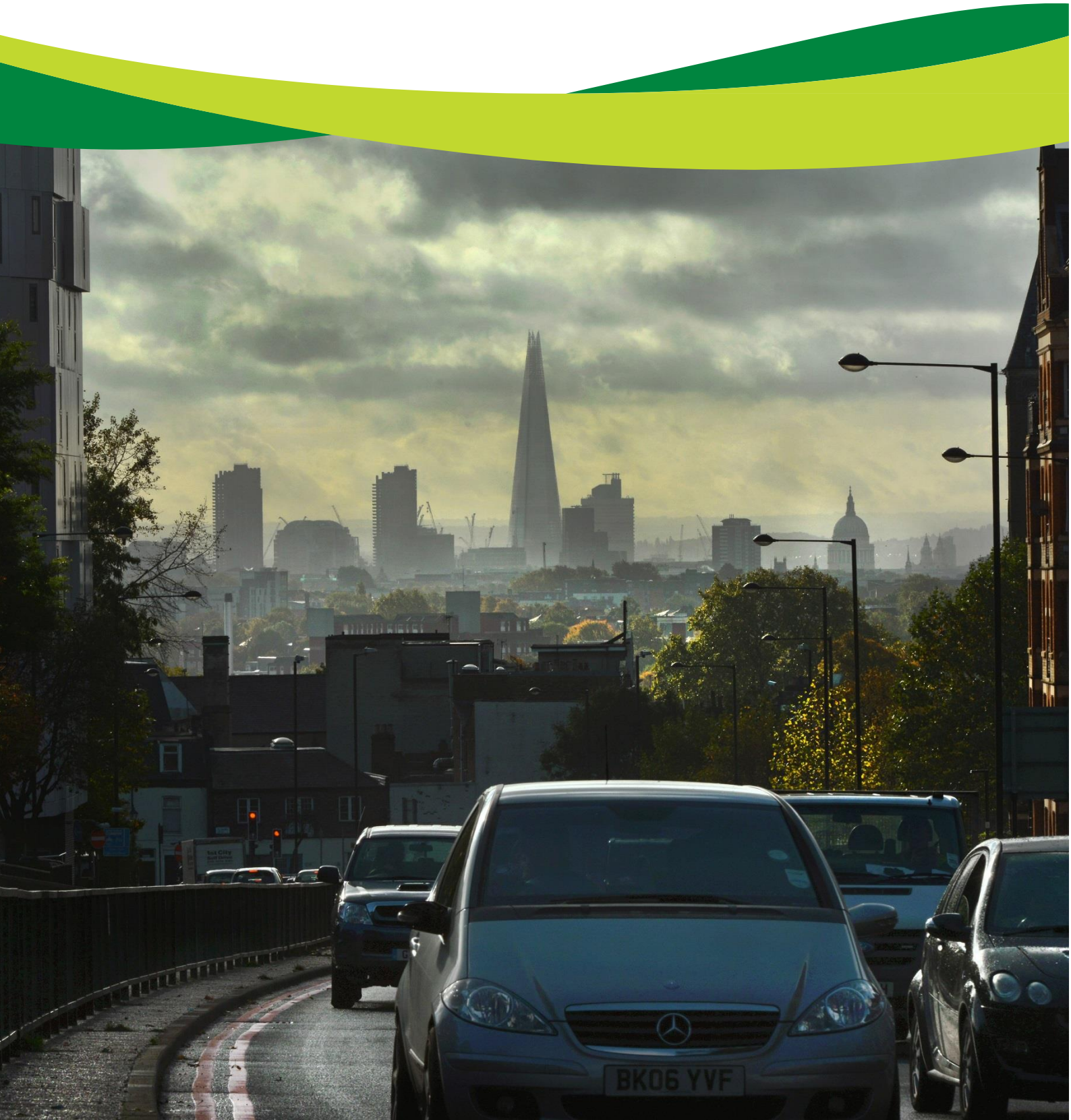# Islington Air Quality
Annual Status Report
2017

ISLINGTON

This report provides a detailed overview of air quality in Islington Council from 1st January 2017 to 31st December 2017. It has been produced to meet the requirements of the London Local Air Quality Management statutory process[1].

Archway ZEN Cargo Bike

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Report submitted 31/05/18

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[1] LLAQM Policy and Technical Guidance 2016 (LLAQM.TG(16)). https://www.london.gov.uk/what-we-do/environment/pollution-and-air-quality/working-boroughs

Executive Summary

Background of Report

This report provides details of the air quality in Islington in 2017 and a brief summary of the actions taken by the London Borough of Islington to improve air quality in this period.

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.

Air pollution affects everyone's health but the young, elderly and those with respiratory and cardiovascular conditions are most at risk. In periods of high pollution those with existing heart and respiratory conditions such as asthma may find their condition exacerbated. At very high levels otherwise healthy individuals may find they get a sore throat, sore eyes or a tickly cough. The long term impacts can be even greater. Air pollution increases the risk of respiratory and cardiovascular conditions, reduces lung development in children and is also increasingly being linked to a range of other conditions such as cancer, diabetes and dementia. Islington Council is leading the fight against London's poor air quality and its impact on everyone in the borough.

The EU sets limits for a number of known air pollutants, that member states must meet. The London Borough of Islington is 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 Summary Report (ASR). The Government and the Mayor of London also have a range of responsibilities for taking action to reduce pollution.

The main source of pollution in the borough is road transport. Other pollution sources in the borough include domestic and commercial gas use and industry. More detailed information on the sources of pollution in Islington can be found in the Islington Source Apportionment Study at www.islington.gov.uk/environment/sus_pollute/air_quality/improving-air-quality-in-islington. Islington is working hard to reduce the pollution in the borough from these sources.

Air Quality in Islington

Local authorities have to assess air quality in their areas against set objectives for pollutants. Where it is unlikely that one or more of the objectives will be met, the 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 (NO2) and particulate matter of 10 microns diameter (PM10) - 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.

