

## **Air Quality**

# **REPORT OF THE REGENERATION AND EMPLOYMENT REVIEW COMMITTEE**



**London Borough of Islington  
March 2013**

## CHAIR'S FOREWORD

# EXECUTIVE SUMMARY

## Air Quality

### Aim

The overall aim of the Air Quality Review was to look at the air quality in Islington, consider current work that was being done in Islington and across London and assess the actions that could be taken to improve the air quality in Islington. It was acknowledged that air quality was a regional problem and solutions would involve working with other local authorities and the community and securing funding.

### Evidence

The review ran from July 2012 until March 2013 and evidence was received from a variety of sources:

1. Presentations from witnesses - Simon Birkett, Clean Air London, Professor Gary Fuller, King's College, London, Professor Frank Kelly, King's College, London, Iarla Kilbane-Dawe, atmospheric scientist, Lucy Saunders, Public Health Specialist GLA/TfL, Jonathan O'Sullivan, Assistant Director of Public Health, Samantha Heath, London Sustainability Exchange, Elliot Treharne, Air Quality Manager, GLA, Matthew Pencharz - the Mayor's Environment Adviser
2. Presentations from council officers - Paul Clift, Principal Environmental Health Officer, Chair of the Chartered Institute of Environmental Health (CIEH) London Region Pollution Study Group and chair and project manager of the AirTEXT service, Sukky Choongh, Principal Technical Officer, Public Protection, Maxine Williams, Environmental Health Officer, Public Protection, Savva Mina, Service Manager, Environmental Services, Chris Rutherford, Transport Manager, Paul Selby, Career Grade Planner.
3. Visits to Cemex, Air Quality Monitoring Sites, GLA, King's College and a meeting of the Council's Air Quality Consultative Event
4. Written submissions – Client Earth, Lancaster University – Using Trees to Improve Air Quality in Cities, National Institute for Health and Clinical Excellence – Walking and cycling: local measures to promote walking and cycling as forms of travel or recreation

### Main Findings

Air pollution is largely an invisible problem which means that often people are not aware it is an issue that needs to be addressed.

Poor air quality has a range of harmful effects on human health. It could exacerbate existing heart and lung conditions. High levels of air pollution leads to increases in hospital admissions for Chronic Obstructive Pulmonary Disease (COPD) and asthma. Older people are more likely to have an existing heart condition or lung disease. Children are more vulnerable to the effects of air pollution because their lungs are still developing, they breathe at a faster rate and spend more time outdoors. They are also nearer the level of exhausts. If children breathed in too much polluted air during the years when their lungs were developing, this could prevent their lungs from ever fully developing. More deprived communities tend to experience higher levels of air pollution because they are closer to the sources of pollution e.g. busy roads). There is a link between deprivation and heart disease which was aggravated further by air pollution.

Diesel is often presented as a green option however it actually produces 22 times the particulate matter and 4 times the NO<sub>2</sub> emissions of petrol.

In 2003 Islington was declared an Air Quality Management Area as air quality targets were not being met. An Air Quality Action Plan was produced and each year progress reports have to be submitted to the GLA and DEFRA. The current position is that Islington does not meet the annual nitrogen oxide roadside data objective but does meet all the other objectives. Neighbouring boroughs also did not meet

the annual nitrogen oxide roadside data objective. Often air pollution in Islington was caused by sources elsewhere in London or even further afield.

Islington's next Air Quality Action Plan would focus on transport, development, energy usage, reducing emissions from businesses and awareness raising initiatives.

The Euro Standards set for vehicle emissions had not been as effective as anticipated as testing in the factory had not involved the starting and stopping that occurs whilst driving around London.

Electric cars, car clubs, cycling and walking should also be encouraged to improve air quality in London. The National Institute for Health and Clinical Excellence (NICE) had published recommendations and guidance on how local authorities could encourage walking and cycling and the health benefits of these.

The London Air Quality Network was founded in 1992/3 to coordinate and support air quality measurements in London. There is a co-ordinated network of continuous monitoring sites within and surrounding London. Fixed long term sites are funded by local authorities, DEFRA and TfL. It was the Europe's largest regional air quality network.

The Mayor's Air Quality Strategy aimed to reduce air pollution and improve the health of Londoners. A commitment has been made to upgrade the bus fleet, create low emissions zones and encourage sustainable travel. There are also non-transport measures which require developers to take appropriate measures when constructing and demolishing buildings and to comply with planning and development new initiatives.

The Mayor's Air Quality Fund (MAQF) and Cleaner Air Boroughs is part of a new approach to support additional local action. The Mayor wants to support boroughs in prioritising air quality and mainstreaming it through their activities (e.g. environment, transport, public health and planning). Funding would only be given to suitable schemes where match funding was provided. In January 2014, the Mayor would be awarding the first of the Cleaner Air Borough awards for exemplar boroughs working in London to improve air quality.

Smoother traffic flow also improved air quality. The GLA is looking to reduce the number of pedestrian crossings in order to do this. At the same time, the quality of the remaining crossings would be improved. Smoother traffic flow could be encouraged through a 20mph limit. Camden High Street is a TfL road where a 20mph limit has been introduced and where the traffic lights have been rephrased to enforce the limit. In future, it could be possible to change the way traffic lights are programmed to link them to monitoring station data and alter the timings accordingly.

There were many schemes taking place across London to improve air quality. These included a freight consolidation on Regents Street which had reduced vehicular movements by 75%, a zero emissions delivery policy in Shoreditch and a low cost cycle track in Camden.

The Council has electric cars, vans, scooters and hybrid cars and vans and had been awarded a bronze membership of FORS – Fleet Operator Recognition Scheme. In addition planning policies were in place to ensure developments kept emissions to a minimum.

The Airtext service provides air pollution, UV, pollen and temperature forecasts for Greater London. It is project managed by Islington Council. It is particularly useful to those who suffered from COPD and enabled them to plan their day accordingly e.g. carry medication, avoid main roads and avoid outdoor exercise where necessary.

The Council had received funding from DEFRA to do business engagement work.

