Clean Air
IN LONDON

Building public understanding of air pollution

Public Health Presents…
London: 27 November 2012

Simon Birkett, Founder and Director, Clean Air in London

www.twitter.com/CleanAirLondon

www.cleanairinlondon.org

Summary

- Is air pollution still a problem?
- What is poor air quality?
- Health impacts
- Legal framework, responsibilities and breaches
- Sources
- Solutions
- Health and Wellbeing Boards: assess and address air pollution

2013 is the European Commission's 'Year of Air'

Great Smog of 1952

- 5-8 December 1952: Great Smog. Estimated 4,075 premature deaths (and perhaps up to 12,000 in total)
- Until the 1960s London suffered from terrible coal smoke smogs

Is air pollution still a problem?

- "The rate of decline in some air pollutants is now levelling off.... air pollution still reduces life expectancy by an **average of six months**, with social costs estimated at £8 to 17 billion per year." Defra, July 2010. **CAL emphasis**

- "Air pollution in the UK has **declined significantly over recent decades** through measures to reduce pollution.... However, the rate of reduction is now levelling off for some key pollutants such as oxides of nitrogen." Defra, December 2010

- *"Our air* – **air quality is good across 99% of the UK**, but air pollution continues to harm human health particularly in some urban areas." Defra, July 2010

Public Health Indicators: Air pollution

The network of Public Health Observatories

Home Contact us Further information Indicator keywords

Overarching indicators | Wider determinants of health | Health improvement | Health protection | Healthcare and premature mortality

