Corporation of London
Air Quality Action Plan
May 2003

CORPORATION OF LONDON

Contents

Summary

Poor air quality harms human health and can increase the incidence of cardiovascular and lung disease. The Corporation of London has some of the worst air quality in the country. This is primarily due to the density of development and its geographical location.

All local authorities in the United Kingdom are required to periodically carry out a review and assessment of air quality and identify areas where it is unlikely to meet objectives set by national government. The objectives have been set at levels at which minimal effects on human health are likely to occur. A review of air quality in the City has indicated that the objectives for annual average nitrogen dioxide and daily average fine particles (PM_{10}) will not be achieved by the required dates. As a consequence the whole of the City has been declared an Air Quality Management Area.

This Air Quality Action Plan outlines steps that the Corporation will take, and is already taking, to improve air quality in the City. As the primary cause of poor air quality is road traffic, this Action Plan focuses on ways to reduce pollution from vehicles. The plan concentrates on action to reduce nitrogen dioxide and fine particles (PM_{10}) but the action outlined will also have an impact on other pollutants such as carbon monoxide and sulphur dioxide.

The Mayor of London published an Air Quality Strategy in September 2002. The Strategy outlines measures that the Greater London Authority will take to reduce pollution across the whole of London. It also sets out a number of measures Local Authorities are expected to take to improve air quality within their area. These have been incorporated into this document wherever possible.

The measures outlined in this action plan, and those in the Mayors Air Quality Strategy, will improve air quality in the City but it is anticipated that the objective for nitrogen dioxide, and possibly PM_{10}, will still not be met by the prescribed dates. Air quality modelling undertaken for traffic reduction scenarios, indicate that any improvement in air quality from local action will be very slight.

The actions that the Corporation of London will take to improve air quality in the City are detailed in the table overleaf. They include: a reduction in vehicle numbers entering the City, a reduction in emissions from vehicles in the City, a vehicle emission testing scheme and other traffic management measures. The action that is likely to have the greatest impact on air quality in the City would be the introduction of a London wide Low Emission Zone.

A draft Air Quality Action Plan was published in October 2002 and was distributed for consultation. This final document takes into account comments that were received. Most comments have been incorporated into the document, where this has not been possible an explanation is provided in Appendix D. An Action Plan progress report will be published in April 2004.

Action to Improve Air Quality

Action 1	The Corporation will continue to work with Government departments to ensure that the particular problems faced in London, with regard to air quality, are being adequately addressed.
Action 2	Wherever possible, the Corporation will implement the recommendations in the Mayor's Air Quality Strategy outlined for London local authorities
Action 3	The Corporation is committed to reducing motor traffic levels in the City by 10% by 2005.
Action 4	The Corporation of London has undertaken an air quality modelling exercise to establish the effect of a 10% and 15% reduction in motor traffic by 2005 in the City.
Action 5	The Corporation of London will continue to monitor pollutants emitted by motor vehicles to establish the effect of the Mayor of London's congestion charging scheme
Action 6	The Corporation of London will support the adoption of a Low Emission Zone across London and work with other London Boroughs and the GLA to implement it.
Action 7	The Corporation of London has investigate the effects on local air quality of introducing a Low Emission Zone in the City alone.
Action 8	The Corporation of London will establish a fleet register that include information on emissions for each vehicle.
Action 9	The Corporation of London will implement its vehicle purchasing policy that all new light petrol driven vehicles will be dual fuel. All new large vehicles powered by diesel will be fitted with Continuous Regenerative Traps and catalytic converters. The Corporation will regularly review the emission reduction technologies available and their costs and benefits.
Action 10	The Corporation will upgrade or replace all vehicles in its fleet by December 2004 to ensure that they comply with Euro 3 or Euro 2 plus retrofit technology where technically feasible. It will seek financial assistance from the TransportAction, Energy Saving Trust programme
Action 11	The Corporation will continue its regular programme of vehicle maintenance and servicing which includes maintenance of some heavy use vehicles every 3-6 months
Action 12	The Corporation will work with the City of London Police to ensure that new vehicles have the lowest possible exhaust emissions, consistent with their operational requirement.
Action 13	All new contracts awarded by the Corporation of London will specify that contractor's vehicles must meet Euro II emissions standards as a minimum until December 2004 and Euro III emissions standards as a minimum after December 2004.

Action 14	All new contracts will encourage the use of low and zero emission vehicles
Action 15	All tenders will be assessed for the environmental performance of the fleet and will be taken into account in the tender evaluation process
Action 16	The Corporation will encourage any local organisations to green their fleet through the Liveable City Awards
Action 17	The Corporation will implement the policy in the City of London Unitary Development Plan to reduce emissions from taxis by assisting appropriate taxi movements within traffic management schemes and by encouraging other measures.
Action 18	The Corporation will continue to seek to facilitate the provision of as many taxi ranks as practicable in the City to reduce the need to ply for hire.
Action 19	The Corporation will continue to encourage the GLA to effectively control emissions from taxis through the licensing system.
Action 20	The Corporation of London will continue to work with Camden and Westminster on a joint Clear Zone project
Action 21	The Corporation of London has successfully applied for powers to enforce emission standards at the roadside. The powers will be used from July 2003 in conjunction with the City of London Police. The scheme will be co-ordinated with the rest of London.
Action 22	The Corporation of London will enforce the regulations requiring drivers to switch off idling engines from Autumn 2003.
Action 23	The Corporation will, together with TransportAction, identify any appropriate sites for alternative refuelling infrastructure in the City. It will also consider any recommendations made by the London Clean Fuel Working Group on alternative refuelling sites.
Action 24	The Corporation has undertaken air quality modelling to establish the effects on local air quality of limiting motorised traffic in the City Timed Access areas. The improvement in air quality is predicted to be negligible.
Action 25	The Corporation will implement its Safe Routes to Schools programme to further encourage walking and cycling to school in the City
Action 26	The Corporation will continue to discourage car trips into the City by effective management of on and off street parking
Action 27	The Corporation will implement the policies contained in the City of London Unitary Development Plan 2002 to limit parking for motor vehicles in the City
Action 28	The Corporation will continue its support for cycling in the City though the Draft City of London Cycling Plan and the London Cycle Network Plus (LCN+).
Action 29	The Corporation will seek the provision of high quality, secure cycle parking facilities by requiring the provision of parking space for cycles in development schemes, maintaining an adequate overall number of spaces for cycles in public off-street car parks, and providing an increased supply of cycle parking facilities on-street

Action 30	The Corporation will continue to work closely with its neighbouring local authorities to develop an appropriate network of strategic pedestrian routes to serve the needs of inner and central London
Action 31	The Corporation will ensure that pedestrians are adequately provided for when new developments are proposed.
Action 32	The policies outlined in the City of London Unitary Development Plan 2002 will be implemented to assist in the improvement of air quality in the City.
Action 33	The next review of the Unitary Development Plan will incorporate the Corporation of London Air Quality Action Plan.
Action 34	Where necessary, appropriate conditions will be applied to planning approvals to protect, and where possible improve, local air quality. This may include a requirement to undertake air quality assessments
Action 35	The Corporation of London will continue with its policy of promoting the efficient use of energy, the development of Combined Heat and Power (CHP) generation, and encourage the use of renewable energy.
Action 36	The Corporation will implement the policy in the Unitary Development Plan to encourage energy conservation in new buildings
Action 37	The Corporation will continue to enforce the City of London Various Powers Act 1954 to prohibit bonfires and other dark smoke emitted from any premises in the City.
Action 38	The Corporation of London will require all developers in the City to adopt its Code of Practice for Deconstruction and Construction Sites to reduce dust emissions.
Action 39	The Corporation will continue to be a member of the London Air Quality Network.
Action 40	The Corporation of London will develop its web site to include information on air quality in the City.
Action 41	The Corporation will continue working with neighbouring local authorities, and the NSCA in order to encourage and promote improvements in air quality throughout central London.
Action 42	The Corporation will continue with its commitment to Air Quality Monitoring and regularly review the monitoring needs of the City.

1. Introduction

The Environment Act 1995 laid the foundations for a nation-wide system of local air quality management. Under Part IV of the Act, local authorities are required to periodically carry out a review and assessment of air quality and identify areas where air quality is unlikely to meet objectives prescribed in the Air Quality (England) Regulations 2000. The objectives are shown in table 1.1. If the objectives are unlikely to be achieved, local authorities are required to produce action plans indicating the action they propose to take in pursuit of the objectives.

Pollutant	Air Quality Objective	Concentration Measured as	Date to be achieved by
Benzene	16.25μg/m ^{3} (5ppb)	Running annual average	31.12.2003
1,3 Butadiene	2.25μg/m^3 (1ppb)	Running annual average	31.12.2003
Carbon monoxide	11.6mg/m^3 (10ppm)	Running 8-hour average	31.12.2003
Lead	0.5μg/m^3 0.25μg/m^3	Annual average Annual average	31.12.2004 31.12.2008
Nitrogen Dioxide	200μg/m^3 (105ppb) not to be exceeded more than 18 times a year 40μg/m^3 (21ppb)	1-hour average Annual average	31.12.2005 31.12.2005
Particles (PM_{10})	50μg/m^3 (gravimetric) not to be exceeded more than 35 times per year 40μg/m^3 (gravimetric)	24-hour average Annual average	31.12.2004 31.12.2004
Sulphur dioxide	350μg/m^3 (132ppb) not to be exceeded more than 24 times per year 125μg/m^3 (47ppb) not to be exceeded more than 3 times per year 266μg/m^3 (100ppb) not to be exceeded more than 35 times per year	1-hour average 24-hour average 15-minute average	31.12.2004 31.12.2004 31.12.2005

Table 1.1

The Government has recently announced additions to the PM_{10}, and benzene objectives and a new carbon monoxide objective. They have also introduced a new national objective for Polycyclic aromatic hydrocarbons (PAH). The new objectives are given in table 1.2

Pollutant	Air Quality Objective	Concentration Measured as	Date to be achieved by
Benzene	5μg/m ^{3}	Running annual average	31.12.2010
Particles (PM_{10}) **England – apart from London**	50μg/m^3 (gravimetric) not to be exceeded more than 7 times per year 20μg/m^3 (gravimetric)	24-hour average Annual average	31.12.2010 31.12.2010
Particles (PM_{10}) **London (provisional)**	50μg/m^3 (gravimetric) not to be exceeded more than 10 times per year 23μg/m^3 (gravimetric)	24-hour average Annual average	31.12.2010 31.12.2010
Carbon monoxide	10mg/m^3 (8.6ppm)	Running 8-hour average	31.12.2003
PAH's	0.25ng/m3	Annual Average	31.12.2010

Table 1.2

The review and assessment process is undertaken using Government guidance. The relevant documentation, together with the legislation, is given in Appendix A.

1.1 An Air Quality Management Area in the City

The Corporation of London has already undertaken a staged review of air quality in the City. The conclusion of the Stage 3(a) review published in April 2000 was that the statutory objectives for annual average nitrogen dioxide and daily average PM_{10} would not be met by the prescribed dates. The whole of the City was consequently declared an Air Quality Management Area in January 2001 for these two pollutants. The conclusions of the Stage 3(a) review were confirmed in the Corporation of London Stage 4 Review and Assessment of Air Quality June 2002, a copy of which is annexed to this report.

