



## 2014 Air Quality Progress Report for London Borough of Hammersmith and Fulham

In fulfillment of Part IV of the  
Environment Act 1995  
Local Air Quality Management

June 2014

London Borough of Hammersmith and Fulham

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## Executive Summary

This latest progress report reviews air quality data collected in 2013 for the strategy pollutants; nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM<sub>10</sub>).

The second part of this report provides a summary of the implementation of the actions contained in the Air Quality Action Plan 2002-2005 (Section 9). The review of the Air Quality Action Plan for the 2013/14 period shows that progress has been made in most areas, although some actions have naturally slowed as they are reaching their limits of what can be achieved. We have also seen increased collaborative working with our Public Health Team on raising awareness of the health impacts of poor air quality since public health has come under the remit of the local authority.

The Air Quality Progress Report has found that exceedences of the nitrogen dioxide annual mean objective continued in 2013 at the majority of the 16 monitoring locations in the borough. Exceedences of the hourly nitrogen dioxide objective are also likely alongside very busy 'A' roads and in the town centres. This situation remains a concern.

In terms of PM<sub>10</sub>, monitoring is carried out in 1 location, from which we only collected six months worth of data in 2013 due to a vehicle collision with the monitoring station. The station did not measure an exceedence of the Government's annual mean objective although 33 daily means above 50µg/m<sup>3</sup> were recorded in the 6 month monitoring period, therefore it is likely that the site would have exceeded the daily mean objective if monitoring had continued for the rest of the year.

The lack of progress in reducing NO<sub>2</sub> levels and the continued exceedence of the daily mean PM<sub>10</sub> objective level are of particular concern, given the substantial reduction needed to meet the objective levels for NO<sub>2</sub> and the EU time limit of 2015. The UK is the first of the EU's 28 Member States to receive enforcement action on NO<sub>2</sub>. This is the beginning of the legal enforcement process, which is likely to lead to the imposition of fines that may be passed on to regional and local government.

The next stage in terms of air quality review and assessment work is to prepare and submit an Updating and Screening Assessment in April 2015.

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# 1 Introduction

## 1.1 Description of Local Authority Area

The Borough of Hammersmith & Fulham is located on the western edge of inner London in a strategic location on the transport routes between the City and Heathrow. It is the 4<sup>th</sup> smallest of the London Boroughs in geographical area (1,641 hectares or 6.34 square miles) and has the 3<sup>rd</sup> smallest population (179,850 according to 2012 midyear estimates from the Office of National Statistics). It also has the 4<sup>th</sup> highest population density of any London Borough or indeed Local Authority in England.

Much of Hammersmith & Fulham is residential in character and scale although the northern most part of the borough is more industrial, forming part of the Park Royal industrial estate and is also the location for a complex network of railway lines, depots and sidings, including 2 busy rail routes – the Great Western and the West Coast mainlines. There are also a small number of light industrial processes authorised by the council, although most of these are made up of dry cleaners and petrol stations. The borough is also home to Westfield London in Shepherds Bush town centre, one of the largest shopping centres in the UK, to 3 football teams, 2 large exhibition centres at Earls Court and Olympia and is traversed by the A4 and A40, 2 of the busiest roads in west London.

Main sources of oxides of nitrogen and small particulate emissions in the borough are road traffic, domestic and commercial gas boilers, trains and small industrial processes.

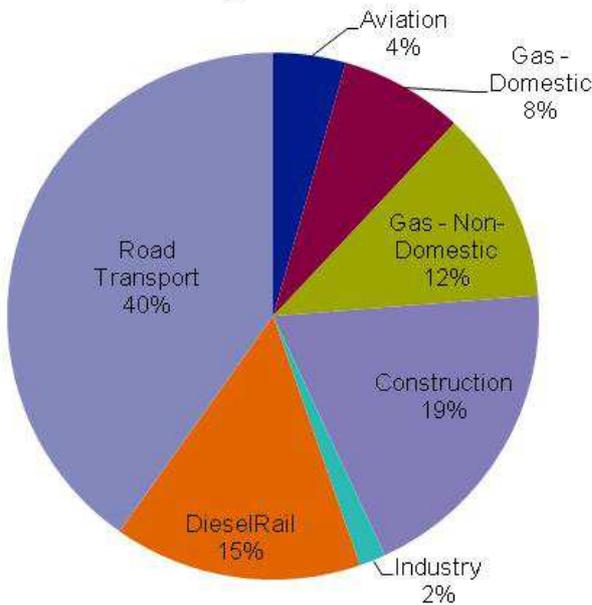
### Emission sources

The emission sources of pollutants from within the borough are mainly from transport, residential and commercial activities. A large proportion of the pollution however arises from beyond the borough's immediate area including neighbouring boroughs, the urban area as a whole and further afield from national and European sources. The contribution of NO<sub>x</sub> and PM<sub>10</sub> from the various sources within the borough in 2010 is shown in the figures below (produced using data from the London Atmospheric Emissions Inventory, released in 2013). Changes in the assumptions used for predicting emissions shows that emissions of NO<sub>x</sub> from transport are a bigger proportion than in previous inventories; this is likely to be due to a greater understanding that emissions reductions are not occurring as expected. For PM<sub>10</sub> information is now also available for re-suspension, tyre and brake wear. Other sources which account for less than one percent are not shown (for NO<sub>x</sub> these include aviation, oil, fires, shipping etc).

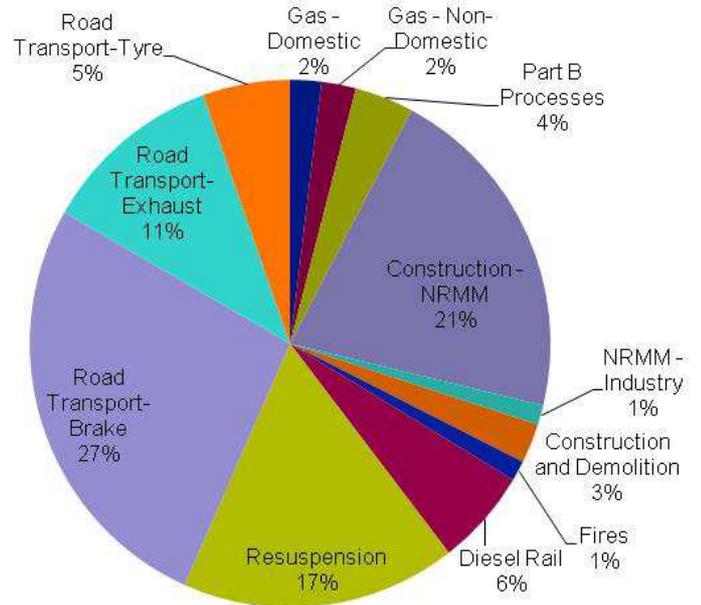
The latest inventory shows the most significant source of NO<sub>x</sub> is road transport followed by gas and construction emissions (based on modelling for 2010). The most significant source of PM<sub>10</sub> from within the borough is road transport (a combination of exhaust and road/tyre breakdown); however the next most important source is re-suspended materials and Non Road Mobile Machinery (note this will be based on assumptions regarding the level of construction activity in the borough).

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**Modelled NO<sub>x</sub> emissions from sources within the Borough in 2010**



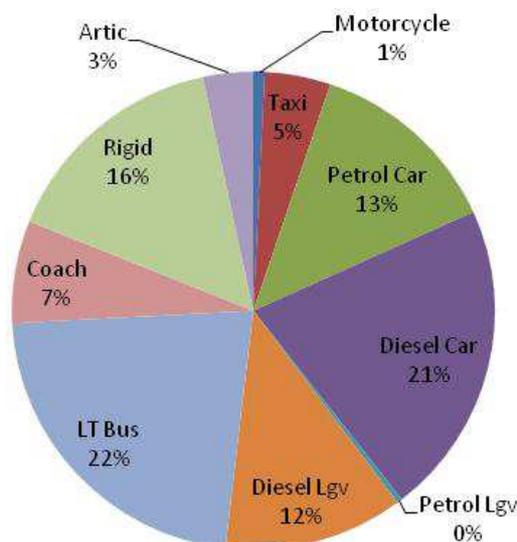
**Modelled PM<sub>10</sub> emissions from sources within the Borough in 2010**



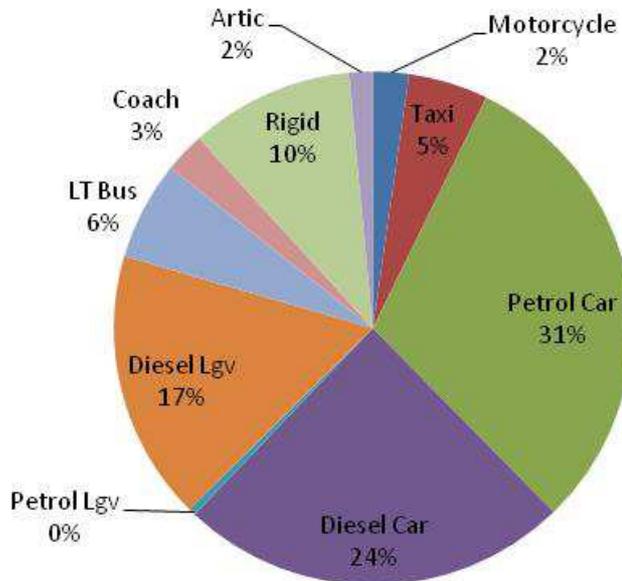
The charts below and overleaf focussing on transport emissions, show the breakdown of emissions of NO<sub>x</sub> and PM<sub>10</sub> from different vehicle and fuel types. These show that emissions from diesel vehicles account for almost 90% of transport emissions of NO<sub>x</sub> and 90% of tail pipe emissions of PM<sub>10</sub>. Additionally for PM<sub>10</sub> the total emissions which include tyre and brake wear emissions are also estimated as these are now included in the latest inventory.

For NO<sub>x</sub>, cars (not including Taxis) are the main source at 34% of the total; however diesel fuelled cars contribute the larger fraction of this (21% of the total). Car sources are followed closely by buses (22%), then heavy duty vehicles (19% combining rigid and artic lorries), diesel LGV (12%), coaches (7%) and taxis (5%), as the main sources. While diesel cars (36%), diesel LGVs (24%) are the two main sources of exhaust emissions of PM<sub>10</sub>.

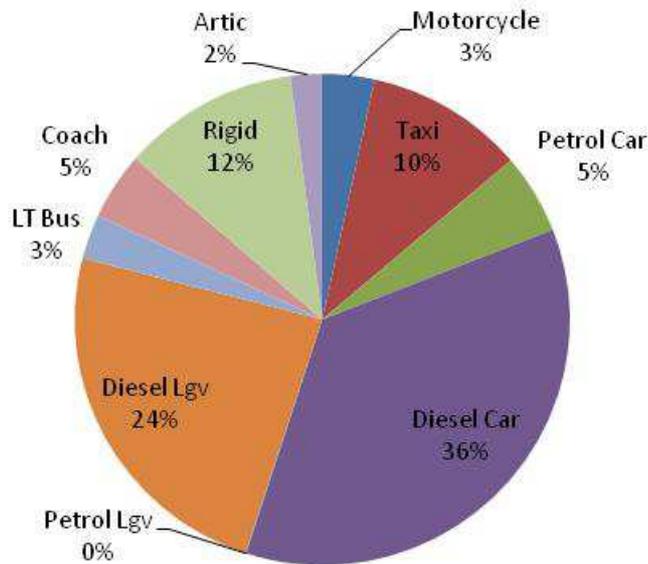
**Modelled mobile sources of NO<sub>x</sub> in the Borough for 2010**



### Modelled mobile sources of PM10 in the Borough for 2010



### Modelled sources of PM10 exhaust emissions in 2010



## 1.2 Purpose of Progress Report

This report fulfils the requirements of the Local Air Quality Management (LAQM) process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where

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exceedences are considered likely, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

Progress Reports are required in the intervening years between the three-yearly Updating and Screening Assessment reports. Their purpose is to maintain continuity in the LAQM process.

They are not intended to be as detailed as Updating and Screening Assessment Reports, or to require as much effort. However, if the Progress Report identifies the risk of exceedence of an Air Quality Objective, the Local Authority (LA) should undertake a Detailed Assessment immediately, and not wait until the next round of Review and Assessment.

