

2013 Air Quality Progress Report for Hammersmith & Fulham Council

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

April 2013

Local Authority Officer	Paul Baker
Department	Transport & Technical Services Department
Address	5 th Floor Town Hall Extension King Street London W6 9JU
Telephone	020 8753 3431
e-mail	paul.baker@lbhf.gov.uk
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Executive Summary

The Air Quality Progress Report has found that exceedences of the nitrogen dioxide annual mean objective continued in 2012 at some of the 11 monitoring locations in the borough, although as expected, the breaches are associated more with busy roadside locations rather than at background sites. Exceedences of the hourly nitrogen dioxide objective are also likely alongside very busy 'A' roads and in the town centres.

In terms of PM₁₀, monitoring is only carried out in 1 location, which recorded a breach of the daily objective in 2012 but complied with the annual objective.

The potential for new air quality impacts from a range of specified local sources has been considered, concentrating on assessing any new transport, industrial, commercial or domestic sources that were not covered by previous assessments. No significant developments have taken place since the last Progress Report in 2012. No further assessments are required at this stage.

The review of the Air Quality Action Plan for the 2012/13 period shows that progress has continued in most areas including the implementation of School Travel Plans, with significant modal shift away from car journeys; the continued popularity of the discount parking permit scheme for low emission vehicles; the installation and use of electric vehicle re-charging points and introduction of popular on-street car club bays; further exploration of future improvements to public transport in the borough in relation to Old Oak Common HS2 interchange station and continued use of the airTEXT pollution alert service by residents.

The next stage in terms of air quality review and assessment work is to prepare and submit an Air Quality Progress Report in April 2014.

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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 4th smallest of the London Boroughs in geographical area (1,641 hectares or 6.34 square miles) and has the 3rd smallest population (182,500, according to 2011 Census). It also has the 4th 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 Premiership 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.

1.2 Purpose of Progress Report

This report fulfils the requirements of the Local Air Quality Management 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 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 Local Air Quality Management 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, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

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 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
	5.00 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
Carbon monoxide	10 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.50 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
	0.25 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2005
Particulate Matter (PM ₁₀) (gravimetric)	50 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

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 NO₂ and PM₁₀ in November 2011. A full set of data for 2012 is therefore available to report in this Progress Report.

Figure 2.1 Map of Automatic Monitoring Site

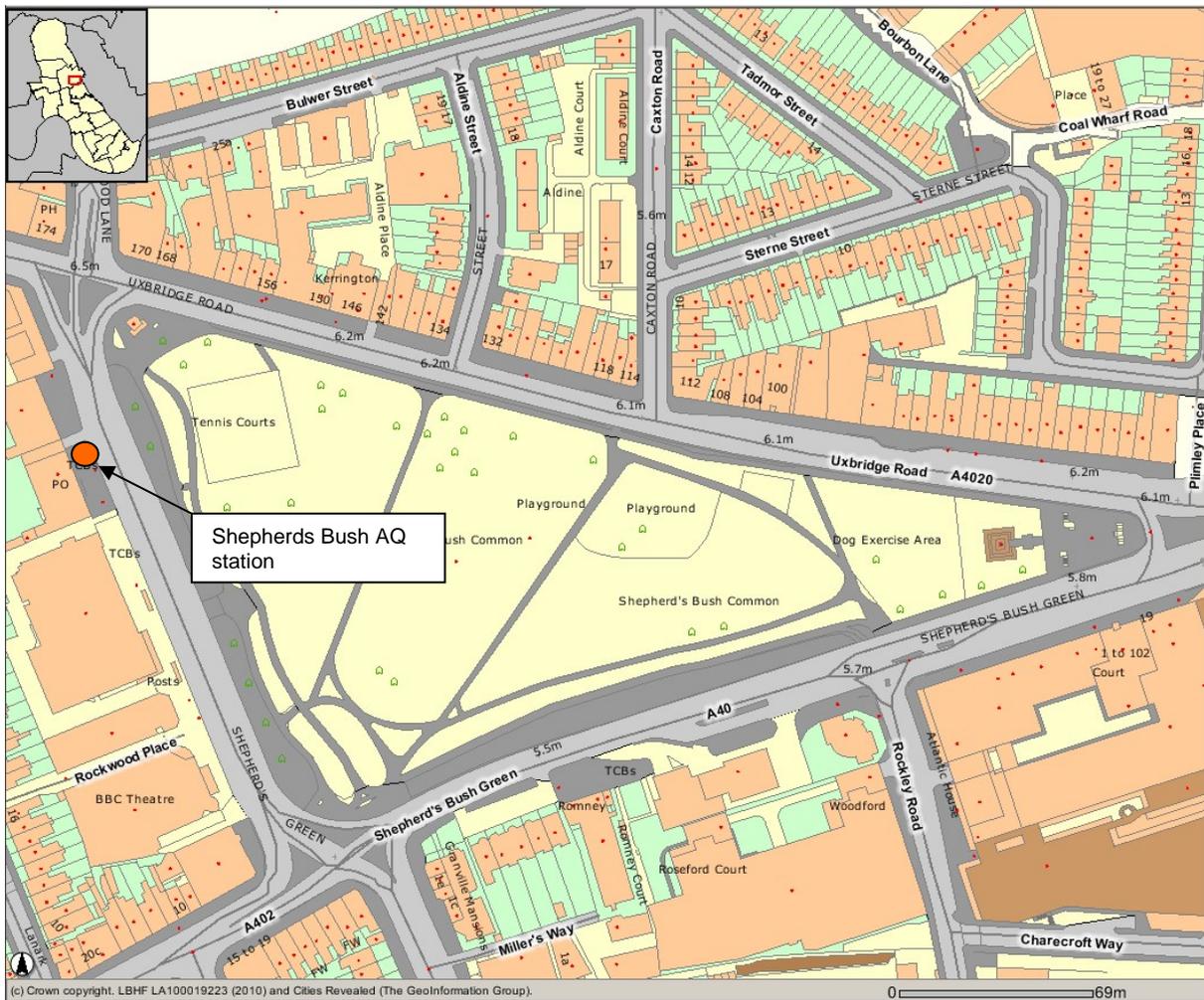


Table 2.1 Details of Automatic Monitoring Sites

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 ₁₀ /NO ₂	Y	TEOM / Chemiluminescence	Y (1m)	2.0	Y

2.1.2 Non-Automatic Monitoring Sites

2.1.3 Non-Automatic Monitoring

During 2012, 10 diffusion tubes were used to monitor NO₂ levels at 5 roadside sites and 5 background sites, as shown in the map and table below.