The London Borough of Islington is currently exceeding EU limits for the gas Nitrogen Dioxide (NO2) in parts of the borough. We are currently meeting the limits that are set by the EU for all other air pollutants, although we remain focused on Particulate Matter (PM10 and PM2.5) 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 mean NO2 concentrations in Islington and its surrounding boroughs for 2013 as well as highlighting the focus areas of higher pollution levels mentioned above using LAEI data from 2016 https://data.london.gov.uk/dataset/laei-2013-london-focus-areas.
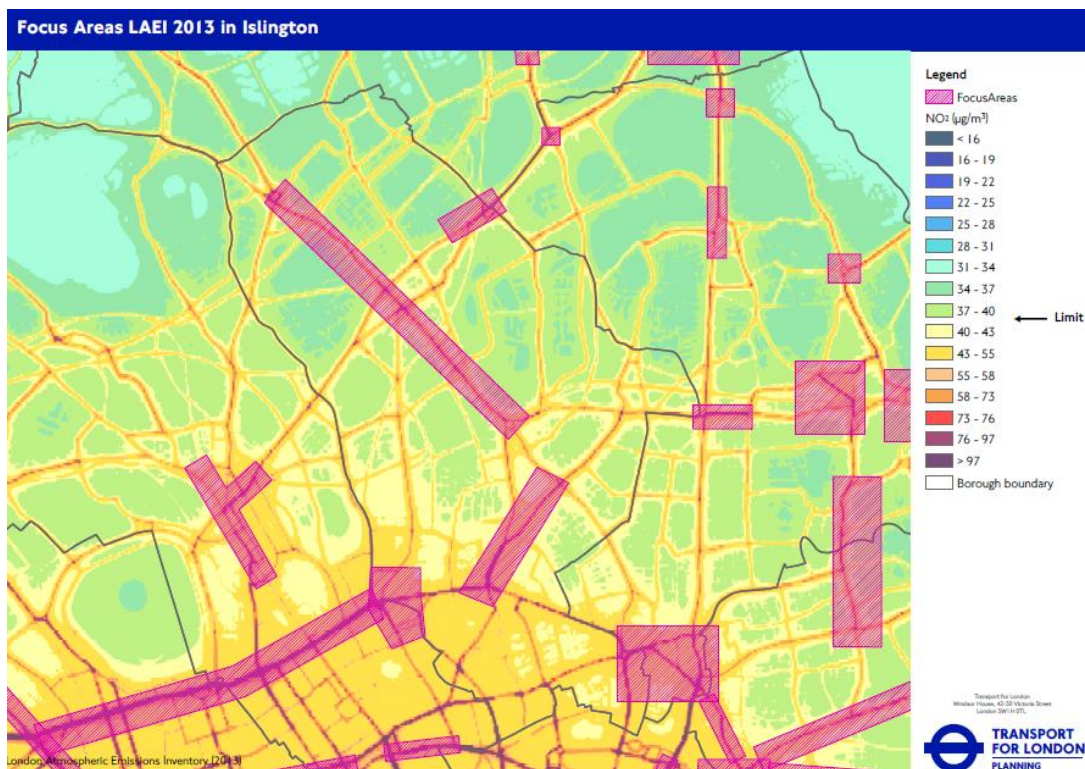
The London Borough of Islington has ten long term roadside sites (with an additional three for a triplicate study) and eleven long term urban background sites across the borough.

These are the sites that are reported on in this document. Islington also has additional monitoring sites for specific projects as required.

In 2017 the NO_2 levels were below the annual objective of $40\mu g/m^3$ for all of the background monitoring sites and above the objective for all of the roadside sites. The lowest recorded value of $28\mu g/m^3$ was found at Highbury Fields and the highest value of $58\mu g/m^3$ at Old Street. This continues the general trend over the last seven years of data found in this report, with exceedances in roadside areas and lower pollution levels at more background sites.

Two of the sites, one roadside and one urban background, also provide data on other pollutants and over shorter timescales. These showed only one exceedance of the NO_2 hourly objective of $200\mu g/m^3$ (this was at the background site in the Ecology Centre near Arsenal Stadium), which is well below the 18 times this is permitted in a year in order to meet the short term objective requirements. This reflects the general trend over the last seven years of data in this report, with very few hourly exceedances. These sites both show that PM_{10} is below the annual objective of $40\mu g/m^3$, at $21\mu g/m^3$ on the roadside site on Holloway Road and $18\mu g/m^3$ at the background Arsenal site. Both sites also meet the 24 hour objectives for PM_{10} of $50\mu g/m^3$ 35 times a year. These figures continue the trend of decreasing PM_{10} levels observed in the monitoring data over the last seven years of data, suggesting PM_{10} levels may be improving in the Borough.

More detailed results can be found in the report.

Actions to Improve Air Quality

Islington has an Air Quality Strategy 2014-2017 in place outlining the actions we are committed to take to reduce air pollution. The following report measures our progress against the actions outlined in our strategy, there are many actions but these are grouped into the following categories:

- Lobbying and working with The Mayor of London- air quality crosses borders and as such Islington cannot work alone, we therefore take every opportunity to work with others and encourage them to take actions to improve air quality
- Transport- transport is one of the biggest sources of air pollution in the borough, we therefore have a range of actions to tackle pollution from transport sources, both internally in the council and externally among businesses and individuals
- Planning and Development- it is important to reduce the pollution impacts from development in the borough, through planning and construction which considers air quality

- Energy usage- domestic and commercial energy use is one of the bigger sources of pollution in the borough, it is therefore important to look at ways to decrease pollution from this while also considering other impacts such as carbon emissions and fuel poverty
- Businesses- we work on a range of initiatives with businesses across the borough to reduce their pollution
- Air quality awareness raising initiatives- it is important to ensure people are aware of the impacts of air pollution and actions they can take to reduce their exposure and the amount of pollution they produce
- Public realm- this includes a number of measures to improve the environment in Islington and make it less polluted
- Cleaner air borough- Islington is working to achieve the GLAs Cleaner Air Borough Status, showing we are committed to improving air quality in the Borough

Further details on actions taken in 2017 can be found in the report, however some key highlights can be found below.

Business Engagement: Archway ZEN, City Fringe ZEN and City Fringe LEN

We are supporting businesses in the borough to improve local air quality, increase active travel, reduce emissions and reduce energy and transport costs. Providing them with a range of free advice and services.

In 2017 Islington, alongside Hackney and Tower Hamlets, continued to expand the award winning City Fringe Zero Emissions Network (ZEN). This scheme now has 1162 businesses signed up, with 317 of these in Islington, and has now offered 207 measures to improve the air quality impact of these businesses. These include electric bike trials, showers for staff to run or cycle to work and energy efficiency measures.

In 2017 work on the City Fringe Low Emission Neighbourhood (LEN) scheme got underway expanding the message and help available more widely to local residents and creating a superb urban environment, with exemplary levels of sustainable travel and innovative approaches to improve air quality. 594 residents have already signed up, with 110 in Islington. Several public realm improvements have already been conducted with a consultation conducted for the introduction of an Ultra Low Emission Vehicle Street in Shoreditch/Old Street.

In 2017 work also began on Archway ZEN. Of the 200 businesses in Archway 75 became members in 2017. 40 businesses had a site visit or energy audit, 20 took up a ZEN and 12 used grants to install permanent measures such as purchasing a cargo bike or installing a green wall.

Cllr Webbe launches Archway ZEN

Public Engagement

In 2017 Islington held a number of events to raise awareness on air quality among those working and living in the borough.

For 2017 Car Free Day cyclists and local businesses celebrated Car Free Day with a guided ride around the new Archway town centre, part of which has been permanently closed to traffic. In the event hosted by Islington Council Archway ZEN and Cycle Islington riders were led on a ride to familiarise themselves with the new segregated cycle routes. Cyclists were also offered a bikers breakfast, free bike checks with Dr Bike and information on cycle training.

