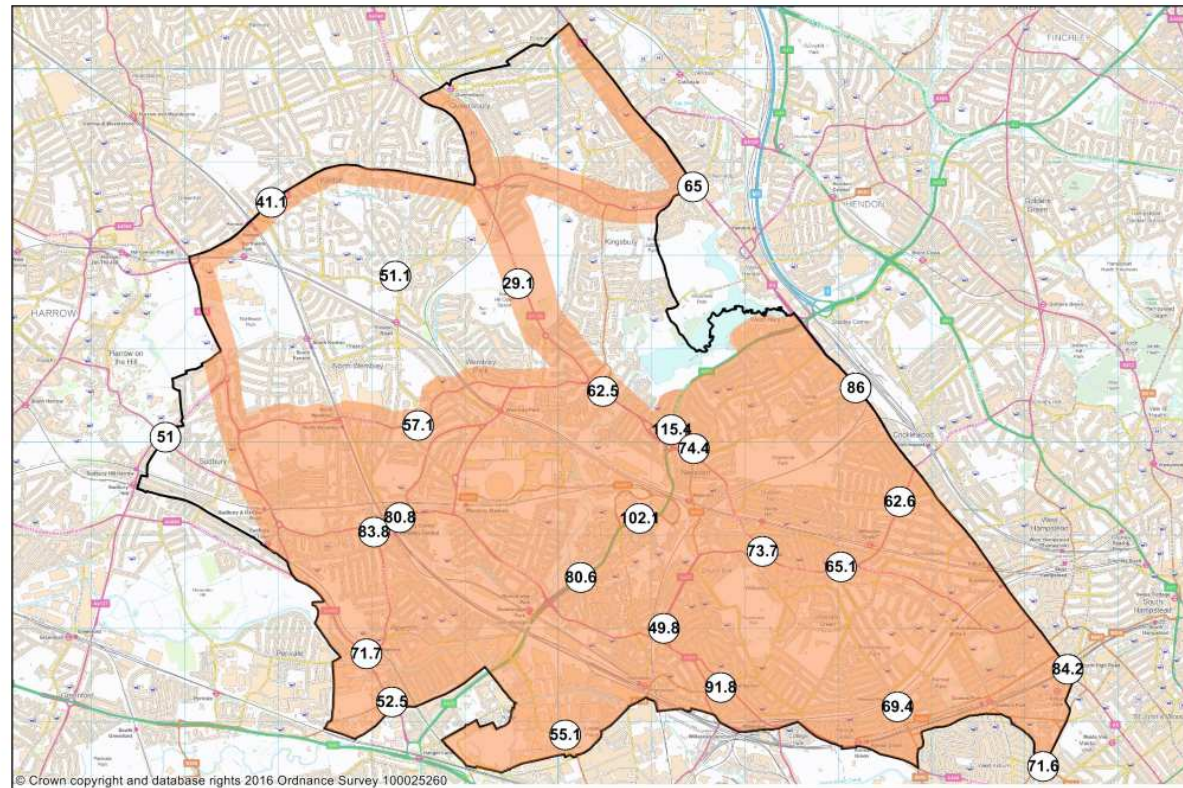
Where the period of valid data is less than 90% of a full year, the 90.4th percentile is shown in brackets after the number of exceedances.

<sup>a</sup> data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

<sup>b</sup> 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%)

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

### AQMA and 2016 Annual mean NO<sub>x</sub> levels



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## 2. Action to Improve Air Quality

**Table J. Commitment to Cleaner Air Borough Criteria**

Theme	Criteria	Achieved (Y/N)	Evidence		
<b>1. Political leadership</b>	<b>1.a</b>		Pledged to become a Cleaner Air for London Borough (at cabinet level) by taking significant action to improve local air quality and signing up to specific delivery targets.	Y	<i>No evidence required</i>
	<b>1.b</b>		Provided an up-to-date Air Quality Action Plan (AQAP), fully incorporated into LIP funding and core strategies.	Y	<p><i>The 2015 AQAP is available online at <a href="https://www.brent.gov.uk/services-for-residents/environment/pollution/air-quality/">https://www.brent.gov.uk/services-for-residents/environment/pollution/air-quality/</a></i></p> <p><i>The council is currently consulting on our revised air quality action plan 2017-2021 which will be published in Autumn 2017.</i></p> <p><i>The AQAP has been incorporated into Brent LIP process and is a key consideration in all existing and emerging local transport and planning policy.</i></p>
<b>2. Taking action</b>	<b>2.a</b>		Taken decisive action to address air pollution, especially where human exposure and vulnerability (e.g. schools, older people, hospitals etc) is highest.	Y	<p><i>The council monitors air quality at key locations in the borough including town centres and areas where exposure to poor air quality is greatest using diffusion tubes and continuous monitors. We have identified an additional location for a new continuous monitor in the south of the borough as part of a wider air quality programme in the area which includes facilitating residents to implement community-based air quality projects. We have recently expanded our diffusion tube network to include additional high priority sites.</i></p> <p><i>The council has initiated a project to raise awareness of and tackle idling engines associated with Brent Schools. This project includes the incorporation of local air quality monitoring in selected schools.</i></p> <p><i>The council continues to respond reactively to</i></p>