Figure 2.2 Map of Non-Automatic Monitoring Sites

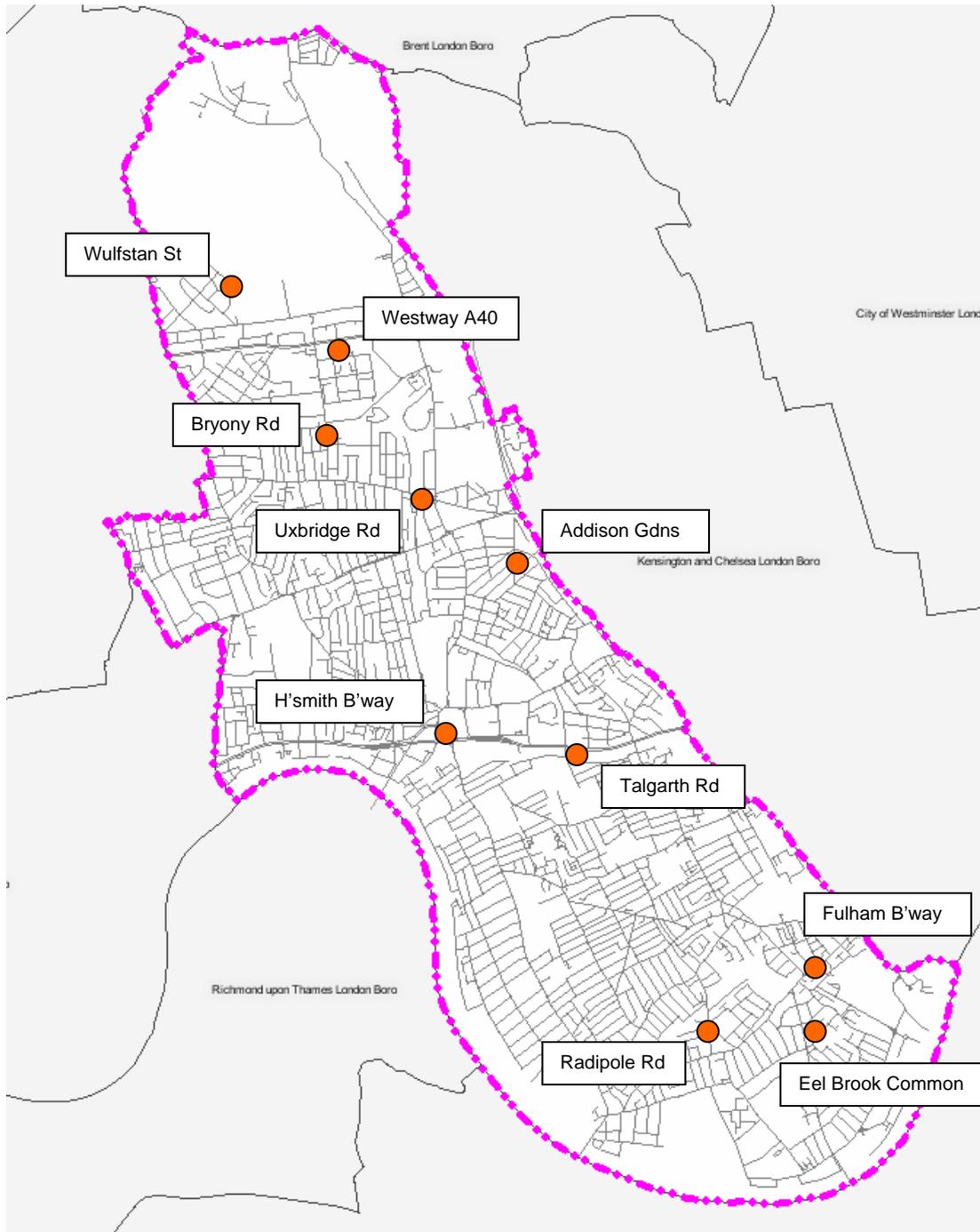


Table 2.2 Details of Non- Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Co-located with a Continuous Analyser	Relevant Exposure?	Distance to Kerb of Nearest Road (m)	Worst-Case Exposure?
HF53	Addison Gardens	Urban Background	523813	179491	3m	NO ₂	Y	N	Y (5m)	1m	N
HF45	Bryony Road	Urban Background	522479	180656	3m	NO ₂	Y	N	Y (6m)	1m	N
HF44	Eel Brook Common	Urban Background	525413	176828	3m	NO ₂	Y	N	N	50m	N
HF50	Fulham Broadway	Urban Roadside	525197	177302	3m	NO ₂	Y	N	Y (15m)	2m	Y
HF32	Hammersmith Broadway	Urban Roadside	523327	178484	3m	NO ₂	Y	N	N	4m	Y
HF66	Radipole Road	Urban Background	524680	176880	3m	NO ₂	Y	N	Y (4m)	1m	N
HF63	Talgarth Road	Urban Roadside	524150	178363	3m	NO ₂	Y	N	Y (14m)	1m	Y
HF61	Uxbridge Road	Urban Roadside	522861	180061	3m	NO ₂	Y	N	Y (3m)	1m	N
HF54	Westway A40	Urban Roadside	522548	180960	3m	NO ₂	Y	N	Y (20m)	3m	Y
HF47	Wulfstan Street	Urban Background	521984	181132	3m	NO ₂	Y	N	Y (13m)	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 (NO₂)

Automatic Monitoring Data

As shown in Tables 2.3 and 2.4, the automatic monitoring station measured exceedences of both the Government's annual mean and hourly objectives in 2012.

The NO₂ annual mean result is the highest of the 11 sites monitored in the borough at 91µg/m³. 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. Due to the construction and demolition works in close vicinity and the ground works on the neighbouring Green, there was also a high number of HGV movements in this location during 2012 which may have contributed to local NO₂ levels.

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.

Table 2.3 Results of Automatic Monitoring for NO₂: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % ^a	Valid Data Capture 2012 % ^b	Annual Mean Concentration (µg/m ³)				
					2008* ^c	2009* ^c	2010* ^c	2011* ^c	2012 ^c
HF4	Roadside	Y	93	93	No data	No data	No data	No data	91

In bold, exceedence of the NO₂ annual mean AQS objective of 40µg/m³

^a i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

^b i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

^c Means should be “annualised” as in Box 3.2 of TG(09) (<http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38>), if valid data capture is less than 75%

* Annual mean concentrations for previous years are optional

Table 2.4 Results of Automatic Monitoring for NO₂: Comparison with 1-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % ^a	Valid Data Capture 2012 % ^b	Number of Hourly Means > 200µg/m ³				
					2008* ^c	2009* ^c	2010* ^c	2011* ^c	2012 ^c
HF4	Roadside	Y	93	93	No data	No data	No data	No data	59

In bold, exceedence of the NO₂ hourly mean AQS objective (200µg/m³ – not to be exceeded more than 18 times per year)

^a i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

^b i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

^c If the data capture for full calendar year is less than 90%, include the 99.8th percentile of hourly means in brackets

* Number of exceedences for previous years is optional

Diffusion Tube Monitoring Data

10 sites were monitored with NO₂ diffusion tubes in 2012. Results are shown in Table 2.5, alongside results from the previous 4 years in Table 2.6.