Archway ZEN Car Free Day 2017

In 2017 Islington also held a number of anti-idling events asking motorists to turn off their engines as well as providing wider information on air pollution. These were conducted at a number of locations such as Arsenal on match day, schools, Sadlers Wells and Upper Street. We were helped by 28 volunteers to carry out these events.

Islington also took part in the first National Clean Air Day in 2017. Various other events were also conducted as part of the Archway ZEN, City Fringe ZEN and City Fringe LEN projects. Events included electric vehicle or cargo bike trials, information and advice on travel, airText promotion, free bike checks, car club information and much more.

Parking charges

Islington has had an additional surcharge on its resident permits for diesel vehicles for several years. In 2017 Islington decided to introduce a £2 surcharge on visitor parking. Diesel vehicles can emit up to four times more nitrous oxides and twenty times more particulate matter than petrol vehicles. It is hoped this will help protect residents from some of the most polluting vehicles.

School Work

Children are one of the groups that are more vulnerable to air pollution and as such we have worked hard to improve air quality at the boroughs schools and engage with pupils, parents, guardians and teachers.

In 2017 four schools took part in a project using TV screens, to display live air quality monitoring data from the school as well as more general air quality information and low pollution walking maps, at drop off and pick up time. The pupils themselves helped created

the low pollution walking maps as well as a video on air quality to display on the screen. Six further school were also signed up in 2017 to complete this project in 2018. This project aimed to engage with pupils but also ensure parents and guardians were aware of air quality, encouraged to try more active sustainable travel and helped to achieve this. We also conducted engagement and anti-idling events at these schools to reinforce the message.

TV Screens and air quality monitor at schools across the borough

We supported one school Prior Weston to take part in the Mayors Air Quality Audit scheme in 2017. The audit assessed the air quality at the school and looked at ways to improve the air quality. The results are due in 2018 and we are investigating funding sources to implement recommended measures.

In 2017 45 schools were also helped to take part in Walk to School Week, ten were provided banners promoting walking and five participated in Junior Travel Ambassadors. 72 school and 81 school holiday Bikeability courses were also conducted helping 1434 children learn to ride, encouraging an increase in active travel and its many health benefits.

Electric Charging

In order to encourage a move to cleaner vehicles better infrastructure is required. In 2017 Islington began installing chargers across the borough. The first rapid on street charger, that can charge an electric vehicle in as little as 30 minutes, was installed on Sheringham Road in 2017. It is hoped this will encourage more drivers to take up electric vehicles, especially commercial vehicles who may now be able to charge their vehicle in a lunch break.

Cllr Webbe with Islington Council's first on-street rapid charger

How to Get Involved

You can get more information on air quality on our website www.islington.gov.uk/energy-and-pollution/pollution/air-quality.

You can do your bit to improve air quality. Think about how you travel, decrease your car use especially for short trips and think about whether you could walk, cycle or use public transport instead. 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 open fires or un-seasoned wood. Come along to one of our air quality events to learn more about schemes in Islington and actions you can take. For example, we will be holding events across the borough on Clean Air Day 21st June and Car Free Day 22nd September. You can also volunteer for idling events in the borough which include training through Idling Action London.

We are currently in the process of updating our Air Quality Strategy to cover 2018 to 2022 and will be consulting on this soon. This is your chance to have a say on the measures taken to improve air quality in the borough. The consultation will be on the Council website.

You can contact the Council Pollution Team on pollution@islington.gov.uk for more information about the strategy, events, getting involved or air quality more widely.

CONTENTS

Tables

Abbreviations

AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQO	Air Quality Objective
BEB	Buildings Emission Benchmark
CAB	Cleaner Air Borough
CAZ	Central Activity Zone
EV	Electric Vehicle
GLA	Greater London Authority
LAEI	London Atmospheric Emissions Inventory
LAQM	Local Air Quality Management
LLAQM	London Local Air Quality Management
NRMM	Non-Road Mobile Machinery
PM_{10}	Particulate matter less than 10 micron in diameter
$PM_{2.5}$	Particulate matter less than 2.5 micron in diameter
TEB	Transport Emissions Benchmark
TfL	Transport for London

Table A.   Summary of National Air Quality Standards and Objectives

Pollutant	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
	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
	40 µg m^{-3}	Annual mean	31 Dec 2004
Particles - $PM_{2.5}$	25 µg m^{-3}	Annual mean	2020
	Target of 15% reduction in concentration at urban background locations	3 year mean	Between 2010 and 2020
Sulphur Dioxide (SO_2)	266 µg m^{-3} not to be exceeded more than 35 times a year	15 minute mean	31 Dec 2005
	350 µg m^{-3} not to be exceeded more than 24 times a year	1 hour mean	31 Dec 2004
	125 µg m^{-3} mot to be exceeded more than 3 times a year	24 hour mean	31 Dec 2004

Note: [1] by which to be achieved by and maintained thereafter

1. Air Quality Monitoring

Details of the monitoring sites in Islington can be found in tables B and C. Results of these sites are included in tables D to G.

1.1 Locations

Table B. Details of Automatic Monitoring Sites for 2017

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance from monitoring site to relevant exposure (m)	Distance to kerb of nearest road (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 C. Details of Non-Automatic Monitoring Sites for 2017

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance from monitoring site to relevant exposure (m)	Distance to kerb of nearest road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor? (Y/N)
BIS005/03	Caledonian Road	530721	183584	Roadside	Y	0.5	0.5	2.5	NO_2	N
BIS005/02	Roseberry Avenue	531336	182599	Roadside	Y	0.5	0.5	2.5	NO_2	N
BIS005/06	City Road	532566	182736	Roadside	Y	0.5	0.5	2.5	NO_2	N
BIS005/07	Old Street	532577	182429	Roadside	Y	0.5	0.5	2.5	NO_2	N
BIS005/08	Highbury Corner	531669	184743	Roadside	Y	0.5	0.5	2.5	NO_2	N
BIS005/09	Balls Pond Road	532820	184822	Roadside	Y	0.5	0.5	2.5	NO_2	N

BIS005/11	Holloway Road	531034	185349	Roadside	Y	0.5	0.5	2.5	NO_2	N
BIS005/13	Junction Road	529204	186093	Roadside	Y	0.5	0.5	2.5	NO_2	N
IS005/01DT1	Archway Close	529396	186848	Roadside	Y	0.5	0.5	2.5	NO_2	N
Hol 1*	Holloway Road	530650	185750	Roadside	Y	1	3	3	NO_2	Y
Hol 2*	Holloway Road	530650	185750	Roadside	Y	1	3	3	NO_2	Y
Hol 3*	Holloway Road	530650	185750	Roadside	Y	1	3	3	NO_2	Y
BIS005/04	Percy Circus	530901	182855	Urban Background	Y	1	N/A	2.5	NO_2	N
BIS005/05	Myddleton Square	531317	182998	Urban Background	Y	1	N/A	2.5	NO_2	N
BIS005/01	Arran Walk	532303	184460	Urban Background	Y	1	N/A	2.5	NO_2	N
IS005/03	Sotheby Road	532252	185983	Urban Background	Y	1	N/A	2.5	NO_2	N
BIS005/10	Highbury Fields	531755	185454	Urban Background	Y	1	N/A	2.5	NO_2	N
BIS005/12	Lady Margaret Rd	529325	185813	Urban Background	Y	1	N/A	2.5	NO_2	N
IS005/02	Zoffany Park	529881	187022	Urban Background	Y	1	N/A	2.5	NO_2	N
BIS005/14	Elthorne Park	529987	187342	Urban Background	Y	1	N/A	2.5	NO_2	N
BIS005/15	Turle Road	530469	186891	Urban Background	Y	1	N/A	2.5	NO_2	N
IS005/04	Upper Street (Waterloo Terrace)	531625	184100	Urban Background	Y	1	N/A	2.5	NO_2	N

