

Hammersmith and Fulham Council
Air Quality Annual Status Report for 2016
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This report provides a detailed overview of air quality in the London Borough of Hammersmith and Fulham during 2016. It has been produced to meet the requirements of the London Local Air Quality Management statutory process¹.

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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>

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Abbreviations

AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQO	Air Quality Objective
BEB	Buildings Emission Benchmark
CAB	Cleaner Air Borough

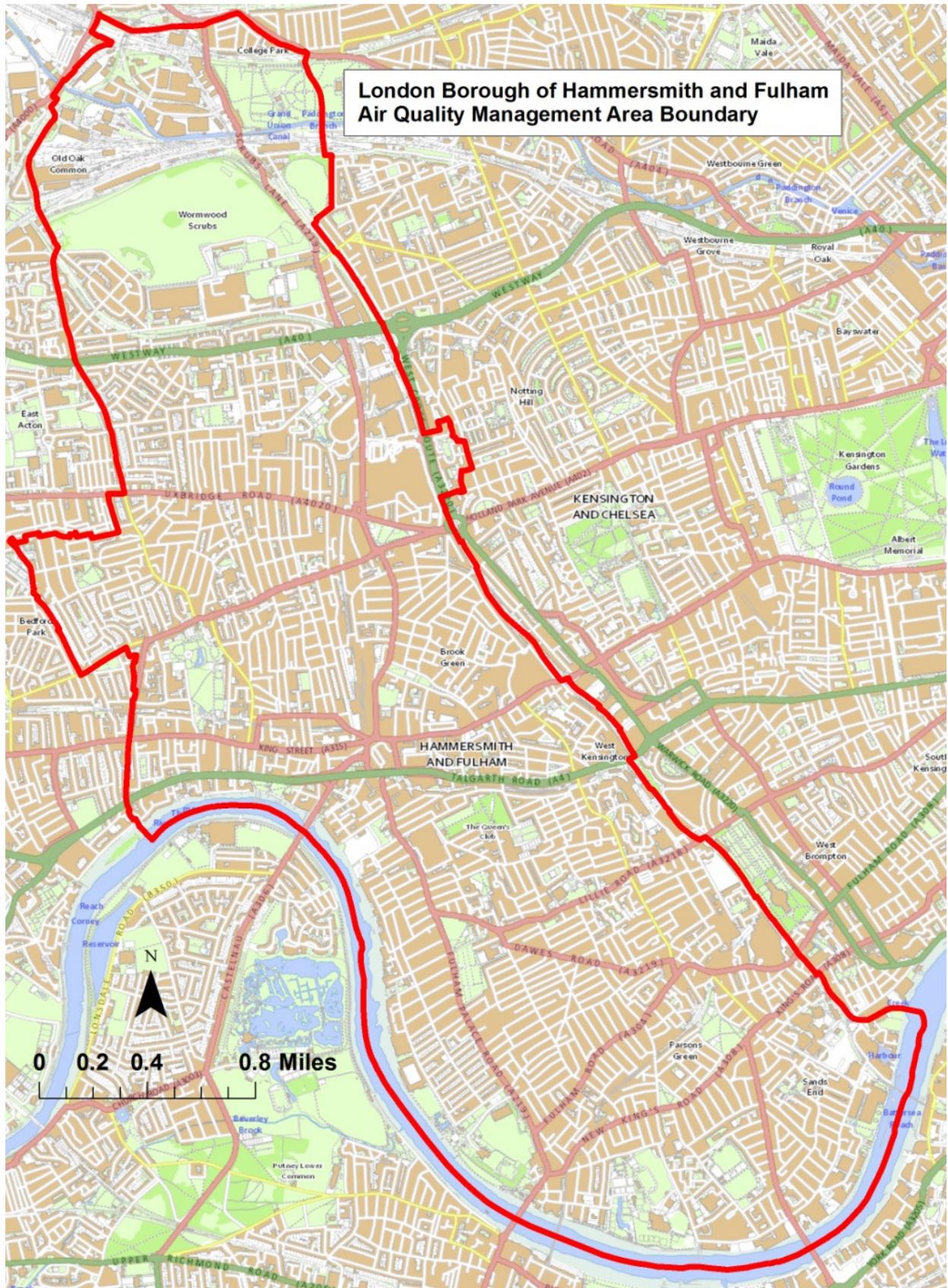
CAZ	Central Activity Zone
EV	Electric Vehicle
GLA	Greater London Authority
LAEI	London Atmospheric Emissions Inventory
LAQM	Local Air Quality Management
LLAQM	London Local Air Quality Management
NRMM	Non-Road Mobile Machinery
PM ₁₀	Particulate matter less than 10 micron in diameter
PM _{2.5}	Particulate 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	Date¹
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 not to be exceeded more than 3 times a year	24 hour mean	31 Dec 2004

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

Figure 1 - Map of AQMA Boundary (whole borough)



