

# The Borough Air Quality Bulletin



A Local Agenda 21/Environmental Quality Team Initiative

#### Summer 2005

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#### Ealing Borough Air Quality Bulletin

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www.ealing.gov.uk/services/pollution+ control/

## 1<sup>st</sup> Smog alert of the year

The first smog alert of the year was issued in June, and with a long hot Summer predicted this year, more are likely to follow. Smog builds up during warm sunny days in summer, when air pollutants are trapped at ground level. Elevated levels of ozone can be produced as nitrogen oxides and hydrocarbons react in the presence of sunlight. These pollutants come from a range of sources but in Ealing road transport is the major contributor. High levels of ozone can irritate and inflame the lungs. It can also cause eye irritation, migraine and coughing. Those at risk include people suffering from asthma and other respiratory diseases. particularly the elderly. Health officials warn that these sensitive groups should take sensible precautions such as avoiding exertion outdoors on hot afternoons.

Although there were no smog alerts last year, there was seven in 2003. During that heatwave, it's estimated that as many as 800 premature deaths may have occurred as a result of the poor air quality.

People who may be more sensitive to high levels of pollution can get regular updates on pollution levels across the UK from a variety of sources:

• CEEFAX - page 410-417

- TELETEXT page 156
- Internet <u>www.airquality.co.uk</u>

Pollution levels monitored in Ealing can be found at the London Air Quality Network web site at

www.londonair.org.uk/london/asp/home.asp And daily forecasts are on

www.erg.kcl.ac.uk/ealing/asp/foreca st.asp

# New website rises from the ashes

The award winning ARIC website (Atmospheric Research & Information Centre) run by the Manchester Metropolitan University is to close following loss of funding. This informative site was accessible to both younger and older users wanting information on air quality matters. The site will be replaced by Enviropedia, which covers a range of environmental issues, including climate change, global warming, ozone, air pollution, weather & climate and sustainability. There is an additional section that provides information sheets for 5 to 11 year olds, as well as a selection of games and puzzles. The site can be found at www.enviropedia.org.uk

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.

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#### Ealing Borough Air Quality Bulletin

#### New monitoring on Horn Lane...

Monitoring of fine particles (PM<sub>10</sub>) started in February at a new site in Horn Lane, Acton. Complaints about the levels of dust arising in the vicinity of the EWS Goods Yard, on Horn Lane, gave cause for concern so it was considered necessary to carry out a Detailed Assessment of particulates in the area. The goods yard area is home to a number of industrial and commercial processes that by their nature can lead to the production of a lot of dust. The Detailed Assessment will involve 12 months of measuring the levels of fine particles in the atmosphere, as well as collecting dust samples around the area so that as far as possible their source can be identified. Results so far have shown high levels of particulate concentrations, particularly during weekdays. The Council has increased the level of road sweeping along that stretch of Horn Lane to keep dust levels to a minimum and is taking action under environmental legislation to require the companies concerned to control dust emissions. Levels of pollution monitored at the site, known as Ealing 8, can be found at <u>http://www.londonair.org.uk/london/asp/home.asp</u>

Monitoring so far show that air quality objectives for  $PM_{10}$  are not currently being met. Average concentrations are consistently above 60  $\mu$ g/m<sup>3</sup>, and exceedences of the daily mean standard have been recorded on over 50% of the monitored days. The graph shows maximum  $PM_{10}$  levels in relation to the Very High banding used by defra.



#### ...And along the A40

Monitoring of nitrogen dioxide levels along the A40 has also started on Court Way, Acton. The new site (known as Ealing 9) will monitor the effect of emissions along the A40 corridor and will be used in conjunction with the monitoring site at the Hanger Lane Gyratory to investigate the influence that the prevailing winds have on pollution north and south of the A40.

#### Pollution on Tube lower than street

Pollution levels on London's underground are lower than can be found on the roads of London according to researchers from the Institute of Occupational Medicine in Edinburgh. They found that the Tube has far lower levels of the more dangerous ultra-fine particles ( $PM_{2.5}$ ) than can be found on busy roads. The dust particles found also tended to be larger in size and made of iron, rather than carbon that's typical of vehicle emissions. The particulates underground were found to be more comparable to iron oxide welding fumes than to particles in the air outdoors, and as such were well below allowable workplace concentrations and unlikely to represent a significant cumulative risk to the health of workers or commuters. The researchers note that comparing  $PM_{2.5}$  exposure underground with that on the surface cannot be justified, because the adverse effects of iron oxide and combustion generated particles differ so greatly.

