



Report

London Health Commission and the Environment Committee of the Assembly

Health Impact Assessment – Draft Biodiversity Strategy

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1 Framework for the HIA

At the London Health Commission meeting of 27 February 2001, it was agreed that plans should go ahead to carry out, jointly with the Environment Committee, a policy appraisal health impact assessment of the draft Biodiversity Strategy.

The London Health Commission had already commissioned a review of selected research evidence relevant to the draft Biodiversity Strategy.

A central element of the HIA was the policy appraisal workshop held on 12 March 2001, at which participants – stakeholders from a variety of sectors – had the opportunity to:

- bring their own experience and knowledge to bear on key questions about the draft strategy, and to share their views with other participants
- explore evidence linking air quality and health and, where appropriate, to relate this to their own experience and recommendations.

The ‘headline’ findings of the workshop, and the priorities identified there, were debated further by the Environment Committee on the day after the workshop. A draft report presenting the process to date was reviewed by the London Health Commission at its meeting on 22 March 2001. This is the final revised report for the Mayor and the Biodiversity Strategy Development Team to feed into the strategy development process, and will be presented in final form to the Environment Committee on 5 April.

What is the Biodiversity Strategy trying to achieve?

Key objectives of the Strategy include the following.

- **Biodiversity for people** – to ensure all Londoners have ready access to wildlife and natural green spaces
- **Nature for its own sake** – to conserve London’s plants and animals and their habitats
- **Economic benefits** – to ensure the economic benefits of natural green space and greening are fully realised
- **Functional benefits** – to ensure London enjoys the functional benefits that biodiversity can bring
- **Sustainable development** – to recognise biodiversity as an essential element of sustainable development.

Shape and focus of the policy appraisal workshop

The workshop took place on 12 March at GLA South, SE1.

The model of health used during the workshop was that contained in the constitution of the World Health Organisation:

Health is a state of complete physical, mental and social well-being, and not merely the absence of disease or injury.

The focus of the workshop was to enable participants to explore the following questions and go on to make recommendations on the basis of their findings:

- Which determinants of health are likely to be affected by the strategy?
- How may health determinants change as a result of the strategy?
- How might the expected changes affect the health of people?
- What might be the outcomes for health?

(adapted from Cave and Curtis, 2001)

Who attended, and what did they do?

Approximately 40 people attended, drawn from a range of sectors and levels of seniority. (See Annex for a full listing of the participants who attended this workshop and the workshop on the draft Air Quality Strategy, held on the same day.)

An initial plenary meeting included a presentation on the draft Strategy by John Archer and Julia Brownbridge, from the GLA Biodiversity Strategy team, and an overview by an environmental scientist of the evidence he had assembled at the request of the London Health Commission. Participants then moved into facilitated small groups to discuss clusters of policies and proposals from the Strategy. The groups structured their discussion round four key questions:

- What are the major health benefits of the draft Biodiversity Strategy?
- What actions are needed to achieve these?
- What are the health hazards of the Strategy?
- How can the health hazards of the Strategy be mitigated?

The groups were also asked to think about which population groups would benefit/suffer from the health impacts identified; and to indicate why and how they believed that the different factors they identified would impact on health.

The groups shared their thoughts and recommendations in a final plenary, offering a range of key points in response to the Strategy. These form the basis of the recommendations presented in the following section.

Participants filled in an evaluation form distributed at the end of the workshop. Most indicated that the goals of the workshop had been very satisfactorily achieved for them, and that they had found the session very useful. Many offered additional helpful insights and comments. A breakdown of responses is available on request from Liza Cragg (email liza.cragg@london.gov.uk).

2 Main findings and recommendations

The main findings and recommendations of the HIA on the draft Biodiversity Strategy are outlined in this section.

The key points from the policy appraisal workshop, grouped together here in themes, ranged from over-arching 'analysis points' to practical suggestions for action. These key points were further explored and tested at meetings of the Environment Committee and the London Health Commission. In the process, the key points were shaped into focused recommendations or amendments to existing proposals.

