



**Report of the
Hammersmith & Fulham
Air Quality Commission
October 2016**

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Foreword – A Route to Clean Air



This morning I heard on the radio that Lancaster University researchers are investigating a link between minute particles of magnetised pollution in the brain and Alzheimer's. This points up the fact that new evidence is emerging every day on the connection between air and health. The link from air pollution to heart and lung disorders is already well attested. Close to home, road traffic – especially diesel vehicles – on main roads and the three town centres in the borough is a major contributor to pollution.

Next to traffic emissions, building construction, with its associated air-borne dust and heavy machinery, contributes to low-quality air, as do the many thousands of old domestic and commercial boilers. This report into the causes of air pollution is therefore timely.

The data on the quality of air we breathe continues to be disquieting. Air quality has not improved sufficiently under current regulatory regimes. In addition to examining the

causes of air pollution, the Commission on Air Quality has therefore sought remedies. In the course of our work we have received evidence, read reports, interrogated our advisors and questioned other Councils.

From the start we were clear that we wished not only to recommend actions for Hammersmith & Fulham Council, but also support air-quality measures proposed by the GLA and Government. Traffic and air are always on the move, and three-quarters of traffic in the borough originates from elsewhere. Our recommendations take account of that.

Residents, business and local organisations have a vital part to play in aligning their behaviour to ensure that – for the sake of themselves and others – the air is as clean as practical. The Commission recognises that changes in behaviour are not always easy and need to be supported by clear reasons and incentives if old habits and immediate conveniences are to be set aside in favour of better quality air. But as with the 5p charge on a supermarket plastic bag, even a small change can make a huge difference.

No one need think that their individual actions – however small-scale – do not have an effect, whether it is leaving the car at home, walking children to school (getting exercise into the bargain), planting shrubs or trees, rather than laying paving, or avoiding harmful aerosols. Green spaces and plants – in and out of the home and office – purify the air and enhance well-being.

Air quality and energy are strongly linked. New technologies and developments are coming on stream all the time. What seems novel this year – a plane flying round the world on solar power – will seed headlines about spray-on solar windows next year.

It is a matter of becoming air conscious. To use the opportunities as they become available. The Council, the GLA and Government have much work to do. We wish them every success, and urge them to heed the evidence and take up our recommendations.

To conclude, my fellow Air Quality Commissioners are residents – like myself – and brought a range of expertise and experience to our deliberations. I am most grateful to them for their attention and contributions. Officers at the Council managed the project and gave invaluable advice and briefings on policy. We could not have done this without them.



Rosemary Pettit

Chairman, H&F Air Quality Commission

Executive Summary

Almost 1 in 4 deaths in Hammersmith & Fulham can be attributed to air pollution, which is an important risk factor in heart disease, stroke, lung cancer and respiratory diseases, as well as being associated with cognitive impairment and Type 2 diabetes.

There are many causes of air pollution in the borough but traffic emissions are, by far, the main cause, producing nitrous oxides and particulate matter.

Key findings:

- Planning policy and practice - the Local Plan and London Plan need revision;
- Transport policy and practice – diesel powered vehicles are a major concern due to the levels of nitrous oxide emissions;
- Greening policy and practice – trees, hedges and grasses can provide a protective barrier from air pollution, increase biodiversity and encourage walking and cycling;
- Public health – there needs to be much greater public awareness of the dangers of air pollution and its causes.

Key recommendations for Government:

- Launch a diesel scrappage scheme and place a surcharge on diesel fuel;
- Revise the MOT test to measure nitrous oxide and particulate matter emissions;
- Make plans for hydrogen-fuelled cars.

Key recommendations for the Mayor of London:

- Prioritise air quality in a new London Plan;
- Expand the designated Low Emission Neighbourhoods in London;
- Increase the use of electric buses across the borough;
- Introduce car-free days across inner London.

Key recommendations for the Council:

- Revise the Local Plan and supplementary planning documents to promote greening policies and to ensure that the impact on air quality of all new developments is given consideration;
- Establish a freight consolidation scheme in West London and convert fleets to low-emission vehicles;
- Develop an Urban Ecology Plan to drive greening and arboricultural policy and practice and increase tree, hedge and grass planting;
- Increase parking permit charges for diesel vehicles;
- Adhere to the WELL Building Standard and encourage the use of prefabrication in construction works;
- Develop plans to increase pedestrianisation, cycling and greening in town centres;
- Increase safer cycle routes, playing fields, parks and sporting facilities;
- Increase the number of electrical charging points across the borough;
- Introduce washing down of streets and pavements in areas of high particulate matter pollution.

Key recommendations for residents, businesses and community groups:

- Engage in a public education campaign to raise awareness of the impact of individual behaviour;
- Promote and encourage car sharing schemes;
- Involve school pupils in greening initiatives;
- Encourage more children to walk to school and more people to cycle;
- Boilers to be replaced by ultra-low nitrous oxide boilers.

1. Introduction



Air Pollution in Hammersmith & Fulham

Hammersmith & Fulham has the eighth highest percentage of early deaths attributable to nitrogen dioxide and to particulate matter air pollution in London, according to a report by King's College London¹. The report, commissioned by the Greater London Authority (GLA) and Transport for London (TfL), estimates that, in 2010 some 23% of deaths in Hammersmith & Fulham could be attributed to air pollution; this contributes to the early deaths of 203 residents per year.

Poor air quality is now an important risk factor of CVD (heart disease and stroke), lung cancer and respiratory disease. It is also associated with cognitive impairment (e.g. Parkinson's, Alzheimer's) and Type II diabetes.

Air quality affects people unequally; older people and children are more vulnerable. There is also evidence that it affects people with lower socio-economic status more severely, partially due to the residential environment they live in and their proximity to major highways. Occupation is also a factor in the risks to health of air pollution, as people who spend much time driving experience greater exposure to air pollution.

This report focusses on outdoor air pollution. Indoor pollution is also an issue for public health but it is more complex to monitor and tackle as damp, mould, smoking, furnishings, paint, room sprays, etc. all have an impact on indoor pollution.