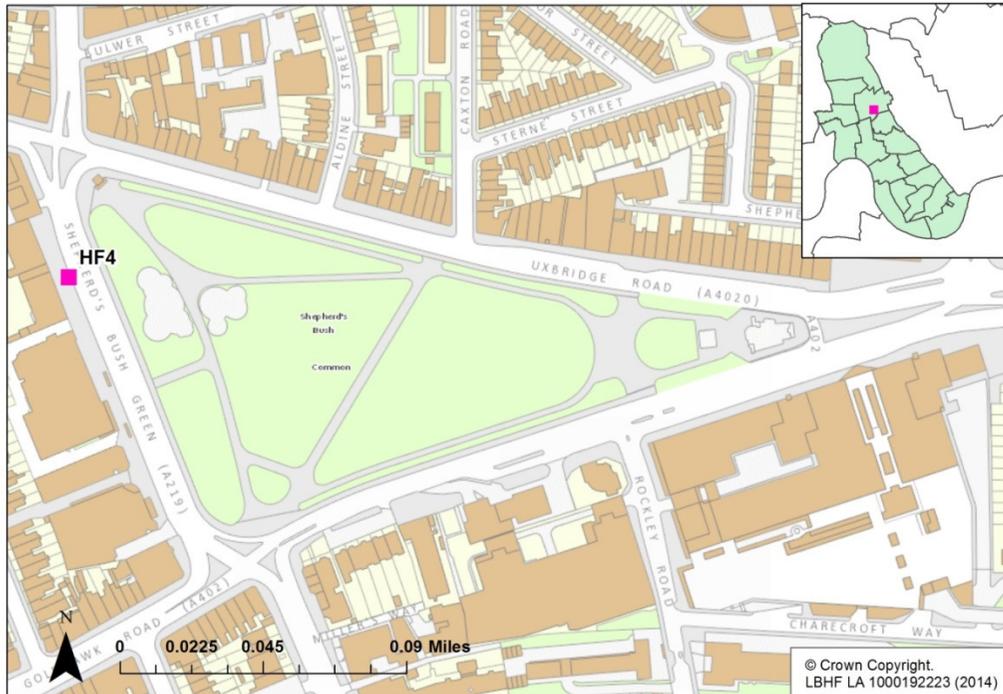
1. Air Quality Monitoring

1.1 Locations

Table B. Details of Automatic Monitoring Sites for 2016

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	Monitoring technique
HF4	Shepherd's Bush	523313	179900	Urban Roadside	Y	6	2.0	2.0	NO2, PM10	TEOM/Chemiluminescent

Figure 2 - Map of Automatic Monitoring Site



Non-Automatic Monitoring Sites

During 2016, 15 diffusion tubes were used to monitor NO₂ levels at 8 roadside sites and 7 background sites, as shown in the Figure 3 and Table C below.