These are outlined below. The broad 'analysis points' are linked to the relevant chapter in the main body of the Strategy document. Where focused suggestions for action are made, specific proposals are shown for amending existing proposals or creating new ones.

2.1 Green spaces benefit health – but not equally

London – open for health

Few Londoners are aware that two-thirds of the capital's land area is made up of open spaces and water – and that substantial health benefits are associated with access to, and use of, green spaces

These benefits are greatest for those in low income groups (eg, the elderly or families on low income) who are least likely to have access to green space

- 1 Work with custodians of public and private green spaces to ensure that Londoners are aware of the capital's green space and waterways and to ensure that all Londoners are able to benefit from these spaces.
 - *Additional action proposal – Policy 4*
 - Evidence supporting this recommendation, and describing the health benefits associated with access to green spaces, is contained in section 3.2

- 2 Work with the voluntary sector and other partners to address the key barriers people face in accessing green spaces, such as poor public transport links and perceived safety risks. These barriers must be tackled in an integrated and co-ordinated way.
 - *Additional action proposal – Policy 2.*

2.2 Explain 'biodiversity' in an accessible and appealing way

And by 'biodiversity' you mean ... what exactly?

The aspects of life covered by the term 'biodiversity' are of interest to most Londoners, but people tend to associate the term with narrow, scientific applications – and assume it is the business of environmentalists and other specialists. Biodiversity is almost never associated with green, or other open, spaces

- 3 Develop programmes to promote issues related to biodiversity and to communicate the importance of biodiversity to London life. For example, work with the education sector to develop cross curricula teaching materials within the National Curriculum which will promote biodiversity and environmental issues in schools.
 - *Expand Proposal 34*
 - *Health effects of farm animals* in section 3 describes how city farms can provide an educational and recreational resource for children

- 4 The priorities of biodiversity tend to be associated with long-term development. Show awareness of the risk that these longer-term priorities may lose out in the context of immediate pressures in other areas. And indicate ways of communicating the benefits of policies, programmes and projects which promote the principles of biodiversity in a way that raises the profile of long-term goals while commanding attention and rousing people to positive action
 - *Additional action proposal –Policy 35 or Policy 8.*

2.3 Show what actions can deliver the goals of the strategy

- 5 Make it clear that the Biodiversity strategy will be delivered on two main levels – through the range of Mayoral strategies and through local strategic partnerships..
 - *see overall Strategy and Policies 12 and 13*

- 6 Identify the issues and actions key to achieving the goals of the Biodiversity Strategy which are covered by other Mayoral Strategies (see box below) and specify key actions in each area which will bring significant benefits.
 - *Additional action proposal, Policy 12, and see Chapter 3, Links with other strategies*

Examples of links with Mayoral Strategies

- the transport strategy promotes an improved public transport system

- the economic development strategy encourages the enhancement of local employment and the full use of local knowledge and skills in community projects
- the spatial development strategy is likely to stress the importance of enabling a wider range of Londoners to use the resources the city has to offer

- 7 Suggest ways of encouraging local strategic partnerships to integrate local biodiversity strategies and community plans.
 - *Additional action proposal – Policy 12*
- 8 Provide clear guidance on what is best practice at different levels of working, and make this information widely available to all organisations. In particular, promote the expertise of the former London Ecology Unit and identify ways that a range of organisations can access and use these skills.
 - *Additional action proposal – Policy 2*

