

# Royal Borough of Kingston upon Thames Air Quality Annual Status Report for 2020

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This report provides a detailed overview of air quality in the Royal Borough of Kingston upon Thames during 2020. It has been produced to meet the requirements of the London Local Air Quality Management (LLAQM) statutory process<sup>1</sup>.

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<sup>1</sup> LLAQM Policy and Technical Guidance 2019 (LLAQM.TG(19))

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## Abbreviations

<b>Abbreviation</b>	<b>Description</b>
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQO	Air Quality Objective
BEB	Buildings Emission Benchmark
CAB	Cleaner Air Borough
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

Pollutant	Standard / Objective (UK)	Averaging Period	Date <sup>(1)</sup>
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
Nitrogen dioxide (NO <sub>2</sub> )	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
Particles (PM <sub>10</sub> )	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
Particles (PM <sub>2.5</sub> )	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
Sulphur dioxide (SO <sub>2</sub> )	350 µg m <sup>-3</sup> not to be exceeded more than 24 times a year	1-hour mean	31 Dec 2004
Sulphur dioxide (SO <sub>2</sub> )	125 µg m <sup>-3</sup> not to be exceeded more than 3 times a year	24-hour mean	31 Dec 2004

**Notes:**

(1) Date by which to be achieved by and maintained thereafter

# 1. Air Quality Monitoring

## 1.1 Locations

Table B Details of Automatic Monitoring Sites for 2020

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQM A? If so, which AQM A?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Monitoring technique
KT4	Tolworth Broadway	519706	165885	Roadside	Y	7	4.2	1.6	NO2, PM10	Chemiluminescent; BAM
KT5	Cromwell Road	518562	169519	Roadside	Y	3	2.7	1.6	NO2, PM10	Chemiluminescent; BAM
KT6	Kingston Vale	521251	172166	Roadside	Y	10	3	1.6	NO2, PM10	Chemiluminescent; BAM

Table C Details of Non-Automatic Monitoring Sites for 2020

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA ? If so, which AQMA ?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor. (Y/N)
1	Guildhall Complex	5179 51	1690 29	Kerbside	Y	15	1	2.5	NO2	N
2	17-19 Penrhyn Road	5180 67	1686 72	Roadside	Y	3	2	2.5	NO2	N
3	52 Portsmouth Road	5175 65	1677 15	Roadside	Y	5	2	2.5	NO2	N
4	88 Brighton Road	5175 32	1672 96	Kerbside	Y	4	0.5	2.5	NO2	N
5	Victoria Road/Brighton Road	5177 65	1671 43	Kerbside	Y	1	3	2.5	NO2	N
6	St. Mark's Hill/Ewell Road	5184 24	1676 04	Roadside	Y	2.5	5	2.5	NO2	N
7	Victoria Road near Surbiton Station	5180 39	1673 46	Kerbside	Y	2	0.5	2.5	NO2	N
8	Upper Brighton Road/Langley Road	5183 36	1666 55	Roadside	Y	2.5	2	2.5	NO2	N
9	199 Douglas Road/Thornhill Road	5187 37	1657 68	Kerbside	Y	3	0.5	2.5	NO2	N
10	Ewell Road near jct Elgar Avenue	5193 65	1662 30	Kerbside	Y	4	0.5	2.5	NO2	N
11	53 Elgar Avenue	5196 64	1665 05	Kerbside	Y	6	0.5	2.5	NO2	N
12	136 Tolworth Broadway/Service Road	5197 14	1658 86	Roadside	Y	3	2	2.5	NO2	N

13	Tolworth Roundabout (Sundial Court)	519808	165873	Kerbside	Y	1.5	1	2.5	NO2	N
14	Kingston Road (near station)	519872	165692	Kerbside	Y	14	0.5	2.5	NO2	N
15	A240 Kingston Road/Old Kingston Road	520192	165264	Kerbside	Y	30	0.5	2.5	NO2	N
16	Hook Road South/Hunters Road	518087	165096	Kerbside	Y	6	1	2.5	NO2	N
17	Hook Road (St Paul's Primary)	518026	164785	Roadside	Y	2.5	2	2.5	NO2	N
18	Hook Centre	517991	164532	Kerbside	Y	4	0.5	2.5	NO2	N
19	Garrison Lane/Reynolds Avenue	518155	163395	Kerbside	Y	5	0.5	2.5	NO2	N
20	353 Malden Rushett Crossroads	517256	161578	Roadside	Y	2	2.5	2.5	NO2	N
21	Opposite 148 Leatherhead Road	517683	163465	Roadside	Y	2	3	2.5	NO2	N
22	Hook Rise North/Tolworth Rec Centre	518601	165270	Roadside	Y	3	1.5	2.5	NO2	N
23	40 Fife Road	518147	169455	Kerbside	Y	4	0.5	2.5	NO2	N
24	14-16 Cromwell Road	518467	169509	Roadside	Y	2	2	2.5	NO2	N
25	Queen Elizabeth Road/London Road	518533	169348	Kerbside	Y	4	0.5	2.5	NO2	N
26	Richmond Road/Kings Road	518199	170056	Roadside	Y	4	1.5	2.5	NO2	N
27	Fire Station, Richmond Road	517800	171423	Roadside	Y	12	1	2.5	NO2	N



28	41 Kingston Hill	5193 53	1698 95	Kerbside	Y	3	1	2.5	NO2	N
29	240 Kingston Vale near Robin Hood Lane	5211 07	1720 55	Kerbside	Y	6	0.5	2.5	NO2	N
30	Coombe Hill School	5206 11	1698 89	Roadside	Y	10	2.5	2.5	NO2	N
31	248 Malden Road near A3	5216 51	1673 97	Kerbside	Y	8	0.5	2.5	NO2	N
32	South Lane	5212 52	1668 77	Kerbside	Y	7	0.5	2.5	NO2	N
33	96 Burlingston Road	5218 73	1681 17	Roadside	Y	3	1.5	2.5	NO2	N
34	66 New Malden High Street	5214 16	1683 73	Roadside	Y	7	1.5	2.5	NO2	N
35	113-115 Clarence Avenue	5207 08	1692 58	Roadside	Y	4	1	2.5	NO2	N
36	38 Coombe Lane West near A3 junction	5200 47	1696 51	Roadside	Y	3	2	2.5	NO2	N
37	51 Elm Road	5207 64	1695 25	Kerbside	Y	6	0.5	2.5	NO2	N
38	Kingston Road (Carpet Right)	5205 03	1683 88	Roadside	Y	15	2	2.5	NO2	N
39	Cambridge Road/Gloucest er Road	5193 72	1690 98	Kerbside	Y	1	8	2.5	NO2	N
40	Cambridge Road/Hawks Road	5190 64	1692 44	Roadside	Y	1.5	1.5	2.5	NO2	N