Region: London Profiles

Compared with England: Lower Similar Higher Not compared

3.01 – Fraction of mortality attributable to particulate air pollution
2010

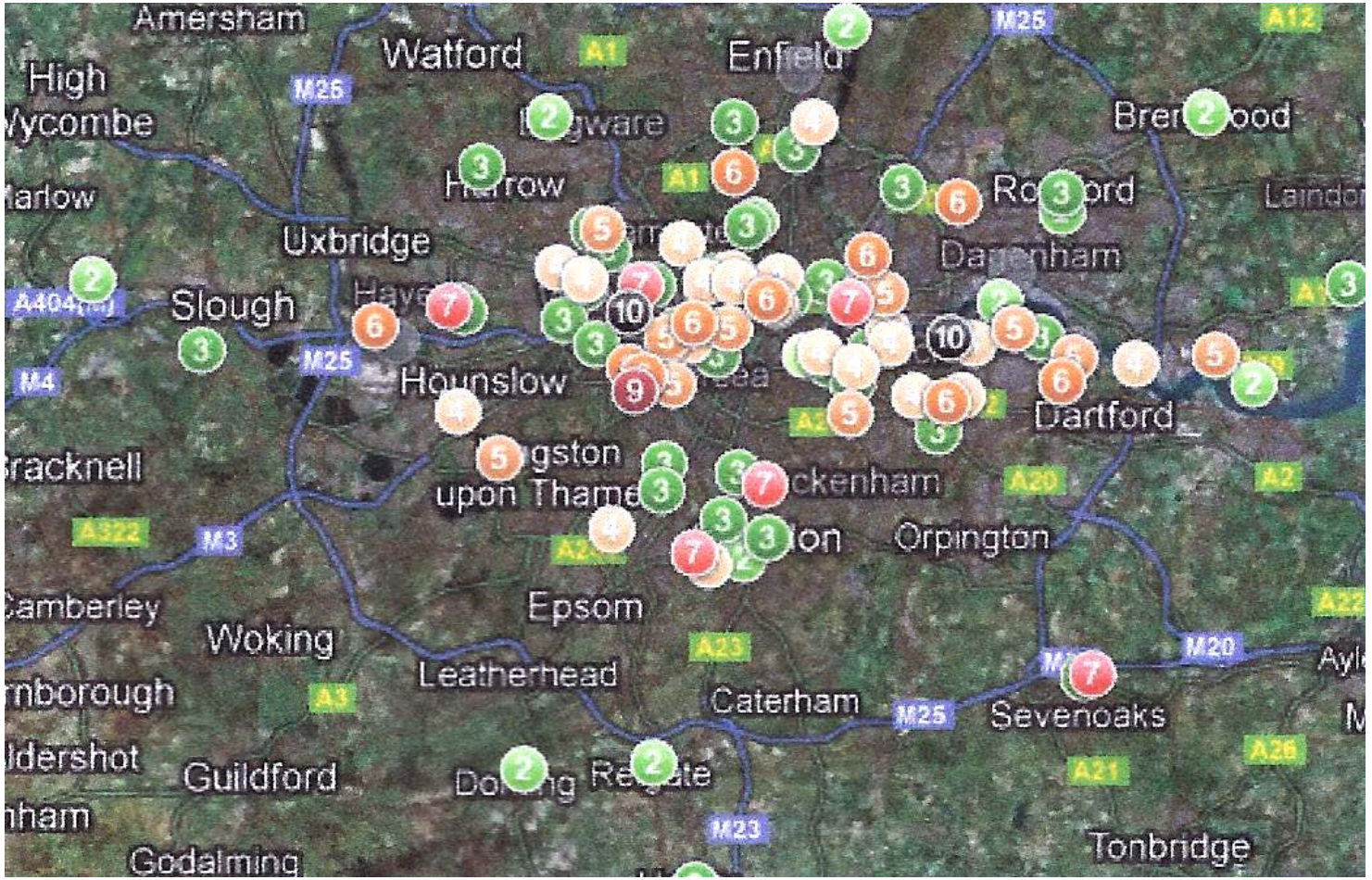
Proportion – %

Area	Value	Lower CI	Upper CI
England	5.60	–	–
City of London	9.00	–	–
Kensington and Chelsea	8.30	–	–
Westminster	8.30	–	–
Tower Hamlets	8.10	–	–
Hammersmith and Fulham	7.90	–	–
Southwark	7.90	–	–
Islington	7.90	–	–
Hackney	7.80	–	–
Lambeth	7.70	–	–
Camden	7.70	–	–
Newham	7.60	–	–
Wandsworth	7.30	–	–
Waltham Forest	7.30	–	–
Greenwich	7.20	–	–
Lewisham	7.20	–	–
Brent	7.20	–	–
Ealing	7.20	–	–
Haringey	7.10	–	–
Hounslow	7.10	–	–
Barking and Dagenham	7.10	–	–
Redbridge	7.00	–	–
Merton	6.90	–	–
Richmond upon Thames	6.80	–	–
Barnet	6.80	–	–
Kingston upon Thames	6.70	–	–
Enfield	6.60	–	–
Bexley	6.60	–	–
Croydon	6.50	–	–
Hillingdon	6.50	–	–
Harrow	6.40	–	–
Sutton	6.40	–	–
Havering	6.30	–	–
Bromley	6.30	–	–

Source: Defra

Worst smog episode since 2006 on eve of Olympics

London Air Quality Network www.londonair.org.uk



London Air Quality Network: Health advice

You are on this page: Air Quality Bands Health Information

Air Quality Bands Health Information (2012)

