Westminster City Council Air Quality Annual Status Report for 2021

This report provides a detailed overview of air quality in Westminster City Council during 2021. It has been produced to meet the requirements of the London Local Air Quality Management (LLAQM) statutory process[1].

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

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Abbreviations

Abbreviation	Description
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_{10}	Particulate matter less than 10 micron in diameter
$PM_{2.5}$	Particulate matter less than 2.5 micron in diameter
TEB	Transport Emissions Benchmark
TfL	Transport for London

Table A. Summary of National Air Quality Standards and Objectives

Pollutant	Standard / Objective (UK)	Averaging Period	Date[(1)]
Nitrogen dioxide (NO_2)	200 µg m^{-3} not to be exceeded more than 18 times a year	1-hour mean	31 Dec 2005
Nitrogen dioxide (NO_2)	40 µg m^{-3}	Annual mean	31 Dec 2005
Particles (PM_{10})	50 µg m^{-3} not to be exceeded more than 35 times a year	24-hour mean	31 Dec 2004
Particles (PM_{10})	40 µg m^{-3}	Annual mean	31 Dec 2004
Particles ($PM_{2.5}$)	25 µg m^{-3}	Annual mean	2021
Particles ($PM_{2.5}$)	Target of 15% reduction in concentration at urban background locations	3-year mean	Between 2010 and 2021
Sulphur dioxide (SO_2)	266 µg m^{-3} not to be exceeded more than 35 times a year	15-minute mean	31 Dec 2005
Sulphur dioxide (SO_2)	350 µg m^{-3} not to be exceeded more than 24 times a year	1-hour mean	31 Dec 2004
Sulphur dioxide (SO_2)	125 µg m^{-3} mot 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 2021

Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance from monitoring site to relevant exposure (m)	Distance to kerb of nearest road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Monitoring technique
Marylebone Road	528125	182016	Kerbside	Y	44m	1.5m	2.5m	NOx; PM_{10}; $PM_{2.5}$; SO_2	Chemiluminescent, TEOM, FDMS
Horseferry Road	529802	178962	Urban Background	Y	21m	n/a	3m	NOx; $PM_{10;}$ $PM_{2.5;}$ Heavy Metals[1]	Chemiluminescent, FDMS, BAM, Partisol
Oxford Street (Selfridges)	528276	181065	Kerbside	Y	0m	1m	1.5m	NOx, PM_{10}	Chemiluminescent, BAM
Strand	530785	180911	Roadside	Y	0m	2.5m	1.8m	NOx	Chemiluminescent
Covent Garden	530444	180903	Urban Background	Y	0m	n/a	2m	NOx	Chemiluminescent
Cavendish Square	528763	181397	Roadside	Y	15m	5 m	1.7 m	NOx, PM_{10}	Chemiluminescent, BAM
Oxford Street East (94 Oxford Street)	529493	181331	Roadside	Y	0m	1.2 m	1.7 m	NOx, PM_{10}	Chemiluminescent, BAM

Duke Street	528409	180965	Roadside	Y	2m	2m	2m	NOx	Chemiluminescent
Ebury Street	528350	178921	Roadside	Y	1.5m	1.5m	1m	NOx	Chemiluminescent
Elizbeth Bridge	528731	178662	Roadside	y	6m	1m	1m	NOx PM2.5	Chemiluminescent, BAM

Table C. Details of Non-Automatic Monitoring Sites for 2021

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)
WCC1	Chelsea Bridge Road	528542	177974	Kerbside	Y	10	0	2.5	NO_2	N
WCC2	Lupus Street	529385	178099	Kerbside	Y	20	0	2.5	NO_2	N
WCC3	Belgrave Road	529294	178514	Kerbside	Y	3	0	2.5	NO_2	N
WCC4	Regency Street	529770	178479	Kerbside	Y	3	0	2.5	NO_2	N
WCC5	Ebury Square Gardens	528512	178593	Urban Background	Y	20	3	2.5	NO_2	N
WCC6	Eaton Gate	528204	178865	Kerbside	Y	10	0	2.5	NO_2	N
WCC7	41 Charing Cross Road	529980	180770	Kerbside	Y	3	0	2.5	NO_2	N
WCC8	13 Soho Square	529715	181231	Kerbside	Y	5	0	2.5	NO_2	N
WCC9	Park Lane	528104	180574	Kerbside	Y	3	0	2.5	NO_2	N
WCC10	Baker Street	527990	181743	Kerbside	Y	5	0	2.5	NO_2	N
WCC11	Park Road/Regents Park	527814	182209	Roadside	Y	10	2	2.5	NO_2	N
WCC12	Lisson Grove	527036	182321	Urban Background	Y	5	0	2.5	NO_2	N
WCC13	Wellington Road	526948	183009	Kerbside	Y	5	0	2.5	NO_2	N
WCC14	Abbey Road	526527	183040	Kerbside	Y	15	0	2.5	NO_2	N
WCC15	Maida Vale	525838	183119	Kerbside	Y	15	0	2.5	NO_2	N
WCC16	Sutherland Avenue 1	526012	182432	Kerbside	Y	6	0	2.5	NO_2	N

WCC17	Sutherland Avenue 2	525531	182116	Kerbside	Y	6	0	2.5	NO_2	N
WCC18	Shirland Road	525142	182507	Kerbside	Y	3	0	2.5	NO_2	N
WCC19	Harrow Road	524596	182339	Kerbside	Y	3	0	2.5	NO_2	N
WCC20	Woodfield Road	524887	181979	Urban Background	Y	3	0	2.5	NO_2	N
WCC21	Westbourne Park Road	525254	181559	Kerbside	Y	3	0	2.5	NO_2	N
WCC22	Westbourne Grove	525324	181122	Kerbside	Y	3	0	2.5	NO_2	N
WCC23	Whitley's / Queensway	525817	181136	Urban Background	Y	3	0	2.5	NO_2	N
WCC24	Sussex Gardens	526892	181140	Kerbside	Y	20	0	2.5	NO_2	N
WCC25a	Elizbeth Bridge Co-location	528731	178662	Roadside	Y	6	1	1	NO_2	Y
WCC25b	Elizbeth Bridge Co-location	528731	178662	Roadside	Y	6	1	1	NO_2	Y
WCC25c	Elizbeth Bridge Co-location	528731	178662	Roadside	Y	6	1	1	NO_2	Y
WCC26a	Oxford Street East Co-location	529493	181331	Roadside	Y	50	1	1.5	NO_2	Y
WCC26b	Oxford Street East Co-location	529493	181331	Roadside	Y	50	1	1.5	NO_2	Y
WCC26c	Oxford Street East Co-location	529493	181331	Roadside	Y	50	1	1.5	NO_2	Y

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.

Table D. Annual Mean NO_2 Ratified and Bias-adjusted Monitoring Results

Site ID	Site type	Valid data capture for monitoring period %[(a)]	Valid data capture 2021 %[(b)]	2015	2016	2017	2018	2019	2020	2021
Marylebone Road	Kerbside	94	94	**88**	**87**	**84**	**85**	**63**	**44**	**43**
Horseferry Road	Urban background	96	96	39	37	36	31	34	26	24
Oxford Street	Kerbside	92	92	**135**	**87**	**72**	**63**	**55**	34	34
Strand	Roadside	99	99	**122**	**101**	**92**	**88**	**76**	**44**	**43**
Covent Garden	Urban background	99	99	n/a	n/a	37	39	39	21	24
Cavendish Square	Roadside	98	98	n/a	n/a	n/a	**64**	**50**	32	32
Oxford Street East	Roadside	94	94	n/a	n/a	n/a	**76**	**51**	35	34
Buckingham Palace Road	Roadside	n/a	n/a	n/a	n/a	n/a	**52**	**51**	32	n/a
Duke Street	Roadside	97	97	n/a	n/a	n/a	n/a	**41**	28	30
Ebury Street	Roadside	72	72	n/a	n/a	n/a	n/a	35	21	23
Elizabeth Bridge	Roadside	99	99	n/a	n/a	n/a	n/a	n/a	26	30

Notes:

The annual mean concentrations are presented as µg m^{-3}.

Exceedances of the NO_2 annual mean AQO of 40 µg m^{-3} are shown in **bold**.

NO_2 annual means in excess of 60 µg m^{-3}, indicating a potential exceedance of the NO_2 hourly mean AQS objective are shown in **bold and underlined**.

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 25%.

Results have been distance corrected where applicable.

(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%).