1.2 Outcome of the Stage 4 Review and Assessment

The annual average nitrogen dioxide objective of 40µg/m^3 is likely to be exceeded right across the City. Concentrations are anticipated to be 4µg/m^3 higher at background locations and up to 16µg/m^3 higher at roadsides as shown in figure 1.1. Modelled concentrations exceed the national objectives when coloured yellow to red in the key. Green and blue indicate modelled concentrations below the threshold.

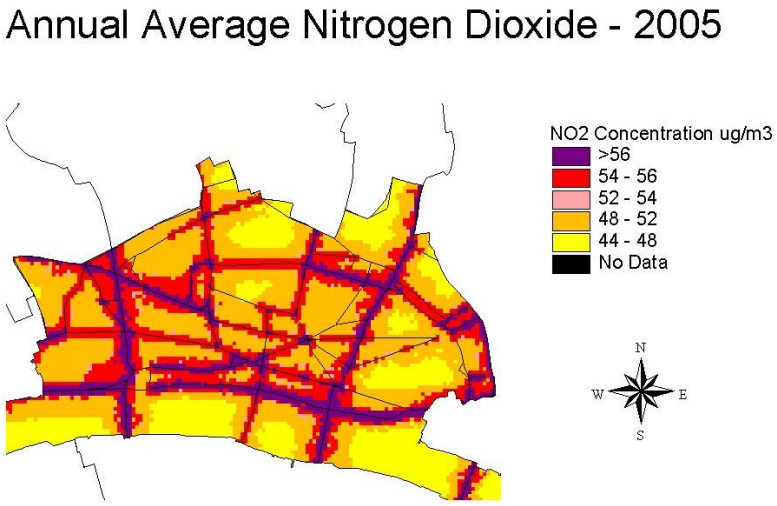

Figure 1.1

The hourly average nitrogen dioxide concentrations (99.79th percentile) are predicted to generally be below the 2005 objective of 200µg/m^3 (not to be exceeded more than 18 times a year), the exception is adjacent to busy roads and road junctions.

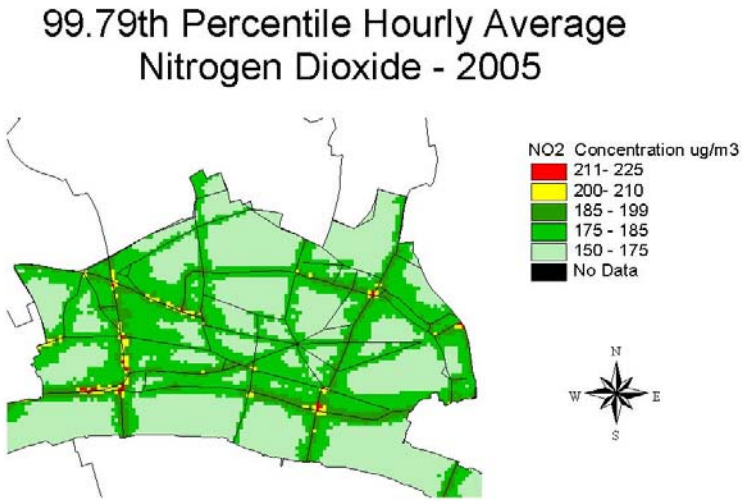

Figure 1.2

The annual average PM_{10} is predicted to be below the 2004 objective of 40µg/m^3 across the whole City, as shown in figure 1.3. However, the Government have recently announced a provisional annual average objective of 23µg/m^3 to be achieved by 2010 in London. Further predictive modelling will be necessary for the City but given the results below, it is likely that the whole of the City will exceed the objective.

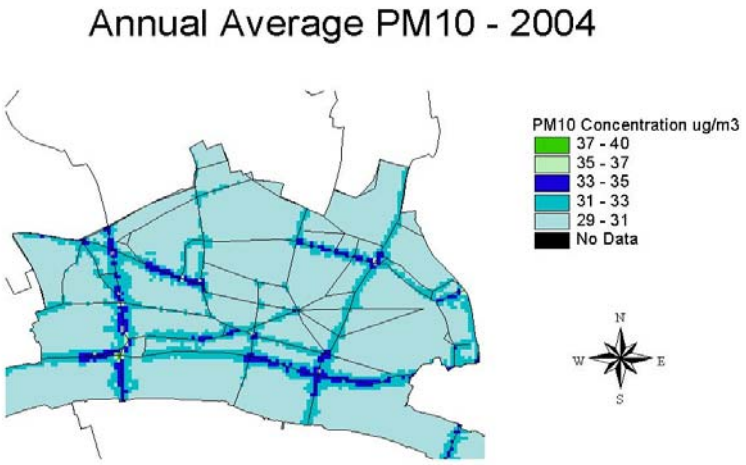

Figure 1.3

The PM_{10} 24-hour objective of 50µg/m³, not to be exceeded more than 35 times in a year is presented as the 90th percentile. The model predicts that air quality objective will be exceeded along the busiest roads and at major road junctions. The Government has also recently announced a provisional standard for this objective: a 24-hour average not exceeding 50µg/m³, more than 10 times in a year to be achieved by 2010 in London. Again, further air quality modeling will have to be undertaken but it is likely that there will be wide exceedences across the City.

The provisional objectives for PM_{10} have been set pending a review by the European Commission of the Stage 2 indicative limit value for particles in the first EU Air Quality Daughter Directive, due to be complete by 2004.

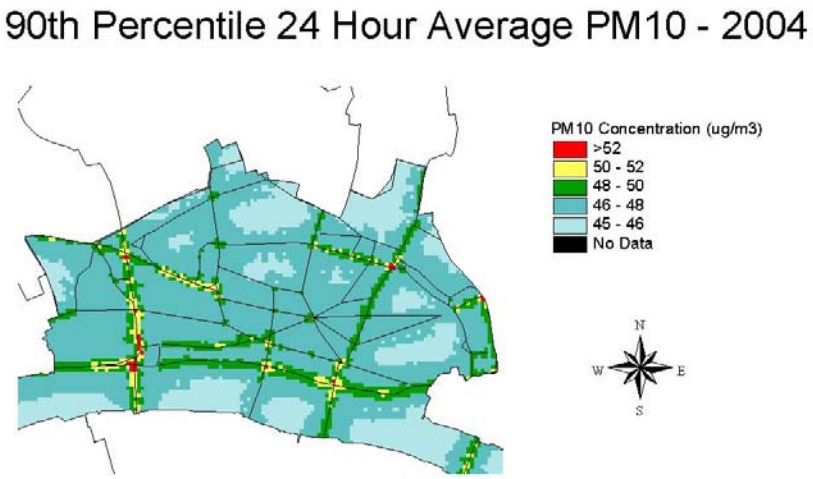

Figure 1.4

1.3 Sources of Pollution Affecting the City

Part of the Stage 4 Review and Assessment was to establish the contribution to air pollution from different sources within and around the City.

At background sites (that is sites away from busy roads) only around a third of Oxides of Nitrogen (NOx) concentrations are generated within the boundaries of the Corporation itself. At roadside sites this increases to 50 or 60%. For PM_{10}, the contribution to the total concentration from within the Corporation is just 5% at background sites, rising to 15% at roadsides. As these results indicate, the City is heavily affected by pollution generated in neighbouring authorities and across London as a whole.

Of the pollution experienced in the City, the main source of NOx is motorised road traffic, followed by commercial and domestic gas use. The vast majority of PM_{10} (around 90%) is 'background' $PM_{10,}$ which is very difficult to deal with at a local level. The next major contributor to PM_{10} concentrations is motorised road traffic.

Of the traffic sources, Heavy Goods Vehicles (HGV's) and cars are the main contributors to NOx with buses being a large contributor in the Fleet Street area. Taxis, cars, HGV's and Light Goods Vehicles (LGV's) all contribute in relatively equal measures to PM_{10} concentrations. Further detailed information can be found in the Corporation of London Air Quality Review Stage 4 and the CERC report 'Source Apportionment for Central London'

2. National and Regional Action to Improve Air Quality

2.1 National Policies

The UK National Air Quality Strategy (NAQS) was published in March 1997 and was revised in 2000. A further Addendum to the Strategy was published in 2003. The strategy describes current and likely future levels of air pollution in the UK and provides a framework to enable the improvement of air quality. The Governments objective for air quality policy in the UK is to ensure that ambient air quality does not cause harm to human health and the environment.

National measures designed to improve air quality include control over industrial pollution, setting national emission and fuel standards and using planning policy.

The Strategy, and all subsequent documents, is open to public consultation. The Corporation of London assesses the draft documents and provides comments to ensure that the air quality problems faced in London are addressed in the final Strategy.

2.2 Greater London Authority

The Greater London Authority consists of a directly elected Mayor and a separately elected London Assembly. It was established in the year 2000, creating strategic, citywide government for London.

The Greater London Authority Act 1999 requires the Mayor of London to publish an Air Quality Strategy for the capital. The Mayor's Air Quality Strategy must include proposals for implementing the policies contained in the National Air Quality Strategy in Greater London.

The Mayor aims to reduce pollution from traffic by reducing the amount of traffic on the road in London through his Transport Strategy. This will be achieved through investment in public transport, congestion charging, appropriate planning and other mechanisms.

The Mayors Air Quality Strategy was published in September 2002. The aim of the strategy is to improve air quality across the whole of London. The proposals in the document for working in pursuit of the achievement of air quality standards and objectives in the Corporation of London Air quality Management Area are outlined in the Strategy, these aim to:

- Increase the number of cleaner vehicles
- Support a feasibility study for one or more low emission zones in London
- Reduce emissions from vehicles operated by or licensed through functional bodies
- Use traffic management infrastructure to reduce emissions
- Reduce emissions from freight movement
- Encourage proper vehicle maintenance and more efficient driving
- 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

The Mayor's strategy includes several proposals that local authorities within London are expected to implement to improve air quality across London. These have been incorporated into this action plan where possible.

Action 1: The Corporation will continue to work with Government departments to ensure that the particular problems faced in London, with regard to air quality, are being adequately addressed.

Action 2: Wherever possible, the Corporation will implement the recommendations in the Mayor's Air Quality Strategy outlined for London local authorities.

3. Action to Reduce Emissions from Vehicles

The Corporation of London Stage 4 Review and Assessment of Air Quality highlights that the main contributor to air pollution in the City is motorised road traffic. The Corporation of London is located at the hub of London's radial road network and so large volumes of motorised traffic, particularly through-traffic, enters the City daily. Through traffic is traffic that doesn't start or finish its journey in the City.

The highest traffic flows are along the Victoria Embankment - Blackfriars Underpass - Upper and Lower Thames Street - Byward Street route running adjacent to the River Thames and which forms part of London's designated road network. This route carries around 70,000 vehicles per day, which results in relatively high levels of pollution, as demonstrated at the Walbrook Wharf monitoring station, Upper Thames Street.