				<i>complaints about air pollution, including complaints about dust from construction sites, and uses regulatory enforcement powers where appropriate to address immediate pollution issues.</i>
	<b>2.b</b>	Developed plans for business engagement (including optimising deliveries and supply chain), retrofitting public buildings using the RE:FIT framework, integrating no engine idling awareness raising into the work of civil enforcement officers, (etc)	Y	Piloting a freight retiming trial in one town centre location initiated in partnership with TfL and WestTrans. Core aim to determine environmental improvements which could be achieved by rescheduling deliveries outside peak hours, specifically after 10pm. The trial covers the large outlet shopping area as well as 5 other businesses in Wembley.
	<b>2.c</b>	Integrated transport and air quality, including by improving traffic flows on borough roads to reduce stop/start conditions	Y	<i>See project outline in 2.b above.</i> <i>The council promotes active travel including the provision of free cycle training, a healthy walks programme, Bike it Plus and Walk and Stride programmes for schools. The use and promotion of local car clubs is also a significant contributor to improvement of traffic flows.</i>
	<b>2.d</b>	Made additional resources available to improve local air quality, including by pooling its collective resources (s106 funding, LIPs, parking revenue, etc).	Y	<i>The council utilises funds from s106 and the LIP to finance local air quality monitoring and the implementation of the air quality action plan.</i> <i>The council recently used LIP (£11,000) and S106 (£20,000) funding to expand the air quality monitoring network, install a new air quality monitoring station, and fund short term local air quality monitoring for residents in one town centre.</i>
<b>3. Leading by example</b>	<b>3.a</b>	Invested sufficient resources to complement and drive action from others	Y	<i>The council has increased provision from 1 to 1.5 FTE equivalents responsible for air quality action and monitoring.</i> <i>We are members of the West London Air Quality Group and use this forum to share best practice and information.</i>

	<b>3.b</b>	Maintained an appropriate monitoring network so that air quality impacts within the borough can be properly understood	Y	<p><i>The council has maintained continuous AQ monitors and a network of non-continuous monitors since 2001. We have significantly improved our data capture over the last 12 months.</i></p> <p><i>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.</i></p> <p><i>All existing AQ monitors are now subject o a programme of upgrade and additional resources made available for the provision of future monitoring.</i></p>
	<b>3.c</b>	Reduced emissions from council operations, including from buildings, vehicles and all activities.	Y	<p><i>Our Civic Centre is officially recognised as the greenest public building in the UK, through its BREEAM Outstanding accreditation. The council operations are mainly based in a single location contribute to council savings of £2.5m a year,</i></p> <p><i>The council encourages all visitors to use public transport to visit our offices and parking is limited to promote this aim.</i></p> <p><i>The council operates a car club from the building which permits staff access to low emission vehicles for essential journeys, includes the use of hybrid and electric vehicles and whose fleet is regularly reviewed to provide the cleanest, greenest vehicles available.</i></p> <p><i>The council continues to review parking and the provision if essential user permits and has implemented an additional restriction as a disincentive to staff and visitors to drive/ park.</i></p>
	<b>3.d</b>	Adopted a procurement code which reduces emissions from its own and its suppliers activities, including from buildings and vehicles operated by and on their behalf (e.g. rubbish trucks).	N	This has been prioritised for action in the Air Quality Action Plan currently under review.
<b>4. Using the planning system</b>	<b>4.a</b>	Fully implemented the Mayor's policies relating to air quality neutral, combined heat and power and biomass.	Y	<i>Require all approved planning applications meet the Mayor's requirements relating to AQ neutral and CHPs</i>

