GREATERLONDONAUTHORITY

# Evidence provided by the Mayor of London to the UK government, to inform their work to meet the air quality limit values

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**Acknowledgements:**

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# 1 Introduction

Air pollution affects the health and quality of life of people who live, work and visit London. The Mayor of London is committed to improving air quality, and working towards the national and European targets, which are designed to protect human health. Bold action has been taken in London, and more will be taken by the Mayor of London, to improve air quality and reduce the impact it has on Londoners' health. However, much of the pollution detected in London is not caused by activity in London, and complying with the national and European targets also requires bold action by the government.

The UK government has stated their intention to apply for a time extension to the European air quality directive for particulate matter, $PM_{10}$. If granted, this would allow the government until 2011 to meet EU limit values for $PM_{10}$. To apply for this time extension, the government will need to set out how they intend to meet the limit value in the UK by 2011. The Mayor is very interested in what actions the government will propose to improve air quality and meet these targets.

The Mayor of London provided evidence to the Government (through officers at the Department for Environment, Food and Rural Affairs) to support and inform their work on this issue, between July to November 2008.

This document and associated Annex provides a compilation of this evidence, and was submitted in final form to the Department for Environment, Food and Rural Affairs in January 2009.

This document summarises information provided to date, as follows:

- Section 2 provides information on action already taken in London.

- An Annex covers detailed information on air quality and traffic at specific locations, which have been identified by the government as likely to exceed the EU limit values for $PM_{10}$ in 2011.

The Mayor of London is also carrying out further work which considers possible new actions which could be taken in London and at a wider scale. It is intended to provide this information to government to inform the development of their application for a time extension. This additional evidence will also be published on the Greater London Authority website www.london.gov.uk, in due course.

# 2 Implemented Measures to Reduce Particulate Matter Concentrations in London

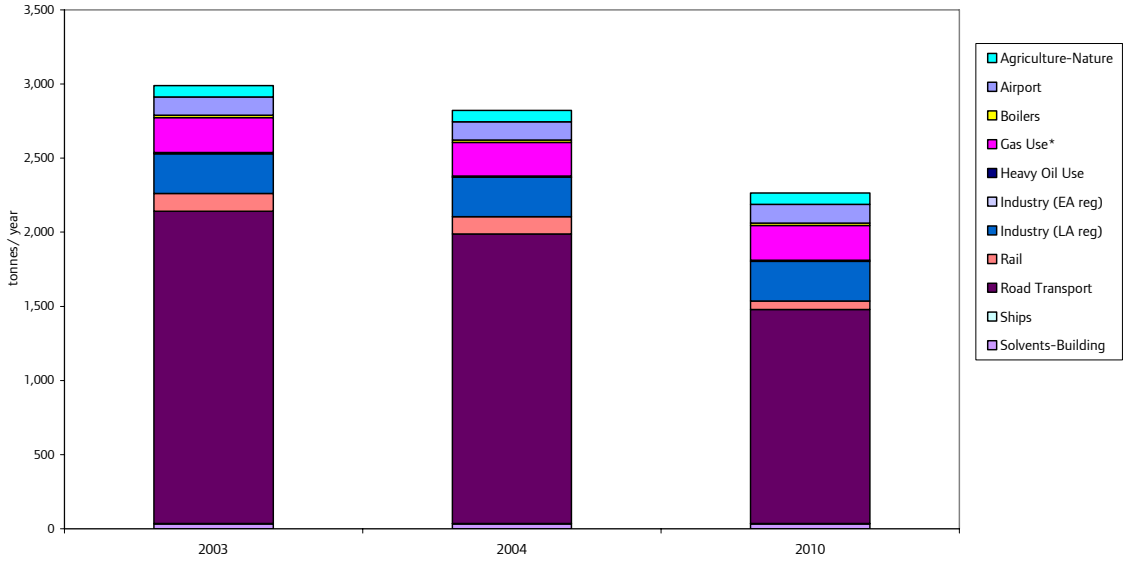
This report provides information on action already taken by the Mayor of London to improve air quality, and work towards the national and European air quality targets, which are designed to protect human health.

## Background

Figure 1 shows the absolute emissions of $PM_{10}$ in Greater London broken down by emission source category.

Figure 2 illustrates the relative proportion of contributions from each source of emissions. The greatest source of $PM_{10}$ emissions in Greater London is road transport, contributing 1953 tonnes in 2004 out of total emissions of 2822 tonnes. Figure 3 provides a breakdown of contributions from each vehicle type[1].

**Figure 1 Absolute Emissions of $PM_{10}$ in Greater London in 2003, 2004 and 2010.**




[1] Data from the London Atmospheric Emissions Inventory 2004 – further detail can be obtained from the database (or on request from the GLA)

**Figure 2 Relative $PM_{10}$ emissions in Greater London in 2004**

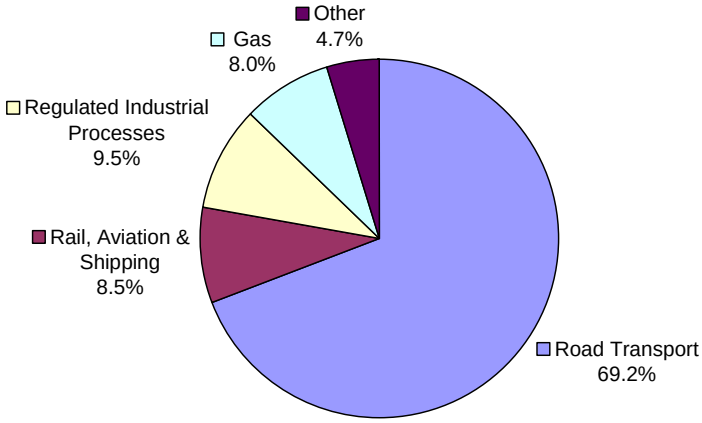
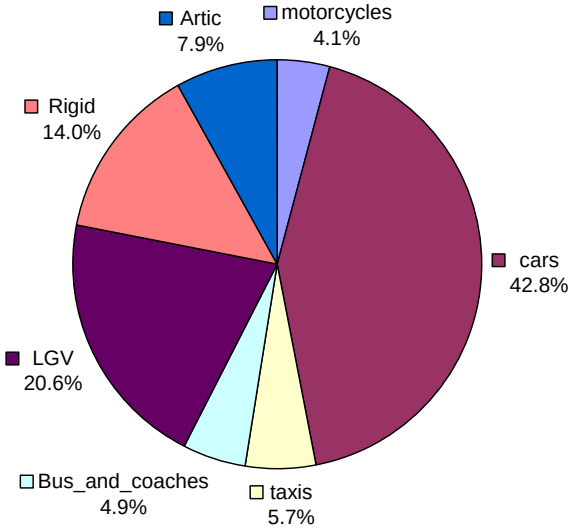