Table 3.1 gives the overall traffic flow composition in the City of London in 1999. In the central core of the City, taxis comprise around 40% of the vehicles.

Vehicle Type	Percentage of total traffic flow
Cars	39.6%
Taxis	22.9%
Buses and Coaches	3.7%
Light goods vehicles	15.3%
Medium goods vehicles	4.3%
Heavy goods vehicles	0.9%
Motor cycles	9.5%
Pedal cycles	3.8%

Table 3.1
(Source: Corporation of London Interim Transport Plan 2001/2002)

Reducing emissions from motor vehicles can be approached in two ways:

- traffic reduction
- and cleaner vehicles.

Traffic reduction and clean vehicle technologies, while directed towards different ends, are essentially complementary in the longer term. Without intervention, motor traffic growth is still predicted to rise within Greater London. Even with the progressive cleaning of vehicle emissions, unrestrained traffic growth could effectively negate the improvement in emissions and air quality by the sheer weight of numbers and increased travel mileage.

3.1 Traffic Reduction

The Corporation of London is obliged by the Road Traffic Reduction Act 1997 to report on traffic levels and unless otherwise justified, set targets for traffic reduction in its area. The Corporation has included a target to reduce motorised road traffic by 10% (from its 1998 level) by 2005. The Corporation of London Interim Transport Plan set out mechanisms including improvements to public transport, the introduction of Clear Zones, congestion charging (implemented by the GLA) and other traffic management measures to achieve this aim. The Corporation of London has undertaken air quality modelling to show the impact of a 10% and a 15% reduction in traffic by 2005. The results are summarised below and further details are available in Appendix C.

Predicted annual average NO_2 concentrations for base and 10% reduction in traffic

Receptor Name	Annual average NO_2 concentration (µg/m³)			
	Base	10% traffic reduction	Difference	% reduction
Barbican	48.9	48.4	0.5	1
Sir John Cass School	50.9	50.3	0.6	1
St Barts Hospital	49.8	49.3	0.5	1
St Pauls Choir School	52.8	52.1	0.7	1
Fleet Street / Fetter Lane	58.5	57.9	0.6	1
Walbrook Wharf	63.5	62.7	0.8	1

Predicted annual average PM_{10} concentrations for base and 10% reduction in traffic

Receptor Name	Annual average PM_{10} concentration (µg/m³)			
	Base	10% traffic reduction	Difference	% reduction
Barbican	29.6	28.9	0.8	3
Sir John Cass School	29.9	29.1	0.8	3
St Barts Hospital	29.7	28.9	0.8	3
St Pauls Choir School	30.4	29.5	0.8	3
Fleet Street / Fetter Lane	31.2	30.4	0.8	3
Walbrook Wharf	33.2	32.2	0.9	3

Predicted annual average NO_2 concentrations for base and 15% reduction in traffic

Receptor Name	Annual average NO_2 concentration (µg/m³)			
	Base	15% traffic reduction	Difference	% reduction
Barbican	48.9	48.1	0.8	2
Sir John Cass School	50.9	50.0	0.9	2
St Barts Hospital	49.8	49.0	0.7	1
St Pauls Choir School	52.8	51.8	1.0	2
Fleet Street / Fetter Lane	58.5	57.7	0.9	2
Walbrook Wharf	63.5	61.7	1.8	3

Predicted annual average PM_{10} concentrations for base and 15% reduction in traffic

Receptor Name	Annual average PM_{10} concentration (µg/m³)			
	Base	15% traffic reduction	Difference	% reduction
Barbican	29.6	28.8	0.8	3
Sir John Cass School	29.9	29.1	0.8	3
St Barts Hospital	29.7	28.9	0.8	3
St Pauls Choir School	30.4	29.5	0.9	3
Fleet Street / Fetter Lane	31.2	30.3	0.9	3
Walbrook Wharf	33.2	31.9	1.3	4

For both scenarios the impact on annual average concentrations of both nitrogen dioxide and PM_{10} will be slight. The impact is predicted to be up to a maximum of a 3% reduction in nitrogen dioxide concentrations and a 4% reduction in annual average PM_{10} concentrations.

The City deals with a migration of around 279,000 commuters coming to work each day. It is already overwhelmingly dependent on public transport for access to and from the area. The vast majority, 91%, of the workforce travel to work by public transport, only 5% travel by car. This leaves very little scope for improving air quality by encouraging commuters onto public transport.

The GLA congestion-charging scheme commenced in February 2003. The Corporation of London is completely within the zone. The congestion charge has reduced traffic volumes in the City, and consequently emissions, however initial indications are that the impact on air quality is very limited. It is hoped that the 100% discount for some alternatively fuelled vehicles may encourage the use of these vehicles in the charge zone and consequently for journeys elsewhere in London. The Corporation of London will continue to monitor nitrogen dioxide and PM_{10} at the current rate to establish whether congestion charging does make a noticeable difference to air quality in the City.

Action 3: The Corporation is committed to reducing motor traffic levels in the City by 10% by 2005.

Action 4: The Corporation of London has undertaken air quality modelling to establish the effect of a 10% and 15% reduction in motor traffic by 2005 in the City.

Action 5: The Corporation of London will continue to monitor pollutants emitted by motor vehicles to establish the effect of the Mayor of London's congestion charging scheme.

3.2 Reduce Emissions from Vehicles

Clean vehicle technology includes new vehicles that comply with more stringent emission standards (Euro Standards), older vehicles fitted with emission reduction technology, and alternatively fuelled vehicles such as those powered by gas or electricity.

The introduction of tighter European Union (EU) vehicle emission standards (Euro Standards) and fuel quality standards since 1993 has been a very important instrument for reducing vehicle emissions and improving air quality. The Euro Standards apply to passenger cars but do not include motorcycles. The standards are:

- Euro 1 - vehicles licensed after 1992. Catalytic converters were introduced for petrol cars; these reduce emissions of oxides of nitrogen by up to 70%.
- Euro 2 – vehicles built after 1996
- Euro 3 - vehicles built after 2000
- Euro 4 - vehicles built after 2005

The projected reduction in emissions for each Euro class is shown in figures 3.2.1 and figure 3.2.2

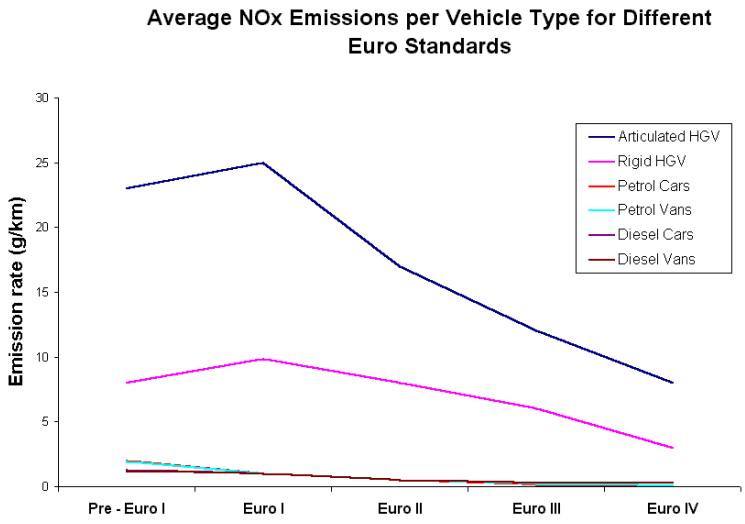

Figure 3.2.1
(Source: Mayor of London Air Quality Strategy)

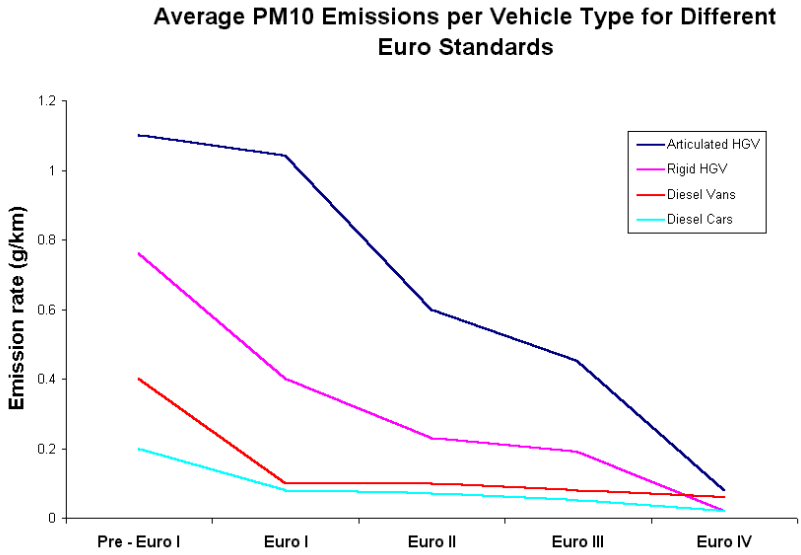

Figure 3.2.2
(Source: Mayor of London Air Quality Strategy)

As vehicles are replaced we are witnessing a gradual reduction in emissions. However, the rate of change to new cleaner vehicles is not fast enough to achieve the air quality objectives for nitrogen dioxide and PM_{10}. The challenge therefore, for reducing air pollution in London, is to accelerate the take up of low emission technologies and remove the most polluting vehicles. One of the key tools in this could be the introduction of a 'Low Emission Zone'.

3.2.1 Low Emission Zone

A Low Emission Zone (LEZ) is a geographical area that bars entry to polluting vehicles that do not comply with set emission standards. Local authorities would be able to enforce this using Traffic Regulation Orders.

A LEZ Feasibility Study Steering Group is currently carrying out a study into the adoption of an LEZ in Greater London. The steering group is made up of representatives from:

The Greater London Authority (GLA),
Association of London Governments (ALG)
London Boroughs,
Transport for London (TfL)
Department for Transport (DfT)
Department of the Environment Food and Rural Affairs (DEFRA),
The National Society for Clean Air (NSCA)
Energy Saving Trust (EST).

The steering group is considering the implementation, operation, air quality impact, viability, costs, benefits and public acceptability of one or more LEZs in London. The findings are expected in Spring 2003.

The other key issues under consideration are:

- The date of introduction: possibilities are 2005, 2007 or 2010 or phased introduction;
- The geographic options: either the North/ South circular, the congestion charging zone or the M25
- Vehicle types: likely to be HGV's, buses, coaches, LGV's, taxis (excluding private cars)
- The best vehicle standards: Euro 2, Euro 3 or Euro 4.

Due to the City being at heart of London it experiences some of worst air pollution in the country. The Stage 4 Review and Assessment has shown that a significant reduction in emissions is necessary to achieve the air quality objectives. On the evidence available so far, the Corporation of London believes that a Low Emission Zone (LEZ) is the only measure that is likely to bring significant improvements to air quality in the City. Consequently, the Corporation of London will strongly support the implementation of an LEZ across London.

There is currently some uncertainty over whether an LEZ will be implemented across London, so the Corporation has undertaken an air quality modelling exercise to see what impact a local LEZ (i.e. .in the City alone) would have on air quality. The results are summarised overleaf and expanded upon in Appendix C.