2.4 Plan to obtain resources needed to deliver the strategy's goals

- 9 Think carefully about ways to obtain the resources (people and money) needed to ground the strategy in reality.
 - *see overall Strategy, and additional action proposal, Policy 13*
- 10 Link proposals in the strategy to streams of funding such as Neighbourhood Renewal.
 - *Additional action proposal – Policies 12 and 13*
- 11 Work with lead organisations to identify the necessary resources to ensure a consistently high quality of environmental management of green and open spaces
 - *Additional action proposal – Policies 2 and 13*
- 12 Address the capacity needs of smaller environmental organisations which contribute to Proposal 15 of the strategy so that these projects can cater for the requirements of all visitors and volunteers including those with special needs.
 - *see Policy 5*
 - *Health effects of farm animals* (section 3) describes how city farms can promote social inclusion and community involvement.
- 13 Incorporate decisions about biodiversity into the earliest stages of planning developments when the extra cost will be less significant. In

this way, organisations in public and private sectors can achieve the benefits associated with offering staff and a wider public access to green space without having to transform existing sites. Press for design and planning guidelines to be adapted accordingly. (See 'Healing gardens' box below for an example of creative thinking in this area.)

- *Additional action proposal – Policy 4*

Healing gardens

In autumn 2000, the Older People's Directorate of South West London and St George's Mental Health Trust convened a conference with the title, 'Designing environments for older people with mental health problems.' Two capital projects for older people's services were being planned, and the conference was designed to provide an opportunity for those involved in developing and designing the new facilities to seek the views and expertise of those who would be using and working in them.

The conference was set up following an earlier event hosted by the Royal Institute of British Architects focusing on creating better environments for older people.

During the conference it was agreed that the involvement of patients in the design and upkeep of gardens can be an important element in providing a sense of ownership and purpose. Workshop discussions included the points that:

- patient involvement in gardening projects should be linked with work with occupational therapists
- particularly suitable areas for patient involvement include greenhouses, low maintenance plants, chamomile lawns, vegetable patches and raised flowerbeds.

2.5 Sponsor research into ways of assessing the success of projects with a biodiversity focus

14 Develop means of assessing, and making visible, the success of environmental projects so that biodiversity is 'mainstreamed' and becomes a major concern to organisations and individuals. In particular, consider working with funding organisations to sponsor research into potential indicators and to disseminate those indicators which already exist.

- *Additional action proposal – Policy 10*

3 Summaries of evidence used in the recommendations

3.1 Summary collation of evidence provided by Ian Corbyn

This summary was prepared by Steve Hajioff (NHSE) and Linda Sheridan (GLA).

Plant life, green space and health

There are a variety of impacts of green space upon health. In addition to providing an environment for physical exercise and a focus for community participation, they also improve the perceived environment and reduce stress. The presence of trees also has been found to mitigate the effects of traffic pollution and to absorb greenhouse gases. Natural vegetation may also act as a barrier to noise. Appropriately designed wetlands can mitigate the effects of toxic run off from roads. Green spaces are potentially sites of crime and can thus create anxiety. There is an injury risk, both in terms of crime, and also from recreational accidents. They provide a habitat for rodents and scavenging animals. They may also become contaminated with faecal material. The distance of green space from home is an important factor determining their use. There are a number of toxic plants amongst the prevalent species in London. Their effects vary from mild skin irritation to severe illness and death. Death from toxic plant ingestion is extremely rare in the UK. Whilst there is much concern about the implications of genetically modified organisms for human health, there is as yet no conclusive evidence of harm.

Studies, controlled for socio-economic status, have found significant health benefit from green spaces. Health indicators used have included self reported health, number illness episodes; and likelihood of psychiatric morbidity. These effects were more pronounced in poorer communities. There is evidence that healthcare gardens in hospitals can have significant restorative effects on emotional, physiological, and behavioural components of stress in-patients and improve healing.

Health effects of pets and companion animals

Whilst the evidence for the positive effects of pets upon health is compelling, both in terms of recovery amongst those with known illness, and life expectancy of those without, they nevertheless do pose some health risks. In addition to potential injury through dog bites, dog faeces are a vector for *Toxocara* which can cause blindness and internal organ damage. The greatest risk is to children due to their play, which may bring them into contact with the ground.

