Islington Air Quality Annual Status Report 2021

This report provides a detailed overview of air quality in Islington 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))

Executive Summary

Islington is committed to creating a cleaner, greener, healthier borough to tackle the triple challenge of air pollution, the climate emergency and health inequalities. Our air quality strategy works in conjunction with other borough strategies such Vision 2030: Building a Net Zero Carbon Islington by 2030.

Our Air Quality Strategy 2019-23 outlines the actions we plan to take to improve air quality in Islington. There are many actions, but these are grouped into the following categories:

- Protecting the vulnerable
    - Improving health and inequality
    - Partnership working with schools
    - Monitoring local air quality
- Keeping Islington moving
    - Improving our fleet and reducing overall fuel usage
    - Encouraging a shift to active travel and cleaner vehicles
    - Working with partners to tackle air quality on a wider scale
- Better air - better health - better environment
    - Minimise emissions from construction
    - Lead by example
    - Concentrate on air quality focus areas
    - Work with partners to introduce new policies

This report details our progress in 2021 against the actions outlined in our air quality strategy (Table I) and our monitoring results for the year, however some key highlights can be found below.

Air Quality in 2021

In 2021, NO_2 levels measured below the annual objective of 40µg/m^3 for all long term sites in Islington for the second time ever, including background and roadside sites at both our automatic and non-automatic sites. Our background sites have been below this objective level for a long time (with the exception of one site in 2015 and 2016), however 2018 and 2019 were the first times the objective was met at some of our roadside sites and 2020 was the first year it was met at all roadside sites. The results in 2020 were likely impacted by Covid-19, so while the results between 2020 and 2021 were very similar, 2021 looks to be continuing longer term trends of reduced NO_2 levels, despite increased activity across the year with the easing of pandemic-related restrictions.

Two of these monitoring sites, one roadside and one urban background, also provide data on other pollutants and over shorter timescales. These showed:

- No exceedances of the NO_2 hourly objective of 200µg/m^3
- PM_{10} below the annual objective of 40µg/m^3, at 19µg/m^3 on the roadside site on Holloway Road and 19µg/m^3 at the background Arsenal site

- Both sites meet the 24 hour objectives for PM_{10} of $50\mu g/m^3$, exceeding this value only three times between them, well below the legal objective which allow 35 exceedances of $50\mu g/m^3$ a year for each site.
- All of these results reflect long term trends

More detailed results can be found in the report.

Background of the Report

Islington Council is working hard to improve air quality and reduce the impact of air pollution on everyone in the borough.

Air quality refers to the condition of the air around us and how many pollutants (chemicals or substances) it contains. The more pollutants the air contains the more air pollution there is and the worse the air quality is.

Poor air quality is a concern as air pollution can impact health. In periods of high pollution some people with existing heart and respiratory conditions, such as asthma, may find their condition gets worse. Over the long term, air pollution can increase the risk of respiratory and cardiovascular conditions, reduce lung development in children and is also increasingly being linked to a range of other health conditions.

Local authorities are required by the Government and the Mayor of London to monitor air pollution in the borough, and take action to reduce it, as well as report on this every year in the form of this Annual Status Report (ASR).

Air Quality in Islington

There are set objectives for a number of known air pollutants. Where it is unlikely that one or more of the objectives will be met in their borough, a local authority must declare an Air Quality Management Area (AQMA) and produce an action plan to describe the steps to be taken to meet the air quality objectives.

In August 2000, we completed a review showing that despite a steady improvement of air quality in Islington, the objectives for two pollutants - nitrogen dioxide (NO_2) and particulate matter of 10 microns diameter (PM_{10}) - were not likely to be achieved. As a consequence, we declared an AQMA across a large part of the borough in 2001, which was expanded to the whole of the borough in 2003. This AQMA is still in place.

Until 2019 we were exceeding EU limits for NO_2 in parts of the borough and meeting the limits that are set by the EU for all other air pollutants, although we remain focused on particulate matter (PM_{10} and $PM_{2.5}$) because these pollutants have detrimental impacts on health at any level.

Air quality is not the same throughout the borough, there are areas of better and poorer air quality, often related to proximity to busy roads. The main areas of concern (or Focus Areas) are the A1 Holloway Road from Highbury to Archway,

Angel Town Centre, Seven Sisters Road at Finsbury Park, Old Street and the Kings Cross/Caledonian Road area.

The map below shows the annual modelled mean NO_2 concentrations in Islington and its surrounding boroughs for 2016 as well as highlighting the focus areas of higher pollution levels mentioned above. This map is created by GLA and TfL using LAEI data.
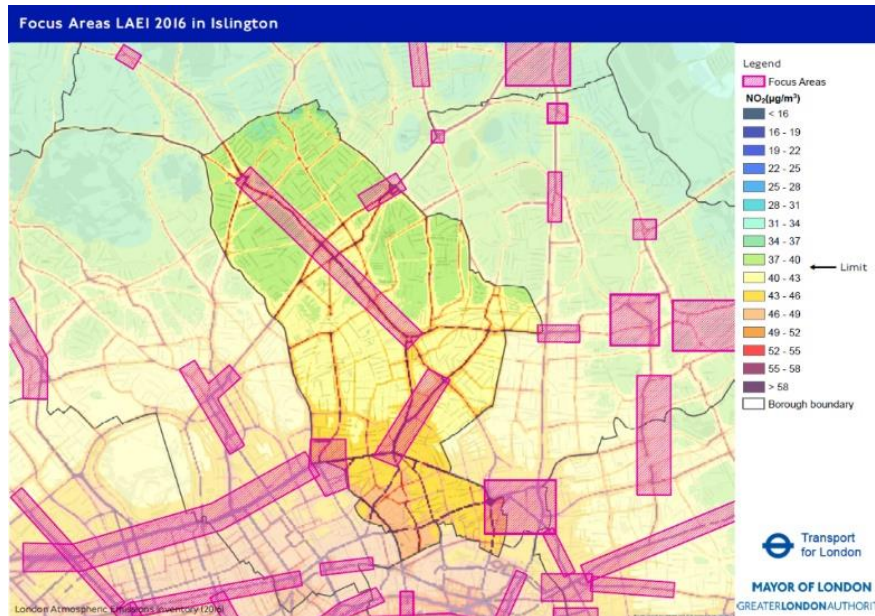
We have been monitoring air quality since 2000 and have ten long term roadside sites (with an additional three for a triplicate study) and eleven long term urban background sites across the borough. These are the sites that are reported on in the main part of this document. We also have additional monitoring sites for specific projects and we have added the results for these monitoring sites in the appendix of this document.

Due to our extensive monitoring of air pollution in the borough we have been able to identify and take action at pollution hot spots. For example, we identified higher NO_2 levels at MacDonald Road in Archway next to the bus stand (see Table R for results). This has led us to work with several bus companies training drivers and we are changing how we enforce rules around the idling of engines to make it easier to fine those that pollute. We will investigate impacts of bus stands across the borough more widely, as this monitoring as well as other sites such as Pauntley Street suggest potential air pollution impacts. Where we find areas that have high levels of pollution, we are committed to taking action to make the borough cleaner, greener and healthier.

Sources of Pollution

The London Atmospheric Emissions Inventory 2019 is the latest study looking at sources of pollution in London. The main sources of pollution, according to this study, for three of the main pollutants are:

- NOx - Road Transport 41%, Commercial Heat/ Power 38%, Domestic Heat/ Power 10%
- PM10 – Road Transport 25%, Construction 22%, Commercial Cooking 20%
- PM2.5 – Commercial Cooking 36%, Road Transport 24%, Domestic Biomass/ Wood Burning 10%

Islington is committed to working with others, as well as taking actions ourselves, to reduce these and other sources of pollution in the borough.

World Health Organisation Guidelines

In September 2021 the World Health Organisation (WHO), using new evidence, published an update to their guidance on air pollution levels for a range of air pollutants. Table B in this report shows how we are comparing to legal levels, however the new WHO guidelines suggest lower air pollution levels. The Council is working with its partners to work out a pathway towards achieving these levels and will be bringing forward a new strategy with actions designed to take us closer to and achieve the WHO guideline levels.

Actions to Improve Air Quality

People-friendly Streets

Islington's streets belong to everyone, but over the past few years motor traffic volumes have been increasing. Between 2013 and 2019 an additional 24.3 million miles were driven in Islington, mostly on local streets, as sat navs made it easier for people to find cut throughs. Local people have told us they want their streets to be friendlier places that are easier for everyone to use, to enjoy being outside in clean air, to make it safer for walking, wheeling, cycling, using buggies and wheelchairs, and to relax or play.

The introduction of low traffic neighbourhoods (LTN), School Streets and cycleways under our ambitious people-friendly streets (PFS) programme will create more space for those who want to enjoy Islington as they walk or cycle. This way we will make Islington a more equal place for everyone.

As part of the PFS Scheme in 2021 we:
- Introduced a new LTN in the St Mary's Church area. This means there are now seven LTNs in place, covering 24% of the borough.
- Introduced a further School Street at St Luke's Primary School in Bunhill.
- Made 15 trial School Streets permanent in February 2022, following consultations in 2020 and 2021, bringing the total number of permanent School Streets to 28, with 35 in total.
- Looking at how to work on main roads, with work at Ambler and Canonbury Primary Schools planned in 2022.
- Continued a trial of Liverpool Road protected cycle route, conducting a consultation on making this scheme permanent in 2022.

Extensive monitoring was conducted for PFS schemes throughout 2021. Air quality results, alongside a range of other indicators, were released in six month (interim) and 12 month (pre-consultation) reports for each LTN. The full reports, including results for all indicators can be found on the LTN section of the council website. The annual air quality figures for all sites, including those used in the LTN analysis, can also be found in this report in Appendix C. A summary of air quality results can be found below:

- Results differed from one site to another, but generally our monitoring did not pick up a discernible impact beyond changes also seen more widely in the borough. This includes at boundary road sites, internal road sites and non-road sites. We are currently working with academic researchers to do more in detail statistical analysis to better pick out the impacts of LTNs on air quality compared to other factors.
- All LTN areas show improvements in pollution levels over the longer term, with lower average pollution levels in 2021 compared to 2019 for all LTNs. When comparing 2021 pollution levels in each LTN to 2020, when Covid-19 impacts were significant, Canonbury West and St Peter's showed slightly higher pollution levels after implementation. However, this is not dissimilar to wider borough monitoring which showed the same pollution levels in 2020 and 2021, with both years significantly lower than 2019. Increases are therefore likely due to wider changes in pollution levels due to factors such as national lockdowns which made pollution levels in 2020 significantly lower.
- Appendix D compares results in LTNs to longer term data trends where monitoring is available.

Leading by example: council fleet

We have made a number of fleet and facility improvements in 2021, enabling a further reduction in diesel powered vehicles, including:

- The first 7.5T electric cage tippers to be operated by the council.
- The first Fiat E-Ducato 3.5T electric panel van to be operated in the UK.
- A number of electric vehicles, including continued use of four award winning electric Refuse Collection Vehicles.
- Two electric refuse vehicles, delivered in 2020, which had their diesel engines removed and replaced with electric battery technology, won the Outstanding Product of the Year at Fleet News Awards in 2021.
- Continued use of six e-bikes by street environment services.

- The Council has 72 zero emission vehicles and 28 zero emission capable vehicles, which combined represents 20% of total fleet.
- Infrastructure upgrades at council sites, allowing electrification of the fleet. 18 dual chargers were installed at Pritchard Court and work on four dual chargers at Upper Street was almost completed. Further sites are due to start install shortly or are having site surveys conducted.
- A £3 million upgrade to the Waste and Recycling Centre progressed in 2021 with work due to start in 2022. This will see a new substation and high capacity cable installed at the main council depot, enabling the majority of vehicles located there, around 200, to be replaced with electric vehicles over the next few years.
- Staff training on idling and efficient driving as part of new starter or reminder training.

Electrification of the canal

In 2021 we continued working with Canal and River Trust (CRT) on our Eco Mooring Zone scheme along the Regent's Canal. Work was completed in all three zones, with electricity becoming available at the electric bollards in October 2021.

A new Eco Mooring Ranger was also employed to help raise awareness of the zone and work with boaters on compliance.

Air quality monitoring along the canal was ongoing and research by Imperial College on the impacts of burning was also conducted with a report due in 2022.

Working with vulnerable groups

We continued work to protect vulnerable groups in Islington in 2021. For example;

- Conducting eight air quality audits of schools, highlighting key sources of pollution and recommending measures the school can take to reduce pollution impacts. Work also began with Groundwork London to offer additional support to audited schools in implementing recommendations.
- We ran a Car Free Day (CFD) event outside Hanover Primary School, providing information about air quality, anti-idling and PFS.

- We supported schools in applying for air quality competitions, with William Tyndale Primary School winning a mural for their school as part of a CFD competition run by the Healthy Streets Everyday (HSE) scheme.
- We started a two year pilot project training health professionals in GP practices in the borough on air quality. 17 health professionals were trained at the beginning of 2022 and we will continue to support health practitioners, monitor progress and run a wider communications campaign in 2022.
- We also successfully applied for Defra funding to conduct air quality audits at care homes in the borough and to lead a solid fuel burning research and communications campaign with Camden Council on behalf of 13 other London local authorities, with the projects to start in 2022.
- We continued to support other organisations and local authorities on air quality campaigns.
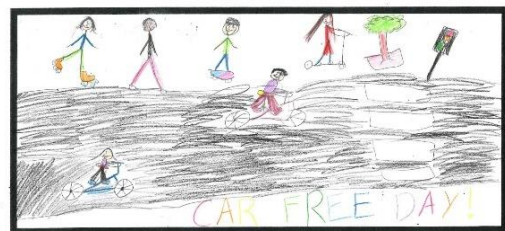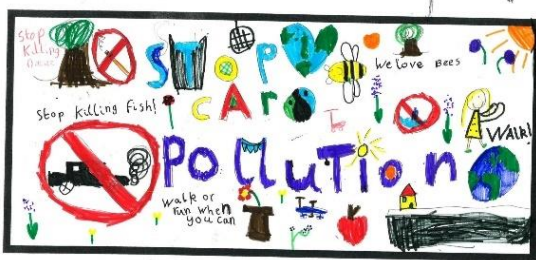
We continued to monitor pollution outside every school and nursery in the borough in 2021 and started monitoring outside every care home at the end of the year. The results for schools and nurseries can be found below and in Appendix C of this report:

- Zero schools measured over the legal limit of 40 µg/m3 and the average was 22µg/m3 in 2021. This compares to 23 µg/m3 in 2020, 31 µg/m3 in 2019 and 32 µg/m3 in 2018 for these sites.
- Zero nurseries measured over the legal limit of 40 µg/m3 and the average was 22µg/m3 in 2021. This compares to 22 µg/m3 in 2020, with no data before this.
- We also worked with Breathe London to install a sensor outside Whitehall Park Primary School, with results available on the [Breathe London portal](#).

How to Get Involved

You can get more information on air quality on our website.

