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Foreword

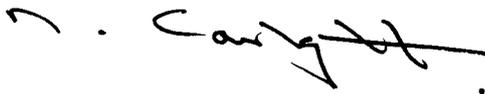
Feedback from both local and national surveys has consistently shown that transport issues, local air quality and the possible impacts on our health are of great concern to us all.

In Hammersmith & Fulham, air quality is a matter of concern, mainly in respect of two principal pollutants: nitrogen dioxide and small particles. Research has shown that road traffic is the main source of these pollutants. So the coal fuelled smogs of the first half of the 20th century have been replaced by the exhaust fuelled smogs of the last 20-30 years. In that time polluting industries and processes have all but disappeared from this borough and other sources of air pollution such as the construction industry are also much more regulated. However, we now have a network of very busy roads in the borough, taking local traffic around Hammersmith & Fulham as well as enabling through traffic to travel to and from areas such as central London, Heathrow airport and further afield.

Hammersmith & Fulham council is committed to improving local air quality and we have declared the whole borough as an Air Quality Management Area and developed an Air Quality Action Plan. Unfortunately, air pollution does not respect administrative boundaries and many of the actions contained in this Action Plan will need the co-operation of others including neighbouring councils, the GLA, TfL, businesses and transport providers of all kinds.

The council is doing its bit to help improve air quality by developing a green travel plan for our staff and we continue to 'green' our fleet of vehicles, which is now one of the cleanest council fleets in London. However, there is also an important role for everyone who lives, works, visits or regularly travels around the borough. When travelling locally you are asked to consider: is this journey really necessary? Could you undertake the journey in a more environmentally friendly manner, by tube, bus, bicycle or foot? If you have to use a vehicle could it be run on cleaner fuel? Could you also be transporting other people or goods around at the same time, or could your journey be carried out at a different time of day?

It will only be through everyone working together that we will be able to tackle this environmental problem. This document sets out how we and those who replied to our public consultation draft think that we can all tackle air pollution. I fully believe that we can do this together and achieve real improvements to our local air quality. We will be regularly reporting back on progress that has been made.



Councillor Michael Cartwright
Deputy for Environment & Contract Services

Summary

One of the three objectives of the borough community strategy is “A safe, clean and green environment”. Developing and implementing the Air Quality Action Plan (AQAP) will help to achieve this aim and it will also be fully considered in developing other future council policies, including the forthcoming review of the Community Strategy.

A thorough review and assessment of present day and potential future air quality in the borough has shown that, although pollution levels have generally fallen over the past 10 years, there is still further work to be done to improve air quality to the point that it meets ever more stringent government targets.

Pollution in the borough comes from a number of different sources such as emissions from industrial and domestic properties and also construction sites. However, it is road transport that remains by far the dominant source of local pollution in Hammersmith & Fulham, as it is for London as a whole.

The first step towards reducing pollution levels was taken in November 2000 when the borough was designated as an Air Quality Management Area. Before this AQAP was drafted, a further air quality assessment was carried out to clarify what action the council should take to reduce pollution and meet the air quality standards. Perhaps not surprisingly, as traffic is the main local source of pollution, the AQAP will need to concentrate on reducing the impact of emissions from motor vehicles.

In preparing the AQAP for the Borough it is important to appreciate that local action by the council must also be complimented by action on a wider scale, both in neighbouring boroughs and London-wide. This is particularly true for a small borough like Hammersmith & Fulham, located as it is on the edge of central London, and also on the main transport routes between the City Centre and Heathrow Airport. This is why the West London boroughs have developed their own Air Quality Strategy. Action is also necessary at a national and EU level to ensure tight limits on industrial emissions and to encourage the up-take of clean vehicle engine and fuel technology.

The ultimate aim of the AQAP is to improve air quality so that all of the targets set by Government are met in the borough. These targets have been set by the Expert Panel on Air Quality Standards (EPAQS) with regard to the affect that air pollution can have on people’s health.

A hierarchy of themed actions to tackle local air pollution has been developed. Whilst all of these areas are considered to be key sections of the AQAP, they have been ordered according to their estimated potential in effecting improvements to local air quality. They are:

- Reducing emissions at source – through use of cleaner, more efficient vehicles and fuels and controlling emissions from building and construction site;
- Reducing the need to travel – by using planning to enable better access to goods, services and activity centres;
- Encouraging a switch to less polluting forms of transport – by working with public transport providers and utilising planning to provide for opportunities to access goods, services and activity centres other than by car;
- Making more efficient use of road transport – by providing for and encouraging more resource effective road transport;

- Taking other measures to reduce road traffic – through effective traffic management in consensus with local communities;
- Raising awareness of the links between air quality, health and transport – by continually and consistently explaining the interrelationships of transport use, air quality and health issues.

The key objectives in the AQAP and their likely impacts on local air quality over the lifetime of the plan and beyond are indicated below:

OBJECTIVE	POTENTIAL AIR QUALITY IMPACT	
	During the lifetime of the AQAP	Beyond the lifetime of the AQAP
Increase the use of cleaner fuelled vehicles	LOW/MODERATE	HIGH
Reduce unnecessary pollution, especially that caused by the most heavily polluting vehicles	MODERATE	HIGH
Control & Minimise emissions from buildings and construction sites	MODERATE	MODERATE
Ensure land use policies reduce the need to travel	LOW/MODERATE	MODERATE
Promote the use of public transport, cycling and walking	LOW/MODERATE	MODERATE
Encourage more efficient use of vehicles	LOW/MODERATE	MODERATE
Improving local environmental conditions through local traffic management schemes	LOW/MODERATE	MODERATE
Encourage more sustainable travel habits	LOW	LOW/MODERATE

A detailed outline of each of the actions that will be implemented to work towards meeting these objectives is given in section 4 of the AQAP and a summary table of all objectives, policies and actions is set out in section 6.

1 INTRODUCTION

- 1.1 Air pollution is not a new problem for Londoners. As early as the 14th century people were starting to realise that air pollution in London was causing health problems thanks to the large quantities of smoke being produced by domestic coal burning. Pollution from coal smoke continued to be an issue for London, particularly in the winter months until the 20th century when the infamous smogs of the 1950s and early 60s occurred. One of the worst smog episodes happened in December 1952, which lasted for five days and caused many people to suffer respiratory problems. It is estimated that approximately four thousand people died as a result.
- 1.2 The great London smogs resulted in the first serious attempt by Government to control pollution when it introduced the Clean Air Act in 1956. The gradual introduction of cleaner coal and smokeless zones, along with the increasing use of gas and electricity led to a big reduction in smoke pollution in the capital and a big improvement in air quality.
- 1.3 However, in recent years the health effects of air pollution have again become the cause for concern, particularly in London, primarily due to the rapid growth in road traffic. As pollution from domestic and industrial premises has declined over the past 50 years, so pollution from vehicles has increased dramatically and London still has the highest levels of pollution in the country. This is particularly true for those areas in and adjacent to central London and also the areas around Heathrow Airport as these areas have some of the busiest roads in the country and experience some of the worst congestion. 15% of the total traffic on the A4/M4 corridor, where it crosses the western borough boundary has its origin/destination at the airport.¹ A substantial volume of other traffic within the borough is generated by business developments which have chosen to locate in the area specifically because of its ready access to both Heathrow and central London.
- 1.4 As in the 1950s, when the Government of the day introduced legislation to deal with the smogs, the Government has again had to resort to introducing legislation in the form of the Environment Act 1995 to try to reduce the high pollution levels of the 1990s and improve air quality.

The Air Quality Framework Directive

- 1.5 Much of the driving force behind the continuing pressure to improve air quality in the UK comes from the European Union (EU) and their Air Quality Framework Directive. This sets the general framework for air quality management in the EU for 12 specific pollutants and is supported by a number of Daughter Directives which go on to set legally binding target values for each pollutant.
- 1.6 Further Directives have set limits for other pollutants and will continue to be taken into account by the UK Government. The first Daughter Directive (which sets limits for nitrogen dioxide and small particles for 2005 and 2010) has already been adopted into UK legislation via the Environment Act 1995.

¹ Interim Local Implementation Plan 2002/03, London Borough of Hammersmith & Fulham, 2001

The Environment Act 1995 and the National Air Quality Strategy

1.7 The Environment Act 1995 places a duty on all local authorities, as well as the Government in relation to managing local air quality. As well as placing a new responsibility on local authorities to take action to improve air quality, it also required the Government to publish a National Air Quality Strategy (NAQS) and set air quality targets. Local authorities are required to review the air quality in their areas with regard to seven pollutants:

- 1,3-butadiene
- benzene
- carbon monoxide (CO)
- lead
- nitrogen dioxide (NO₂)
- small particles (PM₁₀)
- sulphur dioxide (SO₂)

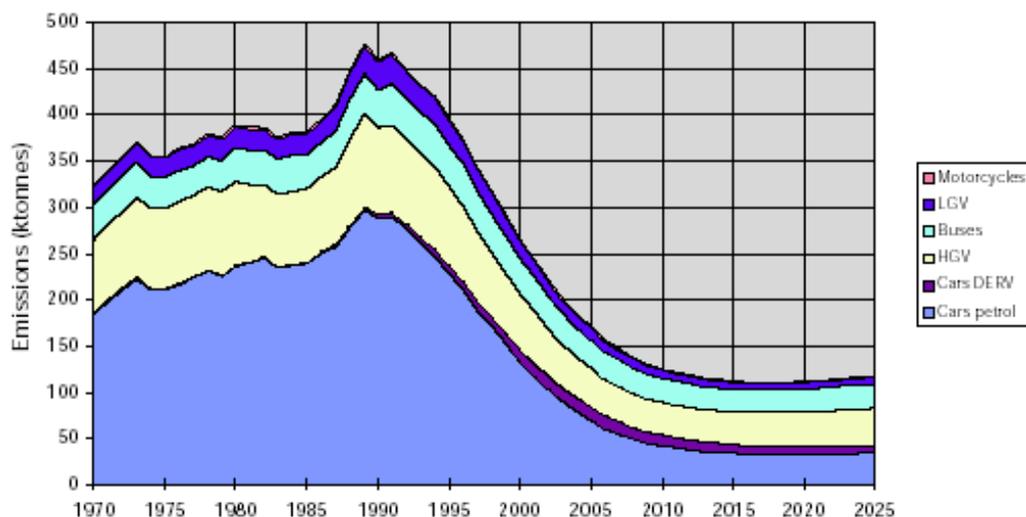
1.8 The Government's Expert Panel on Air Quality Standards (EPAQS) initially recommended air quality standards for these pollutants based upon their health effects. The standards have also been used to establish a set of statutory objectives, which, depending upon the pollutant, must be met by specific dates. The most recent version of the NAQS was published in 2000 and the standards and objectives are shown in more detail in Table 1. The Strategy continues to be subject to regular review and new, more stringent targets are likely to be set for future years.

Table 1 showing the National Air Quality Strategy Standards

Pollutant	Standard	Measured as	Date to be Achieved by
Benzene	16.25µg/m ³	Running annual mean	31 Dec 2003
	5µg/m ³	Annual Mean	31 Dec 2010
1,3-Butadiene	2.25µg/m ³	Running annual mean	31 Dec 2003
Carbon Monoxide	10mg/m ³	Running 8-hour mean	31 Dec 2003
Lead	0.5µg/m ³	Annual mean	31 Dec 2004
	0.25µg/m ³	Annual mean	31 Dec 2008
Nitrogen Dioxide	200µg/m ³	1-hour mean (to be exceeded no more than 18 times a year)	31 Dec 2005
	40µg/m ³	Annual mean	31 Dec 2005
Small Particles	50µg/m ³	24-hour mean (to be exceeded no more than 35 times a year)	31 Dec 2004
	40µg/m ³	Annual mean	31 Dec 2004
Sulphur Dioxide	266µg/m ³	15-minute mean (to be exceeded no more than 35 times a year)	31 Dec 2005
	350µg/m ³	1-hour mean (to be exceeded no more than 24 times a year)	31 Dec 2004
	125µg/m ³	24-hour mean (to be exceeded no more than 3 times a year)	31 Dec 2004

- 1.9 The Strategy set an objective for ozone, but local authorities are not required to meet those particular targets as ozone is regarded as a pollutant that needs to be dealt with on a national and international scale rather than at a local level. This is due to the fact that ozone is not directly emitted from any source, but forms through complex chemical reactions, mainly involving volatile organic compounds and oxides of nitrogen a matter of hours or days as the pollutant is blown long distances. Ozone concentrations therefore tend to higher in rural rather than urban areas.
- 1.10 In setting these air quality objectives, the Government has also taken into account the cost and practicability of achieving them. Where it is considered to be too costly or impractical to reduce levels so that the standard is met at all times, a number of 'allowable' exceedences are given. For example, the 24-hour standard set for small particles can be exceeded up to 35 times per year and it will still be regarded as being met.
- 1.11 Whilst it is widely accepted that emissions peaked during the early 1990's and have been on a downward trend for the past 10 years, it is nevertheless unlikely that emissions will decrease sufficiently to meet the air quality objectives by the target years of 2004 and 2005, unless further action is taken. This is illustrated for urban road traffic in Figure 1.

Figure 1 showing UK Annual Urban Road Transport Emissions of Oxides of Nitrogen, 1970-2025 (ktonnes)



(source: National Air Quality Strategy, DETR, 2000)

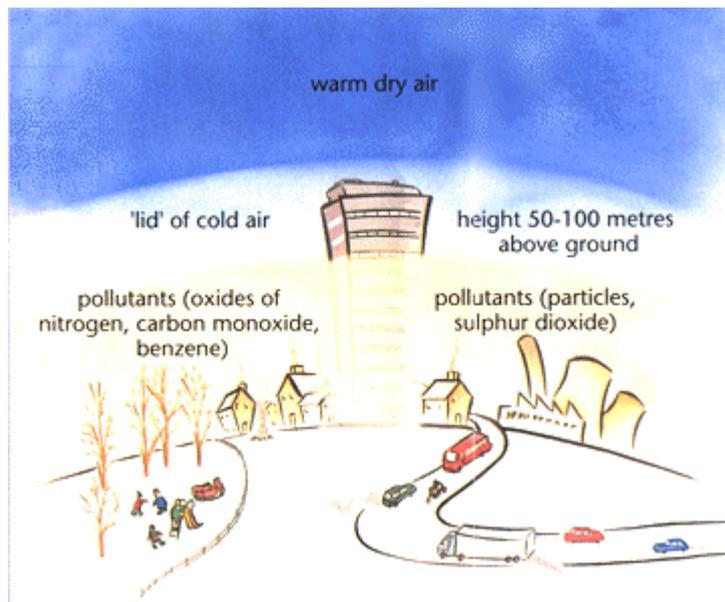
Factors Influencing Air Quality

- 1.12 Pollution in the borough comes from a number of different sources such as emissions from industrial and domestic properties and also construction sites. However, it is road transport that remains the dominant source of pollution in Hammersmith & Fulham, as it is for London as a whole.
- 1.13 There are a number of factors other than the actual emission of pollutants in Hammersmith & Fulham that determine the air quality in the borough. The concentrations of pollutants in the air vary over the course of the day, and

also over the seasons of the year. For most of the time, it is likely that pollution levels will remain at 'low' levels in the borough. However, there will be occasions when periods of high air pollution will occur – these are known as air pollution episodes. They can last for several days or longer and may extend over a large geographical area. For example, pollution episodes are unlikely to just occur in Hammersmith & Fulham – they are likely to be happening at the same time in a number of boroughs in inner and central London and sometimes in outer London as well. In some cases there are high concentrations of many pollutants at the same time, but in others only one pollutant may be affected.

- 1.14 The main factor, which determines whether pollution levels are high, medium or low for a particular period, is the weather. During the winter, stable weather conditions allow pollution to build up without being dispersed. This can lead to poor air quality over several days, with high concentrations of pollutants like nitrogen oxides, particles (PM₁₀) and hydrocarbons such as benzene being experienced. Figure 2 shows the formation of winter smog.

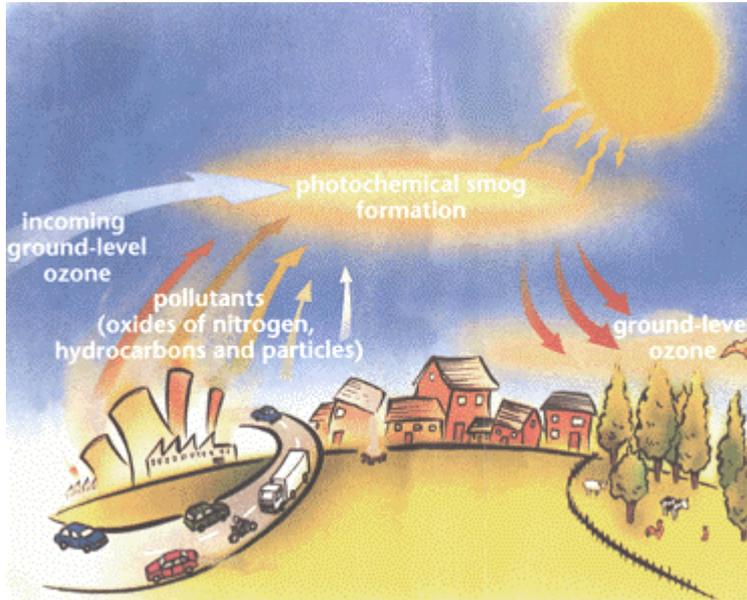
Figure 2 Showing the Formation of Winter Smog



(source: DEFRA leaflet "Winter Smog Summer Smog", 1998)

- 1.15 Pollution episodes can also occur in the summer, but this time it is the hot and sunny weather that produces high levels of ozone, nitrogen dioxide and particles (PM₁₀). These summer smogs can be caused by pollution that has travelled over a very long distance, sometimes coming from as far away from mainland Europe. As the pollutants are blown into London, they react and this can produce high levels of pollution. Figure 3 shows the formation of summer smog.

Figure 3 Showing the Formation of Summer Smog



(source: DEFRA leaflet “Winter Smog Summer Smog”, 1998)

- 1.16 Dispersion of pollution in an urban environment such as London and to a certain extent parts of Hammersmith & Fulham (particularly in the town centre areas) can also be disrupted by the street layout. Tall buildings on either side and along long stretches of busy streets can mean that pollution is trapped in these so-called “street canyons”, instead of being dispersed into the atmosphere.
- 1.17 On a wider scale, the fact that London itself sits in the “London Basin” (a large, trough-like basin) also has an effect on the dispersion of pollution as it can hinder the dispersion of pollutants.
- 1.18 Of these influencing factors, the most significant are the actual emissions and the weather conditions. Obviously, of these only emissions can be controlled.

Health Effects of Air Pollution

- 1.19 Although air quality in London has generally improved over the last 10 years, some areas of the capital, especially in the inner London Boroughs and around Heathrow airport, can still experience high pollution episodes – particularly those areas adjacent to heavily trafficked roads.
- 1.20 For the majority of the time, most people will not notice or suffer from any serious or lasting ill effects from the levels of pollution that are commonly experienced in London, even when levels are high. Research studies have also concluded that long-term exposure to air pollution is unlikely to be the *cause* of the increased number of people now suffering from asthma in the UK. However, there is evidence to show that the health of sensitive individuals (i.e. people with pre-existing respiratory diseases such as asthma)

may be affected by day-to-day changes in pollution levels². This is not surprising since the people affected by poor air quality tend to be those who already have a serious pre-existing health problem making them more susceptible to a variety of external factors of which high levels of air pollution may be one amongst many.

- 1.21 Individual pollutants have different potential health impacts. The most common health effects such as a sore throat, tightness in the chest and wheezing are likely to be short term and will stop if exposure to air pollution declines. According to the Committee on the Medical Effects of Air Pollutants (COMEAP), air pollution should be seen as one of a number of factors, such as respiratory infections, exposure to airborne allergens, flu and extremes of temperature that can affect people's health². However, other effects appear to be more long term and more serious, such as lung cancer and heart disease.
- 1.22 National studies show that the number of deaths and hospital admissions that occur each day varies and both seem to go up when air pollution levels are high, particularly for those with cardiovascular and lung disorders and also especially amongst the elderly².
- 1.23 The health effects vary depending on where you live (urban or rural) and the type of pollutant to which you are exposed. The impact is hard to quantify, but it has been estimated by COMEAP that if life-long exposure to small particles (PM₁₀) was cut by half, life expectancy from birth could be increased, on average, by between 1 and 11 months². The mechanism for this effect of long term exposure to particles is not understood, although it appears to mainly cause deaths from heart disease. In terms of actual deaths caused by air pollution in the UK, COMEAP's best estimate is that it is responsible for between 12,000 and 24,000 deaths per year with a similar number of people being admitted to hospital. Cardiovascular and respiratory diseases are a common cause of death in London and high levels of air pollution are known to affect these types of disease. Estimates for London suggest that 1,600 accelerated deaths and 1,500 respiratory hospital admissions per year occur as a result of air pollution. An additional 3,000 cardiovascular hospital admissions and several million minor respiratory symptoms per year have also been estimated, although with less certainty.³
- 1.24 It has also been found that socially deprived urban communities in the UK are exposed to the highest levels of pollution⁴, according to the Department for the Environment, Food and Rural Affairs. Their research has shown a positive relationship between roadside levels of pollution and deprivation in London. Although the relationship is relatively weak, it is thought that targeting policies at improving local air quality where it is currently poor "could impact marginally more beneficially in more deprived communities". These findings are relevant for Hammersmith & Fulham as some of the most deprived wards in the borough such as Wormholt & White City, College Park & Old Oak and Hammersmith Broadway are impacted by roads such as the A40 the A4 which are two of the busiest and most polluted roads in the borough.
- 1.25 Studies have also shown that there is evidence to suggest that there are marked differences in exposure levels for people as they travel around,

² Quantification of the Effects of Air Pollution on Health in the UK, COMEAP, 1998)

⁴ Further Analysis of Nitrogen Dioxide and PM₁₀ Air Pollution and Social Deprivation, DEFRA, 2002

depending on their mode of travel. For example, drivers and passengers in vehicles are exposed to higher levels of pollution than pedestrians or cyclists as, in effect, they are travelling in a 'tunnel' of pollution where levels of nitrogen dioxide and carbon monoxide can be between three and six times greater than those found in urban background locations⁵. It is also worth emphasising that some of the measures outlined in the AQAP such as walking and cycling can have a direct positive health effect as well as helping to reduce pollution levels in the borough.

- 1.26 The NAQS relates specifically to outdoor air quality and not indoor air quality. For this reason the health effects of indoor pollutants, the main source of which is tobacco smoke, have not been considered here.
- 1.27 Despite the current level of knowledge about the health impacts of poor air quality on our health, our understanding of the effects of air pollutants on individuals as a result of their exposure both in the home and at work is still incomplete.

⁵ Road User Exposure to Pollution, Environmental Transport Association, 2000

2. LOCAL AIR QUALITY REVIEW AND ASSESSMENT

- 2.1 The Government expects the NAQS air quality objectives to be met by a combination of national measures, regulation of industrial processes and action at local level.
- 2.2 Projections based on current data and modelling studies suggest that some of the objectives will be achieved through measures that are already in place, such as tighter control of vehicle emissions and regulation of industry. Other objectives will be more challenging and will require local authorities to take local action to reduce pollution in specific areas. To identify these areas, local air quality must be assessed in detail.

