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Pollution Control Team

The Borough Air Quality Bulletin

A Local Agenda 21/Environment Group Initiative

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IN THIS ISSUE

Ealing Borough Air Quality Bulletin

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Air Quality Worst in Poorest Areas

A new report from the Department for Environment, Food & Rural Affairs (DEFRA), demonstrates that the poor are more likely to live in areas of high pollution. The report analysed air pollution and social deprivation datasets for four cities; London, Birmingham, Belfast and Cardiff. In three out of the four (London, Birmingham and Belfast), there were clear correlations between social deprivation and air pollution, with the most deprived wards also being, for the most part, those where air pollution levels tended to be highest. In Cardiff however, the pattern is less clear, the highest pollution levels were found in the affluent central area of the city. The geography of Cardiff is unusual though; levels of pollutants were highest in central areas of other cities as they were in Cardiff. The report suggests that measures to improve air quality can therefore have a more pronounced effect in deprived areas and could help to reduce this social inequality.

Copies of the report ("Further Analysis of NO_2 and PM_{10} Air Pollution and Social Deprivation") are available via DEFRA's air quality archive website which can be accessed at www.airquality.co.uk.

Car Free Day

It's European Car Free Day on 22nd September and everyone is invited to Churchfield Road, Acton for a day of fun in a car-free environment. Car Free Day aims to show that being less dependent on cars can lead to a cleaner, safer environment and reduce noise and pollution levels, while giving local people a chance for community activity. Just as importantly, it also encourages people to think about their overall car use and look at selecting the right mode of transport for a particular journey. Is jumping in the car to go to the corner shop the right option or would a short walk or bike ride be better? Ealing Council's Local Agenda 21 team, along with the Churchfield Community Association and others, have organised the event. It involves half of Acton's Churchfield Road being closed to cars and open to a celebration of the communities' diversity and cultural mix, with a selection of live music, dancing, food and street cafés, children's games, street art and other free entertainment. Community stalls and help with bicycle maintenance will also be available. The day will be used to promote the London City Car Club and the development of a borough pilot Car Club scheme. For more information contact the Council's LA21 team on (020) 8825 6621 or email CCA2002CFD@hotmail.com.

We aim to keep readers informed regarding air quality management in Ealing and to bring you up to date on general air quality issues. If you have any comments on how to improve this bulletin or if there are any topics you would like to see included, then please get in touch with the Editor.

Roadside Vehicle Emissions Testing

Vehicle Emissions Testing Regulations have recently been approved by both the House of Commons and the House of Lords and came into effect on 18th July 2002. This means that local authorities with Air Quality Management Areas (AQMAs) can now apply to adopt the powers for roadside emissions testing. This would involve stopping vehicles and testing their exhaust emissions to ensure they meet the required standards. Those failing could be subject to a fine if they fail to correct their emissions after a reasonable length of time. Ealing has submitted a joint bid, with other London boroughs, for funding from the Department for Transport, to enable these powers to be used and it is hoped that some kind of testing regime will be in place by mid-2003. At the moment, there are powers available to deal with stationary vehicles that leave their engines idling. Local authorities are currently waiting for guidance to be issued on how these powers can best be enforced, particularly for buses and coaches, and cars outside schools.

Parents Perceptions of Air Quality

A PhD research project by Emma Stevens of Imperial College, in collaboration with the Ealing Respiratory Diseases and Air Quality Working Group has recently been completed. The project focussed on people's perceptions of the links between urban air pollution and children's asthma. Parents with asthmatic children in Ealing were surveyed to explore their beliefs about any links between urban air pollution and their child's asthma, taking into account their views of other factors. People's underlying attitudes towards urban air quality and the how much these views reflect the actual air quality were also investigated.

The findings indicated that most parents felt there was probably a strong link between the air quality where they lived and their child's asthma. Most were uncertain due to a lack of convincing first hand 'evidence' and a lack of clear, available expert knowledge, so there was a tendency to rely on common sense and widespread informal "messages" (from media and hearsay).

Parents' views on local air quality were strongly related to their views of what potentially affects asthmatics. For example, parents with asthmatic children were far more likely to misclassify air quality where they lived as worse than it actually was, than those without asthmatic children.

One aspect of the research highlighted the inconsistency among differing health professionals when questioned on the links between urban air quality and children's asthma. Specialists assessed the link as insignificant, which is in line with a lot of recent research results. Local clinicians (nurses etc) thought air pollution was fairly significant, which is a view much in line with what parent's believe.

It is hoped that these findings should be of interest to researchers investigating links between environment and health, clinicians wishing to improve asthma self-management plans, and organisations communicating air quality information to asthmatics. Further information can be obtained from the Pollution Control Team.