Figure 3 - Map of Non-Automatic Monitoring Sites

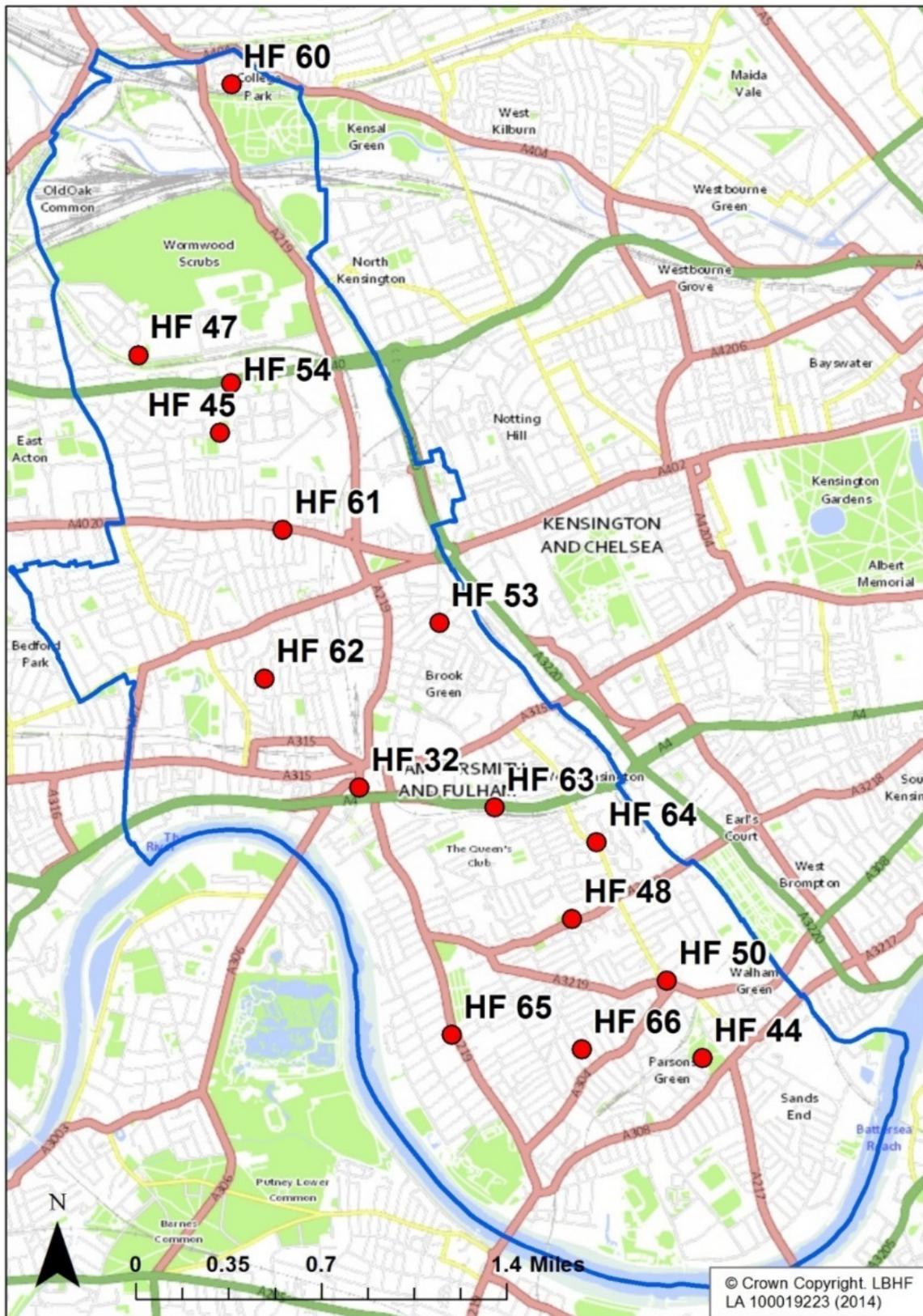


Table C. Details of Non-Automatic Monitoring Sites for 2016

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)
HF32	Hammersmith Broadway	523329	178484	Urban Roadside	Y	5	1	3.0	NO ₂	N
HF44	Eel Brook Common	525386	176816	Urban Background	Y	45	32	3.0	NO ₂	N
HF45	Bryony Road	522480	180655	Urban Background	Y	8	1	3.0	NO ₂	N
HF47	Wulfstan Street	522013	181106	Urban Roadside	Y	3	1	3.0	NO ₂	N
HF50	Fulham Broadway	525273	177273	Urban Roadside	Y	3	4.7	3.0	NO ₂	N
HF53	Addison Gardens	523801	179498	Urban Background	Y	5	1	3.0	NO ₂	N
HF54	Westway A40	522550	180963	Urban Roadside	Y	5	3	3.0	NO ₂	N
HF61	Uxbridge Road	522850	180060	Urban Roadside	Y	3	1	3.0	NO ₂	N
HF63	Talgarth Road	524148	178358	Urban Roadside	Y	5	1	3.0	NO ₂	N
HF66	Radipole Road	524680	176880	Urban Background	Y	5	1	3.0	NO ₂	N
HF62	Cardross street	522745	179179	Urban Background	Y	3	1	2.47	NO ₂	N
HF65	Fulham Palace Road	523926	176940	Urban Road-side	Y	5	1	2.58	NO ₂	N
HF48	Lillie Road	524647	177657	Urban Road-side	Y	3	1	2.55	NO ₂	N

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)
HF64	North End Road	524770	178150	Urban Road-side	Y	13	1	2.67	NO ₂	N
HF60	Waldo Road	522550	182790	Urban Back-ground	Y	4	1	2.46	NO ₂	N

1.2 Comparison of Monitoring Results with AQOs

The results presented also show adjustments for distance to a location of relevant public exposure.

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

Site ID	Site type	Valid data capture for monitoring period % ^a	Valid data capture 2016 % ^b	Annual Mean Concentration (µg m ⁻³)							
				2010	2011	2012	2013	2014	2015	2016	2016 Distance corrected
HF4	Automatic Roadside	83	83	No data	No data	<u>92</u>	<u>76.2</u>	<u>80.3</u>	<u>76</u>	<u>78.9</u>	<u>67.4</u>
HF32	DT - Urban Roadside	100	100	<u>72</u>	<u>64</u>	<u>77</u>	<u>89.55</u>	<u>78.83</u>	<u>77.51</u>	<u>79.9</u>	n/a
HF44	DT - Urban Background	100	100	33	26	35	37.89	29.61	28.48	32.70	n/a
HF45	DT - Urban Background	100	100	35	27	36	42.60	35.11	34.05	39.63	n/a
HF47	DT - Urban Background	92	92	38	35	41	49.66	46.01	45.36	46.91	n/a

Site ID	Site type	Valid data capture for monitoring period % ^a	Valid data capture 2016 % ^b	Annual Mean Concentration ($\mu\text{g m}^{-3}$)							
				2010	2011	2012	2013	2014	2015	2016	2016 Distance corrected
HF50	DT - Urban Roadside	92	92	64	61	71	75.34	64.97	60.26	68.28	63.4
HF53	DT - Urban Background	100	100	34	27	36	41.61	32.53	32.57	38.17	n/a
HF54	DT - Urban Roadside	100	100	70	54	77	98.42	80.67	76.58	84.25	71.6
HF61	DT - Urban Roadside	100	100	42	35	43	50.10	45.81	45.90	49.39	45.2
HF63	DT - Urban Roadside	100	100	59	48	56	65.16	56.10	49.84	59.79	50.6
HF66	DT - Urban Background	100	100	34	27	33	38.07	33.24	31.51	34.61	n/a
HF62	DT - Urban Background	100	100	-	-	-	34.69 ^c	31.81	30.69	34.39	n/a
HF65	DT - Urban Road-side	100	100	-	-	-	63.60^c	57.69	57.07	68.57	56.2
HF48	DT-Urban Road-side	100	100	-	-	-	50.47^c	49.08	44.47	52.28	47.3
HF64	DT - Urban Road-side	100	100	-	-	-	64.64^c	58.59	54.77	59.77	46.2
HF60	DT - Urban Back-ground	92	92	-	-	-	42.80^c	39.24	37.60	40.83	n/a

Notes: Exceedance of the NO₂ annual mean AQO of 40 $\mu\text{g m}^{-3}$ are shown in **bold**.