Initial Air Quality Review and Designation of the Air Quality Management Area

- 2.3 The Government recommends a phased approach to reviewing and assessing local air quality and this was completed in 1999 for Hammersmith & Fulham. This initial "Stage 1" review was used as a screening process to assess the potential significant sources of each of the identified pollutants. This first stage review and assessment of local air quality showed that national action in relation to improved emissions from vehicles means the national objectives will be met on time for many of the pollutants. As such, it was found that all of the NAQS air quality objectives would be met for all but 3 of the pollutants:
- nitrogen dioxide (NO₂);
 - small particles (PM₁₀);
 - sulphur dioxide (SO₂)
- 2.4 Further investigations of air quality were carried out in 2000. These "Stage 2" and "Stage 3" assessments were progressively more detailed and they involved the modelling of pollution sources such as road traffic and industry. Forecasts were made of the likely levels of pollution in the borough for the target years of 2004 and 2005. Where a local authority finds that any objectives are likely to be exceeded, it must declare an Air Quality Management Area (AQMA) and draw up an action plan identifying changes that will be necessary to reduce pollution levels and work towards improving air quality in that area.
- 2.5 The results of the air quality review and assessment showed that exceedances of the objectives for nitrogen dioxide (NO₂) and small particles (PM₁₀) were likely to occur over large parts of the borough unless further action was taken. For this reason the council designated the borough as an AQMA for these 2 pollutants on 3rd November 2000. The AQMA was not declared for sulphur dioxide as new limits set by the Environment Agency for emissions from power stations should ensure that the sulphur dioxide objectives are met by 2005.

Pollutants of Concern

Particulate Matter (PM₁₀) – Particulate air pollution is made up of liquid and solid particulate emissions from the combustion of fossil fuels such as coal, oil and gas. Particles can vary in size, but the NAQS air quality standards and objectives are set for particles that are less than 10 micrometres (µm) in diameter. 1 µm is the same as 1000th of a millimetre. The common abbreviation for particles of this size is PM₁₀. Size plays a very important role in the behaviour of particles when they enter the body. Larger particles tend to be deposited in the upper part of the lungs, but the smaller particles (PM₁₀ and smaller) can penetrate deeper into the lungs. The make-up of particles varies depending on where they come from, but typical particles produced by burning fossil fuels consist mainly of carbon particles carrying a variety of metal and other chemical compounds.

Nitrogen Dioxide (NO₂) – Combustion of fossil fuels also generates gases known as oxides of nitrogen (NO_x), including nitric oxide (NO). Major sources of NO_x are road vehicles, power stations, and other industries regularly burning coal, oil or gas. NO reacts in the atmosphere to form nitrogen dioxide (NO₂). It is this gas which is absorbed in the large and small airways of the lungs where it is known to have a detrimental impact on people's health.

- 2.6 The Environment Act 1995 requires local authorities to undertake a further assessment, where an AQMA has been designated. This is now termed the "Stage 4" assessment and it allows the council to confirm the original assessment of air quality and also ensure that the designation of the AQMA was correct in the first place. Other issues considered at Stage 4 include: the assessment of how much of an improvement in air quality is needed to achieve the NAQS air quality objectives and to refine the knowledge of the sources of pollution within the AQMA so that any AQAP can be properly targeted. Following on from the AQMA designation, Stage 4 focused on assessing levels of nitrogen dioxide and small particles in the years 2004 and 2005.
- 2.7 Full details of all of the air quality review and assessment work carried out can be found on the council's air quality webpages at: www.lbhf.gov.uk or can be obtained by contacting the Environment Department on 020 8753 3431.

Further Review and Prediction of Air Quality

- 2.8 Following the designation of the borough as an Air Quality Management Area (AQMA) in November 2000, a further and assessment of air quality in the borough was carried out by consultants. This was completed in March 2002. New forecasts were made for levels of small particles and nitrogen dioxide in the borough for the years 2004 and 2005.
- 2.9 The forecasts are produced by computer modelling techniques which take into account a whole range of different factors, including the number of vehicles on particular roads, the speeds being travelled, the types of vehicles present etc as well as the likely weather conditions. Naturally, these modelling techniques cannot provide completely accurate information as so many of the inputs used are estimates of future traffic and weather conditions.

- 2.10 Despite the fact that the best available techniques and data have been used, there is still a degree of uncertainty associated with the air quality predictions. Whilst it is difficult to determine how much error is involved, it has been estimated to be in the region of 10-20%. Factoring in such uncertainty is also difficult, but Government guidance suggests that where such modelling uncertainty exists, particularly where health impacts are concerned, we should err on the side of caution.
- 2.11 Because of this, we have taken the view that virtually all of the borough could potentially be affected by levels of nitrogen dioxide and small particles that exceed the NAQS air quality objectives. This was the basis of the decision to designate the whole borough as an AQMA in November 2000. Another factor in that decision was that of 'exposure'. The high population density of Hammersmith & Fulham (4th highest in London and the UK) means that many residents live very close to the network of major roads that criss-crosses the borough. As such, a sizeable number of people could potentially be exposed to levels of pollution above the recommended levels.
- 2.12 The modelling takes into account the national policy measures that will be in place by 2004/05, including the change in the type of vehicles on the road as new engine technology is adopted and cleaner fuels used. However, despite these developments, air quality objectives are still likely to be exceeded.
- 2.13 The findings of the further review and assessment underpin the decision for the Air Quality Action Plan to take a borough-wide view when it comes to reducing pollution and improving air quality in Hammersmith & Fulham.

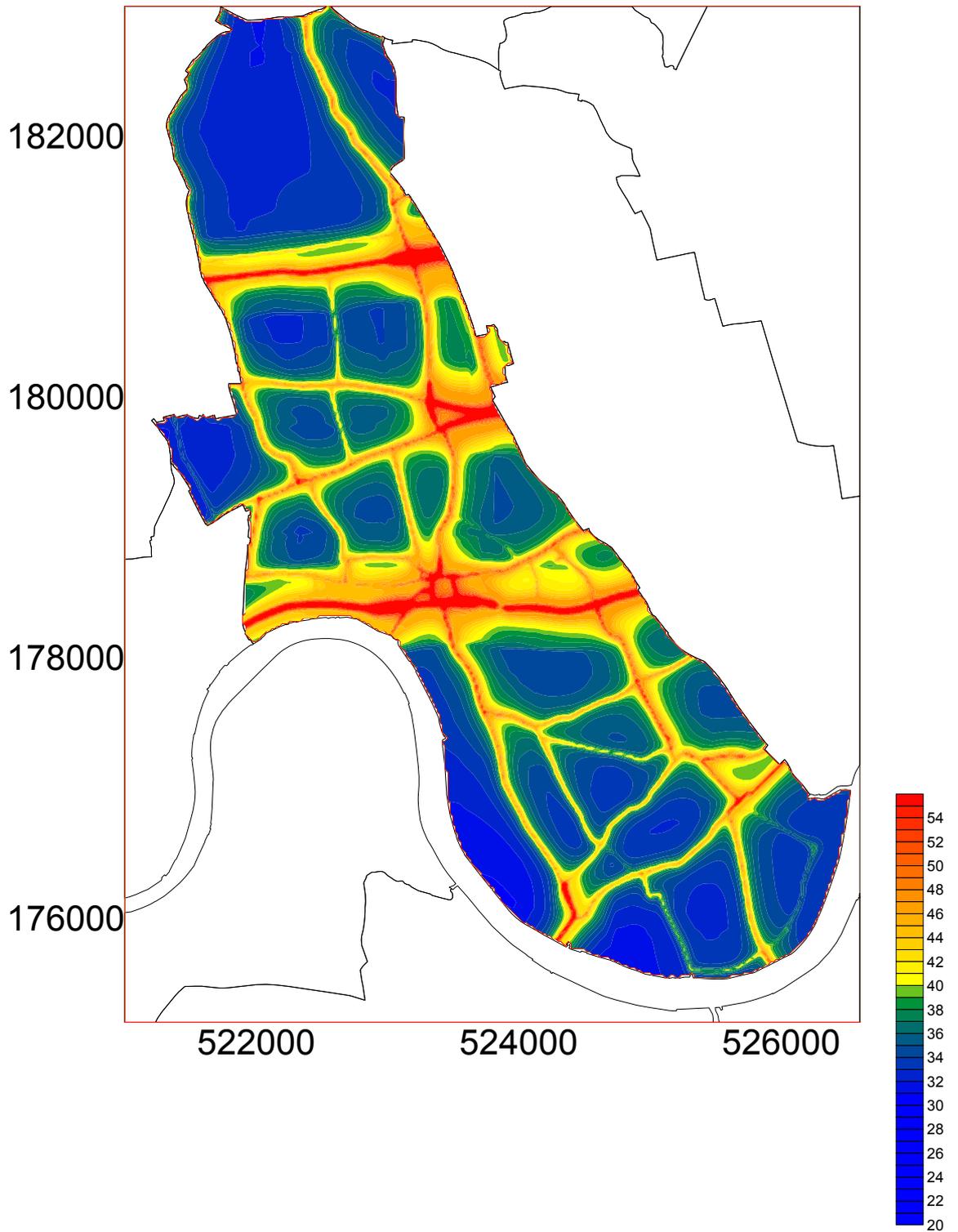
Predicted Nitrogen Dioxide (NO₂) Levels in Hammersmith and Fulham

- 2.14 Predicted concentrations of annual average NO₂ in 2005, assuming that the meteorology of the year 1997 was repeated, are given in Figure 4. The areas, which are coloured yellow to red, are those that exceed the air quality objective of 40µg/m³. It is clearly illustrated that the major roads within the borough provide the most important contribution to concentrations of NO₂ in the borough. The pollution contours also show the effect of increased concentrations close to road junctions, where the emissions of two or more roads combine and where slow moving, congested traffic is more likely to occur. The results of the review and assessment work show that almost the whole borough is unlikely to meet the nitrogen dioxide air quality objective. Locations along busy roads exceed the target by more than 100% in some places.
- 2.15 Specific areas which exceed the annual average air quality objective and are associated with major roads include:
- Prominent town centre areas, including areas around Shepherds Bush Green, Hammersmith Broadway and Fulham Broadway;
 - Travelling east – west across the borough, the A40 (Westway), A4 (Great West Road/Talgarth Road), A402 (Goldhawk Road), A4020 (Uxbridge Road), A315 (Hammersmith Road) and A308 (Kings Road);

- Travelling north – south in the borough, the A40 (Westway) and the A219 (Scrubs Lane, Shepherds Bush Road, Fulham Palace Road, Fulham High Street and Putney Bridge Approach) and B317 (North End Road).

2.16 The one-hour mean objective has not been modelled as the predictions in the Stage 3 report were below the objective level. This previous analysis is further confirmed by the most recent monitoring results from the London Air Quality Monitoring Network.

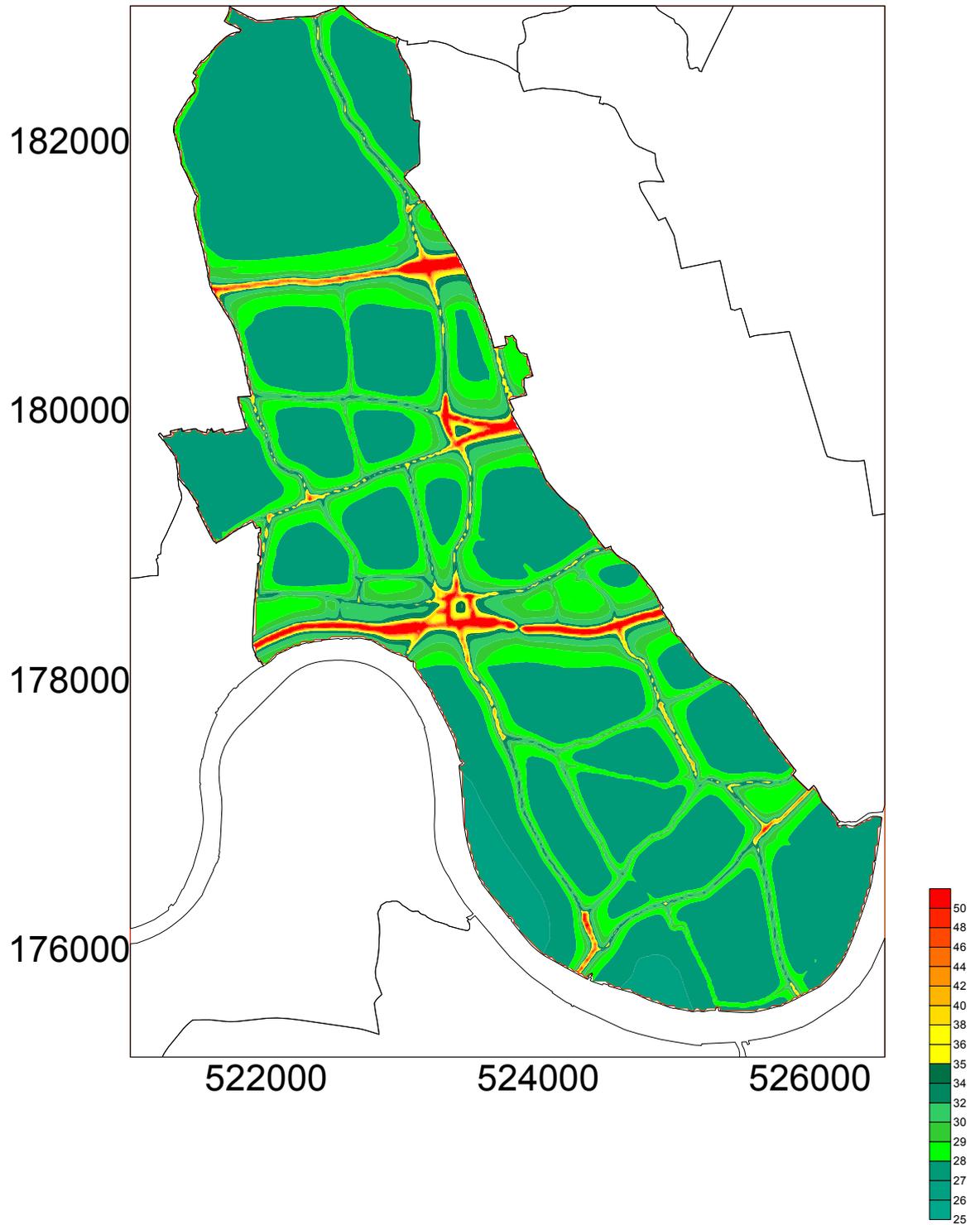
Figure 4 Annual Mean Nitrogen Dioxide Levels ($\mu\text{g}/\text{m}^3$) in 2005



(source: Further Review & Assessment Report, SEIPH, 2001)

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Figure 5 Number of Days with Daily Mean PM₁₀ Levels Above 50µg/m³ in 2004



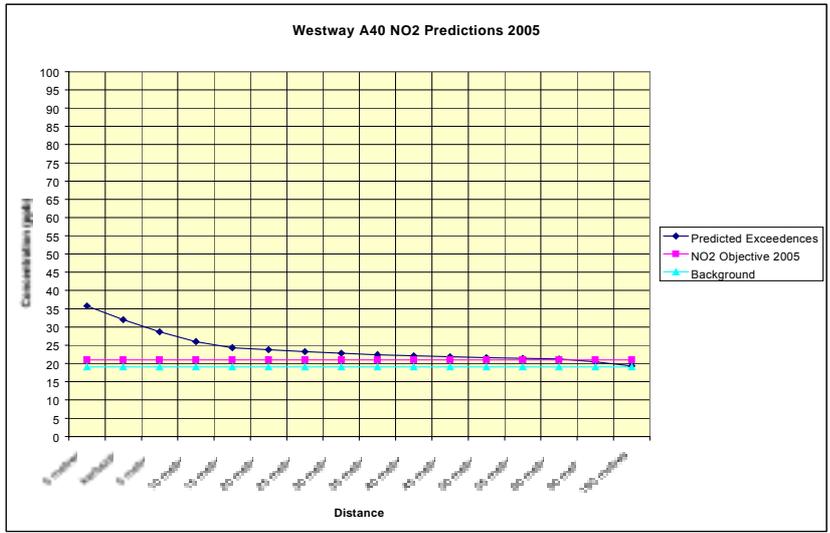
(source: Further Review & Assessment Report, SEIPH, 2001)

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Predicted Small Particle (PM₁₀) Levels in Hammersmith & Fulham

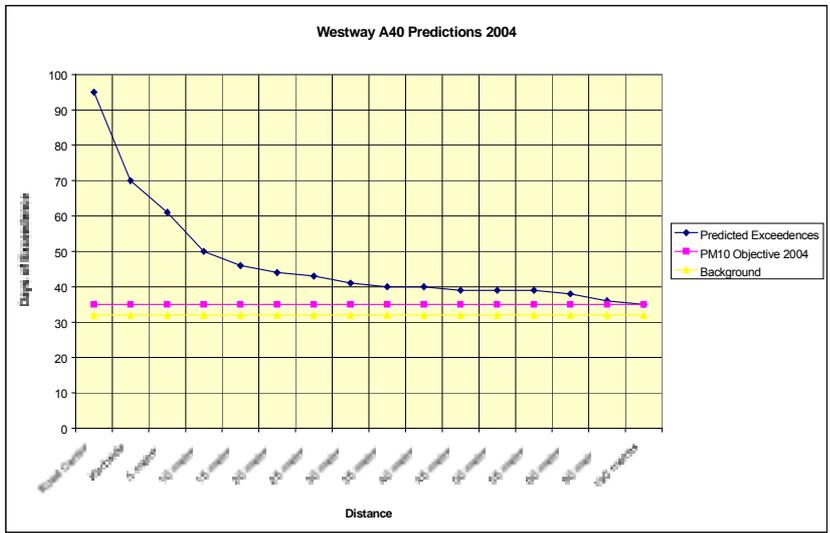
- 2.17 Predicted concentrations of the PM₁₀ objective in 2004, assuming that the meteorology of the year 1996 was repeated, are given in Figure 5. The areas coloured yellow to red exceed the objective, in this case where daily PM₁₀ concentrations greater than 50 µg/m³ occur for more than 35 days each year. Once again it is clear that major roads also provide a significant proportion of PM₁₀ concentrations in Hammersmith & Fulham, however the exceedence areas are smaller than for NO₂ and tend not to extend large distances from the immediate area around the roads themselves. The predictions show that the worst exceedences could be 40% above the objective.
- 2.18 The areas that are predicted to exceed the daily air quality objective are associated with:
- Prominent town centres including Shepherds Bush Green and Hammersmith Broadway;
 - Travelling east – west across the borough, the A40 (Westway), A4 (Great West Road/Talgarth Road), A402 (Goldhawk Road), and A308 (Kings Road);
 - Travelling north – south in the borough, the A219 (Scrubs Lane, Shepherds Bush Road, Fulham Palace Road, Fulham High Street and Putney Bridge Approach) and B317 (North End Road).
- 2.19 As for the one-hour mean NO₂ objective, the annual mean PM₁₀ objective has not been modelled as the predictions in the Stage 3 report were below the objective level. This previous analysis is further confirmed by the most recent monitoring results from the London Air Quality Monitoring Network.
- 2.20 The roads where pollution is predicted to be highest for nitrogen dioxide and small particles include some of the busiest, most congested roads in the borough:- e.g. the Westway (A40), the Great West Road (A4), Talgarth Road and the roads around Shepherd's Bush Green and Hammersmith Broadway. Of these roads, the A4 and the A40 are part of the Transport for London Road Network, and as such fall outside the authority of the council in terms of any traffic management controls.
- 2.21 As Figures 6 and 7 also show, the further review and assessment found that as distance away from the road centre increases, the pollutant concentrations fall to background levels.

Figure 6 showing the Relationship Between Distance from Road Centre and NO₂ Concentrations



(source: Further Review & Assessment Report, SEIPH, 2001)

Figure 7 showing the Relationship Between Distance from Road Centre and PM₁₀ Exceedences



(source: Further Review & Assessment Report, SEIPH, 2001)

Sources of Pollution in Hammersmith & Fulham

- 2.22 To better understand the improvement needed in air quality in order to achieve the NAQS objectives, it is necessary to determine the individual source emissions that contribute to the overall predicted pollution concentration – this is called source apportionment. Both pollutant emissions and atmospheric processes determine the pollution concentration at any given location in the borough. Traditionally pollution is determined only from an understanding of local sources and background influences. This, however, provides only a simplistic understanding within London, as the pollution climate is further complicated by the actual size of London itself and the huge numbers of varying activities contributing to the source of emissions.
- 2.23 To provide a representative understanding of where pollution will come from in the borough in the years 2004/05, a series of specific locations were selected for investigation and the levels of PM₁₀ and NO₂ were calculated for those years. The points were chosen in areas with predicted high concentrations of pollution and where people may be exposed to poor air quality. The specific locations are listed in Table 2 and shown in Figure 8 below.

Table 2 Location of Sites Used for Source Apportionment

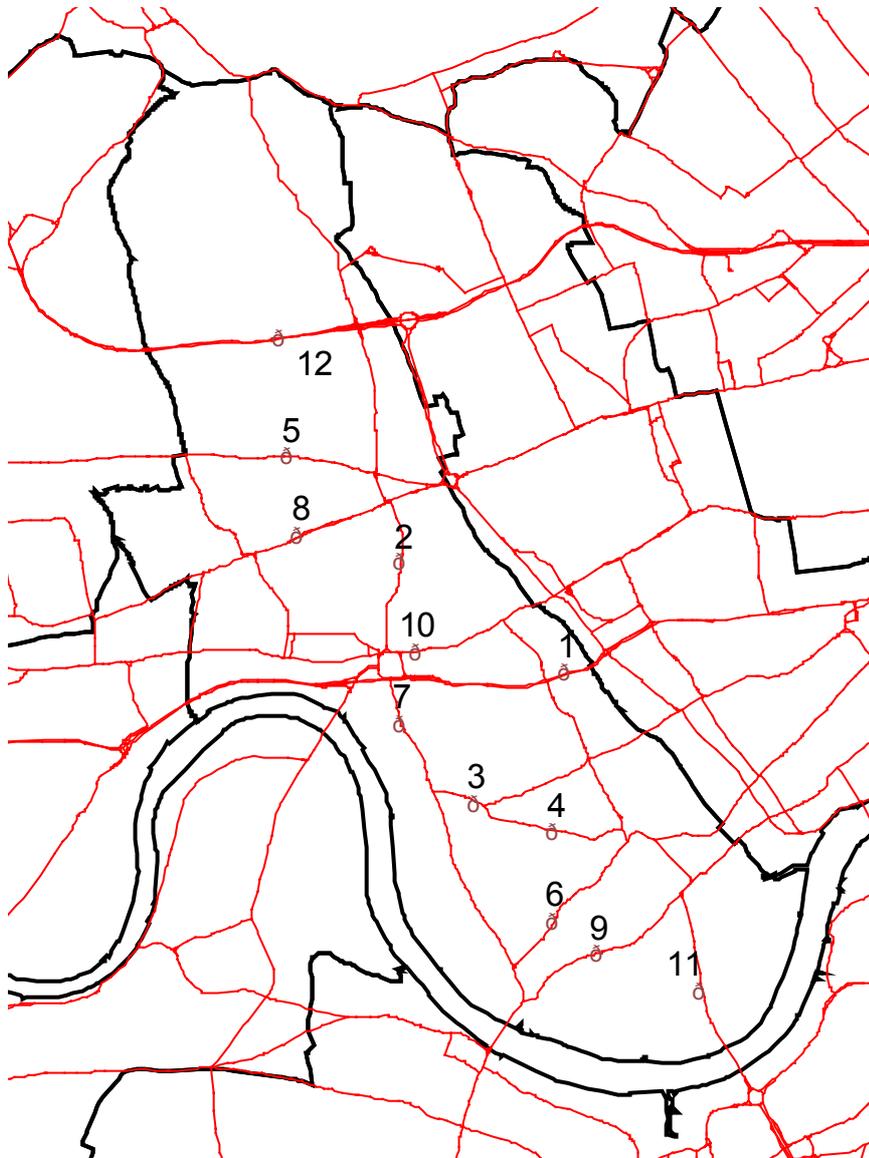
Location	Road Name
1	Talgarth Road (A4)
2	Shepherds Bush Road (A219)
3	Lillie Road (A3218)
4	Dawes Road (A3219)
5	Uxbridge Road (A4020)
6	Fulham Road ((A304)
7	Fulham Palace Road (A219)
8	Goldhawk Road (A402)
9	New Kings Road (A308)
10	Hammersmith Road (A315)
11	Wandsworth Bridge Road (A217)
12	The Westway (A40)

- 2.24 The method of source apportionment can be divided in to two separate areas:

Principal Sources

- 2.25 These are the various categories of vehicles that make up the vehicles on the roads in Hammersmith & Fulham, such as cars, buses, HGVs, motorcycles, taxis etc. These are the dominant local source of pollution.
- 2.26 The method for calculating the emissions incorporates the many different categories of vehicles in everyday use. However, for the purposes of understanding source contributions more straightforwardly the following broad groupings have been applied to the sources:
- Goods vehicles (i.e. all HGVs and LGVs)
 - Cars (includes taxis and motorcycles)
 - Buses and coaches

Figure 8 Map showing Source Apportionment Locations



“Background Sources”

- 2.27 These are all of the other sources, near and far, that can influence the pollution levels found at specific locations in the borough. Sources include road transport beyond the immediate location, including pollution from all roads outside the borough, but within the Greater London area, pollution from other transport sources such as trains, aircraft and boats and also pollution from industrial, commercial and domestic premises.
- 2.28 The ‘background’ NO_x component comprises of emissions from the following sectors:
- Domestic (including heating and cooking)
 - Commercial / industrial sources (termed industrial for both gas and oil)

- Other transport sources (Railways, airports and shipping)
- Small Industrial processes (authorised by the council)
- Background roads
- Other background sources

2.29 The following additional sectors are also used to assess 'background' PM₁₀ emissions:

- Rural background 'primary' particles – primary particles are those that are emitted directly into the air via vehicle exhausts, in this case in areas outside London;
- 'Secondary' particles – over time, pollutants other than particles can react in the atmosphere to form additional or 'secondary' particulate pollution; this happens as pollutants are transported over large distances into London (such as from mainland Europe).
- 'Coarse' particles – these are particles such as suspended soils, dusts, biological particles and dust from construction work. Dust re-suspended from roads is also classified as 'coarse' particles.