A breakdown of emissions sources in Hammersmith & Fulham can be found on pages 8 and 9 of the 2015 Updating and Screening Assessment for the borough: https://www.lbhf.gov.uk/sites/default/files/section_attachments/air-quality-lbhf-usa-2015.pdf.

H&F Air Quality Commission

In response to the findings of the King's College London report and other reports highlighting the problems of poor air quality in the capital, Hammersmith & Fulham Council established a resident-led Air Quality Commission to look into the problem. The Commission was launched in January 2016 and set out to review the evidence and to engage with experts in the field and local residents to examine the causes and dangers of local air pollution and to consider potential solutions to help reduce it.

Since its inception, the rationale for the Commission has been further strengthened by a raft of new publications such as 'Every Breath We Take' by the Royal College of Physicians, highlighting the problem and the need for urgent action.

This report is the outcome of the Commission's work and makes a series of recommendations aimed at national and regional government, Hammersmith & Fulham Council, businesses and local residents themselves. Brief details of the Commissioners can be found in Appendix A.

The Commission began its work by reviewing a number of recent reports and existing evidence as to the cause of air pollution in London and elsewhere and how air quality issues are being tackled in other boroughs and other cities. The list of reports that were examined are included in Appendix B.

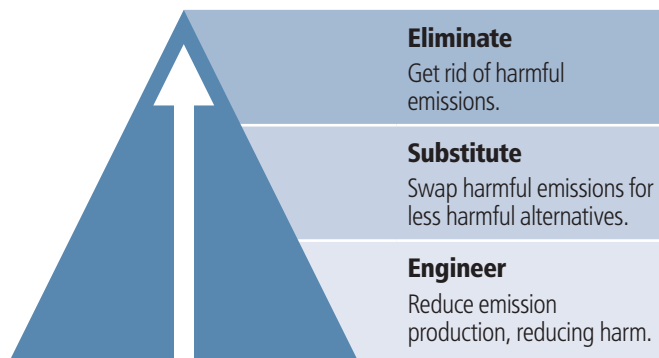
¹ Understanding the Health Impacts of Air Pollution (King's College London, July 2015).

Air Quality Action Plan

Hammersmith & Fulham was designated an Air Quality Management Area in 2000, as it exceeds health-based objectives for nitrogen dioxide and particulate matter. It is, therefore, required by the regulating Government body, the Department for Environment, Food and Rural Affairs, to produce and implement an Air Quality Action Plan setting out the measures the Council intends to put in place to reduce human exposure to these air pollutants. The current plan is in the process of being updated and will be the subject of public consultation. It has been informed by the work of this Commission.

Tackling Air Pollution Sources

A risk management framework can be used to illustrate and categorise potential approaches and interventions.



This report makes a series of recommendations that include elimination, substitution and engineering interventions with regard to pollutants and related risk factors.

Reducing Exposure to Air Pollution

Another way to reduce the impacts of air pollution on health is to minimise exposure. This can generally be accomplished in two ways:

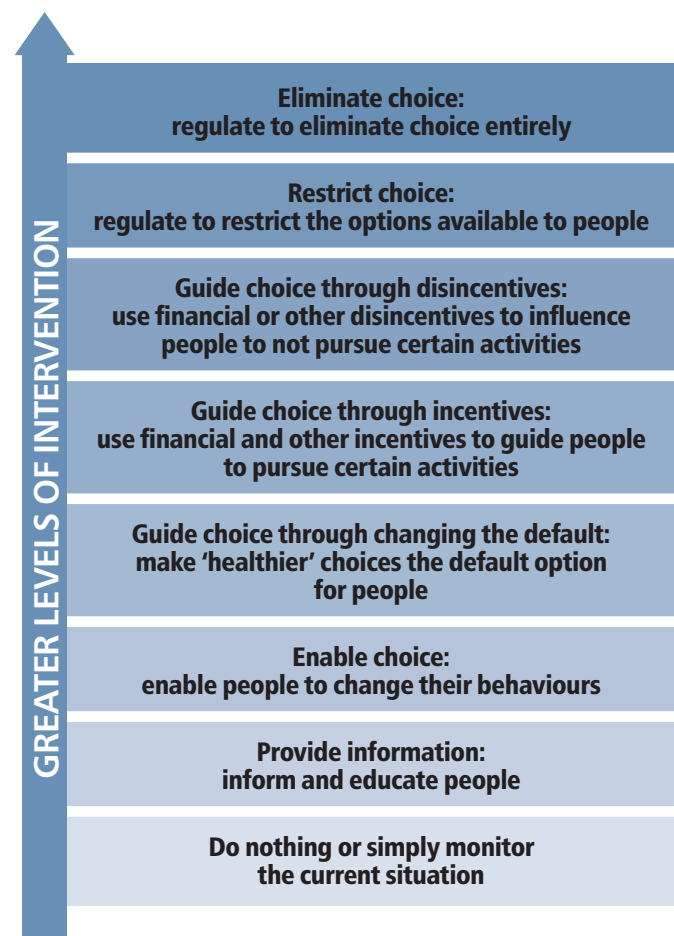
- increasing the public's awareness of air pollution and how to avoid it; or
- installing barriers between the pollution and the public.

Levels of Intervention

Many of these recommendations also require changes in behaviour, some of which can be introduced by education and information designed to raise public awareness of the problems of air pollution and the public's role in reducing it. Other interventions may require enforcement by regulation and with penalties for non-compliance.

The Nuffield Ladder of Intervention² (below) shows the various levels of intervention by which such behaviour change can be brought about. The recommendations contained in this report cover a wide range of differing levels of intervention.

Nuffield Ladder of Intervention



² Public Health: Ethical Issues (Nuffield Council on Bioethics, London 2007).

2. Planning Policy and Practice



The Commission recognises the need to raise awareness of air quality among decision-makers, planners and developers. There needs to be a unity of purpose to tackle the increasing problem of air pollution in the capital.

The Local Plan

It is the view of the Commission that Hammersmith & Fulham Council needs to make air quality a priority in setting out planning policy. The Local Plan, which is the strategic planning policy document produced by the Council, must recognise air quality issues in shaping planning policies and seek to ensure that developments are carbon neutral or even reduce air pollution in the borough.