NO₂ annual means in excess of 60 $\mu\text{g m}^{-3}$, indicating a potential exceedance of the NO₂ 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 "annualised" in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

Table E. NO₂ Automatic Monitor Results: Comparison with 1-hour Mean Objective

Site ID	Valid data capture for monitoring period % ^a	Valid data capture 2016 % ^b	Number of Hourly Means > 200 µg m ⁻³						
			2010	2011	2012	2013 ^{cd}	2014 ^{cd}	2015	2016
HF4	83	83	No data	No data	74	11(203.1)	0 (179.1)	19	33

Notes: Exceedance of the NO₂ 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%

^d Means the 99.8th percentile of hourly means in brackets as the period of valid data was less than 90%

Table F. Annual Mean PM₁₀ Automatic Monitoring Results (µg m⁻³)

Site ID	Valid data capture for monitoring period % ^a	Valid data capture 2016 % ^b	Annual Mean Concentration (µg m ⁻³)						
			2010	2011	2012	2013 ^c	2014 ^c	2015	2016
HF4	98	98	No data	No data	38	36.4	26.5	25	27.4

Notes: Exceedance of the PM₁₀ 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%

Table G. PM₁₀ Automatic Monitor Results: Comparison with 24-Hour Mean Objective

Site ID	Valid data capture for monitoring period % ^a	Valid data capture 2016 % ^b	Number of Daily Means > 50 µg m ⁻³						
			2010	2011	2012	2013 ^{cd}	2014 ^{cd}	2015	2016
HF4	98	98	No data	No data	67	33 (59.5)	0 (38.2)	10	17

Notes: Exceedance of the PM₁₀ 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 90% 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%

^d Means the 90th percentile of 24hour means in brackets as the period of valid data was less than 90%

2. Action to Improve Air Quality

Table J. Commitment to Cleaner Air Borough Criteria

Theme	Criteria	Achieved (Y/N)	Evidence
1. Political leadership	1.a Pledged to become a Cleaner Air for London Borough (at cabinet level) by taking significant action to improve local air quality and signing up to specific delivery targets.	Y	No evidence required
	1.b Provided an up-to-date Air Quality Action Plan (AQAP), fully incorporated into LIP funding and core strategies.	Y	The Council's Air Quality Action Plan is available online at https://www.lbhf.gov.uk/sites/default/files/section_attachments/air-action-plan.pdf Incorporated into LIP process/public health via a number of projects including using LIP to match fund MAQF projects including Anti-idling action days, Clean Air Better Buisness and integrating greening measures to improve

				local air quality and sustainable drainage along a busy road in Hammersmith Town Centre. Regular programme Transport/Highways LIP meetings are held with air quality officers to discuss how air quality may be embedded in other LIP projects.
2. Taking action	2.a	Taken decisive action to address air pollution, especially where human exposure and vulnerability (e.g. schools, older people, hospitals etc) is highest.	Y	Running a public health project focusing on increasing communication with front line health care givers providing advice to vulnerable people in the borough who suffer from heart and lung diseases. Air quality officers attend sessions through Urbanwise.London (Urban Studies Centre) to discuss with children in local primary school how they can reduce their exposure to pollution and reduce their emissions through active transport.
	2.b	Developed plans for business engagement (including optimising deliveries and supply chain), retrofitting public buildings using the RE:FIT framework, integrating no engine idling awareness raising into the work of civil enforcement officers, (etc etc).	Y	Working closely with the Hammersmith Business Improvement District including work on the Hammersmith Town Centre greening project identified in 1.b and the Clean Air Better Business Programme. Healthy Workplace advisor in post who is able to raise awareness of tools to business to reduce emissions such as click.collect via their quarterly newsletter for example. Additionally, Hammersmith and Fulham became a member of Low Emission Logistics, a programme to combine supplier deliveries and bulk purchase materials. Staff from Westway Community Transport volunteered to raise awareness during one of the council's No-Idling Action Days.
	2.c	Integrated transport and air quality, such as: improving traffic flows on borough roads to reduce stop/start conditions, improving the public realm for walking and cycling, and introducing traffic reduction measures.	Y	As detailed in action 18 update 20 mph speed limit approval was given for an experimental 20 mph speed limit in residential areas and Town Centres, this began in September 2016. Speed counts are being undertaken across the Borough to establish how it is working and what further measures may be needed. This is expected to make conditions for walking and cycling much more attractive.
	2.d	Made additional resources available to improve local air quality, including by pooling its collective resources (s106 funding, LIPs, parking revenue, etc).	Y	LIP match funding on air quality projects including those listed in 1.b above and the MAQF dust suppression project around waste transfer stations and residential roads in the north of the borough (final year of funding for this project). S106 and planning performance agreement funds are used to employ air quality officers.
3. Leading by example	3.a	Invested sufficient resources to complement and drive action from others.	Y	Secured S106 funding for officers to deal with Air Quality planning submissions and monitoring at major sites in the borough including the Earls Court Opportunity Area and Thames Tideway Tunnel sites. Officers in Highways and Transport divisions work to make air quality improvements in regards to transport including dedicated sustainable transport officers.
	3.b	Maintained an appropriate monitoring network so that air quality impacts within the borough can be properly understood	Y	All existing AQ monitors maintained. Plans to increase nitrogen dioxide diffusion tube coverage across the borough, particularly targeting primary schools, are being formulated.
	3.c	Reduced emissions from council operations, including from buildings, vehicles and all activities.	Y	For evidence of reduction in council emissions please see Table K actions 4 and 11 below.