You can do your bit to improve air quality. Think about how you travel, decrease your car use especially for short trips where possible. If you need to drive think about car sharing, car clubs or low emission vehicles and try not to idle your engine. You can also impact air pollution by improving the energy efficiency of your home or business and avoid using fires and stoves or unseasoned wood. Come along to one of our air quality events, such as Car Free Day, or volunteer for anti-idling events in the borough.

You can contact the council's Pollution Team on pollution@islington.gov.uk for further air quality information and guidance.

Contents

Tables

Abbreviations and National Standards

Table A.   Abbreviations

Abbreviation	Description
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQO	Air Quality Objective
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
TfL	Transport for London
PFS	People-friendly Streets
LTN	Low Traffic Neighbourhood
CRT	Canal and River Trust
CRP	Cross River Partnership
HSE	Healthy Streets Everyday
CFD	Car Free Day
CAD	Clean Air Day
MAQF	Mayor's Air Quality Fund
CAV4	Clean Air Villages Four
SHINE	Seasonal Health Intervention Network
ULEZ	Ultra Low Emission Zone

Table B.   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

Air Quality Monitoring

1.1 Locations

Table C.   Details of Automatic Monitoring Sites for 2021

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Monitoring technique
IS2	Holloway Road	530650	185750	Roadside	Y	1	3	3	CO, NO_2, PM_{10}	TEOM
IS6	Arsenal	531328	186067	Urban Background	Y	1	N/A	2.5	NO_2, PM_{10}	TEOM

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

Site ID	Site Name	X (m)	Y (m)	Site Type	In 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)
BIS005/03	Caledonian Road	530708	183510	Roadside	Y	0	1	2.5	NO_2	N
BIS005/02	Rosebery Avenue	531327	182592	Roadside	Y	0	1	2.5	NO_2	N
BIS005/06	City Road	532556	182739	Roadside	Y	1	3	2.5	NO_2	N
BIS005/07	Old Street	532632	182449	Kerbside	Y	0	<0.5	2.5	NO_2	N
BIS005/08	Highbury Corner	531672	184739	Roadside	Y	2	2	2.5	NO_2	N
BIS005/09	Balls Pond Road	532883	184816	Kerbside	Y	0	<0.5	2.5	NO_2	N
BIS005/11	Holloway Road	531024	185367	Roadside	Y	0	1.5	2.5	NO_2	N
BIS005/13	Junction Road	529202	186090	Roadside	Y	0	1	2.5	NO_2	N
IS005/01	Navigator Square	529401	186855	Roadside	Y	0	12	2.5	NO_2	N
H1	Holloway Road	530650	185750	Roadside	Y	1	3	3	NO_2	Y

H2	Holloway Road	530650	185750	Roadside	Y	1	3	3	NO_2	Y
H3	Holloway Road	530650	185750	Roadside	Y	1	3	3	NO_2	Y
BIS005/04	Percy Circus	530921	182861	Urban Background	Y	0	N/A	2.5	NO_2	N
BIS005/05	Myddelton Square	531315	182991	Urban Background	Y	0	N/A	2.5	NO_2	N
BIS005/01	Arran Walk	532317	184472	Urban Background	Y	1	N/A	2.5	NO_2	N
IS005/03	Sotheby Road	532256	185983	Urban Background	Y	0	N/A	2.5	NO_2	N
BIS005/10	Highbury Fields	531748	185442	Urban Background	Y	0	N/A	2.5	NO_2	N
BIS005/12	Lady Margaret Rd	529320	185795	Urban Background	Y	0	N/A	2.5	NO_2	N
IS005/02	Zoffany Park	529883	187015	Urban Background	Y	0	N/A	2.5	NO_2	N
BIS005/14	Elthorne Park	530000	187402	Urban Background	Y	0	N/A	2.5	NO_2	N
BIS005/15	Turle Road/Wray Crescent	530477	186942	Urban Background	Y	0	N/A	2.5	NO_2	N
IS005/04	Upper Street (Waterloo Terrace)	531625	184100	Urban Background	Y	0	N/A	2.5	NO_2	N

Notes:

The location of monitor IS005/01 at Navigator Square varied with road layout changes over several years (2016-18), the new location has remained the same from 2019 to 2021, however results might not be directly comparable to longer term data. The Navigator Square monitor IS005/01 was formerly called Archway Close, but the name changed with change in road layout. H1-3 are used for the collocation study.

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 E.   Annual Mean NO$_2$ Ratified and Bias-adjusted Monitoring Results

Site ID	Site name	Site type	Valid data capture for monitoring period %[a]	Valid data capture 2021 %[b]	2015	2016	2017	2018	2019	2020	2021
BIS005/03	Caledonian Road	Roadside	100	100	**58**	**53**	**43**	36	39	29	29
BIS005/02	Roseberry Avenue	Roadside	100	100	<u>**62**</u>	<u>**62**</u>	**54**	**51**	**44**	31	30
BIS005/06	City Road	Roadside	100	100	**53**	**53**	**48**	**45**	**45 (43)**	33	29
BIS005/07	Old Street	Roadside	100	100	<u>**65**</u>	**55**	**58**	**45**	**41**	29	27
BIS005/08	Highbury Corner	Roadside	92	92	<u>**67**</u>	<u>**64**</u>	**55**	**48**	**44 (47)**	31	33
BIS005/09	Balls Pond Road	Roadside	100	100	<u>**64**</u>	**58**	**50**	**43**	**44**	32	33
BIS005/11	Holloway Road	Roadside	100	100	<u>**65**</u>	**57**	**50**	**44**	**41**	27	28
BIS005/13	Junction Road	Roadside	83	83	**53**	**46**	**42**	36	34	27	24
IS005/01	Navigator Square	Roadside	100	100	**55**	**55**	**41**	40	**42**	26	30
BIS005/04	Percy Circus	Urban Background	92	92	**45**	**46**	40	35	32	23	22
BIS005/05	Myddelton Square	Urban Background	100	100	39	38	39	35	28	21	20
BIS005/01	Arran Walk	Urban background	100	100	39	35	32	30	26	17	18
IS005/03	Sotheby Road	Urban background	100	100	31	37	31	30	25	18	18

Site ID	Site name	Site type	Valid data capture for monitoring period %[a]	Valid data capture 2021 %[b]	2015	2016	2017	2018	2019	2020	2021
BIS005/10	Highbury Fields	Urban Background	92	92	33	34	28	28	26	19	19
BIS005/12	Lady Margaret Rd	Urban background	100	100	35	36	34	31	28	24	19
IS005/02	Zoffany Park	Urban Background	92	92	33	33	29	29	27	18	19
BIS005/14	Elthorne Park	Urban Background	100	100	33	35	31	29	26	18	19
BIS005/15	Turle Road	Urban Background	100	100	33	37	31	32	26	19	21
IS005/04	Upper Street (Waterloo Terrace)	Urban Background	75	75	40	39	39	30	27	21	19
IS2	Holloway Road	Automatic Roadside	100	100	__61__	**60**	**49**	**47**	40	31	29
IS6	Arsenal	Automatic Background	86	86	29	33	31	27	25	20	20
H1	Holloway Road	Roadside triplicate	100	100	__61__	**60**	**50**	**47**	40	31	29
H2	Holloway Road	Roadside triplicate	100	100	__61__	__63__	**52**	**47**	**41**	31	29
H3	Holloway Road	Roadside triplicate	100	100	**58**	**58**	**51**	**48**	40	30	29

Notes:

- The location of monitor IS005/01 at Navigator Square varied with road layout changes 2016-18, and now has a new permanent location, however results might not be directly comparable to longer term data.
- 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%).

In 2021 all sites recorded values below the annual objective level of 40µg/m3, including both roadside and urban background sites, for the second time. Some sites showed higher values and some lower in 2021 than 2020, with an overall average for all sites of 24µg/m3 for both 2020 and 2021. Values on average remained higher at roadside sites than background sites. Looking at longer trends, values have been decreasing since 2015, with the same value between 2020 and 2021. However, values for 2020 were impacted by Covid-19, so while not all sites showed lower values in 2021 compared to 2020, many did, and all showed values lower than 2019 and continuing the trend of reduced NO_2 levels.

Figure 1. Average annual nitrogen dioxide levels over last seven years diffusion tubes and automatic sites

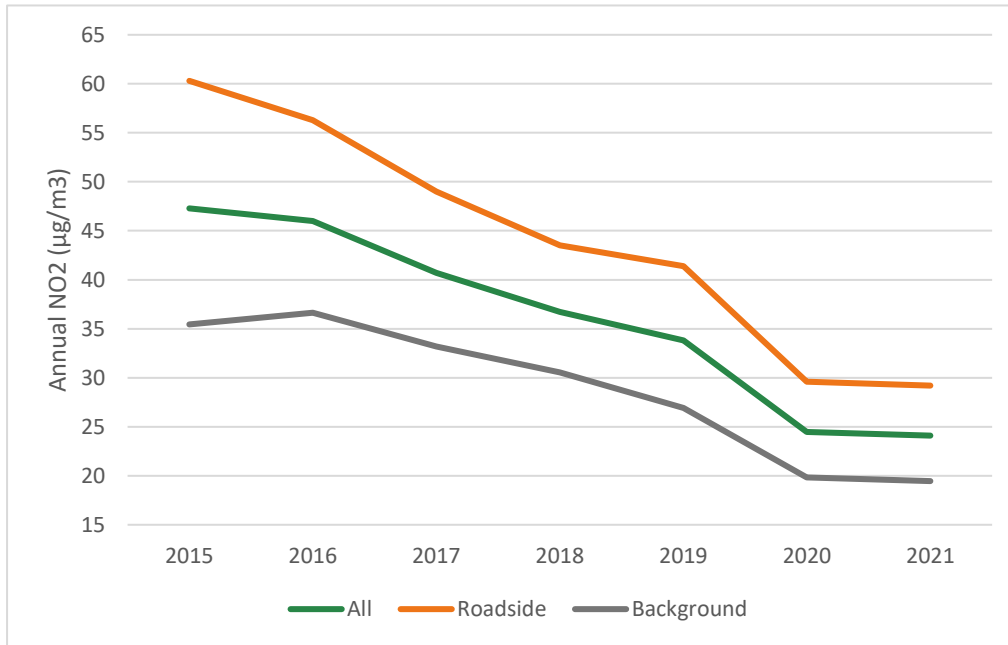**Table F.   NO$_2$ Automatic Monitoring Results: Comparison with 1-hour Mean Objective, Number of 1-Hour Means > 200 µg m^{-3}**

Site ID	Valid data capture for monitoring period %[a]	Valid data capture 2021 %[b]	2015	2016	2017	2018	2019	2020	2021
IS2-Holloway	100	100	0	0	0	0	0	0	0
IS6-Arsenal	86	86	0	0	1	0	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 results of the one-hour mean remain well below the objective of less than 18 times over 200µg m^3, with no exceedances in 2021. This continues the trend of the last seven years.

Table G.   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
IS2-Holloway	93	93	22	21	21	20	20	18	19
IS6- Arsenal	85	85	19	18	18	20	19	17	19

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%).

PM_{10} continues to remain below the annual objective of 40 µg m^3 in 2021, continuing longer term trends.

Table H. 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
IS2-Holloway	93	93	3	7	6	2	7	2	1
IS6- Arsenal	85	85	1	3	3	1	9	2	2

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%).

Exceedances of the 24 hour mean remain well below the objective level of less than 35 times over 50µg m-3 in the year, with only three exceedances for the two locations in 2021.

Action to Improve Air Quality

2.1 Air Quality Action Plan Progress

Table I provides a brief summary of Islington's progress against the Air Quality Action Plan in our Air Quality Strategy for 2019-23, showing progress made in 2021.

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

Measure	LLAQM Action Matrix Theme	Action	Progress
Minimise traffic at sensitive locations during busy times	Public health and awareness raising Cleaner Transport	Pilot scheme to restrict the use of motor vehicles during drop off/pick up times near school entrances to minimise emissions and increase the number of pupils and their carers walking/cycling/scooting to school. Expand to further schools / nurseries etc. Support Play Streets. Monitor air quality outside schools and nurseries, assess the ways of publishing the details when data ratified.	35 School Streets are currently live. In November 2021, we introduced a further School Street at St Luke's Primary School in Bunhill. Following consultations in 2020 and 2021, 15 trial School Streets were made permanent in February 2022. Two environmental improvements schemes on main roads were implemented in the Spring of 2022 outside Canonbury Primary School and Ambler Primary School. We continued monitoring air quality outside every school and nursery in the borough in 2021. We also started monitoring outside care homes. Following a halt to Play Streets in 2020 due to Covid-19 these were re-started in 2021, with 19 now in place.
Schools air quality audits	Public health and awareness raising	Approach Islington schools that have been selected by The Mayor to conduct air quality audits and support them to install the recommended measures when the auditing is finalised. Audit all schools in the borough.	In May 2021, we restarted a scheme to audit all schools in the borough, with eight audits conducted in 2021. Five audit reports, highlighting key sources of pollution and recommend measures the school can take to reduce pollution impacts, were completed in 2021 with some schools taking immediate action through engagement events or exploring funding opportunities. We began work with Groundwork London in 2021 offering support to schools following the issuing of audit reports. This is expected to benefit six schools in the borough in 2022.

