

I HEALTH IMPACT ASSESSMENT - NON TECHNICAL SUMMARY

I.I BACKGROUND AND OBJECTIVES

Transport for London (TfL) is consulting the public and stakeholders on draft revisions to the Mayor's Transport and Air Quality Strategies. The proposed revisions seek to take forward the Mayor's proposal, made in his 2004 election manifesto, which, subject to consultation, was to designate the whole of Greater London a Low Emission Zone (LEZ).

This report has been prepared by Environmental Resources Management Limited (ERM) for Transport for London. It constitutes an appraisal of the effects on health from the implementation of the proposed London LEZ within the Greater London area.

This study utilised the findings from parallel studies, previous case studies and includes wider discussions with academic bodies and organisations responsible for the health and wellbeing of Londoners.

In doing so the study has appraised tangible health outcomes associated with reductions in pollution emission, noise and potential socio economic implications alongside consideration of influences to wider determinants of health and inequality.

I.II THE PROPOSED LONDON LOW EMISSION ZONE

In its simplest terms the proposed Low Emission Zone (LEZ) is a defined area that can only be driven within by specific vehicles meeting certain emissions criteria or standards ⁽¹⁾.

The objectives of the proposed LEZ are twofold: to help London move towards national and EU air quality targets by reducing air pollution and to improve the health and the quality of life of people who live and work in and visit London.

The proposed LEZ would assist in meeting these aims by charging the most polluting vehicles, initially targeting large, diesel engined vehicles: Heavy Goods Vehicles (HGVs), buses and coaches. Hence air quality and health would be improved by encouraging the use of cleaner, less polluting vehicles, since vehicle operators would be encouraged to replace or modify their fleets.

I.III HEALTH

Health, or more importantly what constitutes good health, is difficult to define and measure, not least because perceptions about health and expectations of

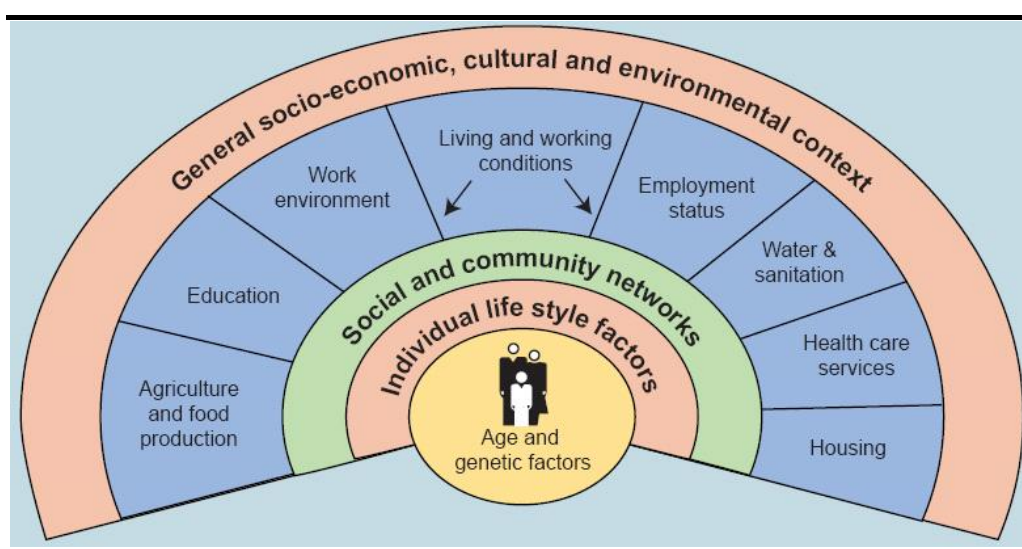
(1) GLA and ALG. (2003). The London Low Emission Zone Feasibility Study; A Summary of the phase 2 Report to the London LEZ Steering group.

good health vary. Any definition of health applied in HIA will influence the overall content and focus of the assessment.

The HIA of the proposed London LEZ follows the guidance set by the UK Health Development Agency (HDA) and is based upon the World Health Organization's (WHO) definition stating health to be "a state of complete physical, mental and social well being and not merely the absence of disease or infirmity" (1).

Using this definition, the study applied a broad socio-economic model of health that encompasses conventional health impacts, such as changes in exposure to road traffic emissions, along with wider determinants of health vital to achieving good health and well-being.

Socio-economic Model of Health



Source: - (2)

A project such as the proposed London LEZ would influence a number of health determinants both directly and indirectly.

I.IV APPROACH AND METHODOLOGY

I.IV.I Approach

The HIA of the proposed London LEZ employs HIA guidance and methods set by the National Institute of Clinical Excellence (NICE), formally the NHS Health Development Agency, as well as the London Health Commission.