	3.d	Adopted a procurement code which reduces emissions from its own and its suppliers activities, including from buildings and vehicles operated by and on their behalf (e.g. rubbish trucks).	Y	All contracted heavy goods vehicles meet euro V standards and emissions of NOx have predicted to have decreased – see Table K action 11 below.
4. Using the planning system	4.a	Fully implemented the Mayor's policies relating to air quality neutral, combined heat and power and biomass.	Y	All approved planning applications for major developments must meet the Mayor's requirements relating to AQ neutral and CHPs.
	4.b	Collected s106 from new developments to ensure air quality neutral development, <i>where possible</i> .	Y	Air quality contributions established in CIL and S106 contributions being pursued where appropriate.
	4.c	Provided additional enforcement of construction and demolition guidance, with regular checks on medium and high risk building sites.	Y	Major sites are visited during demolition and construction works to ensure policies are being met through a MAQF funded shared enforcement officer. Planning conditions ensure we have access to live data from automatic monitoring on construction sites and there is an obligation to report when emission limits are exceeded.
5. Integrating air quality into the public health system	5	Included air quality in the borough's Health and Wellbeing Strategy and/or the Joint Strategic Needs Assessment.	Y	Air quality is included in the Joint Strategic Needs Assessment and Health and Well being Strategy.
6. Informing the public	6.a	Raised awareness about air quality locally.	Y	airTEXT and Walkit promotion on websites and public events (See table K -Action 28). Six No-Idling action days across the borough were widely publicised and drew local resident and business participation

2.1 Air Quality Action Plan Progress

Table K provides a brief summary of Hammersmith and Fulham's progress against the Air Quality Action Plan, showing progress made this year.

Table K. Delivery of Air Quality Action Plan Measures

Measure	Action	Progress
Reducing Emissions at its source	1. Encourage improved availability of alternative fuels	<ul style="list-style-type: none"> • Emissions/Concentration data • Benefits • Negative impacts / Complaints <p>a) The council has 39 on street electric charging points.</p> <p>b) Development control requires that all new developments providing off street parking provide a minimum of 20% active and 20% passive EV charging points.</p>
Reducing Emissions at its source	2. Provide incentives for use of alternative fuels	The council in coordination with resident groups is reviewing the existing parking permit policies. In 2017 a free parking permit for fully electric vehicles will be launched.
Reducing Emissions at	3. Promote travel plans to encourage a switch to low emission vehicles	Workplace and school travel plans continue to be conditioned as part of the planning process.

its source		Westrans monitoring officer works one day a week to work to ensure work travel plan conditions are being complied with.
Reducing Emissions at its source	4. Reduce emissions from the council fleet	<p>The council worked with Westrans on a Freight Strategy for the Westrans area, which was adopted in 2016.</p> <p>Council offer monthly 'Dr Bike' sessions for staff to encourage cycling which are well attended. Mayor's cycle hire pool access for council staff also made available.</p>
Reducing Emissions at its source	5. Seek a reduction in emissions from the bus fleet	<p>Transport for London is introducing new Low Emission Bus Zones which will require the exclusive use of buses that have engines and exhaust systems that meet or exceed the highest (Euro VI) emissions standards. After the first two zones have been introduced, amongst the following tranche of ten include the following zones in LBHF:-</p> <ul style="list-style-type: none"> • Uxbridge Road to Shepherds Bush. • Chiswick High Road to Kensington via Hammersmith Broadway.
Reducing Emissions at its source	6. Encourage the use of vehicles with smaller, more efficient engines	In 2017 a free permit for fully electric vehicles will be launched.
Reducing Emissions at	7. Seek to reduce emissions from larger vehicles (Low Emission Zone)	The council supports the principal of the ULEZ and seeks its extension and early

its source		implementation.
Reducing Emissions at its source	8. Seek to reduce emissions from badly maintained vehicles	No emissions test have been conducted.
Reducing Emissions at its source	9. Encourage more environmentally friendly driving behaviour	20mph speed limit implemented on 95% of boroughs roads.
Reducing Emissions at its source	10. Seek a reduction in emissions of small particles from construction sites	<p>a)Complaints of dust nuisance investigated as and when reported. 63 complaints were received from January 2016- April 2017 about construction / demolition dust. Informal warning/advice is usually effective in securing improvements.</p> <p>b)We continue to require demolition and construction management plans for major development sites, including the submission of a dust risk assessment as well as measures to minimise dust emissions and are required to follow the London Mayor’s ‘The Control of Dust and Emissions During Construction and Demolition SPG, 2014.’ This includes the requirements to meet NRMM criteria.</p>
Reducing Emissions at its source	11. Seek a reduction in emissions from domestic and commercial properties	<p>In 2016/17 the following green waste was sent for composting:</p> <p>90 tonnes of Christmas trees</p> <p>0 tonnes of leaf fall from public highways were composted after the Environment Agency reclassified the materials in 2013.</p>

