

**Royal Borough of Greenwich Air Quality Annual Status  
Report for 2017  
Date of publication: May 2018**



This report provides a detailed overview of air quality in the Royal Borough of Greenwich during 2017. 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>

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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 <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

### 1.1 Locations

Table B. Details of Automatic Monitoring Sites for 2017

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

GR9	Westhorne Avenue	541879	175016	Roadside	Y	Y (0)	12	3m	NO <sub>2</sub> PM <sub>10</sub> PM <sub>2.5</sub> (and O <sub>3</sub> )	FDMS
GNO Note- previously GR10	Burrage Grove	544084	178881	Roadside	Y	Y (1)	3	3m	NO <sub>2</sub> PM <sub>10</sub> PM <sub>2.5</sub>	FDMS
GN2 note - previously GR12	Millennium Village	540169	178999	Background	Y	Y (0)	N/A	3m	NO <sub>2</sub> PM <sub>10</sub> PM <sub>2.5</sub>	FDMS
GN3 note - previously GR13	Plumstead High St	545560	178526	Roadside	Y	Y (0)	5	3m	NO <sub>2</sub> PM <sub>10</sub> PM <sub>2.5</sub> (and O <sub>3</sub> )	FDMS
GN4	Fiveways Sidcup Rd	543582	172653	Roadside	Y	Y (5)	2	3m	NO <sub>2</sub> PM <sub>10</sub>	FDMS
BX3	Thamesmead	547323	181231	Suburban	Y	Y (0)	N/A	3m	PM <sub>2.5</sub>	TEOM

### Changes to the Greenwich Real Time Monitoring Stations

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

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

In the event the planning consent is implemented the Royal Borough has made a commitment to install an additional real time air quality monitoring station in the vicinity of the proposed Enderby Wharf Cruise Liner terminal. The proposed location of the monitoring station is being reviewed, with independent advice from external consultants. It is proposed that the station will monitor PM<sub>10</sub>; PM<sub>2.5</sub>; NO<sub>2</sub> and SO<sub>2</sub>.

The proposed sites for new and relocated air quality monitoring stations have all been independently assessed by the Environmental Research Group of Kings College London, who manage the London Air Quality Network.

**Table C. Details of Non-Automatic Monitoring Sites for 2017**

Site ID	Site Name	Easting	Northing	Site Type	In AQMA?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Inlet height (m)	Pollutants monitored	Tube co- located with an automatic monitor? (Y/N)
GW23 (1)	Siebert Rd	540420	177706	Roadside	Y	Y	17.2		NO <sub>2</sub>	N
GW24 (2)	Plumstead Common Rd	543806	177951	Roadside	Y	Y	3.0		NO <sub>2</sub>	N
GW25 (3)	Eltham Rd	540099	174881	Roadside	Y	Y	3.0		NO <sub>2</sub>	N
GW26 (4)	Foots Cray Rd	544015	173139	Roadside	Y	Y	0.5		NO <sub>2</sub>	N
GW27 (5)	Charlton Village	541645	177874	Roadside	Y	Y	0.5		NO <sub>2</sub>	N
GW28 (58)	Dunblane Rd	542656	176207	Roadside	Y	Y	7.5		NO <sub>2</sub>	N
GW29 (6)	Woolwich Rd Charlton	541167	178512	Roadside	Y	Y	1.5		NO <sub>2</sub>	N
GW30 (53)	Indus Rd	541372	177070	Roadside	Y	Y	5.0		NO <sub>2</sub>	N
GW31 (57)	Deansfield School	543383	175664	Roadside	Y	Y	3.0		NO <sub>2</sub>	N
GW32 (7)	Banchory Rd	540664	177235	Roadside	Y	Y	17.1		NO <sub>2</sub>	N

GW33 (8)	Blackheath Hill	537971	176776	Roadside	Y	Y	1.5		NO <sub>2</sub>	N
GW34 (9)	Bannockburn School	545490	178543	Roadside	Y	Y	3.0		NO <sub>2</sub>	N
GW35 (10)	Woolwich Rd Greenwich	539527	178281	Roadside	Y	Y	1.5		NO <sub>2</sub>	N
GW36 (11)	Boord St	539320	179234	Roadside	Y	Y	30.0		NO <sub>2</sub>	N
GW37 (12)	De Lucy School	546630	179557	Background	Y	Y	215.0		NO <sub>2</sub>	N
GW38 (13)	Westhorne Avenue	541885	175045	Background	Y	Y	30.0		NO <sub>2</sub>	N
GW39 (14,15,16)	Bexley Rd ECC (Triplicate co-located site)	543986	174660	Background	Y	Y	65.0		NO <sub>2</sub>	Y
GW40 (17)	Shrewsbury House	544065	176996	Background	Y	Y	575.0		NO <sub>2</sub>	N
GW41 (18)	Sidcup Rd	543391	172765	Roadside	Y	Y	3.0		NO <sub>2</sub>	N
GW42 (19)	Greenwich Church St	538317	177652	Roadside	Y	Y	2.0		NO <sub>2</sub>	N
GW43 (20)	Creek Rd	537353	177632	Roadside	Y	Y	2.0		NO <sub>2</sub>	N
GW44 (21)	Eltham High St	543096	174439	Roadside	Y	Y	3.6		NO <sub>2</sub>	N
GW48 (23)	Greenwich South St	538044	176960	Roadside	Y	Y	2.5		NO <sub>2</sub>	N
GW49 (24)	Woolwich High St	543472	179217	Roadside	Y	Y	1.0		NO <sub>2</sub>	N
GW50 (25,26,27)	Woolwich Flyover (Triplicate co-located site)	540203	178367	Roadside	Y	Y	3.5		NO <sub>2</sub>	Y
GW51 (28)	Bugsbys Way	539638	179024	Roadside	Y	Y	2.0		NO <sub>2</sub>	N
GW52 (29)	Woolwich High St	542842	179108	Roadside	Y	Y	1.5		NO <sub>2</sub>	N
GW53 (30)	Shooters Hill Rd	542181	176878	Roadside	Y	Y	1.5		NO <sub>2</sub>	N
GW54 (31)	Westhorne Av	541915	175039	Roadside	Y	Y	2.5		NO <sub>2</sub>	N
GW55(32,33,34)	Crown Woods Way (Triplicate site)	545005	175097	Roadside	Y	Y	1.5		NO <sub>2</sub>	Y



GW56 (35)	Sidcup Rd	543679	172598	Roadside	Y	Y	1.5		NO <sub>2</sub>	N
GW57a (36)	Trafalgar Rd	538968	177955	Roadside	Y	Y	7.0		NO <sub>2</sub>	N
GW58 (39,40,41)	Blackheath Hill (Triplicate co-located site)	538143	176712	Roadside	Y	Y	4.0		NO <sub>2</sub>	Y
GW59 (42,43,44)	Westhorne Av (Triplicate co-located site)	541883	175016	Roadside	Y	Y	13.0		NO <sub>2</sub>	Y
GW60 (45,46,47)	Burrage Grove (Triplicate co-located site)	544086	178882	Roadside	Y	Y	16.9		NO <sub>2</sub>	Y
GW61 (50,51,52)	Millennium Village (Triplicate co-located site)	540175	179000	Background	Y	Y	n/a		NO <sub>2</sub>	Y
GW101 (48)	Plumstead Rd	544727	178884	Roadside	Y	Y	1.0		NO <sub>2</sub>	N
GW102 (49)	Plumstead Rd	544075	178898	Roadside	Y	Y	1.0		NO <sub>2</sub>	N
GW103 (54)	Wricklemarsh Rd	540935	176575	Roadside	Y	Y	9.0		NO <sub>2</sub>	N
GW104 (55)	Sun Lane	540743	177072	Roadside	Y	Y	12.5		NO <sub>2</sub>	N
GW105 (56)	Cliftons Roundabout	541143	174294	Roadside	Y	Y	5.0		NO <sub>2</sub>	N
GW106 (22)	Grand Depot Rd	543505	178576	Roadside	Y	Y	1.0		NO <sub>2</sub>	N

## 1.2 Comparison of Monitoring Results with AQOs

The results presented are after adjustments for “annualisation” and for distance to a location of relevant public exposure, the details of which are described in Appendix A.