In 2012, 3 out of 4 Background sites met the annual mean objective. The 4th site failed to meet the objective by just 1 µgm³.

All Roadside sites exceeded the annual mean targets with 3 sites showing annual mean concentrations that indicate that the hourly target could also have been exceeded (Fulham Broadway, Hammersmith Broadway and the Westway). All sites showed higher levels of NO₂ in 2012 than in 2011.

Table 2.5 Results of NO₂ Diffusion Tubes 2012

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture (Number of Months or %) ^a	Annual Mean Concentration (µg/m ³) - Bias Adjustment factor = 1.01 ^b
HF53	Addison Gardens	Urban Background	Y	N	92%	36
HF45	Bryony Road	Urban Background	Y	N	92%	36
HF44	Eel Brook Common	Urban Background	Y	N	92%	35
HF50	Fulham Broadway	Urban Roadside	Y	N	92%	<u>71</u>
HF32	Hammersmith Broadway	Urban Roadside	Y	N	92%	<u>77</u>
HF66	Radipole Road	Urban Background	Y	N	92%	33
HF63	Talgarth Road	Urban Roadside	Y	N	92%	56
HF61	Uxbridge Road	Urban Roadside	Y	N	83%	43
HF54	Westway A40	Urban Roadside	Y	N	92%	<u>77</u>
HF47	Wulfstan Street	Urban Background	Y	N	92%	41

In bold, exceedence of the NO₂ annual mean AQS objective of 40µg/m³; Underlined, annual mean > 60µg/m³, indicating a potential exceedence of the NO₂ hourly mean AQS objective

^a Means should be "annualised" as in Box 3.2 of TG(09) (<http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38>), if full calendar year data capture is less than 75%

^b If an exceedence is measured at a monitoring site not representative of public exposure, NO₂ concentration at the nearest relevant exposure should be estimated based on the "NO₂ fall-off with distance" calculator (<http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html>), and results should be discussed in a specific section. The procedure is also explained in Box 2.3 of Technical Guidance LAQM.TG(09) (<http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=30>).

Table 2.6 Results of NO₂ Diffusion Tubes (2008 to 2012)

Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m ³) - Adjusted for Bias ^a				
			2008 (Bias Adjustment Factor = 0.93)	2009 (Bias Adjustment Factor = 0.92)	2010 (Bias Adjustment Factor = 0.93)	2011 (Bias Adjustment Factor = 0.94)	2012 (Bias Adjustment Factor = 1.01)
HF53	Urban Background	Y	44	35	34	27	36
HF45	Urban Background	Y	36	35	35	27	36
HF44	Urban Background	Y	36	33	33	26	35
HF50	Urban Roadside	Y	<u>77</u>	<u>71</u>	<u>64</u>	<u>61</u>	<u>71</u>
HF32	Urban Roadside	Y	<u>70</u>	<u>72</u>	<u>72</u>	<u>64</u>	<u>77</u>
HF66	Urban Background	Y	33	34	34	27	33
HF63	Urban Roadside	Y	58	58	59	48	56
HF61	Urban Roadside	Y	43	44	42	35	43
HF54	Urban Roadside	Y	<u>68</u>	<u>69</u>	<u>70</u>	54	<u>77</u>
HF47	Urban Background	Y	45	42	38	35	41

In bold, exceedence of the NO₂ annual mean AQS objective of 40µg/m³

Underlined, annual mean > 60µg/m³, indicating a potential exceedence of the NO₂ hourly mean AQS objective

^a Means should be "annualised" as in Box 3.2 of TG(09) (<http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38>), if full calendar year data capture is less than 75%

Figure 2.3 Trends in Annual Mean Nitrogen Dioxide Concentration Measured at Diffusion Tube Monitoring Sites

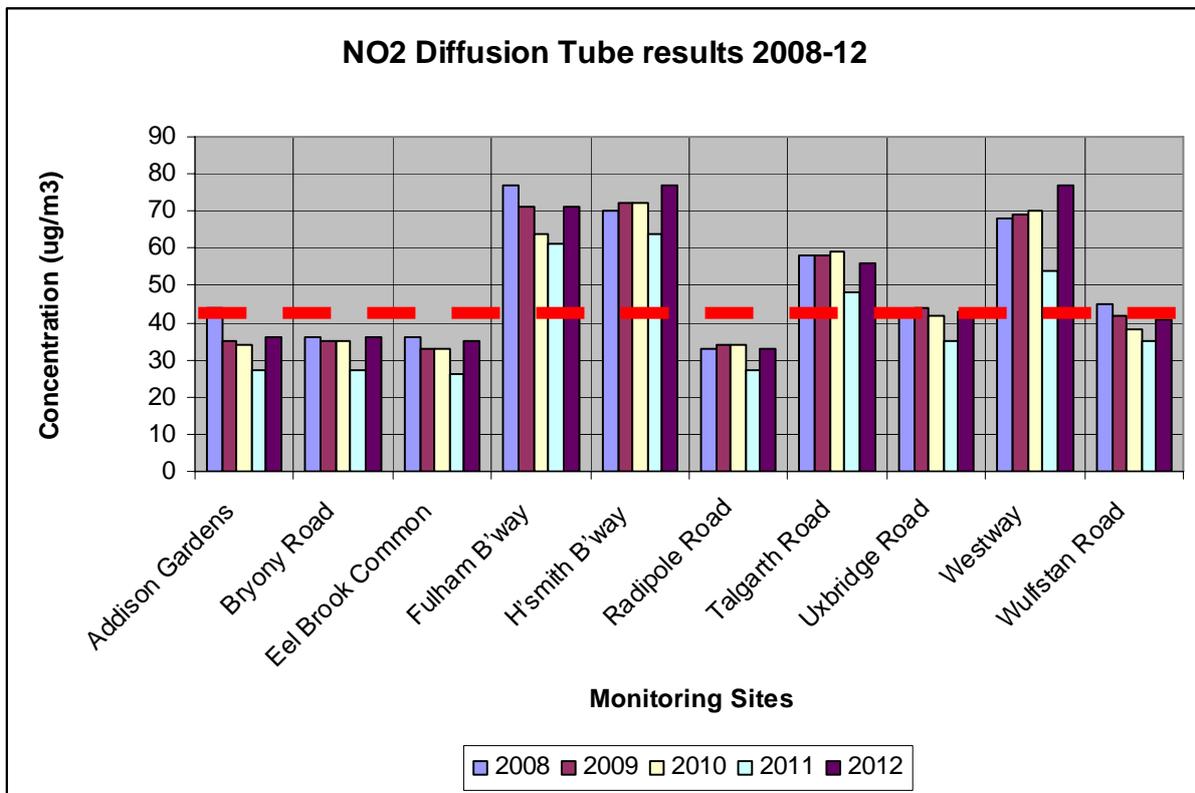


Figure 2.3 shows the annual mean NO₂ concentration trends over the last 5 years at the 10 diffusion tube sites.