		<p>The current heavy goods fleet on the Serco contract are London Low Emissions compliant with a minimum of Euro 5 engines and Eminox exhaust systems fitted. 5 new Refuse Collection Vehicles are Euro 6 engines and exceed the emission scheme.</p> <p>There are 2 x electric 3.5t cage vehicles which are operated at night and early mornings to help reduce noise pollution.</p> <p>The mechanical Scarab sweeping fleet have all been replaced with Euro 6 engines '15 plate vehicles</p> <p>3 x 7.5tonne cage vehicles have been replaced with new Mitsubishi Canter Hybrid vehicles.</p> <p>The oldest vehicles remaining on the fleet are the refuse collection '58 plate vehicles which have been undergoing a refurbishment programme over the last 18 months to ensure that they are appearing neatly and will last for a further 5 years. As previously stated they are all Euro 5 and Eminox exhaust fitted. This should be completed in April 2017.</p> <p>In 2016/2017 there were 73 complaints about smoke from commercial/domestic properties, including from bonfires.</p> <p>There has been a steady decline in energy usage in council operated buildings therefore a</p>
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		reduction in CO2 due to this. LBHF has seen a reduction in CO2 3500 tonnes between 15/16 and 16/17 year. The council is currently working on projects to reduce the energy usage further from the council operated buildings, this includes making improvements to commercial properties to ensure they have high levels of energy efficiency.
Reducing Emissions at its source	<i>12. Seek to control and minimise emissions from industrial premises</i>	Regulation duties continued in line with the LAPPC requirements. No complaints were received in 2016/2017 regarding emissions from industrial sites regulated by the council. No notices were served.
Reducing the Need to Travel	<i>13. Sustain and improve town & local centres, facilities and employment areas</i>	Consultation on the Proposed Submission Local Plan ran for a six week period from 16th September to 28th October 2016. On 28th February 2017, the council submitted the Proposed Submission Local Plan and supporting documents to the Secretary of State for Communities and Local Government for independent examination. The Local Plan sets out the vision, objectives and detailed spatial strategy for future development in Hammersmith and Fulham for the next 15-20 years along with specific development management policies. It includes the identification of four key regeneration areas, strategic sites for development and options for policies on topics such as transport, town

		centres, the local economy and environmental issues.
Reducing the Need to Travel	<i>14. Seek to reduce the air quality impact of new development</i>	<p>The wording of our air quality policy within our Draft Local Plan is currently under consultation and has been amended in order to include all developments that have the potential to impact or be impacted by local air quality (previously restricted to major developments). The basis of a number of transport policies has had air quality woven into its purpose in this Draft Local plan going through the consultation process. The current policy continues to be implemented on all relevant planning applications. Our Supplementary Planning Guidance is also under review and the council plans to imbed the importance of air quality into it.</p> <p>Construction logistics plans are required on most developments which require details on how delivery hours will be managed to reduce impact and the need for stationary vehicles and potential idling</p>
Encouraging a Switch to Less Polluting Forms of Transport	<i>15. Promotion of bus services</i>	<p>No further update since 2016 ASR. No new bus services were introduced in LBHF during 2015/16 but improvements in frequency/reliability were secured for routes 266 and 487.</p> <p>Bus services are promoted on the council website. The council have implemented a new refreshed and easy to use mobile website. Bus passengers are continuing to benefit from</p>

		improvements to real time information at bus stops and through increasingly used smart phone apps.
Encouraging a Switch to Less Polluting Forms of Transport	16. Promotion of other forms of public transport	No further update from 2016 ASR, smarter travel activities continue.
Encouraging a Switch to Less Polluting Forms of Transport	17. Promotion of cycling	<ul style="list-style-type: none"> • Tiger Crossing <p>A new facility for cyclists was installed allowing cyclists to cycle across the previous zebra crossing across New Kings Road at Parsons Green</p> <ul style="list-style-type: none"> • Residential Parking schemes. <p>We have purchased 10 Secure cycle storage units for installation in Residential roads/areas across the borough. Installation in May when we have identified exact locations.</p> <ul style="list-style-type: none"> • Cycle parking <p>We have installed 230 new Cycle hoops across the borough. 20 were following requests from residents and the other 210 were installed as part of maintenance and other Highways schemes.</p> <ul style="list-style-type: none"> • Sustainable Urban Drainage schemes.

		<p>We have built a new SUD scheme on Stevenage Road, Fulham, replacing a previous tarmac road with a new 'Flexi pave' surface allowing sustainable drainage on the cycle route.</p> <ul style="list-style-type: none"> • Quietway 2. <p>We are currently constructing Quietway 2 in Wormwood Scrubs which includes 400m of Sustainable, "Flexi-pave' surfacing as part of the route. We are also incorporating new tree planting as part of the scheme in two areas.</p>
Encouraging a Switch to Less Polluting Forms of Transport	18. Promotion of Walking	<ul style="list-style-type: none"> • Improved crossing facilities. <p>New pedestrian phases were introduced along New Kings Road at Broomhouse Road and the junction with Putney Bridge Approach</p> <ul style="list-style-type: none"> • 20 mph speed limit <p>Approval was given for an experimental 20 mph speed limit in residential areas and Town Centres. This began in September 2016. Speed counts are being undertaken across the Borough to establish how it is working and what further measures may be needed. This is expected to make conditions for walking and cycling much more attractive.</p>
Encouraging a Switch to Less	19. Encourage a reduction in car use for the journey to school	<p>Of the 78 schools in the Borough, 68 have undertaken their whole school travel surveys within the last 18 months, and under the TfL</p>

Polluting Forms of Transport		<p>STARS (Sustainable Travel: Active Responsible Safe) accreditation scheme, the following levels were awarded in September 2016:</p> <ul style="list-style-type: none"> • 20 engaged • 37 Bronze • 0 Silver • 2 Gold
Encouraging a Switch to Less Polluting Forms of Transport	<i>20. Encourage a reduction in car use for the journey to work and business trips</i>	Workplace travel plans continue to be conditioned for any new developments.
Encouraging a Switch to Less Polluting Forms of Transport	<i>21. Control provision of on and off street parking to deter car commuting into and within the borough</i>	Work continues on introduction of parking controls on housing estates to remove availability of uncontrolled publicly accessible urban parking areas.
Encouraging a Switch to Less Polluting Forms of Transport	<i>22. Encourage freight to be transported in a sustainable manner</i>	Hammersmith and Fulham became a member of Low Emission Logistics, a programme supported by MAQF funding to combine supplier deliveries and bulk purchase materials.
Make a More Efficient Use of Road Transport	<i>23. Encourage car sharing</i>	We have been actively working with two car club operators, Zipcar and City Car Club to expand their existing on-street network, there are currently 49 bays. There are 39 Electric Vehicle bays.
Make a	<i>24. Discourage short journeys</i>	Increased parking controls in seven CPZs to