Euro 2 with particle traps

Predicted annual average NO_2 concentrations for base and Euro 2 with particle traps

Receptor Name	Annual average NO_2 concentration (µg/m³)			
	Base	Euro 2 with particle traps	Difference	% reduction
Barbican	48.9	48.8	0.1	0
Sir John Cass School	50.9	50.7	0.2	0
St Barts Hospital	49.8	49.6	0.1	0
St Pauls Choir School	52.8	52.5	0.3	1
Fleet Street / Fetter Lane	58.5	58.5	0.0	0
Walbrook Wharf	63.5	63.4	0.0	0

Predicted annual average PM_{10} concentrations for base and Euro 2 with particle traps

Receptor Name	Annual average PM_{10} concentration (µg/m³)			
	Base	Euro 2 with particle traps	Difference	% reduction
Barbican	29.6	28.9	0.7	3
Sir John Cass School	29.9	29.1	0.8	3
St Barts Hospital	29.7	28.9	0.8	3
St Pauls Choir School	30.4	29.5	0.9	3
Fleet Street / Fetter Lane	31.2	30.5	0.7	2
Walbrook Wharf	33.2	32.4	0.8	2

Euro 3

Predicted annual average NO_2 concentrations for base and Euro 3

Receptor Name	Annual average NO_2 concentration (µg/m³)			
	Base	Euro 3	Difference	% reduction
Barbican	48.9	48.7	0.2	0
Sir John Cass School	50.9	50.5	0.4	1
St Barts Hospital	49.8	49.5	0.3	1
St Pauls Choir School	52.8	52.2	0.6	1
Fleet Street / Fetter Lane	58.5	58.5	0.0	0
Walbrook Wharf	63.5	63.4	0.1	0

Predicted annual average PM_{10} concentrations for base and Euro 3

Receptor Name	Annual average PM_{10} concentration (µg/m³)			
	Base	Euro 3	Difference	% reduction
Barbican	29.6	28.9	0.8	3
Sir John Cass School	29.9	29.1	0.8	3
St Barts Hospital	29.7	28.9	0.8	3
St Pauls Choir School	30.4	29.4	1.0	3
Fleet Street / Fetter Lane	31.2	30.5	0.7	2
Walbrook Wharf	33.2	32.4	0.8	2

If all vehicles meet Euro 2 standards, with particle traps, the impact on nitrogen dioxide will be negligible, and we would witness a reduction in PM_{10} concentrations of up to 3% at bust roadsides. If all vehicles meet Euro 3 standards, the impact on nitrogen dioxide would again be very slight – up to 1% reduction , and PM_{10} concentrations would reduce by up to 3%. At the time of writing the report we are not aware of the outcome of the London wide LEZ study and so are unable to include any further information or make any recommendations regarding the appropriateness of implementing a LEZ in the City alone.

Action 6: The Corporation of London will support the adoption of a Low Emission Zone across London and work with other London Boroughs and the GLA to implement it.

Action 7: The Corporation of London has investigate the effects on local air quality of introducing a Low Emission Zone in the City alone.

3.2.2 Reducing Emissions from the Corporation's Fleet

The Corporation of London has been gradually increasing the proportion of vehicles in its fleet that run on electricity or Liquid Petroleum Gas (LPG). The Corporation now has a policy that all new small petrol driven vehicles purchased will be dual fuel i.e. capable of running on petrol and LPG. Additionally all large diesel vehicles will be fitted with continuously regenerating particle traps (CRT) and catalytic converters.

Diesel fuel at Walbrook that is used by all Corporation owned City based vehicles is Ultra Low Sulphur Diesel. Consideration will be given to trying out water diesel emulsion in some vehicles in the Corporation fleet, as recommended in the Mayor's Strategy.

The Corporation of London has established a Transport Co-ordinating group that has overall responsibility for vehicle procurement within the Corporation. This group will ensure harmonisation over vehicle replacement both within the Corporation, and also with the City of London Police, as they are represented on this group.

The Corporation proposes several actions to reduce emissions from its own fleet.

Action 8: The Corporation of London will establish a fleet register that include information on emissions for each vehicle.

Action 9: The Corporation of London will implement its vehicle purchasing policy that all new light petrol driven vehicles will be dual fuel. All new large vehicles powered by diesel will be fitted with continuous regenerative traps (CRT) and catalytic converters. The Corporation of London will regularly review the emission reduction technologies available and their costs and benefits.

Action 10: The Corporation will upgrade or replace all vehicles in its fleet by December 2004 to ensure that they comply with Euro3 or Euro 2 plus retrofit technology where technically feasible. It will seek financial assistance from the TransportAction, Energy Saving Trust programme.

Action 11: The Corporation will continue its regular programme of vehicle maintenance and servicing which includes maintenance of some heavy use vehicles every 3-6 months

Action 12: The Corporation will work with the City of London Police to ensure that new vehicles have the lowest possible exhaust emissions, consistent with their operational requirement.

3.2.3 Reducing Emissions from Contractors Vehicles

The Corporation of London is keen to ensure that contractors, that undertake work on its behalf, meet the same standards as those set for the Corporation in relation to their fleet. The Corporation proposes to adopt the policies outlined below to reduce emissions from contractor's vehicles.

Action 13: All new contracts awarded by the Corporation of London will specify that contractor's vehicles must meet Euro II emissions standards as a minimum until December 2004, and Euro III emissions standards as a minimum after December 2004.

Action 14: All new contracts will encourage the use of low and zero emission vehicles.

Action 15: All tenders will be assessed for the environmental performance of the fleet and will be taken into account in the tender evaluation process.

3.2.4 Reducing Emissions from Other Fleet Operators in the City

The Corporation of London encourages best practice in vehicle fleets though the Liveable City Awards. The Liveable City Award scheme was launched in June 2002 and is designed to encourage and recognise companies that lead the way in sustainable business practice. The awards are backed by the Sustainable City Forum and seven of the City's livery companies. Companies are expected to demonstrate commitment to continual improvement in environmental, social and economic performance. One of the award categories is contribution to air quality. The 2002 award for air quality was given to DHL in who operate from Fore Street. Further details of their best practice can be found on the Corporation web site:
www.cityoflondon.gov.uk/living_environment/sustainability/liveable_city_awards.htm.

Action 16: The Corporation will encourage any local organisations to green their fleet through the Liveable City Awards.

3.2.5 Taxis

Twenty three percent of vehicles entering the City are licensed taxis and they make up around 40% of traffic in the central hub. They have a significant impact on local air quality in the City, particularly due to the average age of the stock. The Euro standard breakdown of taxi fleets as of June 2002 taken from the Mayor's Air Quality Strategy, is given below. The operating life of a taxi can be as long as 15 years.

Emission criteria	Pre-Euro1	Euro 1	Euro 2	Euro 3	Total
Number	5,289	9,033	5,139	690	20,160
Percentage	26.3%	44.8%	25.5%	3.4%	100%

The Corporation recognises that a shortage of taxi ranks can lead to licensed taxis driving around plying for hire, so increasing pollution. There are currently 31 taxi ranks in the City; the Corporation will seek to provide more. The impact that taxis have on local air quality is recognised in the City of London Unitary Development Plan 2002. The plan states that initiatives which could help reduce the environmental dis-benefits of taxis such as vehicle technology improvements, low or zero emission zones and taxi-sharing schemes will be encouraged. The policy is

> *To assist taxi movements, where appropriate and practicable, within traffic management schemes and to encourage measures to reduce the environmental impact of taxis*.

The Public Carriage Office, now part of Transport for London, regulates London's taxis. Taxi owners must apply for a new licence every year. The Mayor has outlined a set of actions to reduce emissions from taxis, which will be implemented in phases:

- Phase 1: All new taxis will have to meet Euro 3 emissions criteria
- Phase 2: Any existing vehicle will have to meet Euro 1 to be licensed
- Phase 3: No pre Euro 2 vehicle will be given a license

The implementation date of Phases 2 and 3 has yet to be decided. The Corporation is keen to encourage the GLA to improve emissions from taxis through the licensing system. Following the release of the Mayor's Air quality Strategy the Corporation urged the Mayor to take a more proactive role in controlling taxi emissions.

Action 17: The Corporation will implement the policy in the City of London Unitary Development Plan to reduce emissions from taxis by assisting appropriate taxi movements within traffic management schemes and by encouraging other measures.

Action 18: The Corporation will continue to seek to facilitate the provision of as many taxi ranks as practicable in the City to reduce the need to ply for hire.

Action 19: The Corporation will continue to encourage the GLA to effectively control emissions from taxis through the licensing system.

3.2.6 Clear Zones

A clear zone is an area where traffic congestion, pollution, noise and other negative impacts on mobility are eliminated. The aims of a Clear zone are:

- Creation of low emission areas and working towards EU/UK air quality objectives
- Creation of motor traffic free areas and reduce motor traffic levels
- Improve access through the promotion of walking, cycling and public transport
- Promote car free lifestyles
- Improve the quality of areas accessible to the public
- Sustainable development based on continuing economic vitality, improving environmental quality and enhanced quality of life.

In the year 2000 the Corporation was presented with a Clear Zone Award for the 'City Traffic and Environmental Zone'. This is an area wide traffic management scheme, which was implemented in 1993. At the time it was commonly referred to as the 'ring of steel' because it had not only objectives of improving the street environment, but also gave the City Police a surveillance capability in response to terrorist activity in the early 1990's. The essence of the scheme is that access into the Zone for general traffic has been restricted to eight entry points compared to the previous 33 possible entry points allowed by the then dense network of heavily trafficked streets. This has been accomplished by means of 19 full street closures, 3 half closures, 7 new one-way streets, 2 banned turns and 2 streets with access restricted to certain classes of vehicle. The zone was made permanent and completed in its permanent form in 1997

The scheme has resulted in a considerable improvement to the environment for pedestrians by making streets significantly quieter and safer than previously. The scheme has also brought significant benefits to local traffic circulation by reducing the through traffic, which previously conflicted with access and the many bus routes. It was estimated that vehicle emissions within the zone were reduced by 15%. Further details can be found at www.clearzones.org.uk.

The Corporation of London is now in partnership with the London Borough of Camden and the City of Westminster in the development of further clear zone initiatives. The three authorities have jointly identified a Clear Zone area and have made a bid via the Borough Spending Plan for funding for various schemes across the three authorities. Further details can be found in the Corporation of London Borough Spending Plan 2003-2004.

Action 20: The Corporation of London will continue to work with Camden and Westminster on a joint Clear Zone project.

3.2.7 Vehicle Emission Testing

Roadside testing has been carried out by the Vehicle Inspectorate since November 1994 under regulation 61 of the Road Vehicle (Construction and Use) Regulations 1986 which lay down maximum permitted levels of emission of regulated pollutants from vehicles. The Vehicle Inspectorate mainly tests heavy goods vehicles, buses and coaches.

The City of London Police carry out informal vehicle emission testing in the City on a regular basis. They test a variety of vehicles, including private cars and taxis, and if the vehicle fails the standard the owner is advised to rectify the problem.

