Westminster City Council Air Quality Annual Status Report for 2022

Date of publication: July 2023

This report provides a detailed overview of air quality in Westminster during 2022. 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 ($PM_{2.5}$)	20 µg m^{-3}	Annual mean	2020
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 2022

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 – 4m from kerb)	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
Elizabeth Bridge	528731	178662	Roadside	y	6m	1m	1m	NOx PM2.5	Chemiluminescent, BAM

Table C. Details of Non-Automatic Monitoring Sites for 2022 / Diffusion tube sites

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
WCC27a	Covent Garden Co-location	530446	180900	Urban Background	Y	5	60	2.5	NO2	Y
WCC27b	Covent Garden Co-location	530446	180900	Urban Background	Y	5	60	2.5	NO2	Y
WCC27c	Covent Garden Co-location	530446	180900	Urban Background	Y	5	60	2.5	NO2	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 D1. Annual Mean NO_2 Ratified Monitoring Results / Automatic Monitoring sites

Site ID	Site type	Valid data capture for monitoring period %[(a)]	Valid data capture 2021 %[(b)]	2016	2017	2018	2019	2020	2021	2022
Marylebone Road	Kerbside	99	99	**87**	**84**	**85**	**63**	**44**	**43**	27.0*
Horseferry Road	Urban background	88	88	37	36	31	34	26	24	23.6
Oxford Street	Kerbside	100	100	**87**	**72**	**63**	**55**	34	34	37.3
Strand	Roadside	79	79	**101**	**92**	**88**	**76**	**44**	**43**	34.7
Covent Garden	Urban background	99	99	n/a	37	39	39	21	24	23.5
Cavendish Square	Roadside	100	100	n/a	n/a	**64**	**50**	32	32	32.7
Oxford Street East	Roadside	100	100	n/a	n/a	**76**	**51**	35	34	36.9*
Buckingham Palace Road	Roadside	N/A	N/A	n/a	n/a	**52**	**51**	32	n/a	n/a
Duke Street	Roadside	95	95	n/a	n/a	n/a	**41**	28	30	31.7
Ebury Street	Roadside	91	91	n/a	n/a	n/a	35	21	23	24.9
Elizabeth Bridge	Roadside	99	99	n/a	n/a	n/a	n/a	26	30	34.1

*= distance corrected

Table D2. Annual Mean NO2 Bias-adjusted Monitoring Results/ Diffusion Tube Sites

Site ID	Valid data capture for monitoring period %[a]	Valid data capture 2022 %[b]	2021	2022
WCC1	83	83	36	34.6
WCC2	83	83	31	26.4
WCC3	83	83	30	26.1
WCC4	75	75	26	22.2
WCC5	67	67	23	23.2
WCC6	75	75	32	28.7
WCC7	75	75	39	37.5*
WCC8	67	67	25	31.5
WCC9	67	67	31	35.7
WCC10	75	75	33	35.7
WCC11	83	83	31	32.8
WCC12	67	67	22	20.9
WCC13	75	75	33	35.4
WCC14	83	83	24	24.3
WCC15	83	83	29	28.4
WCC16	75	75	22	21.5
WCC17	83	83	25	22.2
WCC18	83	83	29	28.8
WCC19	83	83	32	30.7
WCC20	83	83	25	23.3
WCC21	83	83	31	30.8
WCC22	83	83	34	31.3
WCC23	83	83	25	25.0
WCC24	83	83	31	32.0
WCC25a	83	83	28	30.3
WCC25b	83	83	28	28.6
WCC25c	75	75	27	31.6
WCC26a	67	67	33	37.2

WCC26b	67	67	30	37.3
WCC26c	67	67	32	37.4
WCC27a	83	83	23	23.3
WCC27b	83	83	24	23.8
WCC27c	83	83	24	23.2

*= distance corrected

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%).

The 7-year trend in annual mean nitrogen dioxide concentrations shows a general improvement from 2016 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 2016 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. A small increase was reported in 2021 although a reduction in annual mean nitrogen dioxide has been reported for 2022.

Monitoring for 2022 had indicated that there has been little improvement in measured nitrogen dioxide on Marylebone Road, slight improvements in measured concentrations have been reported at Horseferry Road and the Strand, with small increases reported in measured concentrations at Elizabeth Bridge, Ebury Street, Duke Street, Oxford Street, Oxford Street East and Cavendish Square.

All monitoring sites continue meet the national objective for annual mean nitrogen dioxide except for Oxford Street East (41.7 $\mu g/m^3$) and Marylebone Road (45.0 $\mu g/m^3$) who have both reported values above the annual objective of 40 $\mu g/m^3$. However, with the applied distance correction to receptors both sites comply with the annual objective.

All diffusion tube sites also comply with the annual objective of 40 $\mu g/m^3$.