### 1.3 Air Quality Objectives

The air quality objectives applicable to LAQM **in England** are set out in the Air Quality (England) Regulations 2000 (SI 928), The Air Quality (England) (Amendment) Regulations 2002 (SI 3043), and are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic metre  $\mu\text{g}/\text{m}^3$  (milligrammes per cubic metre,  $\text{mg}/\text{m}^3$  for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

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**Table 1.1 Air Quality Objectives included in Regulations for the purpose of LAQM in England**

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 µg/m <sup>3</sup>	Running annual mean	31.12.2003
	5.00 µg/m <sup>3</sup>	Annual mean	31.12.2010
1,3-Butadiene	2.25 µg/m <sup>3</sup>	Running annual mean	31.12.2003
Carbon monoxide	10 mg/m <sup>3</sup>	Running 8-hour mean	31.12.2003
Lead	0.50 µg/m <sup>3</sup>	Annual mean	31.12.2004
	0.25 µg/m <sup>3</sup>	Annual mean	31.12.2008
Nitrogen dioxide	200 µg/m <sup>3</sup> not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m <sup>3</sup>	Annual mean	31.12.2005
Particulate Matter (PM <sub>10</sub> ) (gravimetric)	50 µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 µg/m <sup>3</sup>	Annual mean	31.12.2004
Sulphur dioxide	350 µg/m <sup>3</sup> , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m <sup>3</sup> , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

## 1.4 Summary of Previous Review and Assessments

The whole of Hammersmith & Fulham was designated as an Air Quality Management Area (AQMA) in 2000 for two pollutants – nitrogen dioxide (NO<sub>2</sub>) and particles (PM<sub>10</sub>). This was because the first stage of the review and assessment process had shown that exceedences of the objectives for these pollutants were likely over large areas, particularly next to the busy road network that traverses the borough. There was no need to designate any area as an AQMA for any of the other pollutants as all of the targets for 1,3-butadiene, carbon monoxide, lead, sulphur dioxide and benzene were shown to be likely to be achieved.

Having declared the AQMA, a more detailed assessment was carried out in the borough which confirmed the AQMA designation and then work started on drafting and implementing the Air Quality Action Plan (AQAP), which was adopted in April 2003. Progress with the Plan has been reviewed annually since 2004.

Updating and Screening Assessments (USAs) have also been completed (in 2004, 2006, 2009 and 2012), all of which concluded that the original whole borough AQMA should remain. The 2004 USA showed that further investigations were necessary for 2 pollutants: (i) benzene (around a service station next to a busy road in Fulham) and (ii) PM<sub>10</sub> (in the industrialised part of the borough around Scrubs Lane). Results from these assessments have been reported previously and showed that no further actions were required. The 2006 USA concluded that exceedences of the NO<sub>2</sub> and PM<sub>10</sub> objectives were very likely to continue, requiring the AQMA to remain in place, but no Detailed Assessments were required. The 2009 and 2012 USAs concluded that it was appropriate to keep the AQMA in place, although it was recognised that there may be a more consistent level of compliance developing, particularly in relation to the PM<sub>10</sub> objectives.

For all other pollutants (1,3-butadiene, Carbon Monoxide, Lead, Sulphur Dioxide), the USAs have concluded that the Air Quality Strategy objectives were likely to be met by the required dates, so no further action was required to control emissions of these pollutants.

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Figure 1.1 Map showing the Hammersmith & Fulham AQMA (whole borough)



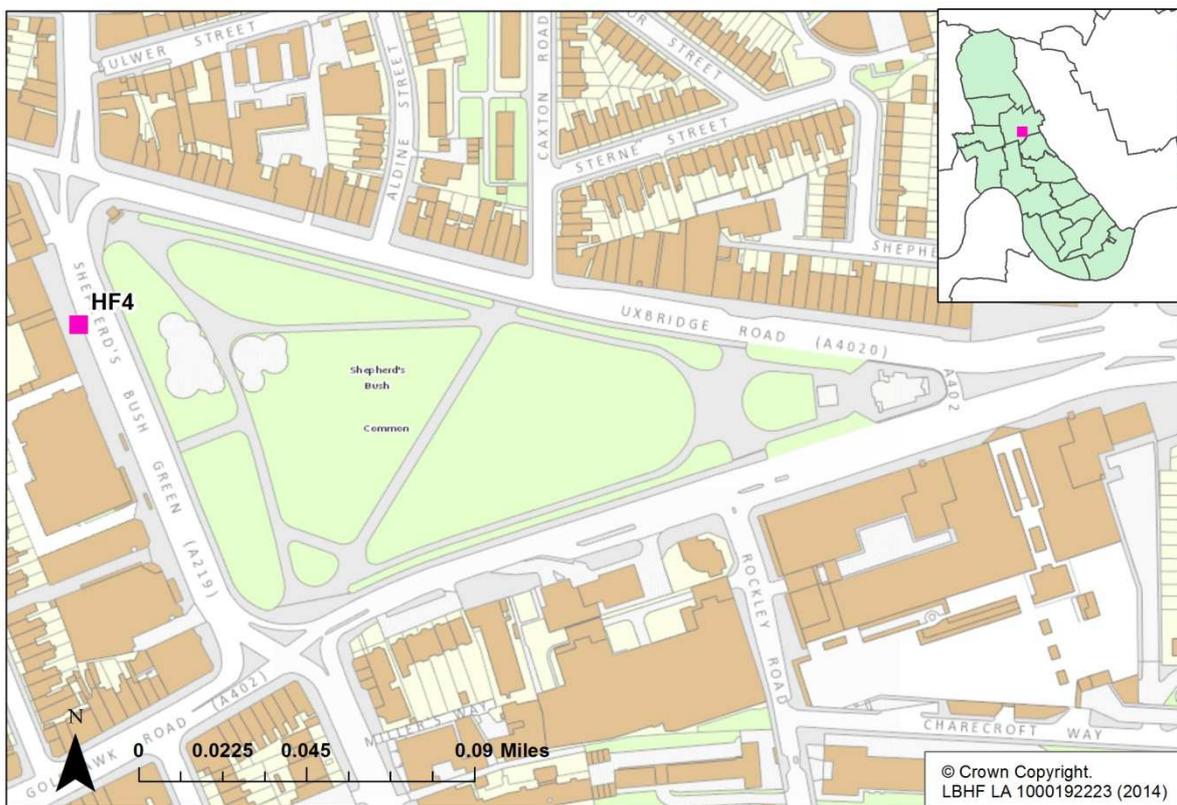
## 2 New Monitoring Data

### 2.1 Summary of Monitoring Undertaken

#### 2.1.1 Automatic Monitoring Sites

The council's new air quality monitoring station in Shepherds Bush town centre began measuring NO<sub>2</sub> and PM<sub>10</sub> in November 2011. A full set of data for 2012 is available, however 100% data capture was not possible from this station in 2013, the reason for this is included in Section 2.2.

**Figure 2.1 Map of Automatic Monitoring Site**



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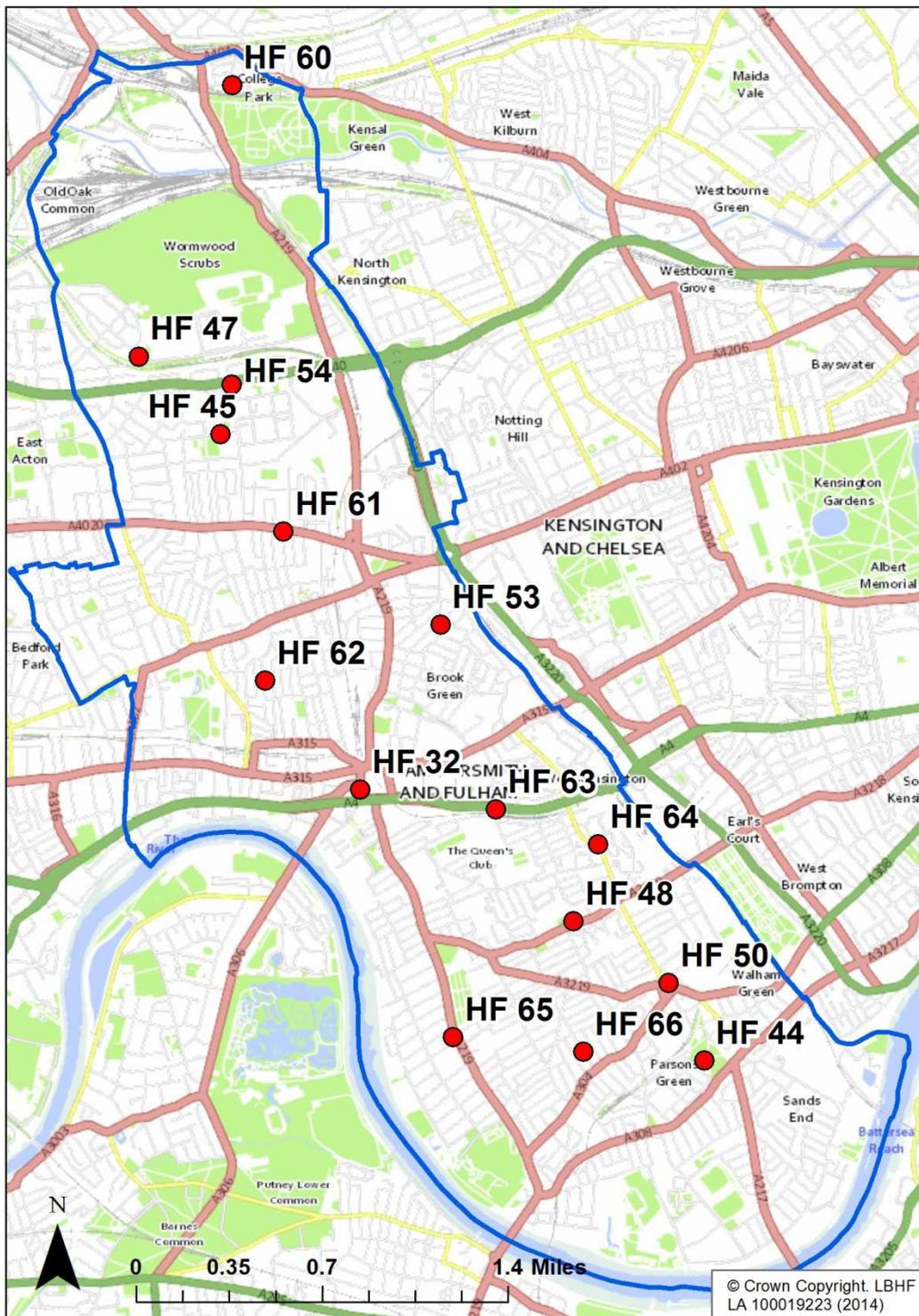
Table 2.1 Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Inlet Height (m)	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
HF4	Shepherds Bush	Urban roadside	523313	179900	2.0	PM <sub>10</sub> /NO <sub>2</sub>	Y	TEOM / Chemiluminescence	Y (1m)	2.0	Y

2.1.2 Non-Automatic Monitoring Sites

During 2013, 15 diffusion tubes were used to monitor NO<sub>2</sub> levels at 8 roadside sites and 7 background sites, as shown in the map and table below. Five new sites (2 background and 3 roadside) were added in July 2013 to improve the coverage of the borough. Only 6 months data is therefore available for these five sites.

Figure 2.2 Map of Non-Automatic Monitoring Sites



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Table 2.2 Details of Non- Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
HF53	Addison Gardens	Urban Background	523813	179491	3m	NO <sub>2</sub>	Y	N	Y (5m)	1m	N
HF45	Bryony Road	Urban Background	522479	180656	3m	NO <sub>2</sub>	Y	N	Y (6m)	1m	N
HF44	Eel Brook Common	Urban Background	525413	176828	3m	NO <sub>2</sub>	Y	N	N	50m	N
HF50	Fulham Broadway	Urban Roadside	525197	177302	3m	NO <sub>2</sub>	Y	N	Y (15m)	2m	Y
HF32	Hammersmith Broadway	Urban Roadside	523327	178484	3m	NO <sub>2</sub>	Y	N	N	4m	Y
HF66	Radipole Road	Urban Background	524680	176880	3m	NO <sub>2</sub>	Y	N	Y (4m)	1m	N
HF63	Talgarth Road	Urban Roadside	524150	178363	3m	NO <sub>2</sub>	Y	N	Y (14m)	1m	Y
HF61	Uxbridge Road	Urban Roadside	522861	180061	3m	NO <sub>2</sub>	Y	N	Y (3m)	1m	N
HF54	Westway A40	Urban Roadside	522548	180960	3m	NO <sub>2</sub>	Y	N	Y (20m)	3m	Y
HF47	Wulfstan Street	Urban Background	521984	181132	3m	NO <sub>2</sub>	Y	N	Y (13m)	1m	N

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<b>Site ID</b>	<b>Site Name</b>	<b>Site Type</b>	<b>X OS Grid Reference</b>	<b>Y OS Grid Reference</b>	<b>Site Height (m)</b>	<b>Pollutants Monitored</b>	<b>In AQMA?</b>	<b>Is Monitoring Co-located with a Continuous Analyser (Y/N)</b>	<b>Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)</b>	<b>Distance to Kerb of Nearest Road (m) (N/A if not applicable)</b>	<b>Does this Location Represent Worst-Case Exposure?</b>
HF62	Cardross street	Urban Background	522750	179150	2.47m	NO <sub>2</sub>	Y	N	Y (3m)	1m	N
HF65	Fulham Palace Road	Urban Road-side	523890	176970	2.58m	NO <sub>2</sub>	Y	N	Y (6m)	1m	Y
HF48	Lillie Road	Urban Road-side	524620	177680	2.55m	NO <sub>2</sub>	Y	N	Y (4m)	1m	Y
HF64	North End Road	Urban Road-side	524770	178150	2.67m	NO <sub>2</sub>	Y	N	Y (13m)	1m	Y
HF60	Waldo Road	Urban Back-ground	522550	182790	2.46m	NO <sub>2</sub>	Y	N	Y (4m)	1m	N

The lab supplying and analysing the diffusion tubes is Gradko, who use a 50% TEA in acetone preparation method. Full details of QA/QC procedures are included in Appendix A.

