



SCOTT WILSON Planning & Environment
**Strategic Environmental Assessment of the
Proposed Revisions to the Mayor's Transport Strategy and
the Mayor's Air Quality Strategy to Introduce a Low
Emission Zone**

SEA STATEMENT

August 2006



**Strategic Environmental Assessment of the Revisions to the
Mayor's Transport Strategy and the Mayor's Air Quality
Strategy to Introduce a Low Emission Zone**
SEA Statement
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**Collated and
edited by:** Colin Bush
Environmental Specialist

Reviewed by: Dr. Steven Smith
Environmental Specialist

Approved by: Stuart Coventry
Director

Scott Wilson
Scott House
Basing View
Basingstoke
RG21 4JG

Tel: +44 (0) 1256 310200
Fax: +44 (0) 1256 310201

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1 INTRODUCTION

1.1 Strategic Environmental Assessment

- 1.1.1 Scott Wilson, with support from Air Quality Consultants, was commissioned by Transport for London (TfL), on behalf of the Mayor of London, to undertake the Strategic Environmental Assessment (SEA) of the proposed revisions to the Mayor's Transport Strategy and the Mayor's Air Quality Strategy to allow for a Low Emission Zone (LEZ) in London.
- 1.1.2 SEA is a process that takes place within a defined legal framework. This introduction is intended to provide a helpful overview of the framework but is not intended as a detailed, comprehensive or authoritative account of the legal framework.
- 1.1.3 SEA involves the systematic identification and evaluation of the environmental impacts of a strategic action (i.e. a plan or programme). In 2001, the European Council and Parliament legislated for SEA with the adoption of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (the 'SEA Directive'). The aim of the SEA Directive is *"to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes, with a view to promoting sustainable development"*.
- 1.1.4 The Directive was transposed in England by the Environmental Assessment of Plans and Programmes Regulations 2004 (the 'SEA Regulations'), which entered force on 21 July 2004. The SEA Regulations apply (with some specific exceptions) to plans and programmes subject to preparation and / or adoption by a national, regional or local authority or prepared by an authority for adoption through a legislative procedure by Parliament or Government and are required by legislative, regulatory or administrative provisions. It also applies to modifications to these same plans and programmes, unless the modification is a minor one and is unlikely to have significant environmental effects.
- 1.1.5 In this instance the 'plans and programmes' in question were the proposed revisions to the Mayor's Transport and Air Quality Strategies to allow for a LEZ in London. A formal view as to the need to undertake SEA for the Mayor's Transport and Air Quality Strategies was requested of the statutory bodies¹. TfL took into account the views of the statutory bodies and the criteria for determining the likely significance of effects on the environment specified in the SEA Regulations and made a formal determination that the proposed revisions to the Mayor's Transport and Air Quality Strategies are likely to have significant environmental effects and therefore SEA was

¹ Environment Agency, English Nature, English Heritage and the Countryside Agency.

required.

1.1.6 The Regulations require plan-making authorities to carry out an environmental assessment of the plan or programme and to:

- Prepare an 'Environmental Report' on the likely significant effects of the draft plan and alternatives to it
- Consult the statutory bodies on the scope and level of detail of the Environmental Report
- Consult the public on the draft plan or programme and the accompanying Environmental Report
- Take into account the Environmental Report and the results of consultation in decision-making
- Provide information following adoption of the plan or programme showing how the environmental assessment affected its evolution.