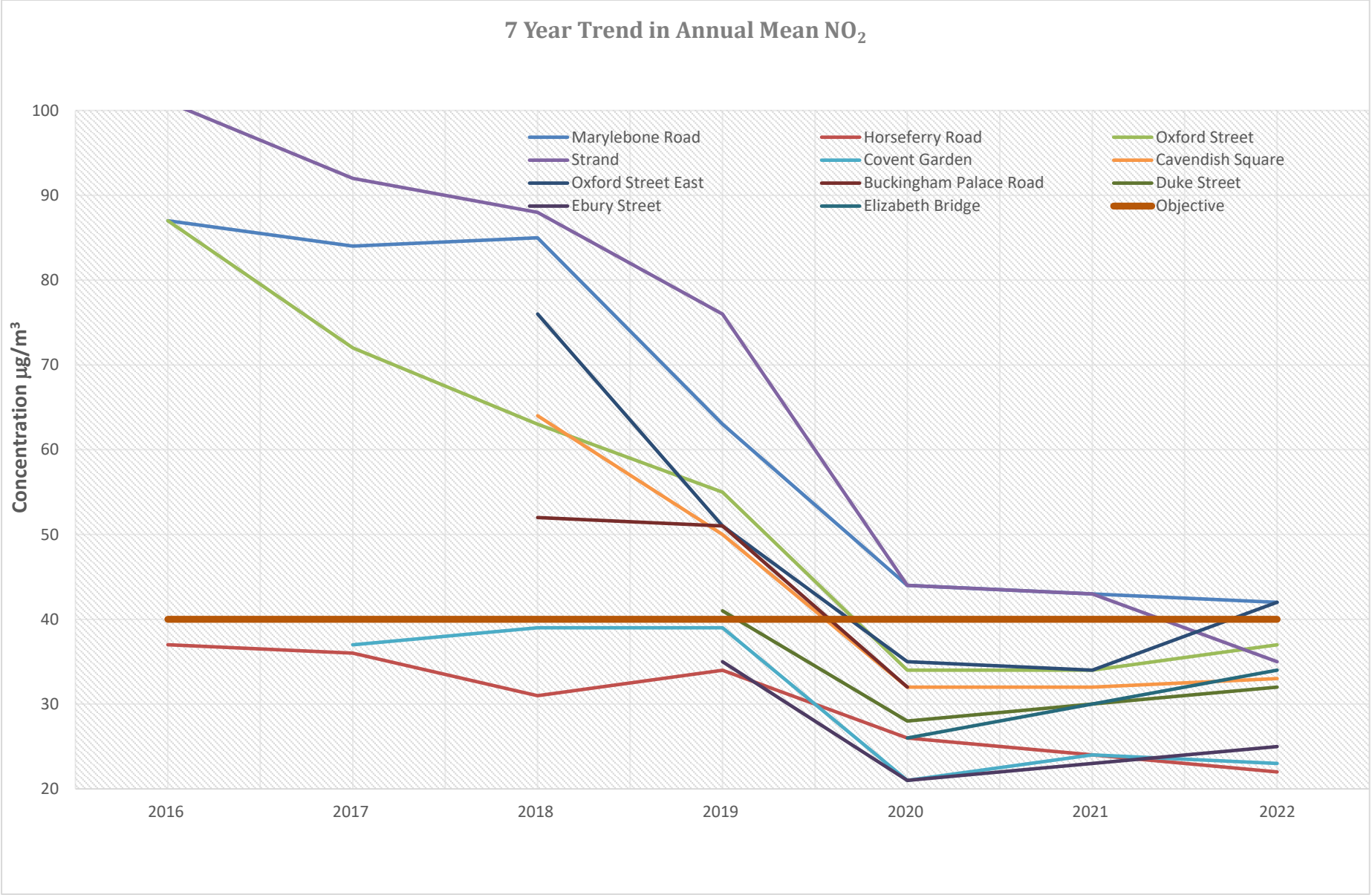
7 Year Trend in Annual Mean NO_2
Concentration µg/m³
100
90
80
70
60
50
40
30
20
2016
2017
2018
2019
2020
2021
2022
Marylebone Road
Horseferry Road
Oxford Street
Strand
Covent Garden
Cavendish Square
Oxford Street East
Buckingham Palace Road
Duke Street
Ebury Street
Elizabeth Bridge
Objective

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 2022 %[(b)]	2016	2017	2018	2019	2020	2021	2022
Marylebone Road	Kerbside	99	99	**49**	**38**	**29**	0	0	0	1
Horseferry Road	Urban background	88	88	0	0	0	0	0	0	0
Oxford Street	Kerbside	100	100	**168**	1	3	0	0	0	0
Strand	Roadside	79	79	**235**	**26**	**34**	**21**	0	3	0
Covent Garden	Urban background	99	99	n/a	0	0	0	0	0	0
Cavendish Square	Roadside	100	100	n/a	n/a	0	0	0	0	0
Oxford Street East	Roadside	100	100	n/a	n/a	11	5	0	0	1
Buckingham Palace Road	Roadside	N/A	N/A	n/a	n/a	1	0	(0)	n/a	n/a
Duke Street	Roadside	95	95	n/a	n/a	n/a	0	0	0	0
Ebury Street	Roadside	91	91	n/a	n/a	n/a	0	0	(0)	0
Elizabeth Bridge	Roadside	99	99	n/a	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^{-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 Oxford Street East. Oxford Street East has reported 1 hour where the 200µg m^{-3} AQO Threshold has been exceeded in 2022, an increase from 0 reported in 2021. 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 2022 %([b])	2016	2017	2018	2019	2020	2021	2022
Marylebone Road	n/a	n/a	29	27	26	24	n/a	n/a	n/a
Marylebone Road FDMS	n/a	n/a	26	24	24	22	16	16	n/a
Horseferry Road	n/a	n/a	17	17	17	17	15	n/a	n/a
Oxford Street	99	99	n/a	n/a	28	27	22	34	22
Cavendish Square	80	80	n/a	n/a	28	25	17	22	24
Oxford Street East	98	98	n/a	n/a	28	24	22	22	23

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%).