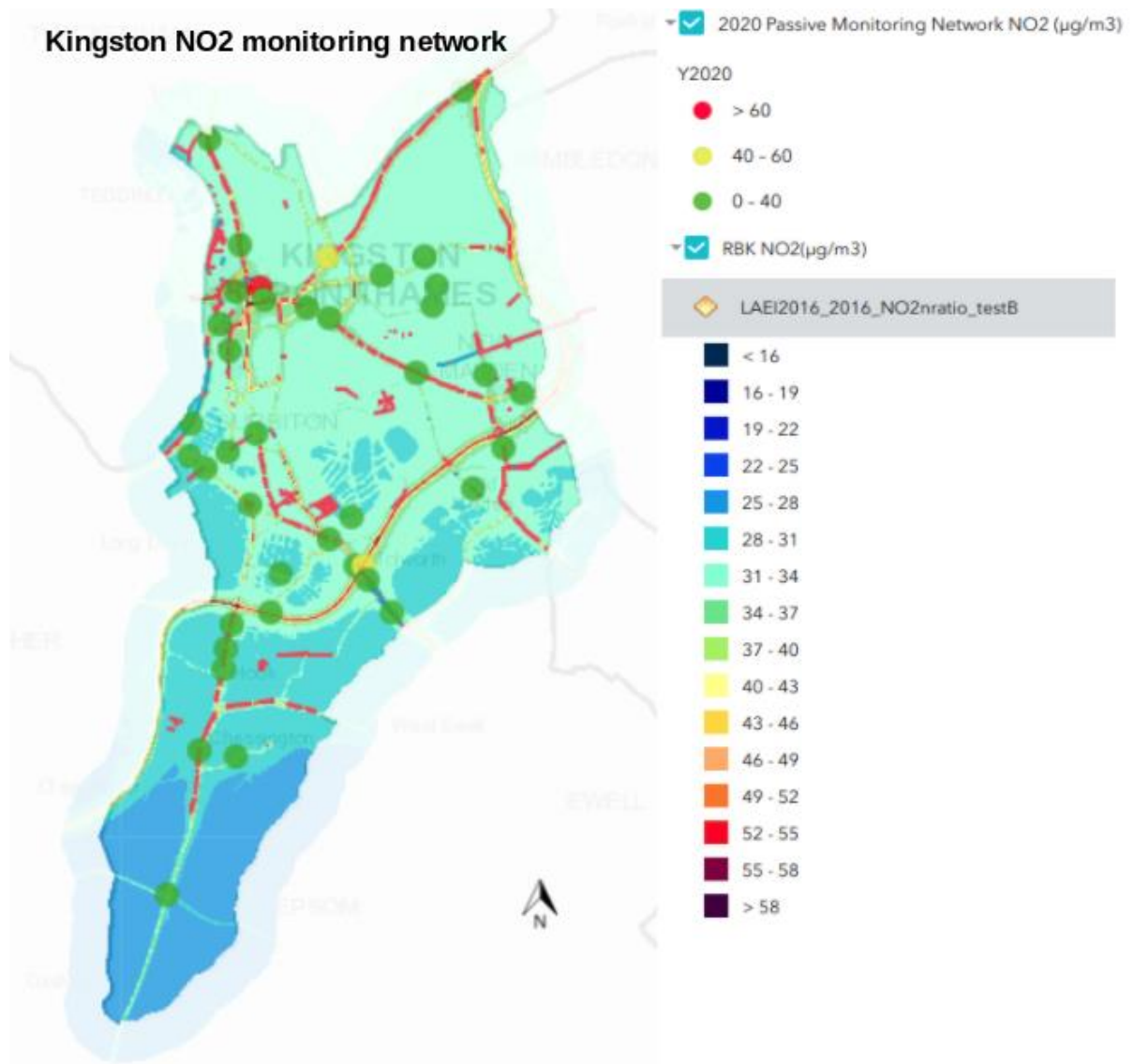


Figure 1 Map of borough NO<sub>2</sub> monitoring in 2020.

## 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 (if required), the details of which are described in Appendix A. Distance correction calculations can be found in Table N of this report.

Table D Annual Mean NO<sub>2</sub> Ratified and Bias-adjusted Monitoring Results

Site ID	Site type	Valid data capture for monitoring period % <sup>(a)</sup>	Valid data capture 2020 % <sup>(b)</sup>	2013	2014	2015	2016	2017	2018	2019	2020
KT4	Roadside	N/A	73			<b>48.5(*c)</b>	<b>50.7(*c)</b>	<b>48.9</b>	<b>44</b>	<b>41.41</b>	32.8
KT5	Roadside	N/A	93						57(*c)	<b>57.22</b>	<b>44.7 (40.6)</b>
KT6	Roadside	N/A	99						36	33.18	24.6
1	Kerbside	92	92	28.9	22.92	25.17	25.03	21.61	21.6	20.09	16.27
2	Roadside	83	83	<b>43.8</b>	<b>41.95</b>	<b>44.48</b>	<b>46.48</b>	<b>40.27</b>	<b>44.03</b>	<b>40.95</b>	33.17
3	Roadside	92	92	38.8	32.21	35.09	38.65	34.55	30.72	28.57	23.14
4	Kerbside	92	92	34.6	27.7	28.56	32.9	26.46	27.55	25.62	20.75
5	Kerbside	92	92	<b>40.6</b>	37.6	<b>40.59</b>	<b>40.4</b>	35.82	36.93	34.34	27.82
6	Roadside	92	92	<b>42.8</b>	39.2	<b>40.75</b>	<b>42.99</b>	37.46	36.4	33.85	27.42
7	Kerbside	92	92	<b>49</b>	<b>43.9</b>	<b>49.92</b>	<b>48.97</b>	<b>44.25</b>	<b>43.53</b>	<b>40.48</b>	32.79
8	Roadside	92	92	36	<b>40.7</b>	<b>42.44</b>	<b>41.96</b>	38.14	37.62	34.99	28.34
9	Kerbside	92	92	29.8	22.7	25.67	26.99	24.7	22.15	20.60	16.69
10	Kerbside	92	92	<b>52.8</b>	<b>47.1</b>	<b>48.61</b>	<b>48.61</b>	<b>45.72</b>	38.06	35.40	28.67
11	Kerbside	92	92	32.6	27.5	28.82	30.74	26.71	26.08	24.25	19.65
12	Roadside	92	92	<b>64.3</b>	<b>58.7</b>	<b>67.18</b>	<b>55.22</b>	<b>51.28</b>	<b>43.75</b>	<b>40.69</b>	32.96
13	Kerbside	92	92	<b>77.4</b>	<b>75.3</b>	<b>72.22</b>	<b>76.96</b>	<b>72.24</b>	<b>65.06</b>	<b>60.51</b>	<b>42.70 (44.4)</b>
14	Kerbside	92	92	<b>41.8</b>	<b>56.3</b>	<b>62.4</b>	<b>59.73</b>	<b>54.34</b>	<b>41.55</b>	38.64	31.30
15	Kerbside	92	92	28.1	<b>45.8</b>	<b>42.78</b>	<b>46.32</b>	<b>46.4</b>	<b>41</b>	38.13	30.89
16	Kerbside	92	92	<b>41.7</b>	<b>40.3</b>	<b>43.41</b>	<b>45.57</b>	<b>40.57</b>	38.45	35.76	28.96
17	Roadside	92	92	<b>40.5</b>	36	38.18	39.66	35.98	36.98	34.39	27.86
18	Kerbside	92	92	<b>44.9</b>	<b>44.6</b>	<b>48.54</b>	<b>47.96</b>	<b>46.41</b>	<b>42.7</b>	39.71	32.17
19	Kerbside	92	92	30.8	26.2	27.43	28.89	27.35	29.48	27.42	22.21
20	Roadside	92	92	<b>49.3</b>	32.5	36.89	38.43	36.42	34.94	32.49	26.32

21	Roadside	92	92	<b>57.1</b>	34.7	37.94	38.51	35.07	36.05	33.53	27.16
22	Roadside	92	92	<b>42.1</b>	<b>50.4</b>	<b>52.57</b>	<b>50.12</b>	<b>54.57</b>	<b>44.8</b>	<b>41.66</b>	33.75
23	Kerbside	92	92	38.8	33.4	35.5	34.73	31.13	39.55	36.78	29.79
24	Roadside	92	92	<b>118</b>	<b>94</b>	<b>93.97</b>	<b>90.62</b>	<b>84.52</b>	<b>75.91</b>	<b>70.60</b>	<b>60.10</b> <b>(51.2)</b>
25	Kerbside	92	92	<b>48.2</b>	36.3	<b>46.3</b>	<b>45.61</b>	<b>43.12</b>	<b>40.04</b>	37.24	30.16
26	Roadside	83	83	<b>42.5</b>	35.9	34.59	38.56	35.54	34.68	32.25	26.12
27	Roadside	92	92	33.6	32.1	35.07	36.04	31.61	34.84	32.40	26.24
28	Kerbside	83	83	<b>52.6</b>	<b>54.4</b>	<b>57.38</b>	<b>53.65</b>	<b>50.95</b>	<b>49.58</b>	<b>46.11</b>	37.35 (33.3)
29	Kerbside	92	92	34.1	34.5	39.19	<b>41.39</b>	34.73	31.53	29.32	23.75
30	Roadside	92	92	37.8	37.9	<b>40.65</b>	<b>40.56</b>	39.03	38.93	36.20	29.33
31	Kerbside	92	92	36.7	37.8	<b>45.22</b>	<b>45.63</b>	<b>41.95</b>	38.6	35.90	29.08
32	Kerbside	92	92	29.6	22.5	24.51	27.62	24.98	27.06	25.17	20.38
33	Roadside	92	92	<b>45</b>	35	<b>41.88</b>	<b>42.88</b>	<b>40.34</b>	38.92	36.20	29.32
34	Roadside	83	83	<b>42.6</b>	36	30.95	<b>40.15</b>	35.67	37.75	35.11	28.44
35	Roadside	92	92	35.4	28.4	31.13	32.65	29.93	30.65	28.50	23.09
36	Roadside	92	92	38.5	34	39.08	36.35	34.97	32.22	29.96	24.27
37	Kerbside	83	83	30.8	23.3	27.07	28.39	28.31	25.96	24.14	19.56
38	Roadside	92	92	32	30.5	31.43	38.16	32.94	36.08	33.55	27.18
39	Kerbside	92	92	<b>44.3</b>	<b>48.4</b>	<b>49.84</b>	<b>51.9</b>	<b>48.29</b>	<b>46.75</b>	<b>43.48</b>	35.22
40	Roadside	92	92	<b>47.5</b>	<b>40.9</b>	<b>43.79</b>	<b>45.63</b>	<b>43.56</b>	<b>42.3</b>	39.34	31.86

**Notes:**

The annual mean concentrations are presented as  $\mu\text{g m}^{-3}$ .

Exceedances 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**.