* Used for collocation study

1.2 Comparison of Monitoring Results with AQOs

Table D.   Annual Mean NO₂ Ratified and Bias-adjusted Monitoring Results (µg m⁻³)

Site ID	Site name	Site type	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Annual Mean Concentration (µg m⁻³)						
					2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]
BIS005/03	Caledonian Road	Roadside	92	92	54	50	47	51	58	53	43
BIS005/02	Roseberry Avenue	Roadside	92	92	70	58	57	58	62	62	54
BIS005/06	City Road	Roadside	92	92	60	52	42	49	53	53	48
BIS005/07	Old Street	Roadside	92	92	72	65	60	56	65	55	58
BIS005/08	Highbury Corner	Roadside	100	100	69	60	63	61	67	64	55
BIS005/09	Balls Pond Road	Roadside	100	100	61	53	56	59	64	58	50
BIS005/11	Holloway Road	Roadside	100	100	58	57	57	61	65	57	50
BIS005/13	Junction Road	Roadside	92	92	52	45	41	46	53	46	42
IS005/01DT1	Archway Close	Roadside	83	83	57	63	51	58	55	55	41
BIS005/04	Percy Circus	Urban Background	92	92	42	40	38	40	45	46	40
BIS005/05	Myddleton Square	Urban Background	83	83	39	36	37	39	39	38	39
BIS005/01	Arran Walk	Urban background	100	100	33	32	30	32	39	35	32
IS005/03	Sotheby Road	Urban background	100	100	30	28	32	32	31	37	31

Site ID	Site name	Site type	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Annual Mean Concentration (µg m^{-3})						
					2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]
BIS005/10	Highbury Fields	Urban Background	83	83	36	33	31	32	33	34	28
BIS005/12	Lady Margaret Rd	Urban background	92	92	35	34	33	33	35	36	34
IS005/02	Zoffany Park	Urban Background	92	92	35	31	28	28	33	33	29
BIS005/14	Elthorne Park	Urban Background	100	100	34	30	30	30	33	35	31
BIS005/15	Turle Road	Urban Background	100	100	33	32	30	32	33	37	31
IS005/04	Upper Street (Waterloo Terrace)	Urban Background	83	83	40	35	34	37	40	39	39
IS2	Holloway Road	Automatic Roadside	91	91	**60**	**55**	**54**	**55**	**61**	**60**	**49**
IS6	Arsenal	Automatic Background	94	94	37	37	40	N/A	29	33	31

Notes: Exceedance 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.

[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%)

[c] Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

For 2017 all but three of the sites recorded lower pollution levels than 2016, however the long term trend shows nitrogen dioxide levels have remained at a similar level.
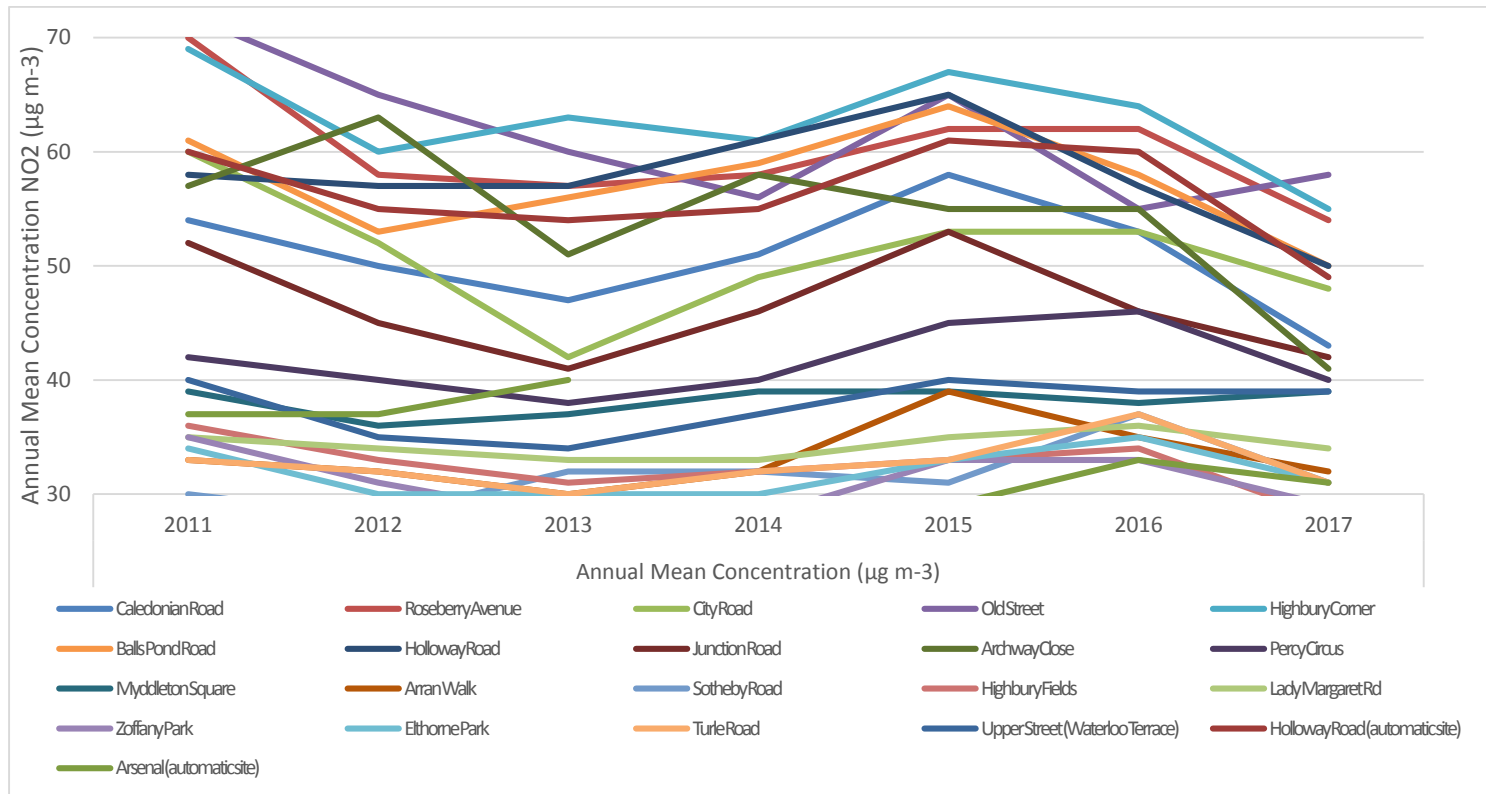
Figure 1. Annual Mean NO₂ Results 2011-2017