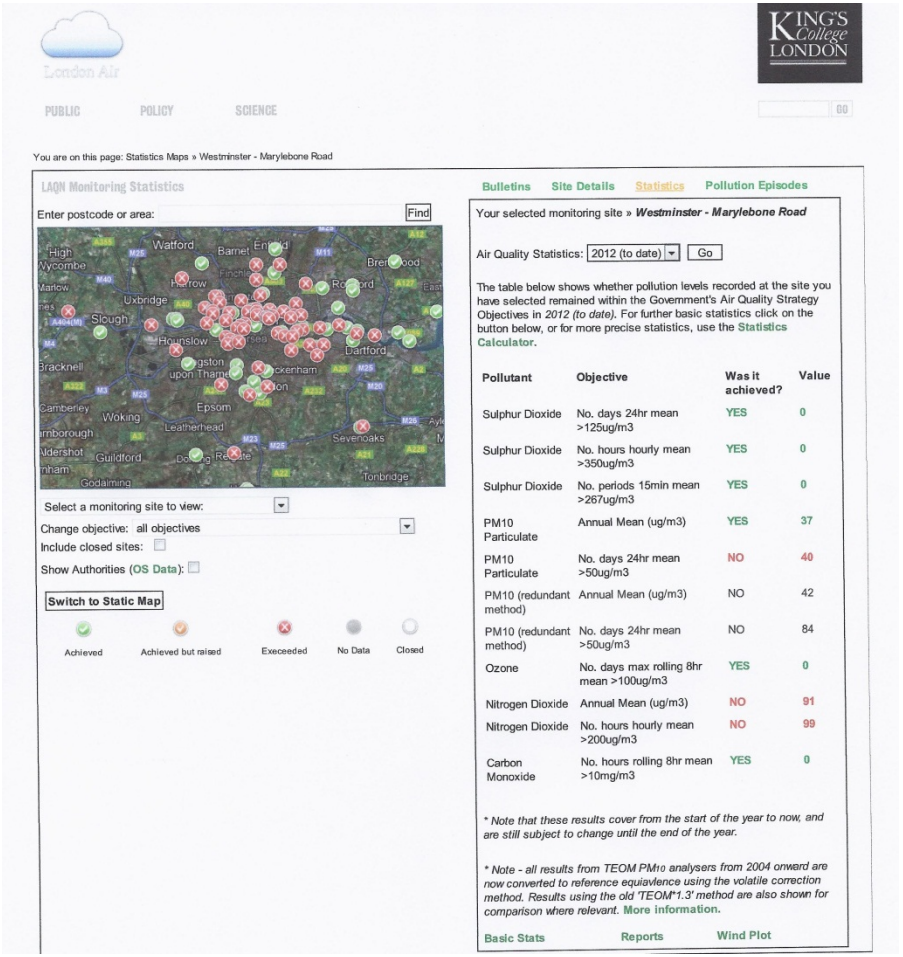
Air pollution banding	Value	Accompanying health messages for at-risk groups and the general population	
		At-risk individuals *	General population
Low	1-3	**Enjoy** your usual outdoor activities.	**Enjoy** your usual outdoor activities.
Moderate	4-6	Adults and children with lung problems, and adults with heart problems, **who experience symptoms**, should **consider reducing** strenuous physical activity, particularly outdoors.	**Enjoy** your usual outdoor activities.
High	7-9	Adults and children with lung problems, and adults with heart problems, should **reduce** strenuous physical exertion, particularly outdoors, and particularly if they experience symptoms. People with asthma may find they need to use their reliever inhaler more often. Older people should also **reduce** physical exertion.	Anyone experiencing discomfort such as sore eyes, cough or sore throat should **consider reducing** activity, particularly outdoors.
Very High	10	Adults and children with lung problems, adults with heart problems, and older people, should **avoid** strenuous physical activity. People with asthma may find they need to use their reliever inhaler more often.	**Reduce** physical exertion, particularly outdoors, especially if you experience symptoms such as cough or sore throat.

* Adults and children with heart or lung problems are at greater risk of symptoms. Follow your doctor's usual advice about exercising and managing your condition. It is possible that very sensitive individuals may experience health effects even on Low air pollution days. Anyone experiencing symptoms should follow the guidance provided in section B on the "How to use the air quality index" page, using the link below.