**Table D. Annual Mean NO<sub>2</sub> Ratified and Bias-adjusted Monitoring Results (µg m<sup>-3</sup>)**

Site ID	Site type	Valid data capture for monitoring period % <sup>a</sup>	Valid data capture 2017 % <sup>b</sup>	Annual Mean Concentration (µg m <sup>-3</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>	2017 <sup>c</sup>
GR4 Eltham	Automatic	N/A	97	<b>23</b>	<b>22</b>	21	20	20	21	20
GR5 Trafalgar Road	Automatic	N/A	Closed	<b>47</b>	<b>44</b>	<b>41</b>	<b>38</b>	36	Closed	Closed
GB6 Falconwood	Automatic	N/A	97	<b>42</b>	<b>47</b>	<b>51</b>	<b>45</b>	<b>41</b>	<b>45</b>	40
GR7 Blackheath	Automatic	N/A	99	<b>48</b>	<b>48</b>	<b>48</b>	<b>44</b>	39	<b>46</b>	38
GR8 Woolwich Flyover	Automatic	N/A	92	<b>67</b>	<b>71</b>	<b>64</b>	<b>75</b>	<b>66</b>	<b>64</b>	<b>65</b>
GR9 Westhorne Av	Automatic	N/A	97	<b>43</b>	<b>44</b>	46	43	40	42	39

Site ID	Site type	Valid data capture for monitoring period % <sup>a</sup>	Valid data capture 2017 % <sup>b</sup>	Annual Mean Concentration ( $\mu\text{g m}^{-3}$ )						
				2011 <sup>c</sup>	2012 <sup>c</sup>	2013 <sup>c</sup>	2014 <sup>c</sup>	2015 <sup>c</sup>	2016 <sup>c</sup>	2017 <sup>c</sup>
GN0 Burrage Grove	Automatic	N/A	99	<b>43</b>	<b>45</b>	45	38	35	39	35
GN2 Millennium Village	Automatic	N/A	Closed	<b>33</b>	<b>37</b>	38	36	28	30	Closed
GN3 Plumstead High St	Automatic	N/A	98	<b>42</b>	<b>39</b>	37	37	34	36	34
GN4 Fiveways	Automatic	N/A	98	<b>47</b>	<b>52</b>	58	53	44	46	<b>41</b>
GW23	Diffusion tube	N/A	100	39.4	<b>42.2</b>	<b>46.0</b>	<b>42.7</b>	<b>41.5</b>	<b>41.43</b>	36.6
GW24	Diffusion tube	N/A	100	<b>53.1</b>	<b>54.9</b>	<b>58.3</b>	<b>54.8</b>	<b>53.5</b>	<b>54.95</b>	<b>50.1</b>
GW25	Diffusion tube	N/A	100	<b>48.0</b>	<b>47.1</b>	<b>48.9</b>	<b>45.2</b>	<b>38.4</b>	<b>38.79</b>	35.1
GW26	Diffusion tube	N/A	100	32.5	31.6	32.2	31.2	<b>28.6</b>	28.26	28.4
GW27	Diffusion tube	N/A	100	<b>46.1</b>	<b>51.1</b>	<b>49.8</b>	<b>43.7</b>	<b>39.7</b>	<b>41.48</b>	38.6
GW28	Diffusion tube	N/A	100	37.8	39.7	36.4	36.9	<b>35.8</b>	<b>41.03</b>	32.6
GW29	Diffusion tube	N/A	100	<u><b>65.0</b></u>	<u><b>66.6</b></u>	<u><b>65.2</b></u>	<u><b>61.8</b></u>	<u><b>62.3</b></u>	<b>58.14</b>	<b>56.2</b>

Site ID	Site type	Valid data capture for monitoring period % <sup>a</sup>	Valid data capture 2017 % <sup>b</sup>	Annual Mean Concentration ( $\mu\text{g m}^{-3}$ )						
				2011 <sup>c</sup>	2012 <sup>c</sup>	2013 <sup>c</sup>	2014 <sup>c</sup>	2015 <sup>c</sup>	2016 <sup>c</sup>	2017 <sup>c</sup>
GW30	Diffusion tube	N/A	100	37.9	<b>52.0</b>	39.3	38.3	<b>35.0</b>	<b>40.47</b>	35.9
GW31	Diffusion tube	N/A	100	34.5	37.9	37.9	37.5	<b>35.7</b>	<b>40.37</b>	30.3
GW32	Diffusion tube	N/A	100	<b>47.8</b>	<b>50.1</b>	<b>48.5</b>	<b>51.9</b>	<b>49.6</b>	<b>47.42</b>	<b>45.9</b>
GW33	Diffusion tube	N/A	100	<b>59.2</b>	<b>64.1</b>	<b>62.7</b>	<b>63.4</b>	<b>60.8</b>	<b>60.96</b>	<b>53.9</b>
GW34	Diffusion tube	N/A	100	<b>48.2</b>	<b>48.3</b>	<b>45.1</b>	<b>44.0</b>	38.9	39.11	37.2
GW35	Diffusion tube	N/A	100	<b>71.5</b>	<b>73.2</b>	<b>72.3</b>	<b>69.4</b>	<b>59.1</b>	<b>56.01</b>	<b>53.6</b>
GW36	Diffusion tube	N/A	92	<b>52.6</b>	<b>54.5</b>	<b>55.2</b>	<b>60.1</b>	<b>57.2</b>	<b>58.13</b>	<b>56.4</b>
GW37	Diffusion tube	N/A	100	28.9	24.6	22.7	23.6	21.8	22.91	23.3
GW38	Diffusion tube	N/A	100	36.2	37.6	37.0	35.9	34.2	34.92	32.1
GW39	Diffusion tube	N/A	100	23.1	23.8	22.0	20.0	19.1	19.17	19.1
GW40	Diffusion tube	N/A	100	22.6	25.4	21.3	19.4	18.8	19.19	16.5
GW41	Diffusion tube	N/A	92	<b>48.5</b>	<b>47.8</b>	<b>43.3</b>	<b>44.7</b>	<b>50.0</b>	<b>55.56</b>	<b>54.5</b>
GW42	Diffusion tube	N/A	100	<b>56.0</b>	<b>52.5</b>	<b>53.1</b>	<b>52.8</b>	<b>49.9</b>	<b>48.90</b>	<b>44.8</b>
GW43	Diffusion tube	N/A	100	<b>62.3</b>	<b>66.8</b>	<b>60.4</b>	<b>57.0</b>	<b>57.3</b>	<b>56.30</b>	<b>50.4</b>

Site ID	Site type	Valid data capture for monitoring period % <sup>a</sup>	Valid data capture 2017 % <sup>b</sup>	Annual Mean Concentration ( $\mu\text{g m}^{-3}$ )						
				2011 <sup>c</sup>	2012 <sup>c</sup>	2013 <sup>c</sup>	2014 <sup>c</sup>	2015 <sup>c</sup>	2016 <sup>c</sup>	2017 <sup>c</sup>
GW44	Diffusion tube	N/A	83	48.4	50.4	55.6	50.7	48.9	48.84	48.0
GW48	Diffusion tube	N/A	83	47.4	47.6	45.6	42.0	42.2	38.24	38.5
GW49	Diffusion tube	N/A	100	43.7	48.5	43.4	44.6	44.2	54.80	58.1
GW50	Diffusion tube	N/A	100	<u>75.5</u>	<u>75.9</u>	<u>67.5</u>	<u>73.9</u>	<u>70.7</u>	<u>67.11</u>	69.5
GW51	Diffusion tube	N/A	100	41.9	49.3	43.3	46.9	44.9	45.80	43.6
GW52	Diffusion tube	N/A	100	48.5	45.7	44.9	43.9	39.6	39.03	39.2
GW53	Diffusion tube	N/A	100	43.3	41.8	34.2	37.0	36.1	37.08	34.0
GW54	Diffusion tube	N/A	100	<u>60.8</u>	63.6	57.5	56.4	52.5	52.08	48.7
GW55	Diffusion tube	N/A	100	53.2	58.1	<u>60.8</u>	57.6	51.7	58.78	44.6
GW56	Diffusion tube	N/A	100	53.5	56.2	56.1	56.7	51.0	51.31	47.5
GW57a	Diffusion tube	N/A	100	43.1	41.9	39.7	36.4	35.0	36.02	33.7
GW58	Diffusion tube	N/A	92	50.7	48.5	49.4	48.5	46.3	43.86	41.7
GW59	Diffusion tube	N/A	10	44.3	44.6	43.9	44.7	40.8	38.12	37.6
GW60	Diffusion tube	N/A	100	41.3	39.0	38.0	32.7	31.6	40.04	32.2