Measure	LLAQM Action Matrix Theme	Action	Progress
Improve knowledge about local air pollution near the schools and schools active travel campaign	Public health and awareness raising	Following funding from Defra for ten local schools offering air quality monitoring continue working with schools to advise pupils, carers, staff and visitors on current pollution levels near the schools, forecast pollution levels using airTEXT, information on air pollution including causes, impacts, ways to lower exposure and low pollution walking maps to get to school. Work with schools on joint engagement programme to encourage active travel and raise awareness of poor air quality. Use the Theatre in Education programme to offer schools advice on sustainable travel, active travel and air quality for all pupils from KS1 to KS3. Use Defra funded school screen air pollution awareness project to promote active travel as a way to reduce pollution and exposure. Other activities can include promotion of Walk to School Week, Bikeability training for pupils and anti-idling action events.	We continued monitoring air quality outside every school and nursery in the borough in 2021. The results of this monitoring can be found in this report. We also started monitoring outside care homes at the end of the year. In collaboration with Breathe London, we installed an air quality sensor outside of Whitehall Park Primary School in 2021. This gives by the minute readings of NO_2 and PM pollution that can be accessed by the school via a web portal. For Clean Air Day (CAD) we helped schools to take part in poster competitions run by Global Action Plan (GAP) and Cross River Partnership (CRP). The pupils were also asked to make pledges to improve air quality. For Car Free Day (CFD) 2021 we held an event outside Hanover Primary School, providing information about air quality, anti idling and people-friendly streets (PFS). Throughout the year we engaged with schools through our schools newsletter. In the 2021/2022 financial year, we trained 1246 children on our school and holiday Bikeability courses.
Work closely with Islington's Health and Wellbeing Board (HWB).	Public health and awareness raising	Islington's HWB published Islington's Joint Health and Wellbeing Strategy in 2016 and one of the priorities include prevention and management of long term conditions. We will support promoting healthier and more active families through various initiatives including developing healthy environment and access to physical activity and active travel.	We have worked on a number of initiatives to promote a healthier and more active community in 2021, as evidenced by the range of measures described throughout this action plan, such as PFS. In 2021 we continued work as part of the Mayor's Air Quality Fund (MAQF) Healthy Streets Everyday (HSE) scheme, with Islington as the lead borough. This includes 16 boroughs working to make London's streets healthier. We also started work on a pioneering scheme to train health practitioners in GP surgeries about air quality so they can offer advice to their patients. With 17 health practitioners from 15 practices trained at the beginning of 2022.
Schools travel plans	Public health and awareness raising	Work with schools to offer school travel plans including AQ information and actions to reduce emissions and exposure to encourage a	Transport for London (TfL) merged School Travel Plans and STARS years 19/20 and 20/21 into one 'super year' and schools received their accreditations in

23

Measure	LLAQM Action Matrix Theme	Action	Progress
		change in travel patterns. Encourage schools to review, update and engage with the STARS programme and work towards accreditation. Support all schools to achieve the highest accreditation.	November. Newsletters were sent to schools on a monthly basis encouraging active travel.
Provide public AQ information displays	Public health and awareness raising	Assess the best use for the screens and air quality monitors to inform local residents on current air quality information and raise awareness of significant effects pollution can present if exposed for prolonged periods. Trial various locations for the screens and look for extra funding to get permanent displays. Demonstrate that we all can make a difference through our own choices and behaviour.	We continued monitoring air quality outside every school and nursery in the borough in 2021. We also started monitoring outside care homes. The results of this monitoring can be found in this report. We continued monitoring PFS schemes, with results communicated in interim and pre-consultation reports available on the council website.
National lead on *air*TEXT service and promote the service to residents.	Public health and awareness raising	Continue leading on and working with other local authorities and GLA to ensure that our residents can get free alerts when high air pollution levels are predicted. Promote the scheme through SHINE, school awareness programmes and other media. Work with Whittington Health professionals on promoting the service to asthma sufferers.	Islington continues to lead on and take part in the airTEXT scheme. At the end of 2021 there were 782 active airTEXT subscribers in Islington, an increase of 52 since the end of 2020. AirTEXT and other alert and route checking services are promoted on our website and leaflets, as well as through schemes such as our Clean Air for Schools Toolkit and in school audit reports. AirTEXT was promoted through the Seasonal Health Intervention Network (SHINE) service, leading to 39 sign ups in London of which 23 were in Islington in 2021.
Reduction in idling vehicles	Public health and awareness raising Cleaner Transport	Work with other boroughs on London wide campaign to target idling vehicles and increase awareness of air pollution from idling vehicles. Produce promotional materials including anti-idling signage, website, leaflets and work with schools, hospitals, businesses on wider engagement of their staff.	Islington continued to be part of the London wide Idling Action scheme in 2021. This included an 'Engines off' campaign in November 2021 with social media reaching over 50,000 followers and the posts receiving thousands of impressions. We invited Islington businesses to Idling Action's Fleet and Business webinar in September 2021 and provided idling toolkits for businesses. We have worked closely with bus operators lobbying them to optimise bus routes to minimise idling of buses at bus stops. We conducted an anti-idling event in December 2021 by Arsenal stadium and continued to use idling posters made in conjunction with Islington Clean Air Parents

Measure	LLAQM Action Matrix Theme	Action	Progress
AQ awareness events	Public health and awareness raising	Islington regularly participates in national awareness initiatives including Clean Air Day, Car Free Day, Walk to Work scheme and others to increase the understanding of air quality problems. We'll work in partnership with other local authorities and organisations to continue raising awareness about air pollution effects and how to minimise them.	For CAD 2021, we supported schools to take part in a CAD poster competition run by Global Action Plan. The pupils were also asked to make pledges to improve air quality. We ran an event at Hanover Primary School for CFD, providing information about air quality, anti-idling and PFS. We also promoted a competition run by CRP for CFD to raise awareness and engage school children on the topics of air pollution and active travel. William Tyndale Primary School was one of the winners that received a mural for their school. Anti-idling events were scaled back due to ongoing Covid-19 restrictions, however towards the end of the year we conducted an anti-idling event in conjunction with the London wide campaign 'Engines off'.
Encourage active participation of residents in AQ actions	Public health and awareness raising	Recruit volunteers for various campaigns and projects including anti-idling initiative and keep them informed about any upcoming events. Invite volunteers for various public information events, including AQ conference etc. Aim to train staff at various organisations within the borough about AQ messages and support them to spread the message to colleagues, friends and families.	Anti-idling events were scaled back due to ongoing Covid-19 restrictions, however in December we conducted an anti-idling event at Arsenal, with the support of one volunteer. During Clean Air Villages Four (CAV4) in Angel we engaged with up to 20 businesses on air quality through their sustainability forum, where businesses also shared their experiences using cargo bikes and electric vehicles (EVs) in and around Islington. We also engaged with companies working on circular economy projects, assessing the possibility of a reusable containers scheme in Angel. As part of the School Streets consultations, workshops were organised with pupils asking them about air quality and how this could be improved. The Low Traffic Neighbourhood (LTN) consultations included a similar question asking residents whether they have noticed a change in air quality since the beginning of the trials.
Look for funding and work with world class academic institutions	All dependent on scheme	Islington is amongst the leading boroughs tackling air pollution through various initiatives and will aim to work with various universities on further research on air quality.	We continued to work with Imperial College on analysing pollution inside four canal boats, monitoring pollution with filters in a school and mapping solid fuel burning across the borough as part of Defra funding. An action plan was developed to create a safe, clean and healthy urban environment for children and their caregivers as part of Urban 95 Academy 6-week global course, hosted by Bernard Van Leer and London School of Economics. Officers continued corresponding with the Active Travel Academy of Westminster in regard to LTNs.

Measure	LLAQM Action Matrix Theme	Action	Progress
Improvements to heating systems	Emissions from developments and buildings	Improve heating systems through replacement of inefficient boilers as part cyclical improvement work. Carry out the improvement works on domestic properties as well as school and business premises. Offer the grant support scheme to vulnerable private sector residents. Apply the most effective measures whenever possible, including through external schemes such as RE:NEW, RE:FIT, ECO Flex, Mayor of London Warmer Homes and Section 106 Carbon Offset Funding when improving insulation and replacing boilers.	Through our SHINE service for vulnerable residents we referred 29 Islington households to the ECO/Warmer Homes scheme for improvements to heating and/or insulation from April 2021 to March 2022 and declared eight households in the ECO-flex group for vulnerable residents that do not receive qualifying benefits. Two householders were also assisted through the council's Safe and Warm funding. From April 2021 to March 2022 around 1185 new high efficiency boilers were renewed or installed in domestic council managed/tenanted properties (this figure includes boiler upgrades and replacement of faulty boilers).
Promotion of energy efficiency	Emissions from developments and buildings	Provide energy saving advice to residents within the borough. Refer vulnerable residents to SHINE services including *air*TEXT. Work with businesses in ZEN areas on energy efficiency audits to minimise the emission and cost.	Islington residents continued to receive energy saving advice in 2021, including referrals to additional services through SHINE (which makes sure you get all the help you need to stay warm, increase income and stay healthy in your home), including 23 signups for airTEXT.
Apply tiered parking charges for short term parking spaces	Cleaner Transport	Applied surcharge on parking diesel vehicles in short term parking spaces from January 2018. Continue tiered parking permits based on fuel emissions. Review parking policies to take into consideration impacts on air quality and health.	The diesel surcharges for short stay and resident parking permits remained in place in 2021. In April 2021, petrol and petrol hybrid vehicles also became subject to a surcharge on short stay parking, based on the CO_2 emissions of the vehicle, and electric vehicles could park at a reduced rate of 20p.
Renew our fleet and replace vehicles with the cleanest possible technology	Borough Fleet Cleaner Transport	Conduct the review of the fleet to identify which vehicles may be operated as electric, biomethane, hydrogen, compressed natural gas (CNG), euro VI and ultra-low emission and consider the changes during next procurements. Procure first CNG powered welfare bus and assess the possibility of replacing wider fleet including heavy goods vehicles. Investigate possibilities of retrofitting the most polluting vehicles where no other	The Fleet replacement programme continued through 2021 with a number of electric vehicles added to the fleet, enabling a further reduction in diesel powered vehicles. This included the first 7.5T electric cage tippers to be operated by the council, the first Fiat E-Ducato 3.5T electric panel van to be operated in the UK and a number of other electric vehicles. Notably, the council now has four fully electric Refuse Collection Vehicles having taken delivery of the two diesel to electric conversions mentioned in the annual report for 2020. These two vehicles had their diesel engines removed and replaced with electric battery technology, winning Outstanding Product of the Year at the Fleet News Awards. We also had a notable mention at the same awards

Measure	LLAQM Action Matrix Theme	Action	Progress
		option is viable. Review council's vehicles usage. Analyse the possibility of car park spaces to be converted into bike storages where feasible.	show for 'Environmental Trailblazer of the Year' for the work done on decarbonising the fleet. Street Environment Staff continued to use six e-bikes procured in 2020. The fleet electrification project has continued to move at pace with a number of council sites identified for infrastructure upgrades. Installation has been completed at Pritchard Court with 18 dual chargers installed. Work is almost complete at 222 Upper Street with four dual chargers installed. 7 Newington Barrow Way and Fairbridge Road sites are due to have chargers installed shortly with a number of site surveys conducted at other council buildings. Electrical upgrade work is due to start in April 2022 on the Waste and Recycling Centre on Cottage Road. The £3m upgrade will see a new substation and high capacity cable installed at the main council operating depot, enabling the majority of vehicles located there, around 200, to be replaced with electric vehicles over the next few years. A number of different capacity vehicle chargers will be installed to complement the mixed fleet the council operates, including Heavy Goods Vehicle's (HGVs), buses, road sweepers and various light vehicles.
Adopt transport reduction strategy	Cleaner Transport	Explore reduction of traffic and co-ordinate the work with TfL so that both strategies work together. Propose re-designing of key streets where reducing traffic is essential to protect vulnerable road users. Investigate options of road user charging including workplace parking levies and work with the Mayor to strengthen these developments.	The Islington Transport Strategy 2020-41 remained in place in 2021. In November 2021 we introduced a further School Street at St Luke's Primary School in Bunhill. We also made 15 School Streets permanent following consultation in 2020 and 2021 and are planning to make another six permanent in summer 2022. In February 2022 we introduced a new LTN in St Mary's Church area.
Retain Bronze Fleet Operator Recognition Scheme (FORS) and aim for gold	Cleaner Transport Borough Fleet	Include FORS into council's procurement policies including all aspects of safety, efficiency, and environmental protection. Measure, monitor and improve performance to obtain and retain gold accreditation. Ensure our fleet and drivers are adhering to FORS standards.	The council does not currently have FORS accreditation, however we have been improving fleet and driver compliance through the development of corporate policies and procedures. Digital transport management systems that are required for the earned recognition system are being reviewed by Corporate Fleet and Workshop teams to decipher which is most suitable for the council's needs.

Measure	LLAQM Action Matrix Theme	Action	Progress
Freight consolidation scheme	Delivering servicing and freight	Work with other London boroughs on freight consolidation and discuss with our partner Camden Council inviting local businesses to join the scheme to minimise supply deliveries reducing vehicle traffic and emissions.	The freight consolidation scheme continues to run deliveries into the borough via the hub with more items from suppliers going through it to minimise emissions from supply deliveries. The area of social value has to be a factor in air quality as contract commissioners have to consider the environmental element addressing how the borough will minimise carbon emissions from suppliers – within the three themes of social, economic and environmental value.
Increase cycle parking around the borough	Cleaner Transport Localised Solution	Install 400 cycle parking hangers around the borough to improve safety and modal shift to greener transport.	183 on-street bike hangars were installed in 2021, totalling 400 bike hangars borough-wide. 55 Sheffield Cycle Stands were installed across the borough in 2021-22. 56 new secure cycle storage facilities were installed on estates throughout the borough from April 2021 to March 2022, offering secure storage for 489 more bikes.
Improve cycle network routes and connections of quiet ways through the borough	Cleaner Transport Localised Solution	Work with cycling groups to review and connect viable low traffic exposure routes to increase cycle confidence, safety and low pollution exposure. Review all one way roads to consider giving two-way cycle advantage. Improve signage along cycle routes.	In 2021 we continued to improve cycle network routes. In February 2021, a protected bike lane was completed at Green Lanes, between Petherton Road and Riversdale Road. In May a protected cycle route, including a continental roundabout was completed between Highbury Fields and Finsbury Park. Following consultations undertaken in 2021, the pop-up cycle lane at York Way was approved as a permanent scheme in January 2022. During 2021, the trial of the Liverpool Road protected cycle route continued, and a public consultation was completed. In February 2022 we introduced a new LTN in St Mary's Church area.
Improve public transport facilities in the borough	Cleaner Transport	Work with TfL on bus reliability programme. Improve facilities at public transport hubs, including cycle storage outside stations. Examine council's roads space and improve reallocations of road space to prioritise pedestrians/cyclist over car parking. Support the delivery of Crossrail 2 to relieve crowding on existing lines such as Victoria and Piccadilly lines. Lobby for expanding night tube services in Islington and retaining night bus services in the borough. Continue to request provision of an all zero emission fleet at the Metroline bus garage as soon as possible.	In 2021 the reduction in bus ridership as a result of the pandemic had a significant impact on TfL's income and public transport network. The council worked with TfL to communicate changes to public transport and to seek assurances that TfL will continue to provide a transport network, across all modes, including walking and cycling. The council has also opposed proposals to changes in the operation of the 21, 143, 263 and 271 bus services. We continue to work with TfL to minimise the impact of changes or reductions to services in the borough. Works to make the remaining platforms step-free started on site at Finsbury Park station.

Measure	LLAQM Action Matrix Theme	Action	Progress
Enhance and plan the infrastructure of electric charging points across the borough	Cleaner Transport	Enhance the current network of electric charging points in the borough including rapid, fast and lamppost chargers and plan future expansion to prepare for increasing demand.	285 electric vehicle charging points were delivered by December 2021. This is 72% of our target of delivering 400 charging points in 2021/22. All publicly available electric vehicle charging points have been powered by renewable sources since 2021.
Increase car clubs' availability in the borough	Cleaner Transport	Support car clubs to increase availability of vehicles in the borough particularly ULEV and zero exhaust emissions vehicles, including vans.	In 2021 we continued to support multiple car club operators with different business models, to provide competition and offer variety to best meet the needs of all residents.
Support geographical expansion of ULEZ	Cleaner Transport	Engage with TfL, GLA and other London boroughs on the expansion of ULEZ. Respond to various consultations to point out the benefits of extending ULEZ to whole of Islington as soon as possible. Lobby Mayor of London to tighten the criteria for ULEZ to reduce exclusions. To push for a strengthening of the ULEZ so that it becomes a zero emission (exhaust) zone.	Throughout 2021, we worked closely with TFL to provide updates and information to our residents, businesses and visitors about the expansion of the Ultra Low Emission Zone (ULEZ). We regularly updated the council website to include expansion details and a social media campaign was arranged in line with TfL requirements. The information was also included in the council's magazine which is delivered to all households in the borough. We also promoted ULEZ guides that were prepared by CRP, as part of the CAV4 scheme, which included details for businesses and residents.
Call on Mayor to put into practice diesel free London by 2025	Cleaner Transport	Support Mayor of London to review all aspects and policies to implement diesel free London by 2025 to improve public health crisis caused by air pollution. Develop a diesel free strategy for Islington as part of trend in diesel free direction, including diesel and petrol vehicles sale ban in 2040. Explore the option of rejecting parking permits to diesel vehicles in Islington before 2025 to support diesel free London notion.	The diesel surcharges for parking remain in place. In April 2021, petrol and petrol hybrid vehicles also became subject to a surcharge on short stay parking, based on the CO_2 emissions of the vehicle, and electric vehicles could park at a reduced rate of 20p. The fleet replacement programme continued throughout 2021 with a number of electric vehicles added to the fleet, enabling a further reduction in diesel powered vehicles. A number of council sites were also identified for infrastructure upgrades, with installation completed at Pritchard Court and almost complete at 222 Upper Street. More information on fleet improvements can be found in the fleet replacement section of this table.