Cats are known reservoirs for Bartonella, which causes cat scratch fever – resulting in fever and can cause organ damage. Cat faeces are also a reservoir of Toxoplasmosis, which can cause severe damage to unborn children and can be fatal in those with weakened immune systems.

Health effects of farm animals

Farm animals in city farms have a variety of positive health effects through promoting social inclusion and community involvement and providing an educational and recreational resource for children. They can, however also cause injury to people and act as reservoirs for a variety of communicable diseases.

Cryptosporidium is a parasite that lives in the stool of many farm animals, which resists usual water treatment techniques. It can cause severe gastrointestinal upset particularly in those with weakened immune systems. E Coli O157 is a potentially serious and highly virulent organism that is carried in the gut of many farm animals. It can cause serious illness and death.

Health effects of urban wildlife

Whilst an enriched environment with a diversity of animal life contributes to feelings of social well being, there are a number of adverse health effects associated with wild animals. Toxoplasmosis and Cryptosporidiosis, described above, can also be transmitted by rodents, particularly rats, which favour open spaces close to human habitation. Rats may also act as a reservoir for other serious infections such as typhus, Q fever and plague. Rat urine is also the major route for leptospirosis, a serious infection which affects the liver and is common amongst those who work with foul water.

The urban fox can act as a reservoir for insect borne infections such as Typhus and could act as a reservoir for rabies, should it re-enter the UK, that is not amenable to inoculation. Lyme disease is a serious illness transmitted by tick bite. Deer, mice and foxes are known disease reservoirs.

Whilst there can be serious allergic reactions to birds, these are rare amongst the general public and tend to occur amongst those who work with avians or who use them for recreation. More common are infections such as psittacosis, which can be serious, and organisms such as salmonella and campylobacter which cause food poisoning. There is some evidence that pigeons may carry avian tuberculosis and E Coli O157, but there is no conclusive evidence for transmission to humans.

3.2 Paper by Sjerp de Vries

Nature and health

... the relation between health and green space in people's living environment

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Introduction People living in a more natural area are believed to be more healthy than others. This relationship has been suggested to be one possible explanation for the fact that rural populations are often found to be more healthy than urban populations. It is also an important issue in current environmental policy. In this presentation we examine relation between living in a natural environment and indicators of self-reported health.

Methods We used data from the 1989 Dutch National Survey of General Practice (N=11,300) combined with data on land use within a three kilometres radius around the centre of the neighbourhood where respondents lived. To rule out selection effects of wealthier (and thus healthier) people living in more attractive (more natural) environments, we controlled for socio-economic background variables, together with demographic characteristics. Health indicators included self reported health, number of health complaint; and likelihood of psychiatric morbidity. Multilevel analysis was used in order to appropriately assess the effects of individual and neighbourhood level characteristics.

Results People living in a greener environment report fewer health complaints, have a better perceived general health and a better mental health. The relationship between urbanicity of the place of residence and indicators of health disappeared after introducing the indicators of land use. We did find some evidence of a stronger relationship for house wives and elderly persons, who are supposed to spend more time near their home, but no. for children. Finally, the positive association between health and green space seems to exist predominantly among lower socio-economic groups.

Conclusion There appears to be some evidence of a positive relation between health and a natural environment. Future studies could benefit from

a more precise operationalisation of people's environment as well as using more specific health indicators.

The following tables were prepared by Steve Hajioff (NHSE) and Linda Sheridan (GLA).