7 Year Trend in The Annual Mean Nitrogen Dioxide Concentrations
Concentration µg/m³
140
120
100
80
60
40
20
0
2015
2016
2017
2018
2019
2020
2021
Marylebone Road
Horseferry Road
Oxford Street
Strand
Covent Garden
Cavendish Square
Oxford Street East
Buckingham Palace Road
Duke Street
Ebury Street
Elizabeth Bridge
Objective

7 Year Trend in The Annual Mean Nitrogen Dioxide Concentrations

The 7-year trend in annual mean nitrogen dioxide concentrations shows a general improvement from 2015 through to 2020. There has been a steady decrease in concentrations at the Oxford Street and Strand sites. Marylebone Road has shown little improvement between 2014 to 2018, with a noticeable improvement reported for 2019/2020. The Horseferry Road background site has been in operation for the whole 7-year period and is therefore the most relevant to consider for background patterns and this also shows a gradual improvement in nitrogen dioxide concentrations. An increase at Covent Garden was noted from its first year of operation, although it is noted that it has remained static for 2018/2019 with a reduction measured in 2020.

Monitoring for 2021 had indicated that there has been little improvement in measured nitrogen dioxide with concentration remaining static with a small increase reported in measured concentrations at Elizabeth Bridge, Ebury Street and Duke Street.

All monitoring sites continue meet the national objective for annual mean nitrogen dioxide with the exception of Strand and Marylebone Road who have both reported 43$\mu g/m^3$ slightly above the objective of 40$\mu g/m^3$.

Table E. NO_2 Automatic Monitoring Results: Comparison with 1-hour Mean Objective, Number of 1-Hour Means > 200 µg m^{-3}

Site ID	Site type	Valid data capture for monitoring period %[(a)]	Valid data capture 2021 %[(b)]	2015	2016	2017	2018	2019	2020	2021
Marylebone Road	Kerbside	94	94	**56**	**49**	**38**	**29**	0	0	**0**
Horseferry Road	Urban background	96	96	0	0	0	0	0	0	0
Oxford Street	Kerbside	92	92	**1391**	**168**	1	3	0	0	0
Strand	Roadside	99	99	**284**	**235**	**26**	**34**	**21**	0	**3**
Covent Garden	Urban background	99	99	n/a	n/a	0	0	0	**0**	0
Cavendish Square	Roadside	98	98	n/a	n/a	n/a	0	0	0	0
Oxford Street East	Roadside	94	94	n/a	n/a	n/a	11	5	0	0
Buckingham Palace Road	Roadside	n/a	n/a	n/a	n/a	n/a	1	0	(0)	n/a
Duke Street	Roadside	97	97	n/a	n/a	n/a	n/a	0	0	0
Ebury Street	Roadside	72	72	n/a	n/a	n/a	n/a	0	0	(0)
Elizabeth Bridge	Roadside	99	99	n/a	n/a	n/a	n/a	n/a	(0)	0

Notes

Results are presented as the number of 1-hour periods where concentrations greater than 200 µg m^{-3} have been recorded.

Exceedance of the NO_2 short term AQO of 200 µg m^{-3} 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%)

The 7-year trend in short term Nitrogen Dioxide concentrations shows an improvement at all monitoring sites. All sites have reported 0 exceedances of the 200 µg m-3 with the exception of Strand. Strand has reported 3 hours where the 200µg m^{-3} AQO Threshold has been exceeded in 2021, an increase from 0 reported in 2020. All monitoring stations continue to meet the national 1-hour Mean Objective for NO_2

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

Site ID	Valid data capture for monitoring period %([a])	Valid data capture 2021 %([b])	2015	2016	2017	2018	2019	2020	2021
Marylebone Road	n/a	n/a	30	29	27	26	24	n/a	n/a
Marylebone Road FDMS	76	76	24	26	24	24	22	16	16
Horseferry Road	n/a	n/a	17	17	17	17	17	15	n/a
Oxford Street	92	92	n/a	n/a	n/a	28	27	22	34
Cavendish Square	98	98	n/a	n/a	n/a	28	25	17	22
Oxford Street East	99	99	n/a	n/a	n/a	28	24	22	22

Notes

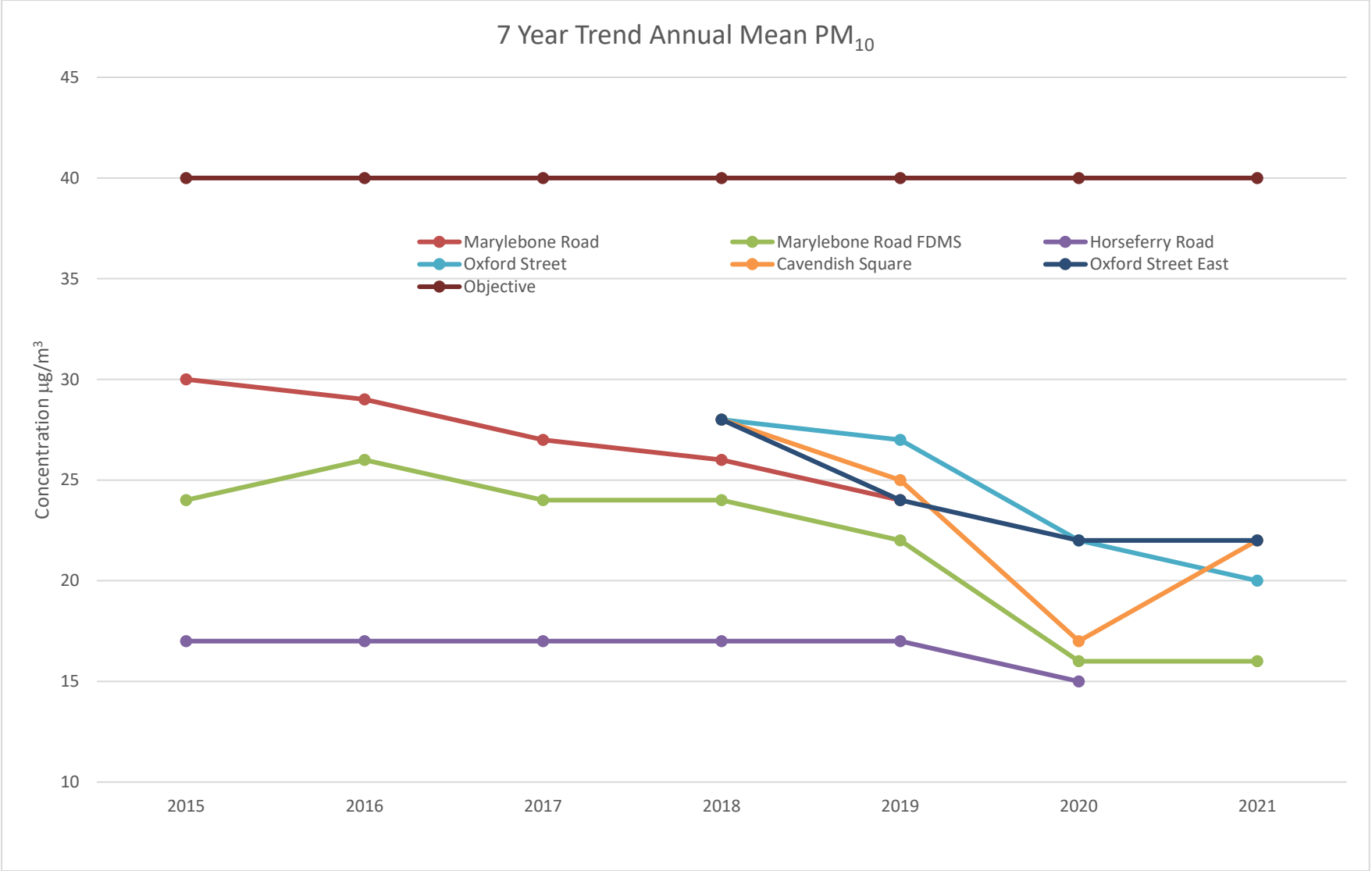
The annual mean concentrations are presented as µg m^{-3}.

Exceedances of the PM_{10} annual mean AQO of 40 µg m^{-3} 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 25%.

(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%).