## **Conclusions**

The Air Quality review has concluded that although much work is already done to improve air quality in Islington, further measures are necessary in order to reduce air pollution further. It was acknowledged this would be challenging as the source of much of the air pollution was from outside Islington or was

from traffic passing through Islington but the Council would need to work with other boroughs, TfL and the GLA in order to improve air quality as much as possible.

### **Recommendations**

1. That the Council directly works with the neighbouring boroughs on specific projects to formulate a regional approach to improving air quality and promoting air quality as a health issue to inform residents.
2. That the Council undertakes business engagement to inform businesses of the ways in which they could reduce emissions.
3. That the Council lobbies the Mayor to prioritise Islington bus routes when rolling out the retrofitted buses and includes data to show points where emissions were highest.
4. That the Council carries out a feasibility study on implementing a boroughwide low emission zone, including costings and presents a report to the Committee by September 2013.
5. That the Council's policies give greater priority to air quality in instances where air quality and carbon reduction conflict.
6. That the Council increase planting of trees and plant species which improve air quality.
7. That the Council, when replacing its vehicle fleet, sources vehicles with the highest Euro rating available including electric vehicles where possible.
8. That the Council takes the necessary action to get its bronze membership of the Freight Operator Recognition Scheme (FORS) upgraded to silver and then gold.
9. That the Council includes air quality in procurement criteria. This should include FORS membership.
10. That the Council proactively bids for funding for projects that will deliver improved air quality in Islington.
11. That the Council works with TfL to improve air quality further within the NO<sub>2</sub> Focus Areas (Angel to Islington Green and Nag's Head to Archway).
12. That the Council takes the necessary steps to avoid penalties and fines for breaching air quality regulations.
13. That the Council prepares a costed report on providing low cost cycle tracks in the borough to link up with the existing cycle network.
14. That the Council sets up an air quality working group to provide a lead on air quality issues.
15. That the Council's public health team works with the Air Quality Working Group and reports annually to the Health Scrutiny Committee on public health actions to address air quality issues.
16. That the Council applies for a Cleaner Air Borough award.
17. That Members receive a report on air quality midway between Air Quality Action Plans to ensure they are updated on the air quality issues in the borough and that this report be published on the Council's website.
18. That the Council considers establishing a citizen's action network on air quality, to help identify and address specific local air quality problems of concern to Islington's residents.

19. That, noting the successful joint Camden and Islington's air quality summit on 21 November 2011 in Camden, there should be a follow-up event in Islington in autumn 2013.
20. That the Council encourages and provides support to schools in developing walk to school travel plans.
21. That the Council encourages residents to make local journeys by walking and cycling through the provision of a safe, convenient and quieter street environment.

## COUNCILLORS 2012/2013

Councillor Foxsmith (Chair)  
Councillor Spall (Vice-Chair)  
Councillor Belford  
Councillor Wally Burgess  
Councillor Charalambous  
Councillor Debono  
Councillor Hamitouche  
Councillor Rupert Perry/Councillor Rakhia Ismail

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### *Officer Support:*

*Zoe Crane – Democratic Services*

*Savva Mina, Paul Clift, Sukky Choongh and Maxine Williams – Environment and Regeneration*

## **1. Introduction**

- 1.1 The London Borough is a densely populated inner city borough. It is recognised as having the least amount of green space per person out of all the London boroughs. The majority of parks and open spaces are located in the north of the borough, whereas the south is predominantly mixed use residential/commercial. The south-east corner of the borough is part of the London congestion charge zone. The main source of pollution is from road traffic as the A1 runs through the heart of the borough and is commonly used as a thoroughfare to travel through the city. Islington is considered a desirable location for developers and is frequented by construction traffic. Planning policies have allowed the authority to place stringent criteria on development in order to ensure emissions to air are not increased. The borough is serviced by 10 London Underground Stations and a number of over ground stations servicing the North London line, Overground, Hertford North to Kings Cross and the East London Line extension.
- 1.2 Local air quality is managed in accordance with the local air quality framework. The European Union has set legally binding limit values. The National Air Quality Strategy requires all local authorities to review and assess air quality in their areas against set objectives. The air quality objectives are set in the Air Quality Regulations. The review and assessment of air quality is a statutory three year cycle which involves a technical assessment of air quality every three years. Islington is currently on its fifth review.
- 1.3 The seven air quality pollutants are Benzene, 1, 3-Butadiene, Carbon Monoxide, Lead, Nitrogen Dioxide, Sulphur Dioxide and Particles (PM10 and PM2.5). The pollutants of most concern are Nitrogen Dioxide and particles. PM10 particles are 10 microns in diameter and PM2.5 particles are 2.5 microns in diameter. Particles are mainly produced through the combustion process. Targets are set for pollutants to be at a certain level by a certain date. The pollutants and targets are subject to change over time.
- 1.4 If one or more of the objectives is not likely to be met, the local authority has to declare an Air Quality Management Area (AQMA) and produce an air quality action plan (AQAP). The first stage review was undertaken in August 2000, in 2001 an AQMA was declared for part of the borough, in 2003 AQMA was declared for the entire borough and an AQAP was published. Progress reports are undertaken each year in between reviews and these have to be submitted to DEFRA and the GLA. The last one had been submitted in 2011 and was published on the Council's website. The current position is that Islington does not meet the annual nitrogen oxide roadside data objective but does meet all the other objectives. Neighbouring boroughs also do not meet the annual nitrogen oxide roadside data objective. A new action plan will be developed in the near future and the work of the scrutiny review will feed into it.
- 1.5 The World Health Organisation published Air Quality guidelines in February 2007. Since then there has been much more evidence about the problem of air pollution. The World Health Organisation would be publishing updated guidelines in Spring 2013.
- 1.6 In urban areas traffic is the main source of 'modern' air pollution – tiny particles and nitrogen dioxide. The collection and monitoring of data from 2000-2012 showed that concentrations of PM10 and NO2 have not decreased during this time. Unleaded petrol has particles that are the same size as those in diesel but there were far fewer particles.
- 1.7 London and New York are the only Alpha ++ cities in the world. This meant they are the most densely populated, economically active cities. The GDP of the eight inner London boroughs is greater than that of Kuwait, the Czech Republic or New Zealand. 2 million people work in the central London zone and two million people live there. Only 5% of these live and work there which means there are 1.9 million people commuting daily. This contributes to London's air pollution problem. London has half of the UK's air pollution.
- 1.8 When Londoners were surveyed they frequently put air quality in their list of top ten important issues. However they often did not realise the extent of the problem and the health implications. It was important to remember that being green in relation to climate change did not necessarily

mean being green in relation to air quality. People were more likely to think about transport at times of life change e.g. moving house and could be encouraged to do so (e.g. through estate agents) at these times before habits formed.