See how to use the daily air quality index How the index is calculated What the bands mean Video - Daily Air Quality Index

Air pollution in Marylebone Road – so far in 2012

London Air Quality Network www.londonair.org.uk



London Air

PUBLIC POLICY SCIENCE

You are on this page: Statistics Maps » Westminster - Marylebone Road

LAQN Monitoring Statistics

Enter postcode or area: Find

Select a monitoring site to view:

Change objective: all objectives

Include closed sites:

Show Authorities (OS Data):

Switch to Static Map

Achieved | Achieved but raised | Exceeded | No Data | Closed

Bulletins Site Details Statistics Pollution Episodes

Your selected monitoring site » ***Westminster - Marylebone Road***

Air Quality Statistics: 2012 (to date) Go

The table below shows whether pollution levels recorded at the site you have selected remained within the Government's Air Quality Strategy Objectives in *2012 (to date)*. For further basic statistics click on the button below, or for more precise statistics, use the Statistics Calculator.

Pollutant	Objective	Was it achieved?	Value
Sulphur Dioxide	No. days 24hr mean >125ug/m3	YES	0
Sulphur Dioxide	No. hours hourly mean >350ug/m3	YES	0
Sulphur Dioxide	No. periods 15min mean >267ug/m3	YES	0
PM10 Particulate	Annual Mean (ug/m3)	YES	37
PM10 Particulate	No. days 24hr mean >50ug/m3	NO	40
PM10 (redundant method)	Annual Mean (ug/m3)	NO	42
PM10 (redundant method)	No. days 24hr mean >50ug/m3	NO	84
Ozone	No. days max rolling 8hr mean >100ug/m3	YES	0
Nitrogen Dioxide	Annual Mean (ug/m3)	NO	91
Nitrogen Dioxide	No. hours hourly mean >200ug/m3	NO	99
Carbon Monoxide	No. hours rolling 8hr mean >10mg/m3	YES	0

** Note that these results cover from the start of the year to now, and are still subject to change until the end of the year.*

** Note - all results from TEOM PM10 analysers from 2004 onward are now converted to reference equivalence using the volatile correction method. Results using the old 'TEOM*1.3' method are also shown for comparison where relevant.* More information.