In August 2002, the Corporation of London was formally granted powers to stop and test vehicles under the Road Traffic (Vehicle Emissions) (Fixed Penalty) (England) Regulations 2002. The regulations came into force on 18 July 2002. The purpose of the scheme is to improve air quality in the City by helping to ensure that pollutants emitted from vehicle engines are kept to an absolute minimum. The scheme is designed to encourage owners to have their vehicles properly and regularly serviced in accordance with manufacturer recommendations.

Failing the emissions test will result in a fixed penalty notice of £60. The fine can be reduced or waived if certain criteria are met. Concessions will be available if the vehicle defect is corrected within 2 weeks and/or the vehicle has passed an approved emissions test within the previous three months.

The Association of Local Government (ALG) has established a working group with a view to creating a London wide vehicle emission testing programme and obtain funding for this from the Department of Transport. The scheme relies on the Police, as, at the moment, they are the only authority that has powers to stop vehicles. As the City has its own Police force, the Corporation of London will arrange for the emissions testing to be carried out with the City of London Police but will co-ordinate the programme with the ALG proposals. The emissions testing programme is due to commence in July 2003.

The Road Traffic (Vehicle Emissions) (Fixed Penalty) (England) Regulations 2002 also introduce controls for requiring drivers to switch engines off when vehicles are parked. The Corporation of London will enforce these controls from Autumn 2003.

Action 21: The Corporation of London has successfully applied for powers to enforce emission standards at the roadside. The powers will be used from July 2003 in conjunction with the City of London Police. The scheme will be co-ordinated with the rest of London.

Action 22: The Corporation of London will enforce the regulations requiring drivers to switch off idling engines from Autumn 2003.

3.2.8 Refuelling Infrastructure

Providing the refuelling infrastructure for alternatively fuelled vehicles is an important part of establishing these fuels in the vehicle fleet. The Corporation has already provided free recharging facilities for electric vehicles in some of its off street car parks.
There are no obvious sites for installing other forms of alternative refuelling points in the City, as there are no filling stations. Walbrook Wharf, the only depot in the City, has already been assessed for use as a Liquid Petroleum Gas refuelling facility, and was considered to be unsuitable.

It is unlikely that there will be specific sites available for alternative refuelling due to the density of development and the current commercial value of the land, however the Corporation will, together with Transport Action, investigate whether there are any such sites. The London Clean Fuel Working Group has been established to provide London wide guidance on alternative refuelling sites. The Corporation will consider any recommendations made by the group.

Action 23: The Corporation will, together with TransportAction, identify any appropriate sites for alternative refuelling infrastructure in the City. It will also consider any recommendations made by the London Clean Fuel Working Group on alternative refuelling sites.

3.3 Other Traffic Management Measures

3.3.1 City Timed Access Pilot Scheme

The Corporation of London has, in the Borough Spending Plan 2003 – 2004, submitted a request for the funding of a City Timed Access pilot scheme. It is scheduled to commence in the financial year 2006/2007, the outcome of the bid will not be known until 2005. City Timed Access involves closing certain busy pedestrian areas to all motorised traffic at specific times of the day. This should lead to local improvements in air quality. Six areas have been earmarked for timed access as shown in figure 3.3.3.

The scheme would not be implemented until after the compliance date for the air quality objectives. The Corporation of London has undertaken air quality modelling to establish the impact of City Timed Access on local air quality. The results are summarised overleaf and expanded upon in Appendix C. The impact on air quality is predicted to be negligible.

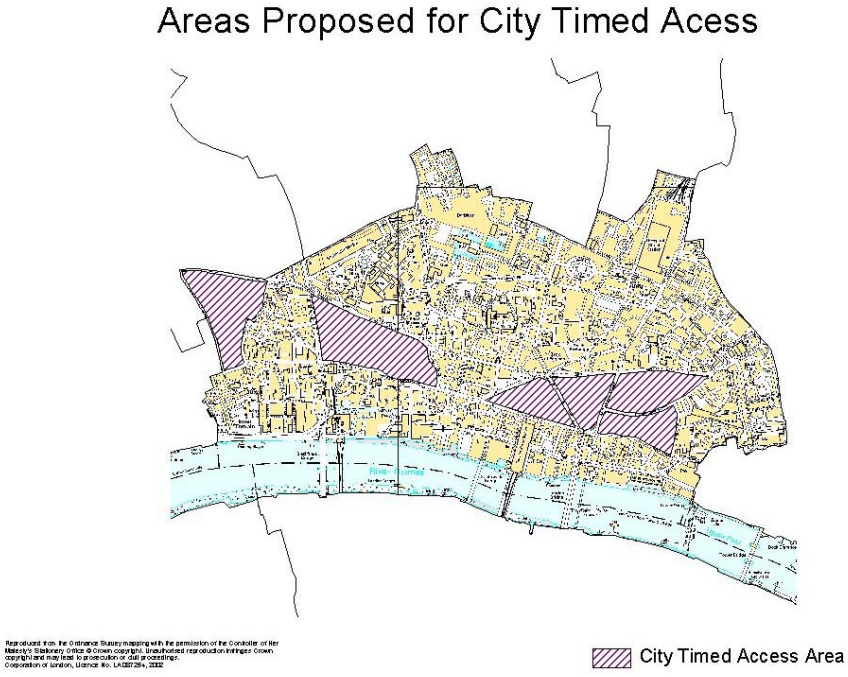

Figure 3.3.3

Action 24: The Corporation has undertaken air quality modelling to establish the effects on local air quality of limiting motorised traffic in the City Timed Access areas.

3.3.2 Safe Routes to School

Safe routes to school projects encourage and enable children to walk and cycle to school through a combined package of practical and educational measures. These projects reduce traffic congestion and pollution. The City of London has four main schools within its boundaries: City of London Boys, City of London Girls, St Paul's Choir School and Sir John Cass School. The majority of children travel to the schools from outside the City by public transport and complete the journey by walking. The Corporation recently submitted a bid for funding for its Safe Routes to School programme and has been awarded £50,000 by Transport for London for the 2003/2004 financial year.

Action 25: The Corporation will implement its Safe Routes to Schools programme to further encourage walking and cycling to school in the City.

3.3.3 Parking

Parking controls can be very influential in discouraging certain types of traffic from entering the City, if the journey terminates there. The Corporation has a policy of discouraging commuting into the City by car, by limiting the number of on and off street parking available and having pricing policies that favour short stay use. The Corporation provides free parking for electric vehicles in both public off-street car parks and on-street parking bays.

The City of London Unitary Development Plan 2002 has several policies that will lead to the reduction in parking available in the City and consequently an improvement in local air quality:

> *To oppose the use of land and buildings as temporary car parks*
>
> *To resist the provision of private non-residential parking in excess of current planning standards.*
>
> *To encourage change of use from private off-street non-residential parking for cars to other uses.*
>
> *To resist the provision of off-street parking in new residential development in excess of current planning standards (*currently one unit per two dwellings)*, and to remove on-street residents parking*

Action 26: The Corporation will continue to discourage car trips into the City by effective management of on and off street parking.

Action 27: The Corporation will implement the policies contained in the City of London Unitary Development Plan 2002 to limit parking for motor vehicles in the City.

3.3.4 Cycling

The proportion of pedal cyclists in the City is higher than anywhere else in London. Virtually all of it has a business function.

The Corporation is keen to promote cycling as a more sustainable, environmentally friendly mode of transport and as such gives special attention to the needs of pedal cycling in the design and implementation of traffic management schemes.

The Corporation recognises the need for a step-change in provision for cycles and supports the high quality routes of the London Cycle Network Plus (LCN+).

Action 28: The Corporation will continue its support for cycling in the City though the Draft City of London Cycling Plan and the London Cycle Network Plus (LCN+).

Action 29: The Corporation will seek the provision of high quality, secure cycle parking facilities by requiring the provision of parking space for cycles in development schemes, maintaining an adequate overall number of spaces for cycles in public off-street car parks, and providing an increased supply of cycle parking facilities on-street

3.3.5 Walking

The density of activities in the City makes walking the most convenient way to travel around the City. Many business journeys within the City are on foot. Additionally most journeys to the City using other forms of transport are completed on foot.

The Corporations Traffic and Environmental Zone at the heart of the City has been very successful in improving the quality of the environment within the city. The Corporation has developed a programme for improving pedestrian facilities, including improvements to rights of way, provision of pedestrian refuges and installation of pedestrian phases at signal controlled junctions.

Action 30: The Corporation will continue to work closely with its neighbouring local authorities to develop an appropriate network of strategic pedestrian routes to serve the needs of inner and central London.

Action 31: The Corporation will ensure that pedestrians are adequately provided for when new developments are proposed.

3.3.6 Areas of Local Concern

Beech Street Tunnel

Beech Street is a short tunnel near the Barbican that is frequently used by pedestrians and is on the proposed London Cycle Network route. There has been ongoing concern about the quality of air within the tunnel so the Corporation of London monitors nitrogen dioxide, carbon monoxide and PM_{10} in the tunnel. The Corporation of London Department of Technical Services in March 2002 commissioned a detailed study of the air quality. The report concluded that the air quality in the tunnel differed very little to that outside, however it was agreed that warning notices will be placed at the entrances to the tunnel to alert the public when levels of pollution in the tunnel are likely to be high.

Sir John Cass School

Concern has been expressed about the air quality at Sir John Cass School in Aldgate. The school is situated adjacent to a busy road network. As a consequence, particulate and nitrogen dioxide monitors have been installed in the main school playground. The results show that the school experiences similar problems with regard to air quality as the rest of the City and the air quality problem is City wide rather than limited to specific locations. This document contains no specific measures to improve air quality in this area; rather it is hoped that the measures outlined in this action plan will improve the air quality over the City as a whole.

3.4 Land Use Planning

The land use planning system regulates the development of land and, through determining the location and design of new developments, it can lead to long term improvements in air quality. Planning decisions in the City are based on the Unitary Development Plan (UDP), this reflects national and regional policy.

The City of London Unitary Development Plan 2002 has several policies that will lead to improvements in air quality in the City. The following policies are in addition to policies on parking and taxis as previously detailed in this document:

Strategic policy STRAT 10F specifically deals with air quality:

> *To improve air quality in the City and work with other Boroughs to reduce air pollution in Central London.*

Strategic Policy STRAT 9D deals with traffic reduction to which will lead to improvements in air quality.

> *To work with appropriate highways authorities and other bodies to achieve a reduction of through traffic and commuting by car, and consequently a reduction in overall levels of traffic, in order to allow for more efficient public transport operations and improve air quality, the general environment and safety.*

Several other local policies will assist in improving air quality long term:

Policy ENV 33

> *To protect the amenity in and around buildings by resisting development likely to produce offensive noise, air pollution, surface and underground water pollution or other adverse environmental conditions.*

Policy TRANS 14

> *To assess the transport implications of development proposals and, where appropriate, to require transport impact assessments.*

This could include the requirement for Travel Plans which are designed to promote walking, cycling and the use of public transport and to develop more environmentally friendly delivery and freight movements.