## **2. Findings**

### **Air Pollution Context**

- 2.1 5-9<sup>th</sup> December 2012 was the 60<sup>th</sup> anniversary of the Great Smog of 1952. This was caused by burning coal in power stations and people heating their homes with open fires. Levels of smoke and sulphur dioxide rose significantly during this time. Pollution was 100 times higher than the average at that time; hospital admissions rose and there were between 4,000 and 5,000 additional deaths in London.
- 2.2 By the time of the Great Smog in 1952, London had been very polluted for a century and the smog encouraged politicians to realise that action had to be taken. The Clean Air Act 1956 was introduced. Power stations were moved out of the city and only smokeless fuel could be burned in homes. From the 1970s when oil was discovered in the North Sea, it was used more as a fuel. There is now very little smoke and sulphur dioxide in the air.
- 2.3 In London there are on average 8-12 days per year when there is visible air pollution in the form of smog. On these days there are higher quantities of particulate matter, nitrogen dioxide and ozone. On most days only invisible air pollution is present and therefore most people do not realise there is a problem.

### **Heating**

- 2.4 Combined heat and power (CHP) and biomass boilers are increasingly being used in London and they increase air pollution. Biodiesel was used extensively until the subsidy was removed. The London Plan encourages the use of CHP; however, there are more efficient gas heating systems available. There are 23 known biomass boilers in Islington. Some are being well run e.g. at the Angel Centre, the Packington Estate and the Ecology Centre. The newer biomass boilers are better for air quality than the older ones but overall gas boilers are better for air quality than biomass boilers.
- 2.5 Concerns were raised about people having open fires for aesthetic reasons rather than because this was the only source of heat. This was particularly the case in the south of England at weekends. People were often only unaware that open fires polluted the air they were breathing. Similarly, barbecues caused air pollution.
- 2.6 20% of particulate matter and 50% of NO<sub>2</sub> was caused by buildings. 55,000 homes had been retrofitted to improve energy efficiency and public buildings were also being retrofitted. Insulating homes would enable people to use less fuel and reduce emissions.

### **Polluting modes of transport**

- 2.7 80% of particulate matter was caused by transport and diesel produced 22 times the particulate matter (PM) and 4 times the NO<sub>2</sub> emissions of petrol. Since 2000, diesel has been promoted to encourage greater fuel efficiency but this has exacerbated the air quality problem. The emissions of petrol cars has improved over time with technology. However, there has been little improvement with diesel cars and emissions were similar today. In 2007 the UK passed the point where half of all vehicles were diesel. Short vehicle journeys contributed to air pollution and those making them should be encouraged not to make them by car.
- 2.8 Three quarters of PM emissions in London would not be resolvable by taking action in London as the sources were elsewhere. Much of the PM is from as far away as Poland. The only way to control it is at a European level. In the 1990s there was a pact, limits were set that were believed to be achievable (Euro Standards) and power stations were cleaned up. The Euro Standards set for vehicle emissions has not been as effective as anticipated as testing in the factory had not involved the starting and stopping that occurs whilst driving around London. There had been two campaigns to measure this and tens of thousands of car emissions have been measured.
- 2.9 Buses travelling through Islington are a major source of air pollution and in addition some bus drivers unnecessarily leave their engines on whilst stationary, during particularly during breaks.

Across London 300 hybrid buses have been introduced, there is a hydrogen trial taking place and 1,000 of the oldest buses (Euro 3) are being retrofitted. This would reduce bus emissions by 80%. London will have the largest hybrid bus fleet in Europe. Putney was an example of a place where hybrid buses had been introduced due to poor air quality. Due to the size of buses, it is not possible to use petrol to fuel them.

- 2.10 Taxis over 15 years old are being retired and there is a minimum Euro 5 standard for new taxis. Black taxis are the most polluting vehicles in London. However, it would be possible to reduce particle emissions by 98% if all taxis had a particle filter fitted. These would cost approximately £1700 per taxi. The firm that had made black cabs had gone bust and the Mayor was encouraging potential producers of taxis to make a zero emission taxi. In London, there are currently at least three taxi companies who use Prius or electric vehicles.

### **Less polluting modes of transport**

- 2.11 Electric cars are commercially available, have zero emissions and many are powered by wind turbines. They have been through the NCAP (New Car Assessment Programme) for safety, have a 75mile range, had 300 miles per gallon and cost £1 to charge. Important technology includes stop start technology, hybrid technology which results in a minimum saving of 15% in fuel and carbon dioxide, retro fit solutions, global positioning systems and fuel monitoring.
- 2.12 Smiths/Modoc electric vehicles are approved for the Government's Plug-In Van Grant of £8,000. Companies purchasing commercial electric vehicles could write down 100% of the capital cost against tax in the first year of ownership. Electric commercial vehicles are exempt from the annual Road Fund and all Smiths vehicles are exempt from the London Congestion Charge, have a 100 mile range, 50mph top speed, zero emissions, a 2 tonne payload and are silent.
- 2.13 Each car club could reduce the number of cars on the road by up to 5,000 and result in significant carbon dioxide savings each year. Islington had the largest car club in the UK.
- 2.14 Concerns were raised about cycle routes mainly being along busy roads. If cyclists had to travel on main roads they could reduce the effects of air pollution on their health by avoiding the rush hour and not travelling behind buses. Some facemasks, particularly those containing activated charcoal could prevent some of the inhalation of noxious fumes, however particles are so small they would still be inhaled.
- 2.15 National Institute for Health and Clinical Excellence (NICE) had published recommendations and guidance on how local authorities could encourage walking and cycling and the physical health benefits of these. They also considered air pollution; the role in which walking and cycling could reduce air pollution emissions as part of their local action plans; balancing the increased exposure against the benefits of active travel and the way in which exposure during walking and cycling could be reduced further by careful route choice.
- 2.16 Those who cycle could save an average of £700 in commuting costs. Cycling could be incentivised in the work place. The 20mph speed limit would encourage cycling. There is evidence to suggest that face masks did stop some pollution from entering the airways but the smallest, most dangerous particles would still get through.