This recommendation was made to the Council in the summer and the new Local Plan, which was subject to public consultation in September and October 2016, has incorporated this requirement at Section 6 – Environmental Sustainability.

The Commission recommends that the existing air quality policy and Supplementary Planning Document (SPD) be expanded to cover all developments which may be impacted by local sources of poor air quality or may adversely contribute to local air quality.

The Commission recommends that arboricultural and greening policies be promoted in the Local Plan or SPD.

The Commission is also of the view that the Council needs to plan for 'walkability' and the promotion of cycling as clean transport, and that these be recognised in SPDs to the Local Plan.

Building design and construction policies are also important in ensuring that the built environment does not have a negative impact on human health and well-being and, again, the Commission recommends these be recognised in SPDs. For example, the WELL Building Standard³ should be adhered to in the planning of all new developments.

Construction works are also responsible for particulate matter and this can be greatly reduced with prefabrication. This greatly reduces particulate matter on site as well as speeding up the construction time.

The London Plan

The Commission calls on the Mayor of London to review the London Plan, the strategic planning document for the capital, and to prioritise air quality as part of that review.

The London Plan should promote the need for more permeable surfaces, more tree planting and other green barriers between highways and pedestrian areas (see Section 4).

Zero carbon policies – such as standards promoted by Passivhaus or the Association of Environment Conscious Building⁴ – should be incorporated in planning guidance for all new buildings.

³ International Well Building Institute: www.wellcertified.com/well.

⁴ www.aecb.net/

London's Climate Change and Energy Strategy

Decentralised energy is being promoted in London by the GLA as a means to reduce carbon emissions. A recent report by the Policy Exchange, however, highlights the fact that 'certain forms of decentralised energy produce significant nitrogen oxide (NOx) emissions, for example small scale gas and diesel engines, biomass boilers and combined heat and power (CHP) installations'⁵. Where decentralised energy does not contribute to local air pollution it is to be welcomed.

The Commission supports the recommendation of the Policy Exchange that the Mayor of London reconsider London's Climate Change and Energy Strategy to reconcile the potential conflict between decentralised energy and air pollution. The Commission calls on the GLA to cease promoting combined heat and power installations in their policy's energy systems hierarchy and instead prioritise the use of air quality neutral technologies like air/ground-source heat pumps or photo-voltaics.

Operational Planning

Non-road mobile machinery, such as cranes and diggers, are also major air pollutants and their use should be closely regulated, especially when operating in residential areas or near schools and other community facilities.

All major construction projects in the borough, such as the Thames Tideway Tunnel, the Earl's Court development and the Old Oak development programme should be closely monitored by the Council to ensure that all steps are being taken to mitigate the impact on air quality of the demolition, construction, drilling and movement of spoil.

Summary of recommendations:

- The Local Plan to specify the need to consider the impact of all new developments on air quality and to require developments not to add to air pollution.
- Arboricultural and greening policies to be promoted in the Local Plan or Supplementary Planning Documents (SPDs).
- The need to plan for 'walkability' and cycling in an area to be recognised in SPDs to the Local Plan.
- The WELL Building Standard to be adhered to in the planning of all new developments.
- The Council to encourage the use of prefabrication in construction works to reduce particulate matter.
- The Mayor of London to review the London Plan and prioritise air quality in a new London Plan.
- A new London Plan should require more permeable surfaces, more tree planting and other arboricultural barriers between highways and pedestrian areas.
- Zero carbon policies should be incorporated in planning guidance for all new buildings.
- The Mayor of London to review London's Climate Change and Energy Strategy to reconcile the potential conflict between decentralised energy and air pollution and cease promoting combined heat and power installations in its energy hierarchy above air quality neutral technologies.
- All major developments, particularly those which will last for many years, to be closely monitored to ensure that all steps are being taken to mitigate the impact on air quality of the construction, drilling and movement of spoil.

⁵ Up in the Air: How to Solve London's Air Quality Crisis, Part 2 (Policy Exchange, March 2016).

3. Transport Policy and Practice



Road transport is the main cause of air pollution in Hammersmith & Fulham. The area is a transport hub and has major strategic highways, such as the A4 and A40, crossing the borough as well as heavily congested north-south routes. Most of the traffic in Hammersmith & Fulham (about 75%) originates from outside the borough. The Commission has, therefore, been mindful of policies affecting transport passing through, but beginning or ending outside, the borough.

Diesel Powered Vehicles

The increase in the number of diesel-powered vehicles on our roads over the last 15 years is largely responsible for elevated levels of NO₂ emissions in our cities. Diesel cars now make up over 50% of all new cars sold in the UK, and 36% of the total car fleet (up from 7% in 1994)⁶. The growth in diesel emissions has meant that NO₂ concentrations around inner London roads have shown little if any improvement since the beginning of the millennium.

European legislation and UK financial incentives, geared towards lowering only CO₂ emissions from road traffic, have, in part, led to this increase in diesel vehicles which have much higher emissions of NO₂ and particulate matter than petrol vehicles. The motor industry has also promoted the use of diesel as more fuel efficient.

In addition, the recent VW scandal has exposed the systematic failure of vehicles – but especially of diesels – to meet stated emissions performance standards. It is important that Government, regulators and the automotive industry ensure that all vehicles licensed on UK roads are capable of meeting required emissions standards under normal driving conditions. A testing regime is needed that delivers this.

The Council can seek to influence consumer choice by increasing parking permit charges for diesel powered vehicles, in the same way that it has levied reduced permit charges for electrical vehicles.

The Commission supports the recommendation of the House of Commons Environment, Food and Rural Affairs Committee that the Government launches a diesel scrappage scheme, giving grants to cut the cost of a low-emission and low-carbon vehicle for owners scrapping their diesel car or van.

The Commission also supports the Mayor of London's plans for Transport for London to start work on the costs and challenges of implementing a diesel scrappage scheme as part of the development of detailed proposals for a government-implemented diesel scrappage scheme.

The Commission also recommends that the sale of new, and importation of all, diesel vehicles to the UK be banned. The Commission further recommends that the Government places a surcharge (increasing over time) on the sale of diesel fuel to affect consumer choice and to help fund scrappage.