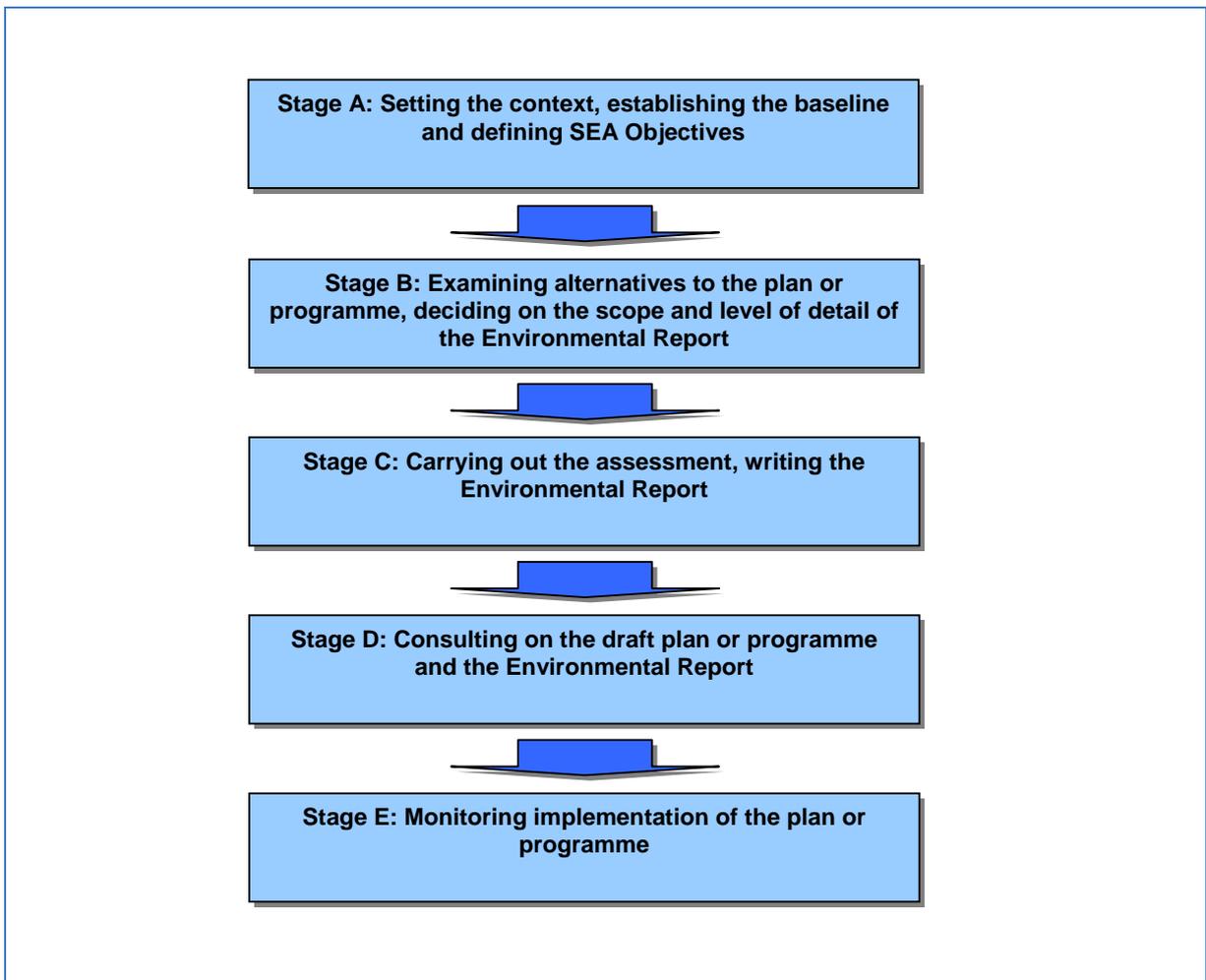


Figure 1. Five stage approach to SEA

1.1.7 Guidance for plan-making authorities has been published both by the Office of the Deputy Prime Minister and the Department for Transport². These advocate a five-stage (A to E) approach to undertaking SEA (see Figure 1). The SEA Statement satisfies the requirement from the Regulations to provide information following adoption of the plan or programme showing how the environmental assessment affected its evolution. It belongs in Stage E of the five-stage approach outlined above.

1.2 SEA Statement

1.2.1 The main purpose of the SEA Statement is to provide information on the decision-making process and to document how environmental considerations, the views of consultees and the recommendations of the Environmental Report have been taken into account in the published revisions to the Mayor's Transport and Air Quality Strategies.

1.2.2 The SEA Statement includes the following information:

- How environmental considerations have been integrated into the published revisions to the Mayor's Transport and Air Quality Strategies;
- How the Environmental Report has been taken into account in the published revisions to Mayor's Transport and Air Quality Strategies;
- How consultation responses have been taken into account in the published revisions to the Mayor's Transport and Air Quality Strategies;
- Reasons for choosing the strategy set out in the published revisions to the Mayor's Transport Strategy and the Mayor's Air Quality Strategy, in the light of other reasonable alternatives considered; and
- Measures that are to be undertaken (should a Scheme Order enabling a LEZ be confirmed) to monitor the significant environmental effects of implementing the LEZ.