I.IV.II Methodology

The study comprised four key stages, including:

- a project profile:

(1) World Health Organization, (1948), Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946

(2) Dahlgren, G., and M. Whitehead. (1995).. Tackling Inequalities: A Review of Policy Initiatives. In Tackling Inequalities in Health: An Agenda for Action, eds. M. Benzeval, K. Judge, and M. Whitehead. London: Kings Fund Institute.

- an examination of the key elements of the proposed London LEZ and their relationship to public health;
- a literature review:
 - a review of available evidence on human health effects as they relate to the proposed London LEZ;
- a community profile:
 - a profile of the affected community, highlighting susceptibility and inequality; and
- stakeholder engagement:
 - engagement with key stakeholders to collate and understand their opinions on the proposed London LEZ and its effects on health

The final appraisal makes use of each of the work streams to provide a final desk top analysis of potential health impacts and benefits.

I.IV.III Stakeholder Engagement

Stakeholder engagement is a key stage and inherent principle within HIA, as associated health outcomes are largely dependent on the particular circumstances of communities, lifestyle, inequality and subsequent relative susceptibility.

A number of barriers presented themselves during the stakeholder consultation starting with difficulties in fairly representing the health interests of all communities throughout Greater London.

The principal methodology proposed for gaining such views normally includes an HIA workshop with health sector stakeholders . Unfortunately, the workshop experienced a very low level of commitment to participate and was consequently cancelled. As a contingency, a rapid HIA questionnaire was distributed to all the participants unable to attend the workshop, supplemented by one to one structured interviews with the Regional Public Health Group, all of London’s Strategic Health Authorities and four Primary Care Trusts.

Perceived health benefits largely reflect environmental improvements including reductions in pollution, contributing towards a reduction in morbidity, hospital admissions and premature mortality throughout Greater London.

Socio economic health benefits reflect the employment and income opportunities the proposed London LEZ could bring. Direct LEZ employment is not perceived to be significant. However, the temporary increase in vehicle sales, retrofit and decommissioning would extend beyond London with potentially higher levels of socio economic related health benefit.

However, potentially further reaching health benefits reflect perceived improvements in air quality, road safety and even marginal reductions in transient noise. Such improvements are perceived to contribute to:

- reductions in stress and anxiety;
- positive influences to take up green transport and physical activity;
- increases in the amenity value of local amenities and housing;
- reductions in environmental inequalities; and
- improvements in mental and social health and wellbeing.

The majority of perceived health impacts reflect the economic cost of the proposed London LEZ and the disproportionate effect it could have upon small business. Small to medium sized business and the self employed are perceived to be the most susceptible to additional financial pressure, and may consequently suffer hardship, reduced income and potentially unemployment. However, this is largely dependent upon their decision to replace or retrofit vehicles.

I.V HEALTH BENEFITS AND IMPACTS

As shown in *Table I.1*, the proposed London LEZ would afford a number of health benefits. The most significant health benefits to be achieved are associated with potential improvements in air quality throughout and beyond Greater London. Such improvements would contribute to reductions in respiratory and cardiovascular disease and contribute to a reduction in inequalities within relatively deprived communities.

Improvements in the perception of the environment may lead to increased physical activity and the value placed on facilities and amenities in the area, thereby increasing social capital. It is possible that all of these factors may also help to reduce perceived community severance as people value and feel safer in their communities.

Noise reductions and consequent direct health benefits to London communities would be marginal. However, indirect health benefits associated with improved perceptions of the environment may be sufficient to stimulate behavioural changes for vulnerable road users and pedestrians.

The proposed London LEZ would accelerate the transfer to newer safer vehicles operating within and outside London.

The proposed London LEZ would result in increased employment and income opportunities in the build up to its implementation. However, such opportunities would be temporary and not likely to afford significant long term socioeconomic health benefits.

The sole identified possible adverse health impact of the proposed LEZ is that of the economic cost to operators and a potential knock on cost to business and tourism.

The scope of this study was limited to the assessment of health outcomes to the communities of London. However, it is important to note that environmental improvements brought about from an accelerated transition to newer cleaner vehicles would extend beyond London, and potentially the UK.