## 2.2 Comparison of Monitoring Results with Air Quality Objectives

### 2.2.1 Nitrogen Dioxide (NO<sub>2</sub>)

#### Automatic Monitoring Data

The data capture for HF4 was 53.3% for 2013 due to the site being involved in a vehicle collision mid way through the monitoring year. The annual mean data has been annualised in accordance with the Technical Guidance (calculations are provided in Appendix D) and Table 2.3 shows that the monitoring station continues to exceed the Government's annual mean objective. Table 2.4 shows that the 99.8th percentile of 1-hour mean concentrations does exceed 200µg/m<sup>3</sup> and that there were 11 exceedences of the 200µg/m<sup>3</sup> hourly mean within the 6.5 month monitoring period.

Shepherds Bush Green is a very busy location. There are 4 lanes of traffic immediately adjacent to the monitoring station and this road is also a major bus route. The data shows a significant reduction in annual mean concentration from 2012, however due to the low data capture this decrease may not be accurately represent reality. The 2012 Progress Report also noted that the annual mean NO<sub>2</sub> was likely to be higher due to construction and demolition works in close vicinity and the ground works on the neighbouring Green.

The site can be considered to be representative of relevant public exposure as it is located in Shepherds Bush town centre where residents and visitors could be exposed both in the short and long term.

As the monitoring station was only established at this site late in 2011, no data from previous years is available. A graph showing the hourly nitrogen dioxide concentrations for the monitoring period is provided in Appendix B.

**Table 2.3 Results of Automatic Monitoring for NO<sub>2</sub>: Comparison with Annual Mean Objective**

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period %	Valid Data Capture 2013 %	Annual Mean Concentration (µg/m <sup>3</sup> )				
					2009	2010	2011	2012	2013 <sup>c</sup>
HF4	Roadside	Y	99.6	53.3	No data	No data	No data	<b>92</b>	<b>76.2</b>

Bold text indicates an exceedence of the NO<sub>2</sub> annual mean AQS objective of 40µg/m<sup>3</sup>. <sup>c</sup> indicates that the means have been "annualised" as valid data capture is less than 75%. Source: Londonair.org.uk. Data in *italics* is provisional and should be treated with caution.

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**Table 2.4 Results of Automatic Monitoring for NO<sub>2</sub>: Comparison with 1-hour Mean Objective**

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % <sup>a</sup>	Valid Data Capture 2013 % <sup>b</sup>	Number of Hourly Means > 200µg/m <sup>3</sup>				
					2009	2010	2011	2012* <sup>c</sup>	2013 <sup>c</sup>
HF4	Roadside	Y	99.6	53.3	No data	No data	No data	<b>74</b>	<i>11</i> <b>(203.1)</b>

Bold text indicates an exceedence of the NO<sub>2</sub> hourly mean AQS objective (200µg/m<sup>3</sup> – not to be exceeded more than 18 times per year). <sup>c</sup> indicates that the means have been “annualised” as valid data capture is less than 75%. Source: Londonair.org.uk. Data in *italics* is provisional and should be treated with caution.

### Diffusion Tube Monitoring Data

Five new NO<sub>2</sub> diffusion tubes sites were established in the Borough in July 2013. The data capture for these sites is therefore only 50% for 2013, however these new locations will lead to better knowledge of the concentrations over a larger area of the Borough.

There are now 15 NO<sub>2</sub> diffusion tube sites in total. Results are shown in Table 2.5, alongside results from the previous 4 years in Table 2.6. The data is adjusted to take into account any potential difference between continuous monitoring and the diffusion tube methods. 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 2013 has been calculated as 1.14. Details of the analytical laboratory and bias adjustment methodology are described in Appendix A.

In 2013, 3 out of 7 Background sites met the annual mean objective.

All Roadside sites exceeded the annual mean targets with 6 out of the 8 sites showing annual mean concentrations that indicate that the hourly target could also have been exceeded (Fulham Broadway, Hammersmith Broadway, the Westway, Talgarth Road, Fulham Palace Road and North End Road). All sites showed higher levels of NO<sub>2</sub> in 2013 than in 2012.

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**Table 2.5 Results of NO<sub>2</sub> Diffusion Tubes 2013**

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Data Capture 2013 (No. of Months or %)	2013 Annual Mean ( $\mu\text{g}/\text{m}^3$ ) - Bias Adjustment factor = 1.14
HF32	Hammersmith Broadway	Urban Roadside	Y	N	12	<b><u>89.55</u></b>
HF44	Eel Brook Common	Urban Background	Y	N	12	37.89
HF45	Bryony Rd	Urban Background	Y	N	12	<b><u>42.60</u></b>
HF47	Wulfstan St	Urban Background	Y	N	12	<b><u>49.66</u></b>
HF50	Fulham Broadway	Urban Roadside	Y	N	12	<b><u>75.34</u></b>
HF53	Addison Gardens	Urban Background	Y	N	11 (91.6%)	<b><u>41.61</u></b>
HF54	Westway A40	Urban Roadside	Y	N	12	<b><u>98.42</u></b>
HF61	Uxbridge Rd	Urban Roadside	Y	N	12	<b><u>50.10</u></b>
HF63	Talgarth Rd	Urban Roadside	Y	N	12	<b><u>65.16</u></b>
HF66	Radipole Rd	Urban Background	Y	N	12	38.07
HF62	Cardross Street	Urban Background	Y	N	6 (50%) <sup>a</sup>	34.69
HF65	Fulham Palace Road	Urban Roadside	Y	N	6 (50%) <sup>a</sup>	<b><u>63.60</u></b>
HF48	Lillie Road	Urban Roadside	Y	N	6 (50%) <sup>a</sup>	<b><u>50.47</u></b>
HF64	North End Road	Urban Roadside	Y	N	6 (50%) <sup>a</sup>	<b><u>64.64</u></b>
HF60	Waldo Road	Urban Background	Y	N	6 (50%) <sup>a</sup>	<b><u>42.80</u></b>

Bold text indicates an exceedence of the NO<sub>2</sub> annual mean AQS objective of 40 $\mu\text{g}/\text{m}^3$ . Underlined text indicates an annual mean > 60 $\mu\text{g}/\text{m}^3$ , which could lead to a potential exceedence of the NO<sub>2</sub> hourly mean AQS objective. <sup>a</sup> indicates that the means have been "annualised" as full calendar year data capture is less than 75%.

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**Table 2.6 Results of NO<sub>2</sub> Diffusion Tubes (2009 to 2013)**

Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m <sup>3</sup> ) - Adjusted for Bias <sup>a</sup>				
			2009 (BAF = 0.92)	2010 (BAF= 0.93)	2011 (BAF= 0.94)	2012 (BAF= 1.01)	2013 (BAF= 1.14)
HF32	Urban Roadside	Y	<u>72</u>	<u>72</u>	<u>64</u>	<u>77</u>	<u>89.55</u>
HF44	Urban Background	Y	33	33	26	35	37.89
HF45	Urban Background	Y	35	35	27	36	<u>42.60</u>
HF47	Urban Background	Y	<b>42</b>	38	35	<b>41</b>	<u>49.66</u>
HF50	Urban Roadside	Y	<u>71</u>	<u>64</u>	<u>61</u>	<u>71</u>	<u>75.34</u>
HF53	Urban Background	Y	35	34	27	36	<u>41.61</u>
HF54	Urban Roadside	Y	<u>69</u>	<u>70</u>	<b>54</b>	<u>77</u>	<u>98.42</u>
HF61	Urban Roadside	Y	<b>44</b>	<b>42</b>	35	<b>43</b>	<u>50.10</u>
HF63	Urban Roadside	Y	<b>58</b>	<b>59</b>	<b>48</b>	<b>56</b>	<u>65.16</u>
HF66	Urban Background	Y	34	34	27	33	38.07
HF62	Urban Background	Y	-	-	-	-	34.69 <sup>a</sup>
HF65	Urban Roadside	Y	-	-	-	-	<u>63.60<sup>a</sup></u>
HF48	Urban Roadside	Y	-	-	-	-	<u>50.47<sup>a</sup></u>
HF64	Urban Roadside	Y	-	-	-	-	<u>64.64<sup>a</sup></u>
HF60	Urban Background	Y	-	-	-	-	<u>42.80<sup>a</sup></u>

Bold text indicates an exceedence of the NO<sub>2</sub> annual mean AQS objective of 40µg/m<sup>3</sup>. Underlined text indicates an annual mean > 60µg/m<sup>3</sup>, which could lead to a potential exceedence of the NO<sub>2</sub> hourly mean AQS objective. <sup>a</sup> indicates that the means have been “annualised” as full calendar year data capture is less than 75%.

Figure 2.4 shows the annual mean NO<sub>2</sub> concentration trends over the last 6 years at the 10 diffusion tube sites. The results from 2013 for the five new diffusion tube sites are not included on the chart due to only 6 months data being available.

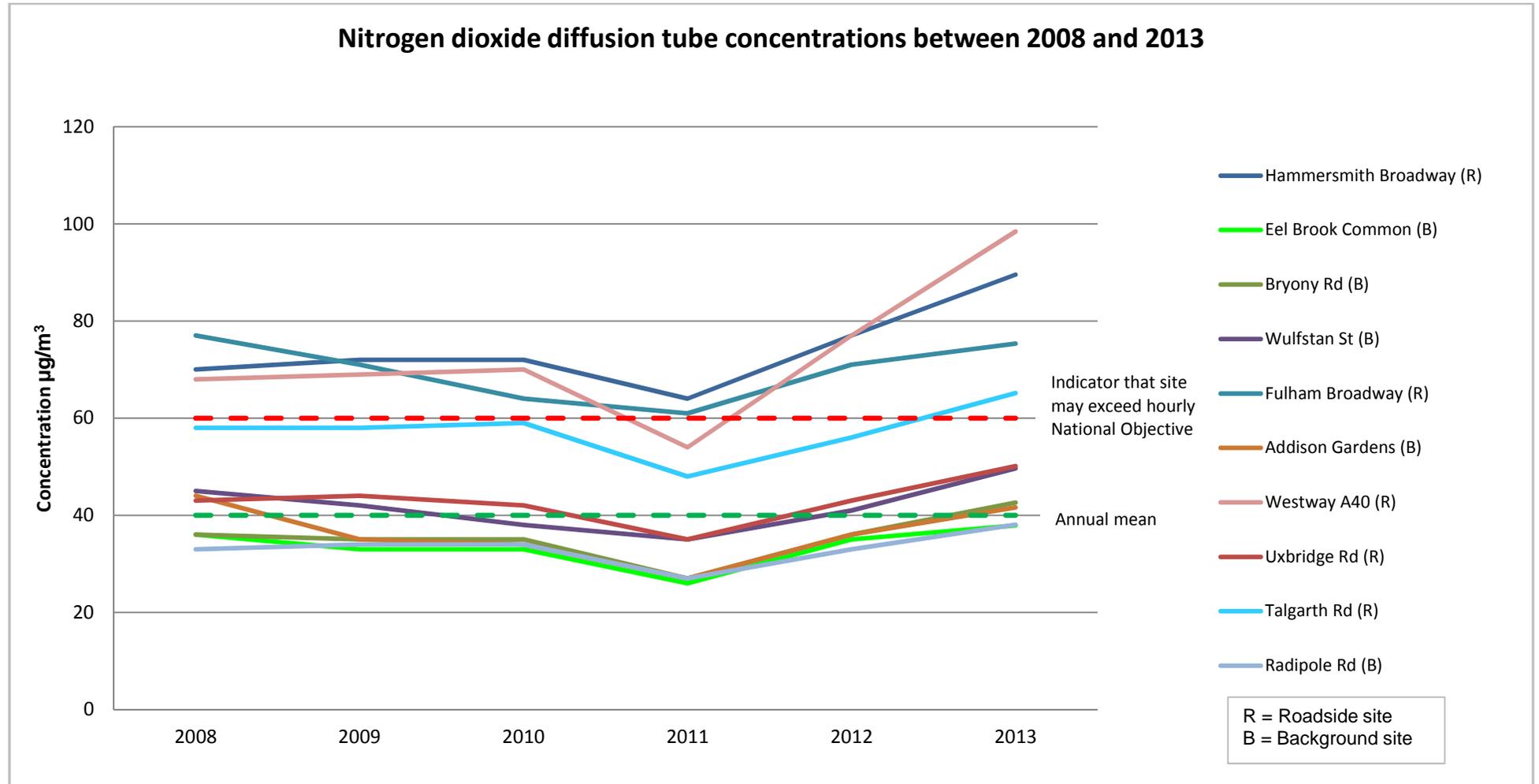
As expected, the lowest concentrations tend to be found each year at the Background sites (Addison Gardens, Eel Brook Common, and Radipole Road), most of which have met the 40 µg/m<sup>3</sup> annual mean objective in recent years. Both background and roadside locations have seen an increase in annual mean concentrations since 2011.