The Commission also recommends that the Government revises the MOT test to include measurement limits on NO_x and PM₁₀ emissions.

⁶ Up in the Air: How to Solve London's Air Quality Crisis, Part 1 (Policy Exchange, November 2015).

Pedestrianisation of Town Centres

The pedestrianisation of town centres is supported by the Commission as a means of reducing the impact of air pollution on the health of Londoners. The Mayor's plans to pedestrianise Oxford Street are most welcome and could be expanded to other areas of the capital.

The Commission recommends that the Council, along with its strategic partners such as Transport for London, makes plans to increase pedestrianisation, cycling and green space in its own town centres. The Commission believes that this should be referenced in the Hammersmith SPD.

Ultra Low Emission Zone

The Mayor of London's plans to expand the number of Low Emission Neighbourhoods, with associated funding, to eight inner London boroughs is welcome but needs to go further and be expanded to Hammersmith & Fulham.

The five new Low Emission Neighbourhoods will be introduced across eight boroughs with pollution-reducing measures including strict new penalties for the most polluting vehicles, car-free days, green taxi ranks for zero emission-capable cabs and parking reserved for the cleanest vehicles. These are all measures that the Commission would like to see introduced in Hammersmith & Fulham.

The Commission also welcomes the new Mayor's proposals to introduce the central London Ultra-Low Emission Zone in 2019 and to extend this beyond central London from 2020. The Commission strongly recommends that the Zone includes the A4 corridor to Heathrow, a major generator of traffic passing through the borough.

Low Emission Vehicles

The use of electric buses should be expanded in town centres until all petrol and diesel-fuelled buses have been removed. The Commission welcomes the Mayor of London's plans for clean bus corridors and calls on TfL and the Council to ensure that, with the proposed redevelopment of Hammersmith Broadway, only electric, hybrid or

low-emission buses are in use in Hammersmith town centre.

The Commission welcomes the introduction this year of 16 electrical charging points across the borough for electric cars. The Commission is supportive of increasing the number of charging points as an incentive to encourage more people to buy and use electric vehicles.

Other low emission fuels should also be developed for the future. A hydrogen vehicle station, for example, has recently been established in Teddington. There are two Liquid Petroleum Gas (LPG) stations in Shepherds Bush and more may be considered for the borough.

More than half of all households in Hammersmith & Fulham (55%)⁷ do not have the use of a car or van. To reduce traffic and increase clean vehicles the Commission calls on the Council to promote the use of car clubs offering electric or other low-emission vehicles, and to consider reducing the cost of car club parking.

The Council should require electric, and petrol-hybrid only vehicles in the procurement of their own fleet and their contractors' fleets and lead other businesses by example. This policy should be reviewed as other technologies, such as hydrogen, mature.

Other forms of transport need further expansion: the cycle superhighway (CS9) and safer cycle routes. Cyclists will be encouraged to take to the roads in greater numbers when cycling is safer and air less polluted. Cycling also brings other health and welfare benefits. The Commission, therefore, calls on the Council and TfL to actively support the development of safer cycle routes and the cycle superhighway.

Freight and Delivery Vehicles

The Commission heard evidence of freight consolidation initiatives – finding ways to align and coordinate deliveries to reduce emissions. This was successfully piloted in Islington where it focused on Council deliveries utilising a freight consolidation hub in Exeter. Islington and Camden now have

⁷ 2011 Census (ONS, 2012).

a freight consolidation scheme in operation. The Commission recommends that the Council seeks to establish a similar scheme in West London.

Restriction of HGV deliveries to specific hours can reduce traffic at peak times and, therefore, reduce the concentration of air pollution at those times. The Council should seek to phase out all but low-emission vehicles from its fleets and require the same of its contractors.

Idling

Many of the respondents to the Commission's call for evidence complained of the number of vehicles 'idling', i.e., leaving their engines running while stationary on residential streets across the borough.

London councils, such as Islington and Kensington and Chelsea, have introduced penalty charges for idling aimed at raising awareness, but no fines have been issued. LBHF is currently focussing on awareness raising as part of a pan-London anti-idling campaign funded by the Mayor of London's Air Quality Fund.

The Commission calls on the Mayor and the GLA to look into regional enforcement and education as part of the pan-London anti-idling campaign (Rule 123 of the Highway Code applies) and calls on the Council to monitor and review the feasibility of penalty charges.

Traffic Management

The Commission calls on the Council and TfL to ensure that traffic lights are co-ordinated to effect smoother flow of traffic. There is also a need to educate drivers to maintain moderate speeds to reduce emissions. The public needs more access to information and monitoring data to affect behaviour change.

Car-free days, perhaps selected according to number plate (as in Paris), can reduce traffic and pollution. The Commission calls on the Mayor of London to investigate the success of such schemes and consider introducing a scheme across inner London. The Mayor should also consider the introduction of restrictions on car use on high pollution days with powers to impose 'no car days' when pollution is very high and especially dangerous to health.

The expansion of low-emission public transport across the borough must be a key objective in reducing traffic by getting people out of their cars. For this reason the Commission supports the Council's case for the development of a Crossrail 2 station in the south of the borough.

Reducing Particulate Matter

Particulate matter in Hammersmith & Fulham is largely emitted by traffic in the borough. All vehicles – even those that do not rely on internal combustion for power – emit particulates from other processes, such as braking, tyre friction and wear. The Commission calls on the Government to put pressure on tyre, brake and clutch manufacturers to use materials that wear less, thus reducing particulate matter.

In some European cities there is nightly 'washing down' of all main streets but this is not a feature of London. The Commission calls on the Mayor of London and the Council to look into the benefits of regular 'washing down' of high polluting roads and pavements across inner London and the borough particularly on days when high levels of pollution are expected.

The Commission also calls on the Government and the Mayor of London to look into the nano coating of roads and tyres as a means of reducing particulate matter.