2.30 The "background roads" component includes other roads in the local area, as well as roads outside the borough, which all make a contribution to the overall background concentration for London. In addition, a separate contribution termed "other background" is also included. This is derived from natural or rural emissions outside of London. This contribution is considered constant for all locations across London.

2.31 The key findings of the source apportionment exercise are as follows:

NOx Results

- Vehicle related contributions vary by location, but it is generally the car and HGV categories that are the main sources of NOx emissions;
- 'Background' sources also account for a significant proportion of the NOx in the borough, a significant percentage of which is from other traffic – i.e. not vehicles in the immediate vicinity, but vehicles on surrounding roads and other roads in London;
- Other background sources such as domestic and industrial gas and oil burning, railways and aviation make very small contributions to levels of NOx in the borough;
- Buses and coaches tend to form only a relatively small contribution to NOx levels at most locations;

Table 3 Predicted Annual Mean NOx Concentrations ($\mu\text{g}/\text{m}^3$)

Location	Buses	Cars	HGVs	Background	Total
Talgarth Road	20.4	80.4	59.4	70.3	230.9
Shepherds Bush Road	25	39.9	32.3	63.2	160.8
Lillie Road	26.7	36.7	30.4	63	157.4
Dawes Road	11.8	15.7	10.3	63.8	102.2
Uxbridge Road	18.7	42	30.9	62.6	154.5
Fulham Road	8.2	28.7	17.4	62.3	117.1
Fulham Palace Road	25.2	48.1	54.8	62.6	191.4
Goldhawk Road	13.9	45.5	28.3	62.1	149.9
New Kings Road	7.3	42	23.1	63.4	136.2
Hammersmith Road	32	62.3	39.7	63.2	198.1
Wandsworth Bridge Road	8.2	22.3	22.9	66.5	120.3
The Westway	11.7	90.5	78.5	63.8	244.9

Table 4 Proportions of NOx Source Contributions (%)

Location	All LBHF	
	Road Transport	Background
Talgarth Road	69.4	30.5
Shepherds Bush Road	60.5	39.3
Lillie Road	59.6	40.1
Dawes Road	37.0	62.4
Uxbridge Road	59.3	40.5
Fulham Road	46.3	53.2
Fulham Palace Road	67.0	32.8
Goldhawk Road	58.5	41.3
New Kings Road	53.2	46.5
Hammersmith Road	67.7	32.0
Wandsworth Bridge Road	44.4	55.2
The Westway	73.8	26.0

PM₁₀ Results

- The majority of PM₁₀ pollution in the borough is not emitted as primary emissions from traffic in the borough or industry, but comes from 'background' sources of secondary and coarse particles;
- The background levels are fairly constant throughout the borough, but the most polluted locations in the borough are those most influenced by the PM₁₀ contribution from road transport.
- Of the road transport sources, HGVs make the highest contribution for all locations, then cars, with buses generally making the lowest contribution;

Table 5 Predicted Annual Mean PM₁₀ Concentrations (µg/m³)

Location	Buses	Cars	HGVs	Background	Total
Talgarth Road	1.3	5.3	5.7	24.8	37.1
Shepherds Bush Road	1.4	2.2	2.8	24.5	31.0
Lillie Road	1.8	2.4	2.9	24.4	31.7
Dawes Road	0.7	0.8	1.0	24.4	26.9
Uxbridge Road	1.0	2.1	2.9	24.4	30.5
Fulham Road	0.5	1.7	1.8	24.4	28.4
Fulham Palace Road	1.7	3.3	5.3	24.5	34.8
Goldhawk Road	0.7	2.4	2.6	24.4	30.2
New Kings Road	0.4	2.4	2.4	24.5	29.8
Hammersmith Road	1.9	3.5	3.7	24.6	33.7
Wandsworth Bridge Road	0.5	1.4	2.2	24.6	28.7
The Westway	0.7	3.5	6.3	24.6	35.0

Table 6 Proportions of PM₁₀ Source Contributions (%)

Location	All LBHF	
	Road Transport	Background
Talgarth Road	33.1	66.8
Shepherds Bush Road	20.8	79.1
Lillie Road	22.7	77.2
Dawes Road	9.0	90.8
Uxbridge Road	19.8	80.1
Fulham Road	13.7	86.2
Fulham Palace Road	29.7	70.2
Goldhawk Road	19.0	80.9
New Kings Road	17.6	82.3
Hammersmith Road	27.0	72.9
Wandsworth Bridge Road	14.3	85.6
The Westway	29.8	70.1

Table 7 Proportion (%) of Source Category "Background" Contributions

Location	Back ground roads	-Other transport/ commercial	Rural Background primary	Secondary/ coarse
Talgarth Road	10.0	0.9	4.7	84.4
Shepherds Bush Road	8.6	1.2	4.8	85.5
Lillie Road	8.5	1.0	4.8	85.7
Dawes Road	8.5	1.0	4.8	85.7
Uxbridge Road	8.1	1.5	4.8	85.6
Fulham Road	8.2	1.3	4.8	85.7
Fulham Palace Road	8.2	1.4	4.8	85.6
Goldhawk Road	8.1	1.4	4.8	85.7
New Kings Road	8.6	1.3	4.8	85.3
Hammersmith Road	8.6	1.4	4.8	85.2
Wandsworth Bridge Road	8.7	1.4	4.8	85.1
The Westway	8.5	1.5	4.8	85.2

- 2.32 As well as emissions from road transport, emissions from other transport sources such as aviation, rail and shipping have been assessed for the borough. However, whilst the borough is over flown by aircraft flying into Heathrow airport and is passed through by diesel trains and boats, emissions from these sources are of little significance when compared to the emissions from road transport. These sources are included in the 'background' source in the tables above.
- 2.33 Emissions from other sources such as domestic and industrial premises have also been assessed, but whereas emissions from transport have increased significantly since the 1950s, emissions from other sources have improved considerably. There are no large industrial processes in the borough, and only 30 small industrial processes. Most of these are petrol stations, which are not significant sources of nitrogen dioxide or small particles. Construction sites can also be a source of pollution – mainly small particles – especially if large-scale demolition work is carried out. Stockpiles of materials, plant equipment and vehicle movements around site can all be local sources of pollution. This form of pollution is included in the 'background' source in the tables above.
- 2.34 The source apportionment work shows that pollution in Hammersmith & Fulham comes from many sources. It is clear that traffic, both on local roads and roads outside the borough, are the main source of NO_x, whilst although a significant proportion of particulate pollution is also from traffic, a large proportion is also 'imported' from long distances outside the borough, including from other countries. This means that control of a major part of the PM₁₀ pollution in the borough and also London is outside the control of individual London Boroughs. Action can be taken to control and reduce PM₁₀ pollution from traffic and other sources (such as industry and construction sites). However, any action taken at a local level in Hammersmith & Fulham to control air pollution needs to be supported by additional action at a national level, as well as regional level over the Greater London area.

3. TAKING ACTION TO IMPROVE AIR QUALITY

- 3.1 Action to reduce levels of NO₂ and PM₁₀ pollution in the borough to below the national objective levels clearly requires considerable attention to the pollution caused by road traffic in particular, as well as other sources. A number of factors affect the volume of vehicle pollution, such as the amount of traffic, the quantity of heavy goods vehicles, engine energy efficiency, the type of fuel or power source, speed and congestion. Similarly with industrial pollution, the nature and efficiency of the processes and fuel type are important factors. It is clear that there are a number of measures already in place to control emissions of pollution into the atmosphere. For example, emissions from major industrial processes such as power stations are tightly controlled in the UK by the Environment Agency, whilst local authorities have responsibility for regulating smaller industrial processes. In terms of controlling emissions from transport, particularly road transport, new specifications for vehicle engines and fuel quality ensure continual improvements.
- 3.2 Local action has an important role to play in improving air quality but pollution does not respect borough boundaries, so concerted action over a much wider area is needed to fully address the issue. In preparing this Action Plan, it is important to appreciate that local action by the council must also be complimented by action on a wider scale, both in neighbouring boroughs and London-wide. This is particularly true for a small borough like Hammersmith & Fulham, located as it is on the edge of central London, and also on the main transport routes between the City Centre and Heathrow Airport, which means that much of the traffic on the borough's roads is through traffic. This is particularly true of the A4 and A40 which are part of the Transport for London Road Network rather than the council's.

European and National Action

- 3.3 Further controls on particle emissions from industry have recently been introduced via the EU Directive on Integrated Pollution Prevention and Control (IPPC). This Directive extends the range of industries covered by pollution control requirements and also extends the range of environmental impacts controlled. The first IPPC permit was issued in the UK in 2001.
- 3.4 Other developments include the introduction of controls on the sulphur content of heavy fuel oil and gas oil used by industry and a new Directive on large combustion plant which will reduce emissions of particles, oxides of nitrogen and sulphur dioxide from power stations, large boilers and refinery boilers. The EU Acidification Strategy is also expected make a significant contribution to reducing the emissions of pollutants that lead to the formation of secondary particles, as well as emissions of oxides of nitrogen.
- 3.5 The EU European Auto-Oil Programme is responsible for the setting of progressively tighter emissions standards for all newly manufactured vehicles. The first of these standards (known as the "Euro I" standard) was introduced in 1991/2 when catalytic converters were introduced to new vehicles for the first time. The current standard (2001) is the Euro III, whilst the Euro IV standard is expected to be here in about 2005/06. This programme will continue to play an important role in ensuring the vehicle fleet progressively moves towards being made up of vehicles that are cleaner than their

predecessors. For example, the maximum permitted emission of particles from a new diesel car manufactured last year to Euro III standards are five times lower than the maximum permitted emissions of one bought 10 years (pre-Euro I standard).

- 3.6 Another programme that runs in parallel with, and complements the Auto-Oil Programme, is the EU Fuels Directive. This is concerned with progressively improving fuel quality specifications for petrol and diesel. For example, as of January 2000 all diesel fuel sold in the EU is now ultra low sulphur diesel. This is important as the sulphur content of fuels influences the amount of particles emitted by vehicles. All road diesel and most petrol now meets the 2005 limit of 50ppm, which compares to a maximum sulphur content of 2000ppm which was in use prior to 1996. Further reductions in sulphur content are likely in the coming years as a result of a further EU Directive which is proposed to reduce levels to 10ppm.
- 3.7 These two EU programmes are key elements of the EU's agenda for reducing the emissions of the present day and also future vehicle fleet. However, it should be noted that an important factor in the success of these programmes, particularly the Auto-Oil Programme, is the rate at which older, more polluting vehicles (for example, pre-Euro I cars with no catalytic converter) are replaced by cleaner vehicles such as a Euro III car running on unleaded petrol or ultra low sulphur diesel. Encouraging a suitably high "renewal-rate" of the vehicle fleet in the UK is an important policy area. The UK Government and the Greater London Authority (GLA) are looking to promote cleaner vehicles and fuels with a range of incentives.
- 3.8 Technological developments in the field of engine design and use of alternative fuels will undoubtedly make a significant contribution to reducing emissions from transport in the future. These expected improvements have been taken into account in the air quality assessments carried out to date. However, these benefits are unlikely to be apparent in the short to medium term as traffic growth is expected to continue and because a large proportion of older vehicles will remain on the roads. Also, a small number of vehicles of all types, including cars, buses and lorries are disproportionately polluting. This is due to a combination of factors, such as vehicle age and poor maintenance.
- 3.9 In addition the regulations outlined above, in 2000 the Government published its Ten Year Plan for Transport, which sets out an investment programme for transport of £180 billion up to 2010, aimed at:
 - Reducing traffic congestion;
 - Improving public transport;
 - Increasing travel choice;
 - Cutting pollution levels.
- 3.10 The plan announced specific funding for a number of grant schemes aimed at cleaning up emissions from older vehicles by encouraging the retro-fitting of particulate traps or conversion to cleaner fuels such as liquid petroleum gas (LPG).
- 3.11 As shown above, national policy measures can have a positive impact on reducing emissions, but the Government recognises that such policies are not

necessarily the most cost-effective means of reducing pollution and improving air quality, particularly in local 'hot spot' areas. For this reason, central Government has delegated a large part of the responsibility for meeting the NAQS air quality objectives to local authorities.

The Role of the Greater London Authority (GLA)

- 3.12 The Mayor of London also has a major part to play in helping to meet the NAQS air quality objectives in London, being required to draw up a number of Strategies, of which three are directly relevant to the field of local air quality management in Hammersmith & Fulham. The Air Quality Strategy and the Transport Strategy are likely to be the most important in terms of improving air quality, but the Spatial Development Strategy or London Plan will also play an important role in shaping the long-term progress towards sustainable land use in London, ensuring that air quality and transport issues are taken into account where large developments are planned and could potentially have a detrimental impact on the environment, including local air quality. The remaining strategies will also need to consider air quality as an issue to some extent and include those on energy, waste, noise, economic development, culture and bio-diversity. In addition, the GLA is now responsible for the Transport for London Road Network which includes many of the most congested and polluted roads in London.
- 3.13 All London Boroughs must have regard to the Mayor's Strategies when planning their own AQAPs. The Transport Strategy was published in 2001 and the Air Quality Strategy was published in September 2002. One of the requirements of the Transport Strategy is for boroughs to each prepare their own Borough Spending Plans and eventually Local Implementation Plans (LIPs) which should outline how boroughs intend to implement the requirements of the Mayor's Transport Strategy. Naturally, as road transport is responsible for most of the pollution in the borough, there should be a significant degree of co-ordination between both the Mayor's various Strategies and Local Authorities AQAPs and LIPs. The Mayor's Transport Strategy for London has adopted a target of zero traffic growth by 2011 for inner London, which covers Hammersmith & London.
- 3.14 The Mayor's key transport objective is his commitment to introduce congestion charging in central London. The scheme was implemented in February 2003, with the early signs being that traffic levels have reduced by 10-15% in the central part of the capital. Hammersmith & Fulham lies outside the congestion charging zone, but its proximity to this zone means there is likely to be some impact on traffic, with a small reduction in traffic of less than 3% being predicted⁶. TfL has a comprehensive monitoring programme to assess the impacts of the congestion charging scheme, although it should be noted that the Mayor's scheme is not primarily directed at achieving improvements in air quality. A transport study carried out by the London Advisory Planning Committee (LPAC) in 1998 concluded that if traffic reduction measures alone were used to meet the National Air Quality Strategy air quality objectives in London, then a 25% reduction in traffic in Hammersmith & Fulham would be required. This is considered to be a very

⁶ Review of Charging Options for London Study, Government Office for London, 2000

ambitious target to aim for and in reality, highly unlikely to be achieved in the near future.

- 3.15 The Mayor also has the power to introduce or agree schemes for levying a charge on controlled non-residential workplace parking places in Greater London (known as work place parking charges). Schemes can be established by the GLA or Boroughs and charges on the owners or occupiers of premises are to be related to the number of vehicles parked. The levy would apply to all employee vehicles parking at workplaces, although there are powers to introduce some exemptions. The charge would be aimed at tackling peak time congestion caused by commuting. There are no proposals for a London-wide workplace parking levy scheme in the Mayor's Transport Strategy, although this does not necessarily prevent Boroughs from introducing local schemes.
- 3.16 The Mayor's proposals for working in pursuit of achievement of the air quality standards and objectives in Hammersmith & Fulham's AQMA are set out in the Mayor's Air Quality Strategy (summarised in Appendix 1). These aim to:
- increase the number of cleaner vehicles
 - use traffic management infrastructure to reduce emissions
 - reduce emissions from freight movements
 - encourage proper vehicle maintenance and more efficient driving
 - reduce emissions from vehicles operated by or licensed through the functional bodies
 - minimise emissions at and around Heathrow
 - reduce emissions from industry and buildings
 - reduce emissions from construction sites
 - enable continued research into London's air quality
 - lobby government to improve national measures to further reduce air pollution
 - support a feasibility study on one or more Low Emission Zones for London
- 3.17 This last proposal, for one (or more) Low Emission Zones (LEZ) in London is highlighted in both the Mayor's Transport and Air Quality Strategies. Whereas the main focus of the congestion charging scheme and the work place parking charges is to reduce traffic congestion, rather than directly improve air quality, the LEZ scheme would be aimed solely at reducing traffic emissions.
- 3.18 A LEZ is an area into which access would be permitted only to those vehicles meeting a prescribed emissions standard. The standard is not currently defined, but work is ongoing to set a national standard to help drivers who may need to drive in a number of cities with LEZs. Work carried out by transport consultant Transport and Travel Research, along with the National Society for Clean Air and the Cleaner Vehicle Task Force has concluded that the EU emission standards should be used as the criteria to judge whether or not a vehicle should be allowed into a LEZ.

The West London Alliance

- 3.19 The West London Alliance (WLA) is a partnership of West London Boroughs (Hammersmith & Fulham, Ealing, Brent, Hillingdon, Hounslow and Harrow) with common aims, including working together on a number of environmental issues. In 2001 the WLA issued its environment strategy, part of which gives a commitment to work together to improve local air quality. The resulting strategy, (The West London Air Quality Strategy) is attached as Appendix 2 to this Plan. It is designed to provide a strategic overview of actions that the WLA will take as a group to act positively to achieve improvements in air quality across the West London region.
- 3.20 Air pollution does not respect borough boundaries and many London boroughs by their nature are small in area, which limits the effectiveness of actions taken by individual boroughs. Consideration must also be given to the effect of individual boroughs policies on their neighbours, as pollution emitted in one borough effectively becomes the background concentration in neighbouring areas. The most logical strategic approach to West London's air pollution problems is therefore to work on a cross borough partnership basis.
- 3.21 Key action areas outlined in the West London Air Quality Strategy include:
- Transport and Air Quality Action Assessment
 - Examination and Support of Low Emission Zones
 - Support and Development of Mass Transit Schemes e.g. Trams
 - Integration of Air Quality Issues into Land Use Planning
 - Bus Corridor Improvements
 - Sustainable and Integrated Transport Action
 - Freight Movements – Promote Quality Partnerships
 - Heathrow Terminal 5 (application of all of the above)
- 3.22 West London boroughs have also co-operated to produce the West London Integrated Transport Strategy, which was developed in partnership with the West London Alliance boroughs and Richmond, as well as a number of private sector organisations. The Strategy focuses on:
- Improving orbital transport corridors;
 - Improving key transport interchanges;
 - Implementing traffic reduction measures;
 - Developing major infrastructure projects
- 3.23 Whilst highlighting the fact that air pollution does not respect borough boundaries, it also stresses that many of the proposed actions to improve air quality relate to implementing transport measures, many of which should be considered on a cross-borough basis. Further details are given in the West London Transport Strategy.
- 3.24 This regional partnership shows that the West London boroughs and other organisations recognise the fact that transport problems, like air pollution issues, do not recognise borough boundaries. By virtue of its location on the main routes into central London from the west, Hammersmith & Fulham suffers more through traffic by road and by public transport than many other London boroughs. It also attracts a number of 'inward' journeys from neighbouring boroughs for employment and other purposes.

- 3.25 For this reason it is important for the council to work with neighbouring boroughs, public transport organisations, Transport for London (TfL) and other relevant agencies including the private sector to help to reduce traffic in the borough. This has been done by submitting a number of joint partnership transport bids as outlined below:

SWELTRAC

- 3.26 The South and West London Transport Conference (SWELTRAC) has sought to develop and enhance sustainable transport in the sub region. It has achieved this through the partnership of local authorities, transport operators, TfL and Railtrack. The partnership has been effective in securing funding for and implementing a wide ranging programme of transport infrastructure projects. SWELTRAC shares a number of goals:
- To reduce car dependency and the need to travel by providing attractive sustainable alternative modes of transport and implementing traffic restraint measures;
 - To provide for safe and efficient movement of people and goods
 - To improve the local environment and quality of life for all
 - To improve public transport accessibility by enhancing integration through better interchange and increase public transport availability
 - To promote economic regeneration and social inclusion by improving sustainable accessibility for all travellers to town centres, business parks, places of education and tourist attractions
- 3.27 The main emphasis of the partnership to date has been the development of key sub regional bus and rail corridors and improving interchange, particularly at rail stations. For example, for local trips the focus has been to improve orbital links through improving bus service reliability and frequency through comprehensive bus priority schemes, through the Phase 1 (east – west) and Phase 2 (north – south) corridor schemes. These corridor schemes are largely completed now and monitoring is being undertaken to measure their effectiveness.
- 3.28 The ease of interchange can be a major influence on trip making decisions and therefore improvements at rail stations, bus hubs and town centres have been central to many SWELTRAC initiatives. Schemes at most of the major interchanges in the region have been commenced or completed, but much work remains to be done to achieve consistent high quality interchange across the sub region.

Park Royal Partnership

- 3.29 Park Royal is the largest remaining industrial area in London. The estate covers some 600 hectares, and is home to around 1,800 companies employing around 35,000 people. Public and private sectors have come together to form the Park Royal Partnership (PRP) to act as a regeneration agency. All three boroughs which Park Royal straddles (Ealing, Brent and Hammersmith and Fulham) are members of the Partnership and have jointly drawn up the Park Royal Interim Transport Plan.

3.30 The main challenges to the future viability of Park Royal, as identified through survey and consultation associated with the Park Royal Regeneration Strategy are as follows:

- Congestion – Heavy congestion, particularly associated with the junctions on the A40 and A406, delays all traffic particularly buses and HGVs;
- Unsustainable Modal Split – 65% of employees on the estate drive to work leading to about 22,300 cars coming into Park Royal daily;
- Pedestrians and Cyclists – The volume and composition of local traffic flows deter cyclists and pedestrians. Major roads and rail lines also make the local area difficult to negotiate by cycle and on foot. A lack of facilities such as changing rooms and showers for cyclists at workplaces compounds the problem;
- Parking – Some 10% of drivers park on-street. Given the volumes of goods traffic moving about the estate on-street parking contributes to congestion. The problem is exacerbated by less than effective parking restrictions and patchy enforcement;
- Public Transport – Buses are unable to provide an effective alternative to private transport. Buses are subject to congestion and as such are unreliable. Rail stations are located on the periphery of the estate and interchange with bus services which penetrate the estate, is not as good as it could be;

3.31 There are, however, a number of opportunities on which a modal shift can be based. These are:

- Rail services – Park Royal is well served on the periphery by a number of rail lines. There is also the opportunity for new stations and services on existing lines.
- A40 Improvements – Transport for London (Street Management) is currently improving the Gypsy Corner junction on the A40;
- Intermodal Transfer – The Willesden Freight Terminal provides an intermodal transfer facility within the area. Freight services from Willesden travel throughout the UK and Europe.
- Footpaths – There are a number of footpaths around the estate that could, with some improvement, provide viable off-road short cuts for both pedestrians and cyclists. A number of these have already been improved.
- Changing Attitudes – Companies on the estate are increasingly aware of the need to change their views on transport modes to and from the area. This results particularly from recognition of the impact of local congestion on HGV movements during peak traffic periods. Park Royal is further developing its 'green' transport programme through providing technical and financial assistance in the adoption of company travel plans by Park Royal businesses. Park Royal will also be working with the co-ordinators of the West London Transport Strategy in developing a Freight Quality Partnership for West London.