Site ID	Site type	Valid data capture for monitoring period % <sup>a</sup>	Valid data capture 2017 % <sup>b</sup>	Annual Mean Concentration ( $\mu\text{g m}^{-3}$ )						
				2011 <sup>c</sup>	2012 <sup>c</sup>	2013 <sup>c</sup>	2014 <sup>c</sup>	2015 <sup>c</sup>	2016 <sup>c</sup>	2017 <sup>c</sup>
GW61	Diffusion tube	N/A	100	<b>40.7</b>	<b>40.0</b>	39.1	35.2	30.5	32.12	28.1
GW101	Diffusion tube	N/A	83	<b><u>85.3</u></b>	<b><u>78.8</u></b>	<b><u>79.5</u></b>	<b>81.8</b>	<b>68.1</b>	<b>50.03</b>	<b>58.1</b>
GW102	Diffusion tube	N/A	92	<b><u>65.3</u></b>	<b><u>70.2</u></b>	<b><u>66.2</u></b>	<b>67.1</b>	<b>57.7</b>	<b>43.76</b>	<b>48.0</b>
GW103	Diffusion tube	N/A	100	<b>47.7</b>	<b>52.8</b>	<b>46.3</b>	<b>47.3</b>	<b>48.9</b>	<b>43.87</b>	<b>41.2</b>
GW104	Diffusion tube	N/A	100	<b>55.2</b>	<b>58.5</b>	<b>50.5</b>	<b>52.0</b>	<b>53.1</b>	<b>48.96</b>	<b>49.8</b>
GW105	Diffusion tube	N/A	100	<b>51.0</b>	<b>55.7</b>	<b>53.9</b>	<b>55.7</b>	<b>52.2</b>	<b>46.79</b>	<b>52.4</b>
GW106	Diffusion tube	N/A	100	<b>43.8</b>	<b>41.9</b>	<b>47.5</b>	<b>45.4</b>	39.9	<b>43.44</b>	38.4

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

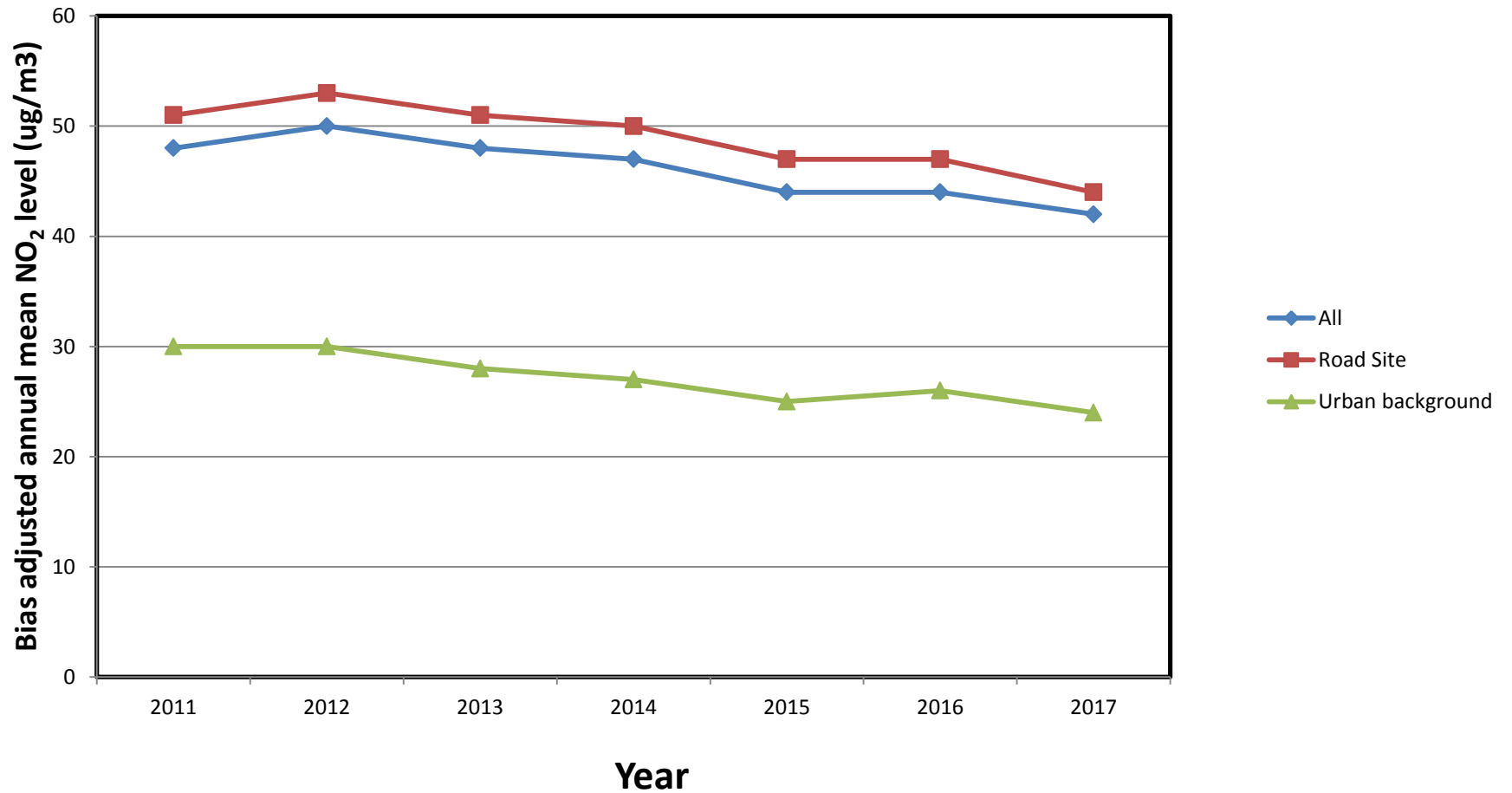
NO<sub>2</sub> annual means in excess of 60  $\mu\text{g m}^{-3}$ , indicating a potential exceedance of the NO<sub>2</sub> hourly mean AQS objective are shown in bold and underlined.

<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%.