Measure	LLAQM Action Matrix Theme	Action	Progress
Promote active travel and Clean Air Walking Routes	Cleaner transport Public health and awareness raising	Work with TfL on planned improvement works to ensure all new road improvements are considerate of walking and cycling, creating safer and cleaner spaces for active travel, including all current and future works such as Highbury Corner, Old Street and Clerkenwell Green. Look at trailing smarter travel scheme incentives. Provision of personalised travel information. Improvements to footpaths, signage and directions to encourage people to walk. Promote active travel as part of Active 10 and other NHS initiatives. Create map of Clean Air Routes and promote within the borough. Increase, develop and expand Clean Air Walking Routes.	In 2021, 23 Dr Bike sessions were held, 184 adult one on one sessions were completed, there was one led ride with 21 participants, 5691 attended Pedal Power all ability cycling sessions and there were 85 try-before-you-buy bike sessions. 183 on-street bike hangars were installed in 2021, totalling 400 bike hangars borough-wide. 55 Sheffield Cycle Stands were installed across the borough in 2021-22. 56 new secure cycle storage facilities were installed on estates throughout the borough from April 2021 to March 2022, offering secure storage for 489 more bikes. Following public consultations in 2020 and 2021, 15 trial School Streets have been made permanent in 2022, bringing a total number of permanent School Streets to 28. A decision on a further six School Street trials will be made in summer 2022. The School Streets aim to improve air quality and congestion at the school gates, reduce road danger and promote active travel amongst school community. A new LTN was implemented in the St Mary's Church area in February 2022. The Old Street roundabout TfL project, saw a change to a two way system with new signals in January 2021, progressing a scheme that supports reduced road danger for people walking and cycling.
Healthy Streets implementation	Cleaner transport Public health and awareness raising Local Solutions	Work towards implementing the Healthy Streets Approach to encourage walking and cycling and protect children from poor air quality.	In 2021 we continued working on the MAQF Healthy Streets Everyday scheme, with Islington as the lead borough. This includes 16 boroughs working with CRP to make London's streets healthier. In Islington in 2021 we used our funding to support our wider investment and transformation work in Chapel market by funding a car free Christmas event bringing the community together in a space without vehicles, free trials of cargo bikes for deliveries, as well as monitoring and surveying of air quality and travel patterns. The PFS programme, which continued in 2021, has been developed to ensure that local streets including streets around local schools are attractive, less polluted and safe places to walk, cycle and play. Following consultations in 2020 and 2021, 15 trial School Streets were made permanent. The consultations have shown the schemes to have fulfilled the objectives including contributing to a reduction in air pollution. We are also starting work to improve pollution on main roads, with plans to implement measures in 2022.

Measure	LLAQM Action Matrix Theme	Action	Progress
			The implementation of 19 Play Streets, registered during 2020, was delayed due to the pandemic. In 2021, these Play Streets were introduced, providing children with the freedom to have fun and play safely 'on their doorstep'. Play Streets give greater priority to pedestrians and help raise awareness of air pollution.
Identify barriers for cycling to work and for leisure	Cleaner transport Public health and awareness raising	Look at barriers for cycling within council own employees and local businesses. Identify need for further cycle training, confidence building, facilities and cycle provision. Investigate and negotiate staff membership for bike hire. Consider personalised travel planning for employees.	The pool bike scheme for council staff continued throughout 2021, with 18 bookable cycles at five council office locations. Council staff can also access a Cycle to Work scheme.
Promote smarter driving training	Cleaner transport Borough Fleet	Ensure all employees driving council vehicles are familiar with eco driving techniques. Promote eco driving amongst general public to drive down pollution from brake and tyre wear etc.	A new project is being drafted with our telematics provider to enable us to more closely monitor driver behaviour and assist in effectively managing road risk. This includes a focus on safe and efficient driving by reducing idling for example. The driver handbook has been updated to reflect any changes to legislation and disseminated to council drivers. In 2021, we had over 100 drivers completing our anti idling training as part of their new starter or reminder training to ensure they are aware of harmful pollution and techniques to reduce emissions. The presentation was followed by handing out the copy of the details and pledges to stop idling.
Angel (from Angel station to Essex Road station)	Localised Solutions All possible themes dependent on work in focus area	Cooperation with Angel BID to involve local business in minimising air pollution, new electric charging infrastructure, improving bus fleet that use the routes in and around Angel, work with local schools on behaviour change, monitoring, auditing and implementing greening measures where feasible.	In 2021 we started working with Angel BID and CRP on CAV4 in Angel. As part of the scheme businesses were engaged through a sustainability forum led by Angel BID with options for circular economy explored, from a consolidation centre to using reusable containers to minimise deliveries and collections in the area. CRP also produced a series of Lunchtime and Connect 4 webinars focusing on raising awareness about green infrastructure, ULEZ, river freight, active travel, etc. and all businesses were invited to attend. We conducted a CFD event at Hanover Primary School near Angel Station focusing on active travel in the newly created LTN. 21 Sheffield cycle stands were installed to improve cycle parking facilities in the Barnsbury Ward (one of the wards around Angel). The £1.4M Chapel Market project is being funded with £998k from the Mayor of London's Good Growth Fund and match funding from Islington council. It aims to

Measure	LLAQM Action Matrix Theme	Action	Progress
			enhance features of the existing affordable, diverse and inclusive market whilst strengthening the offer through a wider choice of goods and services. It will facilitate a new generation of traders from the local community and deliver an uplift in the public realm to make the street a more attractive and healthier place to shop, linger and enjoy. Work continued on this project in 2021 and it will be delivered in Spring-Summer 2023. We used our MAQF HSE funding to support our wider investment and transformation work in Chapel market by funding a car free Christmas event bringing the community together in a space without vehicles, free trials of cargo bikes for deliveries, as well as monitoring and surveying of air quality and travel patterns.
Holloway Road (Highbury Corner to Archway)	Localised Solutions All possible themes dependent on work in focus area	Improvements to Highbury Corner gyratory, requirement for bus fleet to meet highest standards as soon as possible, increasing amount of pollution absorbing plants, behaviour change campaign to promote active travel as well as use of side routes when cycling and walking, continue and increase ZEN promotion in Archway through offering various opportunities for businesses to participate and decrease pollution. Install delivery lockers to minimise home deliveries.	The consolidation centre in Archway continued to be used by five businesses throughout 2021 and the cargo bike deliveries through Pedivan continued until December 2021 by which date the funds were spent. Between January and March 2021 we finalised work on CAV3 around Holloway Road, including cargo bike providers analyses and engagement with businesses. However, this was affected by lockdown with many services held online. As part of CAV3 CRP started their Lunchtime Launch webinar series in January 2021 and invited all our businesses to take part. Following public consultations in 2020 and 2021, six of the School Streets in the vicinity of Holloway Road were made permanent. Decision on Grafton Primary and St John's Upper Holloway Primary School Streets trials is due in 2022. St John's Upper Holloway Primary also received an air quality audit in 2021. Canonbury Primary School has been selected as a priority location for School Streets programme environmental improvements for design and delivery in 2021/22. Environmental improvements include footway widening, greening, double yellow lines and other measures to improve air quality and congestion at the school gates, reduce road danger and promote active travel amongst school community. The school also received an air quality audit in 2021.
Finsbury Park (including parts of Hackney and Haringey)	Localised Solutions All possible themes	Working closely with TfL and neighbouring boroughs on possible improvements to cycle routes, collaboration with Town Centre management, increasing greening, mitigation	Gillespie School Street has been made permanent following a public consultation in 2021. Ambler Primary School has been selected as a priority location for School Streets programme environmental improvements for design and delivery in 2021/22.

Measure	LLAQM Action Matrix Theme	Action	Progress
	dependent on work in focus area	requirement for all new developments in the area to minimise impacts of air pollution during construction stages and modelled future impacts.	Environmental improvements include footway widening, greening, double yellow lines and other measures to improve air quality and congestion at the school gates, reduce road danger and promote active travel amongst school community. The school also received an air quality audit in 2021.
King's Cross/ Caledonian Road (including parts of Camden)	Localised Solutions All possible themes dependent on work in focus area	Proposed gyratory improvements of existing road network, work closely with London Borough of Camden on minimising the impacts from developments bordering with Islington, improvements to electric charging facilities in the area, increasing cycle facilities and green infrastructure.	All School Streets in this area were made permanent. Following consultations undertaken in 2021, the pop-up cycle lane at York Way was approved as a permanent scheme in January 2022.
Old Street/ Shoreditch (including parts of Hackney and Tower Hamlets)	Localised Solutions All possible themes dependent on work in focus area	Proposed Old Street gyratory improvements, active travel promotion as part of new walking/cycling routes, ongoing City Fringe ZEN and LEN offers to businesses and residents to make various air quality positive actions, ULEV streets, green screens possibilities near sensitive locations such as schools, hospitals, school audits, close working partnership with City of London and Hackney, increase of electric charging facilities.	St Luke's School Street trial was introduced in Old Street area in November 2021, with the aim to improve air quality and congestion at the school gate, reduce road danger and promote active travel amongst the school community. Work continued on City Fringe Zero Emission Network (ZEN) scheme in 2021. 80 new businesses and 22 new residents joined in Islington, with 26 emission reducing measures (such as trials of cargo bikes) taken up by businesses and eight taken up by residents in Islington. In 2021, free cargo bike cycle training was offered to ZEN businesses for the first time. One Islington business took up this offer. This business and ten others in Islington were awarded grants to help them purchase their own cargo bikes to use for collections and deliveries. In September 2021, ZEN and micromobility company Beryl launched the UK's first on-street, on-demand cargo bike sharing scheme across the three boroughs, with one site on the Islington border, easily accessible for Islington businesses and residents. In the first three months 83 people used the service, 163 journeys were taken covering a distance of 869 km. Central Foundation School received an air quality audit in 2021.

Measure	LLAQM Action Matrix Theme	Action	Progress
Dalston Lane (Mainly Hackney) and King's Cross/Euston/ Marylebone Road (Mainly Camden)	Localised Solutions All possible themes dependent on work in focus area	Ongoing work with Hackney Council and supporting their actions whenever possible, monitoring construction activity in close proximity to Dalston Lane to ensure further pollution impact is avoided or mitigated through various conditions. Close working partnership with Camden and TfL on projects to minimise the impact from moving and stationary traffic in the area, increased construction impact monitoring and calls for reducing impacts through planning conditions, ongoing work with local communities, businesses and schools, improving charging facilities to encourage use of electric vehicles for personal and business use.	These focus areas are mainly located in other boroughs and we continued working with the respective boroughs wherever possible. In 2021 we worked with on a range of wider schemes with these boroughs e.g. Idling Action London and City Fringe ZEN. A School Street at St Jude and St Paul's Primary School was made permanent following a public consultation in 2021.
Increase greening of the borough with pollution capturing and absorbing plants	Localised solutions	Ensure adequate, appropriate and well located green space and infrastructure is planned for all new developments. When choosing the species and locations, consider eventual canopy size and possible local pollution hotspots e.g. junctions, busy roads. Look at options for planting greenery close to local schools, nurseries, hospitals, GP surgeries and other places near vulnerable residents.	Current policies require new developments to protect and enhance biodiversity and minimise impacts on trees, shrubs and other vegetation of significance. The Draft Islington Local Plan examination progressed during 2021, with examination hearings taking place in September/ October. This plan includes greater requirements for greening, with five separate policies created. For example, use urban greening factor to ensure sufficient greening, protect landscape and biodiversity, and incorporate green roofs and vertical greening. At developments where a potentially significant health impact is identified detailed actions to mitigate must be submitted and Public Health will offer support and advice in this process. The London Plan was adopted in March 2021 meaning policies such as those on Urban Greening Factor have full weight in decision making. Islington's Biodiversity Action Plan 2020 to 2025 continued to be in place throughout 2021. During 2021 we carried out the following planting works across the borough: • 5000 Crocus, 18,000 Narcissi and 28,000 Daffodil bulbs across housing sites around the borough.