As expected, the lowest concentrations tend to be found each year at the Background sites (Addison Gardens, Bryony Road, Eel Brook Common, Radipole Road and Wulfstan Street), most of which have met the 40 µg/m³ annual mean objective in recent years.

The highest concentrations are 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.

2.2.2 Particulate Matter (PM₁₀)

As shown in Tables 2.7 and 2.8, the automatic monitoring station measured an exceedence of the Government's daily PM₁₀ objective but the annual mean objective was met in 2012.

In addition to traffic, it is likely that nearby construction works (partial demolition of a large building less than 10m from the monitoring station) and extensive ground works on Shepherds Bush Green itself caused elevated levels of PM₁₀ at the site. Dust management measures were discussed with project managers on both sites and improvements were implemented to reduce dust and PM₁₀ emissions.

The PM₁₀ concentrations measured during 2012 are not expected to be representative of the longer-term pollution exposure at this location, and should not be considered as representing pollution concentrations alongside other roads in the borough.

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. It is therefore not possible to provide a trend chart of PM₁₀ annual mean results over the past 5 years.

All data presented in this section have been corrected to gravimetric equivalent.

Table 2.7 Results of Automatic Monitoring for PM₁₀: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % ^a	Valid Data Capture 2012 % ^b	Confirm Gravimetric Equivalent (Y or N/A)	Annual Mean Concentration (µg/m ³)				
						2008* ^c	2009* ^c	2010* ^c	2011* ^c	2012 ^c
HF4	Roadside	Y	92	92	No data	No data	No data	No data	No data	39

In bold, exceedence of the PM₁₀ annual mean AQS objective of 40µg/m³

^a i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

^b i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

^c Means should be “annualised” as in Box 3.2 of TG(09) (<http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38>), if valid data capture is less than 75%

* Annual mean concentrations for previous years are optional

Table 2.8 Results of Automatic Monitoring for PM₁₀: Comparison with 24-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % ^a	Valid Data Capture 2012 % ^b	Confirm Gravimetric Equivalent (Y or N/A)	Number of Daily Means > 50µg/m ³				
						2008* ^c	2009* ^c	2010* ^c	2011* ^c	2012 ^c
HF4	Roadside	Y	92	92	No data	No data	No data	No data	No data	69

In bold, exceedence of the PM₁₀ daily mean AQS objective (50µg/m³ – not to be exceeded more than 35 times per year)

^a i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

^b i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

^c if data capture for full calendar year is less than 90%, include the 90.4th percentile of 24-hour means in brackets

* Number of exceedences for previous years is optional

2.2.3 Sulphur Dioxide (SO₂)

There was no sulphur dioxide monitoring in Hammersmith & Fulham in 2012.

2.2.4 Benzene

There was no benzene monitoring in Hammersmith & Fulham in 2012.

2.2.5 Other Pollutants Monitored

No other pollutants were monitored in Hammersmith & Fulham in 2012.

2.2.6 Summary of Compliance with AQS Objectives

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

For NO₂, exceedences of the annual mean objective continue at all roadside sites being monitored, with the hourly mean also possibly being exceeded at the very busiest locations. NO₂ levels at most background locations met the objectives in 2012. Some sites recorded improvements in NO₂ levels compared to recent years, but a long-term downward trend has not yet been established at all sites.

Although exceedences of the NO₂ objectives were measured in 2012, the whole borough is already an Air Quality Management Area for this pollutant, so a Detailed Assessment is not required at this stage.

For PM₁₀, an exceedences of the daily objective was measured at the council's roadside site. The annual mean level was elevated, but the objective met. Although the site is close to a busy road, the exceedences are thought to have been caused by other sources, such as demolition and ground works.

The measured levels are not thought to be representative of other busy roadside locations in the borough, but given the levels recorded the whole borough AQMA will remain in place for now. No Detailed Assessment required at this stage.

3 New Local Developments

3.1 Road Traffic Sources

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

- Narrow congested streets with residential properties close to the kerb.
- Busy streets where people may spend one hour or more close to traffic.
- Roads with a high flow of buses and/or HGVs.
- Junctions.
- New roads constructed or proposed since the last Updating and Screening Assessment.
- Roads with significantly changed traffic flows.
- Bus or coach stations.

3.2 Other Transport Sources

Since the completion of the last Updating and Screening Assessment in 2012, there are no 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

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

- Biomass combustion plant – individual installations.
- Areas where the combined impact of several biomass combustion sources may be relevant.
- Areas where domestic solid fuel burning may be relevant.

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.

Hammersmith & Fulham Council confirms that all the following have been considered:

- **Road traffic sources**
- **Other transport sources**
- **Industrial sources**
- **Commercial and domestic sources**
- **New developments with fugitive or uncontrolled sources.**

4 Conclusions and Proposed Actions

4.1 Conclusions from New Monitoring Data

The monitoring data for 2012 shows that exceedences of the NO₂ annual mean objective continued at roadside sites, with some (those with annual means exceeding 60µg/m³) also at risk of exceeding the hourly mean objective. Most background sites showed compliance with the objective.

In terms of PM₁₀, 2012 was the first full year when monitoring took place at the new Shepherds Bush Green site. An exceedences of the daily objective was measured during the year, although a high number of these exceedences are thought to have been caused by temporary local sources of dust and PM₁₀.

4.2 Conclusions relating to New Local Developments

The potential for air quality impacts from a range of specific sources has been considered, concentrating on assessing any new sources that were not covered by previous assessments. The whole borough is already an Air Quality Management Area for both NO₂ and PM₁₀ and there are no new significant sources of these pollutants that would require a Detailed Assessment.

4.3 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 Progress Report, including AQAP review in April 2014.