Summary of recommendations:

- Increase the diesel parking permit charge for residents to encourage the change to alternative modes of transport⁸.
- The Government to launch a diesel scrappage scheme giving grants to cut the cost of a low-emission vehicle for owners scrapping their diesel car or van⁹.
- The sale of new, and importation of all, diesel vehicles to the UK to be banned.
- The Government to replace the existing regime to test vehicle emissions with one that requires manufacturers to meet standards under normal driving conditions.
- The Government to place an increasing surcharge on the sale of diesel fuel to affect consumer choice¹⁰.
- The Government to consider revising the MOT test to include the measurement limits of nitrous oxide and PM10 emissions¹¹.
- The Council, along with its strategic partners such as Transport for London, to develop plans to increase pedestrianisation, cycling and greening in its town centres.
- The Mayor of London to add Hammersmith & Fulham to the eight boroughs with designated Low Emission Neighbourhoods.
- The use of electric buses to be expanded across the borough until all petrol and diesel-fuelled buses have been removed.
- The Government and the GLA to make plans for hydrogen-fuelled cars.
- More safer cycle routes to be developed by the Council and Transport for London.
- The Council to plan for, and facilitate the development of, more electrical charging points across the borough.
- The Council to seek to establish a freight consolidation scheme in West London.
- The Council to work towards a target of converting all of its fleets to low-emission vehicles and introduce procurement requirements to ensure that contractors comply with low-emission targets.
- An education campaign, to be initiated by the GLA and the Council, to reduce 'idling'. The Council to consider enforcement for offenders.
- Traffic lights to be co-ordinated to effect smoother traffic flows.
- A scheme of car-free days to be introduced across inner London by the Mayor and consideration given to bans on vehicle use during days of very high air pollution.
- Tyre, brake and clutch manufacturers to use materials that wear less, thus reducing particulate matter.
- Washing down of streets and pavements to be introduced in areas of high particulate matter air pollution.
- The Council and other decision makers to keep under review new environmental initiatives and best practices as these come forward.

^{8, 9, 10, 11} One commissioner, David Chamberlain, does not support these recommendations.

4. Greening Policy and Practice



Trees, hedges and grasses can provide a protective barrier from air pollution when positioned between road traffic or other pollution sources and pedestrians. The greening of urban spaces increases biodiversity and also encourages people to get out of their cars and walk and cycle instead.

Urban Ecology Plan

The Commission calls on the Council to develop an Urban Ecology Plan to drive arboricultural policy and practice across the borough. The greening of urban centres has many benefits beyond improvements in air quality and enhancing biodiversity. It can help to reduce flooding, ameliorate the impact of 'heat islands', mitigate wind and weather and improve the aesthetics of the inner city.

Planning and Development

The Commission recommends that arboricultural policies be incorporated into the Local Plan and Supplementary Planning Documents (SPDs).

The Commission also calls on the Council to exercise its planning and enforcement powers to ensure that developers fulfil commitments in delivering tree-planting agreements.

Schools and Public Awareness

The Commission calls on schools to set up greening initiatives as a means of both improving their local environment and educating the next generation on the importance of urban ecology. The award-winning Phoenix School farm, in association with Hammersmith Community Gardens Association, may be upheld as a shining example of what one school in the borough has achieved.

The Council should increase its support for, and participation in, public awareness environment programmes like those run by Hammersmith & Fulham Urban Studies Centre and its Children's Parliament to encourage education on the causes and effects of air pollution.

The Council to encourage residents and organisations to consider Blue Green schemes in homes and offices. Indoor greenery is known to have air purifying qualities, absorbing carbon dioxide and releasing oxygen, but also filtering harmful chemicals such as formaldehyde, benzene and trichloroethylene.

Trees, Hedges and Grasses

The right trees, hedges and grasses need to be planted in the right places in order to combat air pollution directly, but greening the borough with more planting also encourages more people to walk and cycle, with an indirect impact on air quality. Tree pruning can reduce the benefits of trees in neighbourhoods so the Commission calls on the Council to stagger pruning to one in every three trees every three years.

The Commission recommends that tree, hedge and grass cover be increased across the borough. The majority of tree, hedge and grass cover is likely to be in private ownership, but we call on the Council to increase planting on Council-owned land and highways, and facilitate new trees on development sites. The Commission also calls on the GLA to ensure it meets and exceeds its targets to increase London's tree canopy and continues to commission regular studies to measure and monitor greening cover.

With increasing pressure for development, finding space for larger trees to grow to maturity is becoming difficult. An example of this problem can be found at the BBC site north of South Africa Road; the current development is only around 25 years old and already the extensive tree planting put in at the time is now being removed so the site can be redeveloped. Most of the larger growing species take at least 30-40 years to reach early stages of maturity so trees are being lost at the maximum stage of benefit. The Commission calls on the Council and developers to maintain mature tree cover when planning for new developments across the borough.

Summary of recommendations:

- The Council to develop an Urban Ecology Plan to drive greening policy and practice across the borough.
- Arboricultural policies to be incorporated into the Local Plan and SPDs.
- The Council to exercise its planning and enforcement powers to ensure that developers fulfil commitments in delivering tree-planting agreements.
- The Council to encourage residents and organisations to consider Blue Green schemes in homes and offices.
- Schools to involve pupils in greening initiatives as a means of both improving their local environment and educating the next generation on the importance of urban ecology.
- The Council to increase its participation in public education programmes to encourage education and awareness of air pollution.
- The Council to stagger tree pruning to one in every three trees every three years.
- The Council to increase tree, hedge and grass planting on Council-owned land and highways, and to facilitate new trees on development sites.
- The GLA to continue to commission regular studies to measure and monitor tree, hedge and grass cover across London boroughs.
- The GLA to meet and exceed its targets to increase tree canopy in London.
- The Council and developers to seek ways of maintaining mature tree cover when planning for new developments.

5. Public Health Policy and Practice



Air pollution is an obvious threat to public health but many of the common public health messages – walk more, cycle more, be more physically active – can reduce air pollution by encouraging people to leave their cars at home. There are days when air pollution is high and places like busy roadsides should be avoided to minimise the impact on health, particularly to children, the elderly and those living with heart and lung disease.