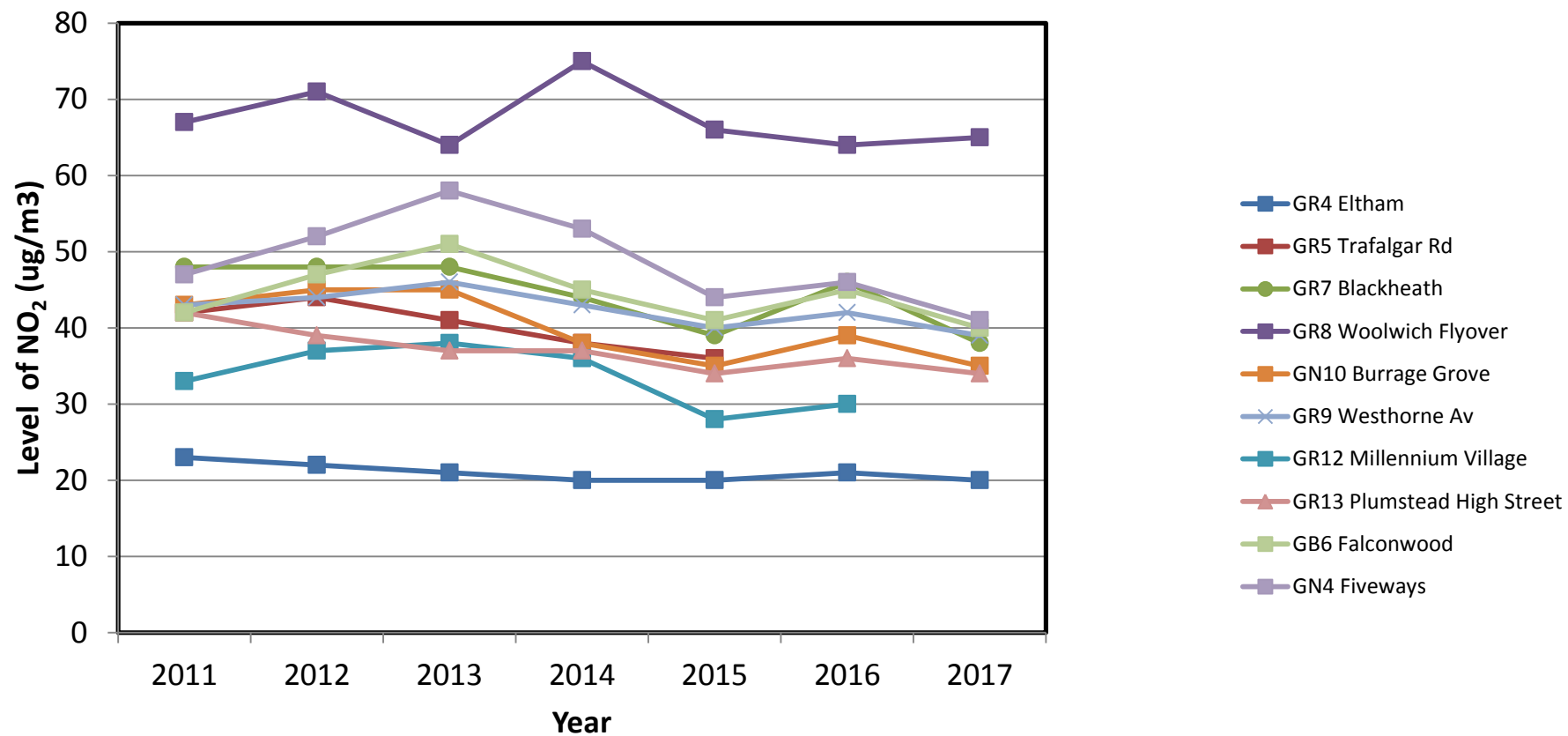
### Annual mean NO<sub>2</sub> level from diffusion tubes data



**Comment**

Results from RB Greenwich diffusion tube sites identify that roadside sites are persistently above the level of 40ug/m<sup>3</sup> set in the Air Quality Objectives.

### Annual Mean NO<sub>2</sub> Levels Automatic Sites



**Comment**

Results from RB Greenwich automatic monitoring sites identify that two roadside sites; at GN4 and GR8, record NO<sub>2</sub> levels above the level of 40ug/m3 set in the Air Quality Objectives.



**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 2017 % <sup>b</sup>	Number of Hourly Means > 200 µg m <sup>-3</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>	2017 <sup>c</sup>
GR4 Eltham	N/A	97	0	0	0	0	0	0	0
GR5 Trafalgar Road	N/A	Closed	0	0	0	5	0	Closed	Closed
GB6 Falconwood	N/A	97	7	21	11	10	2	3	1
GR7 Blackheath	N/A	99	1	0	1	0	0	0	0
GR8 Woolwich Flyover	N/A	92	6	<b>27</b>	8	<b>26</b>	6	24	7
GR9 Westhorpe Av	N/A	97	0	0	4	1	0	9	2
GN0 Burrage Grove	N/A	99	1	1	0	0	0	1	0
GN2 Millennium Village	N/A	Closed	0	2	2	0	0	0	Closed
GN3 Plumstead High St	N/A	98	0	0	0	0	0	0	0
GN4 Fiveways	N/A	98	0	1	7	2	1	0	0

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%.

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

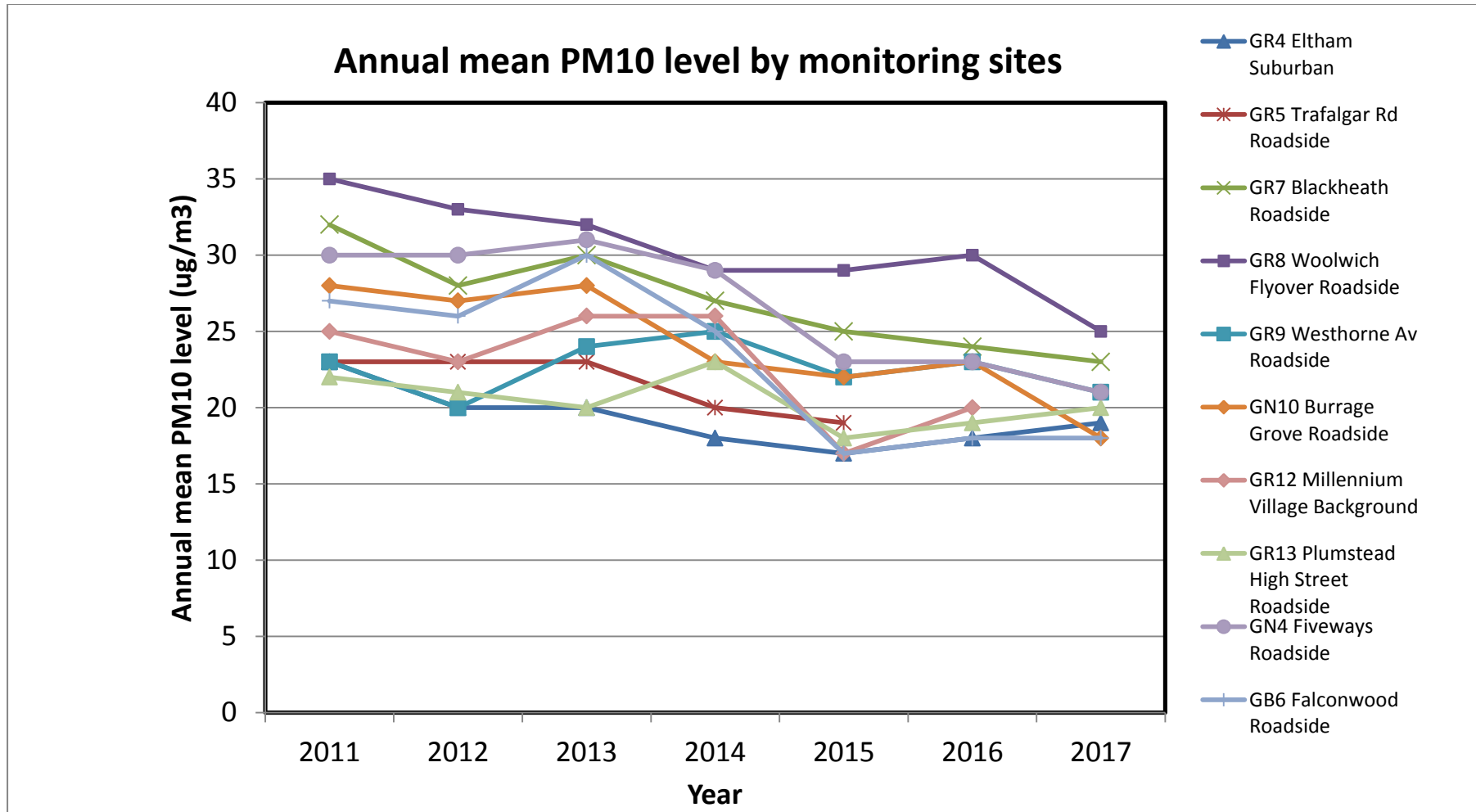
Site ID	Valid data capture for monitoring period % <sup>a</sup>	Valid data capture 2017 % <sup>b</sup>	Annual Mean Concentration (µg m <sup>-3</sup> )						
			2011 <sup>c</sup>	2012 <sup>c</sup>	2013 <sup>c</sup>	2014 <sup>c</sup>	2015 <sup>c</sup>	2016 <sup>c</sup>	2017 <sup>c</sup>
GR4 Eltham	N/A	90	23	20	20	18	17	18	19
GR5 Trafalgar Road	N/A	Closed	23	23	23	20	19	Closed	Closed
GB6 Falconwood	N/A	95	27	26	<b>30</b>	25	17	18	18
GR7 Blackheath	N/A	98	32	28	30	27	25	24	23
GR8 Woolwich Flyover	N/A	94	35	33	32	29	29	30	25
GR9 Westhorpe Av	N/A	97	23	20	24	25	22	23	21
GN0 Burrage Grove	N/A	99	28	27	<b>28</b>	23	22	23	18
GN2 Millennium Village	N/A	Closed	25	23	26	26	17	20	Closed
GN3 Plumstead High St	N/A	86	22	21	<b>20</b>	23	18	19	20
GN4 Fiveways	N/A	53	30	30	31	29	23	23	21

Notes: Exceedance of the PM<sub>10</sub> annual mean AQO of 40 µg m<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%.