Health impacts of the draft Biodiversity strategy policies

Policy No.	Policy	Effect on determinants of health	Beneficial effects on health	Adverse effects on health	
				Effects	Possible mitigation
1	The Mayor will promote the protection of London's wildlife habitats and important species.	Increased physical activity	Less heart disease and strokes, diabetes, raised blood pressure, obesity, diabetes, osteoporosis, depression, cancer. Improved well-being.	Low risk of communicable disease transmitted by animals (wild and domestic)	Good management of sites to reduce vermin and action to prevent fouling by dogs.
		Reduction in social exclusion	Increase in equity	Low risk from poisonous species of plants	Education especially of children
		Employment opportunities	Increase in equity Reduction in poverty		
2	The Mayor will encourage and promote the management, enhancement and creation of valuable green space to allow important species to thrive and to promote public access and appreciation of nature.	Increased physical activity	Less heart disease and strokes, diabetes, raised blood pressure, obesity, diabetes, osteoporosis, depression, cancer. Improved well-being	Social exclusion	Open up non-publicly owned green spaces to public access

Policy No.	Policy	Effect on determinants of health	Beneficial effects on health	Adverse effects on health	
				Effects	Possible mitigation
2 <i>cont</i>		Improved quality of life	Improved well-being Improved mental health		
3	The Mayor recognises the unique role of the River Thames in London's history and in the lives of Londoners, and its value for transport, recreation and biodiversity. The river and its immediate surrounds will be designated as a Blue Ribbon Zone in recognition of this special importance.	Employment opportunities	Increase in equity Reduction in poverty	Small increased risk of contracting communicable diseases from wild animals especially vermin	Good management of riverside sites to reduce vermin.
		Increased physical activity	Less heart disease and strokes, diabetes, raised blood pressure, obesity, diabetes, osteoporosis, depression, cancer. Improved well-being		
		Improved quality of life	Improved well-being Improved mental health		

Policy No.	Policy	Effect on determinants of health	Beneficial effects on health	Adverse effects on health	
				Effects	Possible mitigation
4	The Mayor will seek to ensure that every opportunity is taken to increase access to natural green spaces, to green the built environment within development proposals and to use open spaces in ecologically sensitive ways. This is particularly important in areas deficient in open spaces and in areas with deprived communities.	Reduced social exclusion	Increase in equity	Personal safety fears	Good management of green spaces to increase real and perceived safety for visitors
		Improved social environment	Improved well-being Improved mental health		
		Reduction in air and noise pollution	Fewer deaths brought forward, less morbidity from cardiovascular and respiratory diseases; improved well-being; less global warming Improved well-being; less sleep disturbance	Risk of contracting communicable diseases	Good management of green spaces, to reduce vermin and dog / other animal fouling

Policy No.	Policy	Effect on determinants of health	Beneficial effects on health	Adverse effects on health	
				Effects	Possible mitigation
4 <i>cont</i>		Increased physical activity	Less heart disease and strokes, diabetes, raised blood pressure, obesity, osteoporosis, depression, cancer. Improved well-being		
		Leisure opportunities	Improved well-being Improved mental health Increased physical activity		
5	Londoners should have local opportunities for regular direct contact with the natural world, through allotments, community gardens, school grounds, environmental education centres and city farms.	Reduced social exclusion	Improved access to the means to improve lifestyle Increase in equity Improved well-being Improved mental health	Communicable disease risk	Good management of city farms and of the animals which are kept in them, and provision hygiene facilities for employees and visitors.
		Increased physical activity	Less heart disease and strokes, diabetes, raised blood pressure, obesity, diabetes, osteoporosis, depression, cancer. Improved well-being		

Policy No.	Policy	Effect on determinants of health	Beneficial effects on health	Adverse effects on health	
				Effects	Possible mitigation
5 <i>cont</i>		Healthy diet	Less obesity, diabetes, raised blood pressure, heart disease and strokes, osteoporosis, cancer.		
		Education opportunities	Reduced social exclusion Increased equity		
6	The Mayor will support and encourage the use of agri-environment and other schemes that enhance London's farmland biodiversity.	Employment opportunities	Increase in equity Reduction in poverty	Small increased risk of communicable diseases from farm animals	Good management of farm animals and hygiene around them
		Increased physical activity	Less heart disease and strokes, raised blood pressure, obesity, diabetes, osteoporosis, depression, cancer. Improved well-being	Theoretical risk from agricultural chemicals	Encouragement of organic practices
		Education opportunities	Reduced social exclusion Increased equity		