Means for diffusion tubes have been corrected for bias.

All means have been “annualised” in accordance with LLAQM Technical Guidance if valid data capture for the calendar year is less than 75% and greater than 33%.

Values in brackets calculated at relevant exposure for 2020 monitoring sites.

(a) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

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

Table D shows annual mean NO<sub>2</sub> monitoring results from the borough's network of 40 diffusion tubes and three automatic monitoring stations year on year since 2013, where records were available. The annual mean air quality objective of 40 µg m<sup>-3</sup> was exceeded at three monitoring sites in 2020: monitoring station KT5, tube 13 and tube 24. This is down from 10 sites exceeding in 2019. Tube 24 was also slightly over 60 µg m<sup>-3</sup> – the threshold at which exceedances of the short-term exposure limit are considered possible. KT5 and tube 24 are both located on Cromwell Road, near to the bus station, and are therefore exposed to fumes from bus traffic and idling in addition to substantial emissions from the Kingston one-way system.

Only one monitoring site – tube 28 – was within 10% of the annual mean air quality objective. This site and the three at which this threshold was exceeded have been corrected for distance to the nearest sensitive receptor, as detailed in table N of this report. Those corrections have been presented in table D in brackets after the uncorrected figure to ensure that data is comparable from year to year. After correction for distance to the nearest sensitive receptor, tube 28 – aka. 41 Kingston Hill – remained below the air quality objective level whereas the aforementioned sites of exceedance remained above 40 µg m<sup>-3</sup>.

Figures 2-4 are graphical representations of the overall trend in NO<sub>2</sub> concentrations across the borough's monitoring network year on year. All three figures make it clear that the borough has seen substantial improvements in air quality every year since 2016. 2020 was the best year so far in terms of NO<sub>2</sub> reductions, which is likely to have been driven by reduced traffic levels as a result of the pandemic. The dominant source of NO<sub>2</sub> in Kingston is local road transportation, which reduced dramatically in the weeks and months after the first lockdown began on March 23<sup>rd</sup>. It should also be noted that improvements have been much more consistent across all 43 monitoring sites since 2018, prior to which there were many sites at which increases in NO<sub>2</sub> were registered in spite of the overall downward trend. This may be due to the impact of the Central London ULEZ which, it has been argued, has resulted in improvements across Greater London. The expansion of the ULEZ was announced in 2018 and resulted in preemptive upgrading of vehicles to ensure compliance.

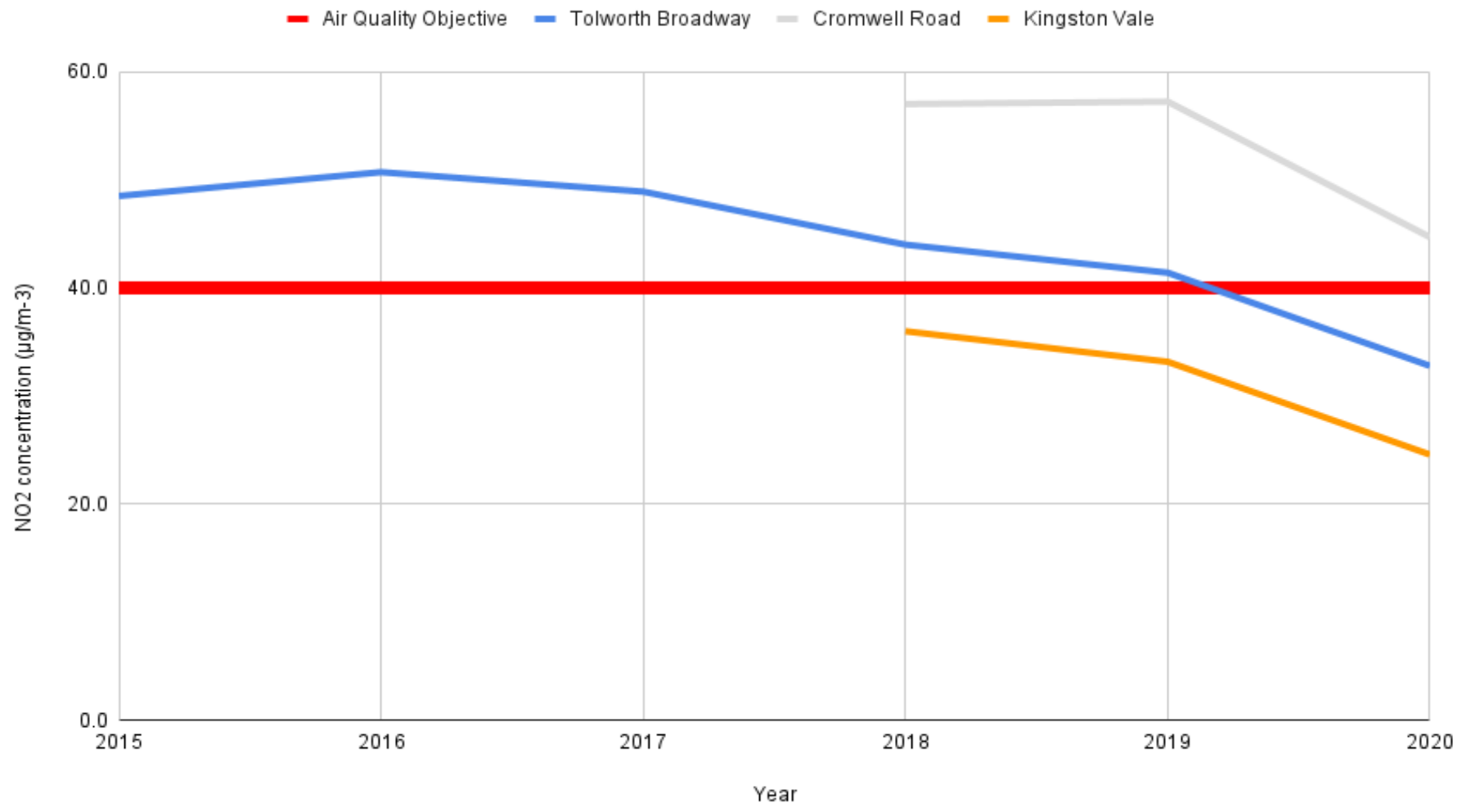


Figure 2 Annual mean NO<sub>2</sub> concentration at automatic monitoring stations.

Graphs within figures 3 and 4 have been coloured in grey scale in order to comply with accessibility requirements. These figures are designed to show overall trends across the whole monitoring network rather than highlight individual monitoring sites.