7 Year Trend Annual Mean PM10
45
40
35
30
25
20
15
10
Concentration µg/m3
Marylebone Road
Marylebone Road FDMS
Horseferry Road
Oxford Street
Cavendish Square
Oxford Street East
Objective
2015
2016
2017
2018
2019
2020
2021

The 7-year trend has demonstrated a reduction in measured levels at all monitoring sites from 2015 through to 2020. Further reductions in measured concentrations of PM10 have been recorded at oxford for 2021. Measurements at Oxford Street East and Marylebone Road have remained constant with Cavendish Square reporting an increase in measured levels for 2021. All monitoring stations continue to meet the national objective for Annual Mean PM_{10}

Table G. PM_{10} Automatic Monitoring Results: Comparison with 24-Hour Mean Objective, Number of PM_{10} 24-Hour Means > 50 µg m^{-3}

Site ID	Valid data capture for monitoring period %([a])	Valid data capture 2021 %([b])	2015	2016	2017	2018	2019	2020	2021
Marylebone Road	n/a	n/a	13	15	12	5	11	n/a	n/a
Marylebone Road FDMS	76	76	10	14	8	7	10	1	0
Horseferry Road	n/a	n/a	3	6	6	1	7	2	n/a
Oxford Street	92	92	n/a	n/a	n/a	3	17	6	6
Cavendish Square	98	98	n/a	n/a	n/a	3	10	0	5
Oxford Street East	99	99	n/a	n/a	n/a	1	0	6	5

Notes

Exceedances of the PM_{10} 24-hour mean objective (50 µg m^{-3} 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%).

7-year trend for the 24 hour mean objective for PM_{10}

There has been a general improvement in measured levels reported between 2015 and 2018. In 2019 there was an increase is reported values across all sites, particularly noticeable at the Horseferry Road (urban background) and Oxford Street (kerbside) sites. In 2020 significant reduction in measured levels were recorded at Horseferry Road (urban background) and Oxford Street

(kerbside) sites with reductions observed at all sites. For 2021 no further reductions from 2020 measurements in have been reported with an increase in measured levels reported at Cavendish Square (roadside). All sites continue to meet the 24 hour mean objective for PM_{10}

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

Site ID	Valid data capture for monitoring period %[(a)]	Valid data capture 2021 %[(b)]	2015	2016	2017	2018	2019	2020	2021
Marylebone Road FDMS	86	86	16	16	15	16	14	9	11
Horseferry Road	96	96	10	10	9	11	12	11	10
Elizabeth Bridge	99	99	N/A	N/A	N/A	N/A	N/A	9	10

Notes

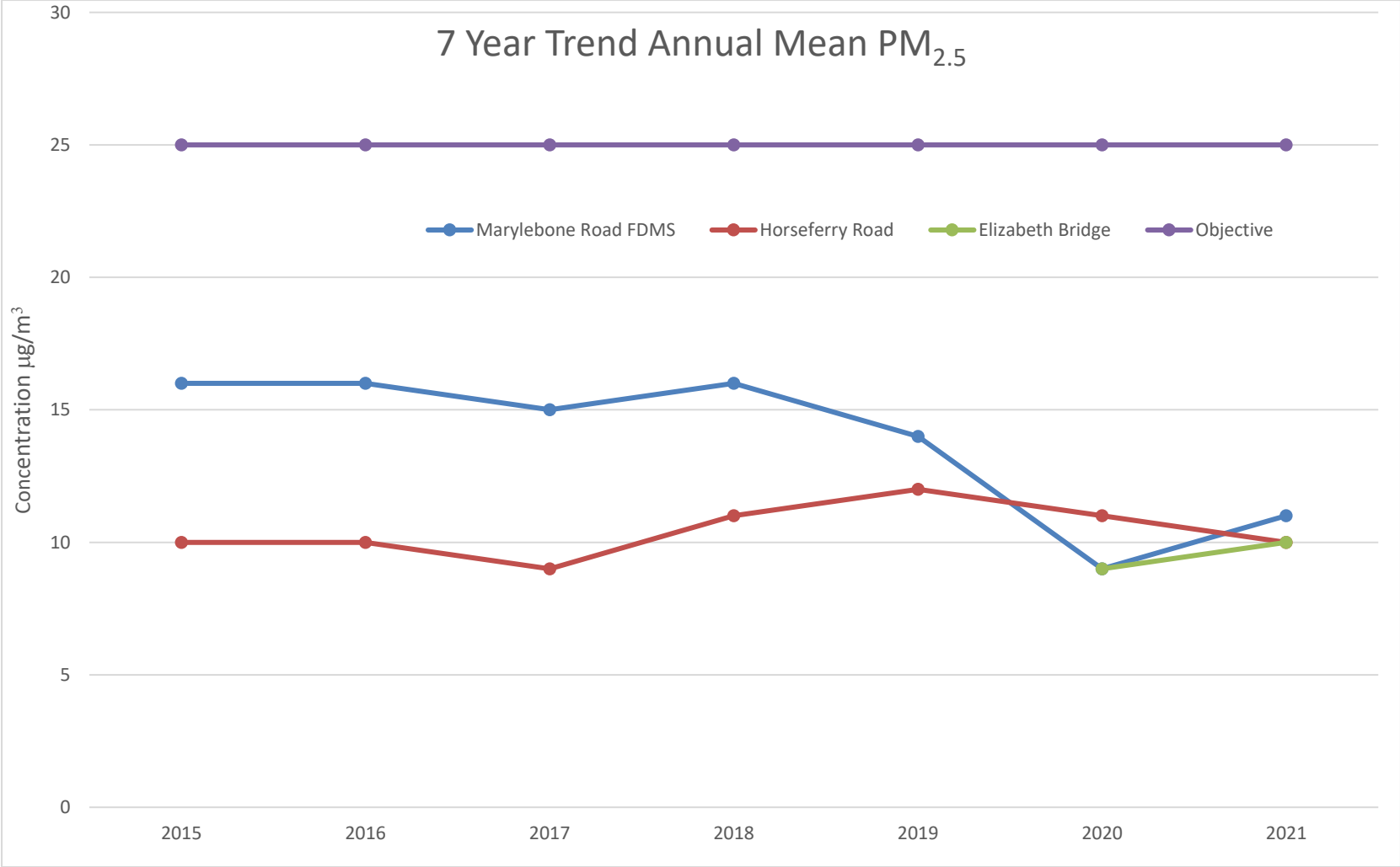
The annual mean concentrations are presented as µg m^{-3}.

Exceedances of the $PM_{2.5}$ annual mean AQO of 25 µg m^{-3} 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 25%.

(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%).



The 7-year trend shows a general improvement in the measured annual mean concentration at Marylebone Road and Horseferry Road site until 2018, at which point both sites reported an increase. Marylebone Road in the period between 2018 and through to 2020 has reported reductions in PM2.5 although these concentrations have increased in 2021. Horseferry Road continued to report and nn increases from 2019 with a decrease in PM2.5 concentration report in the period between 2019 and 2021. Monitoring

PM2.5 at Elizabeth Bridge commenced in 2020 and has reported an increase in concentrations for 2021. All sites continue to meet the national objective for PM2.5.

Table I. 2021 SO_2 Automatic Monitoring Results: Comparison with Objectives

Site ID	Valid data capture for monitoring period %[(a)]	Valid data capture 2021 %[(b)]	Number of 15-minute means > 266 µg m^{-3}	Number of 1-hour mean > 350 µg m^{-3}	Number 24-hour mean > 125 µg m^{-3}
Marylebone Road	95	95	10	0	0

Notes

Results are presented as the number of instances where monitored concentrations are greater than the objective concentration.

Exceedances of the SO_2 objectives are shown in **bold** (15-min mean = 35 allowed a year, 1-hour mean = 24 allowed a year, 24-hour mean = 3 allowed a year).

If the period of valid data is less than 85%, the relevant percentiles are 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%).

2. Action to Improve Air Quality

2.1 Air Quality Action Plan Progress

Table J provides a summary of Westminster City Council progress against the Council's Air Quality Action Plan 2019-24, showing progress made this year.