Air Quality on the Internet

Here is a selection of air quality sites on the Internet:-

Ealing Council's Pollution Control Team
www.ealing.gov.uk/pollcon

Department for Environment, Food and Rural Areas
http://www.defra.gov.uk/environment/index.htm

National Society of Clean Air and Environmental Protection http://www.nsca.org.uk

The Air Quality Management Site
http://www.ifi.co.uk/air.htm

Atmospheric Research & Information Centre (at Manchester Metropolitan University)
http://www.docm.mmu.ac.uk/aric/eae/

Friends of the Earth
www.foe.co.uk

Local Agenda 21 Pollution and Public Health Project Group
www.LA21.org

OMNI - Ealing Council's new interactive website.
www.seiph.umds.ac.uk/o2/ealing/index.htm

Environmental Research Group - Kings College London. London Air Quality Network.
http://www.erg.kcl.ac.uk/london/asp/home.asp

Research Latest

Narrowing down the particle culprits

Two studies highlight that the search for the toxic element in airborne particles is increasingly concentrating on iron and other similar metals. Research by King's College, London, showed that PM_{10} samples collected at roadside locations in London were potentially more damaging to lung cells than ROFA (residual oil fly ash), a substance known to be highly toxic and the subject of great concern by the US EPA. However, this damage was reduced to virtually zero when a chemical was added to the sample to "bind up" any iron and copper in the particles. Another study from Cardiff University, showed that particles from Port Talbot, with a high iron content, were far more "bio-reactive" than particles collected in Cardiff, which were more typical of an urban area. The clear implication is that, while all particles are potentially damaging, some are more damaging than others. This could lead, in the future, to air quality objectives based on the content of the particles, rather than simply their mass, size or number.

NSCA Briefing. 'Iron Bullets from the Smoking Gun' by Tim Williamson. No18. 18 June 2002.

Fridays = higher Ozone?

Fridays appear to suffer the worst incidences of ozone pollution according to recent research. The study focussed specifically on ozone events with concentrations over 90 ppb between 1992 and 1999. It found that the highest levels of ozone occur under summertime anticyclonic weather patterns, when air has looped over mainland Europe and arrive back in the UK. The monitoring data shows that ozone episodes peak on Fridays. Relative to Fridays, exceedences on the other days are: Sundays 51%, Mondays 50%, Tuesdays 54%, Wednesdays 39%, Thursdays 70% and Saturdays 82%. This end of the week peak is believed to result from the increased emissions of ozone precursors such as VOC and NO_x which are greater on weekdays.

Jenkin M et al. 2002. The origin and day-of-week dependence of photochemical ozone episodes in the UK. Atmospheric Environment. Volume 36, Issue 6, February 2002, Pages 999-1012
Air Quality Management. July 2002. Issue number 79.

Roundabout way to cut emissions

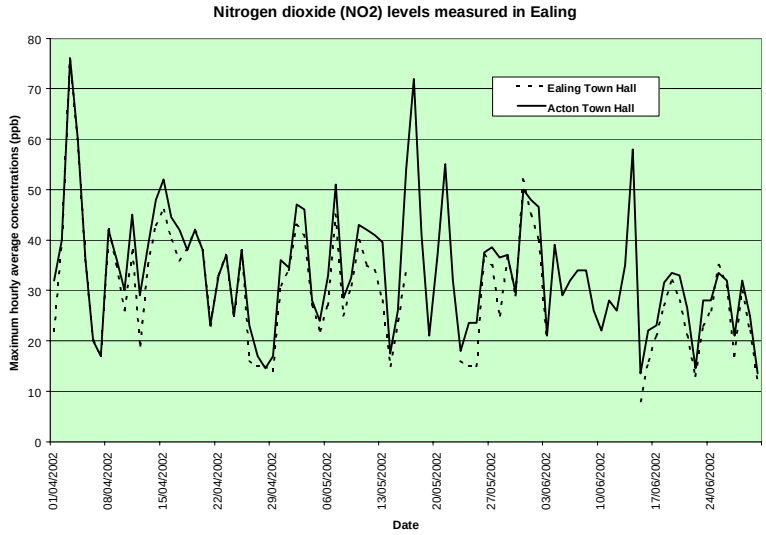
It is possible to lower traffic speed without increasing net emissions according to a recent experiment. Swedish traffic planners wanted to replace a series of give way junctions on a road with roundabouts to reduce traffic speeds. In order to offset the potential increase in emissions that might result, they also replaced a traffic light controlled junction with a roundabout. The results showed that at a roundabout replacing a signalised junction, CO emissions decreased by 29%, NOx emissions by 21% and fuel consumption by 28%. By contrast, where roundabouts replaced give way junctions, CO emissions increased on average by 4%, NO_x emissions by 6% and fuel consumption by 3%. The new traffic scheme increased journey times for those on the main road, while those on the feeder roads had quicker journey times.