1.3 The Mayor's Transport and Air Quality Strategies

1.3.1 The Greater London Authority (GLA) was established in 2000. It covers the area of the 32 London boroughs and the Corporation of London. It is made up of a directly elected executive Mayor and a separately elected Assembly, which primarily exercises scrutiny functions.

1.3.2 The GLA Act requires the Mayor to produce a number of strategies covering topics including air quality, biodiversity, culture, economic development, noise, transport, spatial development and waste.

² *The Strategic Environmental Assessment Directive: Guidance for Planning Authorities*, ODPM (2003); *A Draft Practical Guide to the Strategic Environmental Assessment Directive*, ODPM (2004); *Strategic Environmental Assessment for Transport Plans and Programmes*, DfT (2004).

- 1.3.3 The Mayor's Transport Strategy sets the policy framework for transport in London. Its integrated set of measures span a broad ten-year horizon (2001-2011), and more for some major projects, covering all means of transport and the management of the capital's road system. It provides the context for the more detailed plans of the various implementation agencies particularly TfL, the London Boroughs and the Strategic Rail Authority and sets the priorities that these plans need to address.

London – an exemplary sustainable world city

The Mayor's vision is to develop London as an exemplary sustainable world city based on:

- Strong and diverse economic growth
- Social inclusivity to allow all Londoners to share in London's future success
- Fundamental improvements in environmental management and use of resources.

Achieving the vision of London as an exemplary sustainable world city will make London:

- **A prosperous city:** in which all share in the benefits of wealth created in London's dynamic economy
- **A city for people:** a liveable city of safe, attractive streets, where goods and services are within easy reach and where everyone feels safe and secure
- **An accessible city:** with fast, efficient and comfortable means of transport, and access to affordable homes, education and training, health, leisure and recreation
- **A fair city:** showing tolerance and abolishing all forms of discrimination, where neighbourhoods and communities have a say in their futures
- **A green city:** making efficient use of natural resources and energy, respecting the natural world and wildlife, using to the full the varied patterns of open space, eco-friendly design and construction methods, recycling waste and creating new 'green industries'.

Figure 2. The Mayor's vision for London

- 1.3.4 To support the vision of London as an exemplary sustainable world city (see Figure 2), the Mayor's Transport Strategy will increase the capacity, reliability, efficiency, quality and integration of the transport system to provide the world-class system the capital needs. This improved transport system will be developed with sufficient capacity to facilitate sustainable population and employment growth, and support London's growing prosperity. It will support regeneration and promote social inclusion, allowing

the benefits of prosperity to be experienced more widely. It will also contribute to improving the quality of London's environment and reducing energy consumption. It will ensure that all Londoners and London's transport users benefit from a better quality of life, greater safety and security, and improved health.

- 1.3.5 The Mayor's Air Quality Strategy sets out policies and proposals to achieve the Mayor's aim of improving London's air quality to the point where pollution no longer poses a significant risk to human health, although it is recognised that this will be a very challenging task. The policies and proposals focus on air pollution arising from road transport, other modes of transport, industrial sources, construction and fires, and energy and heating. The Strategy also sets out the Mayor's statutory duties for meeting air quality objectives adopted by the National Government following tough, legally-binding air quality targets set by the European Union.