**Figure 3 $PM_{10}$ emissions from Road Transport in Greater London in 2004 by vehicle type**




London benefits from reduced particulate matter ($PM_{10}$) emissions as a result of the largest Low Emission Zone in the world. The Mayor also has a number of additional measures in place that reduce $PM_{10}$ emissions in London, many of which are implemented through TfL.

The Mayor has a duty to work towards the government's air quality strategy objectives, which relate to the EU limit values. The Mayor's the Air Quality Strategy[2] sets out plans and policies for achieving this, and many measures are integrated into the Mayor's Transport Strategy[3]. Both these strategies will be updated in early 2009.

TfL's vision to provide a world-class transport system for a world-class city incorporates key transport goals. Of these, tackling climate change and enhancing the environment are central to achieving the vision. One of TfL's core aims is to deliver continued modal shift through promoting sustainable public transport, walking and cycling.

The GLA and TfL have provided specific examples of current programmes and plans that contribute to reducing $PM_{10}$ in London. Many offer additional environmental benefits.

Where applicable, details of other policy options previously investigated have been provided to help inform discussions regarding what package of measures might be required in order to comply with the limit value by 2011.

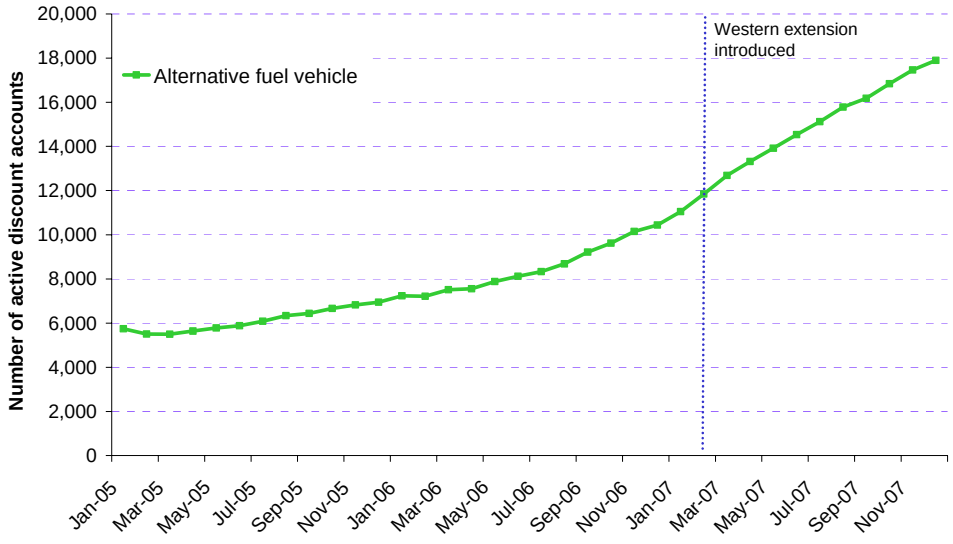
[2] www.london.gov.uk/mayor/strategies/air_quality/air_quality_strategy.jsp
[3] www.london.gov.uk/mayor/strategies/transport/index.jsp

## Congestion Charging

Although, as a policy, congestion charging does not directly target improving air quality, it has delivered worthwhile reductions to $PM_{10}$ emissions from road traffic in and around central London. The central London scheme reduced $PM_{10}$ emissions from road traffic inside the charging zone (24 hour annual average day) by 6.3 percent, comparing 2003 with 2002. This reduction has persisted since 2003, given consistently reduced traffic volumes, although it has been partially offset in recent years by the return of elevated levels of congestion.

Despite these estimated emissions reductions, it has so far proven difficult to detect a 'congestion charging effect' in the measured air quality data. This is for a variety of factors that are widely recognised in the air quality community. It can nevertheless be said that ambient air quality in and around central London has been better than it would otherwise have been, in the notional absence of congestion charging.

The Alternative Fuel Discount to the congestion charge focuses specifically on the air quality emissions benefits of alternative fuelled cars, offering 100% discount to vehicles such as electric, hybrid and LPG This is equivalent to £1600 saving per year, for someone who drives into the zone everyday. The number of vehicles registered for the alternative fuelled vehicle discount is provided in the graph below.




## Further Information

- Fifth impacts monitoring report (pages 65-67) www.tfl.gov.uk/assets/downloads/fifth-annual-impacts-monitoring-report-2007-07-07.pdf
- Sixth impacts monitoring report (pages 104-106) www.tfl.gov.uk/assets/downloads/sixth-annual-impacts-monitoring-report-2008-07.pdf

## Low Emission Zone

The Low Emission Zone (LEZ) is an area of environmental restriction covering 1580 square kilometres, operating 24 hours a day, every day of the year, which aims to aims to cut harmful emissions to air by deterring the most polluting vehicles from driving in the area. There is a £200 daily charge for those that do not meet the required standard. It is the first scheme of its type in the UK and the largest LEZ in the world. The required emissions standard of the LEZ is the Euro III standard for particulate matter.