Policy TRANS 8

> *To seek the reduction of through traffic entering the City and to encourage measures to restrain the use of motor vehicles, especially commuting by car.*

Action 32: The policies outlined in the City of London Unitary Development Plan 2002 will be implemented to assist in the improvement of air quality in the City.

Action 33: The next review of the Unitary Development Plan will incorporate the Corporation of London Air Quality Action Plan.

Action 34: Where necessary, appropriate conditions will be applied to planning approvals to protect, and where possible improve, local air quality. This may include a requirement to undertake air quality assessments.

3.5 Actions to Reduce Emissions from Non-Road Traffic Sources

3.5.1 Industrial Sources

The Environmental Protection Act 1990 introduced new controls over industrial operations with significant air pollution potential. The Environment Agency was given the responsibility of regulating larger industries such as power stations. Local authorities regulate less polluting operations such as vehicle respraying and petrol stations. There are no industrial operations in the City that come within this control.

3.5.2 Energy Conservation

The nearest major industrial operation to the City is a Combined Heat and Power (CHP) station in the London Borough of Islington. The system is operated by Citigen (London) Ltd and is located in Charterhouse Street, EC1. The power station is supported by the Corporation and regulated by the Environment Agency. The Stage 4 review and Assessment considered the contribution Citigen makes to pollution at various locations in the City and concluded that it is very small (less than 0.5% of the total).

Combined Heat and Power systems capture and utilise heat that would normally be wasted in power generation plants. This high energy-efficiency reduces the amount of pollutants that ultimately are released to air. The City of London CHP system provides hot and chilled water to a number of Corporation and non-Corporation properties in the City for heating and air-conditioning. Citigen supplies twenty seven percent of the Corporations heating and a high proportion of the Corporations cooling needs. It also supplies electricity to the local London Electricity grid. The CHP system was originally conceived in the late 1980's by the Corporation of London. The Corporation felt there was a good opportunity to take a lead in developing a large-scale system to serve the City, and the Corporations buildings would provide suitable heat loads for the initial stages of development. It has been estimated that the CHP system saves 7,000 tonnes per year of carbon dioxide that would be released directly from Corporation properties. The Corporation is actively trying to expand the number of buildings that are served by the power station.

In addition to CHP, 40% of electricity used by the Corporation is from renewable sources such as wind-farms, hydroelectric power, landfill gas and energy from waste.

Action 35: The Corporation of London will continue with its policy of promoting the efficient use of energy, the development of Combined Heat and Power (CHP) generation, and encourage the use of renewable energy.

3.5.3 Heating Emissions

Emissions from heating (commercial and domestic) contribute up to 25% of the NOx in the City in 2005. As vehicle emissions decline these sources may become relatively more significant. Improving energy efficiency reduces the need to burn gas, which in turn reduces pollution. Where electric heating is displaced, the need to burn fossil fuels in power stations is reduced hence reducing pollution elsewhere.

The Corporation of London is well established in reducing pollution from boilers in the City. The City of London Various Powers Act 1971 prohibits the burning of 'sulphurous fuel' in all new boilers in the City. Sulphurous fuel was defined as fuel in which the weight of sulphur exceeded 1% of the weight of the oil. As far as the Corporation is aware there are no boilers left in the City that burn heavy fuel oil.

A new European Union directive on the energy performance of buildings will provide an opportunity to improve the efficiency of heating installations across the City. All boilers and heating and cooling installations over 15 years of age will be subject to a mandatory inspection and advice will be given on measures to reduce energy consumption

In the development phase of buildings, careful consideration of building orientation, layout, infrastructure and eventual use can lead to significant energy savings The City of London Unitary Development Plan contains a policy for encouraging energy conservation in new buildings:

> *To encourage more sustainable production, supply and use of energy by improved building design, increased efficiency and conservation, and the greater use of renewable energy sources.*

The Corporation will encourage applicants proposing more than 50,000 square metres of floor space to submit an energy statement based on the approach set out in the Corporations Energy Code of practice.

The Mayor of London will publish his draft energy strategy later this year, the Corporation will seek to include any further measures from the strategy that help improve the energy efficiency of buildings.

Action 36: The Corporation will implement the policy in the Unitary Development Plan to encourage energy conservation in new buildings

3.5.4 Smoke Control / Bonfires

The Corporation recognised long ago the impact that bonfires can have on local air quality. In 1954, the Corporation designated the whole of the City a 'smokeless zone' under the City of London Various Powers Act.

Action 37: The Corporation will continue to enforce the City of London Various Powers Act 1954 to prohibit bonfires and other dark smoke emitted from any premises in the City.

3.5.5 Demolition / Construction Sites

At any given time there are many demolition (deconstruction) and construction sites in the City, at the time of writing this report there are approximately 70. These sites contribute to local PM_{10} concentrations, although the amount is very difficult to quantify. The Corporation of London has recognised this and has recently developed its own Code of Practice for Construction Sites. A copy can be obtained from the Department of Environmental Services. The Code of Practice makes several recommendations for dust minimisation and will be distributed to site operators throughout the City.

Action 38: The Corporation of London will require all developers in the City to adopt its Code of Practice for Deconstruction and Construction Sites to reduce dust emissions.

3.6 Raising Awareness and Promoting Air Pollution Issues

One of the Corporation air quality monitoring sites, Senator House, is part of the London Air Quality Network (LAQN). The LAQN was formed in 1993 to co-ordinate and improve air pollution monitoring in London. The LAQN is facilitated by the Association of London Government on behalf of the thirty-three London Boroughs and is operated and managed by the Environmental Research Group (ERG) at King's College London. The web site address is www.erg.kcl.ac.uk/london/asp/home.asp

The Corporation of London has a web site www.cityoflondon.gov.uk. To date, air quality information has not been available on this site. The Environmental Services department will develop the web site and include information on air quality monitoring and management in the City as part of a commitment to sharing information.

Action 39: The Corporation will continue to be a member of the London Air Quality Network.

Action 40: The Corporation of London will develop its web site to include information on air quality in the City.

3.7 Action with Other Organisations

The Corporation of London is part of the central London Air Quality Cluster Group that has been established to ensure close working on issues of air quality in central London. The group meets once per month and has undertaken several joint projects on air quality management. The cluster group is the ideal forum to exchange ideas and work together on joint schemes to improve air quality. The Authorities involved are:

- Corporation of London
- City of Westminster
- London Borough of Camden
- London Borough of Hackney
- London Borough of Islington
- Royal Borough of Kensington & Chelsea
- London Borough of Lambeth
- London Borough of Southwark

The Corporation is a corporate member of the National Society for Clean Air (NSCA) and takes an active roll in the work of the southeast division. The Corporation also takes an active roll in the NSCA Cleaner Transport Forum, which was formed in 1997. It draws together a range of bodies interested in cleaner automotive fuels and cleaner transport issues. Much of their work has focused on Low Emission Zones as a means of addressing air quality issues. Further details can be found at www.nsca.org.uk/lez.htm.

Action 41: The Corporation will continue working with neighbouring local authorities, and the NSCA in order to encourage and promote improvements in air quality throughout central London.

3.8 Investment in Monitoring

Following the declaration of an Air Quality Management Area in January 2001, air quality monitoring in the City was reviewed. The overall strategy has been to increase the monitoring of nitrogen dioxide and PM_{10} whilst continuing to monitor other pollutants, to ensure continuing compliance with the other objectives. Table 3.8 gives a summary of the monitoring that is currently undertaken in the City using continuous analysers.

Monitoring Site	Site Classification	Nitrogen Dioxide	Fine Particles (PM_{10})	Carbon Monoxide	Sulphur Dioxide	Ozone
Beech Street	Roadside	✓	✓	✓		
Walbrook Wharf	Roadside	✓		✓		
Senator House	Urban background	✓			✓	✓
Farringdon Street	Kerbside	✓	✓			
Sir John Cass School	Urban Background	✓	✓			

Table 3.8

The Corporation also monitors benzene and nitrogen dioxide at various locations in the City using passive diffusion tubes. See the Corporation of London Stage 4 Review and Assessment for further details.

Action 42: The Corporation will continue with its commitment to Air Quality Monitoring and regularly review the monitoring needs of the City

3.9 Stakeholders

This document outlines action that the Corporation of London is already taking and will undertake over the next few years in the quest to improve air quality in the City. Stakeholders have been given the opportunity to comment during a three-month consultation period. A list of consultees and method of consultation is given in Appendix E. The Corporation is very grateful to all individuals and organisations that provided constructive criticism on the draft plan and, where appropriate, comments have been incorporated into this document. The Corporation welcomes all further contributions as actions progresses, and we witness a gradual improvement of air quality. An Action Plan progress report will be published in April 2004 detailing the outcome of work that has been undertaken.

3.10 Implementation

A copy of this action plan will be going to the following committees to ensure that the actions outlined will be implemented:

- Port Health & Environmental Services
- Planning and Transportation Committee
- Traffic Management Sub Committee of Planning and Transportation Committee

These Committees provide the main forum for debate and agreeing action on environmental issues and policies implemented by the Corporation of London. Following on from their deliberation the draft plan may proceed in addition to further committees where there is a need for more general policy debate or allocation of funds including: -

- Policy and Resources Committee
- Finance Committee
- Court of Common Council of Corporation of London

The Action Plan is available on the Corporation of London web site
www.cityoflondon.gov.uk

4. Summary of Actions

The following table outlines the actions proposed, whether they are new or existing, who is responsible for the implementation and the source of funding. It also gives a target date and the likely impact on air quality. The likely impact on air quality has been banded into low, medium and high. Low denotes a likely improvement of less than 0.2 microgrammes per cubic metre, medium an improvement of 0.2 to 1 microgrammes per cubic metre and high of more than 1 microgramme per cubic metre.

The table also includes the cost-effectiveness of each action. It takes into account the social, environmental and economic effects of the actions. This has been graded as low, medium or high where an action is expensive to implement (both in monetary and other terms) and will have little effect on improving the air quality; the cost-effectiveness is assumed to be low. Where an action is already in place, or costs very little to implement, the cost effectiveness is assumed to be high.

