

**Effective local action on air pollution in London**  
*Government is lobbying in the 'Year of Air' to weaken  
European air pollution laws requiring 50% reductions now*

**Mapping for Change**  
**London: 17 April 2013**

**Simon Birkett, Founder and Director, Clean Air in London**

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# ***Smog episode in London***

## ***Looking from Barbican to Parliament on 15 March 2012***



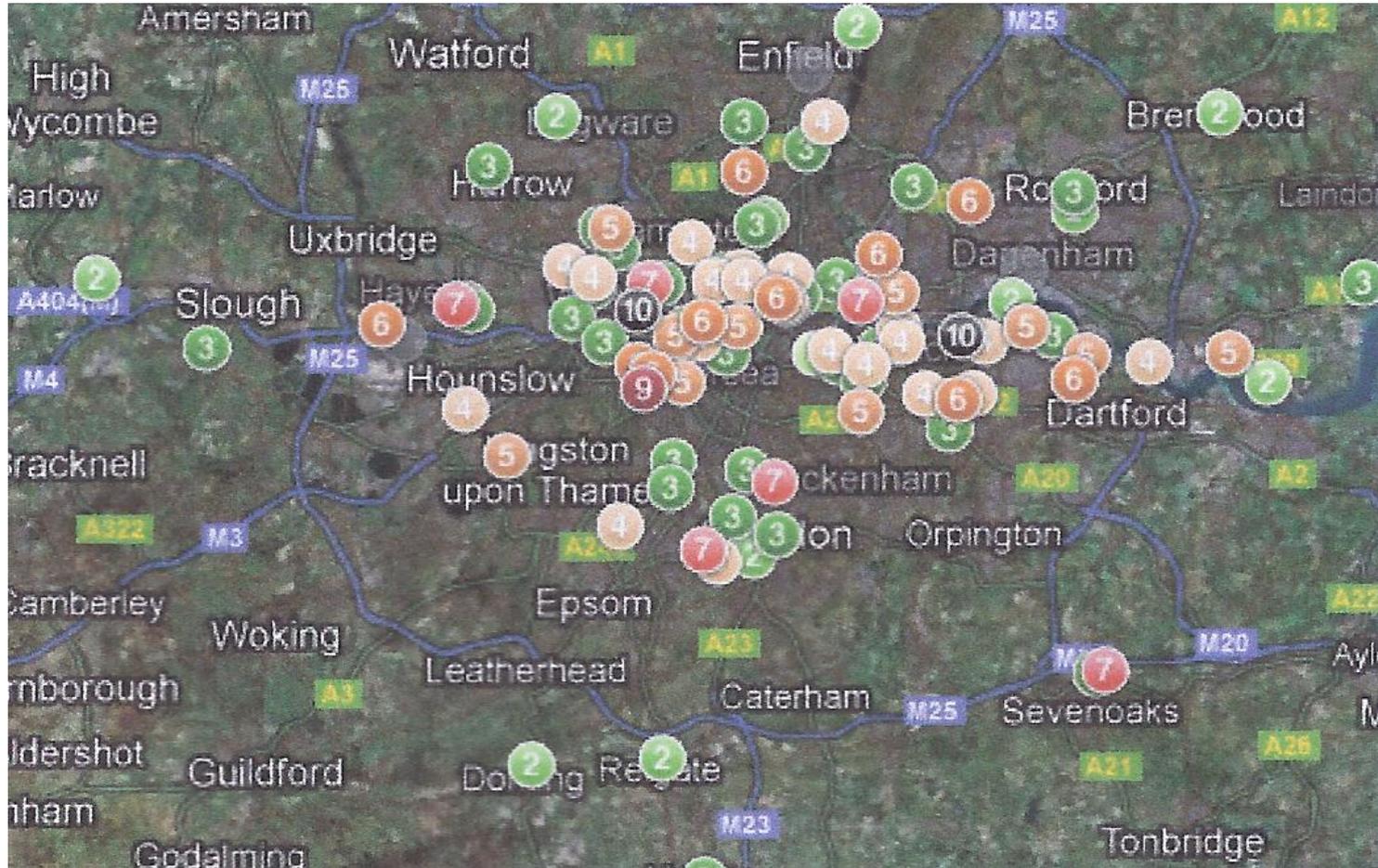
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# Introduction to air pollution

- Health impacts dwarf those known during Great Smog in 1952
- Over twice legal limits and World Health Organisation guidelines near our busiest streets. Laws in place since 1999 for 2010/2011
- Particles: PM<sub>2.5</sub> and PM<sub>10</sub>. Combustion gases: nitrogen dioxide (NO<sub>2</sub>)
- Health impacts from long and short-term exposure and different types of air pollution. Only smoking causes more early deaths
- Living or going to school within 150 metres of roads carrying over 10,000 vehicles per day could be responsible for 15-30% of all new cases of asthma in children and COPD in adults aged 65 and older
- Diesel causes 91% PM<sub>2.5</sub> and 95% NO<sub>2</sub> of vehicle exhaust in London
- London and UK have highest levels of NO<sub>2</sub> in Europe