LEZ Phase 1 Launched 4 Feb 2008
HGVs over 12 tonnes (including Goods Vehicles, Motor Caravans and Motorised Horseboxes), Euro III for PM

LEZ Phase 2 Launched 7 July 2008
Vehicles affected by the charge expanded to include HGVs of 3.5 – 12 tonnes & buses and coaches over 5 tonnes with nine or more seats, Euro III for PM

LEZ Phase 3 Scheduled for October 2010
Includes large vans and minibuses, Euro III for PM

LEZ Phase 4 Scheduled for January 2012
Tougher emissions standards of Euro IV for PM for Phase 1+2 vehicles

**Impacts:**
The LEZ is expected to:

- Reduce total road traffic related emissions of $PM_{10}$ by up to 5.6 per cent in 2012, with beneficial effects on other pollutants such as nitrogen oxides ($NO_x$).
- Reduce the area of Greater London with levels of $PM_{10}$ that exceed the annual mean air quality objective by 4.8 per cent in 2008 and by 14 per cent by 2012.
- Over a ten-year period, projections suggest that people who would otherwise die prematurely as a result of poor air quality will gain additional life expectancy totalling 5,000 years. Over the same period, lower levels of illness would mean a reduction of about 250,000 'restricted activity days' and more than 300,000 cases where respiratory symptoms are reduced in severity.

Results thus far are proving very positive and London is already benefiting from reduced emissions. 96 per cent of the heaviest lorries driving in the zone now meet the necessary standard compared to 70 per cent during 2007. Compliance rates for vehicles affected from July 08 are 94 per cent.

| BENEFITS: | Annual $NO_x$ Emissions, tonnes (% reduction compared to without LEZ in same year) | Population in area exceeding annual mean $NO_2$ above 40 $g/m^3$ (000's) (% reduction compared to without LEZ in same year) | Annual PM Emissions, tonnes (% reduction compared to without LEZ in same year) | Population in area exceeding annual mean $PM_{10}$ above 23 $\mu g/m^3$ (000's)[1] |
|---|---|---|---|---|
| Base (Jan 08) | 33851 | 1317 | 2453 | 476 |
| Phases 1& 2 (Dec 2008) | 30375 (3.3%) | 946 (5.9%) | 2276 (2.1%) | 306 (5.3%) |
| Phase 1,2 & 3 (Dec 2010) | 25950 (4.1%) | 607 (9.3%) | 2101 (3.7%) | 135 (10%) |
| Phase 1,2,3 & 4 (Dec 2012) | 21420 (10.2%) | 390 (21.5%) | 1968 (5.6%) | 70 (15.3%) |

**Consideration of other initiatives:**

The 2001-2003 feasibility study concluded that in the absence of national initiatives, a LEZ that covered the whole of the Greater London area represented the most effective and realistic option for achieving reductions of the most harmful road-transport-generated emissions in London between 2008-2015 and move the city significantly closer towards meeting its air quality objectives: Through the feasibility study, TfL reviewed and rejected the following of alternative ways, at both the national and local levels, for addressing road transport related emissions.

- **Relying on the natural vehicle replacement cycle -** Modelling estimated that the London LEZ would bring forward reductions in $PM_{10}$ emissions by up to 4 years compared with the 'natural' vehicle replacement cycle.
- **Higher levels of Vehicle Excise Duty (VED) for more polluting heavy goods vehicles.**
- **National road user charging with higher charges for more polluting vehicles.**
- **Grants for retro-fitting vehicles.** EU state aid rules limit any environment-related grant to 30% of the capital cost of the equipment.
- **Scrapping of older vehicles.** The issues relating to the provision of incentives for scrapping older vehicles are similar to those relating to grants, in that such a measure is unlikely to be cost effective when done locally rather than nationally. Other problems, if implemented locally, include targeting vehicles that operate in London but are registered outside both London and the UK.
- **Roadside emission testing of vehicles.** Roadside emissions tests have insufficient sensitivity and require involvement of the Vehicle and Operator Services Agency or the police therefore would achieve very small reductions in emissions compared to those from the LEZ. Additional benefits were gained in London by running a parallel publicity campaign and discounted maintenance scheme with London garages.
- **Including cars and motorcycles in the LEZ.** The vehicles currently affected by the LEZ are the largest individual emitters per kilometre driven. These vehicles have been identified as a priority for the LEZ as it is possible to have a large impact in reducing emissions by tackling a relatively small number of vehicles. The London Low Emission Zone Feasibility

[1] This analysis was undertaken against the provisional annual mean $PM_{10}$ objective of 23 $\mu g/m^3$ for London, which was nullified by the July 2007 revision of the national Air Quality Strategy.

Study: Phase 2 (July 2003) concluded that including private cars in a low emission zone would involve different issues to a system designed to target freight or public transport vehicles and it was not recommended to include cars at this stage. The sheer number of vehicles involved in a car-based scheme would be enormous, potentially hundreds of thousands, with associated implications for enforcement and certification. Also, targeting cars would have very significant inequality effects, potentially exacerbating social exclusion. Almost half the cars owned by households in the lowest income group are over 10 years old, the very vehicles the low emission zone aims to exclude, compared with less than 20 per cent of cars over 10 years old being owned by the highest income group. Finally, the cost-effectiveness of including cars was reported to be low and with potential costs to motorists of up to a billion pounds, which has major economic implications for London. Motorcycles are not included in the LEZ because they only contribute a relatively small proportion of road transport PM emissions in Greater London. In 2004 the contribution of motorcycles to the emissions from road transport in Greater London was 4.1% for $PM_{10}$ and 0.3% for $NO_x$. It is therefore considered that the inclusion of motorcycles in the LEZ at that time would not have resulted in significant enough air quality benefits.