Encouraging Better Use of Green Space

Green spaces undoubtedly have a positive effect on public health. Public parks offer residents quiet enjoyment, play for children, green walking and connection with nature. These benefits may be undermined by over-use from schools and public events. Physical activity and active travel, however, reduce pollution and support good health. The Commission, therefore, calls on the Council to increase playing fields, pocket parks and sporting facilities in the borough, and encourage Hammersmith & Fulham residents to be the most active in London.

Raising Public Awareness of the Impact of Travel Choices

The rate of bicycle use in Hammersmith & Fulham is one of the highest rates in London but it is still very low in comparison to other European cities. Less than 5% of H&F residents use a bicycle on an average weekday and only 7.4% of work journeys are made by bicycle¹². Only 25% of all journeys in the borough are made on foot and only 12.8% of borough residents walk to work¹³.

The Commission calls on the Council to set targets for pupils to walk to school. Schools and the wider community to encourage more primary and secondary school children to walk and more people to use cycles to get around the borough on longer journeys. There is a need for more public education to raise awareness of the impact of individual behaviour. The Council should set targets, in comparison with other European cities, and monitor changes over time.

Businesses and community organisations should be promoting and encouraging car sharing schemes for their employees and service users.

Raising Public Awareness of Air Pollution in the Home

Boilers are a significant source of air pollution, particularly nitrogen oxides (NOx), second only to traffic in the borough. There are many ultra-low NOx boilers on the market at a comparable price bracket to regular boilers.

The Commission calls on the public, businesses, housing associations and the Council to replace boilers with ultra-low NOx boilers where possible or at least when old boilers need to be replaced. The Commission also calls on the Mayor of London and the Government to increase the public's awareness of this issue and improve the newly introduced boiler scrappage scheme to include a focus on air pollution.

Hammersmith & Fulham is a Smoke Control Area and only smokeless fuels or specific wood burner appliances may be used¹⁴. However, there have

¹² 2011 Census (ONS, 2012).

¹³ 2011 Census (ONS, 2012).

¹⁴ <https://smokecontrol.defra.gov.uk/index.php>.

been recent air pollution incidents in London which indicate that the public are not adhering to these laws. The Commission calls on the Mayor of London and the Council to undertake initiatives to raise the public's awareness of this, backed up by enforcement if necessary.

Raise Public Awareness of Health Impacts

Poor air quality can have a significantly detrimental effect on health. Air pollution disproportionately affects children. They are more vulnerable as their lungs are still developing, they spend more time outdoors and they are shorter and therefore breathe closer to vehicle exhaust pipes.

The Commission welcomes the Mayor of London's introduction of air pollution alerts during and on the day before high and very high pollution days at bus stops, tube stations and roadsides across the capital and encourages the Mayor to make these alerts more widespread.

The Commission calls on Government, the GLA, the Council, local health providers and news sources to provide regular messages and forecasts for air pollution. These messages would advise the public, particularly the parents of young children and those with heart and lung disease, on when it may be best to stay indoors and what areas or commuting routes are best avoided.

The Commission recommends that the Council continues to support awareness raising initiatives and pollution forecast tools like airTEXT and Walkit.com.

Local residents may be encouraged to use personal air quality monitors ('Citizen Scientists') to raise public awareness of the extent of air pollution across the borough.

Summary of recommendations:

- The Council to increase playing fields, pocket parks and sporting facilities in the borough to enable residents to keep fit and active.
- Businesses and community organisations to promote and encourage car sharing schemes among employees and service users.
- More primary and secondary school children to walk to school.
- More people to take up cycling to travel around the borough and beyond.
- A public education campaign to raise awareness of the impact of individual behaviour on air quality, covering the areas set out in this report.
- Boilers to be replaced by ultra-low NOx boilers.
- The Mayor of London's boiler scrappage scheme to have an air pollution focus.
- A public education programme on what it means to live in a Smoke Control Area.
- Public air pollution alerts and forecasts to be made more widely available.
- Awareness-raising initiatives like airTEXT and Walkit.com to continue to be supported by the Council.
- More local residents to become 'Citizen Scientists' and use personal air quality monitors around the borough.

Recommendations

For action by Government and national bodies

- The Government to launch a diesel scrappage scheme giving grants to cut the cost of a low emission vehicle for owners scrapping their diesel car or van¹⁵.
- The Government to place a surcharge on the sale of diesel fuel to affect consumer choice¹⁶.
- The sale of new, and importation of all, diesel vehicles to the UK to be banned.
- The Government to revise the MOT test to include the measurement limits of nitrous oxide and PM10 emissions¹⁷.
- Tyre, brake and clutch manufacturers to use materials that wear less, thus reducing particulate matter.
- Nano coatings for roads and tyres to be considered.
- The Government and the GLA to make plans for hydrogen-fuelled cars.
- Car manufacturers to meet pollution standards.
- 'No drive days' in major cities during episodes of very high pollution.
- The use of electric buses to be expanded across the borough until all petrol and diesel-fuelled buses have been removed.
- An education campaign, to be initiated by the GLA and the Council, to reduce 'idling'. Enforcement measures to be considered.
- A scheme of car-free days to be introduced across inner London by the Mayor and consideration given to bans on vehicle use during days of very high air pollution.
- Traffic lights to be co-ordinated to effect smoother traffic flows.
- The GLA to continue to commission regular studies to measure and monitor tree, hedge and grass cover across London boroughs.
- The Mayor of London's boiler scrappage scheme to have an air pollution focus.
- The Mayor of London to review London's Climate Change and Energy Strategy to reconcile the potential conflict between decentralised energy and air pollution, and cease promoting combined heat and power installations in its energy hierarchy above air quality neutral technologies.

For action by the GLA and regional bodies

- The Mayor of London to review the London Plan and prioritise air quality in a new London Plan.
- A new London Plan to promote the need for more permeable surfaces, more tree planting and other green barriers between highways and pedestrian areas.
- Zero carbon policies, balanced with air quality neutral policies, to be incorporated in planning guidance for all new buildings.
- The Mayor of London to add Hammersmith & Fulham to the eight boroughs with designated Low Emission Neighbourhoods.
- The Local Plan to specify the need to consider the impact of all new developments on air quality.
- Arboricultural and greening policies to be promoted in the Local Plan and Supplementary Planning Documents (SPDs).
- The need to plan for 'walkability' to be recognised in SPDs to the Local Plan.
- The Council to seek to establish a freight consolidation scheme in West London.
- The Council to work towards a target of converting all its fleets to low-emission vehicles and introduce procurement requirements to ensure that contractors comply with low-emission targets.