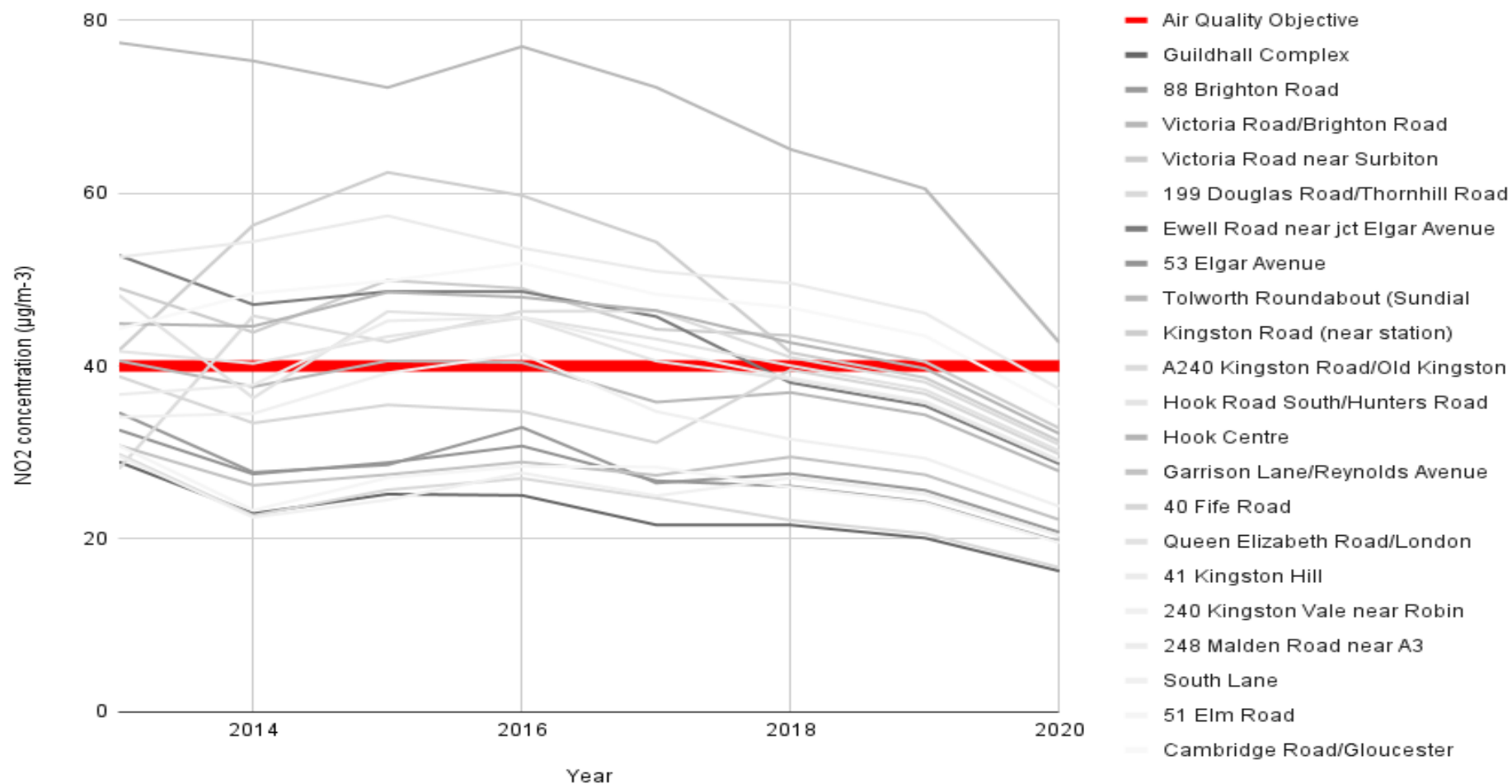


Figure 3 Annual mean NO<sub>2</sub> concentration at kerbside diffusion tube sites.

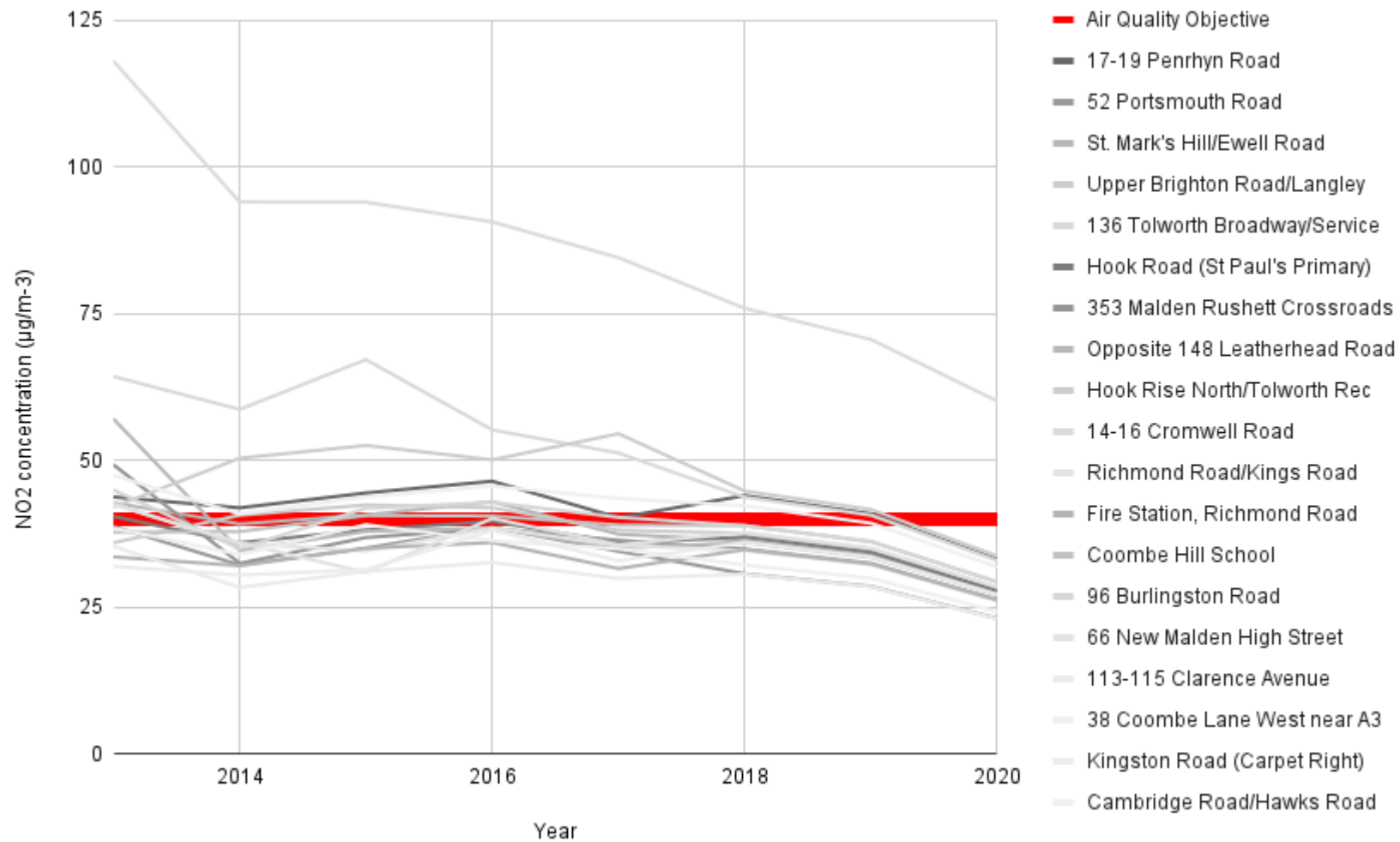


Figure 4 Annual mean NO<sub>2</sub> concentration at roadside diffusion tube sites.



Table E NO<sub>2</sub> Automatic Monitoring Results: Comparison with 1-hour Mean Objective, Number of 1-Hour Means > 200 µg m<sup>-3</sup>

Site ID	Valid data capture for monitoring period % <sup>(a)</sup>	Valid data capture 2020 % <sup>(b)</sup>	2015	2016	2017	2018	2019	2020
KT4 Tolworth Broadway	N/A	73	0	5	8	0	0	0 (109.5)
KT5 Cromwell Road	N/A	93	N/A	N/A	N/A	1	5	0
KT6 Kingston Vale	N/A	99	N/A	N/A	N/A	0	0	0

### Notes

Results are presented as the number of 1-hour periods where concentrations greater than 200 µg m<sup>-3</sup> have been recorded.

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

If the period of valid data is less than 85%, the 99.8th percentile of 1-hour means is provided in brackets.

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

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

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 2020 % <sup>(b)</sup>	2015	2016	2017	2018	2019	2020
KT4 Tolworth Broadway	N/A	86	20	24	23	23	22	21.7
KT5 Cromwell Road	N/A	99				30	26	23.9
KT6 Kingston Vale	N/A	96				22	20	17.7

### Notes

The annual mean concentrations are presented as µg m<sup>-3</sup>.

Exceedances of the PM<sub>10</sub> annual mean AQO of 40 µg m<sup>-3</sup> are shown in **bold**.

All means have been “annualised” in accordance with LLAQM Technical Guidance, if valid data capture is less than 75% and more than 33%.

(a) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

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

Figure 5 is a graphical representation of table F, showing the annual mean PM<sub>10</sub> concentrations at the borough’s three automatic monitoring sites year on year since 2015, where records were available. It is clear that all sites are substantially below the relevant air quality objective. It is also clear that KT5 and KT6 have seen significant improvements over the last two years. However, concentrations of PM<sub>10</sub> at KT4 have remained largely stagnant since monitoring began at this site.