## London Hydrogen Transport Programme

Hydrogen has the potential to offer zero emission transport, however, it is in the pre-commercial phase and requires support to both encourage the development of the technology and infrastructure, as well as explore the potential operational issues that will need to be resolved in the future. In collaboration with the London Hydrogen Partnership, TfL supports the introduction of hydrogen-fuelled transport as part of a long-term solution to London's challenges in addressing air quality.

The main items of scope for this project and their current status are:

- **Procurement of 10 hydrogen Buses**
  The first 2 prototype buses are being built and are due for completion Spring 2009.
- **Installation of the first hydrogen refuelling facility in London**
  The above contract also covers associated refuelling infrastructure. Once planning application is approved, construction work will commence in Spring 2009 and the facility is expected to be operational by the end of that year.
- **Operation of the 10 buses for a period of at least 5 years**
- **Ongoing maintenance and garaging**
  First Group will operate, maintain and garage the vehicles at their East London depot where the new refuelling facilities will be.
- **Vehicle performance and emission testing, including well-to-wheel analysis.**
  Once the prototypes have gone through rigorous testing and certification, all 10 buses will then enter service by early 2010.

By demonstrating 10 buses in real daily use on a complete route, the main aim of this project is to move hydrogen-fuelled vehicles closer to commercialisation.

The main reasons for London to progress with hydrogen-fuelled vehicles are:

- Improving the air quality in the city.
- Reduction in $CO_2$ emissions from the city.
- Branding London as a leading environmental city.
- Political support for the development of clean transport technologies.
- Drive forward the hydrogen industry, creating market competition and cost reductions.

All 10 buses will also be hybridised which means there will be significant noise reduction for each vehicle.

## Environmental categories in borough Local Implementation Programmes

Through TfL's annual Local Implementation Programme (LIPs) process, funding is provided to Boroughs who apply to use it for environmental initiatives. Although work to reduce $PM_{10}$ is a statutory requirement, and therefore expected to be funded independently by the boroughs, TfL will give a high priority to applications that support Mayoral policies and associated targets.

Projects that involve monitoring or reduction of $PM_{10}$ are considered. Proposals must be compatible with (and reference) the Mayor's Air Quality Strategy, the borough's Air Quality Action Plan, and demonstrate how they will contribute to meeting the EU directive.

Previously funded projects include Newride, waste oil biofuel trial and clear zones.

## Freight

TfL is committed to support the delivery of Sustainable Freight Distribution: a plan for London (the Plan) which has two key aims: to reduce capacity used by road freight vehicles (particularly in the peak); and, to improve the economic, environmental & social efficiencies of the remaining road freight vehicle movements.

The Freight Operator Recognition Scheme (FORS) is the cornerstone of the Plan. It is designed to help increase road freight efficiency and increase opportunities for those companies to secure work by helping them to demonstrate their legal compliance (bronze) and through the use of best practice to reduce their costs, fines, collations, fuel use and therefore $CO_2$ emissions (silver and gold), achieved by using on-line benchmarking.

Benefits delivered by TfL, such as driver training, driver behaviour profiling and efficiency advice programmes, are designed to increase operator benchmark performance. This helps promote the uptake of low carbon vehicles.

All organisations have contracts with businesses that have fleets or use companies that have fleets to make deliveries, collections or servicing trips to their premises. It is possible to use these contracts to make sure the fleets that are used embrace sustainable freight distribution. This is achieved using Delivery and Servicing Plans and Construction Logistics Plans, which are the equivalent of Travel Plans for freight. These plans:

- help manage demand by reducing the volume of freight on London's roads, particularly in the peak periods; and,
- promote to the use of operators able to demonstrate their legal compliance; use best practice to reduce costs, fines, collisions, fuel use and therefore $CO_2$ / emissions – this can be by using FORS members.

**Milestones:**

- the GLA Group will lead the early adopters with its own and contracted fleets and by April 2010 at least 75 per cent of TfL, GLA, LDA and boroughs' own and contracted fleets will be signed up to FORS with a total of thirty per cent of HGV and van fleets serving London being signed up;
- by April 2016, this will have increased to 50 per cent of HGV and van fleets serving London;
- TfL and GLA Group will take a lead in implementing DSPs and CLPs for Group premises and construction contracts by end 2010 will have drawn up DSPs & legal loading plans for all of its premises. Links will be used with initiatives including the GLA Responsible Procurement, Green 500 and Green Procurement code, the BREEAM building assessment scheme and other construction Codes of Conduct to increase CLP uptake before adoption through the planning process;
- by spring 2010, road network efficiency will be increased by Traffic Authorities' response to the Network Management Duty which will review delivery arrangements to/from construction sites so lane closures, vehicle queuing & carriageway restrictions are minimised – particularly during peak periods;
- by spring in 2011, borough planning documentation will be modified where possible with boroughs using planning conditions specifying DSPs and CLPs for all major new developments; and,

- by the end of 2016, DSPs will also have been drawn up for a prioritised list of premises including those of borough councils, development agencies, health authorities and key private sector businesses premises.

The Freight Information Portal project will be used to promote efficient operational practices and provide a single place for information and best practice about delivering sustainably in London.

**Forecast benefits**

With TfL promoting these measures, London benefits by a predicted 20% reduction in freight fuel use in London by 2015, which could equate to a reduction in fuel use in the order of 300 million litres of diesel per annum by 2025 (excluding any benefits from road user charging or biofuels). This could equate to 120 tonnes[4] of particulates saved each year in London by 2025 or about 1/3 of the total freight related London particulate emissions. Use of the benchmarking tool will enable reductions in emissions including $PM_{10}$ by FORS operators to be monitored.