1.4 The Proposed London Low Emission Zone

- 1.4.1 On behalf of the Mayor, TfL conducted a consultation on the Transport and Air Quality Strategy Revisions: London Low Emission Zone from 10 October to 14 November 2005, with the London Assembly and the GLA 'functional bodies', (ie the London Development Agency, TfL, the Metropolitan Police Authority and the London Fire and Emergency Planning Authority). The Greater London Authority Act 1999 stipulates that these organisations must be consulted ahead of consultation with local authorities, groups representing people with mobility problems and others.
- 1.4.2 The two GLA Commissions (the Health Commission and the Sustainable Development Commission) were also consulted. In line with the Strategic Environmental Assessment Regulations, TfL also consulted the four statutory environmental consultees (English Heritage, English Nature, the Countryside Agency and the Environment Agency).
- 1.4.3 TfL reported to the Mayor on this consultation in January 2006. The report, Transport and Air Quality Strategy Revisions: London Low Emission Zone – London Assembly & GLA Functional Bodies Consultation Draft – Report to the Mayor on Consultation set out the outcome of that consultation and recommended certain amendments to the text of the draft Transport and Air Quality Strategies.
- 1.4.4 The Assembly's Environment Committee considered the proposed LEZ at a scrutiny hearing in January 2006.
- 1.4.5 On behalf of the Mayor, TfL consulted with the public and stakeholders on draft revisions to the Mayor's Transport and Air Quality Strategies between 30 January and 24 April 2006 (owing to the local elections, London boroughs were able to submit addenda to their responses until 5 June

2006). The proposed revisions sought to take forward the Mayor's commitment made in his 2004 election manifesto to designate the whole of Greater London a Low Emission Zone. The proposed LEZ would achieve this by deterring the most polluting, diesel vehicles from the Greater London area.

The Objectives of the Proposed London Low Emission Zone

The Mayor of London has a statutory duty to take steps towards achieving Government air quality objectives and the LEZ is designed to help achieve this. The objectives of the proposed LEZ are two-fold:

- To improve the health and quality of life of people who live and work in London, through improving air quality
- To move London closer to achieving the national statutory air quality objectives (and EU limit values) for 2010, in support of the Government's Air Quality Strategy (AQS) and the EU's Air Quality Framework and Daughter Directives³.

Figure 3. The Objectives of the Proposed London Low Emission Zone

- 1.4.6 After considering the consultation responses, TfL prepared a report to the Mayor outlining the issues raised and recommending some modifications to the draft Strategy Revisions. The Mayor has accepted all of TfL's recommended modifications and the revisions were published in their final form on 25 July 2006.
- 1.4.7 In summary, the proposed LEZ would cover all of Greater London. The boundary would be as close as practicable to the Greater London Authority administrative boundary, although it would not include the M25 as this would be the principle diversionary route for the LEZ. The LEZ would operate 24 hours a day, 365 days a year, to maximise the air quality and health benefits.
- 1.4.8 From early 2008 the LEZ would apply to HGVs over 12 tonnes and from mid-2008 the LEZ would apply to HGVs over 3.5 tonnes, buses and coaches. From 2010 the LEZ would also apply to heavier Light Goods Vehicles (LGVs) and minibuses.
- 1.4.9 The standards would predominantly be based on Euro standards for particulate matter (PM). From 2008, the LEZ standard for HGVs, buses and coaches would be Euro III for PM. From 2012, the standard would become Euro IV for PM. Newer vehicles would meet these standards but older, diesel-engined vehicles would have to be fitted with pollution abatement equipment or be re-engined in order to comply with the standards and travel into London without charge. The exact standards for heavier LGVs and minibuses have yet to be determined.

³ New legislation is currently in development, and may be agreed before the end of 2006.

2 ENVIRONMENTAL CONSIDERATIONS

2.1 Introduction

2.1.1 Environmental considerations are fundamental to the revisions to the Mayor's Transport and Air Quality Strategies. The aim of the proposed LEZ is to improve air quality in London and thereby benefit human health. There may also be incidental beneficial effects on biodiversity and on the built environment, through a reduction in the soiling of buildings.

2.2 Environmental Benefits of the Low Emission Zone

2.2.1 The Low Emission Zone Feasibility Study commissioned by the Greater London Authority (GLA), the Association of London Government (ALG), TfL, the Department for Transport (DfT), and the Department for Environment, Food and Rural Affairs (Defra) concluded in 2003 that a London-wide LEZ was the most cost-effective policy available to the Mayor that could realistically move London significantly closer towards meeting its air quality objectives. TfL estimates that by 2012 the introduction of a London LEZ would bring forward by some three to four years reductions in particulate (PM₁₀) emissions compared with the reductions that would come through the natural vehicle replacement cycle.

2.2.2 The reduced PM₁₀ emissions would improve the quality of life for many people who live in, work in and visit London, especially those already suffering from respiratory symptoms that restrict their daily activities. The proposed LEZ would also reduce the number of premature deaths, the number of life years lost, respiratory hospital admissions and the need for medication for adults and children suffering from respiratory diseases.