^{15, 16, 17} One commissioner, David Chamberlain, does not support these recommendations.

- The Council to develop an Urban Ecology Plan to drive greening and arboricultural policy and practice across the borough.
- Public air pollution alerts and forecasts to be made more widely available.
- The diesel parking permit charge for residents to be increased to encourage the change to alternative modes of transport¹⁸.
- The WELL Building Standard to be adhered to in the planning of all new developments.
- The Council to encourage the use of prefabrication in construction works to reduce particulate matter.
- The Council to stagger tree pruning to one in every three trees every three years
- The Council to increase tree, hedge and grass planting on Council-owned land and highways.
- The Council to exercise its enforcement powers to ensure that developers fulfil commitments in delivering tree planting plans; also to seek ways of maintaining mature tree cover when planning for new developments.
- The Council to encourage residents and organisations to consider Blue Green schemes in homes and offices.
- The Council, along with its strategic partners such as Transport for London, to develop plans to increase pedestrianisation, cycling and greening in its town centres.
- More safer cycle routes to be developed by the Council and Transport for London.
- The Council to plan for, and facilitate the development of, more electrical charging points across the borough.
- All major developments, particularly those which will last for many years, to be closely monitored to ensure that all steps are being taken to mitigate the impact on air quality by the construction, drilling and movement of spoil.
- Washing down of streets and pavements to be introduced in areas of high particulate matter air pollution.
- The Council to increase its participation in public education and awareness programmes on air pollution.
- The Council to increase playing fields, pocket parks and sporting facilities in the borough to enable residents to keep fit and active.
- Boilers to be replaced by ultra-low NOx boilers.
- Awareness-raising initiatives like airTEXT and Walkit.com to continue to be supported by the Council.
- The Council and other decision makers to keep under review new environmental initiatives and best practices as these come forward.

For action by residents, businesses and community groups

- A public education campaign is needed to raise awareness of the impact of individual behaviour on air quality.
- Businesses and community organisations to promote and encourage car sharing schemes among employees and service users.
- Schools to involve pupils in greening initiatives as a means of both improving their local environment and educating the next generation on the importance of urban ecology.
- More children to walk to school.
- More people to take up cycling to travel around the borough and beyond.
- Boilers to be replaced by ultra-low NOx boilers.
- A public education programme on what it means to live in a Smoke Control Area.
- More local residents to become 'Citizen Scientists' and use personal air quality monitors around the borough.

¹⁸ David Chamberlain does not support this recommendation.

Appendix A

The Commissioners

Rosemary Pettit (Chair)

Rosemary's professional background is in publishing. She has lived in Hammersmith since 1999 and has been engaged in voluntary and community work – mostly planning and development - in the borough for many years. She was membership secretary of Brackenbury Residents Association and from 2012-15 chaired the Hammersmith Society.

David Chamberlain

David has lived in Fulham for the last 16 years and been a commercial director for Oracle UK for the past 20 years. After graduating in natural sciences he joined BP, where he worked on computer modeling, economic analysis and negotiation of contracts. He has also worked in Hamburg and for the Abu Dhabi Company for Onshore Oil Operations.

Professor Derek Clements-Croome

Derek is an architectural engineer and emeritus professor at Reading University. He specialises in the design and management of intelligent buildings and lives in Hammersmith. He is a built environment expert for the CABE arm of the Design Council and a Fellow of the Building Research Establishment Academy. He sits on the Zero Fifty Commission for Haringey and edits Intelligent Buildings International Journal.

Kate Forbes

Kate is senior producer for BBC News and has won several awards for her television work all over the world. Her key area of focus between 2006-8 was science and environment, when she undertook projects on climate change for Newsnight, the Today programme, Ten O'Clock news and BBC Online. She lives in Shepherd's Bush.

Natalie Lindsay

Natalie's professional background is in project management. She is the principal of the local Fulham music school, Music'all, which operates out of Lady Margaret School, Parsons Green. She has lived on Wandsworth Bridge Road in Fulham for over 20 years.

Andrew Pendleton

Andrew is Head of Campaigns at Friends of the Earth England, Wales and Northern Ireland. He is also a member of Hammersmith & Fulham Friends of the Earth group and is representing them on the Commission. A keen cyclist, he has lived in the borough for 20 years.

Appendix B

Key Reports and Literature Reviewed

(in reverse chronological order)

Air Quality: Fourth Report of Session 2015-16 (House of Commons Environment, Food and Rural Affairs Committee) 20 April 2016 ([weblink](#))

Up in the Air: How to Solve London's Air Quality Crisis, Part 2 (Policy Exchange) March 2016 ([weblink](#))

Every Breath We Take: The Life Long Impact of Air Pollution (Royal College of Physicians) February 2016 ([weblink](#))

Improving Air Quality in the UK: Tackling Nitrogen Dioxide in Our Towns and Cities (DEFRA) December 2015 ([weblink](#))

The Airports Commission Report: Carbon Emissions, Air Quality and Noise. First Report of Session 2015-16 (House of Commons Environmental Audit Committee) 26 November 2015 ([weblink](#))

H&F Response to the DEFRA Consultation on Draft Plans to Improve Air Quality (LBHF) November 2015 ([weblink](#))

Up in the Air: How to Solve London's Air Quality Crisis, Part 1 (Policy Exchange) November 2015 ([weblink](#))

Health Impacts of Cars in London (Greater London Authority) September 2015 ([weblink](#))

Understanding the Health Impacts of Air Pollution (King's College London) 14 July 2015 ([weblink](#))

Updating and Screening Assessment for London Borough of Hammersmith & Fulham: In fulfilment of Part IV of the Environment Act 1995 Local Air Quality Management (LBHF) May 2015 ([weblink](#))

The Mayor's Transport Strategy (GLA) 2010 ([weblink](#))

RBKC Air Quality Action Plan 2009-2014 (RBKC) 2009 ([weblink](#))

H&F Air Quality Action Plan 2002-2005 (LBHF) 2002 ([weblink](#))

Appendix C

Summary of Written Evidence Submissions Received

A total of 40 submissions were received by the end of February 2016 in response to the open call for written evidence and a further 32 comments were posted online in response to the Air Quality Commission news releases.