[4] From DfT NAEI, assuming 20 kph and post 2008 Euro 4 and existing van / lorry ratio with increase in mileage by 30% from 2005 values

## Bus emission programmes

### Particulate filters:

Filters were fitted to all Euro II and Euro III buses in the fleet by December 2005 achieving an average reduction of 90% of tailpipe PM emissions. Euro II and III buses accounted for 93% of the 8,300 vehicle fleet as of March 2008. The remaining 7% consist of Euro IV vehicles, 13 hybrid buses and 25 Enhanced Environmental Vehicles (which have lower PM emissions than Euro V vehicles). Although information regarding the potential increase in $NO_2$ emissions from filters became available towards the end of the programme, TfL is confident that the health benefits associated with reducing PM, CO and hydrocarbon emissions by 90% outweighs the negative impacts associated with a moderate increase in $NO_2$.

### Vehicle replacement programme:

On average, 500 of the oldest buses in the fleet are replaced each year with the latest euro standard vehicles available. TfL has worked closely with the bus manufacturing industry to ensure that PM emissions from Euro IV vehicles are no worse than a Euro III bus fitted with a diesel particulate filter, thereby achieving a greater reduction in emissions that would be achieved by the Euro IV euro standard.

### Hybrid programme:

In October 2006 the Mayor announced a new programme to rapidly introduce hybrid buses into London. Although the main objective of the programme is to reduce $CO_2$ emissions, TfL will also setting targets for other pollutants including PM.

The timescale for the introduction of hybrid buses into the fleet is as follows:

- Up to 60 trial buses in operation by end of 2008
- Up to a further 100 new buses in operation by end of year 2009 / 2010
- Up to a further 200 new buses in operation by end of year 2010 / 2011
- Up to a further 500 new buses in operation by end of year 2011 / 2012
- All new buses entering service to be hybrid powered after 2012

The key objectives of the programme are as follows:

- To monitor and evaluate the performance of a range of pre-production hybrid technologies in order to establish the environmental and economical benefits
- To encourage and stimulate UK bus manufacturers to develop hybrid bus technologies as quickly as possible
- To rapidly introduce hybrids into the fleet once fully proven, as part of TfL's route tendering programme.
- To achieve a minimum 30% fuel and $CO_2$ saving for all hybrid technologies introduced into the fleet

A fundamental step towards meeting the objectives is to trial up to 60 pre-production single, double and articulated hybrid vehicles from a variety of manufacturers for in-service evaluation by December 2008. This will enable a greater understanding of the technologies involved, environmental benefits, component reliability, operational support required, capital and operational costs involved (including life cycle cost projections).

The final step towards meeting this objective is to introduce a TfL bus route tender specification requirement from December 2008 that progressively delivers hybrid technology into the fleet. A key element of the tender specification will be the environmental standards required for the hybrid vehicles. Whilst this is currently under development and will be refined as more technologies are trialled and evaluated, it is currently envisaged that hybrids will achieve a 30% reduction in PM emissions compared to a Euro IV diesel bus.

**Taxi emission programmes**
The fleet comprises 21,800 taxis and 42,200 private hire vehicles (PHV).

**Taxi emissions strategy:**
TfL established a taxi emissions strategy in 2005 that required all licensed taxis to meet a minimum of Euro III emissions for NOx and PM by July 2008.

**Low carbon taxi/PHV programme:**
A low carbon taxi/PHV programme commenced April 2008 with the aim of reducing $CO_2$ emissions from the taxi and private hire vehicle trade, although it is likely to deliver other environmental benefits including a reduction in PM emissions.

One element of the programme is to encourage the introduction of low carbon taxis into the fleet such as stop-start or micro hybrid technology. A trial of approximately 10 low carbon taxis will be introduced by March 2010 and if successful, TfL will take steps to encourage the rapid take-up of the new technologies into the London taxi market.

Another element of the programme is the introduction of a smarter driving campaign which will encourage drivers to maintain their vehicles in order to maximise fuel efficiency (this should also result in a reduction in local pollutants such as PM) as well as improve their driving style in order to reduce fuel consumption – again it is likely that this will result in additional benefits such as the reduction in PM emissions although it has not been possible to quantify these benefits.

## London Best Practice Guidance: The control of dust and emissions from construction and demolition

Following the commitment within the Mayor's Air Quality Strategy, the GLA and London Councils have produced 'Best Practice Guidance' to control dust and emissions from construction and demolition. The Guidance is used to inform the planning process within London boroughs; assisting developers in understanding the methods available to them and what London boroughs might expect.

The overarching aim of the Guidance is to protect the health of on-site workers and the public and to provide London-wide consistency for developers. It has been developed to assist architects, environmental consultants, developers, local authority officers and any parties involved in the construction process.

One specific recommendation is to seek to lower exhaust emissions from off-road construction vehicles and plant used on major sites wherever possible. The Guidance states that:

- ultra low sulphur diesel equivalent fuel should be used at all sites whenever possible
- at major construction sites, all plant should comply with either the current or immediately previous EU Directive Staged Emission Standards. In addition, plant over 37kW should be fitted with suitable exhaust after treatment (which cut emissions of particulate matter by a minimum of 85%) stated on the approved list managed by the Energy Saving Trust.
- The Mayor's London Plan and the associated Supplementary Planning Guidance provide the planning framework for London. They are used to manage the complex issues we now face to develop London - to absorb its expanding population, to provide adequate housing, employment, transport and leisure facilities, to develop the London Olympic facilities for 2012 and to develop the East Thames Corridor; and done with the minimal impact on London's environment.

Local planning authorities and developers are urged to use this document to agree methods of reducing dust and other emissions during demolition and construction, ensuring that as much as possible is done to mitigate these works.