# Worst smog episode since 2006 on eve of Olympics

London Air Quality Network [www.londonair.org.uk](http://www.londonair.org.uk)

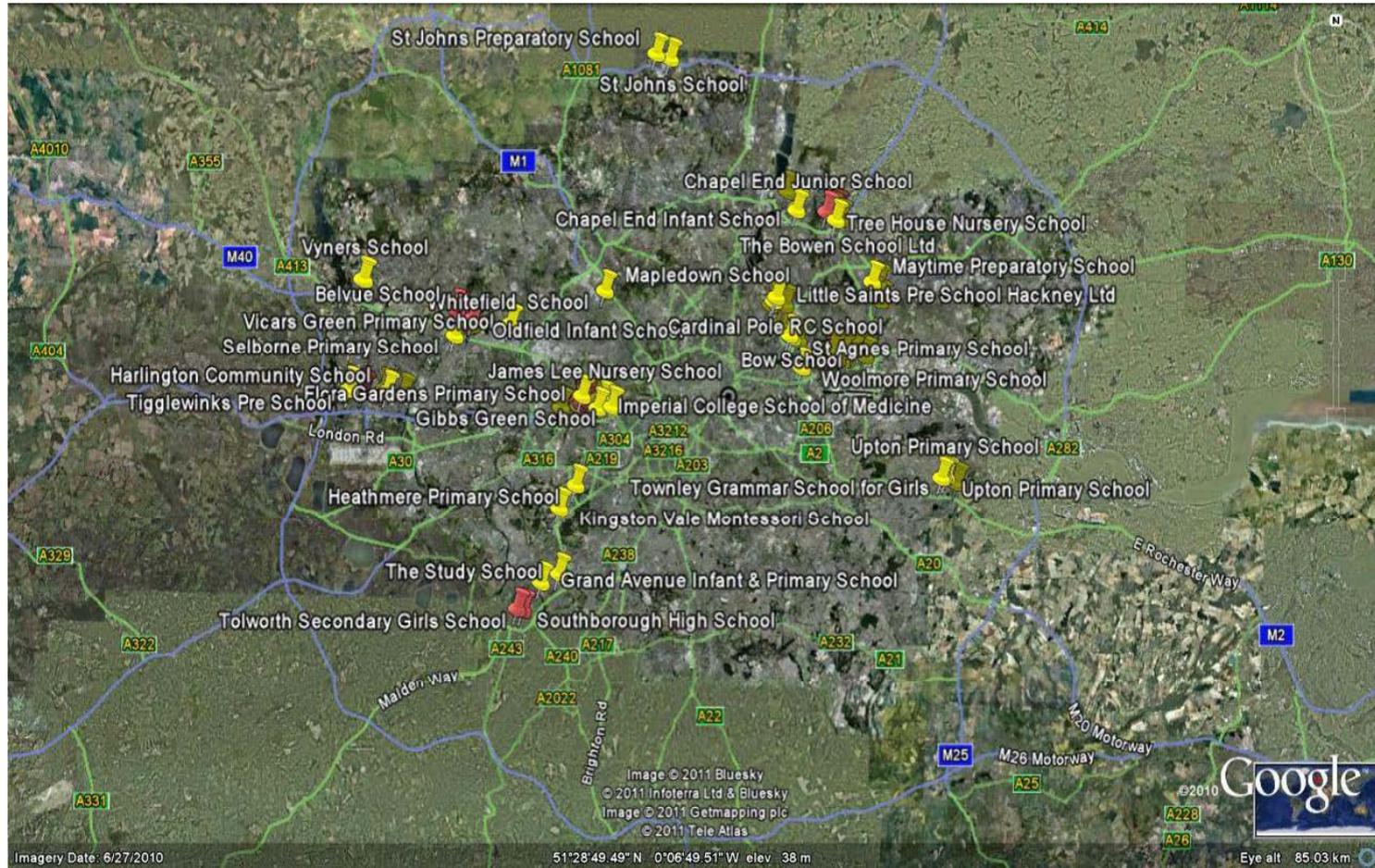