Respondents

- 22 local residents
- Avonmore Residents Association
- White City Residents Association
- H&F Airport Expansion Commission
- Hammersmith Community Trust
- Hammersmith Society
- Fulham Society
- H&F Cyclists
- AirTEXT
- Cleaner Air in London
- Cleaner Air for West London
- West London Friends of the Earth
- Cllr Wesley Harcourt, Hammersmith & Fulham Council
- Andy Slaughter MP
- Rt Hon Greg Hands MP
- Greater London Authority/Transport for London
- Centre for Environmental Policy, Imperial College London
- Autogas Ltd
- Society of Motor Manufacturers and Traders

The Evidence

Residents' views

All of the responses from local residents focussed on road traffic pollution but some also raised concerns about air traffic and construction works. There were criticisms of the numbers of drivers of cars and vans (including taxis and builders' vans) that sit with their engines 'idling'. There were also specific criticisms of high polluting vehicles such as diesel cars, vans and lorries.

There were a range of 'carrot and stick' proposals put forward for incentivising drivers to switch to electric vehicles or other modes of transport and/or penalising the worst polluters.

Local organisations

The H&F Cyclists' response submitted evidence of measurements of NO₂ in the borough that they had carried out in conjunction with PlanetEarth. These measurements suggest that pollution may be worse than the readings recorded by LBHF's own monitoring stations.

The Hammersmith Society response proposed actions that the Council might undertake to promote the use of electric vehicles and to increase tree and vegetation cover across the borough.

The White City Residents Association response drew attention to the high volume of construction traffic that is likely to increase pollution in the White City and Old Oak area unless mitigating action is taken in advance of the major regeneration programmes planned for the area. The need for major public transport infrastructure development to accommodate the population expansion and reduce car use in the area was also flagged in the WCRA response as was the importance of maintaining green space and trees to tackle air pollution.

The response from the Chair of the H&F Airport Expansion Commission is an extract from the Commission's submission of evidence to the Davies Commission highlighting the likely increase in both air traffic and road traffic pollution that would arise from the expansion of Heathrow. The West London FoE response also focuses on the likely impact of Heathrow expansion.

Regional bodies

The GLA and TfL response (submitted jointly) answers the specific questions posed by the Commission as to what regional government is doing to address the air pollution problem across London and sets out what is required at national and European government level.

Professor Helen ApSimon of Imperial College London submitted details of a new vehicle NOx rating scheme that is being initiated.

National bodies and companies

Autogas Ltd, a joint venture between Calor and Shell, presented evidence of the improvement in emissions from LPG vehicles in comparison to those using petrol or diesel.

The Society of Motor Manufacturers and Traders (SMMT) submitted evidence of progress being made by the motor industry in reducing emissions from vehicles. The SMMT also submitted its response to a DEFRA consultation on draft plans to improve air quality from November 2015.

The responses received are contained in three volumes of evidence that can be found on the Air Quality Commission webpage at www.lbhf.gov.uk/airqualitycommission

Appendix D

Key Pollutants

Ammonia (NH₃): a byproduct of agriculture, particularly livestock manure, slurry management, and fertilizers. Smaller amounts can be derived from transport and waste disposal. It is not harmful to humans or mammals but is damaging to terrestrial and aquatic ecosystems. It is a precursor to secondary particulate dispersion.

Nitrogen oxides (NO_x): combustion processes (e.g. inside motor vehicles) emit a mixture of nitrogen oxides (NO_x), primarily nitric oxide (NO) which is quickly oxidised in the atmosphere to form nitrogen dioxide (NO₂). NO₂ has health impacts from penetration of the lungs and physiological systems.

Ozone (O₃): not emitted directly from any sources. It is a secondary pollutant formed through the reaction of volatile organic compounds with NO_x and hydrocarbons in the presence of sunlight. Whereas nitrogen dioxide acts as a source of ozone, nitric oxide (NO) destroys ozone and acts as a local sink (NO_x-titration). For this reason, O₃ concentrations are not as high in urban areas (where high levels of NO are emitted from vehicles) as in rural areas. Ambient concentrations are usually highest in rural areas, particularly in hot, still and sunny weather conditions which give rise to summer 'smogs'.

Particulate matter (PM) includes:

- primary particles: those directly emitted from a source, including combustion and mechanical sources, such as traffic emission;
- secondary particles: those formed in the atmosphere as a result of chemical reactions between gases such as ammonia, nitrogen oxides or sulphur dioxide.

PM is conventionally defined and measured by size:

- Coarse particles (PM₁₀–PM_{2.5}): particles smaller than 10 μm (10 thousandths of a millimetre or a micron) in diameter but greater than 2.5 μm diameter. Coarser particles arise from re-suspended road dust, brake and tyre wear, sea salt, quarries and soil;

- Fine particles (PM_{2.5}–PM_{0.1}): particles less than 2.5 μm diameter, which include most combustion particles such as those emitted from diesel engine exhaust, waste burning, bonfires, and domestic biomass burning; and secondary particles of ammonium sulphate or nitrate;
- Ultrafine particles (PM_{<0.1}): particles less than 100nm diameter (100 millionths of millimetre or nanometre) which are emitted in large numbers from diesel engine exhaust.

PM has health impacts with smaller particles considered particularly harmful.

Sulphur dioxide (SO₂): produced by industrial process such as combustion of fossil fuels for energy production. Exposure causes constriction of the lung's airways, particularly concerning for those suffering from asthma and/or chronic lung disease. As SO₂ is typically a precursor to secondary PM exposure, it contributes to the negative health effects of PM. Environmentally, SO₂ exposure harms plants by degrading chlorophyll, reducing photosynthesis, increasing respiration rates and changing protein metabolism. Deposition of SO₂ pollution can acidify soil and water resulting in a loss of biodiversity often in places distant from the source of the emissions.