Measure	LLAQM Action Matrix Theme	Action	Progress
			• 3,587 shrubs and herbaceous plants on housing sites, including Weston Rise Estate, Tufnell Park Estate and Aubert Court. 365 of these were for White flower planting as a memorial to those residents of Islington, who passed due to Covid. Another memorial bed was created at Highbury Quadrant Estate, which later became one of three in the borough as part of the National Day of Reflection. • 2,045 plants were used to help replant beds at Rosemary Gardens, to improve the site and increase biodiversity, providing much needed habitat and food sources for pollinators and other wildlife. The improvements lead to us obtaining a Green Flag and Gold in the Park category in London in Bloom 2021.
Increase greening of the borough with pollution capturing and absorbing plants	Localised solutions	Increase canopy cover of the borough in line with London and borough targets, using existing spaces and new developments.	703 trees were planted on public land in the tree planting season November 2021 to March 2022. £210,000 annual Capital funding was secured in 2020/21 for tree planting from 2021-23.
Reduce pollution on Islington waterways	Localised solutions Emissions from developments and buildings Transport Solutions	Work with Canal and River Trust to reduce pollutants concentrations around Regent's Canal by Implementing Eco Zones in the area. Look at possibility of using the canal for freight servicing e.g. waste collection.	In 2021 we completed all sections of the Eco Zone along Regent's Canal, with electricity becoming available at the electric bollards in all three zones by October 2021. In July 2021, a new Eco Mooring Ranger was employed to help raise awareness of the zone and work with boaters on compliance. Air quality monitoring along the canal was ongoing and research by Imperial College was also conducted with a report due in 2022. Our learnings from the installation of the Eco Zone were shared with other London boroughs, as well as some authorities beyond London.
Power generation identification	Emissions from developments and buildings	Map the locations of generators (CHP, back-up generators, etc.) and review power sources in the city to remove excess pollution away from residents. Review standard planning conditions regarding power generators. Utilise the heat from London Underground network to provide cheaper and greener heat to local residents in Bunhill ward and look for further opportunities for heat networks and local secondary heat.	The Bunhill 2 Heat Network scheme was launched at the beginning of 2020, using heat from underground trains to heat properties on the network, including over 1,300 properties. In 2020 we began work on a new heat network design scheme, GreenSCIES. With work continuing in 2021. This scheme will deliver a detailed design for a smart energy system that integrates new low carbon energy technologies across heat, power and mobility. Using low carbon heat pumps, the project aims to share waste heat from buildings and other sources with other buildings in need of heat, while energy generated in one building could power another building depending on local demand. Sharing heat in this way provides an opportunity to deliver flexible, extremely efficient,

Measure	LLAQM Action Matrix Theme	Action	Progress
			ultra-low carbon heating and cooling in buildings, thereby contributing to the council's vision of a net zero carbon borough by 2030. It will not only reduce carbon emissions, but it will also reduce local air pollution. This two-year design phase of the project will finish in May 2022. Following this, the council will look forward to the potential building of the system. Our 'Vison 2030: Building a Net Zero Carbon Islington by 2030' climate strategy includes an action to audit NRMM in the borough. Preparations for this action started in in 2021.
Participate in Cleaner Air Borough initiative	Monitoring and other core statutory duties	Work towards GLA's initiative to obtain kite mark demonstrating Islington's commitment to improving air quality.	We continue to work to improve air quality in the borough and were awarded this mark in the first year of the scheme. There have been no new application opportunities since this date.
Bid for available external funding	Monitoring and other core statutory duties	Apply for air quality funding to resource air quality improvements actions and projects in Islington.	In 2021 we continued to use funding to implement a range of schemes as outlined in this report such as LTNs, Schools Streets, fleet improvements etc. The following projects were funded through the MAQF 2019-22, with work continuing in 2021: • Healthy Streets Everyday (Islington lead borough) • Idling Action London (City of London and Camden lead) • NRMM Zone enforcement (Merton lead) • ZEN Phase 3 (Hackney lead) In 2021 we started or continued work on four Defra schemes; • air quality training for GP surgeries across the borough • testing air quality filters in a school and the ability of sensors to monitor this (with additional contributions from Engie) • monitoring and mapping solid fuel burning at domestic properties in the borough • Clean Air Villages scheme working with businesses in the Angel area • Canal Eco Zone scheme (with additional council and Canal and River Trust (CRT) funding), with all three zones completed and launched in 2021. We also bid for additional Defra funding in 2021 (with funding successfully received for all bids in 2022): • to conduct air quality audits of care homes, fund recommended measures and conduct a communications campaign.

Measure	LLAQM Action Matrix Theme	Action	Progress
			• to co-lead, with Camden, a 15 borough scheme researching impacts of solid fuel burning and running a cross brough communications campaign • a multi borough clean air logistics scheme lead by Westminster and CRP bringing freight by river with onward delivery via zero emission networks. The £1.4M Chapel Market project is being funded with £998k from the Mayor of London's Good Growth Fund and match funding from Islington council. Work continued on this project in 2021. Air quality school audits resumed in 2021 and the Public Health funded scheme with Whittington Hospital, to create a Clean Air Hospital Plan, continued in 2021.
Set up internal coordination meeting	Monitoring and other core statutory duties	Pull together key internal stake holders to coordinate work that impacts on air quality across the borough.	Work with a range of internal teams continued throughout the year and air quality has been integrated into a range of council strategies including Vision 2030 and the Transport Strategy.
Implement recommendations of the health scrutiny into air quality	Public health and awareness raising	Assess and implement the recommendations of the health scrutiny into air quality.	The last recommendations from the Health Scrutiny were made in 2018, these recommendations were included in the Air Quality Strategy and we continue to work on implementing these in 2021 as evidenced throughout this report.
Lobby central government	Monitoring and other core statutory duties	Lobby central government to review Clean Air Act to provide legally enforceable right to clean air with new powers to regulate all emission sources (canals, solid fuels, etc.) and empower local authorities. Challenge government to ensure the current air pollution limits remain valid or even tougher after leaving European Union. Pressure government to reconsider and develop national scrappage scheme. Urge HM Treasury to end red diesel subsidies.	We continued to respond to relevant consultations in 2021. We also met with Defra to discuss our work along canals, as well as wider air quality issues such as smoke control powers.
Ban of diesel vehicles	Cleaner transport	Support any early intervention in the direction of banning diesel and petrol vehicles to minimise air pollution emitted to the atmosphere.	The fleet replacement programme continued throughout 2021 with a number of electric vehicles added to the fleet, enabling a further reduction in diesel powered vehicles. A number of council sites were also identified for infrastructure upgrades, with installation completed at Pritchard Court and almost complete at 222 Upper Street. More information on fleet improvements can be found in the fleet replacement section of this table.

Measure	LLAQM Action Matrix Theme	Action	Progress
			Electrical upgrade work is due to start in April 2022 on the Waste and Recycling Centre on Cottage Road, enabling the majority of vehicles located there, around 200, to be replaced with electric vehicles over the next few years. St Luke's Primary School Street was implemented in November 2021. An additional LTN was implemented in the St Mary's Church area in February 2022. From April 2021, we implemented parking pricing measures as part of our commitment to become Net Zero Carbon. Electric Vehicles can use short stay paid for parking facilities at the reduced rate of 20p and petrol and petrol hybrid vehicles are now subject to a surcharge on top of the standard tariff. The diesel surcharges for parking remain in place.
WHO Air Quality Standards	Monitoring and other core statutory duties	Work towards adopting the WHO obligations and/or standards, including air quality limits Work to developing an evidence based and defined targets for Particulate Matters in line with the WHO objectives.	A range of actions were taken in 2021, mentioned throughout this report, that will help us to work towards WHO levels. We will start work on our new air quality strategy in 2022, investigating inclusion of new WHO targets introduced in 2021.
Work towards eliminating diesel generators	Cleaner transport	Work towards eliminating all diesel powered generators, including vehicles from parks and open spaces.	The Greenspace Grounds Maintenance team has committed to the council's 2030 net zero carbon target and as such have set a 10% annual target to replace petrol equipment with battery horticultural machinery and as of 2021 we are currently on target with 10% of our equipment, such as strimmers, blowers and lawn mowers now being electric. In 2021, our Cemeteries Grounds Maintenance team also acquired a new electric buggy which will reduce our dependency on a vehicle, which in turn will reduce diesel use. Behind the scenes Greenspace have also made some investment in making ready the electricity supply in one of our parks with the proposal to have in the future a local site-based team to reduce vehicle use.
Lobbying on anti-idling	Cleaner transport	Advocate for stronger anti-idling enforcement powers.	We began investigating options to use enforcement powers through newly created Traffic Management Order and options for Civil Enforcement Officers to be involved in borough's idling enforcement in the future.
Air quality positive standards	Emissions from developments and buildings	Require all major developments, minor new build developments and larger minor extensions to submit air quality assessment to meet London's air quality standards. Proposals	The Draft Islington Local Plan examination progressed during 2021, with examination hearings taking place in September/October. This draft plan requires proposals to be at least air quality neutral. Major developments must submit an air quality assessment. Emerging Policy T7 aims to

Measure	LLAQM Action Matrix Theme	Action	Progress
		mitigate or prevent adverse impacts on air quality and investigate and implement all reasonable opportunities to improve air quality. Developments in locations of poor air quality should be designed to mitigate the impact of poor air quality to within acceptable limits. Require developments in excess of 200 net additional residential units or 10,000sqm net additional gross external floor space to be Air Quality Positive and implement measures on-site to actively reduce air pollution as far as possible.	reduce emissions and harmful air pollution from freight; it supports the use of zero-emission last-mile solutions (such as cargo cycles) and requires provision to be made for electric vehicle charging points for freight vehicles. In addition, policy S7 requires developments in excess of 150 net additional residential units or 10,000sqm net additional gross external floor space to be Air Quality Positive. Major developments, minor new build developments, and larger minor extensions all have to submit an Air Quality Assessment. The London Plan includes a policy (SI 1) which requires masterplans and development briefs for large-scale development proposals subject to an Environmental Impact Assessment to consider how local air quality can be improved across the area of the proposal as part of an air quality positive. The London Plan was adopted in March 2021, meaning policies such as SI 1 have full weight in decision making.
Enforce NRMM	Emissions from developments and buildings	Promote, educate, raise awareness and enforce NRMM through work of our Construction monitoring officers (CIMOs). Work with other boroughs to submit the bid to the MAQF to continue raising awareness of NRMM policies after funding expires in March 2019.	Our CIMOs continue to assess all major construction sites with smaller sites inspected on a reactive basis. As part of the London wide Non-Road Mobile Machinery (NRMM) scheme, funded through the MAQF 23 sites in Islington were audited in 2021. Of the 23 that were active all but one site was compliant with NRMM legislation. The site had registration issues which were rectified.
Explore possibility for allocation funds from s106 at offsetting air quality impacts from developments	Emissions from developments and buildings	Explore the options for obtaining AQ monitors at new development sites of particular size as part of requirements through planning obligation especially near local schools or other sensitive areas. Research opportunities to use the funding for air quality improvements at schools following the audits.	We continue to monitor air quality at construction sites where relevant and especially at sensitive locations.
Improving air quality from construction	Emissions from developments and buildings	Require all developments to comply with Islington's Code of Practice for Construction Sites (CoPCS) and guidance on reducing local air pollution. Construction Impact Monitoring Officers (CIMOs) to check compliance to improve air quality from construction sites.	Our CIMOs continue to check compliance with our CoPCS and reduce construction emissions and impact on air quality. As part of the London wide NRMM scheme, funded through the MAQF 23 sites in Islington were audited in 2021. Of the 23 that were active all but one site was compliant with NRMM legislation. The site had registration issues which were rectified.

Measure	LLAQM Action Matrix Theme	Action	Progress
		Ensure that contractors undertaking works to the highways use best practice to avoid adding to local air pollution.	The Draft Islington Local Plan examination progressed during 2021, with modifications consulted on in the spring and examination hearings taking place in September/October. This plan includes policy S2 which requires all developments to submit a sustainable design and construction statement to show how they will meet sustainable design policies. This allows a proper assessment of schemes at application stage and securement of any benefits through obligations and/or conditions. While policy T5 requires development proposals, especially major developments or sites that may cause disruption during construction, to adhere to best practice construction techniques to limit impacts on air quality and reduce noise and vibrations from construction and the transportation of construction waste. Information must be provided on impacts and mitigation measures, including a Construction Logistics Plan. This Draft Local Plan also states that sites must comply with best practice for construction, including Islington's CoPCS.
Research pollution mitigation measures	Emissions from developments and buildings	Continue working with KCL and other local authorities in LLECP on researching, developing and trialling construction equipment which is less polluting and promote the scheme, its findings and recommendations among developers operating in the borough. Look for further funding after funding finishes in 2019 and ensure the legacy of research continues beyond 2019. Maintain air pollution consideration in EIA for procurement to ensure that improving AQ is considered by suppliers.	We continued to be part of the LLECP scheme until it ended in 2019. No updates for 2021. Following on from the LLECP research, we are working on a study in partnership with University of East London and Groundworks into the impact of road washing on construction dust in the borough. The monitoring work for the project is due to begin in 2022. Air quality continues to be considered in EIA alongside climate change in an integrated manner.
Continue reviewing all Part B installations in the borough	Emissions from developments and buildings	Ensure that all Part B installations e.g. dry cleaners, service stations etc. in Islington maintain the highest standards of air pollution emissions control.	We continued to monitor and regulate Part B installations in 2021.
Provide advice on and encourage use of non-combustion	Emissions from developments and buildings	Provide wide range of services including advice on renewable energy technologies, planning, energy management etc. to ensure the best available technologies are used.	The new London Plan was adopted in 2021, so all new developments must now comply with the plan's new energy hierarchy and requirements around low and zero carbon heating systems, as well as meeting local policy requirements. Progress continued on the creation of Islington's new Local Plan in 2021.

Measure	LLAQM Action Matrix Theme	Action	Progress
renewable energy technologies to developers		Require all developments, through planning policy, to maximise opportunities for on-site electricity and heat production from solar panels, and other renewable technologies where appropriate.	The Draft Islington Local Plan examination progressed during 2021, with modifications consulted on in the spring and examination hearings taking place in September/October. The Draft Local Plan strengthens the requirements to reduce energy demand. Development proposals are required to identify opportunities to maximise renewable energy production on-site, including through solar panels and air source heat pumps.
Adopt an integrated approach to energy supply which maximises both air quality and climate change benefits	Emissions from developments and buildings	Ensure that the heating systems of new developments do not have significant impact on local air quality by prioritising heating systems that will result in low or zero emissions of both carbon dioxide and NOx including heat networks, secondary heat or other low or zero emission sources. Require Combined Heat and Power (CHP) and ultra-low NOx gas boiler communal or district heating systems to be designed to ensure they emit very low levels of NOx and have no significant impact on local air quality.	The new London Plan was adopted in 2021 and modifications of the Draft Islington Local Plan were also submitted. All development proposals submitted have complied with the new plan's requirements and there were no new applications proposing CHP in 2021. An increasing number of proposals coming forward now include zero fossil fuel combustion on site. The Draft Islington Local Plan examination progressed during 2021, with modifications consulted on in the spring and examination hearings taking place in September/October. Early 2021 modifications to the draft Local Plan included a change to require minor new-build developments with individual heating systems to use low carbon heating, as opposed to ultra-low NOx boilers which was the requirement before the modification. The policy now states that air source heat pumps will be the most appropriate heat source for individual heating systems. The modifications also clarify that the use of ultra-low NOx boilers and CHP will only be considered by the council in exceptional circumstances.
Cycle storage for new developments	Emissions from developments and buildings Cleaner transport	Work towards all new developments being required to ensure adequate cycle storage in each new home.	The Draft Islington Local Plan examination progressed during 2021, with modifications consulted on in the spring and examination hearings taking place in September/October. It included an update to residential cycling requirements, so not only was cycle parking required in all new residential developments (as is current policy) but also 5% of all new cycle parking had to be designed with enough space for non-standard cycles such as cargo bikes or tricycles to ensure high quality cycle parking in all new homes, to encourage active travel for all residents. The policy also includes a requirement for 15% of the new cycle parking to be designed with extra space for standard cycles. Together these requirements mean that 20% of new cycle parking needs to be accessible.