Table E. NO$_2$ Automatic Monitor Results: Comparison with 1-hour Mean Objective

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Number of Hourly Means > 200 µg m^{-3}						
			2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]
IS2- Holloway	91	91	2	0	3	0	0	0	0
IS6- Arsenal	94	94	0	1	10	0	0	0	1

Notes: Exceedance of the NO$_2$ short term AQO of 200 µg m^{-3} over the permitted 18 days per year are shown in **bold**.
[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%)
[c] Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

The results of the one-hour mean remain well below the objective of less than 18 times over 200µg m^{-3}, with only one exceedance in 2017. This continues the trend of the last seven years.

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

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Annual Mean Concentration (µg m^{-3})						
			2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]
IS2- Holloway	98	98	25	27	27	21	22	21	21
IS6- Arsenal	98	98	22	24	22	20	19	18	18

Notes: Exceedance of the PM$_{10}$ annual mean AQO of 40 µg m^{-3} are shown in **bold**.
[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%)
[c] Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

PM$_{10}$ continues to remain below the annual objective of 40 µg m^{-3} with the seven-year trend suggesting a decrease in concentration.

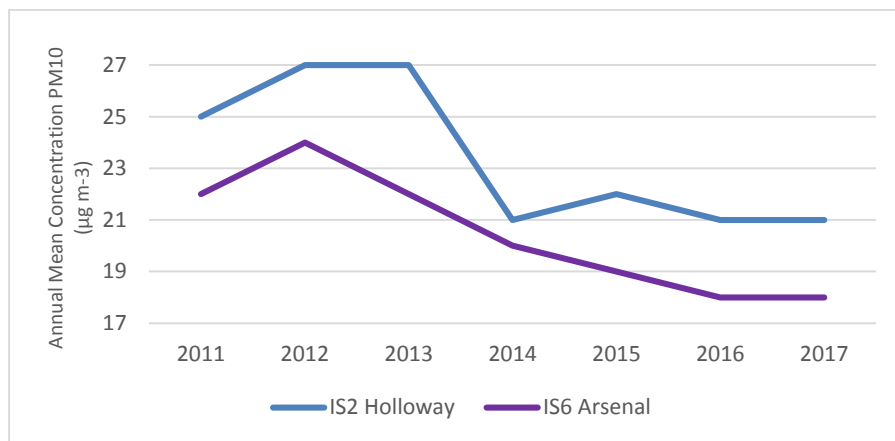**Figure 2. Annual Mean PM$_{10}$ Results 2011-2017**

Table G.   **PM$_{10}$ Automatic Monitor Results: Comparison with 24-Hour Mean Objective**

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Number of Daily Means > 50 µg m^{-3}						
			2011 [c]	2012 [c]	2013 [c]	2014 [c]	2015 [c]	2016 [c]	2017 [c]
IS2- Holloway	98	98	25	19	10	6	3	7	6
IS6- Arsenal	98	98	15	20	7	5	1	3	3

Notes: Exceedance of the PM$_{10}$ short term AQO of 50 µg m^{-3} over the permitted 35 days per year or where the 90.4th percentile exceeds 50 µg m^{-3} are shown in **bold**.

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

[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%)

[c] Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

The results of the one-hour mean remain well below the objective of less than 35 times over 50µg m^{-3}, with only nine exceedances over the two monitoring sites in 2017. This continues the trend of the last seven years.

2.   Action to Improve Air Quality

2.1   Air Quality Action Plan Progress

Table H provides a brief summary of Islington Councils progress against the Air Quality Action Plan, showing progress made this year.

Table H.   Delivery of Air Quality Action Plan Measures

Measure	Action	Progress
Lobbying and working with the Mayor of London		
	Introduction of low emission and alternatively fuelled taxis, together with enforcement of emission standards	Completed previously, no update in 2017- £65m for zero emission taxis announced Oct 2016
	Commit to undertake independent, real-world testing of Euro 6 vehicles in 2014/15 to assess whether this is a suitable benchmark for diesel vehicles in the ULEZ	Continued lobbying for diesel free in 2017. We are also leading by example in Islington. In 2017 we introduced a £2 diesel surcharge on visitor parking to match the additional fee for diesel vehicles resident permits.
	Consider an earlier implementation date for the ULEZ and undertake an options appraisal to outline the cost and benefits of different approaches including widening out from the current congestion charge zone.	Responded to Mayors ULEZ consultations in 2017 calling for a decrease in exemptions, expansion to at least cover the whole of the borough and earlier introduction.
	To apply the next phase of the low emission zone (LEZ) to all buses and coaches.	Completed in 2016, no update for 2017- Mayor's consultation includes all buses
	Give a long term commitment to funding to boroughs for air quality initiatives, projects and improvements	Islington continues to bid for funds such as those from TfL LIPs, DEFRA and GLA. Successful in several bids in 2017.
	Review junctions at Old Street, Highbury Corner and Archway with priority given to improvements that will create an environment	Archway junction work completed in 2017 including new segregated cycle lanes, air quality work continues through Archway ZEN. Highbury Corner and Old Street consultations completed and design competition for Old Street started in 2017.

	which is conducive to active travel and protects our residents from exposure to poor air quality.	
Transport		
Encouraging changes in driver behaviour	Continue to renew the council's fleet over the next three years to replace vehicles with the cleanest, affordable technology.	Long term planning underway in 2017 including trials of new technology and fuel options, in the meantime every opportunity taken to upgrade to Euro 6 as a minimum (20 in 2017).
	School travel plans will be updated to include air quality awareness raising measures and actions to reduce emissions and exposure	Over 50 travel plans approved in 2017, continuing work started in previous years. These plans encourage a change in travel patterns of school communities to safer, healthier and environmentally friendly methods of travel. Air quality, awareness and initiatives are an important part of the review process and action plans and many schools used Council air quality projects to meet targets in 2017.
	Undertake a targeted campaign to encourage active travel working together with local schools.	In 2017 four schools took part in a new project using TV screens to display live air quality monitoring data from the school as well as more general air quality information and low pollution walking maps at drop off and pick up time. Six further school were also signed up in 2017 to complete this project in 2018.

Anti-idling events were held at 12 schools in 2017 and the beginning of 2018. We also supported one school to take part in the Mayors new air quality audit scheme, to assess how air quality at the school can be improved with results due in 2018.

The Theatre in education programme was on-going in 2017 covering sustainable travel, active travel, road safety and air quality. 45 schools were supported to take part in the 2017 Walk to School Week; schools were given living streets classroom packs and conducted awareness raising and competitions.