The 7-year trend has demonstrated a general reduction in measured levels at all monitoring sites from 2015 through to 2020. All stations hare reported an increase in Annual Mean PM_{10} from 2020 through to 2022, with the exception of Oxford Street that has reported a reduction when compared to 2021 measurements. All monitoring stations continue to meet the national objective for Annual Mean PM_{10}

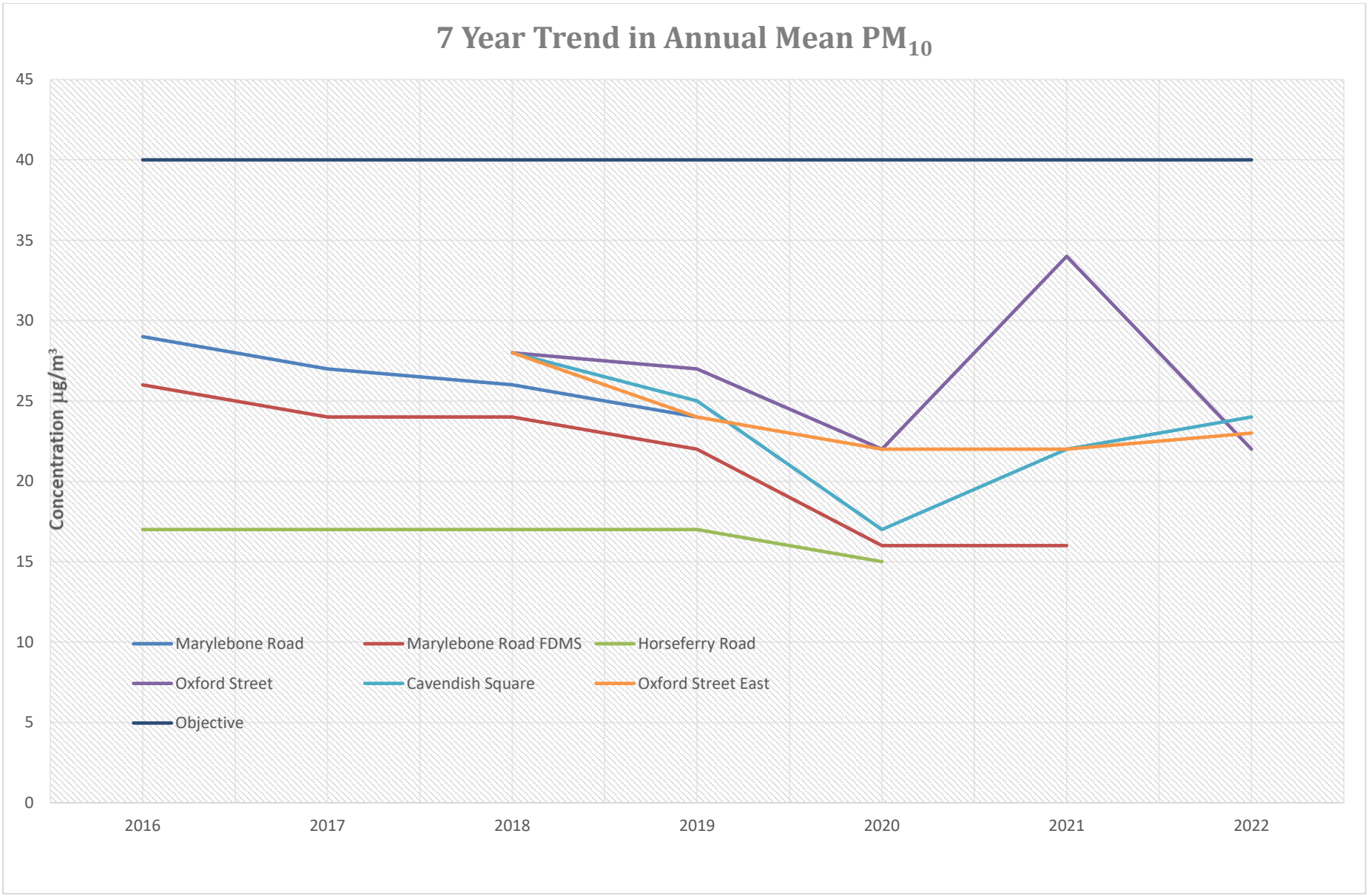
7 Year Trend in Annual Mean PM10
Concentration µg/m³
45
40
35
30
25
20
15
10
5
0
2016
2017
2018
2019
2020
2021
2022
Marylebone Road
Marylebone Road FDMS
Horseferry Road
Oxford Street
Cavendish Square
Oxford Street East
Objective

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 2022 %(b)	2016	2017	2018	2019	2020	2021	2022
Marylebone Road	n/a	n/a	15	12	5	11	n/a	n/a	n/a
Marylebone Road FDMS	n/a	n/a	14	8	7	10	1	0	n/a
Horseferry Road	n/a	n/a	6	6	1	7	2	n/a	n/a
Oxford Street	99	99	n/a	n/a	3	17	6	6	7
Cavendish Square	80	80	n/a	n/a	3	10	0	5	5 (5)
Oxford Street East	98	98	n/a	n/a	1	0	6	5	6

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%).