5 References

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

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Stage 3 Air Quality Review and Assessment, LBHF, 2000.

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

Appendices

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

Appendix B: NO₂ Diffusion Tube Results 2012

Appendix C: Air Quality Action Plan Review 2012/13

Appendix A: QA:QC Data

Diffusion Tube Bias Adjustment Factors

The NO₂ 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 2012 data is 1.02. (Database 07/13).

Factor from Local Co-location Studies (if available)

The council does not have any NO₂ diffusion tubes co-located with its real-time monitoring station.

Discussion of Choice of Factor to Use

No local bias adjustment factors are available, therefore the national 'overall' factors are used to adjust data.

PM Monitoring Adjustment

All PM₁₀ 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.

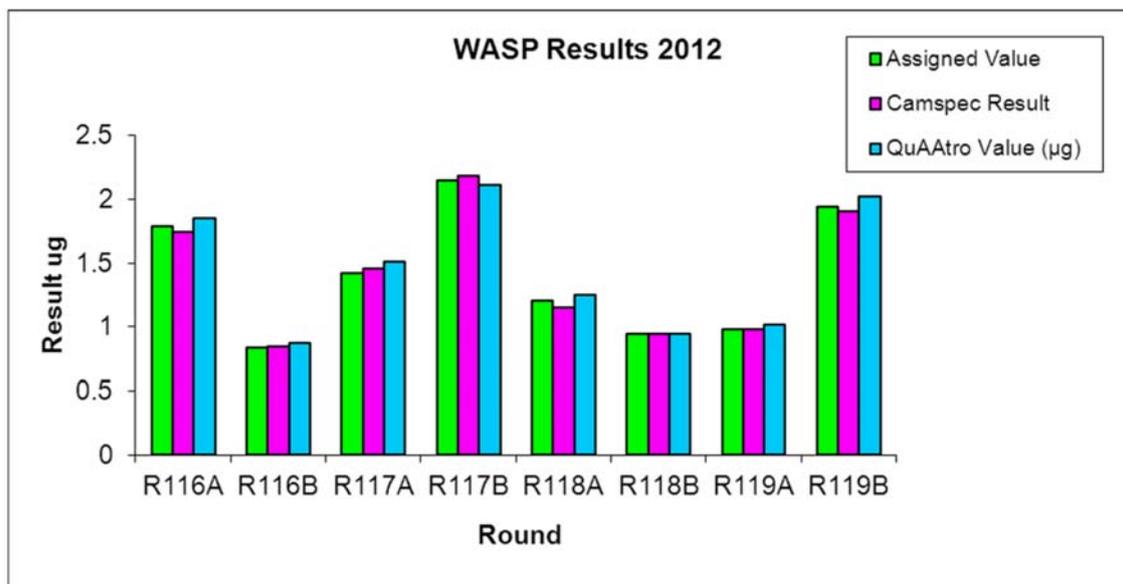
QA/QC of Diffusion Tube Monitoring

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 NO₂ diffusion tube scheme on a monthly basis. This is a recognised performance-testing programme for labs undertaking NO₂ diffusion tube analysis as part of the UK NO₂ monitoring network. The scheme is designed to help laboratories meet the European Standard EN482. The lab performance for 2012 is shown below:

WASP Round No:-	R116A	R116B	R117A	R117B	R118A	R118B	R119A	R119B
	Feb-12	Feb-12	May-12	May-12	Aug-12	Aug-12	Nov-12	Nov-12
Assigned Value (µg)	1.79	0.84	1.42	2.15	1.203	0.940	0.98	1.94
Camspec Value (µg)	1.779	0.858	1.477	2.180	1.142	0.940	1.012	1.921
Camspec Value (µg)	1.708	0.841	1.443	2.191	1.156	0.946	0.944	1.884
Average (µg)	1.744	0.850	1.460	2.186	1.149	0.943	0.978	1.903
Z Scores	-0.1, -0.6	0.3, 0.0	0.5, 0.2	0.2, 0.3	-0.8, -0.6	0.0, 0.1	0.4, -0.5	-0.1, -0.4
% Bias	-0.6, -4.6	2.1, 0.1	4.0, 1.6	1.4, 1.9	-5.1, -3.9	0.0, 0.6	3.3, -3.7	-1.1, -2.9
QuAAtro Value (µg)	1.854	0.872	1.516	2.209	1.250	0.934	1.023	2.030
QuAAtro Value (µg)	1.846	0.868	1.499	2.01	1.257	0.954	1.001	2.012
Average (µg)	1.850	0.870	1.508	2.110	1.254	0.944	1.012	2.021
Z Scores	0.5, 0.4	0.5, 0.5	0.9, 0.7	0.4, -0.9	0.4, 0.5	-0.1, 0.2	0.6, 0.3	0.6, 0.5
% Bias	3.6, 3.2	3.8, 3.3	6.8, 5.4	2.7, -6.4	3.9, 4.5	-0.6, 1.5	4.4, 2.1	4.6, 3.7



Zscore classification: Zscore ± 2 – satisfactory result
 Zscore ± 2 to ± 3 – questionable (warning) result
 Zscore ± 3 – unsatisfactory result

The analysis performance levels are within the required levels to be regarded as satisfactory.

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 NO₂ levels are also measured using a chemiluminescent analyser.

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

Table showing 2012 Network Field Inter-comparison results



Nitrogen Dioxide Diffusion tubes 20% TEA/Water Intercomparison 2012

Checking Precision and Accuracy of Triplicate Tubes

From the AEA group

Diffusion Tubes Measurements										Automatic Method		Data Quality Check	
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm ⁻³	Tube 2 µgm ⁻³	Tube 3 µgm ⁻³	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean	Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
1	04/01/2012	01/02/2012	117.7	104.2	99.4	107	9.5	9	23.6	93.6	87.0	Good	Good
2	01/02/2012	29/02/2012	108.8	114.3	101.6	108	6.4	6	15.9	92.1	92.6	Good	Good
3	29/02/2012	28/03/2012	78.5	74.1	83.4	79	4.6	6	11.5	92.7	97.3	Good	Good
4	28/03/2012	24/04/2012	96.0	99.8	106.6	101	5.4	5	13.4	90.7	97.7	Good	Good
5	24/04/2012	30/05/2012	93.1	101.2	93.9	96	4.4	5	11.0	80.4	94.4	Good	Good
6	30/05/2012	27/06/2012	93.0	95.2	106.9	98	7.5	8	18.5	90.3	97.5	Good	Good
7	27/06/2012	31/07/2012	-	-	-	-	-	-	-	100.2	96.7	Good	Good
8	31/07/2012	28/08/2012	132.1	140.1	122.4	132	8.8	7	22.0	88.0	97.7	Good	Good
9	28/08/2012	26/09/2012	120.4	113.1	115.8	116	3.7	3	9.2	89.4	86.2	Good	Good
10	26/09/2012	31/10/2012	109.0	106.3	106.4	107	1.5	1	3.8	92.7	97.3	Good	Good
11	31/10/2012	28/11/2012	110.2	116.3	114.5	114	3.1	3	7.8	108.2	76.2	Good	Good
12	28/11/2012	02/01/2013	106.0	97.1	107.3	103	5.6	5	13.8	88.6	89.5	Good	Good
13													