Table J. Delivery of Air Quality Action Plan Measures

AQAP Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
1	Monitoring	Ensure that appropriate and effective monitoring is undertaken across Westminster to meet statutory obligations as an Air Quality Management Area	Westminster's continuous monitoring and diffusion tube network continue to meet our statutory obligations for monitoring across the City.
2	Monitoring	Publish an annual report of air quality data on Westminster's website	Previous years' ASRs continue to be published online.
3	Monitoring	Support the provision of live data obtained to fulfil statutory obligations for public availability on the London Air Quality Network or equivalent website	Data from Westminster's automatic monitoring network continues to be publicly available on the London Air Quality Network website.
4	Monitoring	Implement and report on a new citywide diffusion tube monitoring network	This monitoring network is now fully established, and full details can be found in Appendix B of this Report. This network was implemented following feedback from the GLA on our 2020 ASR. The network consists of 24 independent locations, plus three sets of triplicate tubes co-located at automatic monitoring sites, for a total of 27 sites across the borough.
5	Monitoring	Create and publish a new online interactive map where all Westminster's monitoring locations and data is displayed to the public	We have been working with Ancoris, a Google Cloud Partner, to progress this action. A proof of concept was completed at the end of 2021, mapping Westminster's automatic monitoring network, diffusion tube network, and Breathe London monitors. Should the council choose to proceed with building a full live version of this map, further details will be included in next year's ASR.
6	Monitoring	Trial and evaluate the uses and effectiveness of new low cost air quality monitors and sensors	13 low cost air quality monitors were installed in Westminster in 2020 as part of the Breathe London project. In addition, a low cost sensor from supplier AirScan was installed in December 2020 in the Soho ward of the borough.

AQAP Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			Westminster also undertook feasibility work related to a low cost monitoring network across the city supplied by AirLabs (similar to a project being implemented in Camden).
7	Monitoring	Ensure that where appropriate, area-wide project monitoring and modelling (such as for the Oxford Street District) are made available to the public	Data related to the Baker St two-way scheme, Strand-Aldwych scheme, and Oxford Street District Scheme, have all been made available on either the council's or on project specific websites.
8	Monitoring	Support local communities in monitoring air quality in their local areas	Westminster approved ward budget spending for local air quality monitoring in two wards in 2021, with installation of the monitoring taking place in March 2022.
9	Monitoring	Prioritise the provision of PM2.5 monitoring if installing new reference method monitors	PM2.5 is prioritised any new additions to the continuous monitoring network.
10		Continue to support major landowners and developers in siting and installing privately owned air quality monitors	Two new continuous monitors were installed privately during 2021, at Waterloo Place and Regent's Street, both by the Crown Estate. Support is offered to landowners related to location and types of monitors to be installed.
11		Seek out external opportunities for grant funding related to monitoring	See comments for Action 10; in addition low cost sensor technologies are being trialled across the city, often utilising trials and discounted services from suppliers.
12		Investigate the potential for undertaking diffusion tube monitoring at all Westminster schools as part of the council's Schools' Clean Air Fund	A full diffusion tube survey at all Westminster schools was conducted between September 2019 and December 2020. More details on this work can be found in last year's ASR.
13	Emissions from developments and buildings	Adopt Westminster's new City Plan 2019 –2040	Westminster's City Plan was adopted in April 2021. The City Plan can be found online here.
14	Emissions from developments and buildings	Provide additional details and requirements for developers through the production and publication of a new Environment Supplementary Planning Document (SPD) to sit under Westminster's City Plan	Due to the policy priority given to the environment in the council's City Plan, the Environment Supplementary Planning Document (ESPD) was the first SPD to be drafted following the adoption of the City Plan. The ESPD provides additional information and guidance for developers related to all environment planning policy, including air quality. The ESPD itself was adopted in February 2022 alongside the Code of Construction Practice outlined in Action 15, so full details of the finalised policy guidance will be included in next year's ASR.
15	Emissions from developments and buildings	Update Westminster's existing Code of Construction Practice (2016)	Westminster's Code of Construction Practice (CoCP) was originally published in 2016. 2021 saw a full revision and rewrite of the Code, utilising best practice from elsewhere in London and implementing a number of a London-first policies related to air quality. These include the designation of the whole of Westminster as if it were in the Central Activity Zone for the purposes of the GLA's Non Road Mobile Machinery (NRMM) policy, and being the first borough to adopt emerging academic best practice related to new dust monitoring objectives and trigger levels. The Code also includes a number of policy areas with air quality co-benefits, including construction traffic, greening and biodiversity, community liaison, and waste management.

AQAP Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			The CoCP itself was adopted in February 2022 alongside the ESPD (Action 14), so full details of the finalised policy guidance will be included in next year's ASR.
16	Emissions from developments and buildings	Produce informative for developers to promote low combustion and combustion free development	New informatives and guidance for developers was produced following the adoption of the City Plan in 2021. This guidance is in two parts: • the first offers an overview of planning and building regulations, along with brief information on licensing and sustainable procurement. • Section B sets out in more detail the Council's advice on carbon reduction, pollution reduction and urban greening. These informatives sit under the ESPD. Section B (and the ESPD itself) contain information for developers aimed at promoting low combustion and combustion free development.
17	Emissions from developments and buildings	Effectively manage and mitigate emissions of development taking place in designated 'Focus Areas' through City Plan policies	Westminster's City Plan, adopted in 2021, contains additional requirements for developers if the development is located within GLA designated Air Quality Focus Areas. Part of Policy 32D reads: 'Air Quality Assessments will be required for… 4. All residential developments within Air Quality Focus Areas.' Due to the existing poor air quality in these areas, developments incorporating new residential units (of any size) in these areas will be required to submit an AQA to demonstrate air quality is not made worse and where possible, improved. AQFAs and their environments will also be prioritised for air quality offset projects, including those funded through contributions made in accordance with this policy.
18	Emissions from developments and buildings	Continue to secure funding from developers for interventions related to air quality where appropriate	Westminster's City Plan requires applicants to meet all elements of the Mayor of London's Air Quality Neutral policy, and as such utilising the 'last resort' charging mechanisms within this policy is available to the council. No funding was secured from developers through this process in 2021.
19	Emissions from developments and buildings	Continue to assess all relevant planning applications for their air quality impact	See Table K of this ASR for further details.
20	Emissions from developments and buildings	Require all new major developments and developments with CHP to be air quality neutral as a minimum	Westminster's City Plan Policy 32B reads: 'Major developments and developments incorporating Combined Heat and Power (CHP) should be at least Air Quality Neutral.'
21	Emissions from developments and buildings	Subject to publication of GLA's air quality positive requirements, developments subject to the Environmental Impact Assessment process to be Air Quality Positive (per the London Plan)	This requirement is contained in Westminster's City Plan and Environment Supplementary Planning Guidance.
22	Emissions from developments and buildings	Audit construction sites to ensure compliance with the GLA's NRMM requirements	See Table K of this ASR for further details.

AQAP Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			Westminster's Code of Construction Practice includes the designation of the whole of Westminster as if it were in the Central Activity Zone for the purposes of the GLA's Non Road Mobile Machinery (NRMM) policy – this will be reported on fully in next year's ASR.
23	Emissions from developments and buildings	Require developers to meet the GLA's emissions limits for Combined Heat and Power (CHP) and Biomass boilers	Rather than being required through condition, this requirement is checked as part of the Air Quality Assessment process for relevant planning applications.
24	Emissions from developments and buildings	Ensure emissions from construction sites are minimised through cooperation with developers and site visits, including effective dust monitoring where appropriate, and compliance with GLA NRMM requirements	Westminster's Code of Construction Practice requires all developers to minimise and mitigate adverse impacts of consultation and development on local air quality levels. Table K of this ASR contains details of the number of construction sites captured under requirements for dust monitoring and NRMM. Westminster's Code of Construction Practice includes the designation of the whole of Westminster as if it were in the Central Activity Zone for the purposes of the GLA's Non Road Mobile Machinery (NRMM) policy – this will be reported on fully in next year's ASR.
25	Emissions from developments and buildings	Continue to control emissions from permitted processes through inspections and enforcement	Table K of this ASR contains details of the number of construction sites captured under this action.
26	Emissions from developments and buildings	Effectively fulfil statutory duties as a Smoke Control Area	The whole of the borough is a Smoke Control Area, and Westminster continues to provide information related to this on our website, including signposting to resources and information on exempt fuels and suppliers on Defra's website. Westminster officers continue to sit on the GLA's Smoke Control working group.
27	Emissions from developments and buildings	Deliver air quality training for Westminster staff related to the Clean Air Act	Action completed and recorded in last year's ASR.
28	Emissions from developments and buildings	Complete an indoor air quality project to identify options for building owners to reduce indoor emissions through Building Management Systems (BMS)	This action was intended to be completed in 2021, alongside Action 29 below. However, funding restraints have meant this action has not yet been progressed. Public Health funding has been identified to take this project forward in 2022.
29	Emissions from developments and buildings	Complete a trial of indoor air quality monitors in council owned buildings to establish their effectiveness and use elsewhere across Westminster	This action was intended to be completed in 2021, utilising Uhoo air quality indoor monitors. However, funding restraints have meant this action has not yet been progressed. Public Health funding has been identified to take this project forward in 2022.
30	Emissions from developments and buildings	Develop a diesel generator power hierarchy for developers to use when on site with the aim to reduce the amount of diesel generators	New informatives and guidance for developers was produced following the adoption of the City Plan in 2021. This guidance is in two parts: • the first offers an overview of planning and building regulations, along with brief information on licensing and sustainable procurement.