Policy No.	Policy	Effect on determinants of health	Beneficial effects on health	Adverse effects on health	
				Effects	Possible mitigation
7	The Mayor will oppose commercial or experimental release of Genetically Modified Organisms (GMOs) into the environment in London.	No evidence of any positive or negative effects on health		If poorly regulated GMOs have potential to adversely affect health	The policy of opposition to GMOs should mitigate any risk
8	London's many species, and the landscapes where they are found, should be celebrated and promoted.	Education opportunities	Reduced social exclusion Increased equity	Communicable disease risk	Good management of open areas and the species which inhabit them
		Leisure opportunities	Improved well-being Improved mental health Increased physical activity		
9 (1)	The Mayor will encourage the business community to play a major role in implementing the programme for conserving London's biodiversity.	Employment opportunities	Increase in equity Reduction in poverty	Social exclusion	Ensure that conservation by private companies leads to greater access for the whole population of London

Policy No.	Policy	Effect on determinants of health	Beneficial effects on health	Adverse effects on health	
				Effects	Possible mitigation
9 (1) <i>cont</i>		Leisure opportunities	Improved well-being Improved mental health Increased physical activity		
		Improved social environment	Improved well-being Improved mental health		
9 (2)	The Mayor will promote the reputation of London as a world centre of excellence for biodiversity conservation, working with London's world class organisations for greater influence globally and to learn from exemplary experience abroad.	Employment opportunities	Increase in equity Reduction in poverty		
10	Progress in conserving London's biodiversity should be measured with particular reference to the status of important species and habitats, and progress on proposed actions or targets.	Employment opportunities	Increase in equity Reduction in poverty		

Policy No.	Policy	Effect on determinants of health	Beneficial effects on health	Adverse effects on health	
				Effects	Possible mitigation
11	The Mayor will encourage practices that reduce London's impact on biodiversity elsewhere.	Education opportunities	Reduced social exclusion Increased equity		
		Improved social environment	Improved well-being Improved mental health		
		Leisure opportunities	Improved well-being Improved mental health Increased physical activity		
12	The Mayor supports the establishment and maintenance of partnerships at London-wide and local levels to produce and implement Biodiversity Action Plans.	Reduced social exclusion	Improved access to the means to improve lifestyle Increase in equity Improved well-being Improved mental health		
		Improved social environment	Improved well-being Improved mental health		

Policy No.	Policy	Effect on determinants of health	Beneficial effects on health	Adverse effects on health	
				Effects	Possible mitigation
13	The Mayor will use his influence to seek increased funding for biodiversity projects in London, and to ensure that major new projects include provision for biodiversity.	Increased physical activity	Less heart disease and strokes, raised blood pressure, obesity, diabetes, osteoporosis, depression, cancer. Improved well-being		
		Education opportunities	Reduced social exclusion Increased equity		
		Improved social environment	Improved well-being Improved mental health		
		Leisure opportunities	Improved well-being Improved mental health		
		Reduced social exclusion	Improved access to the means to improve lifestyle Increase in equity Improved well-being Improved mental health		

Health impacts of other options for biodiversity that are absent or downplayed from the strategy and would have a health impact

Other options	Effect on health
Control of domestic animals in open green spaces and management of feral cats.	Proven risk of contracting serious communicable diseases (Toxocara Canis and Catis) which are transmitted by dogs and cats fouling the area.
Management of City farms to minimise risk to staff and visitors	Proven risk of contracting serious diseases (E Coli 0157) which are transmitted by contact with farm animals
Control of rats in open spaces especially close to dwellings or accessible to humans	Risk of contracting serious communicable diseases (Toxoplasmosis, cryptosporidiosis, Q fever, Typhus, Plague and Leptospirosis)) through contact with rats or with their excreta
Management of the increasing population of urban foxes in London	If rabies were to re-enter the UK the urban fox could be a potential reservoir for the disease.
Management of the pigeon population and discouragement of human contact with pigeons	Pigeons are known to carry and can transmit the organism which causes psittacosis, which can be serious. There is also a potential risk that they can transmit salmonella and campylobacter which cause food poisoning and they may carry avian tuberculosis and E Coli O157, although there is no conclusive evidence for transmission to humans.