Action	New / Existing	Who responsible	Target date	Pollutants affected	Likely impact on air quality	Funding	Cost effectiveness
The Corporation will continue to work with Government departments to ensure that the particular problems faced in London, with regard to air quality, are being adequately addressed.	Existing	National Government	Ongoing	All	Unknown	Corporation of London	High
Wherever possible, the Corporation will implement the recommendations in the Mayor's Air Quality Strategy outlined for London local authorities	New	Corporation of London	Various	NOx, PM_{10}	Low/Med	Corporation of London	Medium
The Corporation is committed to reducing traffic levels in the City by 10% by 2005.	Existing	Corporation of London	2005	NOx, PM_{10}	1% reduction	Corporation of London, GLA	Unknown
The Corporation of London has undertaken an air quality modelling exercise to establish the effect of a 10% and 15% reduction in traffic by 2005 in the City.	New	Corporation of London	January 2003	NOx, PM_{10}	To be determined	Corporation of London	Medium
The Corporation of London will continue to monitor pollutants emitted by road vehicles to establish the effect of the Mayor of London's congestion charging scheme	Existing	Corporation of London	Ongoing	NOx, PM_{10}	N/A	Corporation of London	High
The Corporation of London will support the adoption of a Low Emission Zone across London and work with other London Boroughs and the GLA to implement it.	New	GLA, TfL, DfT, ALG, LBs, DEFRA	Unknown	NOx, PM_{10}	To be determined	Corporation of London, London Boroughs, GLA	Unknown
The Corporation of London has investigated the effect on local air quality of introducing a Low Emission Zone in the City alone.	New	Corporation of London	January 2003	NOx, PM_{10}	To be determined	Corporation of London	Unknown
The Corporation of London will establish a fleet register that include information on emissions for each vehicle.	New	Corporation of London	2003	NOx, PM_{10}	N/A	Corporation of London	Low

Action	New / Existing	Who responsible	Target date	Pollutants affected	Likely impact on air quality	Funding	Cost effectiveness
The Corporation of London will implement its vehicle purchasing policy that all new light petrol driven vehicles will be dual fuel. All new large vehicles powered by diesel will be fitted with CRT and catalytic converters.	Existing	Corporation of London	Ongoing	NOx, PM_{10}	Low/Med	Corporation of London	Medium
The Corporation will upgrade or replace all vehicles in its fleet by December 2004 to ensure that they comply with Euro3 or Euro 2 plus retrofit technology. It will seek financial assistance from the TransportAction, Energy Saving Trust programme	New	Corporation of London	Dec 2004	NOx, PM_{10}	Low/Med	Corporation of London	Medium
The Corporation will continue its vehicle maintenance programme of servicing vehicles every 3-6 months	Existing	Corporation of London	Ongoing	NOx, PM_{10}	Low	Corporation of London	Low
The Corporation will work with the City of London Police to ensure that new vehicles have the lowest possible exhaust emissions, consistent with their operational requirement.	New	City of London Police	Ongoing	NOx, PM_{10}	Low/Med	City of London Police	Medium
All new contracts awarded by the Corporation of London will specify that contractor's vehicles must meet Euro II emissions standards as a minimum until December 2004 and Euro III emissions standards as a minimum after December 2004.	New	Corporation of London	Jan 2003	NOx, PM_{10}	Low/Med	Corporation of London, and contractors	High
All new contracts will encourage the use of low and zero emission vehicles	New	Corporation of London	Jan 2003	NOx, PM_{10}	Low/Med	Corporation of London and contractors	High
All tenders will be assessed for the environmental performance of the fleet and will be taken into account in the tender evaluation process	New	Corporation of London	Jan 2003	NOx, PM_{10}	Low/Med	Corporation of London and contractors	High
The Corporation will encourage any local organisations to green their fleet through the Liveable City Awards	Existing	Corporation of London	Ongoing	NOx, PM_{10}	Low/Med	Corporation of London	High

Action	New / Existing	Who responsible	Target date	Pollutants affected	Likely impact on air quality	Funding	Cost effectiveness
The Corporation will implement the policy in the City of London Unitary Development Plan to reduce emissions from taxis	Existing	Corporation of London	Ongoing	NOx, PM_{10}	Low	Corporation of London	High
The Corporation will continue to seek to facilitate the provision of as many taxi ranks as practicable in the City to reduce the need to ply for hire.	Existing	Corporation of London	Ongoing	PM10	Low	Corporation of London	Low
The Corporation will continue to encourage the GLA to effectively control emissions from taxis through the licensing system.	Existing	GLA	Ongoing	PM10	Med/High	GLA	High
The Corporation of London will continue to work with Camden and Westminster on a joint Clear Zone project		Corporation of London, LB Camden, Westminster	Ongoing	NOx, PM_{10}	Low	Corporation of London, neighbouring authorities	Low
The Corporation of London has successfully applied for powers to enforce emission standards at the roadside. The powers will be used from July 2003 in conjunction with the City of London Police. The scheme will be co-ordinated with the rest of London.	New	Corporation of London and City of London Police	mid 2003	NOx, PM_{10}	Low	DTLR	Low
The Corporation of London will enforce the regulations requiring drivers to switch off idling engines from Autumn 2003.	New	Corporation of London	Jan 2003	NOx, PM_{10}	Low	Corporation of London	Low
The Corporation will, together with TransportAction, identify any appropriate sites for alternative refuelling infrastructure in the City. It will also consider any recommendations made by the London Clean Fuel Working Group on alternative refuelling sites.	New	Corporation of London and Transport Action	April 2003	NOx, PM_{10}	Low	Corporation of London. TransportAction	Medium
The Corporation has undertaken air quality modelling to establish the effects on local air quality of limiting traffic in the City Timed Access areas.	New	Corporation of London	January 2003	NOx, PM_{10}	Low	Corporation of London	Low

Action	New / Existing	Who responsible	Target date	Pollutants affected	Likely impact on air quality	Funding	Cost effectiveness
The Corporation will implement its Safe Routes to Schools programme to further encourage walking to school in the City	New	Corporation of London	2003	NOx, PM_{10}	Low	Borough Spending Plan	Medium
The Corporation will continue to discourage car trips into the City by effective management of on and off street parking	Existing	Corporation of London	Ongoing	NOx, PM_{10}	Low	Corporation of London	High
The Corporation will implement the policies contained in the City of London Unitary Development Plan 2002 to limit parking in the City	Existing	Corporation of London	Ongoing	NOx, PM_{10}	Low	Corporation of London	High
The Corporation will continue its support for cycling in the City though the Draft City of London Cycling Plan and the London Cycle Network Plus (LCN+)..	Existing	Corporation of London	Ongoing	NOx, PM_{10}	Low	Borough Spending Plan	High
The Corporation will seek the provision of high quality, secure cycle parking facilities by requiring the provision of parking space for cycles in development schemes, maintaining an adequate overall number of spaces for cycles in public off-street car parks, and providing an increased supply of cycle parking facilities on-street.	Existing	Corporation of London	Ongoing	NOx, PM_{10}	Low	Corporation of London	High
The Corporation will continue to work closely with its neighbouring local authorities to develop an appropriate network of strategic pedestrian routes to serve the needs of inner and central London	Existing	Corporation of London and neighbouring authorities	Ongoing	NOx, PM_{10}	Low	Corporation of London	Medium
The Corporation will ensure that pedestrians are adequately provided for when new developments are proposed.	Existing	Corporation of London	Ongoing	NOx, PM_{10}	Low	Corporation of London	Low
The policies outlined in the City of London Unitary Development Plan 2002 will be implemented to assist in the improvement of air quality in the City.	Existing	Corporation of London	Ongoing	NOx, PM_{10}	Low/Medium	Corporation of London	Medium
The next review of the Unitary Development Plan will incorporate the Corporation Air Quality Action Plan.	New	Corporation of London	2007	NOx, PM_{10}	Medium/High	Corporation of London	High

Action	New / Existing	Who responsible	Target date	Pollutants affected	Likely impact on air quality	Funding	Cost effectiveness
Where necessary, appropriate conditions will be applied to planning approvals to protect, and where possible improve, local air quality. This may include a requirement to undertake air quality assessments	New	Corporation of London and developers	Ongoing	NOx, PM_{10}	Low/Medium	Corporation of London	Medium
The Corporation of London will continue with its policy of promoting the efficient use of energy, the development of Combined Heat and Power (CHP) generation, and encourage the use of renewable energy.	Existing	Corporation of London	Ongoing	NOx, PM_{10}	Low/Medium	Corporation of London	High
The Corporation will implement the policy in the Unitary Development Plan to encourage energy conservation in new buildings	Existing	Corporation of London	Ongoing	NOx, PM_{10}	Low/Medium	Corporation of London	Medium
The Corporation will continue to enforce the City of London Various Powers Act 1954 to prohibit bonfires and other dark smoke emitted from any premises in the City.	Existing	Corporation of London	Ongoing	PM_{10}	Medium	Corporation of London	High
The Corporation of London will require all developers in the City to adopt its Code of Practice for Deconstruction and Construction Sites to reduce dust emissions.	New	Corporation of London. Construction and demolition companies	October 2002	NOx	Medium	Corporation of London	High
The Corporation will continue to be a member of the London Air Quality Network.	Existing	Corporation of London. ERG	Ongoing	NOx, PM_{10}	Low	Corporation of London	Low
The Corporation of London will develop its web site to include information on air quality in the City.	New	Corporation of London	April 2003	NOx, PM_{10}	Low	Corporation of London	Medium
The Corporation will continue working with neighbouring local authorities, and the NSCA in order to encourage and promote improvements in air quality throughout central London.	Existing	Corporation of London. Neighbouring authorities, NSCA	Ongoing	NOx, PM_{10}	Low	Corporation of London	Medium

Action	New / Existing	Who responsible	Target date	Pollutants affected	Likely impact on air quality	Funding	Cost effectiveness
The Corporation will continue with its commitment to Air Quality Monitoring and regularly review the monitoring needs of the City.	Existing	Corporation of London	Ongoing	NOx, PM_{10}	Low	Corporation of London	Medium

Appendix A

Legislation, Guidance and Bibliography

Legislation:

The Environment Act 1995

The Air Quality (England) Regulations 2000

The City of London Various Powers Act 1954

The City of London Various Powers Act 1971

The Road Traffic (Vehicle Emissions) (Fixed Penalty) (England) Regulations 2002

The Greater London Authority Act 1999

The Road Traffic Reduction Act 1997

Guidance

The Action plan was drawn up with close reference to a number of Government and National Society for Clean Air (NSCA) guidance notes as well as the Council's own corporate policy and statutory powers.

Guidance note LAQM.G1(00) - Framework for Review and Assessment of Air Quality

Guidance note LAQM.G2(00) -Developing Local Air Quality Action Plans and Strategies

Air Quality Action Plans: Interim Guidance for Local Authorities. National Society for Clean Air and Environmental Protection (NSCA)

Air Quality Management Areas: Turning reviews into Action. National Society for Clean Air and Environmental Protection (NSCA)

Air Quality: Planning for Action (NSCA 2001)-

Consultation for Local Air Quality management: the How to Guide (NSCA 2000)

Appendix B
Health Effects of Pollutants

Pollutant	Main Source	Health Effect
Lead	Metal processing Historically from vehicle emissions and waste incineration	Toxic biochemical effect on human organs. Possible effect of lead on brain development in children.
Carbon Monoxide	Combustion process, vehicle emissions	Interferes with the take up of oxygen by red blood cells and at low levels can exhibit a slight reduction in the maximum physical performance of healthy individuals. It is toxic at high concentrations, but these levels are not experienced outdoors. The people most susceptible to carbon monoxide are those with angina and disease of the coronary arteries.
Nitrogen Dioxide	High temperature combustion processes	Nitrogen dioxide is an irritant gas. Exposure can bring about reversible effects on lung function and increased reactivity to natural allergens. Young children and people suffering from asthma and chronic respiratory diseases are particularly susceptible to nitrogen dioxide
PM_{10}	Vehicle emissions Industrial Natural	Particle air pollution appears to be associated with a range of symptoms including asthma and effects on cardiovascular and respiratory system. In addition, particles may carry surface absorbed carcinogenic compounds into the lungs. The PM_{10} fraction (the fraction of particles in air that are very small i.e. <10 micrometers in diameter) is of major concern as they are small enough to penetrate deep into the lungs and have the potential to pose significant health risks
Sulphur Dioxide	Power stations Vehicle emissions	Sulphur dioxide is an irritant and high concentrations may cause breathing difficulties in people exposed to it. Recent studies have shown that people suffering from asthma may be particularly susceptible. Concentrations found in pollution episodes may provoke asthma attacks
Benzene	Vehicle emissions Industry	Genotoxic carcinogen
1,3-Butadiene	Vehicle emissions Industry	Genotoxic carcinogen

Appendix C

Emission Reduction Scenarios

Air quality modelling has been carried out to determine the effects of various emission reduction scenarios on ground level concentrations. The scenarios modelled, which represent the situation in 2005, are described below. All other emissions and other data remain the same as those used to model the base case "do-nothing" scenario, as described in the report *Modelling Air Quality in Central London: Stage 4*.