Measure	LLAQM Action Matrix Theme	Action	Progress
			183 on-street bike hangars were installed in 2021, totalling 400 bike hangars borough-wide. 55 Sheffield Cycle Stands were installed across the borough in 2021-22. 56 new secure cycle storage facilities were installed on estates throughout the borough from April 2021 to March 2022, offering secure storage for 489 more bikes.
Work with community business groups to develop and improve schemes	Public health and awareness raising Localised solutions	Engage with local businesses in ZEN Archway and City Fringe to improve local air quality, reduce energy and transport cost, identify barriers to minimising pollution. Continue to develop the work beyond ZEN areas and expand the schemes into whole borough whenever possible. Deliver superb urban environment by working on LEN initiative together with other partners. Support Archway Town Centre Management in their bid to create LEN in Archway and look for further areas of possible improvements. Escalate promotion of TfL's Deliveries Reduction Fund and help business groups to apply for funding to increase consolidation of deliveries.	In 2021 we finalised the work on CAV3 in Holloway Road/Nag's Head area. The project focused on cargo bike promotion including; use of a Pedivan scheme, encouragement to use other suppliers identified through a SWOT analyses (which assessed strengths, weaknesses and business set up) and purchase and use of their own cargo bikes where feasible. In April 2021 we started working with CRP on CAV4 project in Angel area together with Angel BID. The main aim was to create a circular economy project aimed at businesses and traders in and around Chapel Market to improve air quality through minimising number of deliveries and collections. Throughout the project CRP provided a wide range of webinars for businesses, we assessed various options from consolidating deliveries to setting up reusable container schemes and we were part of the quarterly Angel sustainability forum to share and support air quality and other sustainability ideas. Work continued on City Fringe ZEN scheme in 2021. 80 new businesses and 22 new residents joined in Islington, with 26 emission reducing measures (such as trials of cargo bikes) taken up by businesses and eight taken up by residents in Islington. In 2021 free cargo bike cycle training was offered to ZEN businesses for the first time. One Islington business took up this offer. This business and ten others in Islington were awarded grants to help them purchase their own cargo bikes to use for collections and deliveries. In September 2021 ZEN and micromobility company Beryl launched the UK's first on-street, on-demand cargo bike sharing scheme across the three boroughs, with one site on the Islington border, easily accessible for Islington businesses and residents. In the first three months 83 people used the service, 163 journeys were taken covering a distance of 869 km.
Require new developments to maximise the	Localised solutions	Work with developers and businesses to ensure adequate, appropriate and well located green space and infrastructure is included in	The Draft Islington Local Plan examination progressed during 2021, with modifications consulted on in the spring and examination hearings taking place in September/October.

Measure	LLAQM Action Matrix Theme	Action	Progress
provision of green space, as well as maximising urban greening including green walls and biodiversity-based green roofs	Emissions from developments and buildings	new developments particularly near sensitive sites, e.g. nurseries, schools, care homes etc. Require developments to maximise provision of urban greening through planning policy requirements and planning conditions.	This increased the level of policy detail in regards to greening and includes information on; green roofs and vertical greening, biodiversity, sustainable drainage and cooling impacts as well as consideration of architectural and historic features. This reflects the importance of urban greening, including green roofs and walls in our sustainability objectives.
Review Smoke control zone (SCZ) Develop communications plan related to the use of smoke free fuels and appliances	Emissions from developments and buildings	New structure for Smoke control area to cover whole borough has been adopted in 2018 removing all previous exemptions. Promote and enforce new SCZ. Increase awareness related to the use of smoke free fuels in open fires and wood-burning stoves as recommended by central government.	The EcoZone along Regent's canal was finalised in October 2021 with all three sections completed and connected to the grid. We also worked with CRT to employ an Eco Mooring Ranger from July 2021 for two years to help with education and compliance of boaters in the EcoZone. We have also shared the findings from implementation of canal chargers with other boroughs. The work from Imperial College on boat monitoring including use and effects of solid fuels on indoor air quality has been completed in 2021 and is now in the process of being written up.
Improve publicity of pollution data and its availability to the public	Public health and awareness raising	Develop options for real time AQ monitoring data to be included on LBI website.	Monitoring and reporting continued throughout 2021, including use of diffusion tubes, reference monitors and sensors. Our reference monitor data was available live on the LondonAir website. We continued to monitor air quality at all schools and nurseries in the borough in 2021, with the results found in this report. We also started monitoring outside care homes in the borough. Extensive air quality monitoring has taken place as part of the people-friendly streets schemes, with interim and pre-consultation reports published throughout 2021. In collaboration with Breathe London, we installed an air quality sensor outside of Whitehall Park Primary School. This gives by the minute readings of NO_2 and PM pollution that can be accessed by the school via a web portal. Other sensors were deployed outside schools across the borough to help provide further insight into real-time pollution levels during AM and PM peaks.

Measure	LLAQM Action Matrix Theme	Action	Progress
Low cost sensors to measure air pollution	Public health and awareness raising	Introduce low cost sensors alongside existing NOx tubes to gain better understanding of local air pollution and exposure to polluted air.	In 2021 we used low cost sensors to assist in monitoring work along the canal, in low traffic neighbourhoods and outside schools. In collaboration with Breathe London, we installed an air quality sensor outside of Whitehall Park Primary School. This gives by the minute readings of NO_2 and PM pollution that can be accessed by the school via a web portal.
Public Health (PH) to be briefed and involved in air quality issues	Public health and awareness raising	Provide briefing to Public Health senior management about progress on tackling poor air quality issues and improvements. Require Director of Public Health to sign off the Annual Status Report (ASR) and Air Quality Action Plan (AQAP). Involve PH team in supporting engagement with local stakeholders.	In 2021 we continued to work on the Public Health funded scheme at Whittington Hospital to create an air quality action plan. We also started working on a pioneering Defra funded scheme training health care practitioners at GP surgeries within the borough to give advice on air quality.
Working with internal teams	Potentially all themes	Work closely with other internal teams such as transport, energy, procurement, senior management, councillors to ensure new and existing strategies and policies are assessed for public exposure to pollution and actions taken to mitigate it where possible.	As evidenced throughout this report, teams across the council worked individually and together in 2021 on schemes that will help improve air quality. For example; transport planning, traffic and parking, planning, energy, public health and communications. This includes strategies and projects that required the support and guidance from senior management and councillors.
Working with external stakeholders	Potentially all themes	Work with the range of external organisations, including other London boroughs, GLA, the NHS, scientists, other partners and residents to encourage actions to reduce pollution and increase awareness.	As evidenced throughout this report, in 2021 we worked with a number of external organisations including London boroughs, GLA, NHS, Defra, community groups, charities and academics.
Maximising delivery and servicing by non-motorised and sustainable travel modes	Emissions from developments and buildings Delivery servicing and freight	Work toward all new developments for employment, including industrial and retail to maximise delivery and servicing by modes that do not generate air pollutants.	The Draft Islington Local Plan examination progressed during 2021, with modifications consulted on in the spring and examination hearings taking place in September/October. The plan includes policies requiring delivery and servicing arrangements to investigate potential for non-motorised and sustainable transport modes, such as cargo cycles deliveries to improve air quality, as well as ensuring that supporting businesses in Islington does not generate unmitigated air quality impacts.

Planning Update and Other New Sources of Emissions

Table J.   Planning requirements met by planning applications in Islington in 2021

Condition	Number
Number of planning applications where an air quality impact assessment was reviewed for air quality impacts	18
Number of planning applications required to monitor for construction dust	18
Number of CHPs/Biomass boilers refused on air quality grounds	0
Number of CHPs/Biomass boilers subject to GLA emissions limits and/or other restrictions to reduce emissions	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	12
Number of developments where the AQ Neutral building and/or transport assessments not meeting the benchmark and so required to include additional mitigation	0
Number of planning applications with S106 agreements including other requirements to improve air quality	0
Number of planning applications with CIL payments that include a contribution to improve air quality	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.	20 conditions included 12 registered and compliant 0 unregistered/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 at www.nrmm.london and that all NRMM used on-site is compliant with Stage IIIA of the Directive and/or exemptions to the policy.	20 conditions included 11 registered and compliant 1 unregistered/uncompliant and being chased.

NRMM regulations are stipulated within Construction Management Plans for redevelopments. They are inspected by London Borough of Merton's team in conjunction with Islington's Environmental Pollution, Policy and Project Team. Of the 23 sites that were active whilst auditing one was non-compliant. The site had a registration issue.

3.1 New or significantly changed industrial or other sources

One significantly changed. Citigen, the energy centre, has completed works with ground source boreholes drilled and heat pumps added to reduce emissions.

Additional Activities to Improve Air Quality

4.1 London Borough of Islington Fleet

The Council has 72 zero emission vehicles and 28 zero emission capable vehicles, which combined represents 20% of total fleet. More details on changes to fleet made in 2021 can be found in table I.

4.2 NRMM Enforcement Project

We will continue to support ongoing NRMM enforcement work and await more details of the 2022-23 scheme. We have also included an action on NRMM in our strategy Vision 2030: Building a Net Zero Carbon Islington by 2030.

4.3 Air Quality Alerts

Islington continues to lead on and take part in the airTEXT scheme. At the end of 2021 there were 782 active airTEXT subscribers in Islington. We also promote other alert systems when relevant, such as the GLA alerts.

Appendix A   Details of Monitoring Site Quality QA/QC

A.1 Automatic Monitoring Sites

The authority is a member of the London Air Quality Network. Routine calibrations are carried out by Imperial College London once every two weeks.

QA/QC audits are carried out twice per year by Matts Monitors, who also provide emergency 48 hour call out services and supply all consumables for the sites.

The following issues were recorded by our engineers:

- Flooding into Arsenal site leading to power outage and damage to pumps resulting in no results for most of October and November while the site was resealed, electrics checked and pumps replaced.

The Council's two automatic monitoring sites measure Particulate Matter by TEOM. The finalised TEOM data is corrected using the Volatile Correction Model, as recommended in Defra's LAQM TG16.

A.2 Diffusion Tubes

The laboratory supplying and analysing the diffusion tubes are Lambeth Scientific Services, Inter comparison field no. NPL002 and LGC no AR0375, a UKAS accredited laboratory. They use a preparation method of 50% TEA 50% Acetone and follow Practical Guidance when preparing samples.

The results of the labs QAQC checks are as follows:

- 20 good and four poor tube precision results of the 24 diffusion tube collocation studies conducted over the past three years (2019-2021) taken from the latest data in May 2021.
- Latest AIR-PT results taken from AIR-PT Rounds 30 to 42. Of the one round conducted in 2021 100% results were deemed satisfactory (based on a z-score ≤±2). See Table K for full results over all of the rounds 30-42 for Lambeth Scientific Services taken from the AIRPT documents.

Table K.   AIR-PT/WASP results (Rounds 30-42)

Air PT Round	AIR PT AR030 Jan – Feb 2019	AIR PT AR031 April – May 2019	AIR PT AR033 July – August 2019	AIR PT AR034 Sept – Nov 2019	AIR PT AR036 Jan – Feb 2020	AIR PT AR037 May – June 2020	AIR PT AR039 July – Aug 2020	AIR PT AR040 Sept – Oct 2020	AIR PT AR042 Jan – March 2021
Lambeth Scientific Services	50%	100%	50%	100%	100%	NR	NR	100%	100%

NR means no results recorded.

A bias adjustment of 0.97 for 2021 has been derived for Lambeth Scientific Services from the latest version of the national bias adjustment calculator version 03/22. See Table L for full results of Lambeth Scientific in 2021 from this calculator, with preparation 50% TEA in acetone for all sites.

Table L.   National Bias Adjustment Lambeth Scientific Services 2021

Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc (µg/m³)	Automatic Monitor Mean Conc (µg/m³)	Bias	Tube Precision	Bias Adjustment Factor
Roadside	Elmbridge Borough Council	11	27	26	2.9%	Poor	0.97
Roadside	Elmbridge Borough Council	12	27	25	8.7%	Good	0.92
Urban Background	Spelthorne Borough Council	12	19	19	0.9%	Good	0.99
Urban Background	Spelthorne Borough Council	11	23	23	-2.4%	Good	1.02
Kerbside	Marylebone Road Intercomparison	11	46	42	8.2%	Good	0.92
	Average of all sites						0.97

Factor from Local Co-location Studies

A local collocation study was completed using data from the Holloway Road site ID IS2. The bias adjustment factor applied to the diffusion tubes from this is 0.88. See Figure 2 for full results of the collocation study.

Figure 2. Precision and accuracy of collocation study at Holloway Road
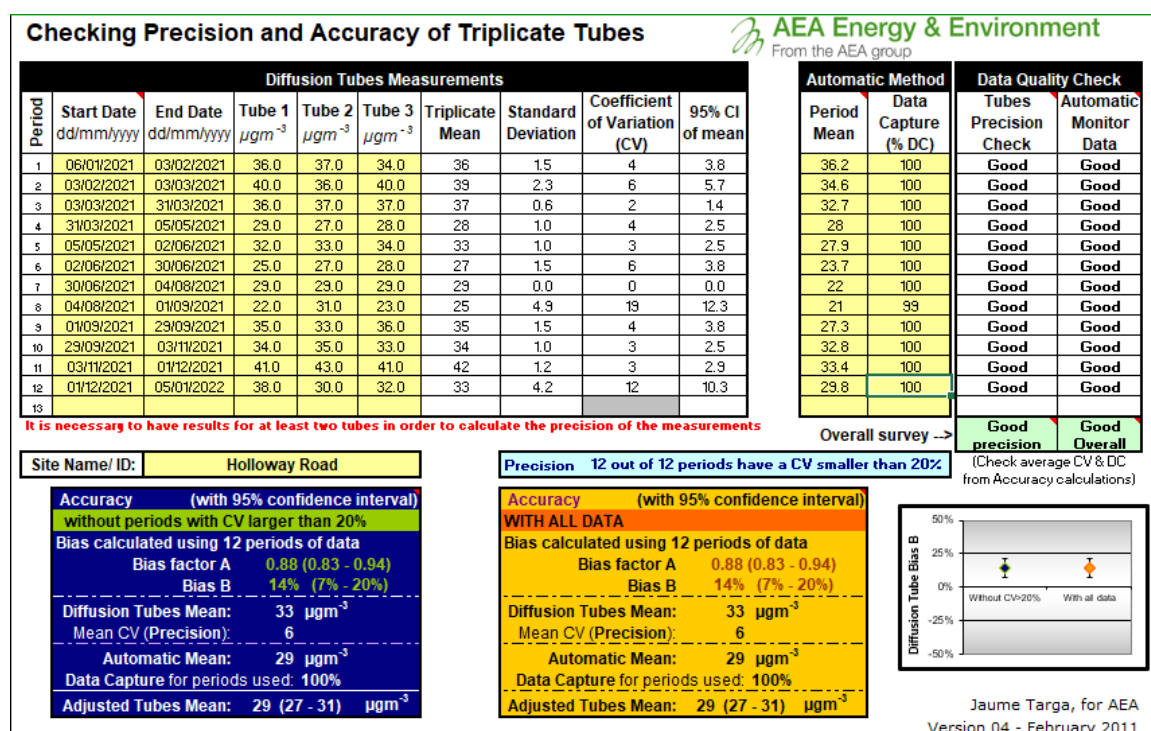
Discussion of Choice of Factor to Use

The bias adjustment factor of 0.88, gathered from the local collocation study on Holloway Road, was used for 2021. This was chosen to maintain consistency with previous years, which have all used local collocation studies, as seen in table M. Furthermore, the national bias adjustment factor was based on five studies in 2021, one of which had poor precision.

The national bias adjustment factor was more conservative, however comparing results between the two factors none of our long term sites would have been above objective levels using the national factor and only an additional seven of the almost 250 additional sites would have been above annual objective levels if the national factor had been used.

Bias adjustment factors used in previous years can be found in table M.