London: 17 April 2013

Clean Air in London

# London schools within 150m and 400m of busy roads

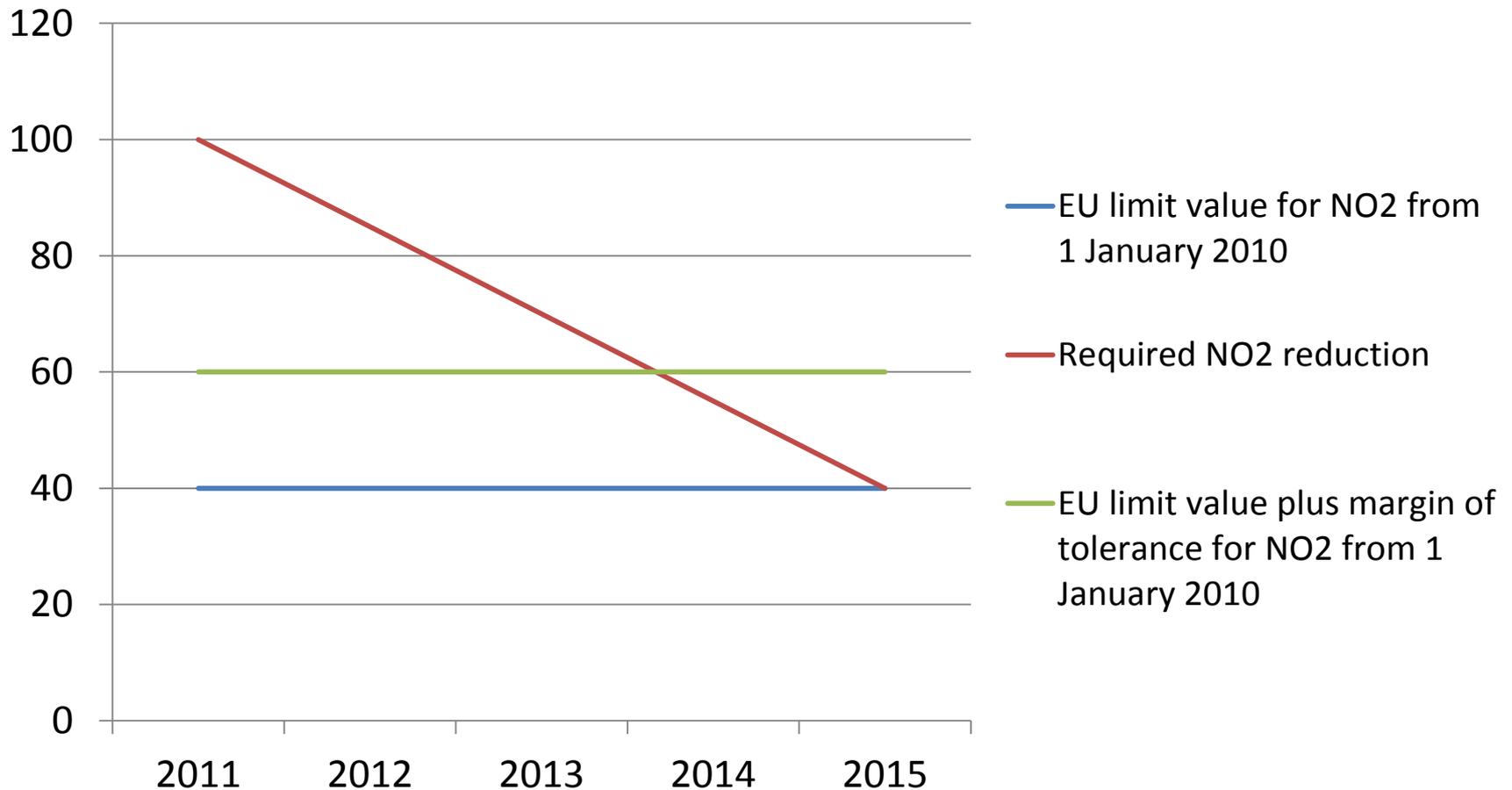
*Roads carrying over 100,000 vehicles per day*