2.2.3 Air pollution is believed to have a negative effect on semi-natural habitats and species and the LEZ would be expected to improve air quality. In general the beneficial ecological effects that result from the predicted improvements in air quality are likely to be insignificant. One possible exception is Epping Forest Special Area of Conservation, a site where air pollution has been identified as a contributory factor in the unfavourable status of elements of the site. With sites of international importance for nature conservation, even small improvements may be perceived as being significant.

2.2.4 Equally, it is likely that effects on cultural heritage assets from acid damage and soiling would be limited. However, these effects would be experienced to varying degrees by many buildings and monuments, some of which may be venerable and very sensitive to pollution impacts.

3 THE ENVIRONMENTAL REPORT

3.1 Introduction

3.1.1 The Environmental Report discussed the likely significant environmental effects of the proposed London LEZ. This chapter discusses how TfL responded to the findings of the SEA process.

3.2 How the Environmental Report was taken into account

3.2.1 The Environmental Report concluded that the LEZ would be expected to deliver significant reductions in emissions of PM₁₀, and smaller reductions in emissions of oxides of nitrogen (NO_x). These would directly benefit human health through improvements in air quality. It further concluded that there are likely to be indirect impacts on health, some beneficial, some adverse, resulting from changing economic circumstances resulting from the LEZ, though it was not possible to quantify these at the time of the Report.

3.2.2 TfL has taken the findings of the Environmental Report into account in preparing its Report to the Mayor on the Strategy Revisions consultation and in its recommendations to the Mayor on modifications to the Strategy Revisions. TfL will undertake further assessments to investigate the projected impacts of the proposed London LEZ, to inform public and stakeholder consultation on a Scheme Order.

3.2.3 TfL has considered the proposals for monitoring from the Environmental Report and these will be considered in the development of a monitoring strategy for the proposed London LEZ.

4 CONSULTATION RESPONSES

4.1 Introduction

4.1.1 This chapter discusses how TfL consulted on the revisions to the Mayor's Transport and Air Quality Strategies and the Environmental Report. It also explains how the LEZ proposals were modified as a result of this consultation.

4.2 Consultation on the revisions and the Environmental Report

4.2.1 The public and stakeholder consultation on the draft revisions to the Transport and Air Quality Strategies began on 30 January 2006 and ran until 24 April 2006.

4.2.2 TfL produced a public information leaflet entitled 'A proposal to introduce a London Low Emission Zone' which was sent to London boroughs for distribution at public buildings. Leaflets were also directly mailed to transport businesses in and around London. Additional copies could be obtained via a call centre.

4.2.3 Over 1,000 stakeholder organisations, including businesses and freight representative groups, London boroughs, English local authorities, London Assembly Members and MPs, GLA Functional Bodies, environmental groups, transport operators and providers and trade unions received a copy of the proposed revisions to the Mayor's Transport and Air Quality Strategies, a Supplementary Information document and a Non-technical Summary of the Environmental Report.

4.2.4 All the consultation documents were also available to view on the TfL and GLA websites, as well as being made available to the public for inspection at a TfL office (Faith Lawson House). The consultation documents were:

- Proposed revisions to the Mayor's Transport and Air Quality Strategies
- The public information leaflet
- A supplementary information document
- A Health Impact Assessment and Summary
- The Environmental Report and Non-technical Summary

4.2.5 The public and stakeholder consultation was supported by an advertising campaign, which publicised the consultation through various media, including radio, newspapers and the Internet, to ensure that organisations and individual members of the public had the opportunity to respond. Responses could be made either on-line or by filling in a paper questionnaire attached to the leaflet.

- 4.2.6 TfL had an operator helpline running during the consultation process to respond to operator queries as to what the proposed LEZ and the revisions to the Mayor's Transport and Air Quality Strategies were about and how they could take part in the consultation process.
- 4.2.7 The consultation process was supplemented by a comprehensive stakeholder engagement. In total, TfL met with over 100 stakeholder organisations. The purpose of this engagement was to ensure stakeholders were fully briefed on the LEZ, to listen to issues and concerns, to answer questions and to encourage responses to the consultation. Many key stakeholders, such as the Freight Transport Association (FTA), the Road Haulage Association (RHA) and the Confederation of Passenger Transport (CPT) undertook their own research and surveys of members in developing their responses to the LEZ consultation.