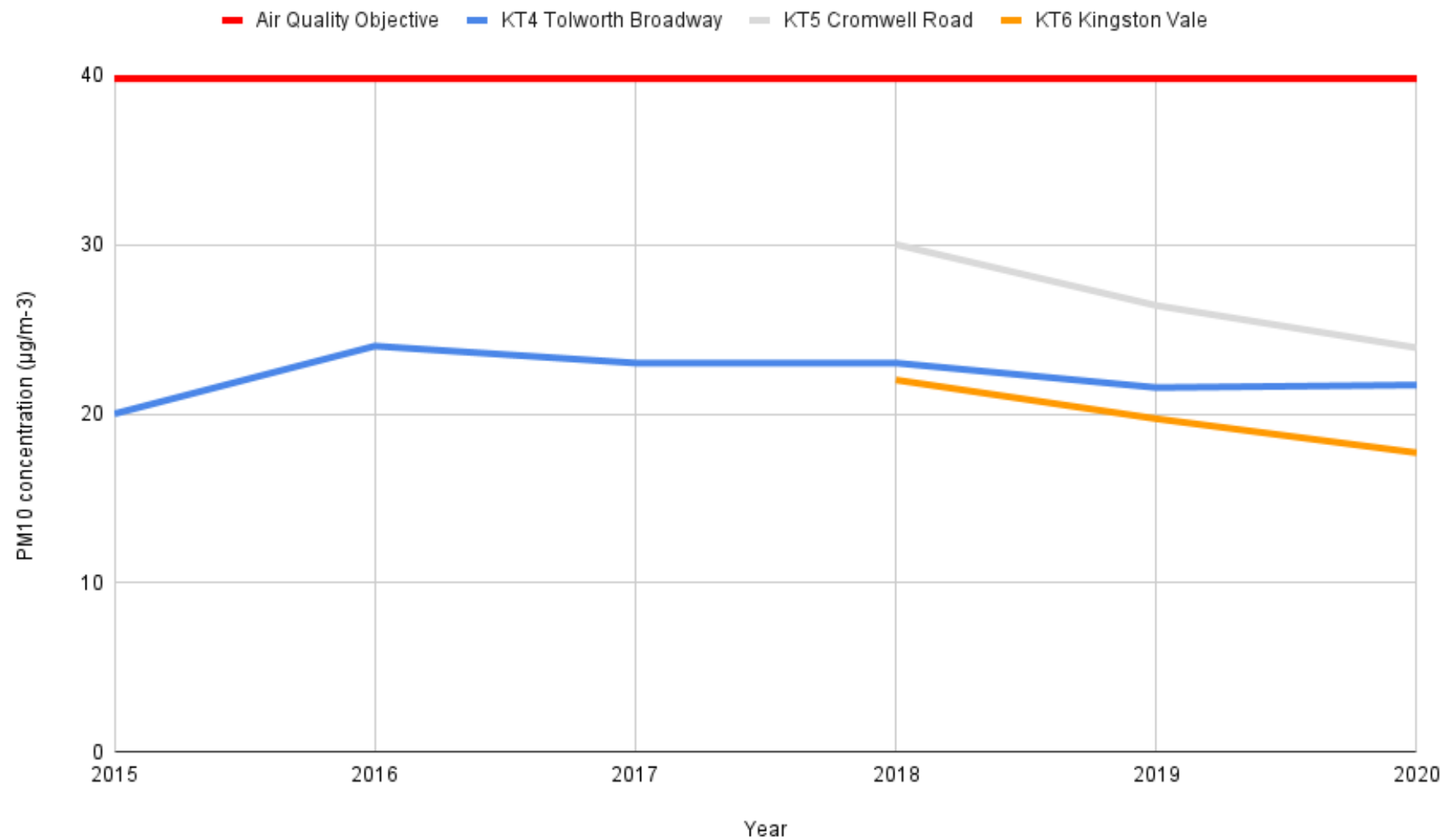


Figure 5 Annual mean PM<sub>10</sub> concentration at automatic monitoring stations.

Table G PM<sub>10</sub> Automatic Monitoring Results: Comparison with 24-Hour Mean Objective, Number of PM<sub>10</sub> 24-Hour Means > 50 µg m<sup>-3</sup>

Site ID	Valid data capture for monitoring period % <sup>(a)</sup>	Valid data capture 2020 % <sup>(b)</sup>	2014	2015	2016	2017	2018	2019	2020
KT4 Tolworth Broadway	N/A	86		1	9	6	2	7	6
KT5 Cromwell Road	N/A	99					15 (50)	15	9
KT6 Kingston Vale	N/A	96					2 (35)	4	3

### Notes

Exceedances of the PM<sub>10</sub> 24-hour mean objective (50 µg m<sup>-3</sup> over the permitted 35 days per year) are shown in **bold**.

Where the period of valid data is less than 85% of a full year, the 90.4th percentile is provided in brackets.

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

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

Figure 6 is a graphical representation of table G, showing the yearly changes in the number of exceedances of the 24h mean PM<sub>10</sub> air quality objective of 50 µg m<sup>-3</sup>, not to be exceeded for more than 35 days per year. All sites are well below the relevant air quality objective but only KT5 – aka. Cromwell Road – has seen a substantial improvement over the last year. The Cromwell Road monitoring station is near the bus station. This reduction in exceedances may be a result of recent improvements to TfL's bus fleet in the borough which is now entirely Euro VI compliant. The reduction could also be a result of the impact of the pandemic on general traffic levels during 2020. If the improvement persists in 2021 this could indicate that the former is the case.

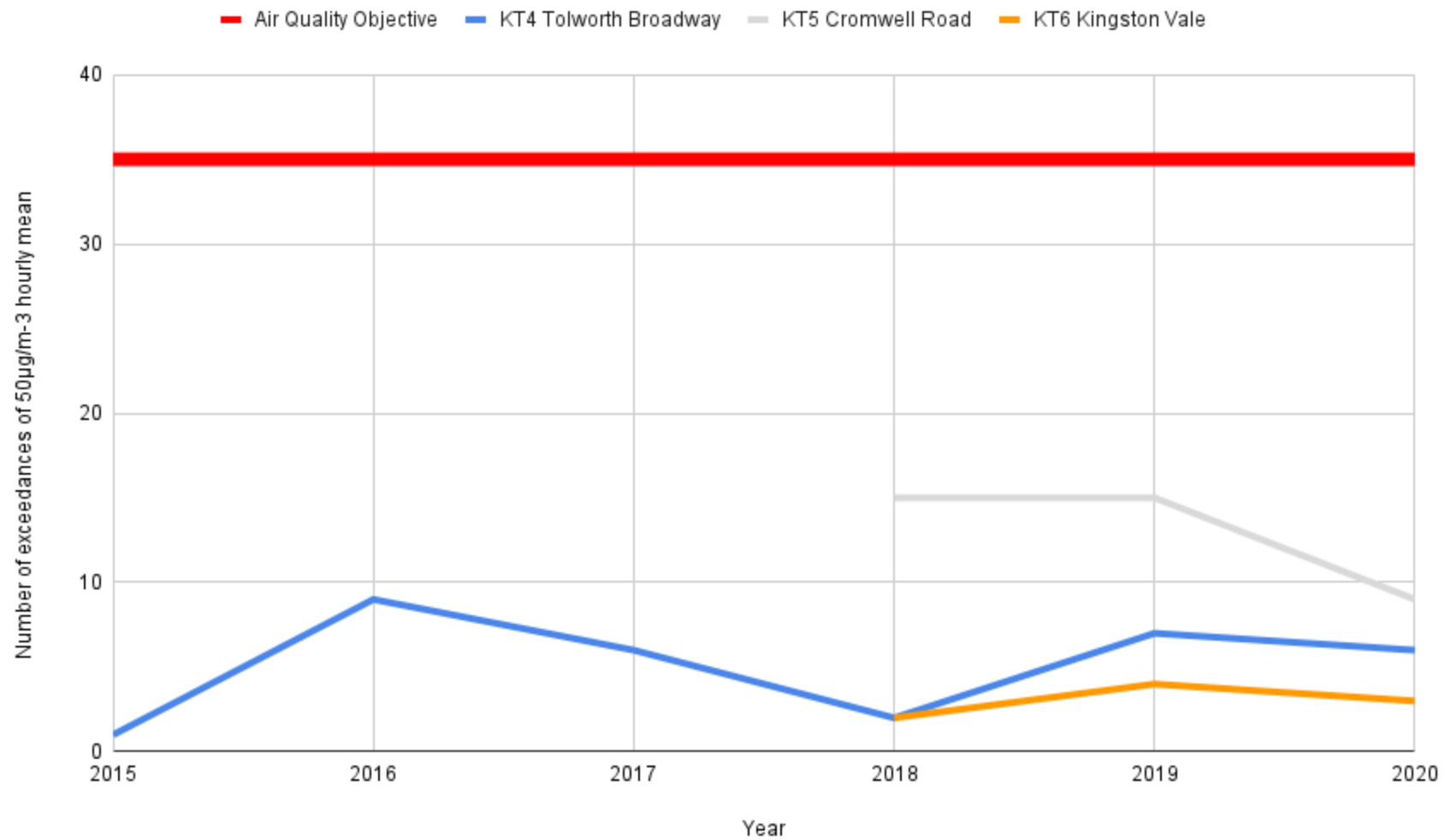


Figure 6 Exceedances of the 24h PM<sub>10</sub> objective at automatic monitoring stations.

Table H Not applicable. The Royal Borough of Kingston upon Thames does not regularly monitor PM<sub>2.5</sub>

Table I Not applicable. The Royal Borough of Kingston upon Thames does not regularly monitor SO<sub>2</sub>

## **2. Impact of COVID-19 upon LAQM**

Resourcing of the borough's work on air quality was not directly financially constrained by the COVID-19 pandemic. However, the Environmental Health Department, as well as others, was put under considerable strain due to increased workload related to the pandemic. Additional duties were allocated to EH such as COVID compliance checks on businesses and social distancing enforcement. Furthermore, many staff were redeployed to COVID-related roles.

As a result of COVID-19 restrictions the Gradko diffusion tube lab was briefly closed, meaning that the borough was unable to place out diffusion tubes for monitoring during May 2020. However, this did not result in data capture of less than 75% at any diffusion tube site, therefore annualisation was not required.