There has been a general improvement in measured levels reported between 2016 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 in measured concentrations observed at all sites. For 2022 no further reductions from 2021 measurements have been reported with an increase in measured concentrations at Oxford Street East and Oxford Street. 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 2022 %[(b)]	2016	2017	2018	2019	2020	2021	2022
Marylebone Road FDMS	N/A	N/A	16	15	16	14	9	11	n/a
Horseferry Road	91	91	10	9	11	12	11	10	9
Elizabeth Bridge	96	96	N/A	N/A	N/A	N/A	9	10	10

Notes

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

Exceedances of the $PM_{2.5}$ annual mean AQO of 20 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 $PM_{2.5}$ concentration at Marylebone Road and Horseferry Road sites until 2020, at which point the Marylebone Road site reported a slight increase. Elizabeth Bridge was established in 2020 and has demonstrated a marginal increase since opening. 2022 has seen a decrease in measured annual mean PM2.5 with no improvement measured at Elizabeth Bridge. All sites continue to meet the guideline value for PM2.5.

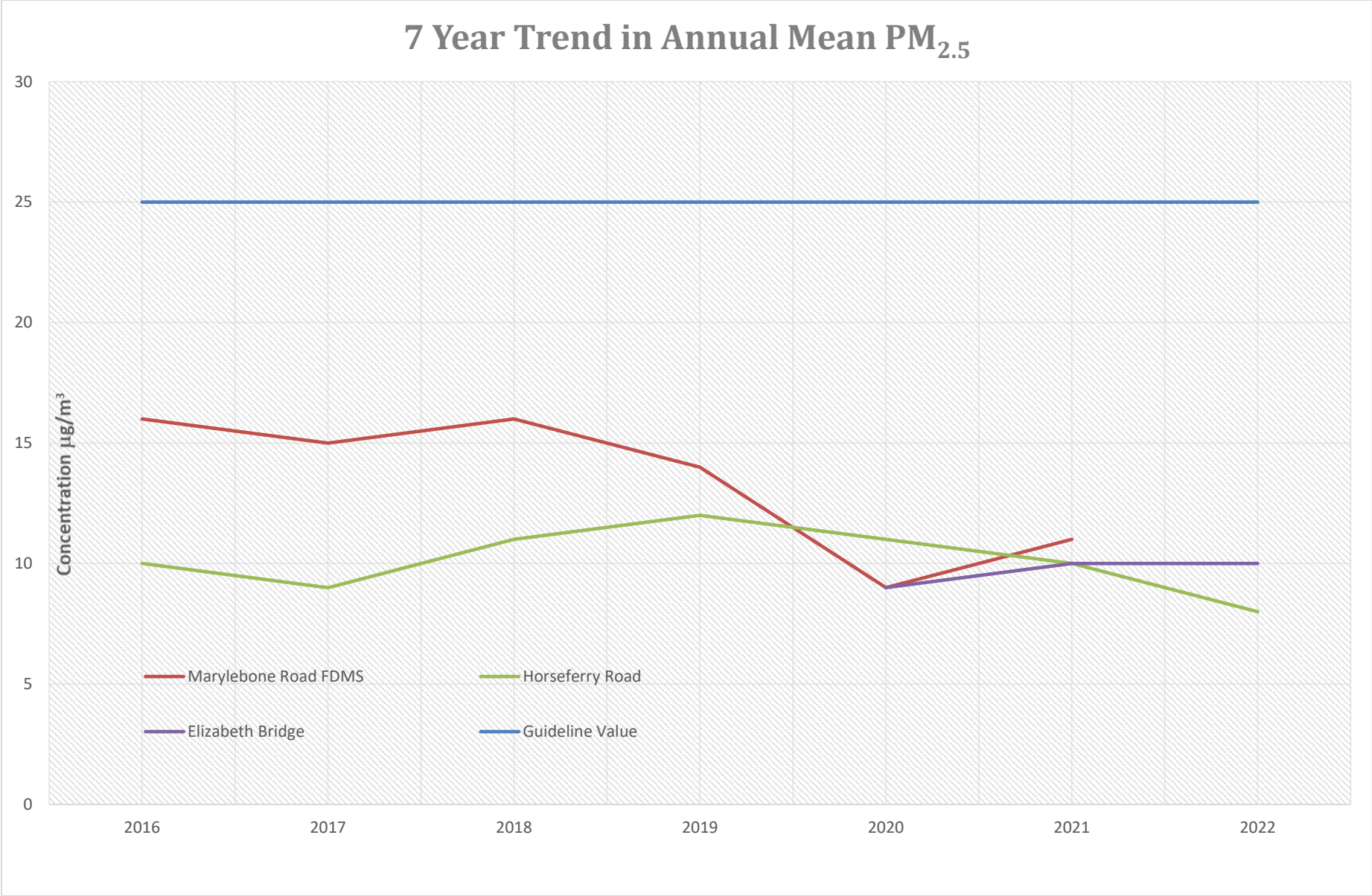
7 Year Trend in Annual Mean PM2.5
30
25
20
15
10
5
0
Concentration µg/m³
2016
2017
2018
2019
2020
2021
2022
Marylebone Road FDMS
Horseferry Road
Elizabeth Bridge
Guideline Value