# EU legal standards compared to WHO guidelines

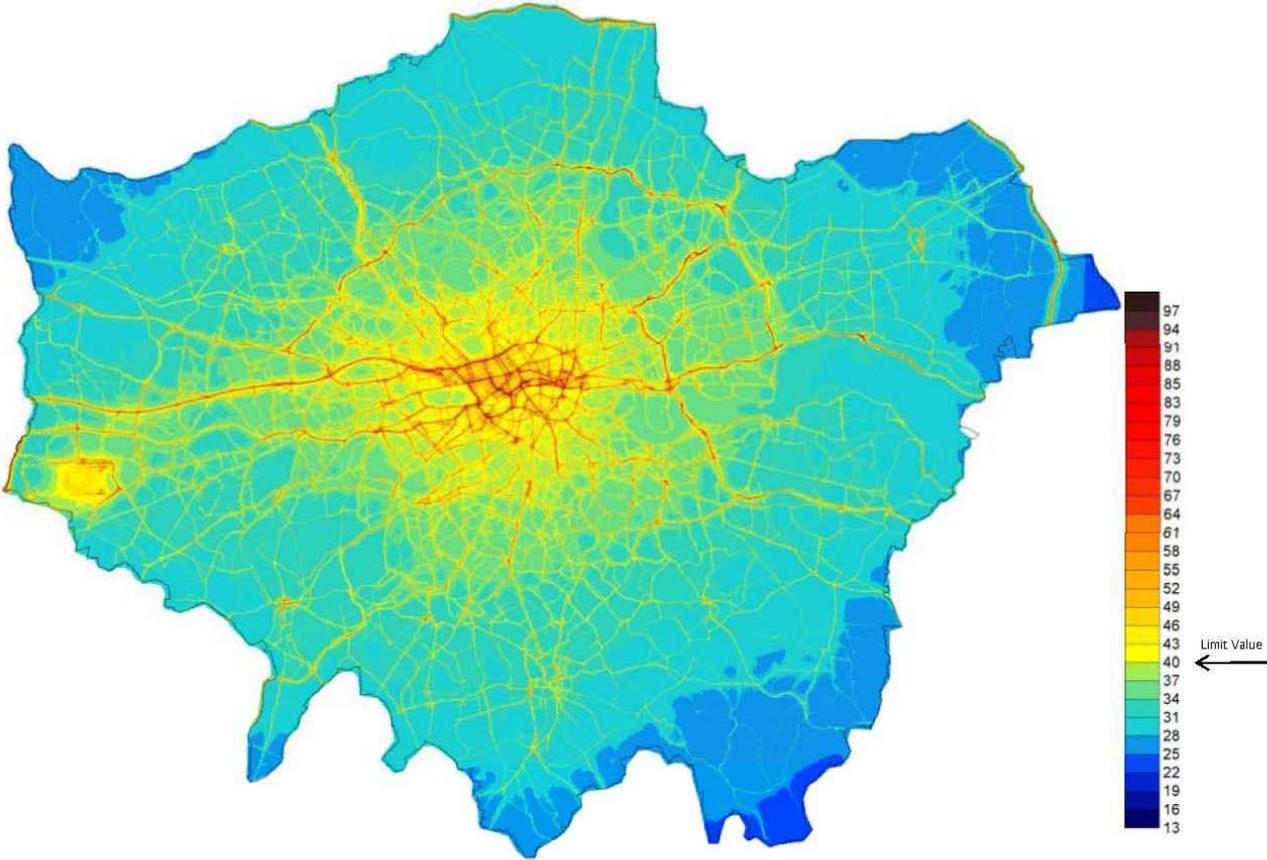
Pollutant	Legal standard		WHO guideline	
	Short term	Annual mean	Short term	Annual mean
Fine particulate matter (PM <sub>2.5</sub> )	<ol style="list-style-type: none"> <li>25 µg/m<sup>3</sup> annual mean to become limit value in 2015</li> <li>20 µg/m<sup>3</sup> exposure concentration obligation based on 3-year average by 2015</li> <li>Exposure reduction target in percentage by 2020</li> </ol>		25 µg/m <sup>3</sup> 24-hour mean	10 µg/m <sup>3</sup>
Particulate matter (PM <sub>10</sub> )	35 days over 50 µg/m <sup>3</sup> since 2011	40 µg/m <sup>3</sup> since 2011	50 µg/m <sup>3</sup> 24-hour mean	20 µg/m <sup>3</sup>
Nitrogen dioxide (NO <sub>2</sub> )	18 hours over 200 µg/m <sup>3</sup> since 2010	40 µg/m <sup>3</sup> since 2010	200 µg/m <sup>3</sup>	40 µg/m <sup>3</sup>