In England and Wales in 2000 there were the following human cases of animal associated infections (CDR Weekly, PHLS):

Organism	Number
Borrelia burgdorferi	238
This organism causes Lyme disease, a serious tick borne infection which can be fatal. Incidence in the UK is increasing, mainly outside London at present.	
Leptospira	52
This is the cause of Weil's disease, a serious illness which causes jaundice. The leptospira are passed in rat urine and infect water, most infections occur after swimming in infected water especially in canals.	
Pasteurella	231
This is a normal organism which is carried by animals but can cause severe wound infections in humans and (rarely) systemic infections. Most infections are the result of dog and cat bites -	
Toxocara	8
This is a parasitic worm which causes symptoms of blindness or eye disease and physical damage to the human organs caused by the migrating larvae of the worms. They are disseminated into the environment via the faeces of the infected animal usually the dog	
Toxoplasma	93
The source of human infection is contact with cat faeces containing cysts or contaminated undercooked food. In pregnancy Toxoplasmosis leads to congenital infection, which can give rise to mental retardation and blindness in the infant. It also has serious consequences for those with HIV infection of other immunocompromised individuals.	

Annex 1 Participants in policy appraisal workshop

Draft Biodiversity and Air Quality Strategies Health Impact Assessment Workshop

Date 12th March 2001

CONFIRMED ATTENDANCE

London Health Commission

Dr Sue Atkinson	NHSE London
Mark Brangwyn	Association of London Government
Liza Cragg	Health Development Agency/Greater London Authority
Janet Fyle	Royal College of Midwives
Antony Jacobson	Barnet Health Authority
Dr Zarrina Kurtz	Freelance Public Health Consultant
Hilary Samson-Barry	Greater London Authority
Bolanji Bank-Anthony	Race on the Agenda

Assembly's Environment Committee

Samantha Heath	Greater London Authority - Assembly
Louise Bloom	Greater London Authority - Assembly

Public Health and HIA Contacts:

Dr Anthony Kessel*	London School of Hygiene & Tropical Medicine
Dr Jennifer Mindell*	Imperial College School of Medicine - Dept. of Epidemiology & Public Health
Dr Chris Watts*	Barking & Havering Health Authority - Director of Public Health
Steve Hajioff	NHSE
Dr David Woodhead	King's Fund
Linda Sheridan	GLA
Diana Lowe	Department of Health
Clive Blair-Stevens	NHS Executive – London Regional Office

* Air quality (morning session) only

Clifford Davy ⁺	British Trust for Conservation Volunteers
Dr Catherine Brogan ⁺	Brent & Harrow Health Authority – Director of Public Health & Policy
Lucy Furlong	London First – Project Executive
Iain Corbyn	Berks, Bucks, Oxon Wildlife Trust
Ben Armstrong	London School of Hygiene
Peter Fiddeman	GOL
Ben Cave	Queen Mary, University of London
Gary Fuller	King’s College London
James Farrell	Greater London Authority

Stakeholders

Moy Cash	Parks & Open Spaces
Cathy Maund	Federation of City Farms & Community Gardens
Mike Manuel	British Waterways
Esther Collis ⁺	London Biodiversity Partnership
Ranjini Beveridge	Maternity Alliance
Ian Wingrove	Green Group
Teresa Laport	Greater London Forum for the Elderly
Inspector John Gibson	RSPCA

GLA Strategy Leads

David Vowles*	Air Quality
David Hutchinson*	Air Quality
John Archer ⁺	Biodiversity
Julia Brownbridge ⁺	Biodiversity

⁺ Biodiversity (afternoon session) only

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