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Site Name/ID: NPL014A

Precision: 11 out of 11 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval) without periods with CV larger than 20%
 Bias calculated using 11 periods of data
 Bias factor A: 0.87 (0.79 - 0.96)
 Bias B: 15% (5% - 26%)
 Diffusion Tubes Mean: 106 µgm⁻³
 Mean CV (Precision): 5
 Automatic Mean: 92 µgm⁻³
 Data Capture for periods used: 92%
 Adjusted Tubes Mean: 92 (83 - 101) µgm⁻³

Accuracy (with 95% confidence interval) WITH ALL DATA
 Bias calculated using 11 periods of data
 Bias factor A: 0.87 (0.79 - 0.96)
 Bias B: 15% (5% - 26%)
 Diffusion Tubes Mean: 106 µgm⁻³
 Mean CV (Precision): 5
 Automatic Mean: 92 µgm⁻³
 Data Capture for periods used: 92%
 Adjusted Tubes Mean: 92 (83 - 101) µgm⁻³

Overall survey → **Good precision** **Good Overall DC**

(Check average CV & DC from Accuracy calculations)

Jaume Targa, for AEA
Version 04 - February 2011

Appendix B: NO₂ Diffusion Tube Results 2012

Table showing monthly NO₂ results for all diffusion tubes sites in 2012
(unadjusted data)

Site ID	Location	Monthly average (µg/m ³)											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
HF53	Addison Gardens	79.37	60.98	92.27	66.69	75.76	73.45	74.39	n/d	66.97	79.37	86.59	80.81
HF45	Bryony Road	35.45	37.55	51.28	25.23	25.25	20.62	21.53	n/d	23.82	34.01	70.68	40.50
HF44	Eel Brook Common	43.69	38.24	52.16	30.34	27.36	26.33	27.24	n/d	30.61	37.60	36.54	40.49
HF50	Fulham Broadway	48.04	41.58	52.29	34.15	26.99	31.08	35.96	n/d	42.03	43.67	53.07	46.87
HF32	H'smith Broadway	70.62	64.64	77.21	61.08	53.94	60.40	71.65	n/d	80.69	69.34	81.68	80.83
HF66	Radipole Road	42.41	39.35	48.43	36.69	27.17	25.80	24.72	n/d	33.35	37.45	43.58	38.01
HF63	Talgarth Road	81.35	75.33	98.19	74.03	79.26	63.76	62.35	n/d	72.27	66.61	83.95	74.37
HF61	Uxbridge Road	54.18	45.29	n/d	40.16	33.85	35.19	36.74	n/d	41.77	46.54	53.96	46.21
HF54	Westway A40	53.51	72.54	68.77	46.48	59.94	42.10	44.14	n/d	46.10	57.89	64.03	54.43
HF47	Wulfstan Street	38.54	35.70	46.04	27.54	25.28	21.90	21.84	n/d	26.62	36.65	39.75	39.65

n/d – no data

Appendix C: Air Quality Action Plan Review 2012/13

The review of the Air Quality Action Plan for the 2012/13 period shows that progress has continued in most areas including the implementation of School Travel Plans, with significant modal shift away from car journeys; the continued popularity of the discount parking permit scheme for low emission vehicles; the installation and use of electric vehicle re-charging points and introduction of popular on-street car club bays; further exploration of future improvements to public transport in the borough in relation to Old Oak Common HS2 interchange station and continued use of the airTEXT pollution alert service by residents.

Action Plan Progress 2012/13

Action Plan Measure	Original Timescale	Previously reported Progress	Previously Reported Outcomes	New Progress, Outcomes and Additional Comments for 2011/12
REDUCING EMISSIONS AT SOURCE				
1. Encourage improved availability of alternative fuels	Summer 2003	<p>a) Alternative fuels refuelling/recharging are available in the borough, although facilities, particularly for LPG, are still limited.</p> <p>b) LBHF took part in a SWELTRAC project to assess and install off-street charging points for electric vehicles. Provision of electric vehicle charging points on the public highway has been investigated in LBHF, but was not regarded as feasible.</p> <p>c) All diesel vehicles in the council fleet switched to a 5% biodiesel mix in early 2006.</p>	<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>
2. Provide incentives for use of alternative fuels	From Summer 2003 onwards	<p>a) Continued to publicise information on the location of LPG refuelling stations in the borough and details of grant schemes.</p> <p>b) The council introduced a discount parking permit scheme for low emission vehicles in autumn 2007.</p>	<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>
3. Promote travel plans to encourage a switch to low emission vehicles	Ongoing from 2002 for the duration of the AQAP	<p>a) Low-emission vehicles are promoted through the travel planning process, particularly with businesses. Emphasis so far has been on alternative modes of transport. The council uses its own rickshaw as an example of what kinds of alternative vehicles are available.</p>	<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>
4. Reduce emissions from the council fleet	Ongoing from 2002	<p>a) As mentioned above, biodiesel has been adopted for use by the council's fleet. A fuel additive was also used until vehicle warranty issues stopped this. The fleet has been reducing in size in recent years, with a proportional decrease in alternatively fuelled vehicles. All HGV classified vehicles meet the LEZ emission requirements.</p>	<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 2010/11, 27 new mini-buses that utilise Mercedes' 'stop/start' technology to reduce idling emissions were added to the fleet.</p>	<p>a) The council remains a member of the TfL FORS scheme.</p>