During 2020 some outreach activities became impossible due to COVID-19 restrictions. In-person Non-Road Mobile Machinery enforcement visits were no longer possible, nor were anti-idling school workshops. However, both projects were able to continue virtually, through desk-based compliance checks and online workshops respectively. While online workshops are likely to be less impactful than in-person events, they do allow the borough to raise awareness of the harm caused by idling with a wider audience.

In the wake of the first lockdown which began on March 23<sup>rd</sup> 2020 there was considerable concern that once people began to return to work many would choose car travel as opposed to public transport in order to reduce their risk of infection. This would have inevitable knock-on effects on congestion and air quality. Partly in an attempt to alleviate this, the borough chose to install three low traffic neighbourhoods and four school streets under the GLA's Streetspace for London programme. These schemes protect some of the borough's most sensitive areas and promote active travel providing numerous health benefits for residents and visitors.

### 3. Action to Improve Air Quality

#### 3.1 Air Quality Action Plan Progress

Table J provides a brief summary of the Royal Borough of Kingston upon Thames progress against the Air Quality Action Plan, showing progress made this year. New projects which commenced in 2020 are shown at the bottom of the table.

Table J Delivery of Air Quality Action Plan Measures

Measure	LLAQM Action Matrix Theme	Action	<b>Progress</b> <ul style="list-style-type: none"> <li>● Emissions/Concentration data</li> <li>● Benefits</li> <li>● Negative impacts / Complaints</li> </ul>
1	<b>Public Transport</b>	The Council will review those bus routes for which it is responsible to identify opportunities to implement bus priority measures, with priority given to those routes that suffer from excessive delays.	Bus Priority funding stream withdrawal by TfL has limited progress.
2		The Council will work with partners including TfL and London Mayor's Office to lobby for the introduction of low emission vehicles and fuel in hotspots of poorest air quality, including Cromwell Road.	All TfL buses travelling within the borough are now at least Euro VI compliant.
3		Work with TfL and other bus/rail operators to identify opportunities and secure improvements to bus/rail services.	OPE funding bid submitted for Tolworth Station. Other efforts were constrained due to TfL and rail industry funding situation.
4	<b>Roads</b>	Review the design of the one-way system around Kingston Town Centre and/or introduce a lower speed limit and retime the traffic signals	No further progress, longer term aspiration remains, dependent on developer funding.
5		Discuss with TfL the extension of the Low Emissions Zone to cover more/all of Kingston	Funding secured for a feasibility study into ULEZ and other air quality traffic management measures to be undertaken. The study will be commissioned in 2021.

6		Investigate options to further reduce the impact of road works on traffic flow, including working with utilities companies to coordinate street works, use of variable message signs, advanced notice, CCTV at road works to monitor the layout of works, traffic queues and signal timings. Introduce a scheme to issue fixed penalty notices where roadworks overrun timescales detailed in Permit to Work.	New ICT system has been rolled out which should improve coordination and performance. Lane rental scheme in neighbouring areas is being monitored to understand if it could be of benefit in RBK.
7		Ensure that relevant Council policies such as vehicle hire, parking and planning give consideration to air quality and that appropriate measures are included.	Agreed that, from April 2017, all committee reports will include details of the Air Quality implications of any proposed policy changes and the means by which negative impacts will be mitigated. It has been agreed that from the start of 2020, the Pollution Control Team will be invited to meetings regarding the renewal of the Council's Parking Strategy. This is with the aim of using this opportunity to put in place measures to control emissions from driving.
8	<b>Cars</b>	Promote the benefits of low emission vehicles to residents and businesses; increase awareness of available infrastructure, in particular existing EV charging infrastructure.	Installed 11 Source London sites, 17 charging points (dual and single), serving 26 dedicated bays (installed mid 2020). Progressed GULCS lamp column charging for Kingston, awarding to JoJu Ltd in late 2020. 4 Rapid charging points, facilitated by TfL (installed late 2020)
9		Deter engine idling while waiting with initial focus on signage at schools and stations.	During 2020 the borough continued to actively participate in the pan-London Idling Action project. Although no schools could be visited due to the pandemic, online educational materials were promoted to all schools via the newsletter. Businesses whose vehicles have been reported to be found idling have been contacted and an online workshop has been provided to them. Road signs have been installed at all locations where complaints have been received.
10		Promote car clubs	Zipcar remains the borough provider with 10 bays and 12 vehicles. A new corporate car club contract was being developed but had to be mothballed during



			the pandemic. It has been agreed that a 12-month contract will resume as soon as the pandemic allows resources to be allocated. Work is underway with RBK and LBS procurement teams to determine feasibility of developing a joint contract across both boroughs. Work on this will continue through 2021.
11	<b>Freight</b>	Improve freight access, loading, and servicing arrangements at key locations in the borough by: (i) Road space allocation to reduce congestion during vehicles loading/unloading; (ii) Promotion of delivery and servicing plans to businesses; (iii) Develop a signage strategy to improve navigation in areas of the borough	No progress - Medium term measure. Design and development require input from other stakeholders such as S&C, Parking etc to take this scheme forward.
12	<b>Cycling and Go Cycle</b>	Improve cycle parking provision throughout the Borough: (i) By working with train and bus operators to provide fully secure and sheltered cycle parking at major public transport hubs; (ii) Provide cycle parking at all Council operated buildings; (iii) Encourage and support other public organisations to provide secure cycle parking, including schools, Kingston University, Kingston College and Kingston Hospital; (iv) Encourage and support workplace, residential, leisure, retail and other sites to provide cycle parking facilities; (v) Ensure that the council's own policies require new developments in the Borough to provide secure cycle parking in accordance with minimum standards set out in the London Plan, e.g. student accommodation 1 space per 2 beds.	<p>The 4 outstanding Local Authority cycle hangars were installed in 2020. This means 16 have been installed during the current administration. We now have 60 hangars on local authority estates plus one for Refugee Action Kingston.</p> <p>On street residential hangars - we have experienced COVID-related manufacturing delays but hope to install these over the summer 2021.</p> <p>In 2020 seven Sheffield cycle stands were installed in Canbury Gardens, KT2 and a further 31 in locations around Kingston Town centre. In addition, as part of the Go Cycle programme, the Council increased cycle parking at the foot of Kingston Bridge to provide 104 spaces at this popular location.</p> <p>In December 2020 TfL awarded Kingston with funding for the installation of additional cycle parking in local parks, urban locations and at schools.</p>
13		Implement other measures to support and encourage cycling; including led commuter rides, Dr Bike sessions, and bicycle maintenance courses	Covid had a major impact on our ability to deliver all forms of cycle training and maintenance courses and led rides in 2020. However, we did perform a Dr Bikes for NHS hospital staff and Kingston had 27 Try Before You Bike orders with our contractors Peddle My Wheels between 01 April 2020 and 31 March 2021.

14		Review the cycle network to address obstacles to continued cycle movement and increase the number of cycle routes that are segregated from motor vehicles	Temp cycle lanes, including Eden Street, Fairfield North and Kingston Bridge were delivered as part of London Streetspace Covid response. Go Cycle work was impacted by Covid but Ewell Rd works were restarted by the end of the year. Works part-funded by SWRailways to complete the missing link on Jubilee Way were in planning phase in 2020. Work was done in late 2020 and into 2021 on the feasibility of improving the cycle network in the South of the Borough.
15		Expand existing cycle-hire schemes	Brompton's service remained operational in 2020. An MOU was agreed with Bolt for a dockless ebike hire scheme across Kingston and Sutton but they are now not launching in the UK . We are seeking alternative providers.
16	<b>Walking pedestrians</b>	The Council will prioritise improvements to the strategic walking network and will give high priority to improving pedestrian connectivity across barriers such as major junctions, busy roads, rivers, and rail lines	Footway widening in town centres took place as part of our London Streetspace response and our emergency and experimental School Streets encouraged children and guardians to use safer walking routes to school. Street Tag operated in 2020 but with schools being shut for some of the year, results were not what we would have hoped for in 2020. We are running Street Tag again in 2021 and hope to see more results across both the schools and public initiatives. Kingston website was updated with walking guides in collaboration with Public Health colleagues. Letters distributed to properties with trees/vegetation overhanging footway which had the desired effect of improving footway space in key locations such as Kings Rd close to Richmond Park entrance.
17	<b>Travel Plans</b>	Work with schools to better implement their travel plans to promote road safety and sustainable travel, prioritising schools for support that have the most significant transport problems and the greatest potential for mode shift.	The focus for last years (18-19 school year) travel plans was to work more closely with the schools to progress their travel plans. We achieved 6 gold schools and 3 silver schools. This means we had a drop in accreditation numbers, but success in our aim to increase the level of accreditation. We have been working with Lovelace Primary School on the first School Street in the borough and this has been