### **Studies and work being done across London and elsewhere**

- 2.17 The London Air Quality Network was founded in 1992/3 to coordinate and support air quality measurements in London. There is a coordinated network of continuous monitoring sites within and surrounding London. Fixed long term sites are funded by local authorities, DEFRA and TfL. The network is now Europe's largest regional air quality network with over 100 borough monitoring sites. King's College provides specialist scientific and technical support, collects and quality assures measurements and disseminates data to the public.

- 2.18 The London Air website had won the Air Quality Bulletin's annual website awards in 2011 and 2012. The website also has a smart phone app and a Google Chrome extension.
- 2.19 The Mayor of London's Air Quality Strategy 2010 aimed to reduce air pollution and improve the health of Londoners. A commitment has been made to upgrade the bus fleet, create low emission zones and encourage sustainable travel. There are also non-transport measures which require developers to take appropriate measures when constructing and demolishing buildings and to comply with planning and development new initiatives. A further non-transport measure is to raise public awareness.
- 2.20 The Mayor's Air Quality Fund (MAQF) and Cleaner Air Boroughs is part of a new approach to support additional local action. This complements Londonwide measures delivered by the Mayor. The Mayor wants to support boroughs in prioritising air quality and mainstreaming it through their activities (e.g. environment, transport, public health and planning). To this end additional funding from the MAQF would be linked to signing up to the Cleaner Air Borough criteria. Where funding was provided, match funding would also be required. In January 2014, the Mayor will be awarding the first of the Cleaner Air Borough awards for exemplar boroughs working in London to improve air quality. Boroughs are being seen as laboratories of innovation. Local schemes could have a big impact. It is important they deliver against multiple objectives – air quality, climate change and noise. New ways of thinking are required as exposure reduction is especially important at schools, hospitals and high streets. New ways of working are required; local authorities should work with each other, with Business Improvement Districts, community/residents groups and delivery partners. The old model was top-down delivery led by the Mayor and boroughs and focused on mitigation. The new model sought to empower and raise awareness. There is an increased focus on public health and adaptation. The Cleaner Air Champions have three core roles: 1) to raise awareness; 2) to reduce an individual's air quality footprint and 3) to support adaptation. A pilot scheme is taking place in Hackney, Islington, Redbridge and Havering. There would be 10 champions in each borough. Champions would be recruited from schools, hospitals, community groups, religious groups and businesses. Training and support would be provided by Sustrans. There would be a £10,000 fund to help them have an impact in their community.
- 2.21 The London Plan requires development proposals to be at least air quality neutral. This is difficult as many new developments are larger than the previous buildings. They therefore required good insulation and the cleanest gas boilers.
- 2.22 The ClearLo (Clean Air for London) Project is a collaborative scientific project involving 11 universities. ClearLo aims to provide long term integrated measurements of the meteorology, composition and particulate loading of London's urban atmosphere, made at street level and at elevated sites, complemented by modelling to improve predictive capability for air quality.
- 2.23 The Traffic Air Pollution in London is a project which is investigating toxicity and sources of air pollutants, will develop models of exposure to air pollution to include information about concentrations, emissions and time-activity. The effects of long term exposure to traffic pollution will be investigated.
- 2.24 Exhale (Exploration of Health and Lungs in the Environment) is testing the effect of traffic emissions on children's health by looking for signs of pollution in their saliva, looking at routes to school and estimating exposure. The children being tested live in East London.
- 2.25 Islington is part of a cluster group consisting of Kensington and Chelsea, the City of London, Westminster and Camden all of which have action plans focussed on transport measures, development, energy usage and raising awareness. The cluster group meets, shares best practice and has a co-ordinated approach. Research is conducted on cost effective actions to cut Central London air pollution.
- 2.26 TFL have created a green screen of plants on the Edgware Road to find out which plants are the most effective at improving air quality. It is difficult to quantify the benefits of planting trees but this

is encouraged in the action plan. It is recognised that certain types of trees are better than others at improving air quality. There is, however some evidence to show that physical barriers between people and the source of pollution could reduce the effects of air pollution. This may be particularly helpful near schools near busy roads.

- 2.27 There are ways to reduce vehicle movements. Freight consolidation by the businesses on Regent Street had reduced vehicular movements there by 75%. TNT and Office Depot are two firms the City of London used to delivery supplies by bicycle in order to reduce emissions. There are 13 businesses in central London who undertake zero emission deliveries for little or no extra cost.
- 2.28 Hackney has set up a zero emission delivery policy in Shoreditch. It might be possible that Islington could join this work programme focussed on Old Street and Tech City.
- 2.29 Germany has 47 low emission zones. Only vehicles in certain emission categories are permitted to drive in the low emission zones. Stickers specifying the correct emission category for each vehicle have to be bought and displayed before permitted vehicles can drive into the zone.
- 2.30 The Low Emission Zone in London has been expensive to implement and required heavy infrastructure. It has, however, delivered an improvement in pollution from HGVs.
- 2.31 Improving public awareness is an important issue. The Mayor of London and Transport for London had run an anti-idling campaign which aimed to improve understanding of the issue and there had also been a radio advertising campaign.
- 2.32 Under the localism agenda, the NHS would have to report on PM2.5 indicators. Transport providers, health providers and local authorities would all have to work together to improve air quality. A low emission zone across a number of boroughs could work but across one borough would not have as much impact as air flowed across borough boundaries.
- 2.33 Camden, the City of London, Westminster and Wandsworth are all proactive in working with the GLA. Islington has developed good partnership working with the GLA, particularly through the achievements of the airTEXT service.
- 2.34 Cycling could be promoted through the implementation of low cost cycle tracks. The cycle lanes are separated from the traffic by measures such as planters and cats eyes rather than kerbs. One is about to be installed in Camden. A 500m track would cost about £53,000 in comparison to the equivalent length expensive track which would cost £500,000. These low cost tracks had been successful in cities abroad particularly in New York and Barcelona.
- 2.35 TfL are starting to look again at the infrastructure of the 100,000km of quiet roads for cyclists which had made up the TCN programme and how cyclists could be encouraged to use them.
- 2.36 TFL are looking at fitting catalyts on buses, commissioning new Euro 6 buses or fitting vertical exhausts which would significantly reduce the air pollution from buses at ground level. Buses with vertical exhausts were common in other countries. In New South Wales, Australia they were being phased out due to the Euro Standards but as the Euro Standards had not delivered what they were expected to and the authorities were now regretting phasing the vertical exhausts out. Manufacturers have concerns about vertical exhausts as these would increase the visibility of the emissions from the exhausts when seen against blue sky.
- 2.37 In San Fransico, Spare the Air days are held. When air pollution levels are high the public is encouraged not to pollute so much that day and people are encouraged to work from home, car share, cycle or walk. This reduces emissions and exposure at the same time. After 20 years of this campaign there has now been a 9% reduction in car use on these days.
- 2.38 Air pollution in London regularly exceeds twice the World Health Organisation guidelines. London has the worst air pollution in the UK and among the worst in Europe. It was possible that the