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The highest concentrations continue to be found in the town centres (Hammersmith Broadway and Fulham Broadway) and alongside the busiest roads such as the Westway A40. As well as exceeding the annual mean objective, these sites could also exceed the short-term hourly objective.

All sites are representative of relevant public exposure, mostly being residential streets, town centre areas or public parks.

Figure 2.4 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites



\* The results from 2013 for the five new diffusion tube sites are not included on the chart due to only 6 months data being available.

### 2.2.2 Particulate Matter (PM<sub>10</sub>)

As shown in Tables 2.7 and 2.8, the automatic monitoring station did not measure an exceedence of the Government's annual mean objective or daily PM<sub>10</sub> objective in 2013, although the 90.4<sup>th</sup> percentile of the daily mean concentrations did exceed 50µg/m<sup>3</sup>, (59.5 µg/m<sup>3</sup>). 33 daily means above 50µg/m<sup>3</sup> were recorded in the 6 month monitoring period, therefore it is likely that the site would have exceeded the daily mean objective if monitoring had continued for the rest of the year.

The data capture for HF4 was 45% for 2013 due to the site being involved in a vehicle collision mid way through the monitoring year. The annual mean data has been annualised in accordance with the Technical Guidance (calculations are provided in Appendix D).

The data presented here have been adjusted to gravimetric equivalent, using the Volatile Correction Method developed by King's College London. The data was adjusted using the Volatile Correction Model web portal and used FDMS data from Westminster, Horseferry Road (WMO), Kensington and Chelsea, Cromwell Road (KC2) and an average of the remaining FDMS sites within range.

The site can be considered to be representative of relevant public exposure as it is located in Shepherds Bush town centre where residents and visitors could be exposed both in the short and long term.

As the monitoring station was only established at this site late in 2011, only data from 2012 is available. It is therefore not possible to provide a trend chart of PM<sub>10</sub> annual mean results over the past 5 years.

**Table 2.7 Results of Automatic Monitoring for PM<sub>10</sub>: Comparison with Annual Mean Objective**

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % <sup>a</sup>	Valid Data Capture 2013 % <sup>b</sup>	Confirm Gravimetric Equivalent (Y or N/A)	Annual Mean Concentration (µg/m <sup>3</sup> )				
						2009	2010	2011	2012	2013 <sup>c</sup>
HF4	Roadside	Y	95	45	Y	No data	No data	No data	38	36.4

Bold text indicates an exceedence of the PM<sub>10</sub> annual mean AQS objective of 40µg/m<sup>3</sup>.<sup>c</sup> indicates that the means have been "annualised" as valid data capture is less than 75%. Source: Londonair.org.uk. Data in *italics* is provisional and should be treated with caution.

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**Table 2.8 Results of Automatic Monitoring for PM<sub>10</sub>: Comparison with 24-hour Mean Objective**

Site ID	Site Type	Within AQMA ?	Valid Data Capture for Monitoring Period % <sup>a</sup>	Valid Data Capture 2013 % <sup>b</sup>	Confirm Gravimetric Equivalent (Y or N/A)	Number of Daily Means > 50µg/m <sup>3</sup>				
						2009	2010	2011	2012	2013 <sup>c</sup>
HF4	Roadside	Y	92	92	No data	No data	No data	No data	<b>67</b>	<b>33</b> <i>(59.5µg/m<sup>3</sup>)</i>

Bold text indicates an exceedence of the PM<sub>10</sub> daily mean AQS objective (50µg/m<sup>3</sup> – not to be exceeded more than 35 times per year). <sup>c</sup> indicates that data capture for full calendar year is less than 90%, and the 90.4<sup>th</sup> percentile of 24-hour means is included in brackets.

### 2.2.3 Sulphur Dioxide (SO<sub>2</sub>)

There was no sulphur dioxide monitoring in Hammersmith & Fulham in 2013.

### 2.2.4 Benzene

There was no benzene monitoring in Hammersmith & Fulham in 2013.

### 2.2.5 Other Pollutants Monitored

No other pollutants were monitored in Hammersmith & Fulham in 2013.

## 2.2.6 Summary of Compliance with AQS Objectives

Hammersmith & Fulham council has examined the results from monitoring in the borough.

### Nitrogen dioxide

For NO<sub>2</sub>, exceedences of the annual mean objective continue at all roadside sites being monitored, with the hourly mean objective very likely to be exceeded at the busiest locations. The annual mean NO<sub>2</sub> objectives were met at only 3 out of 7 background locations in 2013, which is a reduction from 2012. All sites recorded an increase in NO<sub>2</sub> levels compared to recent years.

The extent of these exceedences continues to have serious health implications. At some individual sites, levels are close to or more than twice the annual objective level. We continue to fail the government objectives and time is running out for this borough and other parts of inner London to meet the EU objectives by 2015.

### PM<sub>10</sub>

For PM<sub>10</sub>, the limited data collected for the year showed that both the daily and annual mean objectives have been met at the council's roadside site. However, if a whole years data had been collected would have been likely to show that the daily mean objective would have been exceeded.

It is likely that there are other locations in the borough that are close to or above the objective level for the daily mean objective, but we are only able to comment on those areas where monitoring is in place.

Given the levels recorded, the whole borough AQMA will remain in place for now for this pollutant. No Detailed Assessment is required at this stage.

## 3 New Local Developments

### 3.1 Road Traffic Sources

No new roads are planned.

### 3.2 Other Transport Sources

The Council continues to support the proposals for Old Oak Common to be the main interchange between High Speed 2 and Crossrail. Old Oak Common is proposed to be a principal hub station which will play a vital role in taking pressure off busy central London terminals.

There are no other new transport sources in the borough that need to be assessed in relation to:

- Airports.
- Locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.
- Locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.
- Ports for shipping.

### 3.3 Industrial Sources

Since the completion of the last Updating and Screening Assessment in 2012, there are no new industrial sources in the borough that need to be assessed in relation to:

- **Industrial installations:** new or proposed installations for which an air quality assessment has been carried out.
- **Industrial installations:** existing installations where emissions have increased substantially or new relevant exposure has been introduced.
- **Industrial installations:** new or significantly changed installations with no previous air quality assessment.
- Major fuel storage depots storing petrol.
- Petrol stations.
- Poultry farms.

### 3.4 Commercial and Domestic Sources

There are no new/newly identified commercial or domestic sources which have not been considered as part of a planning application. However CHP plant, which is not currently included in the requirements for updating and screening assessments, is being widely installed in existing and new buildings resulting in power generation in

urban areas which emit much higher levels of NO<sub>x</sub> emissions per kWh than gas boilers.

### **3.5 New Developments with Fugitive or Uncontrolled Sources**

Since the completion of the last Updating and Screening Assessment in 2012, there are no new developments with fugitive/uncontrolled sources in the borough that need to be assessed in relation to:

- Landfill sites.
- Quarries.
- Unmade haulage roads on industrial sites.
- Waste transfer stations, etc.
- Other potential sources of fugitive particulate emissions.

Hammersmith & Fulham Council confirms that there are no new or newly identified local developments which may have an impact on air quality within the Local Authority area.

## 4 Local / Regional Air Quality Strategy

In February this year the European Commission sent the Government a 'Letter of Formal Notice' for breaching NO<sub>2</sub> limit values in 16 of 43 zones including London. The UK is the first of the EU's 28 Member States to receive enforcement action on NO<sub>2</sub>. This is the beginning of the legal enforcement process, which is likely to lead to the imposition of fines that may be passed on to regional and local government.

In April, Public Health England published a report providing estimates of the number of deaths that can be attributed to long-term exposure to particulate air pollution for each UK local authority area. In Hammersmith and Fulham the estimates show that in 2010 7.9 per cent of deaths (equivalent to 72) were attributable to particulate pollution. These are similar estimates to the other inner London Boroughs.

In view of these two developments highlighting the seriousness of the air pollution situation, we will continue to raise the profile of air quality within the Council. A recent change in administration may also provide new opportunities to give air quality a higher priority within the Council's agenda. With new Tri and Bi-Borough working with Kensington and Chelsea and City of Westminster, particularly in the Public Health arena, we are optimistic that progress will be made with regards to a local air quality strategy.

## 5 Planning Applications

The Council ensures that air quality is a consideration from the early planning stages. Developers are asked to follow the guidance within the Council's Planning Obligations Supplementary Planning Document (SPD), adopted in July 2013 to ensure that our preferred approach is taken (for more information on the Council's planning policies see Section 6).

Major planning applications which have been granted permission during April 2013 – March 2014 and are subject to conditions or section 106 agreements that require an air quality assessment and low emission strategy include (not a complete list):

- Former BBC Television Centre
- Earls Court (and West Kensington) opportunity area reserved matters applications
- Land to the north of Westfield Shopping Centre

Requests for the discharge of conditions on major sites are also a significant process which involves discussions with developers to ensure that low emission strategies are implemented, and that methods to control and monitor construction impacts are in place. In 2013/2014 this included the following sites:

- Seagrave Road Car Park development site
- Palingswick House, King Street
- 258-264 Goldhawk Road

In addition, to ensure air quality considerations are fully incorporated in the development proposals, including the energy strategy (which can have a considerable impact on air quality), early discussions are essential. To assist with this, we respond to site specific Supplementary Planning Documents, scoping reports, and take part in pre application discussions and provide written comments. The pre-application discussions that take place before formal applications are submitted for major and strategic redevelopment schemes can be useful to highlight the Council's position and drawing the developer's attention to the Council's Planning Obligations SPD. For example, in 2013/14 this included the M&S Depot Site, Albert Wharf, Fulham Gasholders, Former BBC Television Centre and Westfield Extension.

## 6 Air Quality Planning Policies

The Local Development Framework (LDF) is a suite of planning documents which outline the borough's planning policies, including the Core Strategy (adopted Oct 2011), the Development Management Local Plan (adopted July 2013) and supplementary planning guidance.

The Core Strategy forms the basis for planning policy in the borough. The Development Management Local Plan sets out development management policies to be used in determining individual planning applications in conjunction with the policies included in the adopted Core Strategy.

The Planning Obligations Supplementary Planning Guidance, provides detailed supplementary guidance on various topics, including air quality to support policies within the Core Strategy and Development Management Local Plan.

The relevant policies included in the Core Strategy and Development Management Local Plan are:

Core Strategy Policy:

### **Borough Wide Strategic Policy - CC4**

#### **Protecting and enhancing environmental quality**

The council will support measures to protect and enhance the environmental quality of the borough including harmful emissions to land, air and water and the remediation of contaminated land. It will work with partner organisations to help deliver this. In particular, measures will be taken to:

- reduce levels of local air pollution and improve air quality in line with the national air quality objectives and the council's Air Quality Action Plan;
- minimise the impact of noise, by managing the development and distribution of noise-making and noise-sensitive developments in the borough;
- minimise the impact of light pollution; and

Development Management Local Plan Policy:

### **Policy - DM H8**

#### **Air quality**

The council will seek to reduce the potential adverse air quality impacts of new major developments by:

- Requiring all major developments to provide an air quality assessment that considers the potential impacts of pollution from the development on the site and on neighbouring areas and also considers the potential for exposure to pollution levels above the Government's air quality objective concentration targets;
- Requiring mitigation measures to be implemented to reduce emissions, particularly of nitrogen oxides and small particles, where assessments show that developments could cause a significant worsening of local air quality or contribute to exceedances of the Government's air quality objectives; and
- Requiring mitigation measures that reduce exposure to acceptable levels where developments are proposed that could result in the occupants being particularly affected by poor air quality.

The wording of Policy DM H8 is due to be updated in the near future to ensure that it is robust enough to encompass all the developments that are likely to impact local air quality or be impacted by poor air quality.

The Council's Planning Obligations SPD adopted in 2013, sets out our requirements for reducing air pollution emissions from new development, conversions and change of use. The SPD is a significant material planning consideration when determining applications for planning permission.

A detailed study of air quality impacts from major developments will be required for those developments that require an Environmental Impact Assessment, a permit application under the Pollution Prevention and Control Regime, developments that could have significant impacts on air quality; introduce new exposure in poor air quality areas and include large scale demolition/construction phases. Air quality assessments must assess impacts in terms of additional emissions of NO<sub>2</sub> and PM<sub>10</sub> as well as showing the expected effects on local concentrations of these pollutants. If there are sensitive receptors in the vicinity, then the assessment should model likely impacts at these specific locations. If exceedances of the national objectives are shown, then suitable mitigation measures should be proposed to reduce exposure.

Developers are also expected to assess the impacts that demolition and construction works may have on local air quality by undertaking a risk assessment using the Mayor of London Best Practice Guidance and expected to include appropriate measures in their construction management plans.