Scenario 1: 10% traffic reduction. The number of cars, HGVs and LGVs on the roads in the Corporation have been reduced by 10%. The number of taxis and buses has been assumed to remain the same. The traffic speed has been increased by 8%.

Scenario 2: 15% traffic reduction. The number of cars, HGVs and LGVs on the roads in the Corporation have been reduced by 15%. The number of taxis and buses has been assumed to remain the same. The traffic speed has been increased by 12%.

Scenario 3: Low Emission Zone (EURO II). A Low Emission Zone has been applied to all vehicles except cars and motorcycles within the City Traffic and Environmental Zone such that all of these vehicles must meet EURO II with particle traps engine standards.

Scenario 4: Low Emission Zone (EURO III). A Low Emission Zone has been applied to all vehicles except cars and motorcycles within the City Traffic and Environmental Zone such that all of these vehicles must meet EURO III engine standards.

Scenario 5: Restricted Access Zones. Vehicles are to be restricted from entering parts of the Corporation. The traffic data used for the modelling are not sufficiently detailed to explicitly model these zones. However, any major roads crossing the zones have been removed from the modelling and all minor road emissions from the 1km square grid sources in which the zones are located have also been removed. This is likely to overestimate the effect of this Scenario.

Modelling Results

For each scenario, annual average concentrations of NO_2 and PM_{10} have been predicted at each of six receptor points, for comparison with results from the base scenario. For all scenarios, NOx results are available in the main report, a copy of which can be obtained from the Corporation of London.

Scenario 1: 10% Traffic Reduction

In modelling Scenario 1, the number of cars, HGVs and LGVs on the roads in London have been reduced by 10%, the number of taxis and buses has been assumed to remain the same and the traffic speed has been increased by 8%.

The predicted annual average concentrations are presented below.

Predicted annual average NO_2 concentrations for base and Scenario 1

Receptor Name	Annual average NO_2 concentration (µg/m³)			
	Base	Scenario 1	Difference	% reduction
Barbican	48.9	48.4	0.5	1
Sir John Cass School	50.9	50.3	0.6	1
St Barts Hospital	49.8	49.3	0.5	1
St Pauls Choir School	52.8	52.1	0.7	1
Fleet Street / Fetter Lane	58.5	57.9	0.6	1
Walbrook Wharf	63.5	62.7	0.8	1

Predicted annual average PM_{10} concentrations for base and Scenario 1

Receptor Name	Annual average PM_{10} concentration (µg/m³)			
	Base	Scenario 1	Difference	% reduction
Barbican	29.6	28.9	0.8	3
Sir John Cass School	29.9	29.1	0.8	3
St Barts Hospital	29.7	28.9	0.8	3
St Pauls Choir School	30.4	29.5	0.8	3
Fleet Street / Fetter Lane	31.2	30.4	0.8	3
Walbrook Wharf	33.2	32.2	0.9	3

Scenario 2 15% Traffic Reduction

In modelling Scenario 2, the number of cars, HGVs and LGVs on the roads in London have been reduced by 15%, the number of taxis and buses has been assumed to remain the same and the traffic speed has been increased by 12%.

The predicted annual average concentrations are presented below.

Predicted annual average NO_2 concentrations for base and Scenario 2

Receptor Name	Annual average NO_2 concentration (µg/m³)			
	Base	Scenario 2	Difference	% reduction
Barbican	48.9	48.1	0.8	2
Sir John Cass School	50.9	50.0	0.9	2
St Barts Hospital	49.8	49.0	0.7	1
St Pauls Choir School	52.8	51.8	1.0	2
Fleet Street / Fetter Lane	58.5	57.7	0.9	2
Walbrook Wharf	63.5	61.7	1.8	3

Predicted annual average PM_{10} concentrations for base and Scenario 2

Receptor Name	Annual average PM_{10} concentration (µg/m³)			
	Base	Scenario 2	Difference	% reduction
Barbican	29.6	28.8	0.8	3
Sir John Cass School	29.9	29.1	0.8	3
St Barts Hospital	29.7	28.9	0.8	3
St Pauls Choir School	30.4	29.5	0.9	3
Fleet Street / Fetter Lane	31.2	30.3	0.9	3
Walbrook Wharf	33.2	31.9	1.3	4

Scenario 3: Low Emission Zone (EURO II).

In modelling Scenario 3, a Low Emission Zone has been applied to all vehicles except cars and motorcycles within the City Traffic and Environmental Zone such that all of these vehicles must meet EURO II with particle traps engine standards.

The predicted annual average concentrations are presented below.

Predicted annual average NO_2 concentrations for base and Scenario 3

Receptor Name	Annual average NO_2 concentration (µg/m³)			
	Base	Scenario 3	Difference	% reduction
Barbican	48.9	48.8	0.1	0
Sir John Cass School	50.9	50.7	0.2	0
St Barts Hospital	49.8	49.6	0.1	0
St Pauls Choir School	52.8	52.5	0.3	1
Fleet Street / Fetter Lane	58.5	58.5	0.0	0
Walbrook Wharf	63.5	63.4	0.0	0

Predicted annual average PM_{10} concentrations for base and Scenario 3

Receptor Name	Annual average PM_{10} concentration (µg/m³)			
	Base	Scenario 3	Difference	% reduction
Barbican	29.6	28.9	0.7	3
Sir John Cass School	29.9	29.1	0.8	3
St Barts Hospital	29.7	28.9	0.8	3
St Pauls Choir School	30.4	29.5	0.9	3
Fleet Street / Fetter Lane	31.2	30.5	0.7	2
Walbrook Wharf	33.2	32.4	0.8	2

Scenario 4: Low Emission Zone (EURO III).

In modelling Scenario 4, a Low Emission Zone has been applied to all vehicles except cars and motorcycles within the City Traffic and Environmental Zone such that all of these vehicles must meet EURO III engine standards.

The predicted annual average concentrations are presented below.

Predicted annual average NO_2 concentrations for base and Scenario 4

Receptor Name	Annual average NO_2 concentration (µg/m³)			
	Base	Scenario 4	Difference	% reduction
Barbican	48.9	48.7	0.2	0
Sir John Cass School	50.9	50.5	0.4	1
St Barts Hospital	49.8	49.5	0.3	1
St Pauls Choir School	52.8	52.2	0.6	1
Fleet Street / Fetter Lane	58.5	58.5	0.0	0
Walbrook Wharf	63.5	63.4	0.1	0

Predicted annual average PM_{10} concentrations for base and Scenario 4

Receptor Name	Annual average PM_{10} concentration (µg/m³)			
	Base	Scenario 4	Difference	% reduction
Barbican	29.6	28.9	0.8	3
Sir John Cass School	29.9	29.1	0.8	3
St Barts Hospital	29.7	28.9	0.8	3
St Pauls Choir School	30.4	29.4	1.0	3
Fleet Street / Fetter Lane	31.2	30.5	0.7	2
Walbrook Wharf	33.2	32.4	0.8	2

Scenario 5: Restricted Access Zones

In modelling Scenario 5, vehicle emissions have been removed from a series of Restricted Access zones.

The predicted annual average concentrations are presented below.

Predicted annual average NO_2 concentrations for base and Scenario 5

Receptor Name	Annual average NO_2 concentration (µg/m³)			
	Base	Scenario 5	Difference	% reduction
A	49.5	49.4	0.1	0
B	50.3	50.2	0.1	0
C	50.3	50.0	0.2	0
D	51.5	50.9	0.7	1
E	49.5	49.4	0.1	0
F	48.1	48.0	0.1	0

Predicted annual average PM_{10} concentrations for base and Scenario 5

Receptor Name	Annual average PM_{10} concentration (µg/m³)			
	Base	Scenario 5	Difference	% reduction
A	29.0	28.9	0.0	0
B	29.2	29.2	0.0	0
C	29.1	29.1	0.0	0
D	29.2	29.1	0.1	0
E	29.1	29.1	0.0	0
F	28.9	28.9	0.0	0

Appendix D

The following is a list of items that have been put forward during the consultation process but have not been specifically incorporated into the Action Plan:

- **Freight quality partnerships**: these have not been investigated in detail as it is considered that they present little potential for unilateral action in the City.

- **Priority lanes by freight vehicles**: these have not been incorporated into the action plan as the mix of vehicles within the City means that the use of priority lanes by goods vehicles is not viable.

- **Composting:** As a waste authority it is recommended that the Corporation of London considers composting. However, in the City all residential units are flats and it is unlikely that there would be much green waste. Additionally, bonfires are prohibited at any time so burning garden waste should not occur.

- **20 mph zones**: 20 mph zones will soon be introduced into parts of to the City. However, they have not been included specifically in this action plan as they are unlikely to result in improvements to air quality.

Appendix E

Consultation

The following organisations and individuals were given a copy of the draft Air Quality Action Plan. The document was also available on the Corporation of London web site. Four written responses were received and comments were incorporated into the final version of the Action Plan.

Department of the Environment Food and Rural Affairs
Environment Agency
Greater London Authority
Transport for London
London Borough of Camden
London Borough of Islington
London Borough of Hackney
London Borough of Tower Hamlets
London Borough of Southwark
City of Westminster
NSCA
Barbican Residents Groups
City Cyclists
Individuals that expressed an interest in the Air Quality Review Process

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Greater London Authority (GLA) 2001: The Mayor's Transport Strategy

Air Quality Management Areas - Planning Guidance (ALG 2001)

The London Low Emissions Zone Feasibility Study Report (ALG/GLA 2002)

City of London Unitary Development Plan 2002

Corporation of London Interim Transport Plan for 2001/2002. July 2000

Corporation of London Air Quality Review Stage 4 June 2002

CERC Source Apportionment for Central London, Final report, 21 August 2002

CERC Modelling Air Quality in Central London: Stage 4 Final report, 26 June 2002

CERC Scenario Testing for Corporation of London Final Report 14 April 2003