Basic Stats Reports Wind Plot

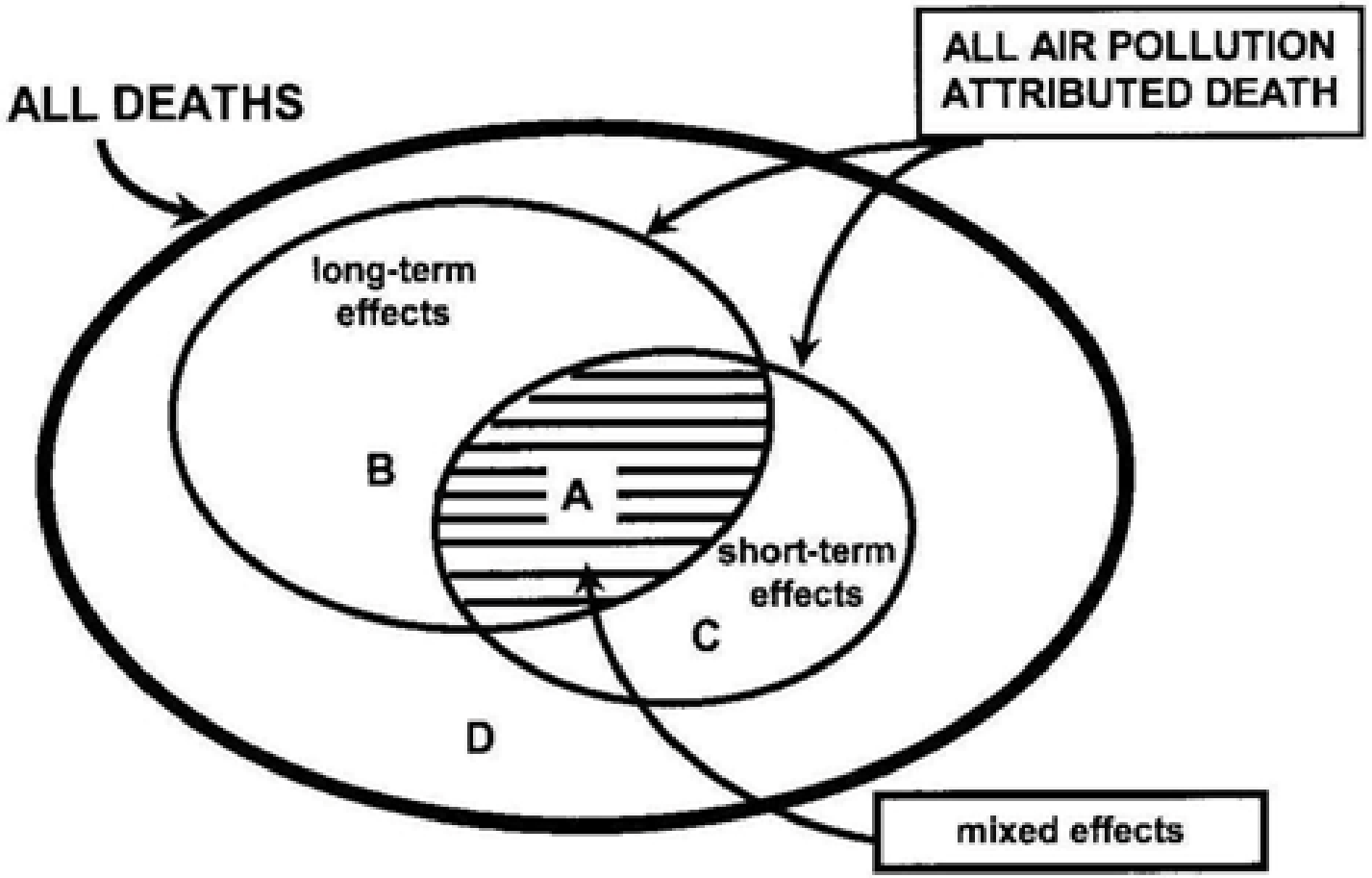
What is air pollution?

- Several ambient air pollutants
  - Nitrogen dioxide (NO_2)
  - Tropospheric ozone (O_3)
  - Particulate matter: ultrafine ($PM_{0.1}$); fine ($PM_{2.5}$); coarse ($PM_{2.5-10}$) and PM_{10}
  - Sulphur dioxide (SO_2)
  - Others e.g. benzo(a)pyrene
- Smaller particles penetrate deeper into lungs and bloodstream
- Mortality (death) and morbidity (sickness). Acute (shorter time) and chronic (longer time)

Protecting public health

- *"Since 1900, the average lifespan of persons in the United States has lengthened by over 30 years; 25 years of this gain are attributable to advances in public health"*, Journal of the American Medical Association, 1999

- *"Public health experts agree that environmental risks constitute 25% of the burden of disease."* WHO, 2011



Assessment of Deaths Attributable to Air Pollution:
Should We Use Risk Estimates based on Time Series or on Cohort Studies
N. Kunzli, S. Medina et al. American Journal of Epidemiology, 2001