Green Areas

- 3.32 This is a partnership of four boroughs (Hammersmith & Fulham, Hounslow, Ealing and Wandsworth) which expands on the concept of the London Bus Priority Network by developing a 'whole area' approach to improvements for public transport users, together with pedestrians and cyclists. To date, one of four Green Areas schemes has been implemented which is the pedestrian and bus priority improvements around Hammersmith Broadway.

4. LOCAL MEASURES TO REDUCE AIR POLLUTION BY 2005

4.1 Whilst the national measures outlined should lead to improvements in the long-term, pollution levels remain above the Government's national air quality objectives in the short-term, and further action is required to meet the air quality targets set for 2004 and 2005. This AQAP will focus on the areas outlined above and will also build on the work already being undertaken by the Mayor of London via his Transport and Air Quality Strategies.

4.2 It is suggested that the scope for taking action to tackle air pollution by small particles and nitrogen dioxide should be considered under the following headings as themes, which form a broad hierarchy.

- A. Reducing Emissions at Source
- B. Reducing the Need for Travel
- C. Encouraging a Switch to Less Polluting Forms of Transport
- D. Making more efficient use of Road Transport
- E. Other Measures to Reduce Road Traffic and Emissions

Supported by a further measure of:

- F. Measures to Raise Awareness of the Links Between Air Quality and Health

4.3 The key policies are shown in Table 8. There are 30 in total, each of which has at least one action-point associated with it. In assessing local measures that the council can take to help improve air quality, it should be made clear that the council will not be able to meet the Government's air quality targets in isolation and will need to build partnerships with a number of different organisations including the GLA and TfL, neighbouring boroughs, residents and local businesses and through the Local Strategic Partnership to ensure that the proposed measures are successfully implemented.

4.4 In each case, local action can be taken but progress will depend to varying extents on the action taken at an international and national level, and within London as a whole. This is particularly important for a small borough like Hammersmith & Fulham on the edge of central London which is affected by through traffic and where the busiest most polluted roads are not under local authority control, but come under the jurisdiction of TfL.

4.5 Much of the action that can be taken is already contained in the council's transport strategy. The council has outlined in its Interim Local Implementation Plan (ILIP) and Borough Spending Plan (BSP) the measures it intends to take to reduce the adverse effects of traffic, using the powers already available, and taking account of the aims of the Mayor of London's Transport Strategy.

4.6 Although the Action Plan is targeted at reducing pollution by small particles and nitrogen dioxide there would be reductions in other pollutants which are not expected to exceed national objectives. This includes pollutants such as benzene, carbon monoxide and sulphur dioxide.

Table 8 showing the Key Policies in the Air Quality Action Plan

1. Encourage improved availability of alternative fuels
2. Provide incentives for use of alternative fuels
3. Promote Travel Plans to encourage a switch to low emission vehicles
4. Reduce emissions from the council fleet
5. Seek a reduction in emissions from the bus fleet and taxis
6. Encourage the use of vehicles with smaller, more efficient engines
7. Seek to reduce emissions from larger vehicles
8. Seek to reduce emissions from badly maintained vehicles
9. Encourage more environmentally friendly driving behaviour
10. Seek a reduction in emissions of small particles from construction sites
11. Seek a reduction in emissions from domestic and commercial properties
12. Seek to control and minimise industrial emissions
13. To sustain and improve town and local centres, local facilities and employment areas
14. Seek to reduce the air quality impact of new development
15. Promotion of bus services
16. Promotion of other forms of public transport
17. Promotion of cycling
18. Promotion of walking
19. Encourage a reduction in car use for the journey to school
20. Encourage a reduction in car use for the journey to work and business trips
21. Control provision of on and off street parking to deter car commuting into and within the borough
22. Encourage freight to be transported in a sustainable manner
23. Encourage car sharing
24. Discourage short journeys by car.
25. Reduce the amount of road traffic in residential areas and town centres
26. Use trees to help improve local air quality
27. Reduce the amount of road traffic on the A4 and A40
28. Provide information to allow people to make informed choices about travel behaviour
29. Provide information to allow people to make informed choices about reducing pollution from domestic activities
30. Continue to monitor air quality and make information available

THEME A. Reducing Emissions at Source

4.7 As outlined above, emissions from various sources contribute to air pollution in the borough and the most effective way to tackle the pollution problem is to deal with the emissions at source. Of the sources of pollution that can be controlled, traffic is the main source of nitrogen dioxide and small particles, although emissions from industry and other sources also need to be dealt with.

- 4.8 There are a number of different ways that emissions from vehicles can be reduced or cleaned up. Whilst it is true that emissions from road transport are improving due to the adoption of progressively cleaner engine technologies and fuels, the rate of adoption of these new technologies is not happening fast enough in London to reduce pollution to the extent that the air quality objectives will be met.
- 4.9 It therefore makes sense for the AQAP to focus initially on reducing the emissions from individual vehicles, particularly those that are the most polluting. This is not to say that pollution from other sources such as industry will not be dealt with, but the main elements of the AQAP will inevitably concentrate on dealing with emissions from traffic. Reducing the emissions of NO_x and PM₁₀ at source is likely to be the most effective action that can be taken to improve air quality. This can be done in a number of ways and can be applied to emissions from all sources (transport, industry and domestic/commercial buildings).
- 4.10 Cleaner vehicles offer the best opportunity to achieve emissions reductions from road traffic. However, whilst vehicle technology is improving all the time, the positive impact of such vehicles in air quality terms is limited by their rate of adoption into the national vehicle fleet. There is therefore a need to speed up their introduction.
- 4.11 In Britain, transport produces 25% of total carbon dioxide, the main gas implicated in climate change, and its share of this total has been growing. A move towards use of low emission vehicles will also help to cut CO₂ emissions as well as other pollutants of concern.

OBJECTIVE: Increase the use of cleaner fuelled vehicles

- 4.12 To a certain extent, the main driving force behind any move towards increasing the use of cleaner fuelled vehicles will be the availability of vehicles from the main car manufacturers and whether or not they are competitively priced, along with the availability of fuel and the associated costs. Conventional fuels are becoming much cleaner and improvements in petrol and diesel fuels will continue to help reduce emissions. By 2005 the majority of the London vehicle fleet will still be running on diesel or petrol and the move to gas or electric vehicles is likely to be a long term measure that will have a gradual positive impact. However, the council can encourage the use of these cleaner fuels by implementing a number of policies, as outlined below.

POLICY 1: Encourage improved availability of alternative fuels

ACTION 1.1: Produce guidance on the provision of low emission fuels, in the borough, including electric vehicle recharging points

ACTION 1.2: Investigate and identify potential new sites for further alternative refuelling infrastructure

- 4.13 Whilst there are now more than 1000 LPG refuelling sites in the UK, less than 30 of these are currently in the Greater London area and there is still much

progress to be made in expanding the network of refuelling sites in London. We propose to help increase this number by preparing guidance on the provision of LPG refuelling sites and also electric recharging sites in the borough. We will encourage fuel companies and developers to identify suitable sites and ensure that full consideration is given to providing low emission fuel alternatives.

- 4.14 At present there is only one service station in the borough where LPG can be purchased (BP Connect on Talgarth Road). The location of this service station and others will be advertised as part of the council's publicity campaign. We will also consider how we can encourage more refuelling and recharging sites in the borough when drafting new planning guidance on sustainable design and construction in 2003. It can also be included for consideration in developing the new Local Development Document, on which preliminary work will also begin in 2003.
- 4.15 We will prepare guidance, in partnership with organisations such as the Energy Saving Trust (EST), oil companies and with reference to the London Clean Fuel Vehicle Working Group, aimed at improving the availability of refuelling and recharging infrastructure in the borough.

POLICY 2: Provide incentives for use of alternative fuels

ACTION 2.1: Publicise the location of service stations selling low emission fuels and electric vehicle charging points

ACTION 2.2: Promote the grants scheme offered by the Energy Saving Trust

- 4.16 The Government has taken steps in recent years to encourage the use of low emission vehicles by introducing lower vehicle excise duty bands for the cleanest, most energy efficient vehicles. Cleaner fuels such as LPG are also currently much cheaper than conventional fuels, mainly due to lower fuel duty on gas than on petrol and diesel.
- 4.17 The Government also funds grant schemes via the EST to help 'kick start' the market for vehicles running on LPG, natural gas and electricity by covering part of the additional costs of purchasing or converting clean fuel vehicles (Powershift Programme) or for fitting emission reduction technologies such as particle traps on commercial diesel vehicles (Cleanup Programme). The council can facilitate the uptake of the funding provided by the EST by publicising the scheme to local businesses and providing relevant information on how people can apply for grants.

POLICY 3: Promote travel plans to encourage a switch to low emission vehicles

ACTION 3.1: Promote travel plans to schools, businesses and other organisations

ACTION 3.2: Use the travel awareness campaign to publicise the benefits of low emission vehicles

- 4.18 The council has employed a Travel Plan Co-ordinator since October 2001 to promote the preparation of travel plans to schools and businesses as well as developing the council's own plan. Travel plans aim to reduce private car use in journeys to work and for operational use through a variety of measures, as well as reducing emissions from vehicle fleets. They are increasingly required as part of the development control process in accordance with new Unitary Development Plan policy.
- 4.19 One of the measures which is promoted as a way to minimise the environmental impact of business related travel is for businesses to convert vehicles to cleaner fuels or to replace older vehicles with low emission vehicles.

POLICY 4: Reduce emissions from the council fleet

ACTION 4.1: Continue to replace vehicles with low emission alternatives

ACTION 4.2: Ensure that council vehicles are regularly serviced and well maintained and driven in such a way to minimise emissions

ACTION 4.3: Seek to encourage council contractors to use low emission vehicles

- 4.20 Hammersmith & Fulham council is a member of the European ALTER (Alternative Traffic in Towns) project, which commits the council to taking action to help generate an increased demand for 'clean' vehicles. To meet this aim, since 2000 the council has started to renew its own vehicle fleet on a low emission basis, including converting its fleet to cleaner fuels.
- 4.21 Of the 410 vehicles used by the Direct Services Department, 85 use LPG and 23 are electric vehicles. At the moment, this is equivalent to just over a quarter of the fleet running on low emission fuels, whilst the remainder run on ultra low sulphur diesel. Currently, seven of those are fitted with Continuously Regenerating Traps (CRTs) which help to cut particulate emissions. To help identify suitable vehicles for similar improvements or replacement, a register of vehicles in the fleet is kept updated and includes information on the age of the vehicle and fuel use. There are gas refuelling facilities at two council depots, where there are also a total of 24 parking bays fitted with recharging facilities for electric vehicles. Many of the gas and electric vehicles have been purchased with the help of grants from the EST.
- 4.22 Future plans are to continue replacing diesel and petrol vehicles with gas and electric vehicles, whilst in the long term the aim is to make the whole fleet meet Euro III emissions standards as a minimum by 2004/05. Although the majority of the fleet is likely to continue to be diesel powered, advances are being made in cleaning up emissions from such vehicles (e.g. the current trialing of water-diesel emulsion by some local authorities to check its effectiveness on reducing emissions). The council will monitor developments and take account of the results of any such trials in making future decisions regarding its own fleet.
- 4.23 All fleet vehicles are regularly maintained in the council's own vehicle workshop. In addition to the annual MOT test, which includes an emissions check, vehicles also undergo an additional service every year. Many of the

vehicles provide services in specified areas (e.g. such as the refuse collection and meals on wheels services). Routes for these services are planned to ensure that they are as efficient as possible and drivers of 'dual-fuel' vehicles which can run on both petrol and LPG are advised to use LPG as this has lower emissions. Gas use is monitored at the council depots to ensure that drivers are refilling vehicles with this fuel rather than petrol.

- 4.24 The council will also seek to encourage contractors on council business to use vehicles that meet relevant emissions criteria.

POLICY 5: Seek a reduction in emissions from the bus fleet and taxis

ACTION 5.1: Use the "Bus Quality Partnership" to encourage Transport for London to clean up emissions from their vehicles

ACTION 5.2: Encourage the Mayor to use his regulatory powers to help reduce emissions from taxis

- 4.25 As outlined in the Mayor of London's Air Quality Strategy, buses are an essential part of London's public transport system and there has been substantial progress in recent years in cleaning up their emissions. However, whilst buses are less polluting per passenger mile because of the number of people on a bus compared to cars, they still contribute to the air quality problem in Hammersmith & Fulham.

- 4.26 The council has agreed a "Bus Quality Partnership" with Transport for London (TfL) Buses which will help to reduce bus emissions at the same time as improving bus services. The partnership involves the bus operator agreeing to improve the service by, for example, replacing old vehicles with new low emission buses in return for the council agreeing to introduce schemes which assist bus services such as more bus lanes, bus lane enforcement etc. TfL will give high priority to reduce emissions by fitting particle traps to all existing buses, including the older vehicles such as the Routemasters, some of which run on routes that pass through Hammersmith & Fulham.

- 4.27 In 2002 there were 20,160 taxis in London operating about 85 million taxi trips a year, predominantly around central London and Heathrow airport. Whilst emissions will be worst in these areas, taxis also make trips through and around Hammersmith & Fulham. Many of the taxis on the road are old and do not benefit from technologies such as particulate traps to reduce emissions. Emissions from these vehicles can therefore be significant, compared to other vehicles, especially in congested traffic.

- 4.28 All taxis must comply with a set of 'conditions of fitness' in order to be licensed to operate in London. The council will encourage the Mayor to set stringent but fair emissions standards for taxis, which will encourage drivers to replace their old vehicles or retrofit technologies to lower emissions.

POLICY 6: Encourage the use of vehicles with smaller, more efficient engines

ACTION 6.1: Publicise the benefits of using smaller vehicles and encourage their use

- 4.29 Smaller vehicles tend to have smaller engines which are more fuel-efficient and therefore have less of an environmental impact than their larger counterparts. Car manufacturers are under increasing pressure to lessen the adverse environmental impact of their products - pressure that is likely to encourage car companies to spend greater resources on the development of smaller, more fuel-efficient vehicles. Encouraging residents and local businesses to move towards vehicles with smaller, more fuel-efficient engines, which are very suitable to urban use, could deliver real benefits to the environment.

OBJECTIVE: Reduce unnecessary pollution, especially that caused by the most heavily polluting vehicles

- 4.30 It is well established that a small proportion of motor vehicles account for a large proportion of the total fleet emissions. According to a study by the National Audit Office (NAO) conducted in 1999, as many as one in five vehicles in the UK emits illegally high levels of pollution in spite of the annual MOT test. There are several ways in which the grossly polluting vehicles driving through Hammersmith & Fulham and other unnecessary pollution can be tackled.

POLICY 7: Seek to reduce emissions from larger vehicles

ACTION 7.1: Join a London Low Emission Zone if the feasibility study shows this to be an effective measure in tackling excessively polluting vehicles and encourage other boroughs to join

- 4.31 A Low Emission Zone (LEZ) is an area into which access is only permitted to those vehicles meeting a prescribed emissions standard, thus excluding the most polluting vehicles. The standard is not currently defined, but work is ongoing to set a national standard to help drivers who may need to drive in a number of cities with LEZs in use. Work carried out by Transport and Travel Research, along with the National Society of Clean Air (NSCA) and the Cleaner Vehicle Task Force has concluded that the EU emission standards should be used as the criteria to judge whether or not a vehicle should be allowed into a LEZ. Once an LEZ is in place, any vehicle inside the defined area which does not meet the specified emissions standard will be subject to enforcement procedures, including penalty notice.
- 4.32 One of the most effective ways of helping to reduce the impact of emissions and encourage faster adoption of cleaner vehicles is likely to be the use of a LEZ in London. As a member of the ALTER scheme, the council supports the use of LEZs as a method of improving air quality and believes that a LEZ in London is the most important new measure that is being proposed to meet the NAQS air quality objectives.
- 4.33 All London Boroughs are working on a LEZ feasibility study along with the GLA and the Association of London Government (ALG). The LEZ Steering Group expects to issue its final report in early 2003. This will identify the most effective LEZ options for London, including how large such a zone should be and how the scheme could be implemented. As well as looking at the air

quality impact of the LEZ scheme, the Steering Group will also assess any socio-economic impacts, transport impacts, public acceptability and costs.

- 4.34 Additional studies by the Transport Research Laboratory on behalf of Westminster City council have suggested that an effective LEZ should focus on large diesel vehicles and only allow access to the least polluting (e.g. modern diesel vehicles, older vehicles fitted with particle traps to clean up emissions, vehicles running on alternative fuels such as gas and electric).
- 4.35 The council will seek the establishment of a London LEZ scheme focusing on vehicles that do not meet appropriate emission standards, in accordance with the findings of the LEZ study. Membership of a LEZ is expected to be one of the key measures that the council can take to help improve air quality in the borough.
- 4.36 It was originally hoped that, if a scheme was supported by the feasibility study, that it could be implemented in some form prior to 2004/05 and help to work towards meeting the air quality objectives. However, early indications are that implementation by 2005 will be difficult to achieve. Nevertheless, this action point will remain in the AQAP to show our commitment to the LEZ, subject to the conclusions of the 2003 feasibility report.

POLICY 8: Seek to reduce emissions from badly maintained vehicles

ACTION 8.1: Identify the scope for carrying out roadside emission testing in the borough

ACTION 8.2: Collaborate with other boroughs in a London roadside testing scheme if this is shown to be feasible

ACTION 8.3: Promote information on emission testing and servicing of vehicles as part of a travel awareness campaign

ACTION 8.4: Encourage vehicle owners to have their cars regularly maintained, in addition to the annual MOT

- 4.37 New powers have recently been introduced by the Government which now allow those local authorities that have declared AQMAs, such as Hammersmith & Fulham, to enforce the current vehicle exhaust emissions standards by carrying out roadside tests, in conjunction with the police.
- 4.38 The Government proposes that motorists with vehicles that fail the test and exceed the emissions limits could be liable to be issued a fixed penalty notice of £60. Some concessions will be made however, if the vehicle has recently passed a MOT emissions test or if the emissions defect is corrected within 2 weeks. The new scheme also enables local authorities to enforce the requirements for drivers to switch off engines in parked vehicles. As well as reducing the emissions of those vehicles that are found to be failing the emissions test, regular and high profile testing can encourage other drivers to take better care of their vehicles.
- 4.39 The ALG is currently co-ordinating a feasibility study on the implementation of a London-wide scheme to target gross polluters with a roadside testing programme.
- 4.40 The council will seek the establishment of a London wide emissions testing programme, in line with the findings of the ALG study. The council also

intends to promote awareness of the testing programme as part of its travel awareness campaign.

POLICY 9: Encourage more environmentally friendly driving behaviour

ACTION 9.1: Investigate the effectiveness of enforcing the Vehicle Emissions Regulations in relation to stationary vehicles

ACTION 9.2: Ensure that TfL instructs bus drivers to not leave their vehicle engines running unnecessarily while parked

ACTION 9.3: Promote information on emissions from stationary vehicles as part of a travel awareness campaign

ACTION 9.4: Encourage people to drive more smoothly and less aggressively

ACTION 9.5: Encourage people to consider methods of reducing fuel consumption

4.41 In addition to roadside testing, the new regulations will also allow penalty notices to be issued to drivers who, without good reason, leave their engines idling while parked.

4.42 Ensuring that a vehicle is well maintained removes the possibility that the engine can become badly tuned and emit excessive amounts of pollution. This is important as a badly tuned car can emit 10 times more pollution than one that is well maintained. Also, keeping tyres inflated at the manufacturer's recommended level can help to achieve the best possible fuel economy, which also helps to keep emissions down.

4.43 Driving aggressively, such as over-accelerating and braking sharply on a regular basis should be discouraged as this increases emissions and also puts unnecessary wear and tear on vehicles. Drivers should also be encouraged to avoid idling. Just half a minute of an engine idling can burn more petrol than the amount used to start a car. Using the air conditioning and carrying unnecessary items in the car boot, especially if they are heavy, can increase fuel consumption and emissions as well. Driving on roads that have smooth traffic flows reduces the number of stops and starts which is more fuel efficient and better in terms of emissions. Driving less aggressively and more smoothly should also have the benefit of making the roads a safer place for cyclists and pedestrians when crossing the road.

4.44 The council will take note of how these regulations were enforced when previously piloted by several councils, including Westminster, and seek a suitable way to enforce them. We will also work with TfL to ensure that bus drivers are also aware of the regulations and do not allow their vehicles to stand with their engines running for unnecessarily long periods whilst parked. Publicity will be given to the fact that unnecessary pollution can be caused by keeping a vehicles engine running while it is stationary as part of the general travel awareness campaign.

OBJECTIVE: Control & minimise emissions from buildings and construction sites

4.45 In addition to dealing with emissions from vehicles, emissions from other sources such as buildings and construction sites also need to be tackled. The

main 'static' sources of PM₁₀ are from industrial emissions, dusty demolition and construction work and bonfires, whilst NO₂ emissions tend to come from boilers.

POLICY 10: Seek a reduction in emissions of small particles from construction sites

ACTION 10.1: Enforce the Environmental Protection Act 1990 in relation to dust and smoke nuisance

ACTION 10.2: Use the planning process to set conditions in relation to large scale demolition and construction sites to minimise particle and dust pollution

ACTION 10.3: Develop and publicise guidance in the form of a "Considerate Builders Code" to ensure dust and smoke pollution is minimised on construction sites

ACTION 10.4: Encourage the re-use of existing building stock rather than demolition and re-development

- 4.46 Dust emissions from construction and demolition sites are a common problem and small particles being blown from such sites can represent a significant source of local pollution. Also, because of their small size, the particles can be carried over long distances even in light winds.
- 4.47 Construction site operators will need to demonstrate that emissions of PM₁₀ particles from their sites are adequately controlled. To help demolition and construction companies take a responsible approach to minimising dust and smoke emissions during building works, the council plans to draw up a "Considerate Builders Code" to outline the most appropriate methods for dust and other pollutants to be minimised during construction and demolition work.
- 4.48 The council will also enforce the 1990 Environmental Protection Act in relation to dust nuisance from construction sites and where appropriate, place dust control conditions on permissions granted for large development sites. These actions are expected to reduce statutory dust nuisance to nearby residents as well as reducing the levels of PM₁₀ emitted from sites.
- 4.49 Where practicable, the re-use of existing building stock rather than demolition and re-development will be encouraged as this can substantially reduce the amount of local dust pollution caused by demolition and construction work. It can also reduce the number of vehicle movements that would be necessary to transport demolished material away from site and bring in new building materials.