Table I. 2022 SO_2 Automatic Monitoring Results: Comparison with Objectives

Site ID	Valid data capture for monitoring period %[(a)]	Valid data capture 2022 %[(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	99	99	0	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 brief summary of Westminster City Council's progress against the Air Quality Action Plan, 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 and 2021 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	A proof of concept was completed at the end of 2021, mapping Westminster's automatic monitoring network, diffusion tube network, and Breathe London monitors. This has been progressed during 2022, and the full version is due to go live in July this year, and as such full details will be found 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 2022 as part of the Breathe London project. Additional real time monitoring has taken place across a number of schools in the borough utilising low cost sensors.

AQAP Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
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. Future place specific monitoring will be included in the council's overarching AQ Data Platform.
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. In 2022 we also created a new web form for community monitoring location suggestions, and next year's ASR will contain details on the potential roll out of monitors in these locations.
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	Monitoring	Continue to support major landowners and developers in siting and installing privately owned air quality monitors	Support is offered to landowners related to location and types of monitors to be installed.
11	Monitoring	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.
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.

AQAP Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			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. The CoCP itself was adopted in February 2022 alongside the ESPD (Action 14).
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 2022.
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.

AQAP Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
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. 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 and Westminster is a part of the Defra Wood Burning Stove pan-London project.
27	Emissions from developments and buildings	Deliver air quality training for Westminster staff related to the Clean Air Act	Action completed and recorded in 2021'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 2022, 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 2023.
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 2022, 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 2023.
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.

AQAP Measure	LLAQM Action Matrix Theme	Action	**Progress** • **Emissions/Concentration data** • **Benefits** • **Negative impacts / Complaints**
			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 reducing diesel generator usage in new development.
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.
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. 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.

AQAP Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			More details on this work can be found in our 2022 Climate Action Plan update.
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. In 2022 Westminster: • installed energy conservation measures in 61 council buildings, cutting our corporate property emissions by around 1700 tonnes of CO2 equivalent per year • improved 450 council homes with energy efficiency measures and clean heating systems • Launched a Sustainable City Charter to promote city–wide business commitments to reducing carbon through operational activities and reporting More details on this work can be found in our 2022 Climate Action Plan update.
37	Emissions from developments and buildings	Investigating the adoption of a citywide definition of valuable green space	A city-wide Green Infrastructure Audit is currently taking place, and full details of this will be provided in next year's ASR.
38	Emissions from Transport	Increase the number of electric vehicle charging points within the city	By the April 2023, we have expanded the roll-out of EV charging infrastructure to 2196 charge points in total across the city (including 73 rapid chargers or above). This constitutes around 1 rapid charger per 100 people within the borough, and maintains Westminster's position as one of the leading local authorities in the country in terms of the size of our EV charging network. We have also created in excess of 400 dedicated EV bays for residents. 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.
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 73 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 2022 related to vehicle idling. For example, there was an engagement event in June 2022 for Clean Air Day at the Strand and in St John's Wood which included talking to drivers and taxi drivers in the area.
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, that came 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.

AQAP Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			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.
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.
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. This action has been deprioritised in 2022.
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 undertook a Defra funded Feasibility study and comms campaign for electrification of canal boat moorings in Paddington Basin in 2022. Feasibility study has been finalised with the result that it would be feasible to install electric points in Paddington Basin (capital costs around £250,000); however funding this project has been problematic, with conversations ongoing between the council and Canal and River Trust.
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.

AQAP Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
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 and the scheme was successfully completed in 2022. 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 that air pollution and other key environmental concerns are embedded across these major placeshaping projects	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 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. No further action has taken place on the specifics of a Dean Street Zero Emission Zone.
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	See Action 85 for details on discussions around a central London Zero Emission Zone
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;

AQAP Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			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. In 2022 Westminster was the lead partner on a Cross River Partnership bid for the Defra air quality grant programme, for the 'Clean Air Logistics for London 2' 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 Walking Freight.
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 2022 related to vehicle idling. For example, there was an engagement event in June 2022 at the Strand and in St John's Wood High Street which included talking to drivers and taxi drivers in the area.
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	Awareness raising and lobbying / partnership working	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.