**Comment**

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

**Table G. 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 2017 % <sup>b</sup>	Number of Daily Means > 50 µg m <sup>-3</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>	2017 <sup>c</sup>
GR4 Eltham	N/A	90	22	9	5	7	4	6	4
GR5 Trafalgar Road	N/A	Closed	18	16	8	5	2	Closed	Closed
GB6 Falconwood	N/A	95	25	27	28	13	1	1	2
GR7 Blackheath	N/A	98	<b>41</b>	26	29	18	12	14	15
GR8 Woolwich Flyover	N/A	94	<b>42</b>	33	26	17	18	22	9
GR9 Westhorne Av	N/A	97	25	16	17	19	9	15	16
GN0 Burrage Grove	N/A	99	32	28	18	15	5	10	8
GN2 Millennium Village	N/A	Closed	25	20	20	16	1	6	Closed
GN3 Plumstead High St	N/A	86	16	8	3	14	3	8	2
GN4 Fiveways	N/A	53	26	24	31	25	3	2	1

Notes: Exceedance of the PM<sub>10</sub> short term AQO of 50 µg m<sup>-3</sup> over the permitted 35 days per year or where the 90.4th percentile exceeds 50 µg m<sup>-3</sup> are shown in **bold**. Where the period of valid data is less than 85% of a full year, the 90.4<sup>th</sup> 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%.

**Table H. Annual Mean PM<sub>2.5</sub> Automatic Monitoring Results (µg m<sup>-3</sup>)**

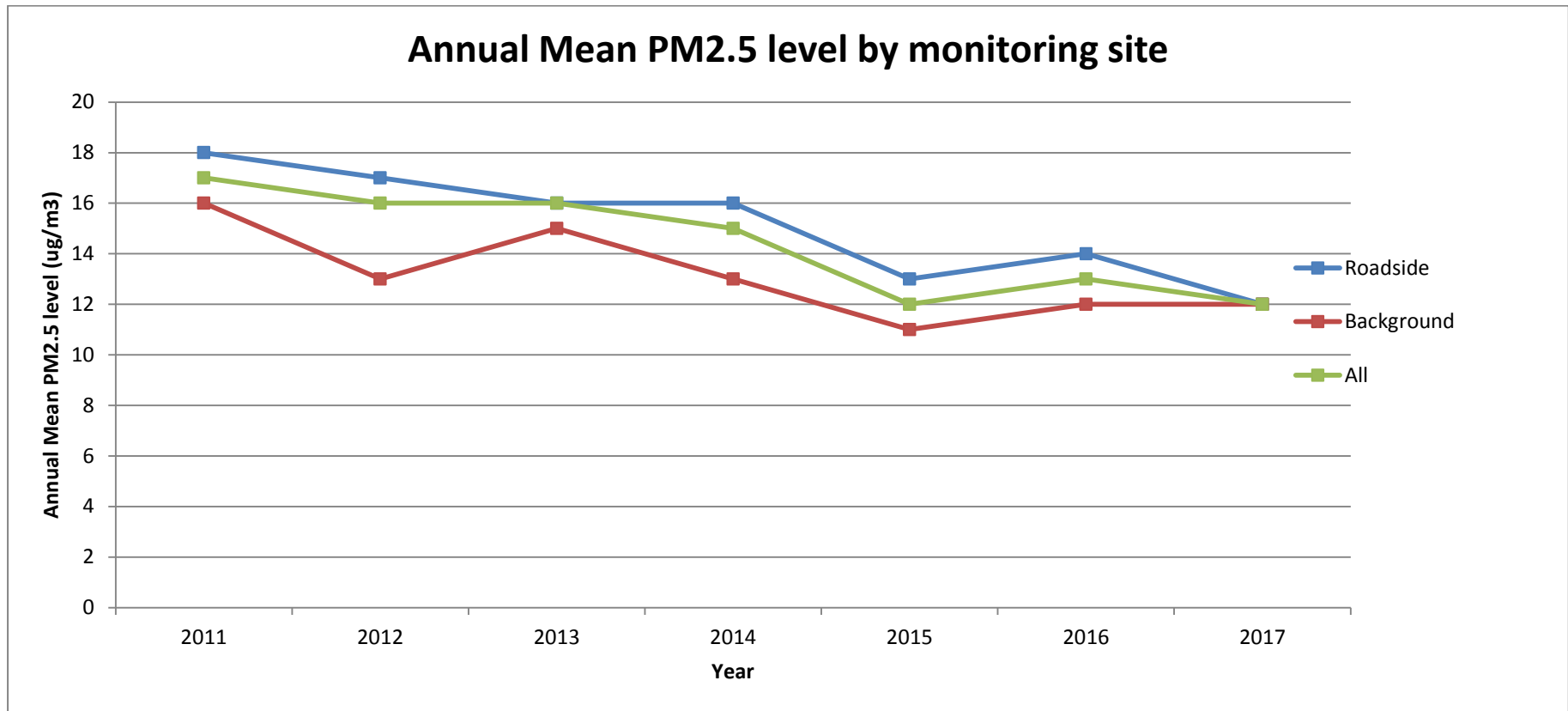
Site ID	Valid data capture for monitoring period % <sup>a</sup>	Valid data capture 2017 % <sup>b</sup>	Annual Mean Concentration (µg m <sup>-3</sup> )						
			2011 <sup>c</sup>	2012 <sup>c</sup>	2013 <sup>c</sup>	2014 <sup>c</sup>	2015 <sup>c</sup>	2016 <sup>c</sup>	2017 <sup>c</sup>
GR4 Eltham	N/A	88	16.1	13.3	15.2	<i>11.5</i>	10.6	11.7	12
GB6 Falconwood	N/A	89	17.8	18.6	16.4	<i>14.4</i>	14.3	15.3	13
GR8 Woolwich Flyover	N/A	92	17.2	15.4	14.9	14.6	12.2	13.4	13.1
GR9 Westthorne Av	N/A	99	17	15.8	17.2	15.8	12.7	12.9	11
GN0 Burrage Grove	N/A	83	24.5	18.1	17.5	<i>17.1</i>	12.1	14.5	12
GN2 Millennium Village	N/A	Closed	19.1	15.2	15.4	<i>15.5</i>	11.5	11.4	Closed
GN3 Plumstead High St	N/A	98	18.7	19.1	15.3	16.3	14.7	14	12

Notes: Exceedance of the PM<sub>2.5</sub> annual mean AQO of 25 µg m<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%



**Comment**

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

## 2. Action to Improve Air Quality

The table below provides a brief summary of how RB Greenwich has shown commitment to being a Cleaner Air Borough in 2017.