# Concentrations of nitrogen dioxide (NO<sub>2</sub>) in micrograms per cubic metre (µg/m<sup>3</sup>)



# Concentration and trends – Mayor’s Air Quality Strategy

## *NO<sub>2</sub> annual mean concentrations for 2008*



# Widespread breaches of nitrogen dioxide laws ClientEarth in the Supreme Court on 7 March

CLEAN AIR IN LONDON

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Zone code	EC code	Zone name	Population exposed to >40 µg/m <sup>3</sup> NO <sub>2</sub> (annual average) in zone (if available)	Compliance expected by?	Compliance by 2015 with Low Emission Zone scenario?	Main cities or counties in zone	Time extension requested	Time extension granted and 2011 outcome
UK0000		Gibraltar				Gibraltar	Annual	LV < Annual < LV+MOT
UK0001		Greater London Urban Area	698543	2025	No	London	Annual	LV+MOT < Annual and hourly
UK0002		West Midlands Urban Area	1,22396	2020	No	Birmingham, Wolverhampton, Dudley, Walsall, West Bromwich, Solihull, Stourbridge, Halesowen	Annual	LV+MOT < Annual
UK0003		Greater Manchester Urban Area	1,1070	2020	No	Manchester	Annual	LV+MOT < Annual
UK0004		West Yorkshire Urban Area	3612	2020	No	Leeds, Bradford, Huddersfield, Wakefield	Annual	LV+MOT < Annual
UK0005	1	Tyneside	71	2016	Yes	Newcastle, Gateshead	Annual	LV+MOT < Annual
UK0006	2	Liverpool Urban Area	1695	2019	Yes	Liverpool	Annual	LV+MOT < Annual
UK0007	3	Sheffield Urban Area	2950	2015	Yes	Sheffield	Annual	LV+MOT < Annual
UK0008	4	Nottingham Urban Area	N/A	2019	N/A	Nottingham	Annual	LV+MOT < Annual i.e. breached time extension
UK0009	5	Bristol Urban Area	N/A	2019	Yes	Bristol	Annual	LV+MOT < Annual
UK0010	6	Brighton/Worthing/Littlehampton	N/A	2015	N/A	Brighton and Hove	Annual	LV+MOT < Annual
UK0011	7	Leicester Urban Area	N/A	2019	N/A	Leicester	Annual	LV+MOT < Annual i.e. breached time extension
UK0012	8	Portsmouth Urban Area	N/A	2015	N/A	Portsmouth	Annual	LV+MOT < Annual i.e. breached time extension
UK0013		Teeside Urban Area	N/A	2020	No	Middlesbrough, Stockton-on-Tees, Redcar, Billingham	Annual	LV+MOT < Annual
UK0014		The Potteries	N/A	2020	No	Stoke-on-Trent, Newcastle-under-Lyme, Burslem	Annual	LV+MOT < Annual
UK0015	9	Bournemouth Urban Area	N/A	2015	N/A	Bournemouth, Poole	Annual	Until 1 January 2013 (amended AQ plan required)
UK0016	10	Reading/Wokingham Urban Area	N/A	2015	N/A	Reading, Wokingham	Annual	LV+MOT < Annual. No time extension now possible
UK0017	11	Coventry/Bedworth	N/A	2015	N/A	Coventry, Bedworth	Annual	Until 1 January 2013
UK0018		Kington upon Hull	2587	2020	No	Kington upon Hull	Annual	LV+MOT < Annual
UK0019		Southampton Urban Area	26052	2020	No	Southampton	Annual	Until 1 January 2014 (amended AQ plan required)
UK0020	12	Birkenhead Urban Area	N/A	2015	N/A	Birkenhead	Annual	LV+MOT < Annual. No time extension now possible
UK0021	13	Southend Urban Area	N/A	2015	N/A	Southend	Annual	LV+MOT < Annual
UK0022		Blackpool Urban Area	N/A	Compliant	N/A	Blackpool	n/a	Annual < LV
UK0023	14	Preston Urban Area	N/A	2015	N/A	Preston	Annual	LV+MOT < Annual
UK0024		Glasgow Urban Area	N/A	2020	No	Glasgow	Annual	LV+MOT < Annual and hourly
UK0025	15	Edinburgh Urban Area	N/A	2015	N/A	Edinburgh	Annual	LV < Annual < LV+MOT
UK0026	16	Cardiff Urban Area	N/A	2015	N/A	Cardiff	Annual	LV < Annual < LV+MOT
UK0027	17	Swansea Urban Area	N/A	2015	N/A	Swansea	Annual	LV+MOT < Annual
UK0028	18	Belfast Metropolitan Urban Area	N/A	2015	N/A	Belfast	Annual	LV+MOT < Annual
UK0029		Eastern	3131	2020	No	Essex, Hertfordshire, Bedfordshire, Cambridgeshire, Norfolk and Suffolk	Annual	LV+MOT < Annual
UK0030	19	South West	3700	2015	N/A	Gloucestershire, Somerset, Dorset, Wiltshire, Devon, Cornwall	Annual	LV+MOT < Annual
UK0031		South East	9570	2020	No	Berkshire, Buckinghamshire, East Sussex, Hampshire, Isle of Wight, Kent, Oxfordshire, Surrey	Annual	LV+MOT < Annual and hourly
UK0032		East Midlands	17033	2020	No	Nottinghamshire, Derbyshire, Leicestershire, Rutland, Northamptonshire	Annual	LV+MOT < Annual
UK0033		North West & Merseyside	5698	2020	No	Cumbria, Lancashire, Greater Manchester, Merseyside and Cheshire	Annual	LV+MOT < Annual
UK0034		Yorkshire & Humberside	3603	2020	No	Yorkshire, Humberside	Annual	LV+MOT < Annual
UK0035		West Midlands	11136	2020	No	Shropshire, Herefordshire, Staffordshire, Warwickshire and Worcestershire	Annual	LV+MOT < Annual
UK0036		North East	1414	2020	No	Northumberland, County Durham and Tyne and Wear	Annual	LV+MOT < Annual
UK0037	20	Central Scotland	N/A	2015	N/A	Falkirk	Annual	LV < Annual < LV+MOT
UK0038	21	North East Scotland	181	2015	N/A	Perth, Aberdeen	Annual and hourly	LV+MOT < Annual
UK0039		Highland	N/A	Compliant	N/A	Fort William	n/a	Annual < LV
UK0040		Scottish Borders	N/A	Compliant	N/A	Dumfries	n/a	Annual < LV
UK0041	22	South Wales	249	2020	No	Pont Talbot, Newport	Annual	LV+MOT < Annual
UK0042	23	North Wales	N/A	2015	N/A	Newtown	Annual	LV+MOT < Annual i.e. breached time extension
UK0043	24	Northern Ireland	N/A	2015	N/A	Derry, Ballyclare	Annual	Until 1 January 2014 (amended AQ plan required)