POLICY 11: Seek a reduction in emissions from domestic and commercial properties

ACTION 11.1: Continue to enforce the Environmental Protection Act 1990 in relation to smoke nuisance and discourage the use of bonfires to dispose of garden waste

ACTION 11.2: Encourage home composting to reduce the use of bonfires

ACTION 11.3: Enforce the Clean Air Act 1993 in relation to smoke from domestic and commercial premises

ACTION 11.4: The council will continue to purchase “green electricity” generated by renewable energy

ACTION 11.5: Promote energy efficiency schemes and encourage reduced energy use wherever possible, including through the planning process

ACTION 11.6: Develop planning guidance on sustainable design and construction

ACTION 11.7: Encourage the use of renewable energy sources and combined heat and power

- 4.50 The whole borough is covered by a smoke control order, which makes it an offence to emit smoke from a chimney arising from the burning of an unauthorised fuel. The implications of the Order are that only authorised (smokeless) fuels, which burn with a minimum of smoke can be used. Coal, oil and wood cannot be used as fuel, unless they are burnt on an exempted fireplace. These appliances are designed to burn off the smoke and are all listed in the Smoke Control (Exempted Fireplaces) Orders, copies of which are held on file by the council. Residents thinking of buying an appliance to burn a fuel that is not an authorised smokeless fuel should check that the appliance is exempt for use in a smoke control area.
- 4.51 As well as causing a nuisance to residents, bonfires are also a source of fine particles, PM₁₀ and other pollutants, depending on what is being burnt. Although informal action is usually adequate in dealing with bonfires, enforcement action can be taken under the Environmental Protection Act 1990 to stop them and prevent recurrence. The council actively discourages the use of bonfires to dispose of garden waste etc, by promoting home composting and also offers a free collection of garden waste. Garden waste can also be taken to the council’s civic amenity in Smugglers Way, Wandsworth for composting.
- 4.52 Factories and trade premises (including demolition sites) not governed by authorisations have to comply with the Clean Air Act 1993. This Act prohibits the emission of dark smoke from chimneys or bonfires on these premises, subject to certain limited exceptions. The Clean Air Act also controls the amount of grit and dust that can be emitted from non-domestic boilers and furnaces.
- 4.53 A very small number of premises in the borough may still be burning heavy fuel oil in their boilers. Where these can be identified (e.g. from chimney height authorisation records), operators will be encouraged to convert to light oil or gas.
- 4.54 Most buildings use gas to provide heat and hot water which is regarded as the cleanest fossil fuel out of coal, oil and gas. It does cause emissions of carbon dioxide, but only a small amount of nitrogen dioxide and no particulates. The council’s UDP includes the following policy:

Policy EN16 Energy Conservation and Renewable Energy – this policy states that the council will plan for energy efficiency in relation to proposals for land use, transport, development and its own activities through: the promotion

of greater energy efficiency in new developments and existing buildings, as well as the promotion of more energy efficient forms of transport such as walking, cycling and public transport. Furthermore, all planning applications for new buildings and major renovations should demonstrate how the principles of energy efficient design have been incorporated.

- 4.55 Promoting energy efficiency schemes and encouraging a reduction in energy use means that less fossil fuels are used, which should have a beneficial impact on reducing pollution levels as well. The council contributes to this by employing a “Green Electricity Contract” with its electricity provider which means that part of the council’s electricity needs are met by the use of renewable energy. The council will consider signing the ‘Nottingham’ Declaration and the ‘Making A Corporate Commitment (MACC) 2’ scheme in 2003 which commit the council to providing opportunities for the development of renewable energy generation within the borough, as well as setting overall targets for reducing emissions to air over given time periods. The council is also working towards accreditation under the Energy Efficiency Accreditation Scheme (run by the National Energy Foundation). These initiatives promote energy efficiency and use of renewable energy in the council and the wider community. The council will also develop planning guidance for sustainable design and construction, which will promote energy efficiency and use of renewables through the planning process.
- 4.56 The council also has an active programme to improve energy efficiency in social housing. For example, over one thousand energy efficient condensing boilers had been installed by the end of 2002. The feasibility of installing photovoltaic and micro Combined Heat and Power (CHP) systems in a number of social housing properties as part of demonstration projects. Research is also being undertaken into the new breed of CHP engines for larger commercial properties in the borough.
- 4.57 The council also supports the local charity Groundwork West London in its work to help businesses become more sustainable by reducing their environmental impact.

POLICY 12: Seek to control and minimise industrial emissions

ACTION 12.1: Regulate emissions from local small industrial processes
ACTION 12.2: Ensure that inspections are carried out in line with DEFRA guidance

- 4.58 Under the Environmental Protection Act 1990, certain categories of industry must have an authorisation to operate issued by either the Environment Agency or the council. Larger industries which have the capacity to pollute to the air, water or to the land are regulated by the Agency, whilst those industries which may pollute to air only are controlled by the local authority. All authorisations contain legally enforceable conditions, which control the emissions of pollutants.
- 4.59 The council will continue to regulate local industrial processes by regularly inspecting all “Part B” processes in the borough, including petrol stations. Regulating industry helps to keep concentrations of all pollutants at acceptable levels, not just NO_x and PM₁₀. Inspections will be carried out in

line with DEFRA guidance to ensure that emissions do not lead to exceedences of the national air quality objectives.

THEME B. Reducing the Need to Travel

- 4.60 In the recent past, many amenities such as shopping and leisure facilities were permitted to locate in out of town areas rather than residential areas or areas close to public transport. This policy had the effect of increasing road traffic causing high levels of congestion and pollution. The effects can be felt at a local level through poor air quality, noise, busier roads and at a global level through climate change.

OBJECTIVE: Ensure land use policies reduce the need for travel

- 4.61 The best way to reduce the need to travel is to ensure that essential services and amenities are provided close to the main population centres and also that there are good transport links between them. The most appropriate way to do this is via the land use planning system.

POLICY 13: To sustain and improve town and local centres, local facilities and employment areas

ACTION 13.1: Action is being taken via the UDP review to strengthen policies in this area to further protect local facilities

- 4.62 The council's Unitary Development Plan (UDP) provides the framework for land-use planning in the borough and aims to ensure an integrated and consistent approach to land-use and transport planning. UDP policies aim to protect town centres, local facilities, such as shopping and employment land so that the opportunity for people to meet their needs locally is optimised. In this way the need to travel by any means can be minimised and protection of very local services enables trip to be made by walking or cycling. The UDP is currently nearing the end of a review and the opportunity has been taken to strengthen these policies, especially for shopping.

POLICY 14: Seek to reduce the air quality impact of new development

ACTION 14.1: Ensure that the impacts of large developments are assessed

ACTION 14.2: Review land use policies as part of the UDP review process

ACTION 14.3: Produce planning guidance on air quality and land use

ACTION 14.4: Use planning conditions and obligations to ensure the protection of local air quality

- 4.63 The council's UDP guides land-use planning in the borough and aims at ensuring an integrated and consistent approach between land-use and transport planning. The UDP is currently under review and the changes being proposed in transportation policy seek to provide increased emphasis on the need for integration and road traffic reduction in order to improve the environment and also enhance the economy. For example, the UDP policies

aim to promote improvements to public transport services and improve infrastructure and to locate high trip-generating developments in areas of high public transport accessibility. The UDP also strictly controls parking provision in new developments.

- 4.64 Large developments likely to give rise to increased traffic are required to be fully assessed for transport impact. Where necessary mitigating measures such as public transport improvements will be required by the council as a condition of granting planning permission, together with the implementation of travel plans. Car free housing can also be considered in locations that are close to facilities and amenities, whilst higher density housing can be considered in locations easily accessible by public transport.
- 4.65 New planning guidance will be produced to help ensure that the air quality impacts of new development are fully taken into account.

THEME C. Encouraging a Switch to Less Polluting Forms of Transport

- 4.66 One of the main ways that the council can aim to reduce air pollution is by introducing measures to encourage people to use public transport (in partnership with transport operators), cycling or walking for more trips. In terms of air quality this is particularly important for short trips as pollution reduction technology such as catalytic converters do not reach their proper working temperature in time and are therefore less efficient than on long journeys.
- 4.67 Also, many car journeys in London are under two miles, which is a distance easily walked or cycled for many people and walking and cycling have additional health benefits as well as not causing any pollution. On its own, a policy of encouraging and promoting public transport, cycling and walking may not be able to bring about a significant improvement in air quality in the borough, but it is hoped that in combination with the other measures in the AQAP, that it will be an effective policy to follow.

OBJECTIVE: Promote the use of public transport, walking and cycling

- 4.68 Promoting public transport, walking and cycling is a well established part of the council's existing transport strategy, currently expressed in the policies and programmes of the Interim Local Implementation Plan. The Plan is expected to apply policies locally in order to help meet the targets set in the Mayor of London's Transport Strategy.
- 4.69 Although the council is not the "provider" of public transport services in the borough, it does have a major role to play in providing the conditions for these services to flourish and to promote improvements on behalf of its residents, workforce and visitors.

POLICY 15: Promotion of bus services

ACTION 15.1: Work in partnership with TfL and bus operators to improve bus services in the borough

ACTION 15.2: Continue to introduce bus priority improvements

- 4.70 Public transport such as bus services must be made more attractive to all potential users, including car drivers, so that there is a viable alternative for their journeys. Some of the ways that bus services could be made more attractive include:
- improving accessibility;
 - expanding existing routes;
 - improving safety and security;
 - providing more travel information;
 - expansion and enforcement of Bus Lane Priority schemes.
- 4.71 To this end, the council will press bus operators and TfL for better, more reliable and regular bus services in the borough. The council will also continue to introduce bus priority improvements to help improve local bus services.

POLICY 16: Promotion of other forms of public transport

ACTION 16.1: Seek construction of new rail stations at Imperial Wharf and Shepherd's Bush and a new underground station at Wood Lane

ACTION 16.2: Use the planning process to increase the number of train and underground stations in the borough

ACTION 16.3: Encourage river transport for passenger services

- 4.72 The council has a key policy to improve passenger transport services on the West London Line. It led the inter-borough group that secured the new overground station at West Brompton, which also interchanges with the underground services. We have also secured developer funding for two new stations at Imperial Wharf and Shepherd's Bush.
- 4.73 A new underground station on the Hammersmith and City Line at Wood Lane has recently been approved, also to be funded from the White City shopping centre development.
- 4.74 TfL has also announced recently that the tram-based West London Transit scheme has been given the go-ahead, to be implemented by 2008/09. The council supports this scheme in principle as it should be a major encouragement for public transport use. However, it is outside the time scale of this Action Plan which runs until 2005.
- 4.75 The council will continue to pursue the provision of new stations and the expansion of services on the West London Line as well as continuing to encourage and support TfL in increasing the frequency of services and improving access to all London Underground stations in the borough.
- 4.76 Both the river Thames and the Grand Union canal are significantly under used for public transport. There is no technical reason why such use should not occur, subject to ensuring that the environmental impacts of pollution etc are minimised. The UDP outlines how developments in connection with the operation of public passenger transport services will be welcomed, particularly

between central London, Chelsea Harbour and Hammersmith. We are actively pursuing this with TfL. It would also be important to co-ordinate effective land interchange facilities at any jetties.

- 4.77 The council strongly supports the principle of TfL's proposed West London (Uxbridge Road) Transit scheme as studies indicate that a tram system would remove about 5,000 cars from the morning rush hour every day. However, the completion of any such scheme will be after 2005 which is outside the scope of this Plan. However, it is referred to in the West London Air Quality Strategy in Appendix 2 and will be considered in any future Air Quality Action Plan.

POLICY 17: Promotion of cycling

ACTION 17.1: Implement new cycle routes in the borough as part of the London Cycle Network

ACTION 17.2: Develop and implement a borough-wide "Cycling Strategy"

ACTION 17.3: Require cycle parking in new developments

- 4.78 Cycling can be an extremely practical form of personal transport, especially for short journeys. In London, journeys of less than 5 miles (8km) can often be made more quickly and reliably by bike than by car. Every journey made by bike helps to reduce congestion and emissions from traffic and the council endorses the national targets set out in the National Cycling Strategy to double the amount of cycling by 2006.

- 4.79 The council is working with all other London boroughs to implement the London Cycle Network, a London wide network of safe and convenient cycle routes. Believing that cycling has an important role to play in reducing congestion and helping to improve air quality, the council has a number of measures at its disposal to improve conditions for cycling, including:

- providing mandatory/advisory cycle lanes on roads;
- implementing cycle-friendly traffic calming measures;
- encouraging better facilities for carrying cycles on public transport;
- enforcing parking restrictions, especially in cycle lanes;
- working with developers to provide adequate, secure and convenient cycle parking.

- 4.80 A Cycling Strategy will be developed to draw together its cycling policies and on-going work to encourage cycling.

The purpose of the Strategy would be to:

- demonstrate the council's commitment to cycling;
- review progress made so far in implementing the London Cycle Network and other cycle schemes;
- draw together all the council's policies and initiatives;
- provide guidance to other council officers and developers on the sort of measures the council would like to see as part of new developments and schemes;

- set out how the council intends to meet the National Cycling Strategy targets to increase cycling, and to set a number of subsidiary targets which the strategy will seek to achieve.
 - involve the Hammersmith & Fulham Cycling Campaign and other community interest groups in the development and implementation of policies and measures to encourage cycling.
- 4.81 The council already provides cycle training for primary school children, but is currently developing a programme to expand cycle training at more schools around the borough. We have also developed a pilot project in the NDC area offering cycle maintenance classes. If this proves to be successful it could be expanded to other areas of the borough.

POLICY18: Promotion of walking

ACTION 18.1: Develop and implement a borough-wide “Walking Strategy”

ACTION 18.2: Carry out improvements to pedestrian facilities

ACTION 18.3: Ensure the needs of pedestrians are taken into account in new developments

- 4.82 Not only does walking constitute part of virtually all journeys made, but over 25% of all trips in the borough are made wholly on foot. Walking is increasingly being seen as a good and environmentally sound alternative to the car for short journeys, particularly in urban areas. If people can be encouraged to walk these short distances rather than drive, then this could help to reduce congestion on the roads and reduce emissions from traffic.
- 4.83 The council will seek to promote the role of walking in the borough by developing a “Walking Strategy” which will outline a number of measures including:
- working with the London Walking Forum to develop an integrated pedestrian footpath network;
 - working with the local health authority to change public attitudes and perceptions of walking;
 - considering the needs of pedestrians in relation to new developments and new traffic management schemes;
 - ensuring that the maintenance of footpaths and other pedestrian facilities is given similar priority to highways maintenance;
 - work with the Mayor of London to give greater priority to pedestrians on major roads in the borough.

POLICY 19: Encourage a reduction in car use for the journey to school

ACTION 19.1: Continue the rolling programme of Safer Routes to School schemes to promote walking, cycling and use of public transport for children’s journeys to school

ACTION 19.2: Promote travel plans in schools

- 4.84 The aims of the Safer Routes to School programme aims to encourage a transfer of school related journeys by car to walking, cycling and public

transport by providing a safer environment, together with a programme of educational, environmental and health awareness. The council's aim is to engage children in looking at their journey to school and identifying ways to improve the quality and safety of the journey by sustainable modes (walking, cycling and public transport).

- 4.85 The programme has become an integral part of the council's strategic objective relating to road safety. The council is committed, through its transport and environment policies to increasing the number of children walking and cycling to school.
- 4.86 Five schools in the Borough have worked with Groundwork West London, the Health Authority, local pupils and parents to improve the local environment and make it safe for children to walk to school. The council has formulated a programme, which aims to implement its activities incrementally over the coming years. Consideration will be given to setting targets for the uptake of Travel Plans by local schools and a modal shift from cars to walking, cycling and public transport.
- 4.87 Promoting 'alternative' modes of transport amongst school children also helps to discourage reliance on the car at an early age.

POLICY 20: Encourage a reduction in car use for the journey to work and business trips

ACTION 20.1: Implement the Council's own Travel Plan

ACTION 20.2: Help businesses and other organisations to introduce travel plans

ACTION 20.3: Require new large commercial developments to implement travel plans

- 4.88 As well as reducing emissions from vehicle fleets by encouraging a switch to low emission vehicles, Travel Plans can also have a positive impact by encouraging people to reduce private car use in journeys by either car sharing or using other forms of transport, whether it is public transport, cycling or walking.
- 4.89 The council will promote these alternative modes of transport in its own Travel Plan and also encourage other large employers to promote alternatives to car travel, especially for short trips. Consideration will be given to setting targets for the uptake of Travel Plans by local businesses.

POLICY 21: Control provision of on and off street parking to deter car commuting into and within the borough

ACTION 21.1: Review parking policies and charges as part of the best value review

ACTION 21.2: Limit parking provision in new developments

- 4.90 The context for the council's parking policies is set by National Government policy and legislation relating to transport and planning, regional guidance and

the policies of the Mayor for London as set out in his transport strategy and other emerging strategies.

4.91 The council's statutory land-use planning policies relating to parking are included in the UDP. These policies are complemented by the parking strategy and proposals set out in the council's ILIP. The parking policies are designed to restrain private motor vehicle use, and car commuting in particular, whilst providing for the transport needs of Borough residents and the local economy. They also aim to achieve a modal shift from the car to more sustainable modes of transport.

4.92 To this end the council's main land-use and transport policies relating to parking are:

- to reduce road traffic through integrating land-use and transport planning;
- to promote alternatives to the use of the private car e.g. walking, cycling and public transport;
- to control the availability of parking spaces in new commercial developments;
- to promote car free housing development;
- to provide public transport facilities which reduce car dependence;
- to safeguard existing public parking spaces on the highway where required;
- to manage existing parking supply in the community interest.

POLICY 22: Encourage freight to be transported in a sustainable manner

ACTION 22.1: Investigate the scope for linking with neighbouring boroughs and local businesses in a "Freight Quality Partnership"

ACTION 22.2: Encourage businesses to use local suppliers to minimise "freight miles"

ACTION 22.3: Protect the three wharves in Fulham through planning policies and investigate options for those not in use

4.93 UDP policies encourage the transfer of freight from road to rail and water. It is planned to carry out studies to investigate and develop schemes to:

- transfer freight from road to rail and water where practical (subject to this not reducing capacity for passenger trains or causing specific local traffic or environmental problems where the rail or water freight is transferred to road);
- minimise 'freight miles' by encouraging use of local suppliers wherever possible, (freight miles relate to the distance that goods are transported - usually by road - by manufacturers and retailers);
- encourage the use of smaller and clean-fuelled (e.g. electric powered) vehicles for local deliveries, including the development of a cycle delivery service, and review the London Area Lorry Ban and delivery restrictions;
- protect the three wharves in Fulham through planning policies and investigate options for those not in use.

- 4.94 The council would like to reduce the adverse impact of freight transport on the borough and has included a bid in the 2004/05 Borough Spending Plan in relation to this specific issue. A considerable amount of freight traffic passes through the borough on its way to or from central London, in addition to the freight traffic generated by industry and the servicing needs of businesses within the borough. The council is involved in the development of a Freight Quality Partnership for West London, based around Heathrow, and will consider a similar partnership for the borough if appropriate, which will link with the West London scheme. In developing such a partnership, we will take into consideration the recommendations of the London Sustainable Distribution Partnership.

THEME D. Making More Efficient Use of Road Transport

- 4.95 Whilst it is important not to single out the private car as the only source of pollution in Hammersmith & Fulham, it is also important to make motorists aware that they have an important role to play in reducing and minimising the environmental impact of the car.

OBJECTIVE: Encourage more efficient use of vehicles

- 4.96 As individual motorists, people are probably tempted to think that in the greater scheme of things individual actions have little if any impact on improving the environment. Yet if every motorist in London adopted a slightly more sustainable approach to car use, then collectively it would make a noticeable difference, particularly at the local level. There are a number of ways that car drivers can use their vehicles in a more environmentally responsible manner.

POLICY 23: Encourage car sharing

ACTION 23.1: Set up a car share database for council staff and promote car sharing as part of the council travel plan

ACTION 23.2: Promote car sharing to businesses, schools and other organisations as part of their travel plans

ACTION 23.3: Encourage car drivers to consider car sharing as part of the travel awareness campaign

- 4.97 Many journeys are made with just the driver in the vehicle, especially journeys to work. Car sharing can help to reduce congestion and pollution as well as helping to reduce parking problems. This measure will be promoted via the council's work on travel plans.

POLICY 24: Discourage short journeys by car

ACTION 24.1: As part of a travel awareness campaign and Don't Choke Britain campaign, encourage people to use more sustainable means of travel for short journeys

ACTION 24.2: Encourage people to combine short journeys into a single journey

- 4.98 People can be made aware of the greater environmental impact of lots of short journeys and that it is better to plan journeys in advance and then if possible make a single journey rather than several. This will shorten the total distance travelled and if the car has a catalytic converter, it will keep it at the right operating temperature for the whole trip. Short journeys are often not long enough for catalytic converters to warm up enough to be effective.

THEME E. Other Measures to Reduce Road Traffic and Emissions

- 4.99 The detrimental effects of motor traffic include congestion, air pollution, noise, diminished vitality of urban areas, reduced efficiency of public transport and road accident casualties. Road traffic is predicted to increase markedly over the coming years and local measures are needed to reduce this demand and where possible reduce the number of vehicles on the borough's roads.
- 4.100 Whilst a general reduction in traffic levels can be promoted by encouraging people to switch to alternative modes of transport (e.g. by improving public transport), there is also scope to look at trying to reduce traffic in more localised areas.

OBJECTIVE: Improving local environmental conditions

- 4.101 The purpose of traffic management, from an air quality point of view, is partly to reduce speed and smooth traffic flow to minimise abrupt changes of speed, stopping and starting, and minimise standing traffic. Measures need to be considered for major roads, particularly the A4 and A40, and that will require joint work with other Boroughs and Transport for London. This could involve measures such as a greater co-ordination of traffic signals.
- 4.102 Traffic queuing to get into places such as car parks can also exacerbate pollution levels. A review of access arrangements for locations where this is known to be a problem will be carried out and improvements considered where necessary to improve the flow of traffic. However, we must ensure that any improvements to traffic flow do not generate additional traffic or discourage less polluting means of transport – e.g. by making it more difficult for pedestrians to cross roads.
- 4.103 Whilst such schemes will not bring about major improvements in the borough's air quality on a large scale, they should have positive impacts on a local scale by encouraging traffic out of local, mainly residential areas and back onto the main road network.

POLICY 25: Reduce the amount of road traffic in residential areas and town centres

ACTION 25.1: Continue with the programme of implementing Home Zones and traffic management schemes to reduce traffic in residential areas

ACTION 25.2: Develop a Clear Zone in the borough

ACTION 25.3: Continue with the programme of developing and implementing schemes in town centres to reduce traffic

- 4.104 Schemes which discourage rat-running may encourage drivers to switch to other means of transport as well as improving local air quality. Measures that reduce traffic speed and smooth its flow also help reduce emissions. Traffic management schemes such as managing traffic flows and also parking can have positive impacts on traffic reduction as well as accident prevention. Improving air quality is not the major function of traffic calming schemes, as their primary role is to reduce road traffic casualties and fatalities. Some studies have shown that emissions from some individual vehicles can increase as a result of such schemes due to the aggressive acceleration and hard braking driving style adopted by some drivers to negotiate traffic calming measures. However, schemes do have the benefit of reducing the numbers of vehicles which will help to counteract this. Informing people of the benefits of smooth driving style in relation to safety and the wider environment will form part of the awareness raising campaign to encourage more “environmentally responsible” driving behaviour.
- 4.105 A Home Zone is a residential area where priority is given to reducing the danger and dominance of motor vehicles, and it is made easier and more pleasant to walk, cycle and live in. The aim is to ensure that cars travel slowly and safely, and that the volume of unnecessary traffic is reduced to a minimum. Pedestrians and cyclists are given priority, and the way in which residents use the streets changes. This is usually achieved by using traffic calming measures and, where practical, altering the appearance of the streets in the area to encourage a more pedestrian friendly environment.
- 4.106 The establishment of a Home Zone will give priority to people over traffic by raising the carriageway to footway level, removing on-street car parking, and implementing traffic management measures and the planting of trees. This will greatly enhance the environment and provide residents, particularly children, with easier and safer passage.
- 4.107 The council has a rolling programme of Home Zone schemes. The recently installed or proposed schemes include College Park, Sawley Road, Grove Ward and Brook Green. A number of other sites have been identified as suitable for future works – these are the Bulwer area of White City and Shepherd’s Bush Ward, the Addison area of West Kensington, the Old Oak area of east Acton/Shepherd’s Bush and the Sands End area of Fulham. Other sites will be considered in due course. Whilst the main benefit of Home Zones tends to be enhanced safety for residents, particularly children, such schemes can also encourage drivers to switch to other means of transport and reduce rat-running, both of which can help to improve local air quality.
- 4.108 For 2003/04 the council has received funding from TfL to design and implement a pilot “Clear Zone” scheme in the borough. A Clear Zone is an initiative designed to encourage solutions to the problems caused by traffic and congestion whilst making areas more ‘liveable’. In a sense, such an area could be described as a “Home Zone plus” as it is essentially an extension of this concept to include more wide ranging measures such as:
- promotion of walking, cycling and public transport links
 - travel Plans for local schools and businesses

- encouraging the use of low emission vehicles
- car free housing

4.109 The principle of reducing the amount of traffic in and around the main shopping areas is also supported as this encourages pedestrians and cyclists to feel safer and also improves the efficiency of buses, as many routes pass through town centres. The council is considering developing and implementing schemes in King Street and Hammersmith Broadway to reduce traffic. Any future schemes aimed at reducing traffic in town centre areas will also need to ensure that there is no additional traffic growth in residential areas.