4.3 Analysis of consultation responses

- 4.3.1 TfL commissioned Accent, a marketing and research agency, to carry out an analysis, both quantitatively and qualitatively, of consultation representations submitted by the public, businesses, stakeholders and other organisations.

4.4 Attitudinal survey

- 4.4.1 TfL also commissioned Ipsos MORI, a market research company, to carry out an attitudinal survey representative of businesses and the public across London during the consultation period in March. The aim of this survey was to provide a sample of the opinions of Londoners, London businesses and operators who drive in London to the LEZ.

4.5 Consultation responses

- 4.5.1 TfL received 100 responses from stakeholders, 25 from other organisations, some 4,800 from members of the public and some 3,700 from operators and businesses. These representations covered a wide range of issues, many of which did not concern environmental effects.
- 4.5.2 The responses to the consultation strongly supported the need for the Mayor to take action to improve air pollution. The majority of representations supported the LEZ and the expected health benefits that it would bring. Of those who supported the LEZ, a few argued that it would be difficult to implement and would not be cost effective. The representations that did not support the LEZ argued that normal vehicle replacement cycles and operators voluntarily reducing emissions would lead to improvements in air quality. Other representations saw the LEZ as being politically motivated by only targeting businesses while others saw it as a mechanism to raise revenues with little impact on air quality.

- 4.5.3 Some representations concerned possible alternatives to the LEZ proposals, such as implementing a 'ban' instead of a charging scheme, or providing incentives for cleaner vehicles. A number of representations considered the proposed LEZ to be the best option for achieving the objectives of moving London towards meeting its 2010 objectives for PM₁₀ and nitrogen dioxide (NO₂) and for improving the health and quality of life of people who live and work in London.
- 4.5.4 Representations which sought a complete ban on vehicles that do not comply with the proposed LEZ emission standards considered such a system to be more cost-effective than a system where operators could pay a charge to drive more polluting vehicles within Greater London.
- 4.5.5 A number of representations expressed the view that TfL or the Government should provide financial incentives for cleaner vehicles, such as grants to encourage fleet replacement, the fitting of particulate traps or the use of alternative fuels. Representations were also concerned that the proposed emission standards for the London LEZ should be consistent with any other proposals for LEZs across the UK.
- 4.5.6 The majority of representations concerning the impact the LEZ would have on air quality both in London and more widely related to a concern that the proposed LEZ did not go far enough to ensure achievement of the PM₁₀ or NO₂ air quality targets. A number of respondents suggested that TfL or the Mayor establish a target date for achievement of the air quality objectives.
- 4.5.7 Some representations were concerned about the impact of the proposed LEZ in increasing the number of older vehicles operating outside Greater London, and associated potential increases in traffic as vehicles are diverted from the proposed LEZ.

4.6 How consultation responses were taken into account

- 4.6.1 The main outcomes of the consultation exercise from an environmental perspective were:
- The emission standard for the LEZ Core Option would be Euro III for PM from 2008 and Euro IV for PM from 2012 (rather than 2010, as originally proposed)
 - The option to have an emission standard for NO_x will not be implemented for the time being, however TfL will work to implement such a standard in the future
 - The option to include the heaviest, most-polluting LGVs from 2010 will be implemented. This will include minibuses but car-derived vans would not be included in the scope of the LEZ at this stage.
- 4.6.2 These changes were incorporated into the final version of the strategy revisions.

5 REASONS FOR THE CHOSEN OPTIONS

5.1 Introduction

5.1.1 As discussed in the previous chapter, TfL proposes to implement modified versions of the LEZ Core Option and the LGV Option. The Core plus NO_x Option will not be implemented at this stage. This chapter explains TfL's reasons for these decisions.

5.1.2 In the consultation material, TfL proposed several options for implementing the LEZ:

- Core option – HGVs, coaches and buses would have to meet standards based on Euro standards for PM – a standard of Euro III from 2008 and Euro IV from 2010. These are standards to which all vehicles sold in the European Union must comply with by a set date.
- Core option plus NO_x – As core option, but the standard would be extended to include NO_x from 2010
- Core option plus LGV – As core option, but including the heaviest, most polluting LGVs and minibuses from 2010.