## 7 Local Transport Plans and Strategies

The Mayor of London published his Transport Strategy (MTS) in May 2010 and asked all London boroughs to produce Local Implementation Plans (LIPs) to show how they will support the Strategy locally. Our LIP, which covers the period 2011 to 2031 sets out how we intend to implement the Mayor's Transport Strategy, as well as our other local transport-related priorities. We have prepared our LIP in line with LIP Guidance from Transport for London who will be assessing all LIPs on behalf of the Mayor of London.

Our Transport Objectives reflect local issues and priorities as well as the goals of the MTS and the challenges identified in TfL's evolving Sub-Regional Transport Plans.

Our Objectives are set out below:

- Serve the five major regeneration areas in the borough - White City, North Fulham area, South Fulham Riverside, Hammersmith Town Centre and Old Oak Common
- Improve the efficiency of our road network
- Improve the quality of our streets
- Improve air quality in the borough
- Make it easier for everyone to gain access to transport opportunities
- Support residents and businesses by controlling parking spaces fairly
- Reduce the number of people injured and killed on our streets

The document is available on the Council's Web Pages.

Funding has been secured through the LIP to be used for a number of air quality projects, including a dust and PM<sub>10</sub> suppression project in the industrial area around Scrubs Lane and a project installing Green Infrastructure in Hammersmith Town Centre.

## 8 Climate Change Strategies

The Council demonstrated its commitment to tackling climate change by signing the Nottingham Declaration in February 2007 which requires the council to contribute, at a local level, to addressing the causes and impacts of climate change. The Council also joined the Carbon Trust Local Authority Carbon Management Programme in May 2009 to assist us in developing a plan to reduce our energy use.

As part of the Carbon Management Programme, the Council has produced a Carbon Management Plan which sets out key initiatives for the council to reduce its carbon emissions and has set a carbon reduction target of 40%, to be achieved by March 2016.

This will be done by implementation of the following actions:

- Rationalising the space that the council occupies and where buildings are retained reducing their energy use;
- Improving the energy efficiency and carbon footprint of secondary schools through the Building Schools for the Future (BSF) programme and implementing energy efficiency projects in primary schools;
- Replacing and improving street lighting;
- Raising energy awareness with all council employees and schools to reduce the use of energy;

The above actions are likely to also reduce local air pollutant emissions.

## 9 Implementation of Action Plans

The review of the Air Quality Action Plan for the 2013/14 period shows that progress has been made in most areas, although some actions have naturally slowed as they are reaching their limits of what can be achieved. 2013/14 saw a continued rise in the number of green parking permits issued as well as excellent take up of the Mayor's Cycle Hire Scheme when it went live in December 2013. This shows a move towards the use of more sustainable modes of transport in the borough which will aid the reduction of NO<sub>2</sub> and PM<sub>10</sub> concentrations.

Continuing on a transport theme, the Council continues to implement traffic reduction schemes in various areas of the borough, along with completing the first phase of studies into the possibility of creating a Hammersmith Fly Under along the Talgarth Road, one of the boroughs most polluted highways. For the schools in the borough that have active travel plans, car usage is now below 15% with more active travel modes such as scooting and walking increasing to over 50%.

The Council is also embarking on a Greening Business Project that aims to reduce the environmental impact of small and medium sized enterprises (SME's) in the borough. Air pollutant emissions will be reduced as part of this work which will look at the businesses energy and transport related emissions and suggest how they can be reduced.

**Table 9.1 Action Plan Progress**

Action Plan Measure	Original Timescale	Previously reported Progress	Previously Reported Outcomes	New Progress, Outcomes and Additional Comments for 2013/14
<b>REDUCING EMISSIONS AT SOURCE</b>				
1. Encourage improved availability of alternative fuels	Summer 2003	<p>a) There continues to be 2 service stations in the borough where forecourt LPG is available – BP Connect on Talgarth Road by Hammersmith Flyover and BP Connect Shepherd’s Bush Green.</p> <p>b) Six electric vehicle charging points were installed as part of the SWELTRAC project (2 points at 3 sites: Hammersmith Hospital, Charing Cross Hospital and Kings Mall Shopping Centre). There are also 30 Charging points at the Westfield shopping centre in Shepherds Bush.</p> <p>c) Diesel vehicles continue to use 5% biodiesel fuel. Fleet MOT emissions tests have shown a reduction in smoke emissions.</p>	<p>a) The London Plan includes a policy that requires 1 in 5 parking spaces in major new developments to provide an electrical charging point to encourage the uptake of electric vehicles. This policy is implemented by the council.</p> <p>b) No further expansion of the off-street charging infrastructure. Consideration of installing on-street charging points have not been pursued due to parking stress in the borough. However off street charging points are required as part of major planning applications in line with London Plan policy.</p> <p>c) Diesel vehicles continue to use 5% biodiesel fuel.</p>	<p>a) The London Plan policy continues to be implemented by the Council.</p> <p>b) There has been no further expansion of the off-street charging infrastructure.</p>
2. Provide incentives for use of alternative fuels	From Summer 2003 onwards	<p>a) Impacts are difficult to assess – BP does not like to provide sales figures for LPG or any off their fuels due to commercial confidentiality.</p> <p>b) 650 ‘green’ parking permits issued for electric, gas or dual fuel cars in 2010/11; 743 issued in 2011/12.</p>	<p>a) As previously reported. No new activities for this measure.</p> <p>b) In 2012/13, 764 ‘green’ parking permits issued.</p>	<p>a) As previously reported. No new activities for this measure.</p> <p>b) In 2013/14, 849 ‘green’ parking permits issued.</p>
3. Promote travel plans to encourage a switch to low emission vehicles	Ongoing from 2002 for the duration of the AQAP	<p>a) In 2011/12, 62 new workplace travel plans were secured. 24 workplace travel plans were initiated or reviewed in 2010/11. The first 4 voluntary workplace travel plans had also been completed.</p>	<p>a) In 2012/13, 52 new workplace travel plans were secured.</p>	<p>a) In 2013/14, 43 new workplace travel plans were secured.</p>
4. Reduce emissions from the council fleet	Ongoing from 2002	<p>a) Use of biodiesel continues to help emissions from the council’s diesel vehicles to be as low as possible. The number of vehicles in the council fleet continues to reduce as services are contracted out. The council has also signed up to TfL’s Freight Operators Recognition Scheme (Bronze level) which offers training and guidance in a number of areas relating to vehicle and fleet management. In</p>	<p>a) The council remains a member of the TfL FORS scheme.</p>	<p>a) The council is currently reviewing its FORS membership.</p> <p>b) The Bi-Borough Parks Police have leased a new electric vehicle as one of their fleet which will reduce emissions of NO<sub>x</sub> and PM<sub>10</sub>.</p>

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Action Plan Measure	Original Timescale	Previously reported Progress	Previously Reported Outcomes	New Progress, Outcomes and Additional Comments for 2013/14
		2010/11, 27 new mini-buses that utilise Mercedes' 'stop/start' technology to reduce idling emissions were added to the fleet.		
5. Seek a reduction in emissions from the bus fleet	To be agreed with TfL and bus operators	a) TfL continues to trial buses running on alternative fuels such as electric-diesel. Bus route H91 (Hammersmith to Hounslow West) became a hybrid service, with plans for route 211 (Hammersmith to Waterloo) to follow in July 2012.	a) Route 27 has now been converted to hybrid operation and Route 11 will be converted to operation by the new hybrid-driven Routemaster in September 2013.	<p>Routes 9,10, 22, 94 and 148 have been converted to the new Routemaster operation</p> <p>TfL is well on its way to having Europe's largest fleet of hybrid buses. These vehicles use a combination of an ordinary diesel engine and an electric motor and reduce emissions of local pollutants and CO<sub>2</sub> by 30% compared to conventional buses. There are now too many to list individually in LBHF</p> <p>A new Routemaster Bus has been introduced in London. The bus uses the latest green diesel-electric hybrid technology and is the best performing bus of its kind in the world. In test conditions the New Routemaster produced around half the carbon dioxide and a quarter of the particulate matter and nitrogen oxides of conventional diesel buses and is more fuel efficient</p> <p>A battery pack powers the electric motor which drives the wheels on the bus. The battery is charged by a generator and through regenerative braking (where the system recycles the energy lost during the braking motion). Stop-start technology means the engine only runs when it needs to charge the battery.</p> <p>Within LBHF, the following new Routemasters operate:- route 11, which runs between Liverpool Street station and Fulham Broadway, route 9 (Hammersmith to Aldwych), route 148 (Camberwell Green to White City bus station) and route 10 (Hammersmith bus station to King's Cross St. Pancras).</p>
6. Encourage the use of vehicles with smaller, more efficient engines	From Summer 2003 onwards	a) Produced a public information leaflet (Drive Down Pollution) which included information on benefits of smaller vehicles. Information also appeared in HFM, the council web site and information poster. Also distributed at events such as the west London Green Festival etc.	a) The information leaflet encourages people to consider smaller, more fuel efficient cars.	a) As previously reported. See above (action 2) for update on discount parking permit scheme.

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Action Plan Measure	Original Timescale	Previously reported Progress	Previously Reported Outcomes	New Progress, Outcomes and Additional Comments for 2013/14
		b) The Environment Services Department has use of a Smart car for council business which is used for site visits etc.	b) The Smart car is a visual reminder to people that such small, efficient cars are ideal for city driving conditions.	b) The Smart car is still available for use by Council staff for council business.
7. Seek to reduce emissions from larger vehicles (Low Emission Zone)	The report on the outcome of the LEZ study is due in mid 2003. Any scheme would need to be co-ordinated with other boroughs etc	a) Most vehicles are complying with the LEZ requirements and emissions from HGVs (over 3.5t), buses and coaches are expected to be reducing in London as a result. All council vehicles comply with the LEZ emission standards as required.	a) The next phase of the LEZ came into force in January 2012 which requires larger vehicles to be Euro 4 compliant for PM10. Vans/mini-buses have come into the scheme for the first time and have to be Euro 3 compliant for PM10.	a) The LEZ remains in place.  b) Council Officers continue to be involved in discussions with TfL and the GLA regarding the proposed Ultra Low Emission Zone, however the zone is currently not proposed to cover the LBHF.
8. Seek to reduce emissions from badly maintained vehicles	Roadside testing is likely to start in 2003; to be co-ordinated with other participating boroughs	a) During 2003/04, 468 vehicles were tested, out of which 12 failed the emissions test. No test since then.	a) No further vehicle emission testing carried out.	a) No further vehicle emission testing carried out.
9. Encourage more environmentally friendly driving behaviour	Implementation to be co-ordinated with other participating boroughs. Aim for summer 2003	a) Opening of the extension to Hammersmith bus station in March 2008 has removed buses from an on-street bus stand where buses had on occasion been seen with engines running unnecessarily whilst parked.	a) No recent complaints received about emissions from buses stationary at bus stands. TfL are now running a London-wide awareness and enforcement campaign on idling vehicles.	a) No further progress on this action.
10. Seek a reduction in emissions of small particles from construction sites	Ongoing from 2002 for the duration of the AQAP	a) Complaints of dust nuisance investigated as and when reported.  b) Large scale developments are required to submit a construction code of practice, which will include measures on minimising dust emissions. SPD on Sustainable Construction adopted in November 2007 to provide advice on how to reduce dust and pollution impacts during construction /demolition works on large sites.	a) Complaints continue to be investigated as required. 22 complaints received in 2011/12 about construction / demolition dust. Informal warning/advice usually effective in securing improvements.  b) Developers are advised to follow guidance in the council's SPD on Sustainable Construction and submit details on how dust/PM10 emissions will be minimised. The GLA/London Councils Best Practice Guidance on Control of Dust and Emissions from Construction and Demolition is also recommended.	a) Complaints continue to be investigated as required. 90 complaints received in 2013/14 about construction / demolition dust. Informal warning/advice usually effective in securing improvements.  b) We continue to require a construction management plan for major development sites, including measures to minimise dust emissions and advised to follow SPD/BPG guidance.
11. Seek a reduction in emissions from domestic and	Ongoing from 2002 for the duration of the AQAP	a) In 2011/12, an additional 35 home composters were ordered and distributed. We also ran 4 composting workshops where we gave away 136 compost bins in total. In 2011/12 the following	a) In 2012/13, an additional 24 home composters were ordered and distributed. A Green Johanna trial was also undertake, with 80 subsidised units being taken up and 4 workshops conducted. In	a) 2013/14 data is not currently available. Updates will be reported in the 2014/15 report.  b) In 2013/14 there were 39 complaints about smoke