			running since October 2019. This scheme aims to reduce congestion outside the school gates. Further schemes are being planned and we are currently working with 2 other schools. Two schools in Kingston have STARS school travel plans for 2020/21. I am currently in touch with all schools to ensure their STARS stories are accredited by 16 July so TfL can assess their interim accreditation so will prioritise ensuring schools have up to date school travel plans, including issues and targets as a way to ensure they are able to maintain or gain accreditation.
18		Require businesses allocated parking permits to develop travel plans to encourage employees to use sustainable travel modes	In 2020 we started working with Kingston's Transition to a Green Economy group on the potential for ecargo bikes to be used by Kingston businesses through our Try Before You Bike contract with Peddle My wheels. For delivery in 2021.
19	<b>Development Control</b>	Conditions will be imposed on any major new development within the AQMA to mitigate the impact of poor air quality	Quantitative assessment of the number of AQ conditions applied to planning applications during 2019 can be found in Table K of this report. New guidance has been published on our website regarding controlling emissions through the planning approval process. This guidance clarifies to developers which sites will be reviewed for air quality, it stipulates compliance with the SPGs for Control of Dust and Emissions during Construction and Demolition, and Sustainable Design and Construction Practice, it recommends the structure of a standard air quality assessment and recommends compliance with relevant IAQM guidance on assessment of risk.
20		Increase planting of trees and plant species by roadsides to create green barriers. Work with planners to change policy to require green initiatives such as green roofs, walls, trees and pocket parks.	540 semi-mature trees planted during 2020/21 on highways, verges and within parks. The Council remains on track to hit its target of planting 2000 new trees by 2022.
21		Reduce emissions from buildings through implementation of improved energy efficiency and technological solutions during renovations	The Development Management team continues to secure improvements by the imposition of suitable conditions and the collection of funds to support air quality initiatives, as and when appropriate. See table K for further details.

22	<b>Partnerships</b>	Work jointly with Public Health on relevant campaigns	During 2020 the Idling Action project team produced web-based workshops. These have been used as a standard response to complaints of idling made against specific businesses as well as being promoted more widely through the borough and its schools. Our new webpages also contain a larger amount of information and links to external sources to highlight the public health impacts of air pollution and how to improve the situation. Car Free Day and Clean Air Day activities were not possible because of the pandemic.
23		Work with neighbouring boroughs (Sutton, Richmond, Merton, Wandsworth, Croydon) to bid for funds and deliver coordinated schemes over a wider area	RBK shares an Environment Service and Highways and Transport with LB Sutton. We actively participate in the South London Cluster. RBK is participating in the pan-London NRMM and Anti-idling projects, funded by the MAQF. We are part of the consortium that operates the LoveCleanAir website and are a member of the AirTEXT consortium. In 2020 we began the process of bidding for funding for Internet of Things-related projects under the South London Partnership's Innovate project. The outcome of these bids is not known at the time of writing.
24		Monitor air quality and provide information to residents to raise awareness and alert them on days when air pollution is higher. Offer support to schools on air quality promotions	RBK has continued to maintain and operate our extensive network of continuous and passive air quality monitors. This consists of 3 monitoring stations measuring NO2 and PM10, and 40 diffusion tubes. In addition to our network, in 2019 we added two hyperlocal air quality studies around specific highways improvements - 9 diffusion tubes to monitor the effect of cycle lane construction in moving traffic further from road-adjacent properties, and 7 low-cost monitors to monitor the impact of speed limit reductions to 20mph on all local roads. In respect of schools, the Council is participating in the pan-London anti-idling project. We are providing schools with leaflets and a number of banners to promote sustainable travel behaviours.

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

Table K Planning requirements met by planning applications in the Royal Borough of Kingston upon Thames in 2020

Condition	Number
Number of planning applications where an air quality impact assessment was reviewed for air quality impacts	18
Number of planning applications required to monitor for construction dust	15
Number of CHPs/Biomass boilers refused on air quality grounds	0
Number of CHPs/Biomass boilers subject to GLA emissions limits and/or other restrictions to reduce emissions	0
Number of developments required to install Ultra-Low NO <sub>x</sub> boilers	4
Number of developments where an AQ Neutral building and/or transport assessments undertaken	17
Number of developments where the AQ Neutral building and/or transport assessments not meeting the benchmark and so required to include additional mitigation	7
Number of planning applications with S106 agreements including other requirements to improve air quality	7
Number of planning applications with CIL payments that include a contribution to improve air quality	0
<p><b>NRMM: Central Activity Zone and Canary Wharf</b></p> <p>Number of conditions related to NRMM included.</p> <p>Number of developments registered and compliant.</p> <p>Please include confirmation that you have checked that the development has been registered with the GLA through the relevant <a href="#">NRMM website</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></p> <p>Number of conditions related to NRMM included.</p> <p>Number of developments registered and compliant.</p> <p>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>	16 conditions recommended 12 registered with 9 confirmed compliant upon inspection 3 confirmed non-compliant upon inspection and being chased

The Development Management service consults the Pollution Control on all major planning applications as well as some non-major applications that are likely to be of interest. Applications are reviewed by officers within the team in respect of contaminated land, noise and air quality. Typically, one officer coordinates the team's response and records data such as the air quality conditions that were recommended.

The enforcement of air quality conditions is largely the responsibility of the Planning Enforcement Team unless environmental nuisance issues arise. However, NRMM enforcement is carried out by the LB Merton-led pan-London NRMM enforcement project, funded by the Mayor's Air Quality Fund.

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

No new sources identified.

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

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

The Council's monitoring stations form part of the London Air Quality Network and QA/QC standards are delivered accordingly. These are considered close, if not equivalent to, the AURN standards. QA/QC is carried out by contractors

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

The monitoring stations in the Royal Borough of Kingston are part of the London Air Quality Network and the data is collected and managed (including ratification) by ERG (Environmental Research Group).

### **A.2      Diffusion Tubes**

The diffusion tubes used by the Royal Borough of Kingston are supplied and analysed by Gradko utilising the 20% triethanolamine (TEA) in water preparation method. A bias adjustment factor of 0.81 for the year 2020 has been derived from the nation bias adjustment calculator dated March 2021.

Royal Borough of Kingston did not conduct any co-location studies in 2020, so it was not possible to calculate a local adjustment factor. As a result, the national adjustment factor of 0.81 is applied to diffusion tube monitoring results in this report.

Gradko International Ltd is a UKAS accredited laboratory and participates in laboratory performance and proficiency testing schemes. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO<sub>2</sub> concentrations reported are of a high calibre. The lab follows the procedures set out in the Harmonisation Practical Guidance. Gradko previously participated in the Workplace Analysis Scheme for Proficiency (WASP) for NO<sub>2</sub> diffusion tube analysis Page 38 and the Annual Field Inter Comparison Exercise. In April 2014, a new scheme, AIR PT13, was introduced. This is an independent analytical proficiency-testing (PT) scheme, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL). AIR PT combines two long running PT schemes: LGC Standards STACKS PT scheme and HSL WASP PT scheme.

Laboratory performance in AIR PT is also assessed by the National Physical Laboratory (NPL) alongside laboratory data from the monthly NPL Field Intercomparison Exercise carried out at Marylebone Road, central London. A laboratory is assessed and given a 'z' score. A score of 2 or less indicates satisfactory laboratory performance.

Gradko International Ltd's performance for 2020 for 75% of samples submitted by Gradko were deemed satisfactory.

The laboratory has also achieved a "good" precision result for 2020. Tubes are considered to have "good" precision where the coefficient of variation of duplicate or triplicate diffusion tubes for eight or more periods during the year is less than 20%, and the average CV of all monitoring periods is less than 10%.

Table L Bias Adjustment Factor

Year	Local or National	If Local, Version of National Spreadsheet	Adjustment Factor
2020	National	03/21	0.81
2019	National	03/20	0.93
2018	National	03/19	0.93
2017	National	03/18	0.89
2016	National	03/17	0.94
2015	National	06/16	0.88
2014	National	Unknown	0.75
2013	National	Unknown	0.96

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

#### Short-term to Long-term Data Adjustment

Where data capture is less than 75% of a full calendar year (less than 9 months), the mean should be “annualised” – i.e. adjusted using the methodology outlined in LLAQM.TG(19) before being compared to annual mean objectives.

#### Distance Adjustment

If an exceedance is measured at a monitoring site which is not representative of public exposure, use the procedure specified in LLAQM.TG(19) to estimate the concentration at the nearest receptor and describe the process followed here. The outputs of this distance adjustment can be found in table N of this report.