Table I.1 *HIA Analysis Summary Table*

Potential Health Determinants	Description	Benefit (shaded green) or Negative Impact (shaded brown)	Measurability, likelihood
Environment			
Improved air quality	Reduced emissions through replacement of vehicles or through the installation of abatement technology	<p>Health benefits from reductions in particulate matter have been quantified by AEA Technology. Such modelling concludes that the proposed LEZ would result in reduced hospital admissions for respiratory ailments, fewer restricted activity days and fewer deaths brought forward. The significance of such benefits is dependent upon the variant of LEZ applied.</p> <p>However, such modelling does not take into account the possibility of additional effects of reducing NO₂ concentrations locally and does not consider the carcinogenic properties of emissions or potential synergistic effects.</p> <p>Potential health benefits of the proposed LEZ are therefore likely to extend beyond the quantified reduction in respiratory morbidity and mortality modelled.</p>	C, D
Improvements in transient noise	The proposed LEZ would accelerate the transfer to newer vehicles. Studies indicate that Euro II / III / IV vehicles are quieter than older vehicles.	<p>A decrease in transient noise is not of a level thought to improve community health directly. However, vulnerable road users and pedestrians in proximity to roads, may experience some marginal decrease in vehicle pass by noise events.</p> <p>The LEZ may contribute to improving the perception of the urban environment, resulting in behavioural and lifestyle changes that include the uptake of green transport. This could afford indirect physical and mental health improvements.</p>	E, D
Transport			

Potential Health Determinants	Description	Benefit (shaded green) or Negative Impact (shaded brown)	Measurability, likelihood
Improvements in road safety	The proposed LEZ is not anticipated to change the number, ratio or routes of HGVs, buses and coaches or LGV within or beyond London, but to accelerate the rate of change to newer, safer vehicles.	<p>In accordance with the core option, by 2010 HGVs, buses and coaches will be required to meet the proposed LEZ standards. As a consequence the proposed LEZ is anticipated to contribute in the phasing out of most Euro III HGVs buses and coaches by 2014.</p> <p>Health benefits reflect the possible increase in safer vehicles operating within and outside London with a potential reduction in the number and severity of road traffic accidents and improved perceptions of environmental safety.</p>	Q, S
Economic			
Economic dis-benefits	The proposed LEZ would have both direct and indirect economic dis-benefits to HGV, coach and bus and potentially LGV operators.	<p>The LEZ may result in increased economic pressure. Potential health implications largely reflect a potential reduction in profit margins, income and employment for HGV, bus, coach and potentially LGV operators. Evidence suggests that poor economic circumstance affects a range of health determinants that in turn increase the burden of poor health and reduce life expectancy.</p> <p>The significance of the economic cost of the proposed LEZ on health would be largely dependent upon the viability and cost effectiveness of the options open to operators; the status of operator vehicle replacement strategies and the financial situation of operators.</p>	Q, S
Employment and income	It is anticipated that the proposed LEZ would generate employment and income opportunities	The proposed LEZ is not anticipated to result in significant direct employment. However, a potential demand for replacement vehicles, mechanics and abatement equipment is likely to increase employment and income opportunities. However, the scale of such opportunities would be largely dependant upon the LEZ variant applied, is temporary and is not constrained within Greater London.	Q, S
Lifestyle and Behaviour			

Potential Health Determinants	Description	Benefit (shaded green) or Negative Impact (shaded brown)	Measurability, likelihood
Improved perceptions of the environment	The proposed LEZ has the potential to improve the way that individuals perceive their communities and living environment.	<p>The proposed LEZ would improve air quality, marginally reduce road vehicle noise emissions and improve the quality and safety of HGVs, buses, coaches and potentially LGVs operating within and outside London. In doing so the proposed LEZ may contribute to reducing stress, anxiety and in removing community severance.</p> <p>Improvements in the living environment whether real or perceived may contribute to behavioural and lifestyle changes which have an impact on the physical, mental and social health of the population.</p>	Q, S

Environmental and Health Inequalities

Reduction of inequalities	The proposed LEZ would afford air quality, noise and road safety improvements throughout and beyond London.	<p>London Boroughs subject to the greatest air quality improvements are concentrated in Central London.</p> <p>The distribution of such improvements is likely to contribute to reducing local level health inequalities, as communities in proximity to roads (subject to the greatest of benefits) generally exhibit a higher level of socio-economical deprivation with relatively higher levels of poor health.</p> <p>The proposed LEZ would contribute to reducing environmental and health inequalities, with subsequent reductions in hospital admissions from respiratory ailments.</p> <p>However, it must be noted that health inequalities within Central London are largely concentrated within Tower Hamlets and Hackney, and are driven more by socio-economic and lifestyle factors than by the environmental issues.</p>	Q, P
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Notes:

1. Green shading indicates effects that are generally positive
2. Orange shading indicates effects that are generally negative
3. Measurability - Q = qualitative, E = can be estimated, C = can be calculated
4. Likelihood - D = definite, P = probable, S = speculative