	<b>4.b</b>	Collected s106 from new developments to ensure air quality neutral development, <b>where possible</b>	Y	<i>The council has obtained funds for implementation of the air quality action plan via s106.</i>
	<b>4.c</b>	Provided additional enforcement of construction and demolition guidance, with regular checks on medium and high risk building sites.	Y	<i>We have joined the London Low Emission Construction Partnership and work is currently underway to begin inspections of sites in Brent.</i>
<b>5. Integrating air quality into the public health system</b>	<b>5</b>	Included air quality in the borough's Health and Wellbeing Strategy and/or the Joint Strategic Needs Assessment	Y	<i>Air quality is a key theme in our previous JSNA. Work is underway to update our Health and Wellbeing Strategy.</i>
<b>6. Informing the public</b>	<b>6.a</b>	Raised awareness about air quality locally	Y	<p><i>The council continues to attend a range of meetings to raise local awareness of air quality issues and action, including recent public health engagement seminar with residents and a range of resident's local forums as part of the public consultation on the emerging air quality action plan.</i></p> <p><i>The council routinely responds to telephone and online queries regarding air quality action and issues.</i></p> <p><i>The council promotes the use of Airtext and appropriate journey planning apps to assist residents to walk and cycle.</i></p> <p><i>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.</i></p> <p><i>The council publishes information about air quality on our website.</i></p>



## 2.1 Air Quality Action Plan Progress

Table K provides a brief summary of *London Borough of Brent* progress against the Air Quality Action Plan, showing progress made this year. New projects which commenced in 2016 are shown at the bottom of the table.

**Table K. Delivery of Air Quality Action Plan Measures**

<b>Measure</b>	<b>Progress to date</b>	<b>Further Information</b>
Monitor key air pollutants throughout the Borough	<p>The council reviews its programme for non-continuous monitoring annually and has expanded the diffusion tube network to incorporate additional monitoring locations.</p> <p>The council has significantly improved the data capture rate for continuous monitoring compared to last year following upgrade of analysers and equipment.</p> <p>The council will also prioritise work to promote resident-led local air quality monitoring projects and has already started this work with 4 residents groups in Brent.</p>	<p>The council will continue to maintain and upgrade its air quality monitoring network.</p> <p>The council will review its programme for non-continuous monitoring.</p>
Reduce emissions to air from industrial installations and waste facilities	<p>The council regulates some polluting processes via the Environmental Permitting Regime. The council has undertaken 90% of inspections of those scheduled.</p> <p>The council has investigated and resolved 15 complaints made in respect of emissions from waste facilities or industrial installations in 2016.</p>	<p>Complaints made to the council in respect of pollution and emissions will be investigated.</p> <p>This is ongoing and subject to annual review.</p>

<b>Measure</b>	<b>Progress to date</b>	<b>Further Information</b>
Implement all feasible options for reducing the impacts of idling engines from commercial and domestic vehicles	<p>The council investigates complaints received regarding idling. The council reactively investigated 12 complaints received about idling. No fixed penalty notices were served for idling in 2016.</p> <p>The council has implemented a no-idling campaign to raise awareness of the impacts of idling on local air quality around schools.</p>	The council will expand the idling engine project to target businesses and repeat offenders at hotspots in the borough. The council is in the process of gathering evidence to identify key hotspots and will be revising options for issue of fixed penalties as part of this work.
Review all new planning applications for potential air quality impacts and implement controls to limit impacts	In 2016 the council reviewed 622 planning applications with specific regard to their potential impacts on local air quality. And ensuring they meet are able to meet 'air quality neutral' criteria where feasible.	This is ongoing and subject to annual review.
Implement measures to restrict the burning of waste	<p>The council actively discourages the domestic burning of waste and provides alternatives such as green waste collection service.</p> <p>The council dealt with 202 complaints regarding nuisance from the burning of waste in 2016.</p>	This is ongoing and subject to annual review.
Work with West London Partners to reduce emissions regionally	WestTrans in partnership with the TfL are currently piloting freight re-timing in Wembley Town Centres for deliveries. T	The West London Air Quality Cluster Group will continue to work together to identify additional options for implementing best practice and sharing resources for regional air quality action. This will include exploring options for a regional air quality strategy following update of individual air quality action plans which are all scheduled for completion this year..