## **Research Latest**

#### Hedges that soak up particles

The effectiveness of different type of hedgerows to remove particles from the air has been investigated by researchers from the University of Nottingham. Scientists monitored particle concentrations near a variety of hedges to determine how efficient each one was in absorbing particles. Hedges were classified into two categories, with yew and Leylandii classed as dense species, and hawthorn and holly classed as porous. The researchers found that the more porous species were better at filtering out particles than the denser species. It appears that the denser hedges tended to lift the airflow more strongly so that particles were deposited on the downward side of the hedge. Porous hedges were more effective at collecting particles greater than  $5\mu m$ , but were less effective with smaller particles which are of the most health concern. Tiwary et al. 2005. Estimating the size-dependent collection efficiencies of hedgerows for ambient aerosols. IEH Ninth Annual UK Review Meeting, www.le.ac.uk/ieh

Air Quality Management. May 2005. Issue number 112.

#### **Pollution exposure varies**

Exposure to traffic pollution could vary by up to 4 times depending on what side of the street you are walking on. Researchers looked at a number of streets in York and London, monitoring carbon monoxide (CO) concentrations, as well as investigating the geometry of the street canyons and buildings, and the wind direction through the canyons and above the buildings. CO was monitored because its main source in busy streets is petrol engine vehicles, making it a useful tracer for other pollutants. The researchers found that increased exposure related to:

- The level of traffic congestion rather than the total vehicle flows through the streets during daytime periods.
- The overall height to width ratio of the streets.
- The interaction of wind direction and street canyon geometries leading to a build up of pollutants on the leeward side.

• The proximity to heavily trafficked intersections.

The researchers point out that this research supports the adoption of air quality management policies where a city is modified or designed so that cyclists or pedestrians are able to avoid pollution hotspots. The use of side streets rather than main roads could lower overall exposure to traffic related pollutants by up to a factor of 3 under worst-case conditions.

Tomlin et al. 2005. Factors influencing exposure to traffic related pollutants in urban streets. IEH Ninth Annual UK Review Meeting. www.le.ac.uk/ieh

Air Quality Management. May 2005. Issue number 112.

## 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/services/pollution+control/default.asp

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

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

The Air Quality Management Site <u>http://www.air-quality-management.co.uk/</u>

Enviropedia www.enviropedia.org.uk

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 interactive website. www.seiph.umds.ac.uk/o2/ealing/index.htm

Environmental Research Group - Kings College London. London Air Quality Network. <u>http://www.londonair.org.uk/london/asp/home.asp</u>

The UK National Air Quality Information Archive http://www.airquality.co.uk/archive/index.php

## Air Pollution Results Apr to June 2005



Nitrogen dioxide (NO2) levels measured in Ealing 140.00 Hanger Lane Acton Town Hall Maximum hourly concentrations 120.00 Court Way, W3 Ealing Town Hall Blair Peach Sch. 100.00 (qdd) 40.00 20.00 0.00 01/04/2005 38/04/2005 5/04/2005 22/04/2005 29/04/2005 06/05/2005 3/05/2005 20/05/2005 27/05/2005 03/06/2005 0/06/2005 7/06/2005 24/06/2005 Date

Levels of Ozone (O3) and Sulphur dioxide (SO2) measured in



Particulate levels in Ealing

The first smog alert of the year was issued in June with MODERATE  $O_3$  levels across most of London around the 23<sup>rd</sup>. Strong sunlight combined with precursor pollutants resulted in substantial photochemistry.

Levels of Particulates at Horn Lane have been consistently HIGH as shown on page 2. This is due to local sources and is not representative of other areas in the borough.

Other pollutant levels remained LOW for the six-month period.

### **Daily Forecasts**

A daily air pollution forecast is published every day on the Residential Service's website, as well as recent air pollution levels. You will also find details of Ealing's Air Quality Action Plan and most recent Review and Assessment of air quality, as well as other related topics, including back issues of the Air Quality Bulletin.

#### **Pollution Bandings**

	low	moderate	high	v.high
O <sub>3</sub>	<50	50-89	80-179	>180
$SO_2$	<100	100-199	200-399	>400
NO <sub>2</sub>	<150	150-299	300-399	>400
$PM_{10}$	<50	50-74	75-99	>100
Measured as: Ozone Sulphur dioxide		$(O_3)$ $(SO_2)$	hourly mean 15 minute aver	rages
Nurogen dioxide		$(INO_2)$	nourly mean	
D (* 1		$(\mathbf{D}\mathbf{M})$	. 041	