Theme	Criteria	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.	<i>Cleaner Air Borough status awarded by the Mayor for London (2017). The accreditation relates solely to the performance of the borough in terms of working to address local pollution under 6 themes: political leadership; taking action; leading by example; informing the public; using the Planning system; integrating air quality into the public health system.</i>
<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.	<p><i>The on-going Low Emission Neighbourhood (LEN) project in Greenwich West and Peninsula wards, a £2M project “match-funded” by the GLA, aims to improve air quality in the area using a combination of ‘smart technology’ as well as tried and tested techniques to reduce transport emissions, making the area a more people-friendly neighbourhood.</i></p> <p><i>Initiatives such as ‘Greenwich Play Streets’ have been promote. Through this initiative children have the chance to play freely and safely in the LEN, by neighbours agreeing to temporarily close their street to through traffic.</i></p> <p><i>In addition, trials continue to identify how we can better manage the freight and transport that flows through the area, Electric vehicle schemes are promoted, with more walking and cycling routes, and bus priority programmes.</i></p> <p><i>In December 2017 we installed our first rapid charger under the TfL rapid charging framework. This adds to the four existing rapid chargers we have and we are planning to install more in the next year under the framework.</i></p>
	<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.).	<i>Royal Greenwich funds the EcoStars scheme for lorry fleets based or operating in the Royal Borough. The scheme promotes fuel efficiency and the reduction of pollution. The Royal Borough of Greenwich’s fleet currently has an EcoStars 3 accreditation. So far seven schools have been surveyed using the RE:FIT framework.</i>

		<p><i>In 2017 Royal Greenwich launched a new project called Zero Emission Deliveries (ZED), which aims to reduce congestion and poor air quality in Greenwich caused by delivery vehicles. This is the first council supported, cargo bike, zero emission delivery scheme in London. The ZED project will offer local residents and businesses a professional delivery service which can transport everything from letters and parcels through to goods weighing up to 200kg, while contributing zero emissions to the local environment.</i></p>
	<p><b>2.c</b> Integrated transport and air quality, such as: smart city innovation improving traffic flows on borough roads to reduce stop/start conditions, improving the public realm for walking and cycling, and introducing traffic reduction measures.</p>	<p><i>The Missing Link is a £1.5m scheme delivered to create an elevated walkway structure to overcome an existing severance in the Thames Path from the Thames Barrier to Woolwich Dockyard. Previously pedestrians and cyclists had to divert on to a heavily trafficked dual carriageway (A206). This new link provides a safe connection away from the dual carriageway and reduces exposure to heavy traffic and poor air quality. The scheme is in the immediate vicinity of a primary and secondary school and provides a safer, healthier route to access these sites. Development commenced on the site in October 2017 and is due to complete at the end of May 2018 – TfL&amp; GLA Quietways programme, RBG LIP, s106).</i></p> <p><i>The Trafalgar Road (East) Improvement scheme seeks to improve public transport and traffic flow on Trafalgar Road while making this section of public highway a better place for cyclists and pedestrians. Previously, deliveries to local businesses have resulted in extra queuing, poor visibility and blocked cycle lanes. By changing waiting and loading restrictions, deliveries by HGV's are being made outside of the AM and PM peaks. This improves traffic flow, reduces emissions during peak hours as well as improving road safety for all users. Cycle lanes are to become mandatory and extensive de-cluttering work undertaken on the footways. Improved side entry treatments and public realm areas will positively improve the walking provision and aesthetic of the area (£300k – Mayor's Air Quality Fund).</i></p> <p><i>Woodlands Crescent Road Closure. "Rat running" through Woodlands Crescent (to avoid signals on Maze Hill / Trafalgar Road junction) had been resulting in bus delays and road safety concerns. The Royal Borough trialed and then made permanent a closure at this location, creating a safer environment for pedestrians and cyclists and providing journey time improvements to buses travelling in both directions along Trafalgar Road (completed December 2017 – TfL Bus Priority Programme).</i></p> <p><i>Royal Greenwich is recognised as a leader in smart city innovation, with the Digital Greenwich team involved in initiatives including the testing of electric Connected and Autonomous vehicles in the city environment, and the European Union Smart Cities and Communities demonstration area.</i></p>



			<i>Connected and Autonomous vehicles offer air quality benefits as they support electrification of the transport system, and could lead to reduced vehicle numbers. 2017 saw the completion of the Gateway project and a successful bid to become a UK test bed for Connected and Autonomous vehicles.</i>
	<b>2.d</b>	Continued roll-out of programme to reduce urban traffic speed to 20mph on residential roads.	<i>In March 2017 Archery Road &amp; North Park areas were identified as a priority for the introduction of a 20mph Zone. The proposed 20mph zones will complement the improvement works and the new 20mph speed limit on Eltham High Street. The proposal includes Installation of "20" roundels, on roads in the area with lower traffic speeds and/or accident levels and at key points on some of the roads that already have traffic calming to remind motorists of the speed limit.</i>
	<b>2.e</b>	The Low Emission Neighbourhood (LEN).	<i>In August 2017 a Personalised Travel Planning scheme was launched in the Low Emission Neighbourhood (LEN) project area, which covers West Greenwich and the Peninsula. For 12 months, representatives from Charlton Athletic Community Trust will work with residents and employees in the LEN, on behalf of the Council, to promote and assist with Personalised Travel Planning, to reduce car use, and walk and cycle more during 2017. Residents in the LEN area can borrow an E-bike for up to four weeks, for £10. Over 100 people have taken part so far.</i>
	<b>2.f</b>	Made additional resources available to improve local air quality, including by pooling its collective resources (s106 funding, LIPs, parking revenue, etc.).	<i>The Council uses s106 money from new developments to fund air quality monitoring stations and the nitrogen dioxide diffusion tube network (see 3b below). Together with the Sharing Cities programme, an electric bike loan scheme and electric cargo bike logistic trial have also been undertaken using LIP funding.</i>
<b>3. Leading by example</b>	<b>3.a</b>	Invested sufficient resources to complement and drive action from others.	<i>The Council uses s106 money to employ one full time equivalent AQ officer plus one AQ monitoring officer. The AQ officer coordinates and reports achievements of relevant Departments towards achieving the aims and objectives of the Royal Borough's AQAP, and has input into the AQ ASR. The AQ monitoring officer manages and maintains the Royal Borough's extensive AQ monitoring network, interprets AQ data and trends, and disseminates information accordingly, to inform decision making and the AQ ASR.</i>
	<b>3.b</b>	Maintained an appropriate monitoring network so that air quality impacts within the borough can be properly understood.	<i>Royal Greenwich operates 11 real time monitoring stations and an extensive nitrogen dioxide diffusion tube network. The BX3 station is currently being relocated to a site in close proximity to an educational establishment. The</i>

			<p>GR5 station was relocated to a new site on Trafalgar Road in October 2017, and the GN2 station was relocated to John Harrison Way in January 2018 (it is anticipated that the latter station will be fully operational in May 2018). In the event that the planning consent is implemented the Council has made a commitment to install an additional real time air quality monitoring station in the vicinity of the proposed Enderby Wharf cruise liner terminal. The proposed location of the monitoring station is being reviewed, with independent advice from external consultants.</p>
	<b>3.c</b>	Reduced emissions from council operations, including from buildings, vehicles and all activities.	<p>The Royal Greenwich fleet currently has an EcoStars 3 accreditation and the requirements for silver accreditation are being assessed to ensure that new vehicles will be compliant with its requirements.</p> <p>By November 2017, 20 electric vehicle charging points had been installed for Royal Greenwich vehicles to use at the Birchmere Depot. In 2017/18, six electric vehicles are being ordered.</p>
	<b>3.d</b>	Procurement code aims to reduce emissions from Royal Greenwich and suppliers' activities, including from buildings and vehicles operated by and on their behalf such as refuse trucks.	<p>Royal Greenwich is running an innovative trial to develop 26 tonne electric refuse truck technology. Funding was received from Innovate UK to fit a Refuse Collection Vehicle with a newly developed configuration of electric drivetrain and electric hydraulic actuators for the compressor and bin lifts. The batteries will deliver a full double shift without the need to recharge during the day. The new technology means that the vehicle will have zero emissions. Trials of the vehicle in full duty are due to begin in May 2018. The project reinforces links with project work in the European Smart City Demonstrator and complements the LEN Initiative. All refuse collection vehicles will meet Euro VI standard by 2020/21.</p>
<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.	<p>All relevant approved planning applications must meet the Mayor's requirements relating to AQ neutral and CHPs.</p>
	<b>4.b</b>	Collect s106 from new developments to ensure air quality neutral development, <i>where possible</i> .	<p>S106 &amp; CIL money is collected from qualifying developments.</p>
	<b>4.c</b>	Provided additional enforcement of construction and demolition guidance, with regular checks on medium and high risk building sites.	<p>The Planning service is in the process of revising relevant planning conditions in consultation with the air quality officers to ensure full compliance with this requirement.</p>
<b>5. Integrating air quality</b>	<b>5.a</b>	Integrate air quality in the borough's Health and Wellbeing Strategy and Joint Strategic Needs Assessment.	<p>The Director of Public Health is a member of the Royal Greenwich Air Quality Task Force. Air quality responsibilities have been included within the job description and work programme of the Head of Public Health</p>