5.2 Reasons for implementing the LEZ Core Option (based on Euro standards)

5.2.1 Basing the LEZ on Euro standards that allows the fitting of particulate abatement equipment and best balances affordability, fairness and clarity for operators with air quality and health benefits. An age-based scheme could be regarded as unfair as vehicles of the same Euro class and emissions but of a different age would be treated differently. Such a scheme could also penalise early adopters of exhaust after-treatment systems, and those who had converted their vehicles to alternative fuels or re-engined their vehicles to a higher Euro standard.

5.2.2 TfL has examined the air quality and health benefits and operator compliance costs of a six, eight and ten year rolling age-based scheme for HGVs, buses and coaches. This analysis has shown that a 10-year age-based standard generates poor health and air quality benefits. The benefits of a six or eight year age based scheme are also less than those delivered by the proposed Euro standards based scheme. On average, compliance costs for operators associated with an age-based standard are also slightly higher than for the proposed Euro standards based scheme.

5.2.3 Given the significant concerns of operators regarding the original proposal to tighten the LEZ standard to Euro IV for PM in 2010, TfL recommended moving implementation of this standard back to 2012 to reduce compliance costs to operators, and make the scheme more acceptable. However, this deferral would lead to smaller air quality and health benefits resulting from a

reduction in emissions from heavier vehicles. The area of Greater London exceeding the 2010 annual mean PM₁₀ objective would drop from 17.8 per cent to 5.3 per cent and the area of Greater London exceeding the daily mean PM₁₀ objective would fall from 18.3 per cent to 4.9 per cent. Nevertheless, these reductions would be largely offset by the inclusion of heavier LGVs and minibuses within the LEZ from 2010.

5.3 TfL's reasons for not implementing the Core plus NO_x Option

- 5.3.1 Whilst there has been some success in fitting NO_x abatement equipment to some of the London bus fleet and Black Cabs, there remain a number of important unresolved issues around NO_x certification and testing, such that TfL did not recommend extending the LEZ standards to NO_x at this stage. TfL is continuing to consider, with the pollution abatement equipment industry and central government, how a NO_x standard might be implemented and will consider moving to implement a NO_x standard in the future should this be feasible.
- 5.3.2 TfL has carefully examined issues relating to the efficiency of pollution abatement equipment, particularly in urban conditions. Pollution abatement equipment is likely to fail if it is not suitable for the particular vehicle or its typical operating conditions and is not routinely serviced. TfL has identified a number of instances where inappropriate pollution abatement equipment has been fitted and routine maintenance has not been carried out, causing the equipment to subsequently fail.
- 5.3.3 It is the responsibility of both pollution abatement equipment manufacturers and vehicle operators to ensure a vehicle's specification, age and typical operating conditions are considered when fitting pollution abatement equipment and establishing maintenance procedures. In response to these issues, the abatement industry has introduced measures to improve customer service and to ensure operators are aware of maintenance issues. TfL is strongly supportive of these measures and is working with pollution abatement equipment manufacturers to ensure they become standard practice.
- 5.3.4 TfL notes the recent evidence suggesting that certain types of pollution abatement equipment emit an increased proportion of NO_x as nitrogen dioxide (NO₂) and the impact this may have on NO₂ concentrations. In terms of the key health-based objectives of the LEZ, the reductions in PM₁₀ have a significantly greater impact on health than that of a higher proportion of NO_x emitted as NO₂. It should be noted that total NO₂ and NO_x emissions are expected to continue to decline. This approach supports the Government's Air Quality Expert Group's recommendations that a wider, more holistic approach to air quality management should be taken in such circumstances. It should also be noted that the LEZ would contribute to a reduction in total NO_x emissions.