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Action Plan Measure	Original Timescale	Previously reported Progress	Previously Reported Outcomes	New Progress, Outcomes and Additional Comments for 2011/12
5. Seek a reduction in emissions from the bus fleet	To be agreed with TfL and bus operators	a) Council officers continue to liaise regularly with TfL representatives 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.
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. b) The Environment Services Department has use of a Smart car for council business which is used for site visits etc.	a) The information leaflet encourages people to consider smaller, more fuel efficient cars. b) The Smart car is a visual reminder to people that such small, efficient cars are ideal for city driving conditions.	a) As previously reported. See above (action 2) for update on discount parking permit scheme. b) As previously reported.
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) The council submitted a full consultation response to TfL on their LEZ proposals. Concerns were raised about the potentially high costs that could be incurred in achieving relatively modest air quality benefits. The first phase of the LEZ was introduced in February 2008. Phase 2 of the LEZ was introduced in July 2008.	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.
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) H&F carried out roadside tests as part of the London-wide vehicle emission testing scheme in 2003/04. However, the scheme was not funded to continue beyond that and no further testing has been carried out.	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.
9. Encourage more environmentally friendly driving behaviour	Implementation to be co-ordinated with other participating boroughs. Aim for summer 2003	a) Complaints about bus drivers unnecessarily running their vehicle's engine whilst parked are investigated as and when they are made by residents. Our public information leaflet includes information on reducing emissions through improved driving style such as switching the engine off to avoid unnecessary idling.	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.
10. Seek a reduction in emissions of small particles from	Ongoing from 2002 for the duration of the AQAP	a) Complaints of dust nuisance investigated as and when reported.	a) Complaints continue to be investigated as required. 4 complaints received in 2011/12 about construction/demolition dust. Informal warning/advice is usually effective in securing improvements. No notices served.	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.

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Action Plan Measure	Original Timescale	Previously reported Progress	Previously Reported Outcomes	New Progress, Outcomes and Additional Comments for 2011/12
construction sites		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.	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.	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 commercial properties	Ongoing from 2002 for the duration of the AQAP	<p>a) Annual home composter promotions and the garden waste collection scheme continue to divert waste from landfill and prevent disposal by bonfire.</p> <p>b) Complaints about smoke from domestic /commercial properties are investigated as and when they are received.</p> <p>c) The council's Carbon Management Plan was adopted in April 2010 and this outlines a number of energy efficiency saving projects which will reduce energy use and associated emissions, including local emissions as well as CO₂.</p> <p>d) The baseline NI 185 data showed that the council's estates and operations were responsible for 24,443 tonnes of CO₂ emissions in 2008/09. The Carbon Management Plan sets a target of reducing these emissions by an aspirational target of 40% by 2016.</p>	<p>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 green waste was sent for composting:</p> <ul style="list-style-type: none"> - 53 tonnes of Christmas trees - 360 tonnes of leaf fall from public highways - 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. <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 www.lbhf.gov.uk/co2 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</p>	<p>a) In 2012/13, an additional 24 home composters were ordered and distributed. A Green Johanna trial was also undertake, with 80 subsidized units being taken up and 4 workshops conducted. In 2012/13 the following green waste was sent for composting:</p> <ul style="list-style-type: none"> - 60 tonnes of Christmas trees - 103 tonnes of leaf fall from public highways - 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. <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>

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Action Plan Measure	Original Timescale	Previously reported Progress	Previously Reported Outcomes	New Progress, Outcomes and Additional Comments for 2011/12
			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 tCO ₂ e. One main difference since 2010/11 is that reporting for 2011/12 included fugitive air-conditioning emissions which calculated as 866 tCO ₂ e. By removing this it can be seen that total GHG emissions have reduced by c. 500 tCO ₂ e.	
12. Seek to control and minimise emissions from industrial premises	Ongoing from 2002 for the duration of the AQAP	a) Complaints of smoke emissions investigated when reported. Authorised processes inspected in line with DEFRA requirements.	a) Continued regulation and reduction of emissions to atmosphere through the LAPPC regime and clean air regulations. 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.	a) Regulation duties continued in line with the LAPPC requirements. 2 complaints were received in 2012/13 regarding emissions from industrial sites regulated by the council. No notices were served.
REDUCING THE NEED TO TRAVEL				
13. Sustain and improve town & local centres, facilities and employment areas	UDP review to be complete in 2003	a) UDP alterations adopted in August 2003. The Mayor's altered London Plan was adopted in February 2008, then revised and adopted in July 2011.	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.
14. Seek to reduce the air quality impact of new development	Ongoing from 2002 for the duration of the AQAP	a) Planning policies are applied as and when required to ensure developments to not have any adverse impacts on local air quality. Where necessary conditions have been attached to planning approvals or s.106 agreements made to require Travel Plans or improve public transport facilities. b) Air quality and land use guidance has been prepared for internal use by Development Control.	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.
ENCOURAGING A SWITCH TO LESS POLLUTING FORMS OF TRANSPORT				
15. Promotion of bus services	Ongoing from 2002 for the duration of the AQAP	a) Continuing liaison with TfL on the provision of new bus services in the borough. The council continues its involvement with the London Bus Priority Network and will further facilitate its continued success by preparing, or assisting in the	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	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

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Action Plan Measure	Original Timescale	Previously reported Progress	Previously Reported Outcomes	New Progress, Outcomes and Additional Comments for 2011/12
		<p>preparation of bids for funding.</p> <p>All buses operating in the borough are now accessible.</p>	<p>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 Palace Slip Road/ Hammersmith gyratory scheme which has produced substantial benefits for buses and other traffic.</p>	<p>frequency was introduced in the peak periods on bus route 220.</p>
16. Promotion of other forms of public transport	Ongoing from 2002 for the duration of the AQAP	<p>a) Continued to work in partnership with TfL on the development of the West London Tram scheme and with rail operators on new West London Line stations at Shepherd's Bush and Imperial Wharf.</p>	<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>	<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.</p>
17. Promotion of cycling	Ongoing from 2002 for the duration of the AQAP	<p>a) In 2009/10, £372,000 was spent on LCN plus routes and £60,000 on cycle training for children and adults. From April 2010, the London Cycle Network will no longer be promoted or funded. Cycling improvements on the highway will be introduced through the boroughs Corridor and Neighbourhoods budgets. The UDP has cycle parking standards to ensure new developments provide adequate provision for cycle parking /storage. In 2009/10, a total of 251 children were trained. 88 were trained to 'Bikeability' level 1 (38 of which achieved 2.7). 163 children were trained to level 2.8 and above. A total of 187 adults received individual training.</p> <p>The Sustrans Bike It project has been running in the borough since 2007. The project has tackled low bike ownership and improved the road worthiness of pupils' cycles, through the provision of Dr Bike Days and the organisation of bike pools.</p> <p>The UDP has cycle parking standards to ensure new developments provide adequate provision for cycle parking/storage.</p>	<p>a) From 2010/11 TfL funding of transport work for London Boroughs changed to a holistic approach by way of "Neighbourhood" and "Corridor" funding. The approach taken by H&F has been to carry out "blank canvas" consultation with local people to understand their transport needs and problems. Proposals are then formulated and this is subjected to a further round of consultation. This has allowed local issues to be identified including identification of the need for additional cycle parking.</p> <p>During 2011/12, the council has provided 94 on-street cycle parking spaces and have provided cycle training to 184 adults and 456 children. Officers have worked with TfL on the identification of sites for the London Cycle Hire scheme. A substantial number of off-street spaces have also been secured and implemented through the development control system. Cycle training has been supplemented by maintenance classes with RBKC, all ability lessons and a "Recycle the way you travel" project with children at risk. In total, 12 Dr-Bike sessions were held on</p>	<p>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> <p>New, increased cycle parking standards have also been adopted.</p>