Notes  
 1. In non-compliant air quality assessment zones at least part of the zone does not comply with the NO<sub>2</sub> annual mean limit value  
 2. Data on population exposure from 2010 Defra report to the European Commission ([http://defra.monit.europa.eu/pdf/en/annual/enfom/aw/1\\_ukquestnaire\\_v6\\_2010\\_032013.xlsx](http://defra.monit.europa.eu/pdf/en/annual/enfom/aw/1_ukquestnaire_v6_2010_032013.xlsx))  
 3. Compliance forecasts produced by Defra (<http://www.defra.gov.uk/consult/files/28-aft-overview-doc.pdf>)  
 4. n/a refers to the fact that the LEZ scenario has not been applied in the zone  
 5. UK submitted its annual compliance report for 2011 on 28 September 2012 (<https://cleanairinlondon.org/sources/four-of-nine-uk-zones-have-already-breached-nitrogen-dioxide-time-extension/>)

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<http://cleanairinlondon.org/sources/four-of-nine-uk-zones-have-already-breached-nitrogen-dioxide-time-extension/>

# Sources of air pollution in London

## *Mayor's Air Quality Strategy 2010*

- Emissions (not concentrations). Based on 2008 estimates
- PM<sub>10</sub> (Central London)
  - Road transport 79%. Cars 23%; taxis 20%; LGVs 10%. Buses <10%
  - Tyre and brake wear 35%
- PM<sub>2.5</sub> (Greater London)
  - Road transport 80%; industrial and commercial gas combustion
  - LGV, cars and taxis 20% each. Buses 5%
  - Tyre and brake wear 25%
- Oxides of nitrogen
  - Road transport 46%; domestic gas 22%
  - Commercial gas, industry, airport and rail 7-8%
  - Cars 35%; HGVs 30%; buses 21%
- DfT 2009: Diesel versus petrol cars (g/mile): 21.7x PM<sub>10</sub>; 2.1x NO<sub>x</sub>

# Solutions

## *Clean Air in London's 'manifesto' proposes 45 measures*

Protect yourself (i.e. adapt) and reduce pollution for yourself and others (i.e. mitigate)

- Political leadership
- Massive campaign to build public understanding e.g. smog warnings
- Clean up transport
- Build low emission cities including buildings
- Technology and behavioural change
- Protect the most vulnerable

Expected increases in unlawful air pollution must be mitigated fully and limits not exceeded once attained. Also use environmental information laws

# Boris' Pollution Suppressor

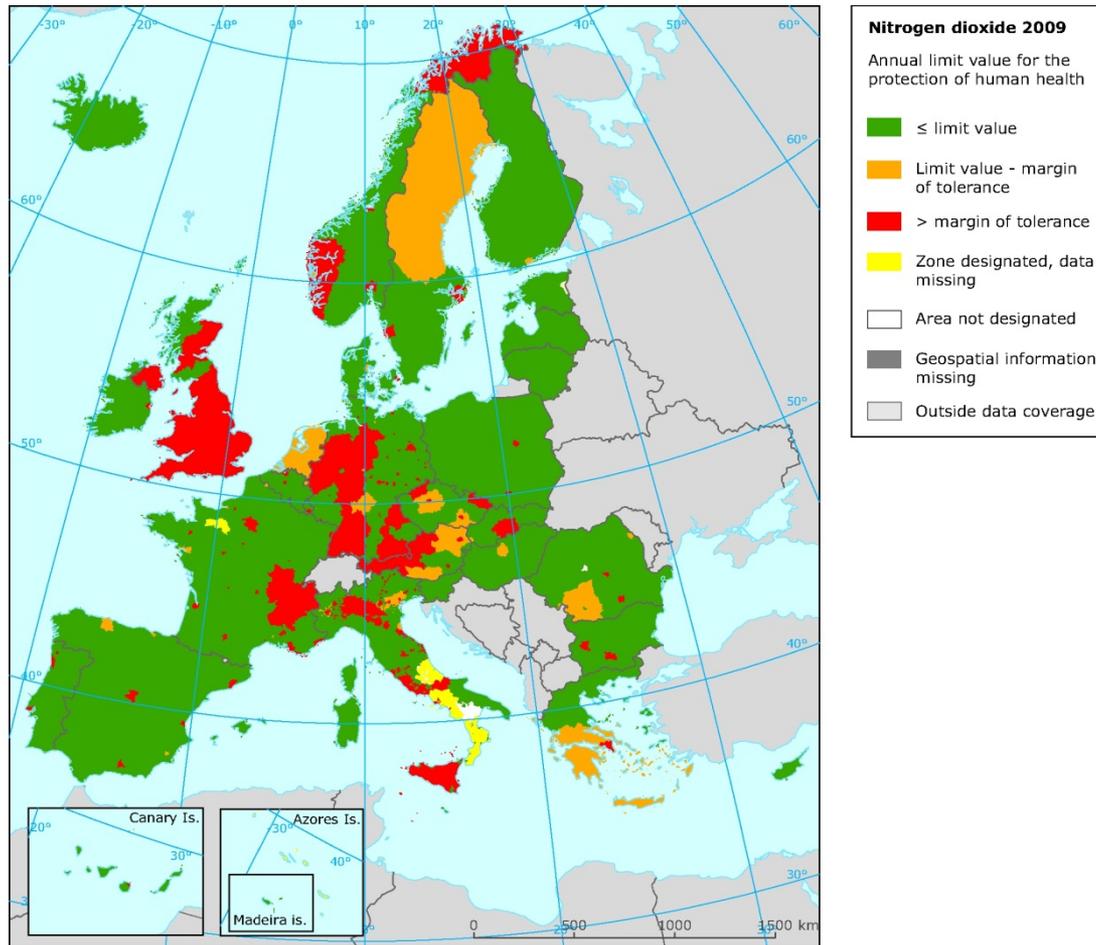
*Reducing pollution by monitors used to report legal breaches*