The table below contains details of construction sites that may be underway in 2011 that have committed to implementing the best practice guidance. This table was compiled by the GLA in January 2008 and is currently being updated.

| Development name | Location | Size | Programmed date | |
|---|---|---|---|---|
| | | | Start | Finish |
| Olympic Park | LB Newham | 246 hectares | 2007 | 2012 |
| Thames Gateway Bridge (TfL) | LB Greenwich, LB Newham | | TBC | TBC |
| Cross Rail | West London to East London | | 2010 | 2017 |
| DLR Extension | LB Barking and Dagenham | | 2011 | 2015 |
| Fresh Wharf, Barking | LB Barking and Dagenham | | TBC | TBC |
| Howbury Park, Slade Green | LB Bexley | 64 hectares | TBC | TBC |
| 150 Stratford High Street | LB Newham | | TBC | TBC |
| Royals Business Park | LB Newham | 21 hectares | TBC | TBC |
| Trad Wharf, Silvertown | LB Newham | 1.2 hectares | TBC | TBC |
| Lovell's Wharf, | LB Greenwich | | TBC | TBC |
| Granite Wharf, Greenwich | LB Greenwich | | TBC | TBC |
| Badcock's Wharf, Greenwich | LB Greenwich | | TBC | TBC |
| Piper's Wharf, Greenwich | LB Greenwich | | TBC | TBC |
| West Ham Bus Garage | LB Newham | 2.9 hectares | TBC | TBC |
| Park Royal Brewery | LB Brent | 9.5 hectares | TBC | TBC |

## Local Air Quality Management

### Framework

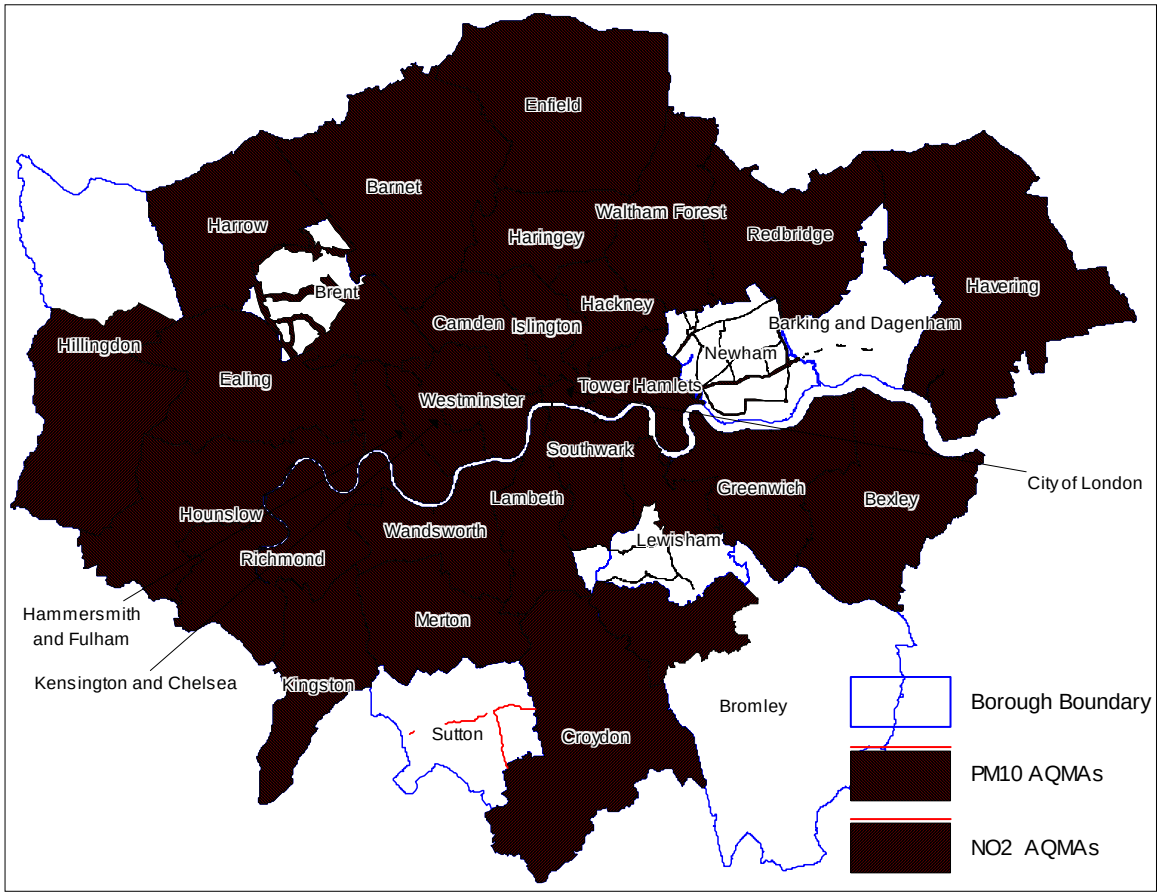
Under the local air quality management framework, Local Authorities must periodically review and assess air quality in their area against the air quality objectives[5]. Where the government's air quality objectives are not being met the Authority must declare an **air quality management area** and draw up an action plan to improve air quality and work towards the objectives[6].

The Mayor has devolved responsibility from government to ensure that the London boroughs are meeting their Local Air Quality Management duties[7] and London boroughs must take the Mayor's Air Quality Strategy into account when preparing their air quality action plans.

### Implementation

All London boroughs have recognized that they are not meeting the air quality objectives and have consequently declared air quality management areas. The areas cover 79% of London, as illustrated below.

**Figure 4: Air Quality Management Areas in London**

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London boroughs play an important role in improving London's air quality, which complements London-wide action being taken by the Mayor and TfL. Boroughs have action plans in place

[5] Section 82 of the Environment Act
[6] Section 83 of the Environment Act
[7] Section 85 of the Environment Act 1995, as amended by section 367 of the Greater London Authority Act 1999.