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Action Plan Measure	Original Timescale	Previously reported Progress	Previously Reported Outcomes	New Progress, Outcomes and Additional Comments for 2013/14
commercial properties		<p>green waste was sent for composting:</p> <ul style="list-style-type: none"> <li>- 53 tonnes of Christmas trees</li> <li>- 360 tonnes of leaf fall from public highways</li> <li>- 10 tonnes from the council's parks. This is the tonnage delivered to Western Riverside Waste Authority. The Councils parks contractor is composting much of the green waste arising from parks within the parks themselves.</li> </ul> <p>b) Informal warning/advice usually effective in securing improvements. 44 complaints about smoke from bonfires in 2011/12. Advice was given and improvements secured. No notices were served. No</p> <p>c) A number of projects to improve energy efficiency have been implemented in 2011/12 for the council's corporate sites. We have so far delivered approx 4,000 tonnes of CO2 savings since the carbon management plan was implemented (a 41% reduction against the target). Carbon reduction initiatives have been implemented in the council's IT strategy.</p> <p>d) The council has compiled information on its emissions for 2011/12 and they will be published on <a href="http://www.lbhf.gov.uk/co2">www.lbhf.gov.uk/co2</a> in August. In general a 17% reduction in electricity use was found for 2011/12 when comparing with previous year (probably due to closure/sale of council buildings, however total emissions from schools (from gas and electricity) increased compared to 2010/11 and this was probably due to new schools (Hammersmith Academy and a number of new free schools in the borough). Total GHG emissions reported for 2011/12 are calculated as 25,299 tCO2e. One main difference since 2010/11 is that reporting for 2011/12 included fugitive air-conditioning emissions which calculated as 866 tCO2e. By removing this it can be seen that total GHG emissions have reduced by c. 500 tCO2e.</p>	<p>20012/13 the following green waste was sent for composting:</p> <ul style="list-style-type: none"> <li>- 60 tonnes of Christmas trees</li> <li>- 103 tonnes of leaf fall from public highways</li> <li>- 178 tonnes from the council's parks. This is the tonnage delivered to Western Riverside Waste Authority. The Councils parks contractor is composting much of the green waste arising from parks within the parks themselves.</li> </ul> <p>b) In 2012/13 there were 44 complaints about smoke from commercial/domestic properties, including from bonfires. 21 sites were warned/advised in writing. No abatement notices were served.</p> <p>c) In 2012/13 the council implemented projects which provided 695 tonnes of carbon savings (an extra 7.11% against the target). A number of projects were also included during 2012-13 which will bring extra reduction of approx 700 tonnes of CO2 – however a number of these have now been moved back to the 2013-14 programme.</p> <p>d) The latest Greenhouse Gases (GHG) report is due at the end of July 2013. This has not been compiled yet as DECC is considering revising the reporting regime, so we are waiting for clarification on this before compiling our next report.</p>	<p>from commercial/domestic properties, including from bonfires. No abatement notices were served.</p> <p>c) Figures for 2013-14 are not yet available to be reported. This years figures will be reported in next years update report.</p> <p>d) The latest Greenhouse Gases (GHG) report calculated that there was a total of 32% reduction in gross carbon emissions (reporting from 2009/10 baseline from scope 1,2 and 3 related emissions). There was however a total 10% increase in school related emissions which reflected the expansion of school buildings and new schools in the borough.</p> <p>(e) Since 2009, LBHF has made strong progress in reducing its emissions since participating in the Carbon Trust's Local Authority Management Programme. There was a 23% reduction in carbon emissions between 2010/11 and 2011/12, although there was an increase by 14.5% between 2011/12 and 2012/13. This increase was attributed to a particularly harsh winter.</p> <p>A new project for 2014-15 is the Greening Business Programme which aims to reduce the environmental impact from SME's in the borough. Recruitment of businesses is starting now and the Council is looking for 11 smes in LBHF to work with over the next few months.</p>
12. Seek to control and minimise	Ongoing from 2002 for the duration of the	a) Continued regulation and reduction of emissions to atmosphere through the LAPPC regime and clean air regulations.	a) Regulation duties continued in line with the LAPPC requirements. 2 complaints were received in 2012/13 regarding emissions from industrial	a) Regulation duties continued in line with the LAPPC requirements. No complaints were received in 2013/14 regarding emissions from industrial sites regulated by

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emissions from industrial premises	AQAP	5 complaints were received in 2010/11 regarding emissions from industrial sites regulated by the council. No evidence found of non-compliance – no action required.	sites regulated by the council. No notices were served.	the council. No notices were served.
<b>REDUCING THE NEED TO TRAVEL</b>				
13. Sustain and improve town & local centres, facilities and employment areas	UDP review to be complete in 2003	a) Work has started on the Local Development Framework which will replace the UDP. Over the past couple of years, the Council has been reviewing and refining its proposed LDF Core Strategy. Reducing traffic congestion and the need to travel remain strategic objectives.	a) The council's Core Strategy includes strategic policies supporting the regeneration of key parts of the borough including the White City Opportunity Area, Earls Court and West Kensington, South Fulham Riverside and Old Oak Common. Regeneration of these sites in key parts of the borough will help improve local centre, reducing the need for residents to travel to get the key services they require	(a) The Core Strategy continues to be implemented and progress continues on the regeneration of the White City Opportunity Area, Earls Court and West Kensington, South Fulham Riverside and Old Oak Common. Regeneration of these sites in key parts of the borough will help improve local centre, reducing the need for residents to travel to get the key services they require. (b) We have also commissioned and completed first phase of studies into Hammersmith "Flyunder", which would significantly reduce emissions in the Town Centre.
14. Seek to reduce the air quality impact of new development	Ongoing from 2002 for the duration of the AQAP	a) The council's Core Strategy contains a policy on air quality which requires air quality assessments for major developments and implementation of mitigation measures, if there is a need to reduce impacts.  b) H&F guidance is in use by Development Control officers.	a) More detailed policies relating to air quality have been drafted for inclusion in the council's DM DPD which has been consulted on and will be adopted in July 2013.  b) Supplementary Planning Guidance on air quality issues has been drafted and consulted on and will formally be adopted in July 2013.	a) The wording of our air quality policy within our Development Management Plan is currently being amended, in order to include all developments that have the potential to impact on local air quality (previously restricted to major developments). The current policy continues to be implemented on all relevant planning applications.  b) We refer all applicants to our Supplementary Planning Document that was adopted in July 2013 to ensure the correct information is submitted with regards to air quality.
<b>ENCOURAGING A SWITCH TO LESS POLLUTING FORMS OF TRANSPORT</b>				
15. Promotion of bus services	Ongoing from 2002 for the duration of the AQAP	a) Bus service improvements achieved on a number of routes including: Route 316 - extended from North Kensington to White City, via the Edward Woods estate, from November 2008; New route 228 - introduced January 2009. (Both in association with Westfield); A new Sunday service was introduced on route 607 from April 2010; A full time bus stop for southbound traffic was constructed in North End Road (junction with Racton Road) - previously a bus stop at this location operated only in the evenings and on Sundays. Installed 50 metres of northbound bus lane/bus only road at the north end of Fulham Palace Road as part of the Fulham	a) From December 2011, articulated buses were replaced by double decker vehicles with increased frequency on route 207 (Uxbridge Road) and frequencies were increased on Friday and Saturday nights on the N207. From January 2012 increased frequency was introduced in the peak periods on bus route 220.	No significant changes to bus services took place in 2013/14 other than minor changes to improve reliability.  Progress has been made by the Council's Highways department in bringing the total of fully accessible bus stops up to 237 out of the 270 in the Borough.  <b>Putney to Blackfriars River Service</b> On 9 September 2013, TfL launched a new timetable to provide extra journeys to customers on the Putney to Blackfriars river bus service serving the south of the Borough. Patronage on the recently retendered service

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		Palace Slip Road/ Hammersmith gyratory scheme which has produced substantial benefits for buses and other traffic.		has continued to exceed forecasts, boosted by quicker journey times, an increased number of departures and more modern vessels.
16. Promotion of other forms of public transport	Ongoing from 2002 for the duration of the AQAP	<p>a) Shepherds Bush rail station opened in September 2008 and a new tube station at Wood Lane opened in October 2008. Imperial Wharf station was opened in September 2009.</p> <p>The council is promoting a Crossrail interchange station with the West London Line in the Old Oak Common/Mitre Bridge area, linked to a possible High Speed Rail hub station.</p>	a) The council continues to work with HS2, the GLA/TfL and neighbouring boroughs on plans for HS2 and the draft Environmental Statement. The OAPF for the area has been issued for consultation.	(a) The Council is submitting a petition on the HS2 bill to include connections from Old Oak Common station to the West London Line and the West Coast mainline, better bus and cycle connections and protection for Wormwood Scrubs.
17. Promotion of cycling	Ongoing from 2002 for the duration of the AQAP	(a) Initial work has been undertaken on extending the Mayor's Cycle Hire scheme to the borough, with the funding agreement signed and planning permissions granted for a number of docking stations. The scheme is set to go live in December 2013.	<p>(a) Cycle hire scheme went live in December 2013 and by February 2014 there were 26,000 hires per month.</p> <p>New, increased cycle parking standards have also been adopted.</p>	<p>Since the London Cycle Hire Scheme was introduced in LBHF in December 2013, the number of journeys has increased dramatically. In the first month of the scheme, 13,000 journeys were made in the borough. But in January, the number of cycle hire journeys doubled to more than 26,000 in the scheme's second month – an average of about 866 journeys a day. By March 2014, the hire and docking usage was up to 51,064 per month and rising.</p> <p>At least 171 cycle stands were introduced on street as part of the Council's programmes.</p> <p>A full programme of cycle training and maintenance classes continued along with the award – winning "Exchanging Places" scheme to reduce conflict between cyclists and large goods vehicles.</p>
18. Promotion of Walking	Ongoing from 2002 for the duration of the AQAP.	<p>a) The council promoted the 'Walking Works' activities, with again more than 1,000 individuals taking part. We also promoted walking at the Grand Union Canal Fest.</p> <p>Council Road Safety Officers visit infant, junior and secondary schools throughout the borough to raise awareness of road safety and provide training. 17,010 pupils have received road safety education from the team in the last 3 years.</p> <p>We also completed the first stage of pedestrian signing in the Borough by erection of TfL's Legible London type signage in Shepherd's Bush town centre.</p>	<p>a) The Borough continues to work extensively on de-cluttering the street environment in Hammersmith and Fulham – e.g. removal of unnecessary signposts, bollards and guardrails. "Legible London" signage has been installed in Hammersmith Town Centre. One pelican crossing converted to puffin (giving more time to cross to those who need it).</p> <p>The council worked to save the pedestrian cut-through across the railway at Kensington Olympia station – TfL had planned to install ticketed</p>	<p>Significant pedestrian crossing improvements in 2013/14 included the provision of PCaTS (Pedestrian Countdown at Traffic lights) in Uxbridge Road, Goldhawk Road and Fulham Palace Road.</p> <p>In addition our Neighbourhood programme has continued to see sizeable decluttering and removal of barriers to pedestrians. In 2013/14 we removed 78 (non-illuminated) bollards, 28 illuminated bollards, 73 sign posts, and 24 metres of guard rail.</p>

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			barriers but they will now provide a bypass for local people to walk across the bridge.	
19. Encourage a reduction in car use for the journey to school	Ongoing from 2002 for the duration of the AQAP	<p>a) Not including independent nurseries (which do not have to do travel plans) 73 of 76 schools (96%) have school travel plans (STPs), with 49 (66%) of these currently 'valid' (i.e. active and annually reviewed).</p> <p>One new school (West London Free School) is engaged in the process and aiming for STP approval in 2012; and two schools have never engaged. 12 schools are currently in the process of reviewing their STPs, and 12 schools appear to have abandoned their STPs.</p> <p>Over 20,000 pupils surveyed at 74 schools shows the following modal shift over the last 7 years:</p> <ul style="list-style-type: none"> <li>• Car use down from 21% to 16%</li> <li>• Cycling/scootering up from 5% to 10%</li> <li>• Walking level constant at 39%</li> <li>• Public transport constant at 32%</li> </ul> <p>STAR (School Travel Accredited and Recognised) – this award scheme was improved and put online and has resulted in a tripling of STAR accredited schools in H&amp;F since last year:</p> <p>2007: 5 accredited schools 2008: 4 accredited schools 2009: 1 accredited school 2010: 4 accredited schools 2011: 15 accredited schools 2012: 44 accredited schools</p>	<p>a) Not including independent nurseries (which do not have to do travel plans) all 76 schools in the borough have now completed their school travel plans, with 63 (83%) of these currently 'valid' (i.e. active and reviewed within past 12 months). Of the 13 schools with out of date STPs, 9 schools are currently in the process of reviewing and 4 schools appear to have abandoned.</p> <p>Travel modes to school: Active travel (cycle/buggy/scooter/walk) is now up to 52%, and car use has fallen to below 15%</p> <p>STAR (School Travel Accredited and Recognised) award scheme:</p> <p>2013: deadline is in June, currently 36 have approval for accreditation, this should rise to a similar number as last year.</p>	<p>a) Not including independent nurseries (which do not have to do travel plans) all 75 schools in the borough have now completed their school travel plans, with 51 ) of these currently 'valid' (i.e. active and reviewed within past 12 months). Of the 24 schools with out of date STPs, 19 schools are currently in the process of reviewing and 5 schools appear to have abandoned their plans.</p> <p>Travel modes to school: Active travel (cycle/buggy/scooter/walk) is now up to 52%, and car use has fallen to below 15%</p> <p>STAR (School Travel Accredited and Recognised) award scheme:</p> <p>2014: deadline is in June, currently 26 have approval for accreditation, this should rise to a similar number as last year.</p>
20. Encourage a reduction in car use for the journey to work and business trips	Ongoing from 2002 for the duration of the AQAP	a) As above: Funding for the Travel Plan Co-ordinator post has been extended.	<p>a) By 2009/10, 78 workplace travel plans were listed on iTrace for the borough. 24 workplace travel plans were initiated or reviewed in 2010/11. The first 4 voluntary workplace travel plans had also been completed.</p> <p>A Travel Plan business network is developing in Hammersmith Town Centre.</p>	a) See measure 3.
21. Control	Ongoing –	a) Double yellow lines implemented across all	a) Parking controls reviewed in 2012/13 in Zones	a) Parking bays maximised, signage de-cluttered and