POLICY 26: Promote the use of trees in the Biodiversity Action Plan to help improve local air quality

ACTION 26.1: Investigate the feasibility of using trees and other landscaping features to help reduce particulate pollution

4.110 Although only a small amount of research has been carried out in this area, several studies have shown that trees can act as biological filters, removing particles from the urban atmosphere. This is predominately due to their large leaf areas and also the properties of their surfaces – e.g. the presence of waxy cuticles on the leaves of some species.

4.111 The potential role that trees can play in helping to improve local air quality will be recognised and promoted in the Borough's Local Biodiversity Action Plan.

POLICY 27: Reduce the amount of road traffic on the A4 and A40

ACTION 27.1: Work in partnership with the Mayor of London to take action to reduce traffic on the A4 and A40

4.112 The two busiest roads in the borough, where pollution levels are predicted to be highest are the A4 and A40, with most of the traffic using these roads being through traffic. The council does not have jurisdiction over these roads as they are part of the Transport for London Road Network. The council cannot therefore implement any traffic management scheme on these roads but will instead work in partnership the Mayor of London to take action to reduce traffic.

4.113 Studies have considered the use of traffic reduction measures alone to try to achieve national air quality objectives throughout London. However, it was found that even measures such as workplace parking levies and the doubling of parking charges throughout London were still not enough to achieve the targets.

4.114 Despite this, it is useful to consider traffic reduction measures in conjunction with all of the other measures outlines in this Plan in order to work towards meeting the air quality objectives. Without the Mayor's Transport Strategy traffic growth would continue to increase throughout much of London. The policies and proposals set out should noticeably reduce traffic growth, and the goal for inner London boroughs such as Hammersmith & Fulham is to achieve zero growth over the next 10 years. If traffic growth were allowed to continue,

then the improvements gained from the use of cleaner engines and cleaner fuels would be lost.

THEME F. Measures to Raise Awareness of the Links Between Air Quality and Health

- 4.115 This will be an important part of the action plan in terms of helping people to make the link between their own activities and air pollution. For many people, it is their transport choices that have the greatest environmental impact in terms of air quality, so we will need to promote more sustainable forms of transport. A range of measures are proposed for a travel awareness campaign to reach a number of different audiences in order to encourage them to 'do their bit' to help improve local air quality. We also need to inform people about other sources of pollution, such as bonfires, fireplaces and boilers and ensure they are aware of how they can minimise pollution by composting not burning garden waste, using only smokeless fuels and installing energy efficient, low emission boilers. As well as informing people of the pollution sources etc, we will also publicise where people can get up to date information on pollution levels – e.g. via internet, telephone and TV teletext services.

OBJECTIVE: Encourage more sustainable travel habits

- 4.116 Whilst realising that there are some journeys for which there are no realistic alternatives to the car, we do need to encourage less dependency on the car. As well as providing genuine alternatives, we also need to raise awareness of the link between poor air quality and health as well as promoting greater use of public transport, cycling and walking as more sustainable methods of travel.

POLICY 28: Provide information to allow people to make informed choices about travel behaviour

ACTION 28.1: Develop a rolling programme of awareness raising measures on air quality, health and transport issues

- 4.117 A number of measures will be implemented to raise awareness on air quality and health issues, as well as publicising travel awareness information. For example, a range of leaflets needs to be produced for distribution to groups such as residents groups, the business sector and other community groups. London-wide schemes have been arranged previously in partnership with the GLA, ALG and other boroughs and it may be appropriate for some issues to be dealt with in this manner, for example publicising the Energy Saving Trust grants to businesses, but there may also be scope for producing local information leaflets, particularly in relation to raising awareness of the public transport, cycling and walking facilities and services available in the borough.
- 4.118 The council's air quality website can also be used to provide background information on air quality issues in the borough, as well as including a section on what people can do to help improve air quality. We will also continue to participate in the annual "Don't Choke Britain" campaign which is an opportunity to raise awareness about the benefits of switching to alternative

modes of transport such as cycling, walking and public transport as opposed to the car. We also need to raise awareness for car drivers on the needs of cyclists and pedestrians so that they drive more safely, especially near schools.

- 4.119 The council will continue to work with the Urban Studies Centre to raise awareness of air quality issues with school children. Council officers regularly contribute to the work organised by the Urban Studies Centre on Safer Routes to School and Home Zones, where discussions are held with school children on air quality and transport issues. This is a useful opportunity for issues such as air quality and health to be discussed alongside transport issues.
- 4.120 Additional awareness raising events and publicity methods also need to be considered to develop an 'on-going' link for people between transport, health and air quality as important issues where their own decisions and behaviour can make a difference. There is also a potential role for the Local Agenda 21 Forum to contribute to these activities.

OBJECTIVE: Encourage people to reduce pollution at home

- 4.121 As has been outlined throughout this Action Plan, whilst transport accounts for the majority of emissions of NO₂ and PM₁₀, it is not the only source of pollution in the borough. Emissions from domestic sources can also be significant, especially on a local scale where smoke from bonfires and fireplaces are concerned and over a wider area for emissions from gas boilers.

POLICY 29: Provide information to allow people to make informed choices about reducing pollution from domestic activities

ACTION 29.1: Develop awareness raising measures on how to reduce emissions at home

- 4.122 As for the travel awareness campaign, we will produce a leaflet advising residents of how they can do their bit to improve air quality. This will include information on how to reduce energy use at home, publicise energy efficient appliances and recommend the use of insulation and modern, energy efficient boilers to help reduce emissions. To discourage the burning of waste, full details on how people can compost or dispose of their garden waste will be included.

OBJECTIVE: To provide up to date information on pollution levels in the borough

- 4.123 The council has monitored levels of NO₂ in the borough since the late 1980s and has gradually increased the number of monitoring locations and the types of pollution measured.

POLICY 30: Continue to monitor air quality and make information available to all

ACTION 30.1: Continue to monitor NO₂ and PM₁₀ levels around the borough

ACTION 30.2: Continue to monitor other pollutants, i.e. sulphur dioxide, benzene and PAHs

- 4.124 Levels of nitrogen dioxide and small particles will continue to be monitored up to 2005 and beyond. This is necessary so that the effectiveness or otherwise of the AQAP actions can be measured. Other pollutants such as sulphur dioxide, benzene and PAHs will also continue to be monitored, pending any review of their air quality objectives in the NAQS. Continued monitoring will also help the review of the AQAP beyond 2005.

5 FUNDING IMPLICATIONS FOR IMPLEMENTING THE AIR QUALITY ACTION PLAN

- 5.1 The actions set out in the plan will be funded from a variety of sources.

Improvements to public transport, cycling and pedestrian facilities and traffic management

- 5.2 The principal source of funding for highways and transport schemes is the annual Borough Spending Plan (BSP). The council bids annually to Transport for London for direct funding under a number of programmes, including Safer Routes to School. In addition, the council is part of a number of package programmes with other boroughs which also receive annual grant allocations from TfL. Partnership details are listed below.

PROGRAMME	PARTNERS
West London Transport Strategy	Hillingdon, Harrow, Brent, Ealing, Hounslow, Richmond
South West London Transport Conference (SWELTRAC)	Hillingdon, Hounslow, Richmond, Wandsworth, Kingston, Merton, Croydon
London Bus Priority Network / London Cycle Network (north west sector)	Kensington & Chelsea, Hillingdon, Ealing, Brent, Harrow, Barnet, Hounslow
Green Areas	Ealing, Hounslow, Wandsworth

- 5.3 In addition, capital funding for highways works can be sought from Single Regeneration Budget programmes (e.g. Regenesis and Park Royal) and the London Development Agency Single Capital Pot, subject to meeting funding criteria. The council also works with TfL on the London Bus Initiative scheme.
- 5.4 Where new development takes place, improvements to public transport, cycling and pedestrian facilities may be necessary. In such cases a planning obligation (Section 106 agreement) from the developer can be sought for capital costs and sometimes revenue costs of running services for an initial period.

Travel plan promotion

- 5.5 The cost of the council travel plan co-ordinator post is largely met by Government grant.

Travel awareness

- 5.6 In 2003/04, the council received an allocation of £35,000 as part of the BSP. Bids for funding will also be made in future years.

Air quality monitoring and information

- 5.7 The principal source of funding for air quality monitoring is Supplementary Credit Approval (SCA) from DEFRA. In 2002/03, the council received £25,500 and will continue to bid for funds in the future. Existing budgets also cover some of the costs associated with monitoring work and publicising air quality information.

Composting promotion

- 5.8 Funding is currently available from the council recycling capital programme to promote home composting.

Income from charges

- 5.9 Once introduced, enforcing the 'Road Traffic (Vehicle Emissions) (Fixed Penalty) (England) Regulations' may provide some income from the fines imposed on vehicles that fail to meet the required emissions standards.

Other staff costs

- 5.10 The staffing costs of measures in the proposed plan are met from within existing budgets and the fee elements of projects.

6 CONSULTATION

- 6.1 Details of the consultation on the draft AQAP were submitted to the council's Consultation Board in October 2002.
- 6.2 As part of the 3 month consultation period (November 2002 to January 2003):
- The full AQAP was sent to a number of statutory consultees such as neighbouring boroughs, DEFRA, the GLA, TfL and the Environment Agency.
 - It was also available at libraries and on the council's air quality web pages which also provided an electronic response sheet.
 - In addition, residents associations, local community groups, businesses and other interested parties were sent a summary leaflet of the draft AQAP that also appeared as a two-page advert in the November edition of HFM.
 - The draft Plan was presented to the 17th July 2002 meeting of the Environment & Regeneration Scrutiny Panel for comments as well as the 14th November meeting of the Public Sector Forum of the Local Strategic Partnership and at the 11th September meeting of the LA21 Forum.
- 6.3 All comments received as part of the consultation process were considered prior to re-drafting this final version of the AQAP.

7 AIR QUALITY ACTION PLAN 2002 – 2005

7.1 The key objectives in the AQAP and their likely impacts on local air quality over the lifetime of the plan and beyond are indicated below:

OBJECTIVE	POTENTIAL AIR QUALITY IMPACT	
	During the lifetime of the AQAP	Beyond the lifetime of the AQAP
Increase the use of cleaner fuelled vehicles	LOW/MODERATE	HIGH
Reduce unnecessary pollution, especially that caused by the most heavily polluting vehicles	MODERATE	HIGH
Control & Minimise emissions from buildings and construction sites	MODERATE	MODERATE
Ensure land use policies reduce the need to travel	LOW/MODERATE	MODERATE
Promote the use of public transport, cycling and walking	LOW/MODERATE	MODERATE
Encourage more efficient use of vehicles	LOW/MODERATE	MODERATE
Improving local environmental conditions through local traffic management schemes	LOW/MODERATE	MODERATE
Encourage more sustainable travel habits	LOW	LOW/MODERATE

AIR QUALITY ACTION PLAN 2002 - 2005

OBJECTIVE	POLICY	ACTION	AIR QUALITY & OTHER IMPACTS	PARTNERS	TIMETABLE	INDICATORS	SCALE of COSTS
A. REDUCING EMISSIONS AT SOURCE							
Increase the use of cleaner fuelled vehicles	1. Encourage improved availability of alternative fuels	1.1 Produce guidance on the provision of low emission fuels, in the borough, including electric vehicle recharging points 1.2 Investigate and identify potential new sites for further alternative refuelling infrastructure	Low air quality impact, but will help to reduce emissions of NO ₂ and PM ₁₀ Initial costs can be higher, but gas and electric vehicles have lower running costs and are quieter than petrol/diesel vehicles	LBHF (Environment Department), GLA, EST, developers, fuel companies	Summer 2003	Number of low emission refuelling points and electric vehicle charging points in the borough	No cost No significant additional funding implications for the council
	2. Provide incentives for use of alternative fuels	2.1 Publicise the location of service stations selling low emission fuels in HFM and on the council website 2.2 Promote the grants offered by the Energy Saving Trust	Low air quality impact, but will help to reduce emissions of NO ₂ and PM ₁₀ Should make it economically more viable for alternatively fuelled vehicles to be used	LBHF (Environment Department), EST, fuel companies, vehicle manufacturers, local businesses	From Summer 2003 onwards	Amount of low emission fuels sold in the borough and the number of grants given to local businesses and residents and their value	Low cost Potentially no additional funding implication for the council as funding will be sought from central Government to produce publicity material
	3. Promote travel plans to encourage a switch to low emission vehicles	3.1 Promote travel plans to schools, businesses and other organisations 3.2 Use the travel awareness campaign to publicise the benefits of low emission vehicles	Low/Moderate air quality impact, but will help to reduce emissions of NO ₂ and PM ₁₀ Could have positive health impacts if people walk or cycle instead of travel by car	LBHF (Environment and Education Departments), schools, local businesses, other local organisations / groups, EST	Ongoing from 2002 for the duration of the AQAP	Number of travel plans operational in the borough	Medium cost Funding of the council's Travel Plan co-ordinator post is provided by central Government. Small additional funding implication for the council to produce publicity material
	4. Reduce emissions from the council fleet	4.1 Continue to replace vehicles with low emission alternatives	Low air quality impact, but will help to reduce emissions of NO ₂ and PM ₁₀	LBHF (Direct Services and Environment Departments),	Ongoing from 2002 for the duration of the AQAP as replacement of	Percentage of council vehicles running on low emission fuels and percentage of council	High cost Replacing or modifying fleet vehicles is

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OBJECTIVE	POLICY	ACTION	AIR QUALITY & OTHER IMPACTS	PARTNERS	TIMETABLE	INDICATORS	SCALE of COSTS
		<p>4.2 Ensure that council vehicles are regularly serviced and well maintained and driven in such a way to minimise emissions</p> <p>4.3 Seek to encourage council contractors to use low emission vehicles</p>	<p>May mean some contractors are not able to work for the council unless they replace or modify existing vehicles</p> <p>Helps the council meet its 'green procurement' objectives</p>	council contractors, vehicle companies	vehicles becomes necessary	contractors using low emission vehicles	<p>potentially costly, but the EST's CleanUp and PowerShift grant schemes are fully utilised to reduce the overall costs to the council</p> <p>Potential Low/Medium costs for contractors to clean up emissions from their vehicles. EST grants will be available to offset this.</p>
	5. Seek a reduction in emissions from the bus fleet	<p>5.1 Use the "Bus Quality Partnership" to seek improvements in bus emissions from TfL</p> <p>5.2 Encourage the Mayor to use his regulatory powers to help reduce emissions from taxis</p>	Low air quality impact, but will help to reduce emissions of NO ₂ and PM ₁₀	LBHF (Environment Department), TfL, London Buses, other bus operators	To be agreed with TfL and bus operators	To be agreed with TfL and bus operators	<p>No cost</p> <p>No significant additional funding implications for the council</p>
	6. Encourage the use of vehicles with smaller, more efficient engines	6.1 Publicise the benefits of using smaller vehicles and encourage their use	Low air quality impact, but will help to reduce emissions of NO ₂ and PM ₁₀	LBHF (Environment Department), vehicle manufacturers	From Summer 2003 onwards	Not applicable	<p>Low cost</p> <p>Potentially no additional funding implication for the council as funding will be sought from central Government to produce publicity material</p>
Reduce unnecessary pollution, especially that caused by the most heavily polluting vehicles	7. Seek to reduce emissions from larger vehicles	7.1 Join a London low emission zone if the feasibility study shows this to be an effective measure in tackling excessively polluting vehicles and encourage other boroughs to join	<p>Moderate/High air quality impact. Emissions of NO₂ and PM₁₀ should reduce especially near roads</p> <p>May mean some HGV vehicles are not able to drive into the borough unless they are replaced</p>	LBHF (Environment Department), GLA, TfL, ALG, other London boroughs, local businesses, EST	The report on the outcome of the feasibility study is due in mid 2003. Implementation of any scheme would need to be co-ordinated with other participating boroughs etc.	Indicators depend on the nature of the low emission zone and the London wide monitoring procedures implemented as part of the scheme	<p>High cost</p> <p>A London wide LEZ scheme would inevitably cost a significant amount</p> <p>The feasibility study will clarify additional funding implications for local authorities. Funding</p>

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OBJECTIVE	POLICY	ACTION	AIR QUALITY & OTHER IMPACTS	PARTNERS	TIMETABLE	INDICATORS	SCALE of COSTS
			or modified The LEZ restrictions would not apply to cars				would be needed from central Government to set up a successful scheme
	8. Seek to reduce emissions from badly maintained vehicles	8.1 Identify the scope for carrying out roadside emission testing in the borough 8.2 Collaborate with other boroughs in a London roadside testing scheme if this is shown to be feasible 8.3 Promote information on emission testing and servicing of vehicles as part of a travel awareness campaign 8.4 Encourage vehicle owners to have their cars maintained regularly, in addition to the annual MOT	Low air quality impact, but will help to reduce emissions of NO ₂ and PM ₁₀ These actions will help to publicise the importance of keeping vehicles well maintained Drivers of high polluting, poorly maintained vehicles are likely to be more affected than others by the emissions testing scheme	LBHF (Environment Department), GLA, TfL, ALG, Vehicle Inspectorate, other London boroughs, Metropolitan Police, residents and businesses	Roadside testing is likely to start in 2003 Implementation to be co-ordinated with other participating boroughs. Aim for 2003 Publicity information campaign will run at the same, especially prior to the start of the testing programme	Number of roadside emissions tests conducted and number of vehicles failing the emissions test	High cost Potentially no additional funding implication for the council as funding will be sought from central Government via the ALG to fund the scheme
	9. Encourage more environmentally friendly driving behaviour	9.1 Investigate the effectiveness of enforcing the Vehicle Emissions Regulations in relation to stationary vehicles 9.2 Ensure that TfL instructs bus drivers to not leave their vehicle engines running unnecessarily while parked 9.3 Promote information on emissions from	Low air quality impact, but will help to reduce emissions of NO ₂ and PM ₁₀	LBHF (Environment Department), TfL, London buses, other bus operators, residents, businesses	Implementation to be co-ordinated with other participating boroughs. Aim for summer 2003	To be agreed with TfL and bus operators	Low cost Potentially no additional funding implication for the council as funding will be sought from central Government to produce publicity material

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OBJECTIVE	POLICY	ACTION	AIR QUALITY & OTHER IMPACTS	PARTNERS	TIMETABLE	INDICATORS	SCALE of COSTS
		stationary vehicles as part of a travel awareness campaign 9.4 Encourage people to drive more smoothly and less aggressively 9.5 Encourage people to consider methods of reducing fuel consumption					
Control & minimise emissions from buildings and construction sites	10. Seek a reduction in emissions of small particles from construction sites	10.1 Enforce the 1990 Environmental Protection Act in relation to dust and smoke nuisance 10.2 Use the planning process to set conditions in relation to large scale demolition and construction sites to minimise particle and dust pollution 10.3 Develop and publicise guidance in the form of a "Considerate Builders Code" to ensure dust and smoke pollution is minimised on construction sites 10.4 Encourage the re-use of building stock rather than demolition and redevelopment	Low/Moderate air quality impact, but will help to reduce emissions, particularly of PM ₁₀ These actions should also reduce the number of complaints about nuisance caused by dust and smoke	LBHF (Environment Department), local businesses and industry, developers, construction companies	Ongoing from 2002 for the duration of the AQAP	Number of notices served under the Environmental Protection Act 1990 to prevent dust nuisance from construction sites Number of conditions placed on planning permissions to control dust emissions from new developments under construction	No cost No significant additional funding implications for the council
	11. Seek a reduction in emissions	11.1 Enforce the 1990 Environmental Protection Act in	Low/Moderate air quality impact, but will help to reduce emissions,	LBHF (Environment, Housing and Direct Services	Ongoing from 2002 for the duration of the AQAP	Number of complaints dealt with under the Environmental	Low cost Potentially no additional

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OBJECTIVE	POLICY	ACTION	AIR QUALITY & OTHER IMPACTS	PARTNERS	TIMETABLE	INDICATORS	SCALE of COSTS
	from domestic and commercial properties	<p>relation to smoke nuisance and discourage the use of bonfires to dispose of garden waste</p> <p>11.2 Encourage home composting to reduce the use of bonfires</p> <p>11.3 Enforce the Clean Air Act 1993 in relation to domestic and commercial premises</p> <p>11.4 Continue to purchase "green electricity" generated by renewable energy</p> <p>11.5 Promote energy efficiency schemes and encourage reduced energy use wherever possible, including through the planning process</p> <p>11.6 Develop planning guidance on sustainable design and construction</p> <p>11.7 Encourage the use of renewable energy sources and combined heat and power</p>	<p>particularly of PM₁₀</p> <p>These actions should also reduce the number of complaints about nuisance caused by dust and smoke</p>	<p>Departments), local businesses and industry, developers, construction companies, residents associations</p>	<p>Planning guidance will be developed in Summer 2003</p>	<p>Protection Act 1990 to prevent smoke nuisance</p> <p>Number of subsidised home composters sold each year</p> <p>Number of complaints dealt with under the Clean Air Act 1993 to prevent emission of dark smoke</p> <p>Number of tonnes of greenhouse gases saved by the council through its use of the "Green Electricity"</p> <p>Number of developments which are considered to promote energy efficiency</p>	<p>funding implication for the council as funding will be sought from central Government to produce publicity material</p>

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OBJECTIVE	POLICY	ACTION	AIR QUALITY & OTHER IMPACTS	PARTNERS	TIMETABLE	INDICATORS	SCALE of COSTS
	12. Seek to control and minimise emissions from industrial premises	12.1 Regulate the emissions from local small industrial processes 12.2 Ensure that inspections are carried out in line with DEFRA guidance	Low/Moderate air quality impact, but will help to reduce emissions of NO ₂ and PM ₁₀ These actions should also reduce the number of complaints about nuisance caused by smoke	LBHF (Environment Department), local businesses and industry,	Ongoing from 2002 for the duration of the AQAP	Number and percentage of authorised processes inspected each year Number of authorisations revoked each year Number of authorisations made more stringent each year	No cost No significant additional funding implications for the council
B. REDUCING THE NEED TO TRAVEL							
Ensure land use policies reduce the need for travel	13. To sustain and improve town and local centres, local facilities and employment areas	13.1 Action is being taken via the UDP review to strengthen policies in this area to further protect local facilities	Low/Moderate air quality impact, but will help to reduce the number of car journeys and therefore emissions of NO ₂ and PM ₁₀ will reduce	LBHF (Environment Department), developers	UDP review to be complete in 2003	Not applicable	No cost No significant additional funding implications for the council
	14. Seek to reduce the air quality impact of new development	14.1 Ensure that the impacts of large developments are assessed 14.2 Review land use policies as part of the UDP review process 14.3 Produce planning guidance on air quality and land use 14.4 Use planning conditions and obligations to ensure the protection of local air quality	Low/Moderate air quality impact, but will help to reduce the number of car journeys and therefore emissions of NO ₂ and PM ₁₀ will reduce	LBHF (Environment Department), developers	Ongoing from 2002 for the duration of the AQAP The UDP review will be complete in 2003	Number of Transport Impact Assessments and Air Quality Assessments carried out per year Number of car free housing developments given planning permission Number of high density housing developments given planning permission	No cost No significant additional funding implications for the council
C. ENCOURAGING A SWITCH TO LESS POLLUTING FORMS OF TRANSPORT							
Promote the use of public transport,	15. Promotion of bus	15.1 Work in partnership with TfL	Low/Moderate air quality impact, but will help to	LBHF (Environment Department), TfL,	Ongoing from 2002 for the duration of	Passenger numbers on bus services in the	No cost