<b>Measure</b>	<b>Progress to date</b>	<b>Further Information</b>
<p>Raise awareness, engage and educate stakeholders and residents about air quality issues</p>	<p>The council continues to provide air quality information and guidance on request to developers, residents and other interested parties.</p> <p>The council provides information about local air quality action plan progress via our website.</p> <p>The council is currently working with residents groups in one town centre to create their own local action plan list and will use this as best practice guidance for other residents.</p> <p>The council has also held seminars to brief senior managers and members on air quality issues.</p>	<p>The council will develop a communications strategy to complement the review of the air quality action plan.</p> <p>The council will publish and produce bespoke guidance for local businesses, schools and residents on local air quality (these guides are currently in draft)</p>
<p>Support Mayoral, Government and EU initiatives to achieve emission reductions in the Borough</p>	<p>The council is compliant with its Local Air Quality Management (LAQM) responsibilities and continues to review and assess local air quality in accordance with the requirements.</p> <p>The council was actively involved in the LAQM review process and has responded to Mayoral and Government consultations relating to air quality action including consultation on the Ultra Low Emission Zone.</p>	<p>The council will continue to comply with regional or national air quality action.</p>
<p>Integrate local air quality improvements into Borough public health plan</p>	<p>Local air quality impacts are considered in relation to the Boroughs Health and Wellbeing plans. The council has started work with the local care commissioning group to raise awareness of air quality issues with local residents.</p>	

<b>Measure</b>	<b>Progress to date</b>	<b>Further Information</b>
Increase the number of suitable tree species planted in new developments	<p>The council implements provision of new and replacement trees as part of an ongoing programme for planting. The council continues to promote the 'Adopt-a-Tree' programme to encourage residents' involvement in local tree provision and maintenance.</p> <p>The council has identified a significant deficiency in Neasden Town Centre and work is currently underway to re-provide trees and additional green infrastructure.</p>	The council will further develop the strategy for planting in areas of significant deficiency.
<p>Develop a cohesive strategy for biomass installations and achieve 20% carbon reduction from renewables.</p> <p>Implement measures to reduce carbon emissions in accordance with Council Carbon Strategies</p>	<p>No progress.</p> <p>Work is underway to identify options for carbon reduction via energy efficiency and management in council buildings. It is likely that this will result in the provision of a more achievable carbon reduction target.</p>	A revised target will be published in a new Carbon Management Strategy due to be published late 2017.
Update the Sustainable Development Checklist to reflect the Borough's commitment to reducing the environmental impact of new development	Action complete. No further action.	
Set carbon and nitrogen dioxide reduction targets for regeneration schemes	No progress.	Further work is needed to establish practical and achievable reduction targets.
Review planning policies to safeguard against environmental impacts of new and existing Waste Transfer Stations	No further action, no new sites identified in 2016.	

<b>Measure</b>	<b>Progress to date</b>	<b>Further Information</b>
Install electric charging points at strategic locations in Brent	<p>The council currently operates a network of 57 charging points in partnership with BluePointLondon.</p> <p>The council provides a reduction on resident's permits for electric vehicles to promote take-up.</p>	
Facilitate the delivery of new car clubs in the borough	<p>Provision of car clubs considered for eligible and appropriate new development schemes or through negotiation with providers for on-street bays.</p> <p>Council car club (Zip car) provides option for use of low emission vehicles.</p>	The Long Term Transport Strategy includes a commitment to create a Car Club Management Plan to provide a framework for additional car clubs.
Work with Brent businesses to achieve 10% emissions reductions from their core operations	No progress in 2016	Council will include this as an action in the new air quality action plan.
<p>Secure a 20% decrease of energy use in Council housing stock and 25% reduction in emissions arising from Council service delivery</p> <p>Reduce use of fossil fuels in council buildings</p>	<p>The councils total carbon footprint has reduced by 11.3 per cent. The council continues to implement an ongoing programme of streetlight replacement, reducing energy use in council buildings and retrofitting some buildings to improve energy efficiency.</p> <p>The council has reduced CO<sub>2</sub> emissions by 12.7% to date. The council aims to achieve 15% reduction by 2020.</p>	
Secure 10% reduction in nitrogen dioxide, particulates and carbon dioxide from major commercial fleet operators in Brent	No progress in 2016	Council will review this measure and include in the new air quality action plan.

<b>Measure</b>	<b>Progress to date</b>	<b>Further Information</b>
Lobby government to raise awareness of challenges to implementing waste licensing controls whilst achieving National Air Quality targets	<p>Work with Stakeholders/ Partners to identify key issues relating to emissions controls</p> <p>No further action required.</p>	No further action.