government might not meet air quality laws in London until 2025. 2013 would be the EU Year of Air which would aim to highlight the problems of air pollution and air quality.

- 2.39 In London there is much work being done to reduce PM emissions; however nitrogen dioxide is more of a challenge to address. Nitrogen dioxide is not just a problem in cities. An example of a town with high nitrogen dioxide levels is Bradford on Avon.
- 2.40 Smoother traffic flow improves air quality. The GLA is looking to reduce the number of pedestrian crossings in order to do this. At the same time, the quality of the remaining crossings would be improved. Smoother traffic flow could be encouraged through a 20mph limit. Camden High Street is a TfL road where a 20mph limit has been introduced and where the traffic lights have been rephased to enforce the limit. In future, it could be possible to change the way traffic lights are programmed to link them to monitoring station data and alter the timings accordingly.
- 2.41 CMA Spray is a dust suppressant which sticks to the roads. It has been used in Scandinavia for over a decade and could reduce PM by 10-20% on the targeted roads. It is being used by the GLA and it reduces pollution by enough to justify its cost.

### **In Islington**

- 2.42 In Islington there are two fixed air quality monitoring sites. There is a roadside monitoring site on Holloway Road which monitors carbon monoxide, nitrogen dioxide and particles and there is a background monitoring site at the Arsenal which monitors nitrogen dioxide and particles. The background monitoring site has been moved from the back of a council building on Upper Street in 2007 to the Arsenal when the council moved from the Upper Street building. Since the move, the site had met the annual nitrogen dioxide objective. It was next to the railway line beside the ecology centre. The ecology centre has a biomass boiler and pollution from the burning wood could affect the results. The air quality monitoring stations are unable to decipher the source of the pollutants. The data from the Monitoring Stations is sent directly to Kings College where it is analysed along with data from other boroughs. Trends are identified and comparisons are made with data from other boroughs. The results are published on the London Air Quality Network website. Data from the monitoring sites is available on Islington's website. The Council also has two mobile air quality monitors, however their mobility is limited as they require hard standing and an electricity supply.
- 2.43 Council wide efforts are being made to improve air quality. The Planning and Development Department encourage car free developments and cycle parking provisions, Fleet and Transport Planning use electric vehicles, Sustainability promote cleaner energy strategies and Construction Impacts manage areas such as dust control.
- 2.44 The Council works with the Central London Air Quality Cluster Group, Transport for London and the Greater London Authority to improve air quality Londonwide. It is important to have a regional approach to air quality management as many of the sources of pollution in Islington are from outside the borough.
- 2.45 Each year the Council applies to DEFRA for funding. This year the Council has received funding for business engagement. Work had been done in the borough by City Air and the funding would allow the work to be replicated in other parts of the borough. As part of the business engagement work, businesses could be encouraged to replace their old boilers sooner than they were planning to in order to save energy costs and reduce air pollution.
- 2.46 Prior Weston Primary School has been part of a GLA funded programme undertaken by the London Sustainability Exchange. The programme is pitched at Key Stage 2 and is cross curricular. Parents, governors and teachers are also involved. Children investigating idling at the school gates had resulted in an 11% reduction of people leaving their engines on.
- 2.47 Since Islington was declared an Air Quality Management Area (AQMA) in 2003, a number of initiatives had led to improvements in air quality. These included the introduction of the 20mph

zone; parking charge rates being dependent on the vehicle emissions levels; the cycle action plan 2006; the introduction of a green procurement plan and green travel plan; reduced parking provision at council buildings and the use of hybrid council vehicles.

2.48 Islington's updated AQAP had been drafted and planning and transport departments would be consulted before the public consultation. The actions that could be taken to improve air quality are constrained by funding. Some funding is provided by DEFRA and the EU. It is anticipated that the action plan would be finalised by the end of this financial year. The draft updated AQAP focussed on the following five areas:

1) Transport – Driver behaviour could be targeted and driver training could teach drivers about reducing emissions. Car sharing, car clubs and car free days could be encouraged. TfL has an idling vehicles campaign through which £20 fixed penalty notices would be issued when drivers of idling vehicles would not turn off their engines when asked. Low emission zones could be implemented in specific areas of Islington. A best practice guide could be developed for taxi drivers. The council has no control over buses but could encourage the Mayor of London to retrofit the bus fleet with cleaner exhausts.

2) Development – The impacts of new developments would be determined. Developers could be required to submit carbon saving proposals, air quality proposals and mitigation steps that could be taken. Under Section 106, all developments have to comply with the Codes.

3) Energy Usage – The number of gas boilers could be reduced; energy efficiency could be improved; biomass and biodiesel could be controlled as although they were low carbon, they produced nitrogen dioxide and particulates; the uptake of renewable and low emission fuels could be encouraged and advice could be provided on energy saving and fuel use.