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Action Plan Measure	Original Timescale	Previously reported Progress	Previously Reported Outcomes	New Progress, Outcomes and Additional Comments for 2011/12
			2011/12 and 1 cyclist breakfast event to promote cycling to work. 18 schools took part in the 'Bike-It' scheme.	
18. Promotion of Walking	Ongoing from 2002 for the duration of the AQAP.	a) Walking Strategy now adopted and in the transport Local Implementation Plan. The council continues to promote walking as a viable means of travel through the provision of further improvements to facilities for pedestrians. This includes consideration of streetworks guidance, further traffic management measures i.e. Home Zones and a range of other measures aimed at providing an environment that is accessible, and highly conducive to the needs of all pedestrians.	<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 decluttering 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 ticked barriers but they will now provide a bypass for local people to walk across the bridge.</p>
19. Encourage a reduction in car use for the journey to school	Ongoing from 2002 for the duration of the AQAP	a) Funding for the Travel Plan Co-ordinator post has been extended. Continued to promote school travel plans through the work of the Travel Plan Co-ordinator and encourage cycling/walking to school through highways improvements and improved facilities at schools (e.g. better bike shed storage).	<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"> • Car use down from 21% to 16% • Cycling/scootering up from 5% to 10% • Walking level constant at 39% • Public transport constant at 32% <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&F since last year:</p> <p>2007: 5 accredited schools 2008: 4 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>

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			2009: 1 accredited school 2010: 4 accredited schools 2011: 15 accredited schools 2012: 44 accredited schools	
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.	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. A Travel Plan business network is developing in Hammersmith Town Centre.	a) See measure 3.
21. Control provision of on and off street parking to deter car commuting into and within the borough	Ongoing – parking best value review to be complete by mid 2003	a) On street parking controls extended and now there are Controlled Parking Zones in all but the far north of the borough. The council monitored the effects of the congestion charge western extension on parking demand in the borough and subsequently made changes in November 2008 to deter commuter parking. b) Off street parking controlled by parking standards in the revised UDP.	a) Double yellow lines implemented across all 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. b) Parking standards applied to new developments to ensure adequate provision without increasing 'parking stress'.	a) Parking controls reviewed in 2012/13 in Zones Q, W and F. b) GLA parking standards adopted.
22. Encourage freight to be transported in a sustainable manner	2004	a) The council continues to work with the West London Freight Quality Partnership with a view to improving sustainability in the freight transport sector. b) Peter Brett Associates were commissioned to carry out a general freight study and a Home Delivery Scheme feasibility study.	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). b) The home delivery scheme is included in the WLFQP three year programme; we will follow this up together with the partnership.	a) Waiting and loading reviews carried out in Zones Q,W and F reviewed in 2012/13. b) Westtrans is working on a freight plan which will have several elements in it to reduce the environmental impacts of deliveries.

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		c) As part of the Clear Zone project, a survey is being carried out into demand for sustainable home deliveries in the Brook Green / Addison wards.	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.	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.
MAKING MORE EFFICIENT USE OF ROAD TRANSPORT				
23. Encourage car sharing	From Summer 2003 onwards	a) Signed up to SWELTRAC and WLTS 'Share the Car' scheme. Car clubs are starting to set up in the borough with cars stationed at a number of key locations.	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, and Zipcar (now incorporating Streetcar).	a) There are now a total of 51 on-street car club parking bays in the borough.
24. Discourage short journeys	From Summer 2003 onwards	a) See 21 above. Also participated in regular annual events such as the West London Green Festival and the Good Going week where information and advice on other forms of transport has been made available.	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.
OTHER MEASURES TO REDUCE ROAD TRAFFIC AND EMISSIONS				
25. Reduce the amount of road traffic in residential areas and town centres	Ongoing from 2002 for the duration of the AQAP	a) Continued implementation of Home Zones and pedestrianisation schemes. A bid for funding from TfL has been made in the council's BSP to set up other Home Zone schemes in other parts of the borough. b) The UDP no longer has policies/standards on plot ratio and density – these expired in September 2007. We rely on London Plan for density and plot ratio.	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.
26. Promote the use of trees to help improve local air quality	Work on the Biodiversity Action Plan will begin in early 2003	a) The Biodiversity Action Plan (BAP) was adopted in May 2004. The UDP also has a tree planting policy which seeks to ensure that the council will endeavour to plant new trees whenever possible and will expect developers to plant trees where appropriate.	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.

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27. Reduce the amount of traffic on the A4 and A40	From Summer 2003	a) Previously liaised with GLA/TfL on this issue to clarify if the A4 and A40 are regarded as priority roads for traffic reduction measures. TfL are concentrating on their 'network management duty' which relates more to keeping traffic moving rather than reducing traffic flows.	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.
MEASURES TO RAISE AWARENESS OF THE LINKS BETWEEN AIR QUALITY AND HEALTH				
28. Provide information to allow people to make informed choices about travel behaviour	From Summer 2003 onwards	a) Produced 'Drive Down Pollution' leaflet on cutting pollution from car use and other publicity material. Also signed up to the London AirTEXT service.	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.
29. Provide information so people can make informed choices about reducing pollution from domestic activities	From Summer 2003 onwards	a) Originally intended to combine information on pollution from domestic activity with pollution from car use, but these 2 issues were separated.	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.
30. Continue to monitor air quality and make info. available	Ongoing from 2002 for the duration of the AQAP	a) Monitoring continues to be carried out in the borough, with the focus on the 2 key pollutants of NO2 and PM10.	a) During 2010/11, the annual NO2 objective was exceeded at 5 sites out of 10, mainly at the roadside sites. No PM10 monitoring took place during 2010/11. Real-time monitoring of NO2 and PM10 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 NO2 concentration of 91µg/m ³ and an annual mean PM10 concentration of 39µg/m ³ . There were 57 exceedences of the NO2 hourly objective and 69 exceedences of the daily objective for PM10. Of these 4 objectives, 3 were exceeded and 1 (the PM10 annual mean) was met in 2012.