Table M. Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2021	Local	NA	0.88
2020	Local	NA	0.94
2019	Local	NA	0.88
2018	Local	NA	1.12
2017	Local	NA	1.02
2016	Local	NA	1.17
2015	Local	NA	1.24

A.3 Adjustments to the Ratified Monitoring Data

Short-term to Long-term Data Adjustment

Annualisation was not required for any of our long term sites included in the main body of this report as all had 75% data capture rates or higher.

Distance Adjustment

Following LLAQM.TG19 guidance no adjustment was required as the two sites not located at point of relevant exposure had values below 36 µg/m^3.

Appendix B   Full Monthly Diffusion Tube Results for 2021

Table N.   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
BIS005/03	100	100	37	33	38	31	32	28	28	29	37	33	36	36	33	29
BIS005/02	100	100	37	36	35	33	30	31	30	32	41	34	40	34	34	30
BIS005/06	100	100	42	38	39	33	27	24	27	17	39	35	34	42	33	29
BIS005/07	100	100	35	27	35	30	29	25	30	18	40	33	33	33	31	27
BIS005/08	92	92	42	37	40	40	31	44	35	27	46	32		41	38	33
BIS005/09	100	100	48	36	40	39	33	42	24	24	49	35	36	42	37	33
BIS005/11	100	100	36	34	33	29	28	33	25	18	34	30	43	33	31	28
BIS005/13	83	83	35	32	24	25	19	20		20	30	30	34		27	24
IS005/01	100	100	35	36	30	29	39	25	37	26	37	33	40	36	34	30
BIS005/04	92	92	32	28	24	22	18	20		14	25	30	33	29	25	22
BIS005/05	100	100	26	28	25	20	18	18	19	13	24	23	28	25	22	20
BIS005/01	100	100	27	26	21	23	14	17	17	14	22	20	23	25	21	18
IS005/03	100	100	34	22	23	20	15	16	14	18	23	21	25	21	21	18
BIS005/10	92	92	28	25	26	14	17	17	16	16		21	28	24	21	19
BIS005/12	100	100	31	23	26	15	18	17	17	17	19	24	31	26	22	19
IS005/02	92	92	26	23	24	19	18		16	14	21	18	29	24	21	19
BIS005/14	100	100	26	26	25	19	18	18	17	15	23	21	31	25	22	19
BIS005/15	100	100	62	29	19	20	17	16	17	16	21	20	26	29	24	21
IS005/04	75	75		24	26		20	18	19	13	24	24	29		22	19
H1	100	100	36	40	36	29	32	25	29	22	35	34	41	38	33	29
H2	100	100	37	36	37	27	33	27	29	31	33	35	43	30	33	29
H3	100	100	34	40	37	28	34	28	29	23	36	33	41	32	33	29

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 <u>bold and underlined.</u>
- 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%).

Appendix C   Other Monitoring Results

Data for schools, nurseries and schemes that had monitoring for 2021 can be found below.

Table O.   School Annual Mean NO$_2$ Ratified and Bias-adjusted Monitoring Results 2018-2021 (μg m^{-3})

Site ID	Site name	X Easting	Y Northing	Valid data capture 2021	2018	2019	2020	2021
S2	Duncombe Primary School – outside school	530108	186995	92	29	26	18	19
S3	Hungerford Primary School / The Bridge Primary	529992	185015	67	33	30	25	19
S4	Tufnell Park Primary School – outside old school entrance Dalmeny Road	529800	185647	100	29	25	20	17
S6	Ambler Primary School outside school Blackstock Road	531690	186589	100	33	**41**	28	28
S7	New North Academy	532209	183959	100	30	28	21	22
S8	St Joseph's Primary School outside school	528974	187139	83	34	34	29	29
S9	Drayton Park Primary School- Arvon Road entrance	531449	185374	100	30	29	19	19
S10	Gillespie Primary School outside school	531805	186305	100	30	28	20	20
S11	Yerbury Primary School- outside school	529715	186316	92	40	28	20	19
S12	Ashmount Primary School 2- Hornsey Rise Gardens	530030	187715	100	26	24	21	19
S13	Prior Weston Primary School/ Richard Cloudesley Primary	532429	182057	100	35	31	22	21
S14	Whitehall Park School	529425	187621	100	**42**	**42**	34	29

Site ID	Site name	X Easting	Y Northing	Valid data capture 2021	2018	2019	2020	2021
S15	Hargrave Park Primary School	529067	186619	100	27	28	19	19
S16	Clerkenwell Parochial CE Primary School	531193	182772	92	33	33	23	24
S17	Hugh Myddelton School	531477	182640	92	35	32	23	23
S18	Moreland Primary School / City of London Primary Academy	531924	182824	100	32	34	24	22
S19	St Peter & St Paul Catholic Primary School	531830	182395	100	32	34	22	20
S20	St Luke's CE Primary School	532459	182593	92	31	29	21	22
S22	Robert Blair Primary School	530315	184567	100	37	34	28	26
S23	Sacred Heart Catholic Primary School	530927	185147	100	32	30	20	19
S24	St Mary Magdalene Academy – outside school Lough Road / New River College	531037	184761	92	27	28	20	20
S25	Laycock Primary School	531533	184564	100	30	28	21	19
S26	Thornhill Primary School	531205	184130	100	29	27	22	22
S27	St Andrew's (Barnsbury) C of E Primary School	530817	183837	100	26	25	19	18
S28	Vittoria Primary School	530965	183484	100	25	26	20	20
S29	Blessed Sacrament Catholic School	530581	183657	100	28	30	22	21
S30	Copenhagen Primary School	530544	183579	100	30	29	24	21
S31	Winton Primary School	530610	183178	100	32	30	23	21
S32	Christ the King Primary School / Arts and Media School Islington	530731	186939	92	29	24	18	19
S33	St Mark's CE Primary School	530414	186619	100	26	28	22	20

Site ID	Site name	X Easting	Y Northing	Valid data capture 2021	2018	2019	2020	2021
S34	Pooles Park Primary School	530988	186813	100	34	29	22	21
S35	Montem Primary School/ Samuel Rhodes Primary School	530731	186327	100	40	34	26	26
S36	Grafton Primary School	530495	186164	100	31	30	21	19
S37	Pakeman Primary School	530789	186100	100	33	27	21	21
S38	St John's Highbury Vale C of E Primary	531788	186057	100	29	25	20	19
S39	St Joan of Arc Primary School	532040	185930	100	28	26	20	21
S40	Highbury Quadrant Primary School	532366	185588	100	30	29	20	20
S41	Newington Green Primary School - outside school	532996	185431	100	35	33	24	24
S42	St Jude and St Paul's C of E Primary School	533309	185006	100	28	26	19	20
S43	Canonbury Primary School	531757	184585	83	35	31	23	23
S44	William Tyndale Primary School	531652	184313	75	34	30	24	23
S45	St Mary's C of E Primary School	531906	183993	100	31	28	21	22
S46	Rotherfield Primary School	532468	184012	92	29	30	23	20
S47	St John Evangelist RC Primary School	531588	183335	100	31	32	23	20
S48	Hanover Primary School	532017	183287	100	33	30	21	20
S49	Ambler Primary School Nursery Entrance Romily Road	531632	186489	100	30	26	18	18
S50	Ashmount Primary School 1 Crouch Hill	530291	187808	58	32	33	24	26

Site ID	Site name	X Easting	Y Northing	Valid data capture 2021	2018	2019	2020	2021
S51	Drayton Park Primary School- Drayton Park entrance	531406	185373	100	30	32	26	23
S56	The Bridge Secondary School / Tufnell Park Primary School new entrance	529751	185551	100	33	27	25	20
S57	Beacon High	529828	185428	100	34	27	20	22
S59	Dania School	530887	184860	100	32	29	22	22
S60	Samuel Rhodes MLD School	532128	185109	100	36	31	22	21
S61	St Paul's Steiner School	532710	184815	100	37	39	29	29
S62	The Children's House School	533251	185076	92	34	35	27	24
S63	Highbury Fields School	531760	185499	92	37	32	25	20
S64	City of London Academy Highbury Grove	531985	185083	67	**41**	39	28	29
S65	North Bridge House Senior Canonbury	531985	184551	100	37	30	22	20
S66	Dallington School	531877	182328	100	37	28	21	21
S67	Italia Conti Academy	532089	182080	100	**41**	**45**	30	30
S68	Yerbury Primary- classroom	529679	186360	67	No data	No data	15	18
S69	The Gower School/ The Pears Family School	530972	183154	92	35	33	22	22
S70	Elizabeth Garrett Anderson School	530973	183197	100	37	35	25	24
S71	City of London Academy Islington/ Richard Cloudesley Secondary	532083	183594	92	34	31	21	19
S72	City of London Academy Highgate Hill	529745	187171	100	30	28	22	21
S73	St Aloysius College	529058	187343	100	34	37	29	25

Site ID	Site name	X Easting	Y Northing	Valid data capture 2021	2018	2019	2020	2021
S74	St Mary Magdalene Academy Liverpool Road	531204	184844	100	No data	36	24	28
S76	Yerbury Primary- playground	529666	186336	67	No data	No data	18	22
S77	The Bridge/ New River College	531244	183879	75	No data	No data	No data	18
S78	COLPAI School - Baltic Street East entrance	532161	182224	33	No data	No data	No data	25
LEN 15	Central Foundation School	532914	182374	83	34	38	22	24
Z16	St John's Upper Holloway C of E Primary School	529546	186501	100	33	32	23	22
Y1	Yerbury Primary- outside school 2	529715	186336	100	No data	No data	21	21

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%.

In 2021 all schools measured below the objective level of 40µg/m3 for the second year in a row. The average for all school sites in 2021 was 22µg/m3. This compares to 23 µg/m3 in 2020, 31 µg/m3 in 2019 and 32 µg/m3 in 2018 for these sites. While the 2020 and 2021 values are very similar 2020 was significantly impacted by Covid-19, suggesting the data is following a longer-term trend of decreasing pollution levels.

Table P.   Nursery Annual Mean NO$_2$ Ratified and Bias-adjusted Monitoring Results 2020-2021 (µg m^{-3})

Site ID	Site name	X	Y	Valid data capture 2021	2020	2021
N1	Hornsey Lane Estate Community Nursery	529550	187634	100	18	17
N2	Hornsey Day Nursery Toddlers and Pre-School	529887	187695	100	23	23
N3	Margaret McMillan Nursery School and Children's Centre	530024	187592	92	39	39
N4	Blythwood Community Nursery	530437	187717	83	20	21
N5	The Maria Montessori School	530213	187499	100	18	20
N6	Hornsey Day Nursery (for under 2s)	530166	187198	100	26	26
N7	Little Angels Day Nursery and Pre-Prep School	529020	186706	100	20	21
N8	Bright Horizons Finsbury Park Day Nursery and Preschool	530995	187093	92	18	19
N9	North Islington Nursery School and Children's Centre	530850	187003	100	21	21
N10	Andover Pre-School and Brightstart Community Nursery	530875	186624	100	20	21
N11	Manor Gardens Centre Pre-School	530420	186375	58	21	20
N12	Bennett Court Playgroup	530554	186286	83	19	20
N13	Sam Morris Centre Nursery	531194	186286	100	21	21
N14	City and Islington College Camden Road Nursery	530566	185657	100	20	21
N16	Willow Children's Centre	530290	185985	92	20	20
N17	Little Nemo Nursery	529986	185995	92	21	20
N18	Les Petites Etoiles	529933	185869	67	19	18
N19	Goodinge Early Years Centre	530150	185147	100	21	20
N20	Mount Carmel Day Nursery	530962	185308	92	21	21
N21	Paradise Park Children's Centre	531041	185045	100	18	19

Site ID	Site name	X	Y	Valid data capture 2021	2020	2021
N22	CurioCity Childcare	530685	184896	100	20	21
N24	City and Islington Lifelong Learning Nursery	531574	186705	100	34	32
N25	St Thomas' Playgroup	531527	186290	100	19	19
N26	Little Angels Day Nursery and Pre-Prep School (Highbury)	531909	186197	92	24	27
N27	Highbury Day Nursery	531484	186116	100	21	19
N28	Conewood Street Children's Centre	531848	186061	100	19	20
N29	Aberdeen Park Nursery	532341	185964	92	20	19
N30	Monkey Puzzle Day Nursery	531944	185867	100	24	22
N31	Highbury Community Nursery	531790	185780	83	25	21
N32	Christ Church Playgroup	531895	185457	100	20	21
N33	New Park Nursery and Montessori School	532383	185434	100	19	20
N34	Floral Place Nursery	532644	185027	92	20	20
N35	Minik Kardes Day Nursery	533347	184783	100	34	33
N36	Mildmay Community Nursery	532917	184912	100	22	20
N37	New River Green Children's Centre	532527	184657	100	21	20
N38	Essex Road Pre-school	532282	184405	83	20	20
N39	St Andrew's Montessori	530762	184129	100	19	19
N40	Bemerton Children's Centre	530638	184108	100	21	21
N41	Kate Greenaway Nursery School and Children's Centre	530458	183628	100	19	20
N42	Hanover Playschool at Priory Heights	530760	183312	100	24	24

Site ID	Site name	X	Y	Valid data capture 2021	2020	2021
N43	Tiddley Tots Nursery	530827	183582	100	21	20
N44	Beckett House Montessori Nursery School	531223	183898	100	19	20
N45	Mary's Preschool	531740	183917	100	38	30
N46	Mars Montessori Bilingual Nursery	531685	183708	100	25	24
N47	The Grove Nursery	532503	183878	83	21	21
N48	Rosemary Gardens Playgroup	532704	183952	92	21	16
N49	Hopes and Dreams Montessori Nursery School	531737	183065	100	30	29
N50	Kiddycare Royal Mail Childsplay Nursery	531137	182397	92	29	27
N51	Cuckooz Nest	531278	182141	100	22	22
N52	Newpark Montessori Nursery School	532070	182448	100	26	22
N53	Kido Nursery and Preschool Clerkenwell	532103	182725	100	25	21
N54	King Square Community Nursery at Toffee Park Youth Club	532326	182527	100	19	18
N55	The Co-operative Childcare	532383	182609	100	23	21
V2	Archway Children's Centre	529300	186696	92	28	30

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%.

In 2021 all nurseries measured below the objective level of 40µg/m3 for the second year in a row. The average for all nursery sites in 2021 was 22µg/m3. This compares to 22 µg/m3 in 2020, with no data before this.