4) Reducing Emissions from Businesses – The Council wants to develop a green procurement guide. A bid for funding had been submitted to DEFRA for a business engagement project. If successful the following areas would be targeted: - Angel to Islington Green, Highbury Corner to Archway and possibly the Seven Sisters Road. The Council would like to commission air quality monitoring.

5) Awareness Raising Initiatives – It is important to raise awareness of personal exposure and enable people to reduce their exposure by using less polluted routes. The AirTEXT consortium provides health advice on pollution, UV and pollen levels and temperatures. The Council is interested in working with GPs to help inform patients. Islington has received funding to enable one primary school to be included in the Schools Engagement Project in which 50 schools from across London would try to reduce their emissions.

2.49 Overall, the measures in the 2003 AQAP had significantly reduced the concentration of pollutants. Islington is meeting the target for particulates but not for nitrogen dioxide. It is difficult to specify how much the implemented measures have affected air quality as external activity is also a factor. Modelling is not accurate as it assumes external activity would remain the same. It is also expensive.

2.50 Over the last seven years the Council had had access to funding through the low carbon van procurement programme. £600,000 had been saved buying 10 Smiths vans, 2 Modecs and 2 Ashwood hybrids and £269,000 had been saved in the last vehicle purchases for grounds maintenance (21 Ashwood hybrids). Lifecycle costs made the use of sustainable vehicles possible; however, cost would be the biggest barrier to having a completely green fleet. The Council's fuel costs are approximately £2m per year. The council has a 15 year contract for vehicles which would end in June 2013. After this time there would be a potential reduction in vehicles.

2.51 The Council had been awarded a bronze membership of FORS – Fleet Operator Recognition Scheme. It is hoped that in time the Council could upgrade to a gold membership.

- 2.52 The council has electric cars, van and scooters and hybrid cars and vans. Islington has an award winning green fleet. Diesel vehicles are used where appropriate due to cost constraints but filters are fitted and engines are downsized wherever possible. If new diesel vehicles have to be purchased they should meet Euro 6 standards wherever possible. Drivers are trained to make their vehicle run as efficiently as possible so that fewer emissions are produced.
- 2.53 The London Plan is used to make decisions on planning applications. Islington's existing and emerging planning policies includes a range of policies which influence air quality. These cover development in locations of poor quality, impacts of new development on air quality, urban greening and sustainable transport.
- 2.54 Policy DM34 (part E) states that "Developments in locations of poor air quality should be designed to mitigate the impact of poor air quality to within acceptable limits. Where adequate mitigation is not provided and/or is not practical planning permission may be refused."
- 2.55 Policy DM34 (part F) states that "Developments should not cause significant harm to air quality, cumulatively or individually. Where modelling indicates significant harm would be caused this shall be fully addressed through appropriate mitigation."
- 2.56 There should be a precautionary approach to the use of biomass on a site by site basis. Where air quality impacts are deemed acceptable – dispersion modelling and best available technology and fuel should be used. Domestic scale and other small biomass boilers are inappropriate in Air Quality Management Areas (AQMAs). Guidance on the use of biomass is due to be published by the Mayor.
- 2.57 Local authorities should ensure that constructors were not exceeding emission levels. In Islington there was a member of staff who monitored this.
- 2.58 Strong policies on energy efficiency and CO<sub>2</sub> emissions would lead to reduced NOX emissions from gas heating systems. A policy on supporting decentralised energy networks would lead to air quality benefits. Vegetation cleaned the air and urban greening could reduce street level pollution by up to 30%. Policy DM38 requires developments "to maximise the provision of soft landscaping, including trees, shrubs and other vegetation" and "maximise the provision of green roofs and the greening of vertical surfaces as far as reasonably possible".
- 2.59 Policies CS10 and DM49 requires all new development to be "car free". Major developments are required to support the provision of car clubs (DM49). Major developments are required to provide a transport assessment/statement and travel plan (DM4).
- 2.60 The movement of vehicles on Islington's main roads is now faster than previously. In theory this should result in better air quality but if the volume of traffic increases due to the faster journey times more drivers would decide to use these use these roads which would worsen air quality.
- 2.61 Tiered parking charges which were based on vehicle emission levels have been successful in Islington.
- 2.62 There is a bus garage in the borough in a densely populated area. Residents who have previously complained about noise from queuing buses no longer did so as they now have secondary glazing. However, the air quality is at the same level.
- 2.63 Children are educated about the environment in schools but this rarely includes information about air quality. Islington officers are willing to give talks in schools but there has been little interest.
- 2.64 The air quality team at the Council has secured a small amount of external funding from Defra to develop business engagement and school engagement work. If internal match funding is provided (for example, through Council LiPs funding), the Council could further develop this work area.

Internal match funding of projects is a key requirement of the new Mayor's Air Quality Fund, which could provide up to £400,000 extra funding for boroughs to improve local air quality. Business engagement projects could be used to encourage businesses to take actions e.g. encourage employees to walk more, turn down the heating and apply for grants where appropriate to help them reduce their emissions.

- 2.65 The council could promote the use of taxis which met the higher Euro standards. It might be possible to look into providing free parking permits for taxis with the appropriate filters who had attended an approved eco driving course. Local authorities could also require TfL to use buses of at least Euro 5 on Islington highways.
- 2.66 There is a need to reduce the sources of air pollution in the borough. Concern was raised that many of the polluting vehicles on the A1 are just driving through Islington. However the council had no jurisdiction over the A1 as it is a TfL road.