AQAP Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			• Section B sets out in more detail the Council's advice on carbon reduction, pollution reduction and urban greening. These informatives sit under the ESPD. Section B (and the ESPD itself) contains information for developers aimed reducing diesel generator usage in new development. Activity related to reducing emissions from existing development generators will be reported on in next year's ASR.
31	Emissions from developments and buildings	Adopt revised planning conditions and informatives regarding the use of diesel generators	New informatives and guidance for developers was produced following the adoption of the City Plan in 2021. This guidance is in two parts: • the first offers an overview of planning and building regulations, along with brief information on licensing and sustainable procurement. • Section B sets out in more detail the Council's advice on carbon reduction, pollution reduction and urban greening. These informatives sit under the ESPD. Section B (and the ESPD itself) contains information for developers aimed at promoting low combustion and combustion free development.
32	Emissions from developments and buildings	Identify and trial options for reducing emissions from existing combustion plant and backup generators across Westminster	No further action has been completed to this action in 2021. Activity related to reducing emissions from existing development generators will be reported on in next year's ASR.
33	Emissions from developments and buildings	Where appropriate work with contractors related to major council schemes to deliver emissions abatement and mitigation above contractual requirements	The council's newly adopted Code of Construction Practice will include recommendations for developers that will be considered requirements for council schemes, such as the use of green hoardings. More details on this will be reported in next year's ASR.
34	Emissions from developments and buildings	Develop and implement new policies to reduce the use of diesel generators at markets, special events, filming and street works	In 2021 Sustainability was added as a specific section for any application for filming or events in Westminster. This includes requiring applicants to provide all details of proposed generator use, and recommending filming companies sign up to 'The Generator Project', a UK wide programme aimed at reducing the environmental impact of filming, including through diesel generators. The council's general 'Guidance for Food Traders at Markets and Isolated Pitches' is updated regularly and contains guidance on the use of diesel generators. However there is more work to be done on this action.
35	Emissions from developments and buildings	Produce and publish a Westminster Carbon Reduction Strategy	Westminster's Climate Emergency Action Plan was published in 2021, and can be found online here.

AQAP Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			The plan contains 70 actions, including what the Council must do to reduce its own emissions, and what we can do to enable and influence others to act.
36	Emissions from developments and buildings	Promoting and delivering energy efficiency retrofitting projects in workplaces and homes	Various actions are being undertaken in this area. However, extracting 2021 specific data has been challenging, so figures below represent work completed from September 2021 up to June 2022. We hope to improve this reporting process for next year's ASR. Housing energy efficiency retrofit: Decarbonisation retrofit project funded by the £3.3m Social Housing Decarbonisation Funding (SDHF)has begun following project agreement with our Long Term Contractor Morgan Sindall. Concurrent to this delivery plan, United Living have been engaged to prepare a delivery this project in South Westminster and plan to start in the next 3 months. Currently on plan to retrofit 360 homes by March 2023. Corporate Estate: Refit project progressing to be delivered by end of June 2022, saving c.1700 Tonnes per annum and 19% carbon baseline reduction. Retrofitting of Westminster's historic built environment: Draft terms of reference drawn up and approach made to a number of industry experts to gauge interest in task force membership and positive responses received from those approached. Procurement/contracted approach agreed to ensure industry experts can be remunerated and are fully able to commit to participation. Develop and implement a Westminster Sustainable City Charter to promote city–wide business commitments to reducing carbon through operational activities and to reporting
37	Emissions from developments and buildings	Investigating the adoption of a citywide definition of valuable green space	Activity on this action has not commenced. In late 2021 staff resourcing was made available for an officer to take this action forward; as such a much fuller update is expected in next year's ASR.
38	Emissions from Transport	Increase the number of electric vehicle charging points within the city	By the start of 2022, we have expanded the roll-out of EV charging infrastructure to 1,500 charge points in total across the city (including 30 additional rapid chargers for delivery vehicles), maintaining a long-term ratio of one EV charge point to 7-8 electric vehicle across all wards. These are available to view online here.
39	Emissions from Transport	Investigate with a view to undertaking trials of new electric vehicle charging technologies, such as induction charging	Activity on this action has not commenced.

AQAP Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
40	Emissions from Transport	Continue to undertake feasibility, consultation and implementation of on-street rapid charge points at taxi ranks and taxi rest ranks, in partnership with TfL	There are currently 170 fast and 24 rapid chargers installed across the city. These are available to view online here.
41	Emissions from Transport	Trial a new targeted approach to idling in specific parts of the borough, involving specific signage, communications activity and increased enforcement in idling hotspots	Targeted signage, comms and events have continued to take place during 2021 related to vehicle idling. For example, there was an engagement event in October 2021 at Marylebone Station which included talking to drivers and taxi drivers in the area. Early 2021 also saw a shift in focus of the council's award winning #DontBeIdle campaign, to move towards engaging with businesses with major fleets, including Deliveroo and Stagecoach.
42	Emissions from Transport	Introduce a new 'green fleet policy' for use across the council's owned and rented vehicle fleets	See comments related to Action 43, which will apply to council's owned and rented vehicle fleets and well as external contractors and suppliers.
43	Emissions from Transport	Update green procurement policies to maximise air quality benefits from council contracts	The council has produced a completely new responsible procurement policy and guidance, which is coming into force in 2022. The new policies contain specific guidance and requirements for contractors with any fleets, as well as guidance related to air quality for all contractors. This includes introducing a requirement within new contracts over £2m for suppliers to have a baseline, target and action plan to reduce carbon emissions to net zero before 2050 and tackle air quality emissions, and work with current existing suppliers to voluntarily sign up to the commitments. The council is also creating a new Responsible Procurement & Commissioning Directory. More details on this new policies will be available in next year's ASR.
44	Emissions from Transport	Continue to support TFL and the Mayor of London with the implementation and evaluation of the ULEZ, including continuing to support future ULEZ expansions	Westminster supported the introduction of the expanded ULEZ, and will continue to support TfL and the Mayor of London on future policy in this area.
45	Emissions from Transport	Work with market traders to identify and implement measures to reduce emissions associated with the city's markets	The council's general 'Guidance for Food Traders at Markets and Isolated Pitches' is updated regularly and contains guidance on the use of diesel generators. However there is more work to be done on this action.
46	Emissions from Transport	Work with railway and railway station operators to reduce emissions within mainline stations and lobby for reducing emissions from rail stock	Westminster has continued to lobby for general electrification of all lines going in and out of London, and has specifically lobbied Government on further action on the Marylebone Chilterns Line. This included an event outside Marylebone Station in October 2021 aimed at publicising the council's position and calling on Chilterns Railways to bring forward as soon as possible hybrid / retrofitted / electrified trials.
47	Emissions from Transport	Work with the Canal and River Trust to identify and implement measures to reduce emissions from canal boats in the city	Westminster is currently undertaking a Defra funded Feasibility study and comms campaign for electrification of canal boat moorings in Paddington Basin. Feasibility study has been finalised with the result that it would be feasible to install electric points