Table Q.   People Friendly Streets Annual Mean NO$_2$ Ratified and Bias-adjusted Monitoring Results 2020-2021 (µg m^{-3})

Site ID	Site name	X	Y	Valid data capture 2021	2020	2021
PF1	New North Road	532371	183926	100	23	23
PF2	Northchurch Road	532899	184292	100	28	25
PF3	Canonbury Road	532135	184155	100	37	35
PF4	Essex Road	532589	184551	100	35	38
PF5	Clifton Road	532427	184676	83	18	22
PF6	St Paul's Road/Grange Grove	531993	184823	100	25	28
PF7	Skinner Street/Rosoman Place	531385	182505	100	23	22
PF8	Northampton Road/Corporation Row	531449	182375	100	22	20
PF9	Drayton Park	531424	185763	100	24	23
PF10	Bernwell Road	531117	185553	100	29	24
PF11	Highbury Crescent	531561	184857	92	21	21
PF12	Highbury Place	531691	184970	100	19	19
PF13	Baalbec Road	531792	185202	100	18	19
PF14	Cross Street	531883	183935	100	26	27
PF15	Lloyd Baker Street	531043	182661	100	23	21
PF16	Sonderburg Street	530983	186463	92	29	27
PF17	York Way/Hungerford	529916	184927	100	26	24
PF18	Riversdale	531931	186100	100	26	25

Site ID	Site name	X	Y	Valid data capture 2021	2020	2021
PF19	Green Lanes	532443	186135	92	27	25
PF20	Petherton	532505	185571	92	19	19
PF21	Tollington Road/Hornsey Road (Sobell Centre)	530931	186022	100	25	31
PF22	Newington Green Road	532755	184960	92	25	27
PF23	Mildmay Road	533025	185249	92	21	19
PF24	Caledonian Road	530610	184689	100	33	33
PF25	Boleyn Road	533343	185227	83	26	25
PF26	Grosvenor Avenue	532412	185108	100	24	22
PF27	164 York Way	530304	183772	100	27	29
PF28	Bingfield Street	530542	183933	75	24	22
PF29	Offord Road/Liverpool Road	531327	184559	100	27	25
PF30	Chapel Market/Liverpool Road	531416	183331	92	24	25
PF31	Theberton Street	531636	183782	83	21	26
PF32	Gaskin Street	531782	183767	92	22	24
PF33	Canonbury Lane	531757	184417	100	27	24
PF34	Pentonville Road	530845	183055	92	24	29
PF35	Dingley Road	532336	182754	100	25	25
PF36	St John's Street	531791	181810	83	26	26
PF37	St John's Lane	531792	181897	92	27	25
PF38	Cowcross Street	531622	181850	100	22	24

Site ID	Site name	X	Y	Valid data capture 2021	2020	2021
PF39	Banner Street	532355	182262	100	24	22
PF40	Essex Road / Gaskin St	531806	183734	67	No data	**42**
PF41	Islington Green	531713	183638	67	No data	32
PF42	Upper Street	531694	183972	67	No data	33
PF43	Florence St/Hawes St	531757	184040	25	No data	25
PF44	Halton Rd / Braes St	531884	184251	67	No data	22
PF45	Copenhagen St	530431	183685	67	No data	24
PF46	Wharfdale St	530455	183295	58	No data	38
PF47	Pentonville Road / Kings Cross Bridge	530409	182996	58	No data	**42**
PF48	Newington Green	532804	185321	58	No data	32
PF49	Mildmay Park / Mildmay Grove South	532939	185038	58	No data	27
PF50	Highbury Park	531941	185531	58	No data	30
PF51	Highbury Grange	532156	185716	58	No data	20
PF52	Riversdale Rd / Mountgrove Rd	532232	186347	58	No data	19
PF53	Roman Way	530827	184623	58	No data	24
PF54	Offord Road	530975	184409	58	No data	27
PF55	Furlong Road	531417	184872	58	No data	22
PF56	Islington Park St	531461	184358	58	No data	24
PF57	Hemingford Rd	531203	184127	58	No data	24
PF58	Liverpool Rd	531409	184021	58	No data	26

Site ID	Site name	X	Y	Valid data capture 2021	2020	2021
PF59	Tolpuddle St	531228	183412	42	No data	25
PF60	Tabernacle St	532908	182347	58	No data	24
PF61	St Jude St	533322	185057	42	No data	20
PF62	Green Lanes	532797	185469	42	No data	28

Notes:

- This includes monitoring sites put in specifically for people friendly streets. Additional monitoring sites located in each area were used in the six and 12 month reports analysing the impacts of the LTNs on air quality.
- Data for these additional LTN sites can be found in this report:
  - Table E- BIS005/01. BIS005/02, BIS005/04, BIS005/08, BIS005/09, BIS005/10 and BIS005/11
  - Table O- S6, S7, S9, S10, S16, S38, S43-S49, S51, S61, S63-S65 and S71
  - Table P- N13, N24-N28, N30-N32, N37, N38, N45 and N47-N50
  - Table R- C1-C5, OC2, OC3, OC10, IRC5, IRC6, IRC9, DC1 and DC2
  - With three additional sites DC3-DC5 with data until 2020 found in our annual report for 2020
- Concentrations are presented as $\mu g\ m^{-3}$.
- Exceedances of the NO_2 annual mean AQO of 40 $\mu g\ m^{-3}$ are shown in **bold**.
- NO_2 annual means in excess of 60 $\mu g\ m^{-3}$, indicating a potential exceedance of the NO_2 hourly mean AQS objective are shown in **<u>bold and underlined</u>**.
- 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%. Sites with less than 25% data capture have not been included.

Table R.   Other Schemes Annual Mean NO₂ Ratified and Bias-adjusted Monitoring Results 2020-2021 (µg m⁻³)

Site ID	Site name	X	Y	Valid data capture 2021	2018	2019	2020	2021
222	Upper Street	531611	184529	100	No data	No data	26	28
Z02	St John's Way	529470	186911	100	**54**	**56**	**44**	**46**
Z05	Archway Road	529250	187200	83	**49**	38	33	32
Z06	Highgate Hill	529108	187058	100	**40**	33	27	27
Z09	Junction Road	529386	186807	92	**45**	40	30	30
Z13	Junction Road	529546	186501	75	**46**	39	31	32
Z17	Holloway Road	529640	186701	92	**49**	**47**	39	38
Z19	Sandridge Street	529460	186812	100	**43**	**43**	30	29
Z21	Magdala Avenue	529170	186883	100	No data	34	22	24
Z22	Pauntley Street/Archway Road	529308	187092	100	No data	**46**	**47**	**50**
C1	Clerkenwell Green	531528	182089	100	32	34	25	23
C2	Clerkenwell Green	531488	182116	92	29	33	23	23
C3	Clerkenwell Green	531530	182149	100	30	33	24	22
C4	Clerkenwell Green	531559	182140	100	35	32	24	21
C5	Clerkenwell Green (pedestrian area)	531562	182164	100	33	31	23	22
LEN01	Old Street	532699	182462	100	**43**	38	28	24
LEN02	City Road	532766	182407	92	<u>64</u>	54	31	34
LEN05	Old Street	532845	182525	67	**53**	**51**	**41**	37
LEN06	City Road	532744	182571	92	<u>62</u>	58	**47**	39
LEN07	City Road	532742	182561	100	<u>72</u>	<u>69</u>	52	**43**
LEN08	Old Street	532742	182561	100	**53**	**47**	34	33
LEN09	Mallow Street	532698	182422	92	38	38	25	29
LEN10	Featherstone Street	532588	182356	92	35	32	24	21
LEN11	Featherstone Street	532682	182364	100	36	29	21	23
LEN12	Featherstone Street	532751	182372	92	**44**	39	25	25

Site ID	Site name	X	Y	Valid data capture 2021	2018	2019	2020	2021
LEN13	Leonard Street	532790	182362	100	**45**	**43**	27	25
LEN14	Leonard Street	532824	182369	92	40	**45**	28	31
LEN16	Bath Street	532480	182750	100	40	**41**	28	29
LEN17	Bath Street/Lever Street	532489	182707	100	**42**	36	29	25
LEN18	Bath Street	532531	182542	100	38	31	23	23
LEN19	Bunhill Row	532557	182422	100	40	35	28	26
LEN20	City Road	532681	182679	100	**47**	**53**	38	35
V4	MacDonald Road	529266	186832	100	**59**	**70**	**90**	**81**
V9	MacDonald Road	529247	186803	75	No data	No data	No data	**82**
OC1	Wakley Street	531738	182980	100	No data	No data	**42**	38
OC2	St John Street	531624	182481	100	No data	No data	25	22
OC3	St John Street	531771	182106	100	No data	No data	30	29
OC4	Clerkenwell Road	531892	182150	92	No data	No data	33	32
OC5	Percival Street	531890	182551	100	No data	No data	25	24
OC6	Old Street	532135	182283	10	No data	No data	32	32
OC7	Old Street	532277	182338	100	No data	No data	29	29
OC8	Old Street	532473	182408	92	No data	No data	30	28
OC9	City Road	532789	182250	100	No data	No data	29	28
OC10	City Road	532188	182884	100	No data	No data	25	26
CHP1	Greenhill Rents	531736	181804	92	No data	No data	26	24
CHP2	Eagle Court/White Horse Alley	531717	181890	100	No data	No data	24	22
CHP3	Peter's Lane	531768	181878	92	No data	No data	27	25
B2	Pemberton Terrace	529363	186358	100	No data	31	22	21
B3	Pemberton Terrace/Monnery Rd	529357	186282	83	No data	34	22	24
IRC2	Regent's Canal	530824	183461	100	No data	29	20	20
IRC4	Regent's Canal	530704	183471	92	No data	35	26	28

Site ID	Site name	X	Y	Valid data capture 2021	2018	2019	2020	2021
IRC5	Regent's Canal	531713	183294	100	No data	31	22	22
IRC6	Regent's Canal	531762	183289	83	No data	26	19	18
IRC9	Regent's Canal	531852	183272	100	No data	33	19	19
IRC12	Regent's Canal	530413	183517	75	No data	34	24	23
IRC15	Regent's Canal	530541	183499	92	No data	31	22	22
DC1	Highbury Corner (Dixon Clark Court side)	531700	184701	100	30	37	25	25
DC2	Dixon Clark Court Building	531730	184694	100	32	31	21	22

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%.

Appendix D Low Traffic Neighbourhoods Longer Term Trends

The number of monitoring sites available for analysis in each Low Traffic Neighbourhood (LTN) varies from year to year, with some sites put in specifically for LTN monitoring, and others already in place. 2018 was chosen as the starting year as there was less monitoring in each LTN before this year. Monitoring used in annual comparisons can be found in Table S.

Table S.   Number of monitoring sites in Low Traffic Neighbourhood areas by year

Low Traffic Neighbourhoods	2018	2019	2020	2021
Amwell	2 boundary 1 internal	2 boundary 1 internal	4 boundary 2 internal	4 boundary 2 internal
Canonbury West	3 boundary 6 internal	3 boundary 6 internal	6 boundary 10 internal	6 boundary 7 internal
Canonbury East	1 boundary 1 internal	1 boundary 1 internal	4 boundary 3 internal	4 boundary 3 internal
Clerkenwell Green	1 boundary 4 internal	1 boundary 4 internal	5 boundary 4 internal	5 boundary 4 internal
St Peter's	1 boundary 3 internal	1 boundary 6 internal	4 boundary 6 internal	6 boundary 6 internal
Highbury	4 boundary 6 internal 1 non-road	4 boundary 6 internal 1 non-road	8 boundary 17 internal 1 non-road	9 boundary 17 internal 1 non-road

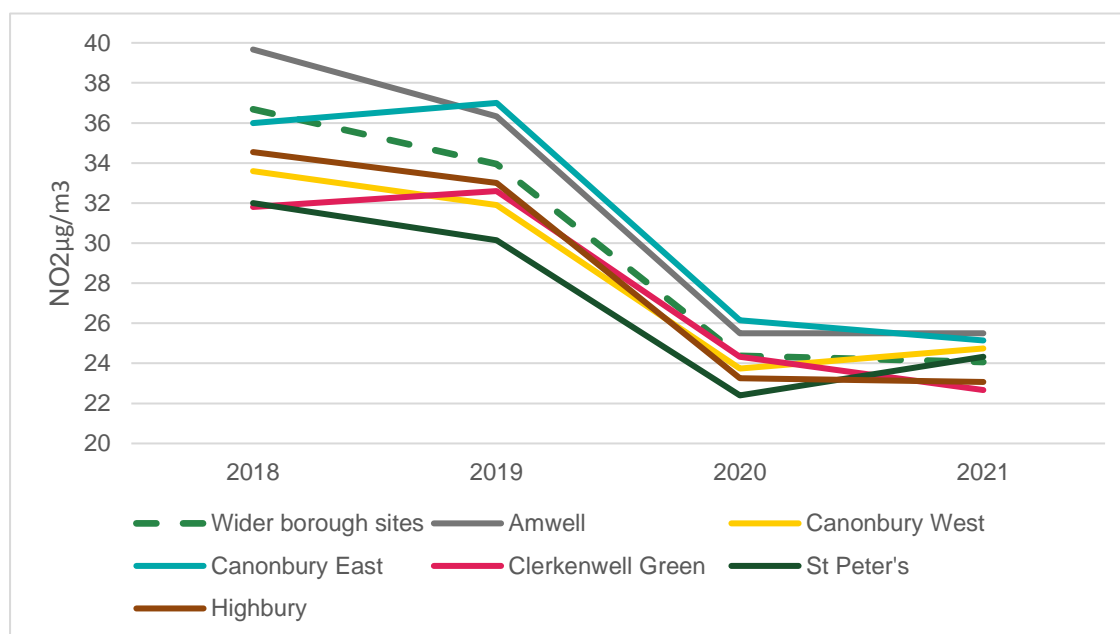Average values for these sites can be found in Table T and Figure 3 below.

Table T.   Annual average mean NO$_2$ ratified and bias-adjusted monitoring results 2018-2021 for Low Traffic Neighbourhoods (boundary, internal and non-road sites) compared to wider borough sites

Low Traffic Neighbourhoods	2018	2019	2020	2021
Amwell	40	36	26	26
Canonbury West	34	32	24	25
Canonbury East	36	37	26	25
Clerkenwell Green	32	33	24	23
St Peter's	32	30	22	24
Highbury	35	33	23	23
Wider borough sites	37	34	24	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%.

Figure 3.   Annual average mean NO$_2$ ratified and bias-adjusted monitoring results 2018-2021 for Low Traffic Neighbourhoods (boundary, internal and non-road sites) compared to wider borough sites

While there is variation between low traffic neighbourhoods, these results show a decrease in NO$_2$ from 2018 to 2020, with similar pollution levels in 2020 and 2021, with 2021 pollution levels below pre-2020 levels. This is in line with the trends also observed in the wider borough sites in Figure 3 and Figure 1.

2020 showed particularly low levels of NO$_2$, reflecting longer term trends, but also the impacts of Covid-19 on pollution. This impact was highlighted in the 2020 air quality report for Islington as well as studies by Greater London Authority and Defra. The LTNs were implemented, in many cases, at the end of or just after this period of low pollution in 2020:

- Amwell - November 2020
- Canonbury West - November 2020
- Canonbury East - August 2020
- Clerkenwell Green - September 2020
- St Peter's - July 2020
- Highbury - January 2021

All LTN areas show improvements in pollution levels over the longer term, with lower average pollution levels in 2021 compared to 2019 for all LTNs. When comparing 2021 pollution levels in each LTN to 2020, when Covid-19 impacts were significant, Canonbury West and St Peter's showed slightly higher pollution levels after implementation. However, this is not dissimilar to wider borough monitoring which showed the same pollution levels in 2020 and 2021, with both years significantly lower than 2019. Increases are therefore likely due to wider changes in pollution levels due to factors such as national lockdowns which made pollution levels in 2020 significantly lower.