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# Key issues: 'Year of Air' in 2013

*UK has highest % age of zones exceeding LV+MOT*



# Key issues: 'Year of Air' in 2013

**We need continuity and the tightening of health and legal protections**

*Defra, Red Tape Challenge, Environment Theme proposals (19 March 2012):*

Working in partnership with other Member States, **we will also use** the European Commission review of air quality legislation, expected in 2013, to seek:

- Amendments to the Air Quality Directive which **reduce the infraction risk** faced by most Member States, especially in relation to **nitrogen dioxide** provisions.
- Simplifications to the legal framework (e.g. through reducing requirements for Member States) to reduce costs and administrative burdens to local authorities and businesses whilst maintaining or improving health and ecosystem protection.
- Requirements that are strictly proportional to evidence on costs and benefits

**'Clean Air in London' emphasis**

# Public health outcomes framework for 2013-2016

## *Health and Wellbeing Boards*

- Metrics for Health and Wellbeing Boards from 2013 include Domain 3: Health protection; 3.1 Air pollution:

**“The mortality effect of anthropogenic particulate air pollution (measured as fine particulate matter, PM<sub>2.5</sub>) per 100,000 population”**

- Mortality Burden: To be expressed as attributable deaths; attributable fractions; and associated years of life lost to the whole population