AQAP Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			in Paddington Basin (capital costs around £250,000); the bulk of this project will take place in 2022 and be reported on in next year's ASR.
48	Emissions from Transport	Monitor the efficacy of the pay to park diesel parking surcharge as a tool to reduce the number of most polluting journeys made in the borough	Activity related to AQAP Measures 48, 49, 51, 52, 53, and 54 is expected to constitute a major update in next year's ASR.
49	Emissions from Transport	Monitor the potential for older petrol vehicles to be including in the pay to park diesel parking surcharge	This policy area is expected to constitute a major update in next year's ASR.
50	Emissions from Transport	Complete analysis of parking occupancy surveys to ascertain the potential for utilising underused bays for other non-parking purposes. Consider undertaking trials of these alternate uses where appropriate	Activity related to AQAP Measures 48, 49, 51, 52, 53, and 54 is expected to constitute a major update in next year's ASR.
51	Emissions from Transport	Explore the potential for a diesel surcharge for older vehicles to be introduced for resident parking permits	This policy Activity related to AQAP Measures 48, 49, 51, 52, 53, and 54 is expected to constitute a major update in next year's ASR.is expected to constitute a major update in next year's ASR.
52	Emissions from Transport	Consider implementing additional charges or a cap on the maximum number of resident parking permits allowed per household	Activity related to AQAP Measures 48, 49, 51, 52, 53, and 54 is expected to constitute a major update in next year's ASR.
53	Emissions from Transport	Explore restructuring Westminster's resident parking permit bands to changing to an emission-based tariff scheme	Activity related to AQAP Measures 48, 49, 51, 52, 53, and 54 is expected to constitute a major update in next year's ASR.
54	Emissions from Transport	Move to an online permit system of one permit per vehicle	Activity related to AQAP Measures 48, 49, 51, 52, 53, and 54 is expected to constitute a major update in next year's ASR.
55	Emissions from Transport	Complete behavioural insight work related to parking	This action was completed and reported on in previous ASRs.
56	Emissions from Transport	Complete research project into parking behaviours	This action was completed and reported on in previous ASRs.
57	Emissions from Transport	Trial differential enforcement charges for 'sensitive streets', which could include those in AQ Focus Areas	Not further progress has been made on this action.
58	Emissions from Transport	Introduce Electric Vehicle charging infrastructure on council owned properties and housing estates	EV charging infrastructure has been installed on a number of council owned properties and housing estates. These are available to view online here.
59	Emissions from Transport	Trial dynamic or 'surge' pricing for pay to park parking across the city, such as increased prices when demand is particularly high	Not further progress has been made on this action.
60	Emissions from Transport	Continue to deliver high quality major public realm schemes that holistically include improving local air quality across the scope of works, which includes ensuring transport emissions are not permanently increased elsewhere in Westminster	Westminster has continued to prioritise air quality concerns for all major public realm schemes. In 2021 the Strand/Aldwych scheme held a number of workshops on air quality and created its own air quality action plan. More details on the scheme can be found here.
61	Emissions from Transport	Consider introducing air quality guidelines for major urban realm and regeneration projects across Westminster to ensure	No further work on this action has taken place, however at an informal officer level air quality considerations and discussions are taking place much earlier in the project 'life

AQAP Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
		that air pollution and other key environmental concerns are embedded across these major placeshaping projects	cycle' for major urban realm and regeneration projects than previously. However formal guidance has not yet been produced to cofidy this.
62	Emissions from Transport	Investigate the potential for a Zero Emission Zone in Dean Street in the Oxford Street District area	Emerging proposals for an interim public realm improvement scheme for the Oxford Street District were published in February 2021. More information on this can be found online.
63	Emissions from Transport	Accelerate the uptake of zero emissions vehicles as part of investigating the potential for a wider Zero Emissions Zone in the Oxford Street area	No more work on this action has taken place. Emerging proposals for an interim public realm improvement scheme for the Oxford Street District were published in February 2021. More information on this can be found online.
64	Emissions from Transport	Work with businesses to help them partner with local schools to maximise the impact of our Schools' Clean Air Fund	No further progress has been made on this action. See details for Actions 86 and 87 for more information on the Schools' Clean Air Fund.
65	Emissions from Transport	Continue to work with businesses and landowners to support re-timing, reducing and modal shifting of deliveries and servicing across the city	In early 2021 Westminster published its Freight, Servicing and Deliveries Strategy and Action Plan, which runs until 2040. This strategy contains nine strategic actions: A. Using Westminster's regulatory powers to reduce and manage future FSD trips; B. Proactive kerbside management, including more effective use of on-street loading/unloading bays throughout the 24-hour period; C. Partnership working with other boroughs, TfL, London Councils, Central Government and others; D. Partnership working with BIDS, landowners and Industry; E. Reducing Servicing Trips (i.e. non-delivery activity, such as service engineer visits); F. Smart Buying – Behavioural Change and Support Programme for Residents; G. Smart Procurement – Behavioural Change and Support Programme for Businesses and Workers; H. Retiming FSD activity where suitable; and I. Supporting future technology use. Full details of the Strategy can be found online here. The actions from the first full year of the Strategy's implementation will be set out in next year's ASR. In 2021 Westminster was also the lead partner on a Cross River Partnership bid for the Defra air quality grant programme, for the 'Clean Air Logistics for London' project, a £1m scheme with ten project partners aiming to move more freight into London via river rather than road, supported by a network of highly visible zero emission delivery methods across the Central London area, including Electric Vehicles, Cargo Bikes and

AQAP Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			Walking Freight. This project was successful and will be launched in 2022, with full details provided in next year's ASR.
66	Emissions from Transport	Assist local businesses and BIDS to consolidate services such as deliveries and waste collection	See action above for details on Westminster's FSD work, and our Cross River Partnership delivered freight project that has received £1m from Defra's air quality grant programme.
67	Emissions from Transport	Promote the council's commitment to meet World Health Organisation limits for air pollutants by 2030	Westminster welcomed the publication of the new WHO guidelines in September 2021, and have recommitted to working towards meeting these more stringent targets. Westminster included this position throughout its responses to a number of Government consultations, including those related to the bill that became the Environment Act 2021.
68	Emissions from Transport	Continue to tackle unnecessary idling through #DontbeIdle campaigns for both individuals and businesses	Targeted signage, comms and events have continued to take place during 2021 related to vehicle idling. For example, there was an engagement event in October 2021 at Marylebone Station which included talking to drivers and taxi drivers in the area. Early 2021 also saw a shift in focus of the council's award winning #DontBeIdle campaign, to move towards engaging with businesses with major fleets, including Deliveroo and Stagecoach.
69	Awareness raising and lobbying / partnership working	Promote and deliver air quality projects and events for national awareness raising campaigns such as National Clean Air Day and National Car Free Day	Westminster promoted major awareness raising days through its social media and other communications, including the Westminster Reporter residents magazine, and the council's online Environment Newsletter.
70		Continue to encourage schools to join the TfL STARS accredited travel planning programme	All Westminster schools are encouraged to join the STARS programme as part of our wider engagement with schools on the environment and health. Achievements are publicly available on the TfL STARS website: https://stars.tfl.gov.uk/Partner/14/School
71		Investigate the potential for an internal awareness raising campaign related to occupational health and pollution exposure for council employees and direct contractors	Public Health funding was confirmed in late 2021 for a project aimed at creating virtual training sessions for Westminster staff on air quality, especially for staff who regularly meet and talk to residents in the course of their everyday jobs. This includes non-council staff who work in health outreach and commissioned services. This project will be implemented in 2022/23 and reported on fully in next year's ASR.
72		Support and promote direct pollution alerts services such as AirTEXT	Westminster has continued to promote airTEXT to residents, and promotion materials for airTEXT have been included in packs given to residents taking part in health programmes and other commissioned services. Westminster currently has 578 residents signed up to airTEXT; while this is comparable to other central London boroughs, this action as been identified as one where improvement is required.
73		Promote and disseminate information of high pollution forecasts	See update for Action 72; again, this item has been identified as an area where more action is required.

AQAP Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
74		Produce a feasibility study and horizon scan around indoor air pollution and potential council actions and policies	Public Health funding was confirmed in late 2021 for a project aimed at awareness raising around indoor air quality. This may include information for residents and businesses on wood burning stoves (cf action 77). This project will be implemented in 2022/23 and reported on fully in next year's ASR.
75		Provide an annual update on air quality activities to the borough Director of Public Health.	Last update was provided in Q1 of 2021.
76		Work with Public Health to strengthen engagement with Westminster's Clinical Commissioning Group and GP surgeries	Public Health funding has been confirmed for two air quality projects. Action 71 contains details most relevant to this action. In 2022 the council will be published a new Health and Wellbeing Strategy, and more details on this will be contained in next year's ASR.
77		Publish air quality information to be made freely available at healthcare facilities, GP surgeries and pharmacies	Promotional materials for airTEXT have been included in packs given to residents taking part in health programmes and other commissioned services. However this item has been identified as an area where more action is required.
78		Scope out with a view to implementing an awareness raising project of air quality with private healthcare facilities in the Harley Street area of the city	This action has not been completed, and will be scoped out of future Action Plan updates due to resource limitations.
79		Investigate the potential for a project aimed at raising public and supplier awareness of smoke control area regulations and permitted fuels	Public Health funding was confirmed in late 2021 for a project aimed at awareness raising around indoor air quality. This may include information for residents and businesses on wood burning stoves (cf action 74). This project will be implemented in 2022/23 and reported on fully in next year's ASR. Westminster is also a project partner on a Camden and Islington led Defra air quality grant programme project on wood burning stoves, which was successful in receiving £300k and will launch in 2022. As a result, further information on this project will follow in next year's ASR.
80		Lobby national government to adopt World Health Organisation targets for air pollution as new national Air Quality Standards	Westminster welcomed the publication of the new WHO guidelines in September 2021, and have recommitted to working towards meeting these more stringent targets. Westminster included this position throughout its responses to a number of Government consultations, including those related to the bill that became the Environment Act 2021.
81		Continue to lobby national government to introduce an extensive scrappage scheme to reduce the number of older and more polluting vehicles to help generate modal shift and increase uptake of ultra low emission vehicles	No updates on this action for 2021. There were not considered any opportunities to follow up this lobbying ask in consultations during 2021.