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OBJECTIVE	POLICY	ACTION	AIR QUALITY & OTHER IMPACTS	PARTNERS	TIMETABLE	INDICATORS	SCALE of COSTS
walking and cycling	services	and bus operators to improve bus services in the borough 15.2 Continue to introduce bus priority improvements	reduce the number of car journeys and therefore emissions of NO ₂ and PM ₁₀ will reduce	London buses, other bus operators, neighbouring boroughs	the AQAP Annual improvements are sought as part of the Borough Spending Plan and other public transport improvement programmes	borough Number of new bus priority schemes planned	No significant additional funding implications for the council
	16. Promotion of other forms of public transport	16.1 Seek construction of new rail stations at Imperial Wharf and Shepherd's Bush and a new underground station at Wood Lane 16.2 Use the planning process to increase the number of train and underground stations in the borough 16.3 Encourage river transport for passenger services	Low/Moderate air quality impact, but will help to reduce the number of car journeys and therefore emissions of NO ₂ and PM ₁₀ will reduce	LBHF (Environment Department), GLA, TfL, SRA, train operators, neighbouring borough	Ongoing from 2002 for the duration of the AQAP	Improvement in train services	No cost No significant additional funding implications for the council
	17. Promotion of cycling	17.1 Implement new cycle routes in the borough as part of the London Cycle Network 17.2 Require cycle parking in new developments 17.3 Develop and implement a borough-wide "Cycling Strategy"	Low air quality impact, but will help to reduce the number of car journeys and therefore emissions of NO ₂ and PM ₁₀ will reduce Cycling can also bring health benefits to people	LBHF (Environment Department), TfL, London Cycle Network, local cycling groups, developers	Ongoing from 2002 for the duration of the AQAP Annual programme of improvements as part of the Borough Spending Plan The Cycling Strategy will be developed in Summer 2003	Number of metres of new cycle lane in LBHF per year Number of new developments with cycle parking provided	Medium cost Potentially no additional funding implication for the council as funding will be sought from TfL to implement improvements
	18. Promotion of Walking	18.1 Develop and implement a borough wide "Walking	Low air quality impact, but will help to reduce the number of car	LBHF (Environment Department), TfL, London Walking	Ongoing from 2002 for the duration of the AQAP	Number of highways improvements projects implemented per year	Medium cost Potentially no additional

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OBJECTIVE	POLICY	ACTION	AIR QUALITY & OTHER IMPACTS	PARTNERS	TIMETABLE	INDICATORS	SCALE of COSTS
		Strategy” 18.2 Carry out improvements to pedestrian facilities 18.3 Ensure the needs of pedestrians are taken into account in new developments	journeys and therefore emissions of NO ₂ and PM ₁₀ will reduce Walking can also bring health benefits to people	Forum,	Annual programme of improvements as part of the Borough Spending Plan The Walking Strategy will be developed in Summer 2003	Number of pedestrian focused schemes implemented per year	funding implication for the council as funding will be sought from TfL to implement improvements
	19. Encourage a reduction in car use for the journey to school	19.1 Continue the rolling programme of Safer Routes to School schemes to promote walking, cycling and use of public transport for children’s journeys to school 19.2 Promote travel plans in schools	Low/Moderate air quality impact, but will help to reduce the number of car journeys and therefore emissions of NO ₂ and PM ₁₀ will reduce Children develop better road sense if the walk or cycle to school and this also can bring health benefits Helps discourage a reliance on the car for travelling even short distances	LBHF (Environment and Education Departments), schools, children, parents	Annual programme of improvements as part of the Borough Spending Plan and package programmes Ongoing from 2002 for the duration of the AQAP	Number of schools taking part in the Safer Routes to School scheme and number of schemes already implemented	Medium cost Potentially no additional funding implication for the council as funding will be sought from TfL to implement improvements
	20. Encourage a reduction in car use for the journey to work and business trips	20.1 Implement the council’s own travel plan 20.2 Help businesses and other organisations to introduce travel plans 20.3 Require new large developments to implement travel plans	Low/Moderate air quality impact, but will help to reduce the number of car journeys and therefore emissions of NO ₂ and PM ₁₀ will reduce	LBHF (Environment Department), local businesses, developers, TfL	Ongoing from 2002 for the duration of the AQAP	Percentage of staff travelling to work by car Number of local businesses and other organisations with travel plans Number of travel plans requested as part of planning permissions granted to large developments	Medium cost Funding of Travel Plan co-ordinator post is provided by central Government. Small additional funding implication for the council to produce publicity material
	21. Control provision of on and off street	21.1 Review parking policies and charges as part of the best	Low air quality impact, but will help to reduce the number of car	LBHF (Environment Department), neighbouring	Ongoing – parking best value review to be complete by mid	Dependent on the outcome of the best value review	Low cost Potentially no additional

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OBJECTIVE	POLICY	ACTION	AIR QUALITY & OTHER IMPACTS	PARTNERS	TIMETABLE	INDICATORS	SCALE of COSTS
	parking to deter car commuting into and within the borough	value review 21.2 Limit parking provision in new developments	journeys and therefore emissions of NO ₂ and PM ₁₀ will reduce	boroughs, local residents, local businesses	2003		funding implication for the council
	22. Encourage freight to be transported in a sustainable manner	22.1 Investigate the scope for linking with neighbouring boroughs and local businesses in a "Freight Quality Partnership" 22.2 Encourage businesses to use local suppliers to minimise "freight miles" 22.3 Protect the three wharves in Fulham through planning policies and investigate options for those not in use	Low air quality impact, but should help to reduce PM ₁₀ emissions especially, as freight vehicles tend to run on diesel fuel	LBHF (Environment Department), neighbouring boroughs, local businesses with fleets of delivery vehicles, developers	2004	Number of businesses working as members of the Freight Quality Partnership	Medium cost Potentially no additional funding implication for the council as funding will be sought from TfL to implement improvements
D. MAKING MORE EFFICIENT USE OF ROAD TRANSPORT							
	23. Encourage car sharing	23.1 Set up a car share database for council staff and promote car sharing as part of the council travel plan 23.2 Promote car sharing to businesses, schools and other organisations as part of their travel plans 23.3 Encourage car	Low air quality impact, but will help to reduce the number of car journeys and therefore emissions of NO ₂ and PM ₁₀ will reduce	LBHF (Environment and Education Departments), local businesses, schools, resident's associations	From Summer 2003 onwards	Number of staff members on the database Number of car sharing schemes running in the borough	Low cost Funding of Travel Plan co-ordinator post is provided by central Government. Small additional funding implication for the council to produce publicity material

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OBJECTIVE	POLICY	ACTION	AIR QUALITY & OTHER IMPACTS	PARTNERS	TIMETABLE	INDICATORS	SCALE of COSTS
		drivers to consider car sharing as part of the travel awareness campaign					
	24. Discourage short journeys	24.1 As part of a travel awareness campaign and Don't Choke Britain campaign, encourage people to use more sustainable means of travel for short journeys 24.2 Encourage people to combine short journeys into a single journey	Low/Moderate air quality impact, but will help to reduce the number of car journeys and therefore emissions of NO ₂ and PM ₁₀ will reduce	LBHF (Environment Department), TfL, London buses, bus operators, residents associations, local community groups	From Summer 2003 onwards	Not applicable	Low cost Potentially no additional funding implication for the council as funding will be sought from central Government to produce publicity material
E. OTHER MEASURES TO REDUCE ROAD TRAFFIC AND EMISSIONS							
Improving local environmental conditions in local areas through local traffic management schemes	25. Reduce the amount of road traffic in residential areas and town centres	25.1 Continue with the programme of implementing Home Zones and traffic management schemes to reduce traffic in residential areas 25.2 Develop a Clear Zone in the borough 25.3 Continue with the programme of developing and implementing schemes in town centres to reduce traffic	Low/Moderate air quality impact, but will help to reduce the number of car journeys and therefore emissions of NO ₂ and PM ₁₀ will reduce With less traffic in residential areas, people should be encouraged to walk and cycle Taking traffic out of residential areas can also have a beneficial impact in terms of reducing noise pollution	LBHF (Environment and Education Departments), GLA, TfL, resident associations, schools	Ongoing from 2002 for the duration of the AQAP Work to develop the Clear Zone will begin in early 2003	Number of Home Zones and local traffic management schemes implemented	High cost Potentially no additional funding implication for the council as funding will be sought from TfL to implement improvements

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OBJECTIVE	POLICY	ACTION	AIR QUALITY & OTHER IMPACTS	PARTNERS	TIMETABLE	INDICATORS	SCALE of COSTS
	26. Promote the use of trees to help improve local air quality	26.1 Investigate the feasibility of using trees and other landscaping features to help reduce particulate pollution	Low air quality impact. Will not reduce emissions, but could reduce PM ₁₀ levels in local areas e.g. near busy roads	LBHF (Environment and Direct Services Departments), developers, local community groups	Work on the Biodiversity Action Plan will begin in early 2003	Locations where tree planting is recommended for this purpose	No cost No significant additional funding implications for the council
	27. Reduce the amount of traffic on the A4 and A40	27.1 Work in partnership with the Mayor of London to take action to reduce traffic on the A4 and A40	Low/Moderate air quality impact, but will help to reduce the number of vehicles on these roads and therefore emissions of NO ₂ and PM ₁₀ will reduce	LBHF (Environment Department), GLA, TfL	From Summer 2003	Traffic flows on the A4 and A40	No cost No significant additional funding implications for the council
F. MEASURES TO RAISE AWARENESS OF THE LINKS BETWEEN AIR QUALITY AND HEALTH							
Encourage more sustainable travel habits	28. Provide information to allow people to make informed choices about travel behaviour	28.1 Develop a rolling programme of awareness raising measures on air quality, health and transport issues	Low air quality impact, but will help to reduce the number of car journeys and therefore emissions of NO ₂ and PM ₁₀ will reduce	LBHF (Environment Department), residents associations, local businesses, community groups, TfL, public transport companies	From Summer 2003 onwards	Number of leaflets etc produced and distributed as part of the publicity campaign	Low cost Potentially no additional funding implication for the council as funding will be sought from DEFRA to fund the public awareness programme
	29. Provide information to allow people to make informed choices about reducing pollution from domestic activities	29.1 Develop awareness raising measures on how to reduce emissions at home	Low air quality impact, but will help to reduce pollution by discouraging bonfires and encouraging efficient energy use and therefore emissions of NO ₂ and PM ₁₀ will reduce	LBHF (Environment and Housing Departments), residents, community groups	From Summer 2003 onwards	Number of leaflets etc produced and distributed as part of the publicity campaign	Low cost Potentially no additional funding implication for the council as funding will be sought from DEFRA to fund the public awareness programme

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OBJECTIVE	POLICY	ACTION	AIR QUALITY & OTHER IMPACTS	PARTNERS	TIMETABLE	INDICATORS	SCALE of COSTS
	30. Continue to monitor air quality and make information available	30.1 Continue to monitor NO ₂ and PM ₁₀ levels around the borough 30.2 Continue to monitor other pollutants, i.e. sulphur dioxide, benzene and PAHs	None	LBHF Environment Department), DEFRA, air quality monitoring companies, air quality consultants	Ongoing from 2002 for the duration of the AQAP	Air quality objectives set in the National Air Quality Strategy for NO ₂ and PM ₁₀ Air quality objectives set in the National Air Quality Strategy for sulphur dioxide and benzene	Medium cost Potentially no additional funding implication for the council as funding will be sought from DEFRA to the continue monitoring programme

APPENDIX 1

Proposals in the Mayor's Air Quality Strategy

No.	Proposal	Timescale (end of year indicated)
		2002 2003 2004 2005 >2005

Chapter 2, challenges – the context

1	The Mayor will commission a review of the adequacy of the distribution of air quality monitoring sites across Greater London and the arrangements for data collection, verification and dissemination.	■ ■ ■
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Chapter 4B: cleaner road vehicles

	Chapter 4B: cleaner road vehicles	
2	The Mayor will encourage and promote the benefits of cleaner road vehicles including by:	
	<ul style="list-style-type: none"> providing full and objective information on the technologies available (by autumn 2002), tailored to different operator types (by spring 2003) 	■ for information ■ tailored to operator types
	<ul style="list-style-type: none"> encouraging London boroughs to promote and encourage cleaner vehicles at a borough level 	■ ■ ■ ■ ■ From publication of Strategy
	<ul style="list-style-type: none"> working with technology and fuel suppliers and motor manufacturers 	Ongoing
	<ul style="list-style-type: none"> facilitating meetings between vehicle operators, cleaner fuel and vehicle providers and grant agencies 	Ongoing
	<ul style="list-style-type: none"> undertaking investigations and trials of new technologies within functional body fleets 	See individual projects in TfL EAP
3	To maximise the benefit of TransportAction grants, the Mayor will urge the government to:	
	<ul style="list-style-type: none"> make vehicle excise duty (VED) reductions for retrofitting for smaller vehicles more significant (at present the reduction is only £10) 	■ for official letter
	<ul style="list-style-type: none"> extend the fuel duty differential guarantee to beyond 2004 	■ for official letter

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No.	Proposal	Timescale (end of year indicated) 2002 2003 2004 2005 >2005
	<ul style="list-style-type: none"> • seek to increase the retrofitting grants towards 100 per cent, to encourage more smaller operators (with generally older, dirtier vehicles) to use the grants 	 for official letter
	<ul style="list-style-type: none"> • increase grants for taxi conversions from 65 per cent to 75 per cent, on a par with most other CleanUp grants 	 for official letter
	<ul style="list-style-type: none"> • extend and additionally fund PowerShift and CleanUp beyond 2004 until the (current and proposed) national air quality objectives and EU limit values have been achieved, to assist the achievement of these objectives and limit values and to assist any low emission zones that are implemented. 	 for official letter
4	The Mayor will urge the government to provide incentives through the fuel duty system for water-diesel emulsion and other such proven cleaner fuels.	 for official letter
5	<p>The Mayor will encourage the use of alternative fuels through measures that will include:</p> <ul style="list-style-type: none"> • providing incentives for the very cleanest vehicles, for example, the 100 per cent discount for certain alternatively-fuelled vehicles from central London congestion charging (February 2003) • promoting TransportAction grants and other incentives • including the issue of quieter alternatively-fuelled vehicles in the review of the London Night and Weekend Lorry Control Scheme (first phase of review to be completed by March 2003) • replacing Transport for London Street Management's fleet of 34 vehicles with liquefied petroleum gas vehicles (when due for replacement). 	 Ongoing  
6	The Mayor will take forward a Hydrogen Partnership in London involving those working in the industry and others who need to be involved in delivering a hydrogen economy. The Partnership was launched in April 2002 and will work together to develop and implement a Hydrogen Action Plan.	The Partnership will develop targets and timescales
7	The Mayor supports electric refuelling through the work of The London Clean Fuel Vehicle Working Group and will act on its recommendations where appropriate.	Ongoing

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No.	Proposal	Timescale (end of year indicated) 2002 2003 2004 2005 >2005
8	The Mayor and Transport for London will encourage the government and TransportAction to investigate additives and devices aimed to reduce NO _x , PM ₁₀ and CO ₂ that are brought to their attention. Those found to give cost-effective emissions reduction benefits will be promoted through the Greater London Authority website and used within the functional body fleets where practicable.	Ongoing
9	The Mayor will provide support and the framework for a vehicle maintenance campaign through the Vehicle Emissions Testing Working Group. The Mayor will also undertake a campaign to raise awareness of the issue of idling vehicles, especially through the London Tourist Board during 2003.	 for campaign
Chapter 4C: low emission zones		
10	The Mayor, in conjunction with the Association of London Government, the London boroughs and central government, will consider the London low emission zone feasibility study steering group's recommendations. Prior to any decision on the implementation of a low emission zone, the Mayor will first take account of the views of those who are likely to be affected.	
Chapter 4D: proposals by vehicle type		
4D: proposals by vehicle type – buses and coaches		
11	The Mayor, through Transport for London, will seek to extend the use of water-diesel emulsion across TfL London buses, with use in eight additional garages by end March 2003. The Mayor will encourage use of this fuel by others, and its further development by fuel companies.	Ongoing  for 8 additional garages
12	The Mayor, through Transport for London, will give high priority to further reductions in bus emissions. All new buses will have Euro III engines or better, and will also be fitted with particulate traps by 2005. All existing buses, including Routemasters, will have Euro II engines and will be fitted with particulate traps by 2005.	Ongoing for new buses  for existing buses
13	The Mayor, through Transport for London, will actively review opportunities for the use of alternative fuels and other methods for reducing emissions.	
	<ul style="list-style-type: none"> Two-year trials of zero emission buses operating on hydrogen fuel cells will start in 2003. 	

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No.	Proposal	Timescale (end of year indicated)
		2002 2003 2004 2005 >2005

	<ul style="list-style-type: none"> The use of water-diesel emulsion fuel will be expanded through TfL London Buses depending on successful outcomes of trials and available funding. 	Ongoing  for 8 additional garages
14	The Mayor, through Transport for London, will work with bus companies to continue to improve the overall performance of buses by encouraging smoother driving and by identifying further opportunities for the implementation of bus priority measures.	Ongoing
15	The Mayor, through Transport for London, will develop a strategy during 2002/3 for improving vehicle emissions on services operated under London Local Service Agreements. As a minimum it is expected that all vehicles operating on these services will comply with Euro I emission standards. The implications of adopting a much higher standard, in line with that proposed for the main bus network, will be examined.	
16	The Mayor, through Transport for London, will ensure that all buses and coaches operating with a London Service Permit will have to meet Euro I emission standards as a minimum by 2005. This standard will be progressively reviewed in order to reduce emissions from these vehicles.	 Ongoing review
17	The Mayor, through the Transport for London Coach Forum, will review arrangements for coach parking, facilities and terminals and look at how to manage the environmental impacts of coach travel, including air quality.	 Ongoing

4D: proposals by vehicle type – taxis

18	After taking account of the views of the taxi trade, the Mayor, through Transport for London, will use regulatory powers to ensure that from set dates all taxis are first Euro I standard or better, and later Euro II standard or better. The Mayor will make information available to assist taxi owners in conforming to the set standards and obtaining grants to offset the costs of conversion or retrofitting.	Timescales to be agreed  Ongoing for providing information
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4D: proposals by vehicle type – freight

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No.	Proposal	Timescale (end of year indicated) 2002 2003 2004 2005 >2005
19	The Mayor, through Transport for London, will work with the London Sustainable Distribution Partnership to assist in the development and implementation of proposals for effective distribution of goods in London.	Progress to be reported by TfL
20	The Mayor, through Transport for London, has set up the London Sustainable Distribution Partnership to form the basis of partnerships with business, the London boroughs and other sub-regional partners. The Mayor's proposals relating to freight from his Transport, Air Quality, Municipal Waste Management, Ambient Noise and Energy Strategies will be considered through this partnership to encourage the accelerated take-up of cleaner and quieter vehicle technologies and to promote better vehicle maintenance and considerate and economical driving.	Progress to be reported by TfL
21	The Mayor, through Transport for London, will encourage the early development of Freight Quality Partnerships, particularly at the sub-regional level, to complement similar, borough-led initiatives at the more local level.	Progress to be reported by TfL
22	The Mayor, through Transport for London, together with the London boroughs, will assess the scope for the use of priority lanes by freight vehicles and its implications for other road users, primarily cyclists. The potential air quality benefits of the smoother driving and therefore lower emissions resulting from this measure will be investigated.	Progress to be reported by TfL
23	The Mayor, through his Municipal Waste Management Strategy, will seek to ensure, when awarding new waste and recycling contracts that all waste authorities specify emissions criteria for the vehicles used. These criteria should comply with either the currently applicable Euro standard, or the previous Euro standard with suitable after-treatment as a minimum i.e. Euro II with Reduced Pollution Certificate until 2005, Euro III with Reduced Pollution Certificate after that date.	From publication of Mayor's Municipal Waste Strategy

4D: proposals by vehicle type – motorcycles

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No.	Proposal	Timescale (end of year indicated) 2002 2003 2004 2005 >2005
24	The Mayor, through Transport for London, has set up the London Motorcycle Working Group which will work to enhance and extend the provision of parking for motorcycles and mopeds, particularly in areas of high demand. Opportunities will be explored to improve road safety, reduce emissions and noise pollution, and provide incentives for motorcycles to use retrofit technology and for cleaner motorcycles.	Ongoing
Chapter 4E: traffic management		
25	The Mayor, through Transport for London, will develop and implement traffic management measures on the Transport for London Road Network to help reduce emissions and energy use as well as encouraging safe, economical and considerate driving. The Mayor, through Transport for London, together with the Department for Transport and the Highways Agency will investigate further traffic management measures and the Mayor will urge the Highways Agency and the London boroughs to adopt these measures, where practicable, to reduce emissions.	Progress to be reported by TfL
26	The Mayor will encourage implementation of Clear Zones by the London boroughs. Where traffic calming is used this should be implemented following government guidance and should be designed to minimise acceleration and deceleration.	Ongoing
Chapter 4F: air travel and airports		
27	The Mayor will encourage BAA and all other operators at Heathrow to implement measures at Heathrow Airport to reduce the overall environmental impact of surface access vehicles.	Ongoing
28	The Mayor will urge the government to work towards minimising the environmental impacts of air freight, including through international agreements, national and airport-related regulation and economic measures.	Ongoing
29	The Mayor, through Transport for London, will work with stakeholders to minimise the air quality impact of deliveries at Heathrow, including through the London Sustainable Distribution Partnership and the Heathrow Area Transport Forum.	Ongoing

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No.	Proposal	Timescale (end of year indicated) 2002 2003 2004 2005 >2005
30	The Mayor will urge the government, the European Union, the aviation industry, the International Civil Aviation Organisation and the Civil Aviation Authority actively to pursue the reduction of emissions at airports, particularly at Heathrow, using all available methods.	■ for official letter
31	The Mayor urges BAA/Heathrow to adopt the additional measures detailed in this Strategy into its Action Plan.	Ongoing
32	The Mayor encourages the government to include proposals in the forthcoming Aviation White Paper for levies to mitigate the environmental impacts of aviation, which should be distributed through Aviation Environment Funds for each airport.	■ for official letter
Chapter 4G: rail, shipping and Underground		
33	The Mayor will work with train operators, the Strategic Rail Authority and Railtrack to promote best practice in terms of train operation at stations.	■■■■
34	The Mayor will work with the Strategic Rail Authority to encourage passenger and freight train operating companies to investigate methods for reducing emissions from diesel trains.	■■■■
35	The Mayor will urge the government to provide directions to the Strategic Rail Authority to include environmental clauses in train operating company contracts. The Mayor will also urge the government to implement measures to reduce emissions from diesel locomotives, such as ensuring the availability of ultra low sulphur diesel and adequate incentives for train operators to use available technologies to further reduce exhaust emissions.	Ongoing, through Mayor's SRA guidance
36	The Mayor, through Transport for London, will work with the Strategic Rail Authority to seek to implement the policies relevant to improving air quality from the Mayor's Strategies.	■■■■ From publication of Strategy
37	The Mayor will encourage the government to revise the relevant legislation in order to improve the quality of fuel oil used by river vessels ahead of European Union legislation.	■ for official letter
38	The Mayor, through Transport for London, will work with relevant partners to identify options for increasing both rail and water freight.	Progress to be reported in annual TfL Environmental Action Plan