AQAP Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			Achievements are publicly available on the TfL STARS website: https://stars.tfl.gov.uk/Partner/14/School
71	Awareness raising and lobbying / partnership working	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 was implemented in 2022 and this action is now complete.
72	Awareness raising and lobbying / partnership working	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 691 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	Awareness raising and lobbying / partnership working	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.
74	Awareness raising and lobbying / partnership working	Produce a feasibility study and horizon scan around indoor air pollution and potential council actions and policies	Funding was secured in late 2022 for a pilot scheme to provide indoor air quality monitors and guidance to residents, schools and businesses. This may include information for residents and businesses on wood burning stoves (cf action 77). This project will be implemented in 2023 and reported on fully in next year's ASR.
75	Awareness raising and lobbying / partnership working	Provide an annual update on air quality activities to the borough Director of Public Health.	Last update was provided in Q1 of 2022.
76	Awareness raising and lobbying / partnership working	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 published a new Health and Wellbeing Strategy, with a number of actions and priorities related to reducing air pollution and the synergies between air quality levels and public health
77	Awareness raising and lobbying / partnership working	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	Awareness raising and lobbying / partnership working	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	Awareness raising and lobbying / partnership working	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.

AQAP Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
			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 and is ongoing.
80	Awareness raising and lobbying / partnership working	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 in 2022 recommitted to working towards meeting these more stringent targets. These are a headline objective in our Fairer Westminster strategy.
81	Awareness raising and lobbying / partnership working	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 2022. There were not considered any opportunities to follow up this lobbying ask in consultations during 2022. Westminster has supported the expansion of the ULEZ across London and any Mayor of London led scrappage schemes.
82	Awareness raising and lobbying / partnership working	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 2022. There were not considered any opportunities to follow up this lobbying ask in consultations during 2022.
83	Awareness raising and lobbying / partnership working	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	Awareness raising and lobbying / partnership working	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	Awareness raising and lobbying / partnership working	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; in 2022 discussions were held with TfL, GLA, and neighbouring boroughs on emissions related to the Oxford Street District, Zero Emission Capable buses and the potential for a central London Zero Emissions Zone.
86	Awareness raising and lobbying / partnership working	Conduct air quality audits for all schools in Westminster	Action completed with details 2021's ASR.
87	Awareness raising and lobbying / partnership working	Launch and deliver Westminster's £1m Schools' Clean Air Fund, providing schools across the city to access council funding to implement air quality measures	Around £700,000 is remaining in the Schools' Clean Air Fund. Additional officer resource has been acquired in 2023 to deliver this programme of works, with full update expected in next year's ASR. Projects funded include green roofs, green walls, improving cycling and scooter facilities, air filtration units for classrooms, improving boiler flues, and implementing school streets.

AQAP Measure	LLAQM Action Matrix Theme	Action	Progress • Emissions/Concentration data • Benefits • Negative impacts / Complaints
88	Awareness raising and lobbying / partnership working	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 in 2022

Condition	Number
Number of planning applications where an air quality impact assessment was reviewed for air quality impacts	32
Number of planning applications required to monitor for construction dust	87
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	32
Number of developments where the AQ Neutral building and/or transport assessments not meeting the benchmark and so required to include additional mitigation	2
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 , Canary Wharf and Opportunity Areas Number of conditions related to NRMM included. Number of developments registered and compliant. Number of audits % of sites unregistered prior to audit 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 IV of the Directive and/or exemptions to the policy.	35 conditions included 14 registered and compliant 3 unregistered/uncompliant and being chased. 17 audits We do not hold the percentage of sites unregistered prior to audit but this will be reported going forward.
NRMM: Greater London (excluding Central Activity Zone, Canary Wharf and Opportunity Areas) Number of conditions related to NRMM included. Number of developments registered and compliant. Number of audits % of sites unregistered prior to audit Please include confirmation that you have checked that the development has been registered at www.nrmm.london and that all NRMM used on-site is compliant with Stage IIIB of the Directive and/or exemptions to the policy.	e.g. 52 conditions included 13 registered and compliant 0 unregistered/uncompliant and being chased. 13 audits We do not hold the percentage of sites unregistered prior to audit but this will be reported going forward.

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. From February 2022 all sites within the scope of the Westminster's CoCP are required to comply with CAZ emission limits irrespective of location.

I can confirm that that WCC 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 IV or better as set out in WCC COCP of the Directive and/or exemptions to the policy

3.1 New or significantly changed industrial or other sources.

No new sources identified

4. Additional Activities to Improve Air Quality

4.1 London Borough of Westminster Fleet

Westminster City Council continues to work to reduce the environmental impact of its fleet. This includes both council owned/rented and supplier fleets, with further details available in the relevant row in Table J of this report.

4.2 NRMM Enforcement Project

Westminster City Council continues to support the London-wide NRMM enforcement policies in 2023/24. These requirements are set out in our Code of Construction Practice, and details of enforcement can be found in Table K of this report.

4.2 Air Quality Alerts

Westminster City Council continues to support airTEXT alert service for air quality. Details of this can be found in the relevant rows of Table J of this report.

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)	NO_x calibration every 4 weeks BAM tape change every 8 weeks
Oxford Street	NO_x calibration every 4 weeks BAM tape change every 8 weeks
Oxford Street East	NO_x calibration every 4 weeks BAM tape change every 8 weeks
Buckingham Palace Road	NO_x calibration every 4 weeks
Covent Garden	NO_x calibration every 4 weeks
Cavendish Square	NO_x 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

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

Westminster's diffusion tubes are supplied by Gradko International, and we use the 50% TEA in acetone preparation method.