5.4 TfL's reasons for implementing the Core plus LGV Option

- 5.4.1 TfL has considered the implications of including LGVs within the scope of the LEZ. It is forecast that by 2010 LGVs will be responsible for a significant contribution of some 24 per cent of road transport emissions of PM₁₀ within London.
- 5.4.2 On the basis of these investigations, TfL recommended that the most-polluting heavier LGVs should be included in the LEZ proposals. This definition excludes 'car-derived vans' as TfL judges that it would be unfair to include such vehicles as they retain the same characteristics as the diesel-engined cars they are based on and hence have similar emission levels. TfL recommended that minibuses should also be included within the LEZ at the same time as the most-polluting heavier LGVs as they use very similar chassis and engines and have similar emissions levels.

6 MONITORING MEASURES

6.1 Introduction

6.1.1 The SEA Regulations require TfL to monitor the likely significant effects of the revisions to the Mayor's Air Quality and Transport Strategies should a Scheme Order enabling a LEZ be confirmed. This chapter sets out the measures to be taken in this regard.

6.2 Monitoring Framework

6.2.1 TfL's LEZ monitoring strategy will focus on measuring the impacts of the scheme on emissions and air quality primarily through the methodologies outlined in Table 1.

Table 1. Proposed monitoring measures

SEA Topic	Monitoring measure	Why this indicator?	Frequency
Air	Ambient annual mean NO ₂ and PM ₁₀ roadside concentrations, as a 3-year rolling average, for selected sites across the GLA area, including inner and outer London locations	Key traffic related pollutants for which there are statutory objectives. (Added in response to Environment Agency comments on Scoping Report)	Annually
	Changes in PM _{2.5} concentrations and relationships between particulate fractions from key indicator roadside sites in the GLA area.	PM _{2.5} is the key fraction of particulates emitted from road traffic	Annually
	Changes in number and Euro class of vehicles within the GLA area	LEZ should result in a change in emission profile of affected vehicles	4 weekly analysis
	Modelled change in emissions and concentrations of key pollutants based on observed data	Key indicator to assess impact of LEZ on air quality	6 monthly - annually
	Ambient concentrations of traffic related pollutants at selected roadside sites outside the GLA area	Need to consider wider influences (e.g. weather patterns, changes to background levels).	Annually
Health	Hospital admissions for respiratory diseases	Referred to as primary health benefit in Strategy Revisions documents	Annually
	Change in particulate composition and toxicity and relationship to morbidity	Dataset collected by Kings College London	Monthly analysis of particulates
Climate	Estimate of the total emissions of CO ₂ from transport sources	Tackling climate change is the number one priority in the UK Sustainable Development Strategy	Annually

6.2.2 In addition to this, TfL will also consider other methods to monitor wider environmental impacts. It is important for TfL to consider the potentially significant impacts of the LEZ outside of Greater London, both positive and negative. This will also help put the measured impacts of the LEZ into a UK context.

Table 2. Additional possible monitoring measures

SEA Topic	Proposed monitoring	Why this indicator?
Air	Number of local authorities with Air Quality Management Areas for NO ₂ due to transport	Measure of the extent of poor air quality
	Number of local authorities with Air Quality Management Areas for PM ₁₀ due to transport	Measure of the extent of poor air quality
	Balance between HGVs and LGVs entering LEZ	LEZ could create an incentive for some operators to switch from HGVs to LGVs
Biodiversity (including flora / fauna)	Changes in epiphytic (tree-borne) lichens	Lichens considered to be a good bio-monitor for traffic-related air quality
	Sites of Special Scientific Interest in unfavourable / declining condition owing to poor air quality	Data for condition of SSSIs in London is available on English Nature website
Human health	Mortality from Bronchitis and Emphysema years of life lost (YLL) up to age 75	Dataset collected by London Health Observatory and primary care trust
	Mortality from Asthma years of life lost (YLL) up to age 75	Dataset collected by London Health Observatory and primary care trusts
	Mortality from all Circulatory Diseases	Dataset collected by London Health Observatory and primary care trusts
	Number of hospital admissions for respiratory diseases	Referred to in strategy revisions documents
	Incidence of asthma and chronic obstructive pulmonary disease	Recommended by British Lung Foundation
	Morbidity outcomes for asthma	Recommended by the Regional Public Health Group
	Change in particulate composition and toxicity and relationship to morbidity	Dataset collected by Kings College London
Material assets	[No significant impacts likely]	
Cultural heritage	[No significant impacts likely]	
Landscape / townscape	[No significant impacts likely]	