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Action Plan Measure	Original Timescale	Previously reported Progress	Previously Reported Outcomes	New Progress, Outcomes and Additional Comments for 2013/14
provision of on and off street parking to deter car commuting into and within the borough	parking best value review to be complete by mid 2003	<p>informal crossing points with dropped kerbs in the borough's largest CPZ (Zone V). Stakeholders of CPZs V, B and C were consulted on parking controls in 2011/12. The smart visitor permit was introduced in Zone V to provide discounted parking for residents and visitors and Richmond Way (in Zone B) opted for extended parking controls. Parking consultations carried out in CPZs V, B and C in order to gauge whether stakeholders want extended parking controls as a mechanism of controlling parking stress and the availability of parking spaces.</p> <p>b) Parking standards applied to new developments to ensure adequate provision without increasing 'parking stress'.</p>	Q, W and F.	<p>double yellow lines installed around informal crossings in 2012/13 in Zones Q, W and F.</p> <p>In 2013/14, Parking bays maximised, signage de-cluttered and double yellow lines installed around informal crossings in Zones S, U and Z.</p> <p>Parking consultations were also carried out in Zones C and J, and part of Zone Q (Novello St), which became a one-street sub-zone to discourage intra-zonal commuter parking.</p> <p>The Zone J parking consultation offered additional match day parking controls. The results are being analysed. If the majority of respondents opt for match day parking controls this would mean that there would likely be a significant reduction in football fans parking in residential roads on match days. This would reduce parking stress and congestion in the Uxbridge Road area, which is a key route.</p> <p>b) GLA parking standards adopted.</p>
22. Encourage freight to be transported in a sustainable manner	2004	<p>a) The Council is now a member of FORS (Freight Operators Recognition Scheme) and we encourage the development of Servicing and Delivery Plans and the use of rail and water for freight via the planning process. Waiting and loading reviews are ongoing boroughwide (Zones H,Q,T and North End Road in particular).</p> <p>b) The home delivery scheme is included in the WLFQP three year programme; we will follow this up together with the partnership.</p> <p>c) 3 bicycle rickshaws have been purchased for potential use in such a scheme. Rickshaws have already been used by the council to transport mail/goods and for local school deliveries. The freight rickshaw tricycle is currently used by Hammersmith BID.</p>	<p>a) Waiting and loading reviews carried out in Zones Q,W and F reviewed in 2012/13.</p> <p>b) Westtrans is working on a freight plan which will have several elements in it to reduce the environmental impacts of deliveries.</p> <p>c) The council has set up a lorry driver-cyclist awareness training course to improve the quality of HGV driving in the borough and to reduce the danger to cyclists – this has won a London Cycling Campaign award.</p>	a) We are working towards Gold Standard FORS (Freight Operator) recognition
<b>MAKING MORE EFFICIENT USE OF ROAD TRANSPORT</b>				
23. Encourage car sharing	From Summer 2003 onwards	a) Share the car software installed Spring 2004. Car share scheme is up and running. 2 Car Clubs operate in Hammersmith & Fulham: City Car Club,	a) There are now a total of 51 on-street car club parking bays in the borough.	a) There are 26 Car Club Bays in the borough. (reduction due to consolidation in numbers of car clubs)

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Action Plan Measure	Original Timescale	Previously reported Progress	Previously Reported Outcomes	New Progress, Outcomes and Additional Comments for 2013/14
		and Zipcar (now incorporating Streetcar).		In April 2014 the Council introduced an electronic parking permit for Car Clubs in order to make the renewal of permits easier.
24. Discourage short journeys	From Summer 2003 onwards	a) The "small zone" system mentioned under action 21 discourages intra-borough car journeys. Discouragement of short journeys is at the heart of the travel planning process. The school travel planning process has generated a positive modal shift with fewer short journeys being reported	a) As previously reported. See also updates for measures 19, 20 and 21.	a) As previously reported. See also updates for measures 19, 20 and 21.
<b>OTHER MEASURES TO REDUCE ROAD TRAFFIC AND EMISSIONS</b>				
25. Reduce the amount of road traffic in residential areas and town centres	Ongoing from 2002 for the duration of the AQAP	a) There are now 16 20mph zones in the borough. The innovative "drive over chicane" in the North End Road East zone was Highly Commended at the London Transport Awards 2009. An innovative 20mph zone without physical measures was piloted in 2010/11 in the Wendell Park area. The Wendell Park scheme has now been fully implemented, increasing the number of 20mph zones in the borough to 17.  b) The relevant London Plan policies are applied as and when appropriate.	a) Reviews of neighbourhood traffic calming schemes were carried out in the Old Oak, Charing Cross Hospital and Fulham Palace Road (East and West) Areas.  b) The council's Development Management DPD (due for adoption in July 2013) includes a policy on car parking standards aimed at reducing additional car travel and encouraging more sustainable travel methods.	Schemes have been implemented in the St Mary's Cemetery, Hammersmith Grove, Sulgrave Road, White City and Cathnor Park Neighbourhoods in 2013-14.
26. Promote the use of trees to help improve local air quality	Work on the Biodiversity Action Plan will begin in early 2003	a) In 2010/11, a total of 371 trees were planted. Planting in new developments continues as previously reported. For some development sites, where planting etc is planned as part of the soft landscaping developers may be advised to investigate the use of vegetation/trees as a barrier helping to filter out pollution.	a) In 2012-13, the council planted 147 new street trees and 151 replacement street trees – a total of 298 trees planted on highway sites. We planted 44 new trees and 2 replacement trees on housing estates and 5 new trees and 3 replacement trees in parks. This is a total of 54 trees on non-highway sites.	a) Data is not currently available for 2013/14. This will be reported in the 2014/15 report.
27. Reduce the amount of traffic on the A4 and A40	From Summer 2003	a) Partner in a bid for 'Greening the A4' project funding with Hounslow, Kensington & Chelsea and others. Bid includes travel demand management, alternative fuels, and road safety measures. However, no funding available to implement.	a) A successful bid has been made for funds from the Mayor's Air Quality Fund to pay for a project that will help improve green infrastructure in Hammersmith town centre. Additional funds are being sought from Defra to supplement this funding	a) Funding has been awarded by the MAQF and Defra to implement a green infrastructure project in Hammersmith town centre. Work is currently underway to select the most beneficial location for the greening.
<b>MEASURES TO RAISE AWARENESS OF THE LINKS BETWEEN AIR QUALITY AND HEALTH</b>				
28. Provide information to allow people to make informed choices about travel behaviour	From Summer 2003 onwards	a) As previously reported. AirTEXT information distributed and presentations given to school nurses group and local Breathe Easy group.	a) As previously reported. 135 Hammersmith & Fulham residents have now signed up for AirTEXT pollution alerts.	a) There are now 148 subscribers for AirTEXT pollution alerts relating to LBHF. The majority of these subscribers receive alerts by text message. b) Air Quality officers attended 7 sessions with local schools at the Lillia Hussett Urban Studies Centre to provide information to school children about air pollution and how their travel choices can reduce

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				emissions.
29. Provide information so people can make informed choices about reducing pollution from domestic activities	From Summer 2003 onwards	a) A leaflet on cutting pollution from car use was produced, but production of domestic emissions information leaflet was delayed and not carried out.	a) No new publicity material produced.	a) No new publicity material produced.
30. Continue to monitor air quality and make info. available	Ongoing from 2002 for the duration of the AQAP	a) During 2010/11, the annual NO <sub>2</sub> objective was exceeded at 5 sites out of 10, mainly at the roadside sites. No PM <sub>10</sub> monitoring took place during 2010/11. Real-time monitoring of NO <sub>2</sub> and PM <sub>10</sub> re-started in October 2011 at the council's new monitoring site at Shepherds Bush Green. Detailed information on monitoring results is included in the council's annual Air Quality report.	a) For 2012, the real time monitor at Shepherds Bush Green measured an annual mean NO <sub>2</sub> concentration of 91µg/m <sup>3</sup> and an annual mean PM <sub>10</sub> concentration of 39µg/m <sup>3</sup> . There were 57 exceedences of the NO <sub>2</sub> hourly objective and 69 exceedences of the daily objective for PM <sub>10</sub> . Of these 4 objectives, 3 were exceeded and 1 (the PM <sub>10</sub> annual mean) was met in 2012.	a) For 2013, the real time monitor at Shepherds Bush Green measured an annual mean NO <sub>2</sub> concentration of 76.2 µg/m <sup>3</sup> and there were 11 exceedences of the NO <sub>2</sub> hourly objective. However the data for 2013 needs to be treated with caution as the monitoring station was only functioning for 6 months due to it being involved in a vehicle collision.  For PM <sub>10</sub> the annual mean remained below the national objective at 36.4 and 33 daily means exceeded the 50µg/m <sup>3</sup> . Should monitoring have continued for the entire year, it is likely that the daily mean objective would have been exceeded for PM <sub>10</sub> .

## **10 Conclusions and Proposed Actions**

### **10.1 Conclusions from New Monitoring Data**

The Progress report has not identified any significant changes to the air quality in the borough. The monitoring data for 2013 shows that exceedences of the NO<sub>2</sub> annual mean objective continued at roadside sites, with some (those with annual means exceeding 60µg/m<sup>3</sup>) also at risk of exceeding the hourly mean objective. Only 3 out of 7 background sites showed compliance with the annual mean objective. In terms of PM<sub>10</sub>, exceedences of the daily objective were measured during the year, however this data cannot be relied upon to draw robust conclusions due to the low rate of data capture.

In summary the results for nitrogen dioxide and particulate matter continue to exceed one or more of the Government's air quality objectives within the borough, therefore it is necessary to continue to maintain the AQMA. As no significant changes have been identified, no changes to the AQMA are required as a result of new monitoring data.

### **10.2 Conclusions relating to New Local Developments**

New local developments have the potential to impact on air quality the council will continue to work to minimise these impacts however integrated policies are required to avoid the continuing conflict between some carbon reduction measures such as the push for decentralised energy in urban areas which will have a detrimental effect and have the potential to erode improvements in other sectors.

### **10.3 Proposed Actions**

The Progress Report has not identified the need to increase monitoring of pollutants at any location and there is no need at this stage to carry out a Detailed Assessment at any location for a particular source or to make changes to the AQMA.

The next stage in terms of air quality review and assessment work is to prepare and submit the next Updating and Screening Assessment, including AQAP review in April 2015.

## 11 References

Local Air Quality Management Technical Guidance (LAQM.TG(09)), DEFRA, 2009.

Air Quality Strategy, DEFRA, 2007.

Air Quality (England) Regulations 2000 (SI 928).

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London Air Quality Network, <http://www.londonair.org.uk>

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Stage 4 Air Quality Review and Assessment, LBHF, 2003.

Carbon Management Plan 2009-2016, April 2010.

London Borough of Hammersmith and Fulham Core Strategy, Oct 2011.

Development Management Local Plan, July 2013.

Planning Guidance Supplementary Planning Document, July 2013.

LBHF Local Implementation Plan 2 (2011-2031).

## Appendices

Appendix A: Quality Assurance / Quality Control (QA/QC) Data

Appendix B: Automatic Site Monitoring results 2013

Appendix C: Monthly NO<sub>2</sub> Diffusion Tube Results 2013

Appendix D: Calculations for annualised continuous and passive monitoring results

## Appendix A: QA:QC Data

### Diffusion Tube Bias Adjustment Factors

The NO<sub>2</sub> diffusion tubes used for the passive monitoring work are supplied and analysed by Gradko International Ltd. The preparation method used is 50% TEA v/v in Acetone. The bias adjustment factor for the 2013 data is 1.14. Further details are provided below.

### Factor from Local Co-location Studies (if available)

The council does not have any NO<sub>2</sub> 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.

### 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 2013 has been calculated as 1.14.

### PM Monitoring Adjustment

All PM<sub>10</sub> data presented in this report have been corrected to gravimetric equivalent using the Volatile Correction Model.

### Short-term to Long-term Data adjustment

No data adjustment of this type is included in this report.

### QA/QC of Automatic Monitoring

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 UKCAS (United Kingdom Accreditation Service) accredited.