### 3. Planning Update and Other New Sources of Emissions

**Table L. Planning requirements met by planning applications in London Borough of Brent in 2016**

Condition	Number <i>Please complete all fields in this column with the total numbers</i>
Number of planning applications reviewed for air quality impacts	622
Number of planning applications required to monitor for construction dust	<u>287</u>
Number of CHPs/Biomass boilers refused on air quality grounds	<u>0</u>
Number of CHPs/Biomass boilers subject to GLA emissions limits and/or other restrictions to reduce emissions	<u>0</u>
Number of AQ Neutral building and/or transport assessments undertaken	<u>82</u>
Number of AQ Neutral building and/or transport assessments not meeting the benchmark and so required to include additional mitigation	<u>120</u>
Number of planning applications with S106 agreements including other requirements to improve air quality	<u>0</u>
Number of planning applications with CIL payments that include a contribution to improve air quality	<u>0</u>
<b>NRMM: Central Activity Zone and Canary Wharf</b> 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 <a href="http://www.nrmm.london">www.nrmm.london</a> and that all NRMM used on-site is compliant with Stage IIIB of the Directive and/or exemptions to the policy.	N/A
<b>NRMM: Greater London (excluding Central Activity Zone and Canary Wharf)</b> 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 <a href="http://www.nrmm.london">www.nrmm.london</a> and that all NRMM used on-site is compliant with Stage IIIA of the Directive and/or exemptions to the policy.	0

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. In 2016, one planning application was refused on the grounds of high exposure to poor air quality.

### **3.1 *New or significantly changed industrial or other sources***

“No new sources identified”



## **Appendix A Details of Monitoring Site QA/QC**

### **A.1 Automatic Monitoring Sites**

QA/QC for Brent's automatic monitoring stations is provided by ERG King's College London. These stations are calibrated fortnightly by LSO, with audits every 6 months. Calibrations are carried out by the Local Authority 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<sub>2</sub> annual average data. Annual averages have been bias adjusted using the bias adjustment factor for 2016 from the national database available on the LAQM website at <http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html>.

For the 2016 data a bias adjustment factor of 0.94 was used which is derived from 21 studies done nation wide for similar tubes.

### **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](http://www.londonair.org.uk).

**Appendix B Full Monthly Diffusion Tube Results for 2016**

**Table N. NO<sub>2</sub> Diffusion Tube Results**

Site ID	Valid data capture for monitoring period % <sup>a</sup>	Valid data capture 2015 % <sup>b</sup>	Annual Mean NO <sub>2</sub>												
			Jan	Feb	March	Apr	May	June	Jul-Aug	Sept	Oct	Nov	Dec	Annual mean – raw data <sup>c</sup>	Annual mean – bias adjusted <sup>c</sup>
1	87%	87%	47.84	50.52	42.72			31.65	29.53	34.84	45.35	51.83	59.56	43.76	41.13
2	84%	84%	61.60	63.07			50.46	47.47	42.23	44.86	51.07	59.61	67.89	54.25	51.00
4	100%	100%	62.89	56.90	48.00	51.18	51.08	45.00	38.82	46.48	58.17	66.80	72.42	54.34	51.08
7	88%	88%	77.42	79.61	65.98	65.48	71.48	69.72		81.71	73.17	79.69	97.97	76.22	71.65
9	92%	92%	68.35	63.94		64.99	50.44	55.71	47.28	53.74	54.38	68.95	79.74	60.75	57.11
17	100%	100%	87.99	63.37	60.50	67.42	57.53	59.25	62.16	56.02	58.16	74.39	84.46	66.48	62.49
21A	100%	100%	69.58	59.40	53.50	48.00	56.40	51.65	44.16	61.09	56.13	64.36	80.88	58.65	55.13
22	94%	94%	72.37	71.10	61.45	72.02	71.61	61.25	62.05	61.60		78.81	79.72	69.20	65.05
23	78%	78%	121.68	113.03	114.70	128.85	124.29	121.72		110.58	113.69	156.28		122.76	115.39
26	100%	100%	89.03	85.36	62.70	64.25	73.72	74.32	70.89	63.93	83.66	88.46	106.00	78.39	73.69
29	82%	82%	103.07	89.54	88.11	85.07	100.63		69.78		78.95	93.89	114.12	91.46	85.97
30	100%	100%	72.87	67.84	60.38	57.39	64.16	57.79	58.95	74.49	66.38	72.85	79.82	66.63	62.63
41	71%	71%	84.88	72.12	74.19	70.21	71.86	64.99				86.17	108.83	79.16	74.41
48	100%	100%	107.64	86.75	70.37	74.69	70.76	62.18	61.30	64.04		76.33	87.34	76.14	71.57
53	100%	100%	112.14	85.50	73.13	81.06	81.49	84.97	77.90	100.32	78.49	88.16	118.03	89.20	83.85
54	84%	84%	67.65	64.07	50.86		45.62	47.90	52.65	53.06	50.74	70.06		55.84	52.49