Gradko follows the procedures set out in the Practical Guidance.

Reported Gradko precision results are detailed below.

2020 Good	2020 Bad	2021 Good	2021 Bad	2022 Good	2022 Bad
19	1	16	0	14	0

Gradko has scored highly in laboratory performance assessments for the AIR NO2 Proficiency Testing Scheme (formerly WASP) 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 9 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 AR037	AIR PT AR039	AIR PT AR040	AIR PT AR042	AIR PT AR043	AIR PT AR045	AIR PT AR046	AIR PT AR049	AIR PT AR050
Round conducted in the period	May - June 2020	July – August 2020	September –October 2020	January – February 2021	May – June 2021	July – August 2021	September – October 2021	January – February 2022	May - June 2022
Gradko	NR	NR	75%	25%	100%	100%	100%	100 %	100%

Based on the latest 5 rounds of Air PT results Gradko have returned 100% of satisfactory results, above the requirement stated in the guidance.

We have used the national bias adjustment factor for Gradko International diffusion tubes prepared with the 50% TEA/acetone method (**0.82**) to adjust our raw diffusion tube annual mean concentrations for bias. This factor was published in the 'National Diffusion Tube Bias Adjustment Factor Spreadsheet, Version 03/23'

Westminster has compared the diffusion tube data at our co-location sites to reference equivalent NO_2 analysers, however the Council did not participate in the diffusion tube co-location study in 2022.

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 and Elizabeth Bridge.

Discussion of Choice of Factor to Use

The **national derived adjustment factor** has been used to correct Westminster's diffusion tube data. The reason for using the national bias adjustment is that it provides the least correction therefore reporting a worst-case concentration. Bias adjustment using both Covent Garden and Elizabeth Bridge monitoring site, which provides greater correction and is not considered worst case.

Table L. Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2022	National	03/23	0.82
2021	Local	n/a	0.9

A.3 Adjustments to the Ratified Monitoring Data

Short-term to Long-term Data Adjustment

Please see Table M

Distance Adjustment

Please see Table N

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

Site ID	**Annualisation Factor** Covent Garden	**Annualisation Factor** City Aldgate School	**Annualisation Factor** Bloomsbury	**Average Annualisation Factor**	**Raw Data Annual Mean (µg m^{-3})**	**Annualised Annual Mean (µg m^{-3})**	**Comments**
WCC5	1.1	1.1	1.1	1.1	25.1	28.3	
WCC8	1.2	1.1	1.1	1.1	34.2	38.4	
WCC9	1.1	1.1	1.1	1.1	38.6	43.6	
WCC12	1.0	1.0	1.0	1.0	25.9	25.5	
WCC26a	1.1	1.1	1.1	1.1	40.2	45.4	
WCC26b	1.1	1.1	1.1	1.1	40.3	45.5	
WCC26c	1.1	1.1	1.1	1.1	40.4	45.6	

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
WCC7	0.1	3.1	50.1	23.0	*37.5*	*Predicted concentration at Receptor within 10% the AQS objective.*
Marylebone Road	1.5	44	45.0 (was 42)	23.0	*27.0*	Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.
Oxford Street East	1.2	4	41.7 (was 32)	23.0	*36.9*	Predicted concentration at Receptor within 10% of the AQS objective.

Appendix B Full Monthly Diffusion Tube Results for 2022 (after bias adjustment and distance correction)