<p><b>into the public health system</b></p>			<p><i>Development, who holds the strategic lead for the wider determinants of health and also Long Term Conditions Prevention.</i></p> <p><i>The Health and Wellbeing Strategy for 2015-2018 (available at: <a href="http://www.greenwichccg.nhs.uk/Get-Involved/Documents/Greenwich_Health_and_Wellbeing_Strategy_2015-18.pdf">http://www.greenwichccg.nhs.uk/Get-Involved/Documents/Greenwich_Health_and_Wellbeing_Strategy_2015-18.pdf</a>) has the following four priorities: good physical health with a focus on tackling obesity; good mental health; a healthy workforce and a workforce that promotes good health; and overseeing the effectiveness of the health and care system in Greenwich. The Strategy states that the Health and Wellbeing priorities are identified at three key levels, which are: the underlying social, economic and environmental factors impacting on health and wellbeing; the individual lifestyle or behavioural risk factors impacting on ill health and disease in the borough; and the main modifiable preventable health conditions to which these give rise. Air quality is relevant to the first level, the underlying social, economic and environmental factors or “the causes of the causes.</i></p> <p><i>A JSNA report that specifically focuses on outdoor air quality is available at: <a href="http://www.greenwichjsna.org/app/uploads/2015/08/AirQuality_Nov2016.pdf">http://www.greenwichjsna.org/app/uploads/2015/08/AirQuality_Nov2016.pdf</a>. The priorities for Royal Greenwich that were identified through the JSNA were used by the Health and Wellbeing Board to inform the priorities for the 2015-2018 strategy. The JSNA report on outdoor air quality may contribute to the priorities of the next Health and Wellbeing strategy, which is expected to be in place in 2019.</i></p>
<p><b>6. Informing the public</b></p>	<p><b>6.a</b></p>	<p>Community engagement</p>	<p><i>In October 2017, four Royal Greenwich Better Together meetings were held focusing on 'Greener Greenwich' and how to deliver cleaner air and a greener environment. This group of Better Together sessions gave participants an opportunity to get involved in influencing decisions about their local area whilst meeting key people from the Council including Cabinet members and Council staff. The aim is to engage with residents to shape how we can deliver a greener Greenwich.</i></p>
	<p><b>6.b</b></p>	<p>Raised awareness about air quality.</p>	<p><i>Royal Greenwich subscribes to the airTEXT promotion. This is a service providing alerts (straight to telephone, mobile phone or computer) to local residents when air quality is forecast to be poor in the area.</i></p> <p><i>National car-free day took place in June 2017. People planning to travel or go through Greenwich town centre were encouraged to walk, cycle or use public transport, or plan for a slightly longer journey due to certain road</i></p>

			<p><i>closures.</i></p> <p><i>The first ever National Clear Air Day took place in June 2017. The Royal Borough hosted a range of events including: school walking buses, driverless car demonstrations, a site tour of the Greenwich Peninsula Low Carbon District Energy Centre, electric bicycle and car demonstrations, and free bicycle repair stations.</i></p> <p><i>September 2017 saw the first 'Schools Car Free Day.' Children's activities and sports games were held in the road to make the most of the road closures in place. 13 schools in the Royal Borough participated, which was the highest number of schools involved of any London Borough. The Mayor of London's Walking and Cycling Commissioner attended events at Alexander McLeod in Abbey Wood.</i></p>
	<b>6.c</b>	Promotion of relevant information on the RB Greenwich website and other websites.	<p><i>Information about route planners is provided on the RB Greenwich website. Route planners are an effective tool to reduce pollution exposure. Examples include: Walk It, National Institute for Health Research 'plan a lower pollution travel route' and City Air forecasting.</i></p> <p><i>Information about the Mayor of London's Vehicle check is provided on the RB Greenwich website. If local residents are looking to buy a new vehicle, they can check the pollution emissions of the vehicles first.</i></p> <p><i>The Live Well Greenwich website includes information about applying for a Play Street (where neighbours agree to temporarily close their street to through traffic).</i></p>

## 2.1 Air Quality Action Plan Progress

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

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

<b>Action</b>	<b>Measure</b>	<b>Progress</b>
<b>Action 1. Ensuring emissions from construction sites are minimised</b>	<b>Measure 1. Develop a process for ensuring planning officers are aware of current air quality regulations and these are considered within the planning process</b>	<ul style="list-style-type: none"> <li>• Emissions/Concentration data</li> <li>• Benefits</li> <li>• Negative impacts / Complaints</li> </ul> <p>Air Quality Officers completed a workshop brief for planners in October 2017. Information provided to Planning officers from the workshop is available for existing and new planning officers on their training portal.</p>
<b>Action 1. Ensuring emissions from construction sites are minimised</b>	<b>Measure 2. Review planning conditions for air quality and amend in line with current policy</b>	Air Quality Officers reviewed and revised planning conditions in October 2017 (covering control of dust and emissions from construction sites) in October 2017, which have been approved by planning.
<b>Action 1. Ensuring emissions from construction sites are minimised</b>	<b>Measure 4. Ensure that Environmental Health Officers are aware/trained to check plans against GLA guidance</b>	A full time Air Quality Officer was recruited, who provided regular briefings to Environmental Health Officers and Environmental Protection Officers responsible for regulating emissions from construction sites.
<b>Action 1. Ensuring emissions from construction sites are minimised</b>	<b>Measure 5. Implemented a policy to ensure all relevant developments comply with the GLA Control of dust and emissions during construction and demolition - Supplementary</b>	Environmental Protection Officers produced new conditions to cover dust and emissions from construction and demolition sites, in accordance with The Mayor of London’s ‘The control of dust and emissions from construction and demolition’ Supplementary Planning Guidance (July 2014).

	<b>planning guidance 2014</b>	
<b>Action 2. Ensuring enforcement of NRMM air quality policies</b>	<b>Measure 1. Agree condition / s106 approach to securing this action</b>	A Construction Plant NRMM planning condition was produced by Environmental Protection and has been available to be applied to planning applications since October 2017.
<b>Action 3. Enforcing CHP/Biomass and AQ policies</b>	<b>Measure 3. Planning condition for CHP and communal boilers to be reviewed</b>	In November 2017 Environmental Protection produced a new condition to regulate CHP, Biomass and Boiler installation through planning conditions.
<b>Action 3. Enforcing CHP/Biomass and AQ policies</b>	<b>Measure 4. Ensure that planning and Environmental Health officers are aware of issues</b>	In October 2017 Environmental Protection delivered a workshop covering this subject matter.
<b>Action 4. Enforcing Air Quality neutral policies</b>	<b>Measure 1. Design standard conditions for major developments and a standard boiler emissions condition for minor developments</b>	Environmental Protection produced a planning condition to regulate Air Quality and Air Quality Neutral Assessment (10+ Residential Units) condition. It has been agreed that where applicable, air quality and air quality neutral reports will be sought prior to a planning decision being made.
<b>Action 8. The Council will work closely with the Environment Agency to drive up environmental standards and processes with an Environmental Permit enforced either by the Council or the Agency</b>	<b>Measure 1 (of 1). Contact made with Environment Agency to agree meeting dates</b>	By September 2017, liaison meetings had been held. The Environment Agency has been invited to the next cluster group meeting and has been included in correspondence relating to planning matters.
<b>Action 9. Promoting and delivering energy efficiency retrofitting projects in workplaces and homes using the GLA RE:NEW and RE:FIT programmes to replace old boilers/top-up lost insulation in combination with other energy conservation measures</b>	<b>Measure 4. Complete the second pilot of the Greenwich Homes Standard, which includes energy efficiency improvements, at John Wilson Street</b>	All works have been completed at John Wilson Street.