<http://www.phoutcomes.info/public-health-outcomes-framework/domain/4>

# Attributable deaths by local authority in 2010

## *Anthropogenic (i.e. man-made) air pollution*

22/02/2013 Public Health Outcomes Framework

The network of Public Health Observatories

Home Contact us Further information Indicator keywords

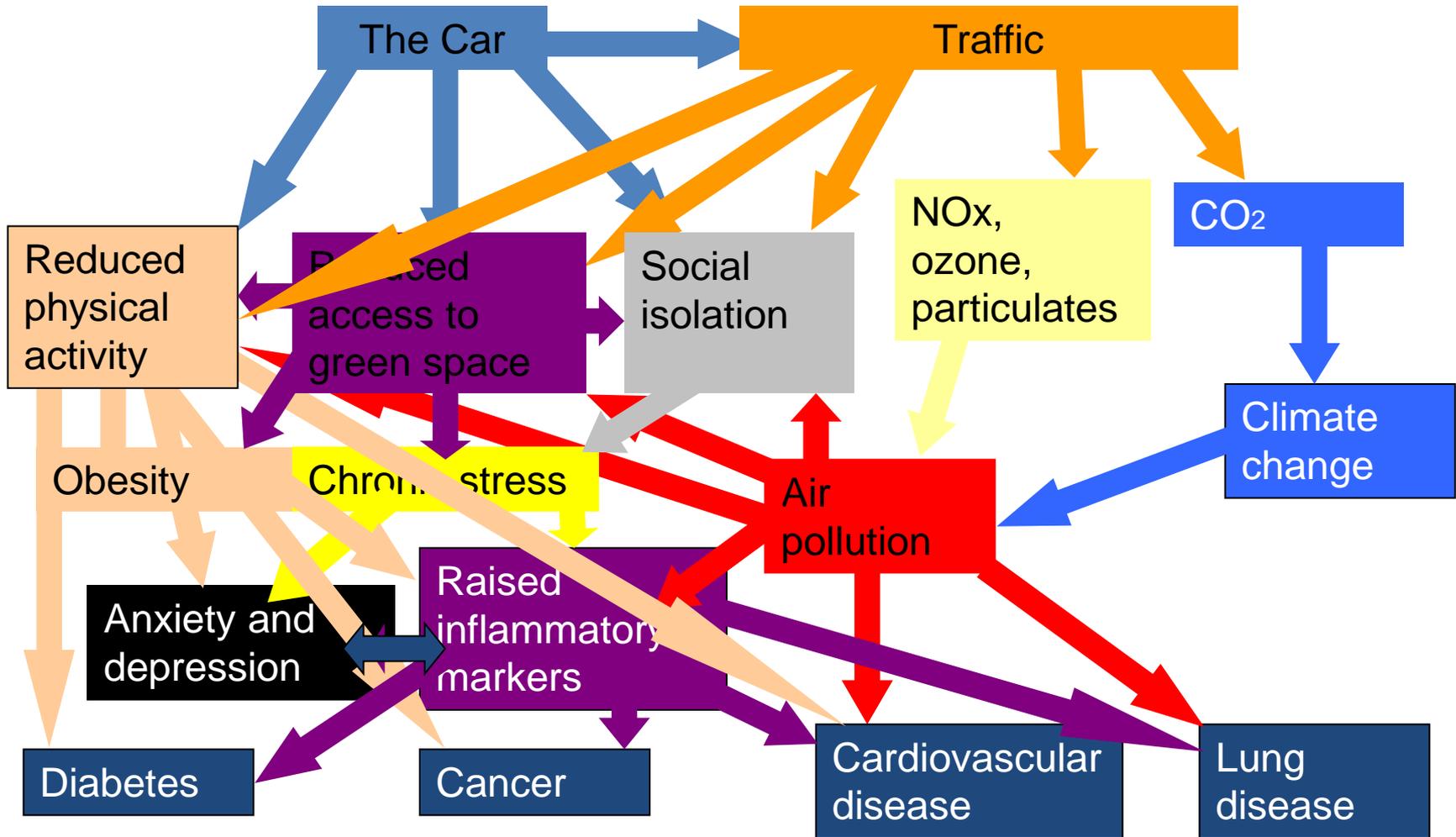
Health protection

Region: East Midlands Profiles

Compared with England: Lower Similar Higher Not compared

Indicator	Period	England	Derby	Derbyshire CC	Leicester	Leicestershire CC	Lincolnshire CC	Northamptonshire CC	Nottingham	Nottinghamshire CC	Rutland
3.01 – Fraction of mortality attributable to particulate air pollution	2010	5.60	6.10	5.40	6.60	5.70	5.20	5.70	6.40	5.70	5.10
3.02 – Chlamydia diagnoses (15–24 year olds)	2010	2220	2358	2251	1521	1472	2279	2389	2490	2495	1130
3.03i – Population vaccination coverage – Hepatitis B (1 year old)	2010/11	-	90.0	53.3	-	-	46.3	82.6	70.6	100	-
3.03i – Population vaccination coverage – Hepatitis B (2 years old)	2010/11	-	78.6	-	-	-	2.4	10.1	83.3	-	-
3.03iii – Population vaccination coverage – Dtap / IPV / Hib (1 year old)	2010/11	94.2	94.2	97.2	94.2	96.4	95.1	96.9	91.1	95.1	-
3.03iii – Population vaccination coverage – Dtap / IPV / Hib (2 years old)	2010/11	96.0	97.9	98.3	96.6	98.1	95.4	97.7	94.3	97.3	-
3.03iv – Population vaccination coverage – MenC	2010/11	93.4	93.5	96.8	92.9	95.8	94.3	96.3	90.1	94.7	-
3.03v – Population vaccination	2010/11	93.6	93.1	96.8	93.6	96.7	94.8	96.6	90.3	94.0	-

# Air pollution among other public health risks



From a presentation by Dr William Bird of Natural England

# 'The London Matrix': Clean air urgently and sustainably in all large cities

	Air quality	Climate change
London (or any city)	2013	
Rest of world		

# 10 steps for 'Clean Air in Cities'

*We need to protect public health and encourage sustainable development*

1. Investigate
2. Protect yourself (i.e. adaptation)
3. Reduce pollution for yourself and others (i.e. mitigation)
4. Research
5. Lobby
6. Campaign
7. Oppose unlawful developments and situations e.g. Silvertown Tunnel
8. Spread the word
9. Support Mapping for Change, Clean Air in London and others
10. Feedback your ideas

<http://cleanairinlondon.org/solutions/10-steps-for-clean-air-in-london/>

## Priorities for the 'Year of Air'

We want continuity and the further tightening of health and legal protections. Specifically:

- Campaign to build public understanding of air pollution
- Enforcement of existing legal standards
- New legislation to reduce emissions at their source
- Continuity and the further tightening of health and legal protections

Informal meeting of the Council of Environment Ministers on 22 and 23 April in Dublin will discuss air quality issues. Twitter [@eu2013ie](https://twitter.com/eu2013ie)

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