Table O. NO_2 Diffusion Tube Results

Site ID	Valid data capture for monitoring period %[a]	Valid data capture 2022 %[b]	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual mean – raw data	Annual mean – bias adjusted
WCC1	83	83	50.1	26.2	N/D	N/D	39.0	39.2	43.4	49.9	47.7	40.4	40.7	45.7	42.2	34.6
WCC2	83	83	44.5	32.3	N/D	N/D	27.7	24.2	24.4	28.4	29.9	34.6	35.9	40.1	32.2	26.4
WCC3	83	83	41.8	26.2	N/D	N/D	26.5	25.0	24.2	34.0	35.8	31.8	34.4	38.4	31.8	26.1
WCC4	75	75	N/D	26.9	N/D	N/D	25.0	21.8	20.0	24.5	27.6	29.4	31.3	36.8	27.0	22.2
WCC5	67	67	N/D	N/D	N/D	N/D	23.3	20.7	20.8	22.2	26.5	25.9	28.0	33.6	25.1	23.2
WCC6	75	75	N/D	34.2	N/D	N/D	31.6	30.0	28.5	36.4	38.7	37.6	39.7	38.5	35.0	28.7
WCC7	75	75	N/D	67.1	N/D	N/D	61.3	58.0	58.5	61.5	59.7	60.5	66.0	57.3	61.1	**(was 50.1)** 37.5
WCC8	67	67	N/D	29.8	N/D	N/D	28.1	27.4	29.7	31.2	31.6	32.6	N/D	62.9	34.2	31.5
WCC9	67	67	N/D	N/D	N/D	N/D	35.1	32.6	37.6	37.4	40.9	38.9	41.3	45.1	38.6	35.7
WCC10	75	75	52.1	40.8	N/D	N/D	36.2	34.2	39.5	N/D	48.8	46.5	46.3	47.4	43.5	35.7
WCC11	83	83	48.5	44.5	N/D	N/D	35.4	33.9	35.3	29.9	38.7	43.6	47.3	43.4	40.0	32.8
WCC12	67	67	37.8	N/D	N/D	N/D	18.8	17.7	N/D	21.2	24.2	25.8	28.2	33.7	25.9	20.9
WCC13	75	75	63.2	N/D	N/D	N/D	43.5	38.7	36.0	29.5	41.0	45.5	47.0	44.6	43.2	35.4
WCC14	83	83	39.6	29.0	N/D	N/D	24.1	22.3	24.5	24.0	31.5	31.6	32.5	36.9	29.6	24.3
WCC15	83	83	43.4	29.5	N/D	N/D	29.5	30.1	29.9	35.6	40.3	33.8	34.7	40.0	34.7	28.4
WCC16	75	75	41.1	27.4	N/D	N/D	20.5	18.4	18.4	19.5	N/D	28.9	26.5	35.4	26.2	21.5
WCC17	83	83	43.2	29.2	N/D	N/D	23.6	19.3	20.6	19.6	26.9	28.6	27.0	32.6	27.0	22.2
WCC18	83	83	46.8	33.3	N/D	N/D	31.0	27.9	26.3	30.5	36.1	36.5	37.8	44.7	35.1	28.8
WCC19	83	83	55.8	29.7	N/D	N/D	34.6	32.6	35.4	28.7	39.9	39.1	37.3	41.5	37.5	30.7
WCC20	83	83	45.3	28.3	N/D	N/D	22.4	20.1	22.2	22.7	28.6	27.5	31.8	35.8	28.5	23.3
WCC21	83	83	50.7	37.9	N/D	N/D	33.9	30.7	32.9	33.4	40.6	32.8	40.2	42.5	37.6	30.8
WCC22	83	83	50.5	39.5	N/D	N/D	23.5	32.0	37.0	38.3	43.0	36.9	36.4	44.6	38.2	31.3
WCC23	83	83	41.6	32.3	N/D	N/D	32.0	23.7	20.9	24.3	28.0	30.8	34.1	37.3	30.5	25.0
WCC24	83	83	48.3	40.1	N/D	N/D	37.7	33.7	37.1	34.9	35.9	39.9	39.9	42.4	39.0	32.0

WCC25a	83	83	45.4	13.6	N/D	N/D	35.3	34.6	38.0	39.8	41.5	38.4	38.8	44.3	37.0	30.3
WCC25b	83	83	16.9	30.5	N/D	N/D	36.3	34.5	35.8	41.3	37.8	37.9	34.4	43.9	34.9	28.6
WCC25c	75	75	45.4	N/D	N/D	N/D	35.7	34.2	34.6	41.3	38.5	36.1	35.2	45.9	38.5	31.6
WCC26a	67	67	N/D	N/D	N/D	N/D	37.5	39.5	37.7	45.4	43.5	37.9	38.0	42.2	40.2	37.2
WCC26b	67	67	N/D	N/D	N/D	N/D	37.1	34.0	41.0	46.2	47.0	37.0	38.4	41.9	40.3	37.3
WCC26c	67	67	N/D	N/D	N/D	N/D	40.6	34.7	40.7	45.4	43.5	36.6	39.3	42.3	40.4	37.4
WCC27a	83	83	40.1	26.3	N/D	N/D	24.5	19.4	22.6	23.4	27.8	30.3	32.2	37.7	28.4	23.3
WCC27b	83	83	41.8	30.5	N/D	N/D	24.6	18.0	21.7	24.5	28.8	31.1	32.3	36.9	29.0	23.8
WCC27c	83	83	40.6	25.3	N/D	N/D	25.6	20.8	22.0	24.1	27.6	27.1	30.8	39.4	28.3	23.2

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 Adjustment Outputs - Information Only

Go back to STEP 3 - Bias Adjustment to define factor

	STEP 3a Local Bias Adjustment Input 1	STEP 3b Local Bias Adjustment Input 2	STEP 3c Local Bias Adjustment Input 3	STEP 3d Local Bias Adjustment Input 4	STEP 3e Local Bias Adjustment Input 5	STEP 3f Local Bias Adjustment Input 6	STEP 3g Local Bias Adjustment Input 7
Periods used to calculate bias	8	0	10				
Bias Adjustment Factor A	0.83 (0.76 - 0.91)		0.78 (0.71 - 0.87)				
Diffusion Tube Bias B	21% (10% - 32%)		28% (15% - 41%)				
Diffusion Tube Mean (µg/m^3)	38.1		28.6				
Mean CV (Precision)	3.2%		4.3%				
Automatic Mean (µg/m^3)	31.4		22.3				
Data Capture	100%		99%				
Adjusted Tube Mean (µg/m^3)	32 (29 - 35)		22 (20 - 25)				

Overall Diffusion Tube Precision	Good Overall Precision	Good Overall Precision	Good Overall Precision				
Overall Continuous Monitor Data Capture	Good Overall Data Capture		Good Overall Data Capture				

Combined Local Bias Adjustment Factor	0.80