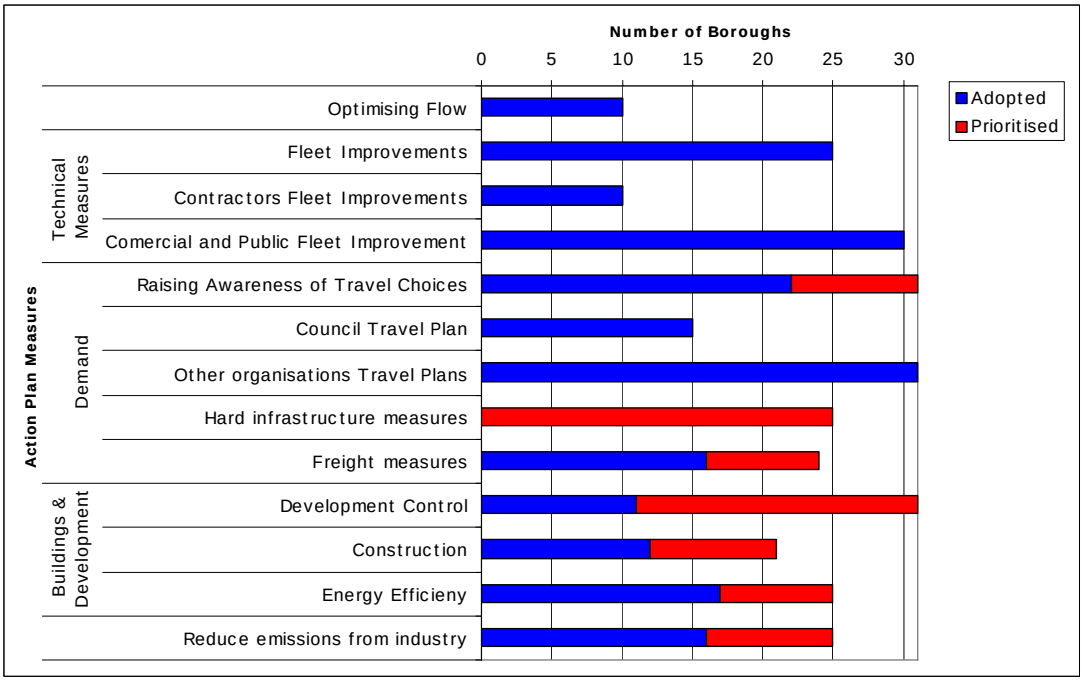
for improving air quality and the remaining two boroughs (Havering and Bromley) are in the process of formulating their action plans.

Borough action plans for improving air quality include a wide range of measures such as ;

- Improvements to their own fleets
- Travel plans for council, business, school and individuals
- Raising awareness of the impacts of air quality to encourage local action
- Raising awareness to help individuals manage the impact of poor air quality on their health and quality of life
- Promoting and supporting the use of cleaner vehicles
- Mitigating the impact of development through the planning system
- Trials of new technologies to reduce emissions and improve air quality

Figure 5 summarises the number of Boroughs that have included each category of measure in their Air Quality Action Plan and indicates where the measures are highlighted as a priority in the Action Plan.

**Figure 5 Summary of measures in London Borough Air Quality Action Plans**




The GLA have reviewed best practice in local air quality management amongst boroughs to identify the most effective measures that could benefit from greater uptake across London, opportunities for partnership working and suggest areas where improvements could be made. In January 2008 the GLA held a best practice workshop where the boroughs were able to share experiences of implementing measures to improve air quality and showcase some of the more effective measures.

The Mayor also provides data and information to the London boroughs to support their local air quality management work, such as the London Atmospheric Emissions Inventory.

## Land Use Planning

The London Plan (February 2008) sets out the Spatial Development Strategy for London. Boroughs' development plan documents must be in 'general conformity' with the Plan, hence it provides the Londonwide context within which individual boroughs must set their local planning policies. The Plan also sets the policy framework for the Mayor's involvement in major planning decisions in London.

Improving transport in a sustainable way is a key component of the London Plan, as illustrated by Policy 3C.3 Sustainable transport in London:

*"The Mayor will and strategic partners should support:*

- *measures that encourage shifts to more sustainable modes and appropriate demand management*
- *measures that promote greater use of low carbon technologies so that CO2 and other contributions to global warming are reduced*
- *high levels of growth in the Thames Gateway by substantial new and improved transport infrastructure. Opportunity Areas and Areas for Intensification, particularly in east London, should be supported by improved public transport*
- *access improvements to and within town centres and their residential hinterlands by public transport – including by improved bus services, walking and cycling – and between town centres by improved bus services, more frequent rail services and, where appropriate, new tram and bus transit scheme*
- *improved sustainable transport between suburban centres, particularly by enhanced bus services, walking and cycling and by greater integration between bus, rail and Underground service*
- *improved provision for bus services, cycling and pedestrian facilities and local means of transport to improve accessibility to jobs and services for the residents of deprived areas.*

*See also Policy 3C.25 Freight Strategy."* Policy 3C.25 promotes sustainable freight movement and distribution/servicing including promotion of the full range of road, rail and water-borne freight facilities in London and improved integration between the modes and between major rail interchanges and the centres they serve.

At the local level, London Plan policy encourages boroughs to promote a pattern of development that reduces the need to travel, especially by car. This should be achieved by:

- promoting public transport, walking and cycling (including minimum cycle parking standards in line with the London Plan)
- locating major trip generating developments in locations with good public transport accessibility
- requiring transport assessments and travel plans for large scale development proposals
- adopting maximum car parking standards in line with the London Plan and encouraging the use of car pooling/car clubs and
- mitigating the impacts of road based freight and promoting alternatives.

These are the same broad transport principles against which major planning applications (referred to the Mayor) are assessed. For major applications, TfL requires that Transport Assessments should be submitted in accordance with TfL's Transport Assessment Best Practice Guidance (May 2006) and Travel Plans should be produced in accordance with TfL's guidance on Workplace Travel Planning and Residential Travel Planning (March 2008).

## Planning

Strategic planning applications in London, meeting a range of specific criteria, are required to be referred to the Mayor by the local planning authority concerned. These are assessed against various criteria, including air quality, and responses are then passed back to the local planning authority. Where appropriate, the Mayor can direct the local planning authority to refuse planning consent.