### Health implications

- 2.67 Poor air quality has a range of harmful effects on human health. It is estimated that poor air quality reduces life expectancy by 7-8 months and that in 2008 4,000 people died as a result of poor air quality, however the figures are hard to quantify. Last year's significant rainfall meant air quality was better during this time.
- 2.68 Only smoking caused more early deaths than air pollution in the UK.
- 2.69 Outdoor pollutants include particulate matter, nitrogen dioxide, sulphur dioxide and ozone. The health effects are as follows:
- Particulate matter – Fine particles are carried deep into the lungs and cause inflammation. It could exacerbate existing lung and heart diseases.
  - Nitrogen dioxide – This gas irritates the airways, increases the severity of respiratory disease symptoms including Chronic Obstructive Pulmonary Disease (COPD) and asthma. It is associated with reduced lung function growth.
  - Sulphur dioxide – This gas irritates the airways, aggravates asthma and COPD and heart disease. It could also irritate the eyes.
  - Ozone – High concentrations of ozone could aggravate asthma, reduce lung function and cause other breathing problems including chest pain and shortness of breath.
- 2.70 Indoor air pollutants includes environmental tobacco smoke, allergens, carbon monoxide and radon. The health effects are as follows:
- Environmental tobacco smoke – Environmental tobacco smoke from active and passive smoking are associated with COPD, lung cancer and heart disease. When smoke free legislation is introduced, there is a 20% reduction in hospital admissions due to asthma and this has continued to decrease.
  - Allergens – Dust mite excrement and fungal particles could trigger rhinitis and exacerbate other respiratory illnesses such as asthma.
  - Carbon monoxide – This is highly toxic to humans and is responsible for about 50 accidental deaths in England and Wales each year.
  - Radon – This is a naturally occurring radioactive gas. Health Protection Agency data predicted that no homes in Islington have a probability of more than 1% for exceeding recommended levels.
- 2.71 There is little evidence that outdoor air pollution causes COPD but it does aggravate it. High levels of air pollution leads to increases in hospital admissions for COPD and asthma increase. Research published in 2010 by the Aphekom group of scientists had shown that living on roads used by 10,000 or more vehicles per day on average could be responsible for 15-30% of all new cases of asthma in children and of COPD (chronic obstructive pulmonary disease) and CHD (coronary heart disease) in adults aged 65 years and older. Older people are more likely to have an existing heart condition or lung disease. Children are more vulnerable to the effects of air

pollution because their lungs are still developing, they breathe at a faster rate and spend more time outdoors. They are also nearer the level of vehicle exhausts.

- 2.72 The World Health Organisation had produced a review on the evidence of the effects of air pollution on children's health and development. Air pollution was highest near busy roads and often schools were located close to these roads. If children breathed in too much polluted air during the years when their lungs were developing, this could prevent their lungs from ever fully developing.
- 2.73 The health effects of low levels of outdoor air pollution are unlikely to be noticed even by people who are sensitive to air pollution. Moderate levels could have mild effects unlikely to require action but they could be noticed by sensitive people. Where there are high levels of outdoor air pollution sensitive people could notice significant effects and might need to take action to reduce or avoid them. If there are very high levels of outdoor pollution the effects on sensitive people could worsen.
- 2.74 There is now more health evidence to show that small particles enter the deeper part of the lungs. Tests have been conducted by putting volunteers into exposure chambers such as a diesel exhaust chamber or ozone/NO<sub>2</sub> chamber where conditions are closely controlled. Tiny diesel particles cause lung inflammation. White blood cells are unable to deal with the foreign entity.
- 2.75 In December 2010 the Committee on the medical effects of air pollutants published a report entitled *The Mortality Effects of Long Term Exposure to Particulate Air Pollution in the UK*. The survey stated that according to 2008 data the equivalent of 29,000 premature deaths were due to breathing tiny particles released into the air. The average loss of life was 6 months (although the actual amount varied between individuals from a few days to many years).
- 2.76 For each 10µg/m<sup>3</sup> increase in small particulate matter there is a 6% increase in all-cause death rates. In the UK, 29,000 people die early every year due to air pollution. In London, 4,300 die every year. Average life expectancy was reduced by 7-8 months but in the worst affected areas it could be as high as 9 years. Air pollution contributes to 7.9% of deaths in Islington each year. Vulnerable people are most at risk. If a person has an illness they were 7.9% more likely to die of that illness than if they lived in a place with no air pollution. For those with respiratory allergies, pollution worsened the allergic reaction.
- 2.77 Air pollution could cause nuisance affecting quality of life, particularly smoke from outdoor fires, dust from construction sites and odours.
- 2.78 The impact of air pollution on health had an impact on NHS resources. There were significant costs associated with more GP and hospital visits, hospital admissions and medication costs.
- 2.79 The benefits of cycling, walking or running outweigh the effect of air pollution on the body. Where possible, however, routes should be altered to minimise hazards. Quieter roads generally had less polluted air. Where possible, children should be walked to school away from main roads. If people were in better health, air pollution would have less of an impact. Promoting physical activity and exercise is vital.
- 2.80 The health impacts of the transport system in London relate mostly to motorised road transport. People being physically inactive results in obesity, cancer, heart disease and diabetes. Air pollution affects lung disease and child development. Road Traffic Collisions could cause mental health problems, death and injuries. Poor accessibility to the existing transport system could create social isolation and community breakdown.
- 2.81 Physical inactivity cost UK society £9.8bn per year, air pollution cost £10.6bn per year and road collisions cost £8.7bn per year. Each of these main transport impacts on health has a much greater effect on the poorest people than the richest.
- 2.82 In an urban environment, it is vital to reduce particulate matter and oxides of nitrogen. This was to ensure that lung related diseases caused by fine particles were reduced.

- 2.83 The current understanding is that PM had health implications 200 times greater than NO<sub>x</sub>. However it is difficult to fully understand the health implications because most polluting sources release a range of different pollutants.
- 2.84 From April 2013 public health would move into the local authority. This would create new opportunities for integrating the approach to tackling air quality in the borough. The Public Health Outcomes Framework would contain an air quality indicator. It is not yet known how this would be measured. The Health and Wellbeing Strategy would focus on actions the borough could take to improve health.
- 2.85 There are many things which make a street healthy. These include clean air, people feeling relaxed and safe, not too much noise, people choosing to walk and cycle, places to stop, pedestrians from all walks of life and shade and shelter. These things also make a street liveable, good for the local economy and good for the environment. Living Streets had access to research which showed that improving the environment for pedestrians and cyclists improved trade on shopping streets.
- 2.86 Air pollution affected different groups in different ways. More deprived communities tend to experience higher levels of air pollution because they are closer to the sources of pollution (e.g. busy roads). There is a strong association between COPD and deprivation, reflecting the greater prevalence of smoking among deprived communities. There is a well established link between deprivation and heart disease, a condition aggravated by air pollution. Deprivation is not independently associated with self-reported asthma, however active smoking is associated with wheezy symptoms and active and passive smoking with the use of medical services. Compared to the England average, the rate of Ambulatory Care Sensitive admissions (which included COPD and asthma) is significantly higher among the most deprived 20% of Islington's population and significantly lower for the least deprived 20%. Living near busy roads could be responsible for some 15-30% of all new cases of asthma in children.
- 2.87 There are a number of local, regional and national policies to address air quality. These include Islington's Air Quality Supplementary Planning Document, Islington's Evidence Hub, Public Health Outcomes Framework, Mayor's Air Quality Strategy and the UK Air Quality Strategy.