## QA/QC of Diffusion Tube Monitoring

Diffusion tube analysis is carried out in Gradko's UKAS accredited laboratory. 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)

Gradko participates in the WASP NO<sub>2</sub> diffusion tube scheme on a monthly basis. This is a recognised performance-testing programme for labs undertaking NO<sub>2</sub> diffusion tube analysis as part of the UK NO<sub>2</sub> monitoring network. The scheme is designed to help laboratories meet the European Standard EN482. From 2011 onwards, a z-score system has been implemented to assess the performance of laboratories. The key changes are the inclusion of all monthly performance scores (previously the lowest round out of 5 was dropped), the score is no longer based on a rolling performance indicator and all results from all UK participants are now reported. A z-score is interpreted as deviation of less than 2 and is a satisfactory result; deviation equal to or more than 2 but less than 3 is a questionable laboratory result; and a deviation of more than 3 is deemed unsatisfactory. The results are presented as the percentage of results where the z-score was between -2 and +2, which is deemed to be satisfactory. For 2013, the results for Gradko International were as follows:

**Table - Gradko International Ltd Laboratory Summary Performance for WASP Rounds 120-123, 2013**

WASP R120	WASP R121	WASP R122	WASP R123
Jan-March 2013	April-June 2013	July-September 2013	October-December 2013
100%	100%	100%	100%

### 2) Network Field Inter-comparison Exercise

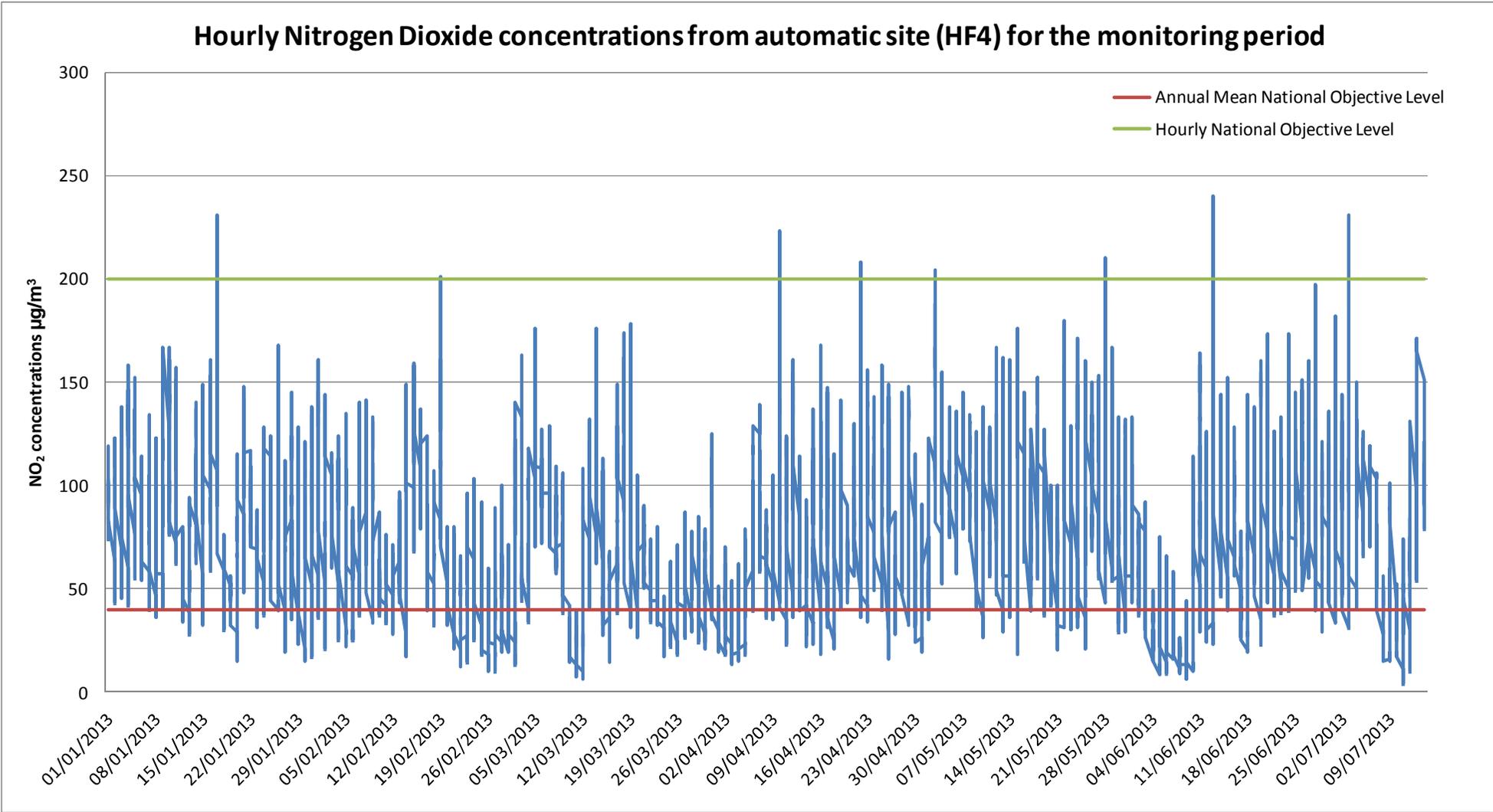
This exercise tests the performance of the diffusion tubes and lab analysis procedures and involves the regular exposure of a triplet of tubes at an Automatic Urban Network (AUN) site where real-time NO<sub>2</sub> levels are also measured using a chemiluminescent analyser.

Gradko operates well within the required level of performance in terms of accuracy and precision, as shown by the results below.

**Table - Summary of NO<sub>2</sub> Network Field Inter-Comparison Results, 2013**

Annual Mean Bias		Precision	
Performance Target	Gradko Annual Mean Bias	Performance Target	Gradko Precision
+25%	+10.6%	10%	Good

Appendix B: Automatic Site Monitoring results 2013



## Appendix C: NO2 Diffusion Tube Results 2013

Nitrogen Dioxide diffusion tube results 2013 $\mu\text{g}/\text{m}^3$ (unadjusted)														
Site Codes		Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual mean
HF32	Hammersmith Broadway	78.5	70.5	103.1	67.0	65.9	79.9	86.7	78.9	83.8	75.4	76.7	76.2	78.6
HF44	Eel Brook Common	42.1	39.0	47.7	28.8	26.4	29.3	26.2	26.7	33.9	27.3	42.1	29.5	33.2
HF45	Bryony Rd	45.6	47.7	45.1	29.2	30.7	25.2	27.5	34.0	40.8	33.7	50.5	38.3	37.4
HF47	Wulfstan St	49.3	50.1	53.5	28.5	36.9	33.6	38.2	40.4	45.0	43.6	52.6	51.1	43.6
HF50	Fulham Broadway	75.1	60.7	59.7	58.7	62.2	53.9	66.2	67.9	75.6	70.2	71.4	71.5	66.1
HF53	Addison Gardens	44.2	40.7	43.3	26.5	30.3	27.6	29.3	*	37.1	34.5	49.7	38.3	36.5
HF54	Westway A40	88.2	100.2	113.1	64.7	84.4	90.2	86.3	81.2	95.4	71.5	100.6	60.1	86.3
HF61	Uxbridge Rd	52.3	47.6	50.9	30.7	40.0	34.6	40.1	38.7	49.6	40.1	51.7	51.1	43.9
HF63	Talgarth Rd	57.2	60.7	68.7	48.9	54.6	54.3	63.9	52.0	71.2	50.2	60.9	43.4	57.2
HF66	Radipole Rd	44.4	36.9	43.6	26.5	27.1	26.8	26.6	26.1	35.4	29.5	43.5	34.5	33.4
HF62	Cardross Street	*	*	*	*	*	*	23.5	27.0	36.2	29.3	45.0	33.2	32.4
HF65	Fulham Palace Road	*	*	*	*	*	*	52.5	56.3	61.0	57.8	65.9	62.6	59.3
HF48	Lillie Road	*	*	*	*	*	*	43.2	42.6	53.0	44.3	56.6	42.8	47.1
HF64	North End Road	*	*	*	*	*	*	51.3	54.4	63.4	66.3	67.4	59.1	60.3
HF60	Waldo Road	*	*	*	*	*	*	30.8	34.6	39.8	40.0	52.4	41.9	39.9

**Annualised annual mean data where data capture >75%**

HF62	Cardross Street	30.4
HF65	Fulham Palace Road	55.8
HF48	Lillie Road	44.3
HF64	North End Road	56.7
HF60	Waldo Road	37.5

 Data should be used with caution due to the low data capture

\* Data not available

## Appendix D: Calculations for annualised continuous and passive monitoring results

Where data capture for the full calendar year is below 75%, the results have been annualised in accordance with Box 3.2 of the Local Air Quality Management Technical Guidance LAQM.TG(09).

### Continuous Data

#### **NO<sub>2</sub> and PM<sub>10</sub>**

Continuous monitoring data for NO<sub>2</sub> and PM<sub>10</sub> was only collected for 6 months in 2013 due to a vehicle collision with the monitoring station. In order to calculate the annual mean concentrations for this site an adjustment has been applied based on the method set out in LAQM TG (09).

The adjustment is based on the fact that patterns in pollutant concentrations usually affect a wide region. The adjustment procedure applied is as follows:

1. Four nearby, long-term, continuous monitoring sites (all part of the London Air Quality Network) were identified. The sites selected were background sites in order to avoid any very local effects that may occur at roadside sites.
2. The annual means (AM) for these sites were obtained for the calendar year of 2013.
3. The means (PM) for the monitoring period of our continuous site data were calculated for each background site (Jan 2013 - Jul 2013).
4. The ratio, R, of the annual mean to the period mean (AM/PM) for each of the sites was calculated.
5. The average of these ratios was then selected as the adjustment factor.

#### **NO<sub>2</sub>**

<b>Long term background site</b>	<b>Annual mean 2013</b>	<b>Period mean 2013 (1/1/2013-14/7/2013)</b>	<b>Ratio between AM and PM</b>
Horseferry Rd - Westminster	46	51	0.902
North Kensington - K&C	33	32	1.0313
Wandsworth Putney	40	39	1.026
Wandsworth Town Hall (7m)	48	51	0.9412
		Average Ratio	0.9751

## London Borough of Hammersmith and Fulham

### PM<sub>10</sub>

Long term background site (FDMS)	Annual mean 2013	Period mean 2013	Ratio between AM and PM
Horseferry Rd - Westminster	18.35	20.13	0.9116
North Kensington - K&C	21.89	22.62	0.968
Camden - Bloomsbury	18.37	19.03	0.9653
Bexley - Belvedere	18.91	21.49	0.8799
		Average Ratio	0.9312

6. The measured period mean concentration was then multiplied by the adjustment factor to give the estimate of the annual mean for 2013.

### NO<sub>2</sub>

Continuous site	Annual mean unadjusted $\mu\text{g}/\text{m}^3$	Annual mean adjusted $\mu\text{g}/\text{m}^3$
HF4	78.1	76.2

### PM<sub>10</sub>

Continuous site	Annual mean unadjusted (VCM corrected) $\mu\text{g}/\text{m}^3$	Annual mean adjusted $\mu\text{g}/\text{m}^3$
HF4	39.09	36.4

## Passive monitoring data

### NO<sub>2</sub>

As 5 new NO<sub>2</sub> diffusion tube locations were established in July 2013, we were only able to collect 6 months of data between July 2013 and December 2013. In order to calculate the annual mean concentrations for these sites an adjustment has been applied based on the method set out in LAQM TG (09).

The adjustment is based on the fact that patterns in pollutant concentrations usually affect a wide region.

The adjustment procedure applied is as follows:

7. Four nearby, long-term, continuous monitoring sites (all part of the London Air Quality Network) were identified. The sites selected were background sites in order to avoid any very local effects that may occur at roadside sites.
8. The annual means (AM) for these sites were obtained for the calendar year of 2013.
9. The means (PM) for the monitoring period of our diffusion tube data were calculated for each background site (July 2013 - December 2013).
10. The ratio, R, of the annual mean to the period mean (AM/PM) for each of the sites was calculated.
11. The average of these ratios was then selected as the adjustment factor.

## London Borough of Hammersmith and Fulham

long term background site	annual mean 2013	period mean (26/06/13 - 08/01/14)	ratio between AM and PM
Horseferry Rd - Westminster	46	39	0.848
North Kensington - K&C	33	33	1
Wandsworth - Putney	40	39	0.975
Wandsworth Town Hall (7m)	48	45	0.9375
		Average Ratio	0.9401

12. The measured period mean concentration was then multiplied by the adjustment factor to give the estimate of the annual mean for 2013.

Diffusion Tube Locations	Site Codes	Annual mean unadjusted $\mu\text{g}/\text{m}^3$	Annual mean adjusted $\mu\text{g}/\text{m}^3$
Cardross Street	HF62	32.4	30.4
Fulham Palace Road	HF65	59.3	55.8
Lillie Road	HF48	47.1	44.3
North End Road	HF64	60.3	56.7
Waldo Road	HF60	39.9	37.5