More Efficient Use of Road Transport		discourage non-resident parking.
Other Measures to Reduce Road Traffic Emissions	<i>25. Reduce the amount of road traffic in residential areas and town centres</i>	Two consultations were undertaken to close two well know rat runs; Effie Road and Bishops King Road. Subject to support these will be implemented in 2017.
Other Measures to Reduce Road Traffic Emissions	<i>26. Promote the use of trees to help improve local air quality</i>	In 2016/17, the council planted 22 new street trees and 124 replacement street trees – a total of 146 trees planted on highway sites. 76 new trees and 34 replacement trees were planted on housing estates. (includes Groundwork grant aided planting). In addition, around 80 trees were planted for 2016 in our parks and cemeteries.
Other Measures to Reduce Road Traffic Emissions	<i>27. Reduce the amount of traffic on the A4 and A40</i>	No further update on this action for 2016.
Raise Awareness of the Links Between Air Quality and Health	<i>28. Provide information to allow people to make informed choices about travel behaviour</i>	There are now 255 subscribers for AirTEXT pollution alerts relating to LBHF. The majority of these subscribers receive alerts by text message.
Raise Awareness of the Links	<i>29. Provide information so people can make informed choices about reducing pollution from domestic activities</i>	a) No new publicity material produced.

Between Air Quality and Health		
Raise Awareness of the Links Between Air Quality and Health	30. Continue to monitor air quality and make info. available	Real time monitoring at Shepherds Bush Green of NO ₂ and PM10 continue. Data is available to view at London Air.

3. Planning Update and Other New Sources of Emissions

Table L. Planning requirements met by planning applications in Hammersmith and Fulham in 2016

Condition	Number
Number of planning applications reviewed for air quality impacts	55
Number of planning applications required to monitor for construction dust	30
Number of CHPs/Biomass boilers refused on air quality grounds	
Number of CHPs/Biomass boilers subject to GLA emissions limits and/or other restrictions to reduce emissions	20
Number of AQ Neutral building and/or transport assessments undertaken	32
Number of AQ Neutral building and/or transport assessments not meeting the benchmark and so required to include additional mitigation	
Number of planning applications with S106 agreements including other requirements to improve air quality	No new agreements for 2016
Number of planning applications with CIL payments that include a contribution to improve air quality	No new agreements for 2016
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.	n/a
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.	24 nrmm conditions included 24 sites registered with 1 fully compliant site 7 working towards compliance Number of unregistered sites - unknown

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 council's automatic monitoring station is part of the London Air Quality Network (LAQN), which is run by the Environmental Research Group at King's College London. All real-time data from the monitoring station is therefore independently collected and validated on a daily basis. A combination of automatic and manual checks is used to assess data, identify and diagnose potential equipment faults and adjust data to take account of calibration tests. Automatic overnight calibrations are supplemented with regular manual calibrations of analysers. The procedures used conform to the requirements of the UK Automatic Urban and Rural Network Management and Co-ordination Units.

All data is also formally ratified. During this process the validation decisions can be ratified with the benefit of hindsight and using greater information, such as service records, calibration records and the results of station audits. Station audits are carried out every 6 months by the National Physical Laboratory, which is UKAS (United Kingdom Accreditation Service) accredited.

PM₁₀ Monitoring Adjustment

All PM₁₀ data presented in this report have been corrected to gravimetric equivalent using the Volatile Correction Model.

A.2 Diffusion Tube Quality Assurance / Quality Control

Diffusion tube analysis is carried out in Gradko's UKAS accredited laboratory. They use a 50% in Acetone preparation method. Their limit of detection is 0.066µg NO₂. Laboratory preparation and analysis of the tubes is strictly controlled and Gradko participate in 2 major independent schemes to assess their performance.

1) Workplace Analysis Scheme for Proficiency (WASP) and AIR PT

Gradko participates in the AIR proficiency testing for NO₂ diffusion tube scheme on a quarterly basis. AIR PT is a new scheme, started in April 2014, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL). AIR PT has combined two long running proficiency testing schemes LGC Standards. STACKS PT scheme and HSL WASP PT scheme. AIR is a recognised performance-testing programme for labs undertaking NO₂ diffusion tube analysis as part of the UK NO₂ monitoring network. Further information on proficiency testing can be found at Defra's Local Air Quality Management webpages.

Table A2.1 Laboratory Summary Performance for AIR NO₂ PT Rounds 12, 13, 15 and 16 2016

AIR PT AR012	AIR PT AR013	AIR PT AR015	AIR PT AR016
January – February 2016	April – May 2016	July – August 2016	September – October 2016
100%	100%	100%	100%

2) Network Field Inter-comparison Exercise

This exercise is operated by the National Physical Laboratory (NPL) and tests the performance of the diffusion tubes and lab analysis procedures and involves the regular exposure of a triplet of tubes at an Automatic Urban Network (AUN) site where real-time NO₂ levels are also measured using a chemiluminescent analyser.