The air quality aspects of the planning applications are assessed against the various criteria, including the following to minimise the impact of development on air quality.

Existing air quality

- If the proposed development is in an Air Quality Management Area it should comply with the borough Air Quality Action Plan and local controls.

Construction/Demolition

- The development should comply with the requirements of the London Best Practice Guidance: the control of dust and emissions from construction and demolition, as a minimum.

Local Energy Generation

- If the use of biomass as a fuel is proposed or other potential large sources of pollution (such eg large CHP) then modelling of air quality impacts is requested. Special attention to mitigating their affects is also requested, for example by utilising exhaust efflux velocity, abatement technology and by specifying fuels.

Development Design

- If the existing air quality (before the development) does not meet the objectives then measures should be considered to protect the health of sensitive receptors, such as residential units, schools and hospitals.

Energy & Heat efficiency

- If there are a significant number of boilers associated with this proposed development then a number of methods are recommended to help reduce emissions: energy efficient design, the use of renewables to help reduce the extra energy required from gas supply, installing combined heat and power (CHP), but as the exhaust emissions are concentrated in one chimney, or flue, then special attention should be made to mitigate them, especially if they are close to sensitive receptors, such as residential units, schools and hospitals.

Transport

- If there a perceivable increase in traffic or traffic speed as a result of this development then measures to mitigate the air pollution impacts of road transport should be considered in all cases and put in place. Appropriate measures include; restricting parking, instigating travel plans; making sure the development is near to existing public transport hubs or including new public transport facilities within the development. It may also be appropriate to install facilities for lower polluting vehicles, such as electric recharging points.

The suitability of the air quality assessment (including whether cumulative impacts have been provided)

## Olympics

The Olympic Delivery Agency (ODA) has committed to implementing the London Best Practice Guidance on reducing dust and emissions from construction and demolition as part of its Sustainable Development Strategy. This commitment is reflected in the ODA's Code of Construction Practice, an approved planning document.

The ODA's Code of Construction Practice (CoCP) includes measures to mitigate and monitor the effects of construction activities. This is supported by the ODA's Dust Monitoring Scheme, which includes monitoring of dust and $PM_{10}$, and is in compliance with the Best Practice Guidance for a high-risk site. Independent air quality monitoring is being carried out by the local boroughs, and can be seen on the London Air Quality Network website at www.londonair.org.uk, which is sponsored by the Mayor, and the national air quality archive at www.airquality.co.uk.

In addition, the ODA is using ultra-low sulphur diesel for site vehicles and has an aspiration to transport 50 per cent of materials used during construction by rail or water. The commitment to achieving this target is evident in the recent award of the concrete and aggregate contracts that have exceeded this target.

The ODA will operate the Olympic Park as a local Low Emission Zone. The ODA's official vehicle fleet and fuel supplies will comply with low emission specifications and they will implement driver training and fleet logistic planning to optimise vehicle usage and fuel efficiency.

It is the ODA's aim for the London 2012 to be the 'Public Transport Games' and all spectators and workforce will travel to and from venues by public transport, walking and cycling. The ODA will encourage walking and cycling through an Active Spectator Programme and more than 5,000 bicycle parking spaces are planned for the Olympic Park.

## Encouraging and promoting walking and cycling

Over 63 per cent of journeys in London are less than two miles in length and there is considerable potential for more to be made by walking or cycling in preference to the car. Analysis carried out under the Transport 2025 projections estimates that some 20 per cent of all motorised trips in London could realistically be walked or cycled with Outer and Inner London offering the best potential for modal switch. In addition, longer distance trips can be accommodated by cycling and walking in combination with public transport.

TfL, in partnership with the London Boroughs and other stakeholders, works to encourage increased walking and cycling through focused programmes of physical works to make the street environment safer and more accessible for pedestrians and cyclists, through integration of walking and cycling into other programmes and initiatives, and through promotional and awareness raising activities.

This work aims to meet several high-level targets. To encourage walking, a target has been set of 7 million daily journeys on foot by 2025 (from a 2005 base of 5.7 million daily journeys). Walking initiatives designed to meet this target include new and upgraded pedestrian crossings, the removal of footbridges and closures of subways to be replaced with surface level facilities, pedestrian wayfinding, security and safety improvements, pavement widening and removal of clutter.

To encourage cycling, a target has been set of a 400 per cent increase in cycling by 2025; an increase of 91 per cent on the base was recorded in 2007/08. Cycling initiatives include upgrades to cycle routes and networks and green corridors, cycle safety / priority measures at key junctions, local cycle access and parking upgrades at stations and interchanges, town centres and housing estates and cycle training for children and adults.

As a shift to walking and cycling contributes to energy efficiency and sustainability, all these improvements aim to reduce the environmental impact of transport and encourage sustainable modes in line with a broad range of Mayoral and TfL objectives relating to transport, environment, health, economy, crime and safety and social inclusion. These improvements are underpinned by information, marketing, research, auditing and monitoring activities.

## Electric Vehicles

Electric vehicle recharging points are currently available at 40 locations across London. The Boroughs of Islington, Camden, Greenwich, Sutton, Kingston, Kensington and Chelsea, Tower Hamlets, Westminster, Ealing, Southwark and the City have charging points. Further detail can be found at www.newride.org.uk. The Mayor has committed to providing another 100 electric vehicle charging points across London.

The alternative fuel discount for the congestion charge and parking discounts in some London boroughs, provide an incentive for electric vehicle uptake. Around 1,000 electric cars are currently registered for the 100% discount on the congestion charge. The Mayor is keen to encourage more boroughs to reduce parking charges for electric cars.

The Mayor has set up an Electric Vehicle Partnership for London to encourage the car industry to accelerate the delivery of new technology and to increase the level of support for drivers of electric cars in the capital.

# Annex: Characteristics of sites the government expects to exceed $PM_{10}$ targets in 2011