AQAP Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
82		Continue to lobby national government to make changes to Vehicle Excise Duty to discourage the uptake of more pollution diesel vehicles	No updates on this action for 2021. There were not considered any opportunities to follow up this lobbying ask in consultations during 2021.
83		Continue to lobby national government to introduce new primary legislation on air quality	Westminster included this position throughout its responses to a number of Government consultations, including those related to the bill that became the Environment Act 2021. Westminster supported London Councils and the private members bill part sponsored by the City of London Corporation, although these areas of work were subsumed by the introduction of the Environment Bill (now Act 2021).
84		Continue to lobby national government to give legal enforcement powers to any new environmental enforcement agency / watchdog	Westminster included this position throughout its responses to a number of Government consultations, including those related to the bill that became the Environment Act 2021. Westminster supported London Councils and the private members bill part sponsored by the City of London Corporation, although these areas of work were subsumed by the introduction of the Environment Bill (now Act 2021).
85		Lobby Transport for London and the Mayor of London to prioritise Zero Emission Capable buses on routes through the city, in particular those passing through AQ Focus Areas and strategic areas such as the Oxford Street District	Conversations at officer level have continued; no concrete action from 2021 can be reported on.
86		Conduct air quality audits for all schools in Westminster	Action completed with details in last year's ASR.
87		Launch and deliver Westminster's £1m Schools' Clean Air Fund, providing schools across the city to access council funding to implement air quality measures	By the end of 2021, around £280,000 of the council's Schools' Clean Air Fund has been distributed to 22 schools across the city. An additional £40,000 of funding has been secured through s106 to supplement SCAF funding. Projects funded include green roofs, green walls, improving cycling and scooter facilities, air filtration units for classrooms, improving boiler flues, and implementing school streets.
88		Continue to work with stakeholders in the Marylebone LEN to trial new policies and projects in the area	No new Marylebone specific actions have been completed directly related to the legacy of the LEN. See comments for Action 46 for update on Marylebone specific activities.

3. Planning Update and Other New Sources of Emissions

Table K. Planning requirements met by planning applications in Westminster City Council in 2021

Condition	Number
Number of planning applications where an air quality impact assessment was reviewed for air quality impacts	28
Number of planning applications required to monitor for construction dust	78
Number of CHPs/Biomass boilers refused on air quality grounds	0
Number of CHPs/Biomass boilers subject to GLA emissions limits and/or other restrictions to reduce emissions	0
Number of developments required to install Ultra-Low NO_x boilers	0
Number of developments where an AQ Neutral building and/or transport assessments undertaken	28
Number of developments where the AQ Neutral building and/or transport assessments not meeting the benchmark and so required to include additional mitigation	4
Number of planning applications with S106 agreements including other requirements to improve air quality	0
Number of planning applications with CIL payments that include a contribution to improve air quality	0
NRMM: Central Activity Zone and Canary Wharf Number of conditions related to NRMM included. Number of developments registered and compliant. Please include confirmation that you have checked that the development has been registered with the GLA through the relevant NRMM website and that all NRMM used on-site is compliant with Stage IIIB of the Directive and/or exemptions to the policy.	43 sites required to comply with the emission limits. 24 registered and compliant 1 uncompliant and being chased.
NRMM: Greater London (excluding Central Activity Zone and Canary Wharf) Number of conditions related to NRMM included. Number of developments registered and compliant. Please include confirmation that you have checked that the development has been registered through the NRMM webpage and that all NRMM used on-site is compliant with Stage IIIA of the Directive and/or exemptions to the policy.	35 sites required to comply with the emission limits. 17 registered and compliant 1 uncompliant and being chased.

Westminster City council requires all strategic, major and basement developments to comply with Westminster's Code of Construction Practice (CoCP). The CoCP requires sites to formally agree a Site Environmental Management Plan (SEMP) and/or Construction Management Plan (CMP), prior to commencement of the development. The agreed SEMP and CMP will set out the sites NRMM and dust monitoring requirements. All active sites are proactively monitored to ensure that they are complying with the methodologies set out within their SEMP/CMP including the required NRMM emission limits.

3.1 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

Site	Calibration (WCC unless otherwise noted)
Marylebone Road (AURN)	ERG arrangements
Horseferry Road (AURN)	NOx calibration every 4 weeks BAM tape change every 8 weeks
Oxford Street	NOx calibration every 4 weeks BAM tape change every 8 weeks
Oxford Street East	NOx calibration every 4 weeks BAM tape change every 8 weeks
Buckingham Palace Road	NOx calibration every 4 weeks
Covent Garden	NOx calibration every 4 weeks
Cavendish Square	NOx calibration every 4 weeks BAM tape change every 8 weeks
Strand (Managed by Northbank BID)	Own arrangements
Duke Street (Managed by Grosvenor)	Own arrangements
Ebury Street (Managed by Grosvenor)	Own arrangements

Horseferry Road and Marylebone Road monitoring sites are AURN sites and therefore have AURN QA/QC procedures. For all other sites monitoring data is collected, validated and ratified by ERG. QA/QC procedures are similar to those of the AURN network.

PM_{10} Monitoring Adjustment

TEOM data has been adjusted using the volatile correction method (VCM).
BAM PM_{10} – adjusted with a reciprocal of slope of 1.2.

Smart Heated BAM PM_{10} – adjusted with a reciprocal of slope of 1.035.

Smart Heated BAM $PM_{2.5}$ – no adjustment required.

A.2 Diffusion Tubes

All tubes used by Westminster City Council are prepared using 50% TEA in acetone, and are supplied and analysed by Lambeth Scientific Services Ltd.

Lambeth Scientific services Precision are detailed below

2019 Good	2019 Bad	2020 Good	2020 Bad	2021 Good	2021 Bad
8	1	8	2	4	1

Lambeth participates in the AIR Proficiency Testing (PT) external proficiency testing scheme run by the Government. Four spiked diffusion tubes are distributed to participating laboratories on a quarterly basis to assess the analytical performance of those laboratories supplying diffusion tubes to Local Authorities for use in the context of LAQM.

The table below shows the results of the most recent 8 rounds of proficiency testing under AIR-PT. The table gives the % of samples where results returned by the laboratory were considered satisfactory – i.e. 1 out of 4 = 25%, and 4 out of 4 = 100%. The guidance directs that a single round is a snap-shot in time, and thus it is more informative to consider performance over a number of rounds. It is further stated that over a rolling five round AIR-PT window, 95% of results (i.e. 19 out of 20 samples) should be considered to be satisfactory.

AIR PT Round	AIR PT AR031	AIR PT AR033	AIR PT AR034	AIR PT AR036	AIR PT AR037	AIR PT AR039	AIR PT AR040	AIR PT AR040
Round conducted in the period	April – May 2019	July – August 2019	September – November 2019	January – February 2020	May – June 2020	July – August 2020	September – October 2020	January – March 2021
Lambeth Scientific Services	100%	50%	100%	100%	NR[2]	NR[2]	100%	100 %

Based on the latest rounds of Air PT results Lambeth Scientific Services have returned 90% of satisfactory results, below the requirement stated in the guidance. Westminster is currently in the process of reviewing tis diffusion tube analysis contract and a decision will be made with regards to continue with Lambeth Scientific as its tube supplier for future years.

Factor from Local Co-location Studies

Annual means and calculated bias for each site is available in appendix B and has been calculated from a co-location study at Covent Garden.

Discussion of Choice of Factor to Use

Both local and national Bias Adjustment Factors are available and have both been presented as this is the first full set of diffusion tube data available. The national bias adjust factor is more conservative than the correction applied by the local bias adjustment.