In 2017 a new school gate banner initiative was started in 10 schools who are now displaying banners promoting walking. Five schools participated in Junior Travel Ambassadors in 2017.

Bikeability courses continued in 2017. 72 school and 81 school holiday Bikeability courses were conducted in 2017 to 1434 children. 478 adults also undertook cycle training in 2017 (71 of these as part of This Girl Can). Three maintenance courses were run with 17 participants and 23 Dr Bike events were conducted checking 460 bikes. |

Reducing emissions from idling vehicles	Undertake an anti-idling campaign that will include the following; - Webpage update - Signage - Targeted hotspot enforcement - Dashboard notices - Campaign day - Targeted campaign outside schools.	In 2017 Islington was once again part of the Idling Action London scheme and completed its designated three events as well as two extra events, speaking to 128 people. These events were at Sadlers Wells at show time, Ambler Primary at pick up time, Upper Street, Angel and Arsenal Stadium on match day. 28 Volunteers were trained and/or returned from last year. We also conducted a further eleven of our own events at schools at pick up time in 2017 and the beginning of 2018.
Low emission zone feasibility study	Conduct a study into the validity and feasibility of having an Islington low emission zone or extending the boundary of the ULEZ. This will include a review into the most suitable location, legal implications, enforcement strategy and effect on residents.	The Mayor is proposing expansion of ULEZ to north and south circular which would include the whole of Islington. We responded to all consultations in 2017 in support of expansion to cover whole of Borough as soon as possible.
Reducing emissions from taxis	Review taxi services operating in the borough to create a green ranking scheme	Completed previously, no update in 2017
Emission-based parking surcharges	Continue tiered parking permit charge based on emissions	Permits continue to vary based on emissions and the diesel surcharge for residential permits continues to be in place. In 2017 a £2 surcharge on diesel vehicles was also added for visitor parking.
	Work with Transport for London (TfL) and partners in developing and responding to TfL's Ultra Low Emission Zone (ULEZ).	We responded to ULEZ consultations in 2017 calling for a decrease in exemptions, expansion to at least cover the whole of the borough and earlier introduction.
	Review deliveries to council buildings and consolidate to reduce vehicle traffic and emissions.	Completed previously, Council continues to be part of London Borough Consolidation Centre and is looking for opportunities to expand the scheme, no update for 2017.
Planning and Development		
Determining the impacts of new developments on air quality	Require all new developments to submit air quality impact assessments to meet an "air quality neutral" standard	Completed previously, air quality standards required for all new developments, no update in 2017
	Require management plans for new developments including specific travel plans	Completed previously no further update for 2017- transport requirements in Core Strategy and Development Management Policies

Reducing emissions at construction sites	Update Islington's Code of Construction Practice to include further requirements for reducing local air pollution, monitoring criteria and best practice transport strategy.	New Islington Code of Practice for Construction Sites finished 2017, to be published in 2018.
	Require all developers to meet the highest feasible level of BREEAM (Building Research Establishment Environmental Assessment Methodology) and all major developments to meet the code for sustainable homes level 4/5.	Completed previously, need to meet highest BREEAM and code for sustainable homes, no update for 2017
Energy Usage		
Improving energy efficiency	Produce guidance for housing providers and private landlords to give advice on measures that can be taken to reduce emissions by improving energy efficiency.	Energy Team advise residents and landlords through a dedicated phone line, website and face to face services run by the Energy Strategy and Advice Team. In 2017 the team received 6300 calls from Islington and 2600 requests for extra support for vulnerable residents through Islington SHINE. During 2017, a total of 720 home energy visits have provided face to face energy advice and installed small efficiency measures in Islington properties. www.energyadvice.islington.gov.uk.
Cleaner energy	Provide advice on use of non-combustion renewable energy technologies to developers to ensure compliance with carbon reduction targets, minimising emissions.	Completed previously, pollution team continue to review energy strategies, no update in 2017
	Expand the Bunhill Heat and Power Network to utilise other heat sources.	Expansion of Bunhill 1 to source waste heat from the London Underground continued in 2017. Feasibility studies were also conducted into heat from a nearby electrical substation, a water source heat pump on the Regent's Canal, and a heat pump supplying heat to the network and cooling to a local data centre. These schemes are not currently financially feasible but this will be regularly reviewed.
Providing advice on energy saving and fuel use	Continue to provide services to residents through the Energy Strategy and Advice Team.	Islington's telephone energy advice service dealt with over 6300 calls from Islington residents in 2017. Over 2600 vulnerable Islington residents were offered a range of health and wellbeing services including AirText in 2017.
Businesses		
Business Engagement Programme	Work with businesses on the "City Air" initiative in our hotspots, assisting them to improve local	City Air initiative completed before 2017 and superseded by schemes such as the Zero Emissions Network (ZEN). We continued to engage businesses in the award winning City Fringe ZEN, in 2017 this expanded to include 1162 businesses, with 317 in Islington. In

	air quality by reviewing operations such as deliveries, building management and energy.	Islington 207 offers have been taken up such as electric bike trials, showers for staff cycling/running to work and energy efficiency measures. In 2017 work on Archway ZEN also began. Of the 200 businesses in Archway 75 became ZEN members in 2017. So far 40 businesses have had a site visit or energy audit, 20 have taken up a ZEN offer and 12 have used a grant to install a permanent measure such as purchasing a cargo bike or electric vehicle to green walls and energy efficient building measures. In 2017 plans began for an Archway Low Emission Neighbourhood (LEN) which will begin in 2018-19 and be led by local businesses and Islington Council. The LEN will complement the work of Archway ZEN by installing physical measures that encourage the uptake of walking, cycling and electric vehicles.
	Work with neighbouring boroughs to extend existing programmes such as the Zero Emission Network (ZEN) to improve air quality at the borough boundaries	Work in City Fringe ZEN continued in a coordinated manner with Tower Hamlets and Hackney in 2017. 1162 businesses have been recruited and 655 offers taken up by businesses. In 2017 City Fringe Low Emission Neighbourhood (LEN) expanded the offer more widely to local residents in Islington, Hackney and Tower Hamlets. 594 residents have already signed up (with 110 in Islington). Several public realm improvements have been completed and a consultation conducted for an Ultra Low Emission Vehicle Street in Shoreditch/Old Street.
Air quality awareness raising initiatives		
	Hold an annual car free event.	For Car Free Day 2017 we conducted an Archway ZEN event on Navigator Square. The cycling-focused event included a free breakfast for commuting cyclists, free Dr Bike cycle checks, advice and information on local cycling routes and training and a guided cycle ride of the local area including newly installed cycle routes. Plans for 2018 are underway.
	Develop Air Quality Champions for Islington to work with officers to implement measures to improve local areas and reduce emissions.	In 2017 28 volunteers helped with idling events across the borough.
Provision of air quality information	Continue to lead the London wide AirText service and promote to residents.	In 2017 we continue to lead on AirText and promote where possible (SHINE, energy advice, schools project). In 2017 an additional 60 people in Islington signed up.
Public Realm		