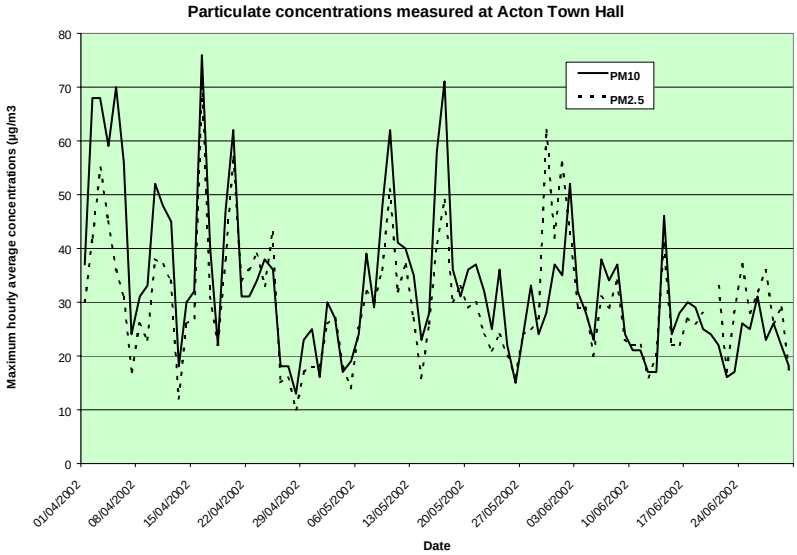
Várhelyi A. 2002. The effects of small roundabouts on emissions and fuel consumption: a case study. Transportation Research Part D: Transport and Environment, Volume 7, Issue 1, January 2002, Pages 65-71
Air Quality Management. July 2002. Issue number 79.

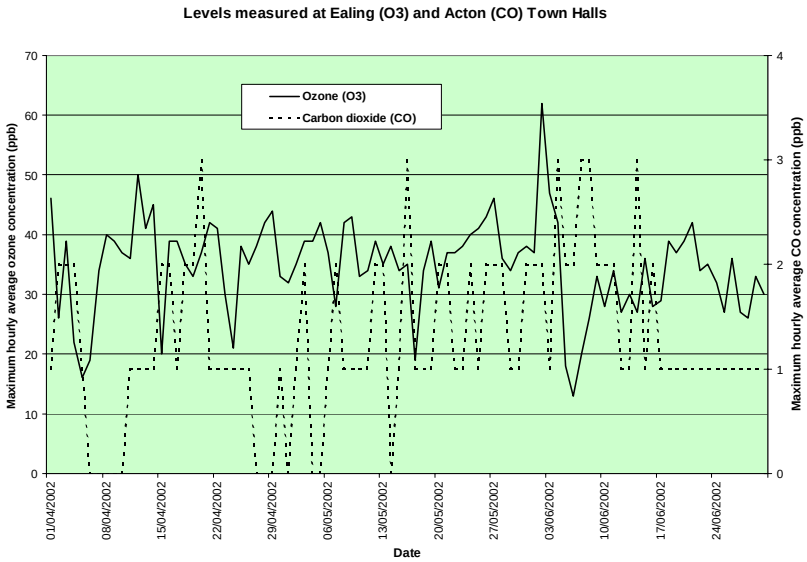
First Results from borough-wide Nitrogen dioxide Survey

The first year's results from Ealing's 5-year nitrogen dioxide diffusion tube survey have just become available and Pollution Control is currently analysing the data and will be reporting on it in due course. The survey consists of 100 tubes located at 83 sites across the borough that are replaced after every month. The exposed tubes are then sent to a laboratory for analysis. It is hoped the results will inform the Council as to the effectiveness of measures put in place to improve air quality over the 5-year period. A summary of the results will be in the autumn edition of The Borough Air Quality Bulletin. If you would like a copy of the full results then please contact the Pollution Control Team.

Air Pollution Results April to June 2002







The relatively few periods of fine weather also brought with them increases in particulate pollution. Each of the peaks in the graph coincide with a period of sunny, still conditions that allowed particulates to build up. The Jubilee Bank Holiday weekend was dominated by high pressure bringing air from the continent. This allowed ozone levels to rise due to photochemical reactions in the atmosphere.

Other pollutant levels remained LOW for the three month period.

Daily Forecasts

A daily air pollution forecast is published every day on the Pollution Control website, as well as recent air pollution levels. You will also find details of Ealing's Air Quality Review and Assessment, the results of Ealing's public consultation on air pollution and other related topics, including back issues of the Air Quality Bulletin.

Pollution Bandings

	low	moderate	high	v.high
O_3	<50	50-89	80-179	>180
CO	<10	10-14	15-19	>20
NO_2	<150	150-299	300-399	>400
PM_{10}	<50	50-74	75-99	>100

Measured as:

Ozone	(O_3)	hourly mean
Carbon monoxide	(CO)	running 8 hour mean
Nitrogen dioxide	(NO_2)	hourly mean
Particulates	(PM_{10})	running 24 hour mean