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

Site ID	Annualisation Factor LB6 Streatham Green	Annualisation Factor WA2 Wandsworth Road	Average Annualisation Factor	Raw Data Annual Mean ( $\mu\text{g m}^{-3}$ )	Annualised Annual Mean ( $\mu\text{g m}^{-3}$ )	Comments
KT4	0.963	0.950	0.956	34.3	32.8	

Table N NO<sub>2</sub> Fall off With Distance Calculations

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted ( $\mu\text{g m}^{-3}$ ))	Background Concentration ( $\mu\text{g m}^{-3}$ )	Concentration Predicted at Receptor ( $\mu\text{g m}^{-3}$ )	Comments
Cromwell Road	2.7	5.7	44.7	22.84	40.60	Predicted concentration at Receptor above AQS objective.
Tolworth Roundabout (Sundial Court)	1	2.5	49.01	24.17	44.40	Predicted concentration at Receptor above AQS objective.
14-16 Cromwell Road	2	4	57.18	20.06	51.20	Predicted concentration at Receptor above AQS objective.
41 Kingston Hill	1	4	37.35	22.84	33.30	

## Appendix B Full Monthly Diffusion Tube Results for 2020

Table O NO<sub>2</sub> Diffusion Tube Results

Site ID	Valid data capture for monitoring period % <sup>(a)</sup>	Valid data capture 2020 % <sup>(b)</sup>	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual mean – raw data	Annual mean – bias adjusted
Guildhall Complex	92	92	21.31	15.66	17.67	18.1		12.79	9.37	14.38	17.4	18.89	26.61	24.5	17.88	14.48
17-19 Penrhyn Road	83	83	40.53		30.55	26.99		26.68	25.45	29.94	38.86	38.5	41.93	35.87	33.56	27.18
52 Portsmouth Road	92	92	38.01	28.63	25.8	26.53		21.11	16.49	24.3	26.86	28.26	30.02	31.84	27.08	21.93
88 Brighton Road	92	92	30.22	18.93	23.84	22.39		16.23	10.73	18.65	21.93	19.35	30.39	27.05	21.79	17.65
Victoria Road/Brighton Road	92	92	34.21	29.40	30.38	33.38		28.8	18.24	29.15	32.7	27.44	37.18	31.31	30.22	24.48
St. Mark's Hill/Ewell Road	92	92	35.52	24.77	29.64	25.73		24.78	19.44	27.94	25	28.44	34.54	29.85	27.8	22.51

Victoria Road near Surbiton Station	92	92	41.32	42.31	36.21	29.46		25.53	21.7	28.93	30.83	32.9	41.44	33.89	33.14	26.84
Upper Brighton Road/Langley Road	92	92	40.79	35.14	27.58	24.32		28.51	22.33	29.28	33.09	25.33	36.45	35.49	30.76	24.91
199 Douglas Road/Thornhill Road	92	92	29.23	21.29	20.55	17.21		14.48	12.73	16.76	19.78	21.69	28.59	25.3	20.69	16.76
Ewell Road near jct Elgar Avenue	92	92	39.78	35.80	32.61	31.55		27.62	25.37	32.63	36.16	33.08	36.9	35.9	33.4	27.05
53 Elgar Avenue	92	92	29.13	24.17	20.12	19.2		16	12.38	17.57	21.79	21.95	30.31	25.78	21.67	17.56
136 Tolworth Broadway/Service Road	92	92	29.5	42.95	43.12	31.07		56.77	33.36	43.65	45.99	42.45	46.57	40.87	41.48	33.60
Tolworth Roundabout (Sundial Court)	92	92	58.92	58.47	49.57	39.52		36.38	42.46	61.88	65.57	58.11	55.43	53.57	52.72	<b>42.70</b>
Kingston Road (near station)	92	92	39.25	31.42	30.38	32.66		31.36	22.08	38.44	40.05	35.16	48.41	36.23	35.04	28.38
A240 Kingston Road/Old	92	92	46.9	45.59	39.81	34.88		35.52	36.3	48.6	48.06	44.6	54.45	45.53	43.89	35.55

Kingston Road									7 9			6 8				
Hook Road South/Hunters Road	92	92	40. 97	34. 22	30. 28	24. 51			26. 05	30. 89	35. 44	3. 3. 6	35. 68	36. 26	31.97	25.89
Hook Road (St Paul's Primary)	92	92	41. 03	30. 62	25. 49	21. 82			14. 4	29. 41	32. 8	3. 4. 8 3	40. 14	35. 61	29.88	24.21
Hook Centre	92	92	43. 14	29. 78	28. 64	27. 92			30. 18	32. 04	32. 6	3. 1. 9 8	41. 12	37. 15	32.52	26.34
Garrison Lane/Reynolds Avenue	92	92	30. 91	23. 05	23. 24	20. 95			16. 75	26. 94	24. 28	2. 1. 5 9	31. 41	26. 66	24.2	19.60
353 Malden Rushett Crossroads	92	92	32. 1	29. 27	25. 33	21. 03			23. 38	29. 7	30. 98	2. 5. 1 6	33. 41	29. 92	27.73	22.46
Opposite 148 Leatherhead Road	92	92	33. 55	27. 29	25. 64	21. 05			20. 8	29. 7	30. 96	2. 9. 2 9	32. 92	29. 84	27.71	22.45
Hook Rise North/Tolworth Rec Centre	92	92	57. 9	50. 59	35. 18	24. 32			33. 93	36. 08	42. 69	4. 3. 1 7	49. 57	41. 27	40.6	32.89
40 Fife Road	92	92	30. 35	25. 19	24. 3	23. 86			23. 49	25. 31	28. 14	2. 7. 4 4	38. 26	32. 31	26.76	21.68

14-16 Cromwell Road	92	92	100.39	83.91	58.02	53.21		65.44	59.59	77.91	83.4	81.25	79.69	73.3	74.19	<b>60.10</b>
Queen Elizabeth Road/London Road	92	92	40.18	36.02	33.05	31.93		31.14	24.2	33.72	36.35	32.68	43.03	34.25	34.23	27.73
Richmond Road/Kings Road	83	83	34.12		26.05	23.08		23.06	6.6	26.57	26.56	28.29	41	34.35	27.97	22.66
Fire Station, Richmond Road	92	92	25.03	18.98	16.4	14.87		11.76	9.55	12.95	17.7	18.12	27.52	22.58	17.77	14.39
41 Kingston Hill	83	83		49.43	44.86	43.11		46.06	39.37	48.94	55.2	56.42	62.56	52.08	49.8	<b>40.34</b>
240 Kingston Vale near Robin Hood Lane	92	92	33.08	28.73	29.26	25.07		22.42	18.4	23.22	26.89	27.2	32.92	26.01	26.74	21.66
Coombe Hill School	92	92	48.99	45.60	32.64	28.82		29.33	30.62	35.39	41.42	40.77	41.76	36.12	37.41	30.30
248 Malden Road near A3	92	92	43.6	33.91	37.03	35.03		32.4	27.8	35.36	41.8	39.88	48.61	45.69	38.23	30.96
South Lane	92	92	28.24	22.24	19.38	19.11		13.65	12.2	15.71	20.48	20.0	29.85	24.76	20.58	16.67

									7 5			2 3				
96 Burlingst on Road	92	92	50. 63	42. 73	34. 22	32. 67		39. 3	2 9. 2	44. 66	40. 23	4 1. 7 3	50. 37	42. 04	40.71	32.97
66 New Malden High Street	83	83	40. 32	33. 19	30. 28	29. 15		27. 15	2 1. 4 2	32. 6	33. 76	3 3. 2 4		37. 56	31.87	25.81
113-115 Clarence Avenue	92	92	37. 64	31. 92	29. 15	26. 89		19. 84	1 9. 0 6	21. 13	24. 69	2 8. 4 1	43. 22	32. 57	28.59	23.16
38 Coombe Lane West near A3 junction	92	92	42. 94	34. 71	30. 48	24. 28		24. 37	2 3. 0 5	27. 68	32. 41	3 1. 9 5	35. 8	33. 73	31.04	25.14
51 Elm Road	83	83	30. 3		21. 59	19. 32		16. 6	1 3. 3 4	17. 52	22. 06	2 3. 8 4	30. 48	28. 16	22.32	18.08
Kingston Road (Carpet Right)	92	92	46. 68	39. 85	34. 3	35. 65		37. 21	2 8. 8 9	39. 47	43. 31	3 9. 5 4	54. 39	43. 35	40.24	32.59
Cambrid ge Road/Gl oucester Road	92	92	48. 09	39. 59	32. 22	33. 43		35. 2	3 3. 2 1	45. 89	46. 15	4 4. 2 9	54. 19	50. 42	42.06	34.07
Cambrid ge Road/Ha wks Road	92	92	44. 65	39. 36	34. 14	31. 69		32. 36	2 8. 3 4	38. 39	40. 84	4 0. 6 2	44. 92	42. 14	37.95	30.74

**Notes**

Concentrations are presented as  $\mu\text{g m}^{-3}$ .

Exceedances of the  $\text{NO}_2$  annual mean AQO of  $40 \mu\text{g m}^{-3}$  are shown in **bold**.

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

All means have been “annualised” in accordance with LLAQM Technical Guidance if valid data capture for the calendar year is less than 75% and greater than 33%.

(a) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

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