33A	78%	78%	37.82	32.00	26.43	26.10	26.65	18.82			31.76	36.24	<b>43.16</b>	31.00	29.14
52 A	100%	100%	<b>113.59</b>	<b>104.50</b>	<b>95.30</b>	<b>87.32</b>	<b>116.58</b>	<b>104.53</b>	<b>102.24</b>	<b>106.34</b>	<b>108.87</b>	<b>129.59</b>	<b>172.31</b>	<b>112.83</b>	<b>106.06</b>
52 B	100%	100%	<b>108.81</b>	<b>104.85</b>	<b>91.52</b>	<b>102.67</b>	<b>112.40</b>	<b>101.78</b>	<b>95.80</b>	<b>104.19</b>	<b>104.65</b>	<b>130.20</b>	<b>150.24</b>	<b>109.74</b>	<b>103.15</b>
52 C	100%	100%	<b>111.00</b>	<b>103.18</b>	<b>94.49</b>	<b>100.20</b>	<b>108.94</b>	<b>105.14</b>	<b>96.60</b>	<b>28.74</b>	<b>108.85</b>	<b>143.70</b>	<b>135.36</b>	<b>103.29</b>	<b>97.09</b>
BRT 42	100%	100%	<b>60.95</b>	<b>55.94</b>	<b>49.34</b>	<b>44.69</b>	<b>52.50</b>	<b>42.90</b>	<b>39.97</b>	<b>46.39</b>	<b>55.41</b>	<b>64.46</b>	<b>69.90</b>	<b>52.95</b>	<b>49.77</b>
BRT 43	100%	100%	<b>89.77</b>	<b>73.69</b>	<b>71.17</b>	<b>66.48</b>	<b>67.27</b>	<b>67.20</b>	<b>101.25</b>	<b>67.26</b>	<b>90.36</b>	<b>100.52</b>	<b>148.78</b>	<b>85.80</b>	<b>80.65</b>
BRT 53	94%	94%	<b>94.99</b>	<b>78.71</b>	<b>76.82</b>	<b>74.52</b>	<b>81.62</b>	<b>80.95</b>	<b>79.17</b>	<b>91.53</b>		<b>86.52</b>	<b>114.38</b>	<b>85.92</b>	<b>80.77</b>
BRT 55	75%	75%		<b>114.60</b>	<b>90.70</b>	<b>100.52</b>	<b>103.02</b>	<b>79.44</b>	<b>91.09</b>			<b>108.25</b>	<b>93.94</b>	<b>97.70</b>	<b>91.83</b>
BRT 56	84%	84%	<b>83.44</b>	<b>73.44</b>	<b>70.21</b>	<b>78.14</b>	<b>69.08</b>	<b>63.35</b>	<b>58.55</b>			<b>78.29</b>	<b>90.22</b>	<b>73.86</b>	<b>69.43</b>
BRT 57	94%	94%	<b>110.17</b>	<b>100.47</b>	<b>83.70</b>	<b>80.87</b>	<b>83.60</b>	<b>78.24</b>	<b>83.03</b>	<b>94.54</b>		<b>90.46</b>	<b>90.75</b>	<b>89.58</b>	<b>84.21</b>
BRT 58	88%	88%	<b>76.09</b>	<b>70.44</b>	<b>62.78</b>	<b>73.45</b>	<b>74.73</b>	<b>62.42</b>		<b>57.04</b>	<b>63.50</b>	<b>74.77</b>	<b>84.02</b>	<b>69.92</b>	<b>65.73</b>

Exceedance of the NO<sub>2</sub> annual mean AQO of 40 µgm<sup>-3</sup> are shown in **bold**.

<sup>a</sup> data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

<sup>b</sup> 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%)

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