Gradko operates well within the required level of performance in terms of accuracy and precision, as shown by the results below. The NPL performance criterion for precision is that the mean coefficient of variation for the full year should not exceed 10%, should this be achieved the precision is given a score of 'good'.

Annual Mean Bias

Performance Target: +25%
Gradko Annual Mean Bias: +2.3%

Precision

Performance Target: 10%
Gradko Precision: Good

Gradko International Ltd performs blank exposures that serve as a quality control check on the tube preparation procedure.

Factor from Local Co-location Studies (if available)

Bureau Veritas conducts an ‘in-house’ co-location study to establish an LWEP bias-adjustment factor based on triplicate NO₂ diffusion tubes located with a continuous analyser, for a number of local authorities. The council does not have any NO₂ diffusion tubes co-located with its real-time monitoring station. However a local bias adjustment factor calculated using data from the Royal Borough of Kensington and Chelsea AURN affiliated site at North Kensington was chosen to be used rather than the National Bias Adjustment Factor.

Table A2.2 Bias Adjustment Factor and % Bias of LWEP Co-Location Study 2016

		Diffusion Tube	Continuous Analyser	Correction Factor (A)	% Bias based on continuous monitor (B)
Kensington	North Kensington	29.7	34.3	1.15	-13
Kensington	Cromwell Road	62.7	57.1	0.91	10
LWEP	Bloomsbury	42.1	41.5	0.97	3.33
Croydon	London Road	53.3	46.3	0.87	15
Greenwich	Eltham	20.2	21.2	1.04	-4
Greenwich	Blackheath	45.2	45.9	1.01	-1
Greenwich	Westhorne Av	39.3	40.9	1.05	-5
Greenwich	Woolwich Flyover	69.2	63.7	0.92	9
Greenwich	Bexley Falconwood	50.3	44.8	0.86	16
Overall % Bias					2.60
Overall Bias Adjustment Factor				0.97	

Table A2.3 - Bias Adjustment Factors (BAF) used by LBHF 2009-2016

Year	BAF
2009	0.92
2010	0.93
2011	0.94
2012	1.01
2013	1.14
2014	1.03
2015	1.07
2016	1.15

Discussion of Choice of Factor to Use

The bias adjustment factor is calculated by Bureau Veritas using data collected at the Royal Borough of Kensington and Chelsea AURN affiliated site (this local bias adjustment factor was chosen over the National Bias Adjustment Factor as it is considered to be more representative of local conditions). The bias adjustment factor for 2016 has been calculated as 1.15.

A.3 Adjustments to the Ratified Monitoring Data

Distance Adjustment

Where an exceedance has been measured at a monitoring site which is not representative of public exposure, the procedure specified in LLAQM.TG(16) has been used to estimate the concentration at the nearest receptor.

Appendix B Full Monthly Diffusion Tube Results for 2016

Table N. NO₂ Diffusion Tube Results (Exceedance of the NO₂ annual mean AQO of 40 µgm⁻³ are shown in bold.)

Site ID	Valid data capture for monitoring period % ^a	Valid data capture 2015 % ^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		
HF32	100%	100%	73.68	62.32	53.55	65.67	73.04	73.55	63.48	63.06	79.80	70.15	72.95	82.10	69.4443	79.86
HF44	100%	100%	33.62	32.63	23.82	25.34	25.61	25.59	17.29	18.55	26.76	29.60	36.98	45.41	28.4331	32.70
HF45	100%	100%	37.74	40.78	31.68	36.85	32.04	27.83	23.80	21.87	32.30	31.56	45.17	51.93	34.4637	39.63
HF47	92%	92%	51.91	57.02	34.17	38.62	41.43	39.27	35.89	31.19	45.09	33.39	40.74		40.7939	46.91
HF50	92%	92%	59.97	50.47	51.41	50.86	62.24	61.98	61.01	56.31	68.91		63.74	66.24	59.3754	68.28
HF53	100%	100%	36.61	37.58	26.04	27.30	31.82	32.67	22.01	20.64	31.54	34.34	47.54	50.22	33.1927	38.17
HF54	100%	100%	65.97	70.01	69.16	59.07	81.88	81.49	53.83	61.16	72.70	84.66	89.16	90.02	73.2604	84.25
HF61	100%	100%	46.28	44.26	39.14	36.83	43.16	41.87	35.38	35.65	45.24	40.33	51.33	55.88	42.9451	49.39
HF63	100%	100%	50.95	49.05	45.42	45.11	59.74	60.35	39.09	43.80	57.83	54.40	56.45	61.66	51.9871	59.79
HF66	100%	100%	38.17	33.83	25.87	24.83	21.67	27.43	19.39	19.08	30.57	31.28	42.06	46.93	30.0938	34.61
HF62	100%	100%	38.07	32.34	30.63	26.72	25.86	23.79	19.52	20.62	27.87	30.62	40.78	42.03	29.9044	34.39
HF65	100%	100%	64.80	55.57	58.67	65.04	61.93	58.89	48.93	44.61	66.43	51.23	67.39	72.04	59.6268	68.57
HF48	100%	100%	46.89	44.11	39.58	43.64	47.86	52.12	31.58	32.23	45.62	46.99	57.80	57.11	45.461	52.28
HF64	100%	100%	59.09	57.84	40.55	49.10	48.45	41.45	40.00	41.55	58.59	53.89	60.80	72.33	51.9721	59.77
HF60	92%	92%	41.67		29.54	37.63	30.80	29.18	27.61	25.70	34.02	31.84	49.20	53.38	35.5059	40.83