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No.	Proposal	Timescale (end of year indicated) 2002 2003 2004 2005 >2005
39	London Underground Limited is continuing to investigate methods of improving air quality on the system particularly by reducing dust emissions, including PM ₁₀ . When the London Underground comes under the control of Transport for London, the Mayor, through Transport for London, will work with the relevant organisations to assess ways of further improving air quality on the system.	Ongoing
Chapter 4H: industrial and transboundary sources of pollution		
40	The Mayor will urge the Environment Agency to ensure that there are no breaches of process emission limits from Agency regulated processes and to take appropriate action where these occur, and to ensure that such process emissions do not lead to exceedances of the national air quality objectives or European Union air quality limit values.	GLA will review annually following EA annual report
41	The Mayor will urge the London boroughs to inspect their regulated industrial processes and to modify and update their permit conditions, as and when required, in line with appropriate DEFRA guidelines, and to act upon complaints and suspected or actual breaches of permit conditions in a timely manner.	■■■■■ From publication of Strategy
42	The Mayor will urge the London boroughs to ensure that process emissions do not lead to exceedances of the national air quality objectives and to use regulatory or other measures, as appropriate, to reduce these emissions.	■■■■■ From publication of Strategy and LB air quality action plans
43	The Mayor will request that the government and the European Union take measures to achieve the reduction of emissions that contribute to long range pollution affecting London – particularly for key ozone and secondary particles precursors such as NO _x , SO ₂ and VOCs.	■ for official letter
44	The Mayor will urge the government to seek more stringent National Emissions Ceilings for the UK in the next round of negotiations, where practicable and cost-effective.	■ for official letter

Chapter 4I: construction, construction vehicles and fires

London Borough of Hammersmith & Fulham: Air Quality Action Plan 2002-2005

No.	Proposal	Timescale (end of year indicated)
		2002 2003 2004 2005 >2005

45	The Mayor will seek to improve information on emissions from construction-related activities and include them in the London Atmospheric Emissions Inventory in 2003.	■
46	The Mayor will and the boroughs should expect future developments to meet the highest standards of sustainable design and construction, including measures to re-use existing building stock in preference to demolition and reconstruction where practicable.	■ ■ ■ ■ From publication of the London Plan
47	The Mayor will build on the work of other organisations to develop construction best practice guidance to encourage the reduction in levels of dust, together with other environmental impacts, from construction-related activities.	■ ■ ■ ■
48	Through the Mayor's Municipal Waste Management Strategy the Mayor will encourage the London waste authorities to promote composting, which should also help to reduce the number of bonfires.	■ ■ ■ ■ From publication of Waste Strategy

Chapter 4J: energy and heating

49	The Mayor will work with energy supply companies to increase the provision of renewable electricity. The GLA group will procure renewable energy for the energy supply to their buildings and services.	■ ■ ■ ■
50	The Mayor will encourage efficient local energy generating schemes, particularly combined heat and power and community heating schemes through the Mayor's Energy Strategy and the Mayor's London Plan (Spatial Development Strategy). The Mayor will also encourage the use of gas condensing boilers and low NO _x burners in boilers.	■ ■ ■ ■ From publication of Energy Strategy
51	The Mayor will encourage boroughs to assess combined heat and power (CHP) proposals using the Customs and Excise 'Good quality CHP' index and to ensure that developers demonstrate that opportunities for utilising heat have been fully assessed.	■ ■ ■ ■ From publication of the London Plan
52	The Mayor will encourage the conversion of those large boilers that still use heavy fuel oil in London to lighter fuel oils or gas. The Mayor will encourage, in particular, changing their use to combined heat and power.	■ ■ ■ ■

Chapter 5A: the Mayor and the GLA group – GLA group

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No.	Proposal	Timescale (end of year indicated) 2002 2003 2004 2005 >2005
53	The Mayor will provide a travel plan to assist Greater London Authority staff in using sustainable modes of transport to travel to work or when carrying out duties on behalf of the Mayor or Assembly.	■■■
54	The Mayor will use sustainability considerations, where they are relevant to the performance of the service being tendered, as one way of evaluating tenders for future contracts, and to promote best practice.	On all GLA tenders
Chapter 5A: the Mayor and the GLA group –Transport for London		
55	The Mayor will ensure that Transport for London's green procurement strategy includes measures for procuring goods and services that seek to meet sustainability targets in line with the Mayor's environmental Strategies.	■■■■
56	The Mayor will ensure that Transport for London Street Management encourages its contractors to reduce emissions from their vehicle fleets. As a first step, information about the fleets is being sought from current contractors and they will be encouraged to ensure their vehicles meet a minimum of Euro III standards by 2004.	■■■■ for Euro III Ongoing for continued reductions
Chapter 5A: the Mayor and the GLA group – London Fire and Emergency Planning Authority		
57	The Mayor will work with the London Fire and Emergency Planning Authority to ensure that all vehicles (fire appliances, other operational vehicles and support vehicles) and their operational equipment have the lowest possible exhaust emissions, consistent with their operational requirements. New fire appliances should have engines that will be the equivalent to at least Euro III. New support vehicles should run on liquefied petroleum gas or other alternative fuels where practicable.	■■■■
Chapter 5A: the Mayor and the GLA group – Metropolitan Police Authority		
58	The Mayor will work with the Metropolitan Police Authority to ensure that new vehicles have the lowest possible exhaust emissions, consistent with their operational requirements and government legislation. New vehicles should run on alternative fuels whenever practicable.	Ongoing

London Borough of Hammersmith & Fulham: Air Quality Action Plan 2002-2005

No.	Proposal	Timescale (end of year indicated) 2002 2003 2004 2005 >2005
59	The Mayor will work with the Metropolitan Police Authority to seek to reduce emissions from building use whenever practicable and where it fits with operational requirements.	■■■■■
Chapter 5B: London borough partnerships		
60	The Mayor will seek to ensure that London-specific guidance is incorporated within new national guidance on air quality review and assessment and action plans.	■
61	The Mayor requires London boroughs to agree methodologies for air quality review and assessment with the Greater London Authority, to ensure consistency of approach across London.	■■■■■ LBs, from publication of strategy
62	The Mayor requires London boroughs to take account of any relevant, new information on air pollution that becomes available. Any London borough not declaring an air quality management area should undertake a further, detailed assessment of air quality if significant new data become available.	■■■■■ From publication of strategy
63	The Mayor will expect any London borough not declaring an air quality management area to produce a borough air quality strategy containing measures to assist London in achieving the national air quality objectives.	■■■■■ From publication of Strategy
64	The Mayor requires London boroughs to incorporate into their air quality action plans measures to implement all relevant proposals contained in this Strategy at a borough level.	■■■■■ From publication of Strategy
65	The Mayor expects London boroughs to establish a fleet register that includes emissions information and to ensure measures to implement emissions improvements in their fleets are included within their air quality action plans and local air quality strategies.	■■■■■ From publication of Strategy
66	The Mayor requires the London boroughs to include within their air quality action plans measures to identify appropriate sites for further alternative refuelling infrastructure within their boroughs.	■■■■■ From publication of LB air quality action plans
Chapter 5D: planning		

London Borough of Hammersmith & Fulham: Air Quality Action Plan 2002-2005

No.	Proposal	Timescale (end of year indicated) 2002 2003 2004 2005 >2005
67	The Mayor will encourage the use of appropriate methods for assessing the environmental performance of buildings, both commercial and large residential blocks.	████████ From publication of Energy Strategy and SPG on sustainable design and construction
68	The Mayor will encourage London boroughs to ensure that Unitary Development Plan policies incorporate borough air quality action plan and local air quality strategy measures.	████████ UDP review from publication of LB air quality action plans
69	The Mayor will encourage London boroughs to include policies in Unitary Development Plans that set out best practice aspects of design, orientation, density and location of buildings to minimise energy demand, optimise sustainability and minimise the impact of air pollution and noise inside buildings. Guidance on these Unitary Development Plan policies will be given in the London Plan and supplementary planning guidance.	████████ From publication of supplementary planning guidance
70	The Mayor will encourage London planning authorities to produce supplementary planning guidance on air quality	████████ From publication of this Strategy
71	The Mayor will expect London planning authorities to ensure air quality is taken into account along with other material considerations in making decisions on development proposals and that formal air quality assessments are undertaken where appropriate to inform the decisions, particularly where proposals may affect an air quality management area.	████████ From publication of this Strategy
72	The Mayor will encourage the use of appropriate conditions and planning obligations to ensure the protection of local air quality and to help work towards the achievement of the national air quality objectives.	████████ From publication of this Strategy
	Chapter 5E: central government and the EU	

London Borough of Hammersmith & Fulham: Air Quality Action Plan 2002-2005

No.	Proposal	Timescale (end of year indicated)
		2002 2003 2004 2005 >2005
73	The Mayor will propose that the government consider further national and international measures and mechanisms to reduce emissions of NO _x and PM ₁₀ to assist in achieving the national air quality objectives in London.	██████ Ongoing, from publication of this Strategy
	Chapter 5F: business	
74	The Mayor urges businesses to ensure that all vehicles meet at least the Euro II standard plus a Reduced Pollution Certificate or Euro III by 2005.	██████
75	The Mayor will encourage the maximum use of schemes to bring about a switch to alternative fuels.	██████
76	The Mayor encourages businesses to produce travel plans and expects them to do so as part of any planning applications with significant transport implications.	Ongoing through Transport Strategy
77	The Mayor encourages businesses to adopt initiatives, where practicable, which allow better purchasing choices to be made so that energy use and emissions are reduced.	██████
78	The Mayor encourages the use of renewable energy technologies and hydrogen as a fuel in London, as part of a move to establish widespread use of low and zero-emission sources of heat and power.	██████
79	The Mayor will work with the London Development Agency to help develop the growth of environmental industries in London, including supporting the development of fuel cells.	██████
80	The Mayor encourages businesses to seek to improve the indoor air quality of workplace environments, where feasible.	██████
81	The Mayor encourages businesses to consider applying the Mayor's Energy Hierarchy when making business decisions about building specifications, procurement and internal energy management.	██████
82	The Mayor will encourage businesses to participate in environmental management schemes and to demonstrate continuing and meaningful improvements in environmental performance.	██████
83	The Mayor encourages businesses to report on their environmental performance using established reporting guidelines.	██████
	Chapter 5G: individuals	

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No.	Proposal	Timescale (end of year indicated) 2002 2003 2004 2005 >2005
84	The Mayor will encourage individuals to play an active role in improving London's air quality. Chapter 5H: research and information	■■■■■
85	The Mayor will collaborate with other organisations seeking to improve air quality in London, share appropriate research and information, and will work to raise awareness of research needs. This will be done on a continuous basis, through Air Pollution Research In London and by meeting with relevant organisations, publishing guidance documents, placing information on the Greater London Authority website and through organising seminars.	■■■■■ From publication of Strategy
86	The Mayor and Transport for London will produce an annually updated London Atmospheric Emissions Inventory for Greater London.	Annually, on CD ROM
87	The Mayor will take into account relevant research findings where they provide better understanding of the sources, transport or effects of air pollution and aid the development of policy aimed at improving air quality in London.	Ongoing

Note: proposed timescales start from 1st April and end on 31st March of the years indicated

APPENDIX 2

The Draft West London Alliance Air Quality Strategy 2002 - 2005

Introduction

The West London Alliance is a grouping of London boroughs with common aims including working together on a number of environmental matters. In 2001 the WLA issued its environment strategy within which was a commitment to work together on the issue of local air quality. This paper follows from that commitment and provides a strategic overview of actions the WLA will take as a group to act positively, in a measurable way to achieve improvements in air quality across the region.

Air pollution does not respect borough boundaries and London boroughs by their nature are small in area therefore the effective options related to individual borough activity are relatively limited. Consideration must also be given to the effect of individual boroughs policies on their neighbours, as pollution emitted in one borough effectively becomes the background concentration of those which adjoin. Many of the actions to improve air quality relate to the transport functions, many of which work on a cross borough basis exemplified by the West London Transport Strategy therefore, the most logical strategic approach to West London's air pollution problems is to work on a cross borough partnership basis.

Finally, whilst recognising that some of the larger scale transport projects take time to develop this document is aimed towards the end point of the current air quality review period, that being 2005.

Air Quality in West London – The Challenge

Air pollution across West London is significantly affected by emissions from traffic in the area along with Heathrow airport. This problem can only be solved by change, be it in the way journeys are made or by the types of vehicles they used. There is also an appreciable contribution made by the background concentration especially in relation to fine particles (PM).

Of particular concern are the levels of nitrogen dioxide and fine particles. This plan is focused on reducing the levels of these pollutants.

Aims of the Joint Strategic Plan

All boroughs within the West London alliance are obliged to develop air quality action plans. This joint strategic plan is designed to provide a framework for boroughs own action plans highlighting synergies and resolving potential conflicts as the plan reaches the implementation phase. There may be particular concerns in relation to action taken in relation to air quality and the social, economic and other environmental (the noise environment, climate change etc) consequences.

In addition the Strategic Air Quality Plan will

- interface directly with the boroughs own work on air quality action planning

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- link directly with ILIP / BSP transport objectives particularly on a West London basis
- be used to inform / integrate with, UDPs, sustainable regeneration policies, Mayors spatial development, transport, energy and air quality strategies
- help to attract funding for joint West London Alliance Projects for example a travel website (see below)
- foster links with community (LA21) and boroughs community plans
- link to health strategies and key health indicators
- integrate with boroughs climate change / greenhouse gas protocols
- help individual boroughs progress towards their environmental management systems such as ISO 14001
- help in building relationships with the other stakeholders whose aim is also the improvement in air quality such as business groupings, the Greater London Authority, Transport for London, the Highways Agency, the Department for Transport and the Department of Environment Food and Rural Affairs.

Methodology

These actions have been developed via a joint meeting between the boroughs transport policy officers and air quality officers. The initial output (previously reported) was the seven key areas, these have now been turned into a set actions designed to be

- Positive
- and
- "SMART"

Previous versions of this document were circulated for comment to the air quality officers and in some cases their transport policy counterparts.

Joint Actions to Improve Air Quality in West London

Headline Objective	Action	Measurable Output	Comment
KA1 Transport and Air Quality Action Assessment	a) determination of the scale of air quality improvement needed across West London. b) maintain air quality monitoring in West London	% NO2 Vs Objective % PM Vs Objective	Needs to be undertaken on the basis of air quality concentrations but emissions will also provide a useful metric.
	b) the magnitude and type of deliverable transport actions appropriate to effecting substantial air quality improvement in West London	To be developed as part of source apportionment process.	
	c) the likely impact of a range of transport actions upon air quality and their contribution towards meeting statutory air quality improvement targets.	Determined by modelling proposed schemes	Measure of assessment needs to be developed but likely to be done in emission terms.

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Headline Objective	Action	Measurable Output	Comment
KA2 Low Emission Zones (LEZs) – Examination and Support	a) investigate the potential, efficacy and impact of LEZ implementation for West London	Progress and reporting of LEZ WG	Will test own scenarios within the framework of the LEZ scheme if necessary
	b) support ongoing LEZ study being undertaken by the boroughs, the GLA and ALG		
KA3 Transit Schemes – Support and Development	a) continue to support the development of the ‘West London Transit’ scheme	Number of schemes under consideration Number of Schemes implemented across West London	
	b) examine and actively develop, further transit routes and services for West London. Agree and promote the West London Transport network with West London Partnerships.	As above	

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Headline Objective	Action	Measurable Output	Comment
<p>KA4 Land Use Planning Integration</p>	<p>a) Provide supporting statement in response to the draft London Plan with the West London Partnership</p>	<p>Draft and agree joint statement, submit by September 2002.</p>	<p>Link with West London Partnership draft workplan</p>
	<p>b) work to further integrate land use planning policies and mechanisms with transport and air quality objectives to reduce the need for travel.</p>	<p>Meet with planning colleagues and report to WLA</p>	<p>Look at issues such as traffic counts, 106 funding etc.</p>

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Headline Objective	Action	Measurable Output	Comment
	c) use of Planning process to improve air quality	West London SPG for West London Report considering parking standards across WLA Numbers of LPG filling stations, electric charging points. Numbers of travel plans (high quality, feasible) submitted Improved accessibility to public transport	Outputs need to be discussed with planning teams (see a above) Also need to look at the use of s106 WLA boroughs have appointed or are in the process of recruiting travel plan officers
KA5 Bus Corridor improvements	Concerted action to develop efficient and high quality bus corridors throughout West London, considering substantial infrastructure changes where appropriate to achieve improvements.	Number of cameras on bus lane / busses Number of reported infringements. Bus reliability (surveys) Euro category of busses in WLA	Currently bidding through London Bus Priority Network, London Bus Initiative and West London Transport Strategy.

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Headline Objective	Action	Measurable Output	Comment
KA6 Sustainable and Integrated Transport Action	a) continue to support and develop all actions to promote sustainable and integrated transport across West London.	Numbers of high occupancy vehicle lanes introduced. combined use lanes Numbers of cycle parking and hire facilities at stations	Transport interchange hubs (inc. motorcycle cycle electric vehicles) Schemes identified in the West London Transport Strategy.
	b) promotion of High quality interchanges	Promote via travel website (monitor number of hits)	
	c) improve access to travel information	Nos. of 'Countdown" boards Production or link to travel website, (train / bus timetables)	
	d) increase the number of Safe Routes to Schools schemes targeting AQMAs	Number of schemes in WLA	

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Headline Objective	Action	Measurable Output	Comment
	e) rail improvements	Train frequencies and variations. Improvement in frequency Improvement of cycle storage facilities at stations	
KA7 Freight Movements – Quality Partnership	Develop comprehensive Freight Quality Partnerships across London to improve environmental performance whilst supporting commercial imperatives of operators.	Introduction of Partnership. Number of signatories Euro category of fleet	
KA8 Heathrow Terminal 5	Consider application of all Key Actions 1-7 in accommodating Terminal 5. Promote alternative methods of getting to Heathrow	Congestion charge / LEZ for Heathrow area. Modal split	

ABBREVIATIONS AND GLOSSARY

1,3-Butadiene – is a gas similar to benzene. The main source is from the combustion of petrol and other fossil fuels.

Air Quality Review and Assessment – The process of reviewing current and assessing likely future air quality and considering whether or not air quality objectives being met or not.

Air Quality Standard – The concentration of a pollutant in the atmosphere which can broadly be taken to achieve a certain level of environmental quality. The standards relating to the quality of air are also based (from medical evidence) on the effects of each pollutant on public health and sometimes also on the effects upon vegetation.

Air Quality Objective – For a number of priority pollutants, the Government has set target levels (expressed as a concentration) and target dates for meeting these levels. They provide a policy target by outlining what the Government intends should be achieved in relation to the air quality standards.

ALG – The Association of London Government

ALTER – The Alternative Traffic in Towns (ALTER) Project aims, through joint action by European cities, to generate a demand for clean vehicles which encourages manufacturers to shift to volume production at lower costs.

Annual Mean – The average of the concentrations measured or calculated for each pollutant for one year. Usually this is for a calendar year, but some species are reported for the period April to March, known as a pollution year. This year avoids splitting a winter season between two years, which is useful for pollutants that have a higher concentration during the winter months.

AQAP – Air Quality Action Plan.

AQMA – Air Quality Management Area. The borough was designated as an AQMA in November 2000.

Background concentration – Concentration of a pollutant in an area where it cannot be accounted for by local emissions as it has been transported there potentially over long distances.

Benzene – a colourless and toxic gas with an aromatic odour. The main source of benzene is the combustion and distribution of petrol. Diesel is a relatively small source of benzene.

Carbon Dioxide (CO₂) – a colourless, odourless gas. Although it is naturally present in the atmosphere, mankind's activities such as the combustion of fossil fuels have drastically increased the concentration of CO₂ in the atmosphere, contributing to global warming.

Carbon Monoxide (CO) – a colourless and almost odourless gas which is formed by the incomplete combustion of any fuel which contains carbon (e.g. coal, oil or gas). Road transport is the main source of this pollutant, particularly petrol vehicles.

COMEAP – Committee on the Medical Effects of Air Pollution

Concentration – The amount of a substance (i.e. a pollutant) in a volume of air, typically expressed in terms of $\mu\text{g}/\text{m}^3$.

Days with exceedences – The number of days in which at least one period has a concentration greater than, or equal to, the relevant air quality standard (the averaging period will be that defined by that standard). Since the national air quality standards cover different time periods (15 min average, 24 hour running mean etc), this gives a useful way of comparing data for different pollutants.

DEFRA – Department of Food, Environment and Rural Affairs.

DETR – (former) Department of the Environment, Transport and the Regions.

DfT – Department for Transport

DOH – Department of Health

EPAQS – Expert Panel on Air Quality Standards.

EST - Energy Saving Trust. The EST is a Government organisation set up to advise people (including businesses) on how they can save energy and help to deliver cleaner air.

Euro I, II, III, IV, V – A European wide vehicle standard that requires new vehicles to be manufactured to progressively stricter emissions limits. The Euro I standard was introduced in 1992 (introduction of catalytic converters), Euro II in 1996, Euro III in 2000 and Euro IV and V are planned for 2006 and 2008.

Exceedence – A period of time where the concentration of a pollutant is greater than, or equal to, the appropriate air quality standard.

GLA – The Greater London Authority

Groundwork – an environmental regeneration charity working on sustainable development issues with residents and local businesses.

Lead – widely used heavy metal released into the atmosphere through a variety of activities including industrial processes and mining. The main emissions of lead have arisen from petrol-engine vehicles, but since the introduction of unleaded petrol, there have been significant reductions in urban lead levels.

LEZ – A Low Emission Zone is a defined area where vehicles must comply with a set emissions standard in order to be allowed entry.

LPG – Liquid Petroleum Gas – is the generic name for commercial propane and butane gas, produced by the oil and gas industries, which can be used as a power source for vehicles.

$\mu\text{g}/\text{m}^3$ – microgrammes per cubic metre. A measure of concentration in terms of mass per unit volume. A concentration of $1\mu\text{g}/\text{m}^3$ means that one cubic metre of air contains one microgramme (millionth of a gramme) of pollutant.

µm – micrometre. Equivalent to one millionth of a metre. Also sometimes referred to as a micron.

NAQS –National Air Quality Strategy.

Nitrogen Dioxide NO₂ – Nitrogen Dioxide is an irritant gas that has known effects on lung function and airway responsiveness. The main source is the burning of fossil fuels used by industrial and commercial sectors to generate electricity and also road vehicles.

NO_x – Oxides of Nitrogen – all combustion processes in air produce waste gases known as oxides of nitrogen. Nitrogen dioxide and nitric oxide are both oxides of nitrogen and together are referred to as NO_x

Objective – Concentration of a pollutant required by the UK NAQS to be achieved by a certain date.

Ozone O₃ – Ozone is not emitted directly from any man made source in any significant quantities, but arises from chemical reactions in the atmosphere caused by sunlight.

Part A processes – Large emitters of pollution, for example power stations, regulated by the Environment Agency.

Part B processes - Smaller emitters of pollution, regulated by the local authority.

PM₁₀ – Particulate matter with a diameter of 10µm or less.

Running Mean – A mean or series of means calculated for overlapping time periods and used in the calculation of several of the national air quality standards. For instance, an 8 hour running mean is calculated every hour, and averages the values for eight hours. The period of averaging is stepped forward by one hour for each value, so running mean values are given for the periods 00:00 - 07:59, 01:00 - 08:59 etc. By contrast a non-overlapping mean is calculated for consecutive time periods, giving values for the periods 00:00 - 07:59, 08:00 - 15:59 and so on. There are, therefore, 24 possible 8-hour means in a day (calculated from hourly data) and 3 non-overlapping means.

SEIPH – South East Institute of Public Health, air quality consultants.

Sulphur Dioxide (SO₂) – sulphur dioxide is an acidic gas and an irritant when inhaled. The major source is the burning of fossil fuels for power generation and emissions tend to be dominated by a small number of large 'point' sources such as large power stations. Traffic is also a significant source, particularly in urban areas.

TfL – Transport for London. A functional body of the GLA with responsibility for delivering an integrated and sustainable transport strategy for London.

UDP – The Unitary Development Plan is a statutory plan which sets out the council's framework for development, development control and conservation in Hammersmith & Fulham. The policies and proposals are concerned not only with the development and other use of land and buildings, but also with transport, and are intended to contribute to the objective of ensuring that development is environmentally sustainable.