Table L. Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2021	National	03/22	0.97
2021	Local		0.9

[2] NR (no result) Round was cancelled due to pandemic.

A.3 Adjustments to the Ratified Monitoring Data

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

Site ID	Annualisation Factor Camden - Bloomsbury	Annualisation Factor City of London - The Aldgate School	Annualisation Factor Kensington and Chelsea - North Ken	Annualisation Factor Westminster - Horseferry Road	Average Annualisation Factor	Raw Data Annual Mean (µg m^{-3})	Annualised Annual Mean (µg m^{-3})	Comments
Ebury Street	1.05	1.09	1.04	1.05	1.06	22	23	
WCC7 Charring Cross Road	0.90	0.93	0.91	0.94	0.92	47	43.3	

Table N. NO_2 Fall off With Distance Calculations

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted (µg m^{-3})	Background Concentration (µg m^{-3})	Concentration Predicted at Receptor (µg m^{-3})	Comments
Marylebone Road	1.5	1.5	43	24	43	Background concentration taken from Horseferry Road
Strand	2.5	2.5	43	24	43	Background concentration taken from Horseferry Road
WCC7 Charring Cross Road	0	3	42	24	34	Background concentration taken from Horseferry Road Nation Bias adjustment figure has been used to distance correct the reported data.

Appendix B Full Monthly Diffusion Tube Results for 2021

Table O. NO_2 Diffusion Tube Results

Site ID	Valid data capture for monitoring period %[(a)]	Valid data capture 2021 %[(b)]	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual mean – raw data	Annual mean – bias adjusted National	Local Bias Adjustment Covent Garden (0.9)
WCC1	100	100	38	34	38	42	38	45	42	27	59	38	44	32	40	39	36
WCC2	100	100	42	40	36	27	32	33	33	32	38	30	38	32	34	33	31
WCC3	100	100	41	41	32	29	30	31	32	28	42	32	32	32	34	32	30
WCC4	100	100	40	29	31	22	26	21	26	18	35	28	38	31	29	28	26
WCC5	92	92	33	31	24	18	22	22	21	16	29	31	29	n/a	25	24	23
WCC6	100	100	40	32	35	34	34	34	33	26	46	32	40	37	35	34	32
WCC7	67	67	49	39	46	39	48	48	n/a	n/a	n/a	n/a	58	51	43	**42**	39
WCC8	100	100	29	28	26	27	28	25	26	18	30	31	32	32	28	27	25
WCC9	92	92	41	37	36	27	31	34	31	22	40	37	42	n/a	34	33	31
WCC10	92	92	37	40	30	36	36	N/A	32	23	44	42	42	40	37	35	33
WCC11	100	100	39	34	36	26	37	29	29	25	38	44	36	40	34	33	31
WCC12	100	100	29	31	25	21	21	18	29	16	23	23	26	25	24	23	22
WCC13	100	100	47	34	38	29	39	33	19	26	41	45	39	45	36	35	33
WCC14	100	100	30	30	23	24	24	25	24	18	31	25	30	30	26	25	24
WCC15	100	100	35	36	35	30	33	29	28	24	34	30	36	35	32	31	29
WCC16	100	100	33	31	30	24	21	17	21	16	27	23	27	29	25	24	22
WCC17	100	100	35	32	27	30	27	22	22	17	32	27	36	31	28	27	25
WCC18	100	100	51	35	36	24	31	30	32	19	31	29	36	34	32	31	29
WCC19	100	100	44	37	44	26	36	31	29	22	37	40	41	41	36	35	32
WCC20	100	100	34	34	27	24	27	24	21	18	28	27	37	29	28	27	25

WCC21	100	100	44	38	37	38	30	29	32	21	38	35	36	34	34	33	31
WCC22	92	92	45	42	43	42	39	40	35	24	n/a	33	29	39	37	36	34
WCC23	92	92	33	32	31	25	31	21	23	18	32	28	n/a	30	28	27	25
WCC24	100	100	42	34	39	27	32	30	33	21	42	38	36	40	35	33	31
WCC25a	100	100	32	29	31	30	27	33	27	22	35	32	39	32	31	30	28
WCC25b	100	100	34	34	29	29	31	34	28	20	34	32	39	31	31	30	28
WCC25c	92	92	29	30	27	n/a	29	32	27	22	35	30	40	30	30	29	27
WCC26a	75	75	33	n/s	37	31	32	38	35	27	42	n/a	41	n/a	36	35	33
WCC26b	75	75	28	25	29	23	24	20	23	19	29	28	33	30	33	32	30
WCC26c	75	75	31	28	24	22	24	22	24	19	29	28	37	30	35	34	32
WCC27a	100	100	33	27	30	21	23	20	23	18	29	27	33	30	26	25	23
WCC27b	100	100	41	41	32	29	30	31	32	28	42	32	32	32	27	26	24
WCC27c	100	100	40	29	31	22	26	21	26	18	35	28	38	31	26	25	24

Notes

Concentrations are presented as µg m^{-3}.

Exceedances of the NO_2 annual mean AQO of 40 µg m^{-3} are shown in **bold**.

NO_2 annual means in excess of 60 µg m^{-3}, indicating a potential exceedance of the NO_2 hourly mean AQS objective are shown in **bold and underlined**.

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 25%.

(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%).

Local Bias Calculation

Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements										Automatic Method		Data Quality Check	
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 μgm^{-3}	Tube 2 μgm^{-3}	Tube 3 μgm^{-3}	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean	Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
1	08/01/2021	04/02/2021	28.0	31.0	33.0	31	2.5	8	6.3	30.11481	100	Good	Good
2	04/02/2001	03/03/2021	25.0	28.0	27.0	27	1.5	6	3.8	24.43704	100	Good	Good
3	03/03/2021	01/04/2021	29.0	24.0	30.0	28	3.2	12	8.0	26.7	97	Good	Good
4	01/04/2021	07/05/2021	23.0	22.0	21.0	22	1.0	5	2.5	22.95556	100	Good	Good
5	07/05/2021	01/06/2021	24.0	24.0	23.0	24	0.6	2	1.4	19	100	Good	Good
6	01/06/2021	01/07/2021	20.0	22.0	20.0	21	1.2	6	2.9	15	100	Good	Good
7	01/07/2021	02/08/2021	23.0	24.0	23.0	23	0.6	2	1.4	16	100	Good	Good
8	02/08/2021	31/08/2021	19.0	19.0	18.0	19	0.6	3	1.4	16	97	Good	Good
9	31/08/2021	29/09/2021	29.0	29.0	29.0	29	0.0	0	0.0	28	99	Good	Good
10	29/09/2021	04/11/2021	28.0	28.0	27.0	28	0.6	2	1.4	26	100	Good	Good
11	04/11/2021	30/11/2021	33.0	37.0	33.0	34	2.3	7	5.7	31.30385	100	Good	Good
12	30/11/2021	07/01/2021	30.0	30.0	30.0	30	0.0	0	0.0	28.69474	100	Good	Good
13													
												Overall survey -->	Good precision / Good Overall DC

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

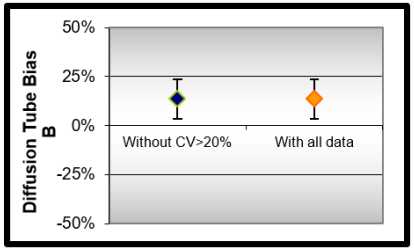
(Check average CV & DC from Accuracy calculations)

Site Name/ ID:	Covent Garden

Precision: 12 out of 12 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval) without periods with CV larger than 20%	
Bias calculated using 12 periods of data	
Bias factor A	0.9 (0.83 - 0.99)
Bias B	11% (1% - 21%)
Diffusion Tubes Mean:	26 μgm^{-3}
Mean CV (Precision):	4
Automatic Mean:	24 μgm^{-3}
Data Capture for periods used:	99%
Adjusted Tubes Mean:	24 (22 - 26) μgm^{-3}

Accuracy (with 95% confidence interval) WITH ALL DATA	
Bias calculated using 12 periods of data	
Bias factor A	0.9 (0.83 - 0.99)
Bias B	11% (1% - 21%)
Diffusion Tubes Mean:	26 μgm^{-3}
Mean CV (Precision):	4
Automatic Mean:	24 μgm^{-3}
Data Capture for periods used:	99%
Adjusted Tubes Mean:	24 (22 - 26) μgm^{-3}



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