<p><b>Action 10. Ensure that Directors of Public Health (DsPHs) are fully briefed on the scale of the air quality issues in the Royal Borough; what is being done, and what is needed. A briefing should be provided.</b></p>	<p><b>Measure 1 (of 1). DsPHs to sign off Air Quality Action Plan and ASRs</b></p>	<p>The air quality Joint Strategic Needs Assessment (2016) highlights the air quality issues and what is being done/needs to be done. Environmental Protection Officers continue to keep the DPH updated on air quality data and share relevant briefings and evidence reviews. The DPH also provides relevant data e.g. child hospital admissions for respiratory conditions to the Air Quality Task Force and Scrutiny Panel as required.</p>
<p><b>Action 11. Public Health Teams should be supporting engagement with local stakeholders (businesses, schools, community groups and healthcare providers). They should be asked for their support via the DsPH when projects are being developed</b></p>	<p><b>Measure 1. Explore these links and use them where appropriate and consistent with data protection requirements</b></p>	<p>Public Health is fully engaged with Transportation colleagues in developing bids and projects to increase walking and cycling in order to support a modal shift. Transportation colleagues are involved in Greenwich Get Active (umbrella physical activity provider partnership) and so both partners are fully informed of cycling and walking developments. Through the Greenwich Healthy Business Network, and support for business sign-up to the GLA Healthy Workplace Charter, Public Health promotes active travel and signposts to support for developing business travel plans.</p>
<p><b>Action 12. Director of Public Health to have responsibility for ensuring their Joint Strategic Needs Assessment (JSNA) has up to date information on air quality</b></p>	<p><b>Measure 2. Identification of linked areas in Public Health Outcomes Framework/Joint Strategic Needs Assessment where air quality actions might support public health goals</b></p>	<p>There is an outdoor air quality JSNA (2016) report that highlights the air quality issues and what is being done/needs to be done.</p>
<p><b>Action 13. Strengthening co-ordination with Public Health by ensuring that at least one public health specialist within the borough has air quality responsibilities outlined in their job profile</b></p>	<p><b>Measure 1 (of 1). Retain consultant/PH membership on Air Quality Task Force</b></p>	<p>Air quality responsibilities sit within the job description and work programme of the Head of Public Health Development, who holds the strategic lead for the wider determinants of health (and manages the Wider Determinants Team) and also Long Term Conditions Prevention (which includes CVD and COPD, for which air pollution are major risk factors).</p>
<p><b>Action 14. Director of Public Health to sign off Statutory Annual Status Reports and all new Air Quality Action Plans</b></p>	<p><b>Measure 1 (of 1). AQAP and ASR will be signed off by DsPH. Continued working with Public Health Team will ensure</b></p>	<p>Sign-off for the 2016 ASR was achieved in 2017, and for the 2017 ASR was achieved in 2018. Furthermore, the Director of Public Health is a member of the Air Quality Task Force.</p>

	<b>knowledge of air quality impacts in the Royal Borough</b>	
<b>Action 15. Ensure that the Head of Transport and Head of Planning is fully briefed on the Public Health duties and the fact that all directors (not just Director of Public Health) are responsible for delivering them, as well as on air quality opportunities and risks related to transport in the borough. Provide a briefing which can be disseminated amongst the Transport and Planning Teams.</b>	<b>Measure 1. Air Quality officers in the Royal Borough maintain close working relationships with colleagues in Transport Planning and ensure that policies are aligned to achieve air quality benefits</b>	Good working relationship between Public Health, Transportation and Planning Policy, including scheduled meetings, ensure cross-departmental participation on projects including anti idling, monitoring in the Low Emission Neighbourhood (LEN), Play Streets and participation in consultation responses. Briefing notes for bid applications, and air quality issues relating to transportation, are shared with Assistant Director.
<b>Action 15. Ensure that the Head of Transport and Head of Planning is fully briefed on the Public Health duties and the fact that all directors (not just Director of Public Health) are responsible for delivering them, as well as on air quality opportunities and risks related to transport in the borough. Provide a briefing which can be disseminated amongst the Transport and Planning teams.</b>	<b>Measure 2. Transport Planners are also members of the Air Quality Task Force</b>	Transport Planners included as members of the Air Quality Task Force, represented at each meeting.
<b>Action 17. Promotion of availability of airTEXT and the London Air Quality Network</b>	<b>Measure 3. Investigate with Public Health if there are vulnerable user groups/specialist teams who could make more use of these resources</b>	Public Health support and provide advice on initiatives (such as text message alerts) to vulnerable people in relation to air quality. Public Health will ensure consistent messaging through the Live Well Greenwich website (which is being redeveloped during 2018). Greenwich Get Active, the Live Well Greenwich Line, and communications with primary care that for the majority of people the



		health benefits of being physically active outdoors outweigh the health risks posed by poor air quality.
<b>Action 18. Encourage schools to join the TfL STARS accredited travel planning programme by providing information on the benefits to schools and supporting the implementation of such a programme including reducing car use</b>	<b>Measure 2. Participate in GLA air quality audit for schools</b>	Participated in GLA air quality audit for schools.

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

**Table K. Planning requirements met by planning applications in RB Greenwich in 2017**

Condition	Number
Number of planning applications where an air quality impact assessment was reviewed for air quality impacts	14
Number of planning applications required to monitor for construction dust	18
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	4
Number of developments required to install Ultra-Low NO <sub>x</sub> boilers	3
Number of developments where an AQ Neutral building and/or transport assessments undertaken	9
Number of developments where the AQ Neutral building and/or transport assessments not meeting the benchmark and so required to include additional mitigation	0
Number of planning applications with S106 agreements including other requirements to improve air quality	0
Number of planning applications with CIL payments that include a contribution to improve air quality	22 applications made CIL payments in the last FY. Due to the nature of CIL, none of the payments were collected for air quality, but are collected into a central pot to be spent in accordance with the Regulation 123 list.
<p><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.</p>	N/A
<p><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.</p>	3 conditions included 1 registered (36-38 Artillery Place, Woolwich, SE18 4AB)

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

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

Environmental Protection Officers have been meeting with the Greenwich Peninsula land owner / Main Developer, to facilitate the 20 year phased development of residential property and infrastructure construction programme. By the end of 2017 over 1,550 new homes have been completed, 14,000 more are proposed. Environmental Protection Officers are currently negotiating Construction Agreements with a number of large scale construction contractors, including monitoring and mitigation measures to minimise dust emissions to air from the construction works.

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

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

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

#### PM<sub>10</sub> Monitoring Adjustment

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

### **A.2 *Diffusion Tube Quality Assurance / Quality Control***

- Diffusion Tubes are prepared and analysed by UKAS accredited Gradko International Ltd
- Diffusion Tubes are prepared using 50% triethanolamine with acetone method and analysed using UV spectrometry
- The lab follows the procedures set out in the Defra Technical Guidance for LAQM TG(16)
- For details attaining to 'results' – precision, bias adjustment factors; and reference methods please refer to - 'London Wide Environment Program Nitrogen Dioxide diffusion tube survey report,2017:

[http://www.royalgreenwich.gov.uk/downloads/download/3489/air\\_quality\\_reports](http://www.royalgreenwich.gov.uk/downloads/download/3489/air_quality_reports)

### Factor from Local Co-location Studies

For details attaining to Local Co-location Studies please refer to - 'London Wide Environment Program Nitrogen Dioxide diffusion tube survey report, 2017:

[http://www.royalgreenwich.gov.uk/downloads/download/3489/air\\_quality\\_reports](http://www.royalgreenwich.gov.uk/downloads/download/3489/air_quality_reports)

### Discussion of Choice of Factor to Use

For details attaining to choice of adjustment factors please refer to - 'London Wide Environment Program Nitrogen Dioxide diffusion tube survey report, 2017:

[http://www.royalgreenwich.gov.uk/downloads/download/3489/air\\_quality\\_reports](http://www.royalgreenwich.gov.uk/downloads/download/3489/air_quality_reports)

### **A.3** Adjustments to the Ratified Monitoring Data

For details attaining to choice of adjustments to the Ratified Monitoring Data please refer to - 'London Wide Environment Program Nitrogen Dioxide diffusion tube survey report, 2017:

[http://www.royalgreenwich.gov.uk/downloads/download/3489/air\\_quality\\_reports](http://www.royalgreenwich.gov.uk/downloads/download/3489/air_quality_reports)

## **Appendix B Full Monthly Diffusion Tube Results for 2017**

For details to “full monthly diffusion tube results” – see Appendix A – Monthly and Annual Mean NO<sub>2</sub> Concentrations : All Sites, “2017: “London Wide Environment Program Nitrogen Dioxide diffusion tube survey report, 2017:

[http://www.royalgreenwich.gov.uk/downloads/download/3489/air\\_quality\\_reports](http://www.royalgreenwich.gov.uk/downloads/download/3489/air_quality_reports)