	Increase cycle parking around the borough, particularly in shopping areas and on housing estates.	In 2017 around 97 Sheffield Stands were installed. In 2017 two pilot bike hangars were installed and preparations started for a further 18 to be installed in 2018.
	Map and advertise safer walking and cycling routes.	As part of a Defra funded School project further walking maps created for four schools in 2017 with a further six to be completed in 2018- these are five and ten minute walking maps that highlight low pollution routes.
	Promote walking through the Islington Joint Strategic Needs Assessment to tackle physical inactivity and obesity.	Completed previously, JSNA remains in place, no update for 2017.
	500 trees to be planted across the borough in 2013/14	Action completed with a further 480 trees planted in 2014/15, 339 in 2015/16, 174 in 2016/17 and 71 in 2017/18.
	Research plants to improve air quality and plant with available budget.	Air quality planting is carried out wherever possible. In 2017 work was started on a green screen on Vorley Road outside a nursery, with completion early 2018. This planting was chosen to improve air quality. As part of Archway ZEN 10 cycle planters and one green wall were installed outside businesses in 2017. Plants with properties known to improve air quality were chosen in these designs.
	Ensure that contractors undertaking works to the highway use best practice to avoid adding to local air pollution.	New Islington Code of Practice for Construction Sites finished 2017, to be published in 2018.
	Work with TfL to ensure that all new road improvements are considerate of walking and cycling and create safer, cleaner spaces for active travel.	Archway work completed 2017, with new dedicated cycle lanes and pedestrian areas. Air quality work and promotion of active travel continues through Archway ZEN.
	Work with the Canal and River Trust to reduce pollutant concentrations around Regents Canal by changes to mooring rules, launching best practice guidance for boaters and using enforcement actions where non-compliance continues.	Mooring rules remain in place for parts of the canal. Wood burning is no longer permitted except for kindling. In 2017 we continued to work with the Canal and River Trust to prepare for installations of a number of electric charging points at moorings and the creation of an Eco Zone.
Cleaner Air Borough		
	Participate in the GLA's Cleaner Air Borough initiative and obtain a kite mark demonstrating Islington's commitment to improving air quality.	Islington was awarded Cleaner Air Borough Status in 2016 and retained this in 2017. We continue to be committed to improving air quality and achieving this status in the next round of judging.

3. Planning Update and Other New Sources of Emissions

Table I. Planning requirements met by planning applications in London Borough of Islington in 2017

Condition	Number
Number of planning applications where an air quality impact assessment was reviewed for air quality impacts	30
Number of planning applications required to monitor for construction dust	10
Number of CHPs/Biomass boilers refused on air quality grounds	0
Number of CHPs/Biomass boilers subject to GLA emissions limits and/or other restrictions to reduce emissions	4
Number of developments required to install Ultra-Low NO$_x$ boilers	4
Number of developments where an AQ Neutral building and/or transport assessments undertaken	20
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 at www.nrmm.london and that all NRMM used on-site is compliant with Stage IIIB of the Directive and/or exemptions to the policy.	20 conditions included 4 registered with NRMM Compliance status unknown[#]
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.	26 conditions included 4 registered with NRMM Compliance status unknown[#]

*S106 and CIL funds will have gone towards measures to improve air quality, however it is difficult to get numbers as we do not have requirements specifically for air quality, but agreements may include measures which could improve air quality along with other benefits.

[#]Council Officers are awaiting training from the Merton enforcement team/GLA in July 2018, after this they will be able to monitor compliance

3.1 New or significantly changed industrial or other sources

No new sources identified.

Appendix A   Details of Monitoring Site QA/QC

A.1   Automatic Monitoring Sites

The authority is a member of the London Air Quality Network. Routine calibrations are carried out by King's College London once every two weeks. King's also carries out ad hoc visits to investigate faults.

QA/QC audits are carried out twice per year by the National Physical Laboratory (NPL) who have UKAS accreditation to carry out this work. In addition to fulfilling the recommendations of LAQM TG16, NPL audits meet the testing requirements for air quality measurement methods stipulated in the CEN standards (e.g. NO_2 and NO_x: EN 14211:2005) which are specified for compliance with the EU ambient air quality directive (2008/50/EC).

We are not aware of any issues to be highlighted

PM_{10} Monitoring Adjustment

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 Tube Quality Assurance / Quality Control

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 precision are as follows:

- Eight good and four poor tube precision results of the 12 diffusion tube collocation studies conducted over the past three years (2015-2017) taken from latest data available March 2018 on https://laqm.defra.gov.uk/diffusion-tubes/precision.html
- Latest AIR-PT (formerly WASP) results taken from AIR-PT Rounds 13-24. No results were submitted for the lab for three of these periods. However, the five results submitted show 95% lab results in this period were deemed satisfactory (based on a z-score ≤±2), suggesting no systematic source of bias. Data taken from http://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html.

Figure 3. AIR-PT/WASP results (Rounds 13-24 April 2016-Feb 2018)

The following table lists those UK laboratories undertaking LAQM activities that have participated in recent AIR NO$_2$ PT rounds and the percentage (%) of results submitted which were subsequently determined to be **satisfactory** based upon a z-score of $\leq \pm 2$ as defined above.

AIR PT Round	AIR PT AR013	AIR PT AR015	AIR PT AR016	AIR PT AR018	AIR PT AR019	AIR PT AR021	AIR PT AR022	AIR PT AR024
Round conducted in the period	April – May 2016	July – August 2016	September – October 2016	January – February 2017	April – May 2017	July – August 2017	September – October 2017	January – February 2018
Aberdeen Scientific Services	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Cardiff Scientific Services	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Edinburgh Scientific Services	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Environmental Services Group, Didcot [1]	75 %	75 %	100 %	100 %	100 %	100 %	100 %	100 %
Exova (formerly Clyde Analytical)	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Glasgow Scientific Services	100 %	0 %	100 %	100 %	50 %	0 %	100 %	100 %
Gradko International [1]	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Kent Scientific Services	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Kirklees MBC	100 %	100 %	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Lambeth Scientific Services	100 %	100 %	75 %	100 %	NR [2]	NR [2]	100 %	NR [2]
Milton Keynes Council	100 %	100 %	75 %	100 %	75 %	0 %	75 %	100 %
Northampton Borough Council	100 %	NR [2]	75 %	0 %	NR [3]	NR [3]	NR [3]	NR [3]
Somerset Scientific Services	100 %	100 %	100 %	100 %	100 %	100 %	75 %	100 %
South Yorkshire Air Quality Samplers	100 %	75 %	100 %	100 %	100 %	100 %	100 %	100 %
Staffordshire County Council	75 %	100 %	NR [2]	100 %	100 %	100 %	100 %	50 %
Tayside Scientific Services (formerly Dundee CC)	NR [2]	100 %	NR [2]	100 %	NR [2]	100 %	NR [2]	100 %
West Yorkshire Analytical Services	100 %	NR [2]	50 %	100 %	100 %	100 %	100 %	50 %

[1] Participant subscribed to two sets of test samples (2 x 4 test samples) in each AIR PT round.
[2] NR No results reported
[3] Northampton Borough Council, Kent Scientific Services, Cardiff Scientific Services, Kirklees MBC and Exova (formerly Clyde Analytical) no longer carry out NO$_2$ diffusion tube monitoring and therefore did not submit results.