Key public health actions include:

- Providing an evidence base to support policies, programmes and actions to reduce air pollution.
  - Management of the local Air Quality Management Area.
  - Implementing air quality measures through the Core Strategy and Sustainability strategies.
  - Providing advice on mitigating harmful effects when pollution levels are high, especially among people who are more sensitive to air pollution.
  - Reducing emissions by promoting alternatives to traffic including walking and cycling.
  - Behaviour change programmes to reduce the prevalence of lung and heart diseases which are exacerbated by air pollution, particularly smoking.
  - Earlier diagnosis of long-term conditions to improve their management and delay or prevent their progression.
- 2.88 The Airtext service provides air pollution, UV, pollen and temperature forecasts for Greater London. It is project managed by Islington Council. It is particularly useful to those who suffered from COPD and enabled them to plan their day accordingly e.g. carry medication, avoid main roads and avoid outdoor exercise where necessary.

## 7. CONCLUSION

The Air Quality review has concluded that although much work is already done to improve air quality in Islington, further measures are necessary in order to reduce air pollution further. It was acknowledged this would be challenging as the source of much of the air pollution was from outside Islington or was from traffic passing through Islington.

The review included much evidence to show that much co-ordinated work was taking place with neighbouring boroughs, Transport for London (TfL) and the Greater London Authority (GLA). It is hoped that through the implementation of the recommendations, there would be more co-ordinated work in the future and that Islington submits innovative schemes to the Mayor which are granted funding from the Mayor's Air Quality Fund.

## SCRUTINY REVIEW INITIATION DOCUMENT (SID)

**Review:** Air Quality

**Scrutiny Review Committee:** Regeneration and Employment Review Committee

**Director leading the Review:** Jan Hart

**Lead Officer:** Savva Mina/Paul Clift

### Overall aims:

To explore the causes and effects of air quality and ensure that Islington's contributions to reducing air pollution are maximised and are favourable compared to the efforts other London Boroughs.

To look at national air quality standards and see how Islington's air quality compares.

To ascertain how well Islington is working with partners to secure funding and wins through partnership working.

### Objectives of the review:

To look at

- Islington's role in Air Quality including how we monitor AQ
- The state of Air Quality nationally, in London and in Islington and how Islington compares
- Actions taken by Islington to reduce air pollution and assess their success
- AQ and health and health inequalities in Islington
- Islington's partnership working
- 
- Islington's AQ enforcement

leading to recommendations to help improve air quality in Islington.

### How is the review to be carried out:

The review will focus on

1. State of Air Quality
  - Major pollutants and causes
  - nationally, London, Islington and how we compare
  - how it's managed
  - our role as a local authority and that of other regulators
  -
2. How Air Quality is monitored
  - Nationally / locally
3. Our Current actions to improve air quality
  - Focus on the more important
4. Our Partnership working
  - Airtext
  - Chair of pollution Study group
  - Summit with Camden
5. Defra grant work

6. Education /advice/ profile of AQ
  - meetings
  - website
  - publicity
7. Pollution Control
  - idling engines
  - industrial pollution : part Bs
  - complaints – smoke and bonfires
  - CIMO
  - Enforcement
  - Smoke control areas
  -
8. AQ health and Health inequalities
9. Future initiatives
  - New Action plan
  - LES Strategy

**Three types of evidence will be assessed by the review:**

**1. Documentary submissions including:**

- Statistics on number of industrial polluting premises in Islington
- Complaint and enforcement information
- Information following presentation on Air Quality to the Health Scrutiny Committee

**2. Witness evidence**

- Officer presentations - Planning and AQ, Fleet manager and AQ, Pollution Manager and Team
- Presentation by External speakers on AQ and health

**3. Visits**

- Visit to Monitoring Stations
- Visit to an industrial polluting premises
- Invitation to Pollution Study Day

Programme	
Key output:	To be submitted to Committee on:
1. Scrutiny Initiation Document	<b>17 July 2012</b>
2. Timetable	<b>11 Sept 2012, 15 Nov 2012, 17 Dec 2012, 29 Jan 2013</b>
3. Interim Report	<b>5 March 2013</b>
4. Final Report	<b>23 April 2013</b>

**APPENDIX B**

**List of witnesses, visits and documentary evidence**

**Witnesses**

Simon Birkett, Clean Air London

Kate Calvert, Better Archway Forum

Paul Clift, Principal Environmental Health Officer, Islington Council, Chair of the Chartered Institute of Environmental Health (CIEH) London Region Pollution Study Group and chair and project manager of the AirTEXT service.

Sukky Choongh, Principal Technical Officer, Public Protection, Islington Council

Professor Gary Fuller, King's College, London

Professor Frank Kelly, King's College, London

Iarla Kilbane-Dawe, atmospheric scientist

Savva Mina, Service Manager, Environmental Services, Islington Council

Caroline Russell, Living Streets

Chris Rutherford, Transport Manager, Islington Council

Paul Selby, Career Grade Planner

Maxine Williams, Environmental Health Officer, Public Protection, Islington Council

Lucy Saunders, Public Health Specialist GLA/TfL, Jonathan O'Sullivan, Assistant Director of Public Health, Samantha Heath, London Sustainability Exchange, Elliot Treharne, Air Quality Manager, GLA, Matthew Pencharz - the Mayor's Environment Adviser

**Visits**

Cemex

Air Quality Monitoring Sites

GLA

King's College

A meeting of the Council's Air Quality Consultative Event

**Documentary evidence**

Client Earth

Lancaster University – Using Trees to Improve Air Quality in Cities