A bias adjustment of 0.9 for 2017 has been derived for Lambeth Scientific Services from the latest version of the national bias adjustment calculator version 03/18 available at **http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html**. See Figure 4 for results.

Figure 4. National Bias Adjustment Lambeth Scientific Services

A local collocation study was completed using data from the Holloway Road site ID IS2 (see table B). The bias adjustment factor applied to the diffusion tubes from this is 1.02. See Figure 5 for results of the collocation study.

Figure 5. Precision and accuracy of collocation study at Holloway Road
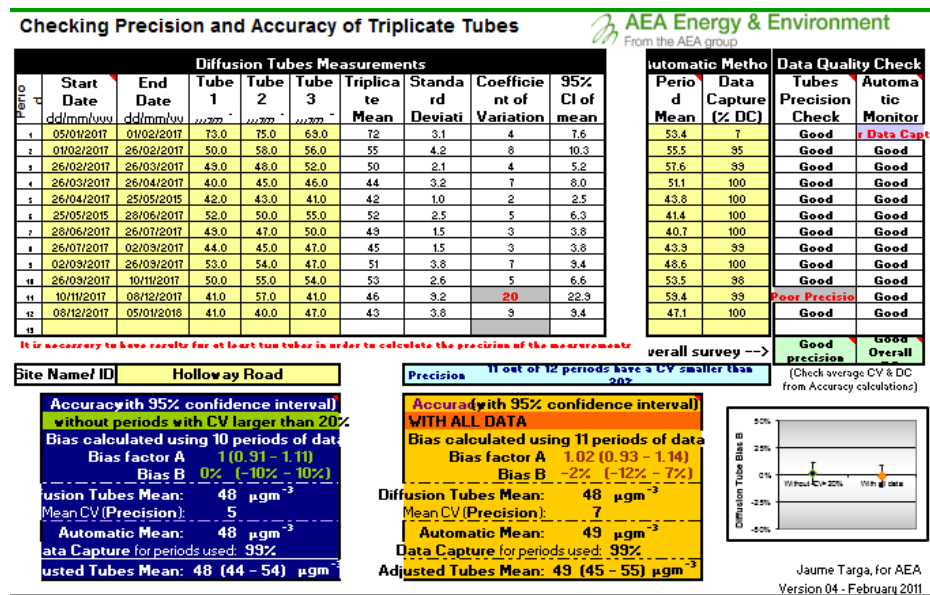
Bias adjustment factors used in previous years can be found in table J.

Table J.   Bias Adjustment Factors used in previous years

	2009	2010	2011	2012	2013	2014	2015	2016
Bias adjustment factor	0.86	0.86	1	0.83	0.8	0.87	1.24	1.17

Discussion of Choice of Factor to Use

The bias adjustment factor of 1.02, gathered from the local collocation study on Holloway Road, was used for 2017. The national bias adjustment for Lambeth laboratory consisted of only one study and we considered the local collocation study a better representation of the Borough. Furthermore, this location is one of the most polluted thoroughfares in the London Borough of Islington.

Appendix B   Full Monthly Diffusion Tube Results for 2017

Table K.   NO$_2$ Diffusion Tube Results

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Annual Mean NO$_2$												Annual mean – raw data [c]	Annual mean – bias adjusted [c]
			Jan	Feb	March	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec		
BIS005/03	92	92	72.0	59.0	47.0	40.0	30.0	42.0	32.0	38.0	38.0	41.0		30.0	42.6	43
BIS005/02	92	92	81.0	56.0	56.0	49.0	47.0	55.0	54.0	49.0	48.0	48.0		35.0	52.5	54
BIS005/06	92	92	70.0	39.0	52.0	42.0	46.0	47.0	49.0	40.0	47.0		51.0	37.0	47.3	48
BIS005/07	92	92	90.0	61.0	50.0	49.0		60.0	46.0	54.0	59.0	58.0	56.0	45.0	57.1	58
BIS005/08	100	100	80.0	57.0	51.0	49.0	42.0	48.0	57.0	50.0	50.0	56.0	59.0	46.0	53.8	55
BIS005/09	100	100	73.0	48.0	57.0	55.0	32.0	50.0	49.0	45.0	43.0	48.0	41.0	42.0	48.6	50
BIS005/11	100	100	81.0	45.0	55.0	46.0	45.0	41.0	45.0	45.0	51.0	39.0	52.0	38.0	48.6	50
BIS005/13	92	92	71.0	41.0		34.0	41.0	32.0	37.0	39.0	36.0	43.0	46.0	30.0	40.9	42
IS005/01DT1	83	83		53.0	43.0		34.0	47.0	39.0	23.0	43.0	43.0	44.0	37.0	40.6	41
BIS005/04	92	92	60.0	43.0	42.0	29.0	29.0	34.0	37.0	37.0	44.0	42.0		34.0	39.2	40
BIS005/05	83	83	60.0	44.0	37.0		27.0	32.0	29.0	30.0	36.0	39.0		45.0	37.9	39
BIS005/01	100	100	57.0	37.0	33.0	24.0	23.0	35.0	26.0	26.0	32.0	31.0	36.0	16.0	31.3	32
IS005/03	100	100	59.0	32.0	34.0	20.0	22.0	25.0	24.0	22.0	28.0	30.0	36.0	30.0	30.2	31
BIS005/10	83	83			30.0	23.0	23.0	24.0	26.0	22.0	30.0	33.0	38.0	25.0	27.4	28

Site ID	Valid data capture for monitoring period % [a]	Valid data capture 2017 % [b]	Annual Mean NO$_2$												Annual mean – raw data [c]	Annual mean – bias adjusted [c]
			Jan	Feb	March	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec		
BIS005/12	92	92	**57.0**	32.0	33.0	27.0	27.0	26.0	22.0		31.0	37.0	40.0	31.0	33.0	34
IS005/02	92	92	**52.0**	39.0	25.0	24.0	19.0	24.0	21.0	17.0	25.0		35.0	36.0	28.8	29
BIS005/14	100	100	**50.0**	36.0	35.0	25.0	23.0	24.0	24.0	21.0	28.0	32.0	30.0	31.0	29.9	31
BIS005/15	100	100	**46.0**	38.0	37.0	24.0	24.0	20.0	23.0	30.0	29.0	32.0	35.0	29.0	30.6	31
IS005/04	83	83	**60.0**	**43.0**	37.0	28.0	28.0	28.0		38.0		35.0	38.0	**43.0**	37.8	39

Exceedance of the NO$_2$ annual mean AQO of 40 μg m^{-3} are shown in **bold**.

[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%)

[c] Means should be "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%