Health impacts in context

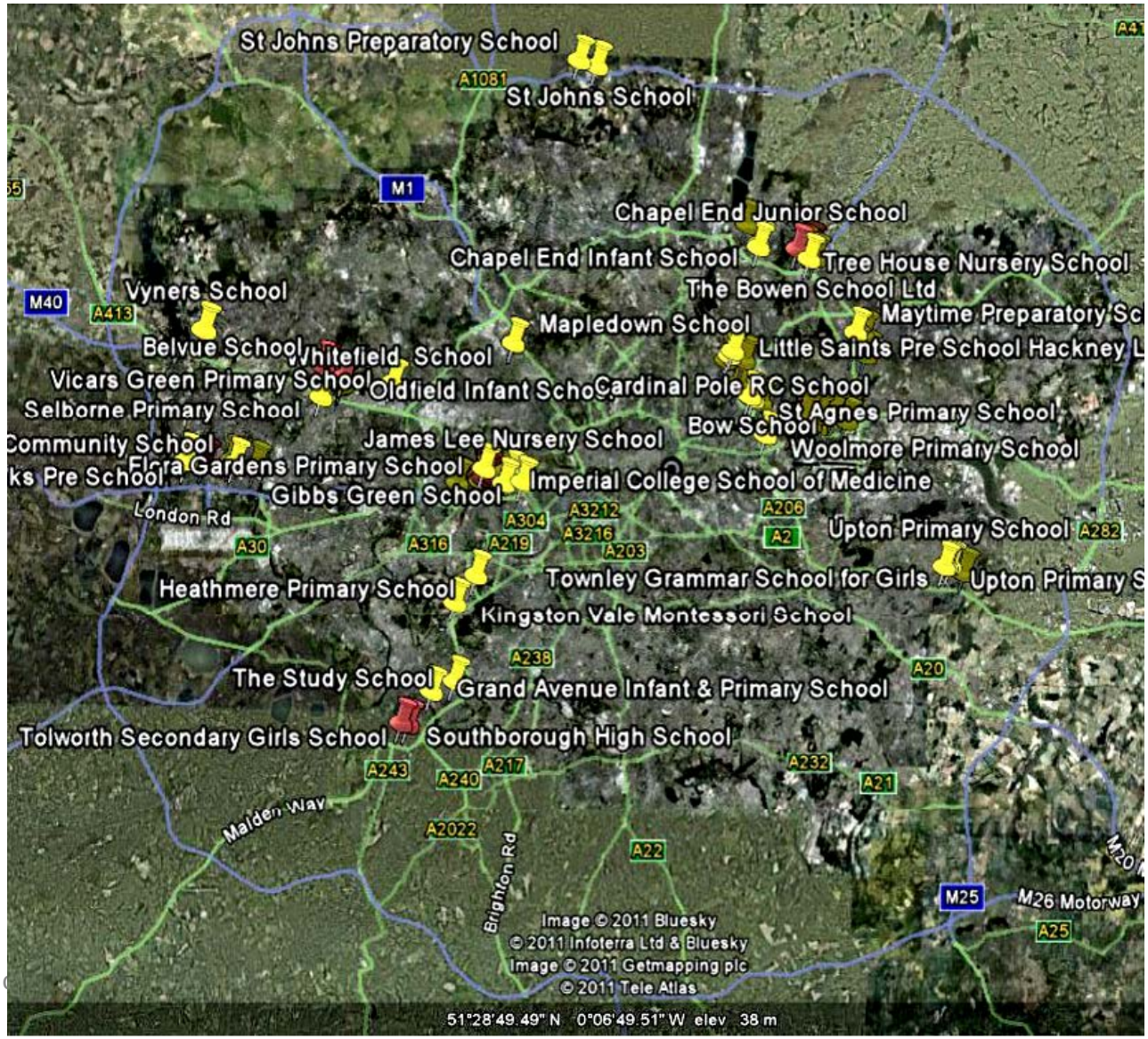
- Annual deaths:
  - *Smoking, 79,100 attributable deaths in England in 2011*
  - *Long-term exposure to $PM_{2.5}$, 29,000 attributable deaths in the UK*
  - *Alcohol related deaths, between 15,000 and 22,000 deaths in England*
  - *Obesity, 9,000 premature deaths in England*
- 1,901 people killed in road accidents in GB in 2011

Health impacts: short and long-term exposure; young and old people

- Health impacts of long-term exposure to ‘invisible’ air pollution identified in mid-1990s and later
- Aphekom project: Living near busy roads could be responsible for some 15-30% of all new cases of asthma in children; and of chronic obstructive pulmonary disease and coronary heart disease in adults 65 years of age and older
- What next?

London schools within 150m and 400m of busy roads

Roads carrying over 100,000 vehicles per day

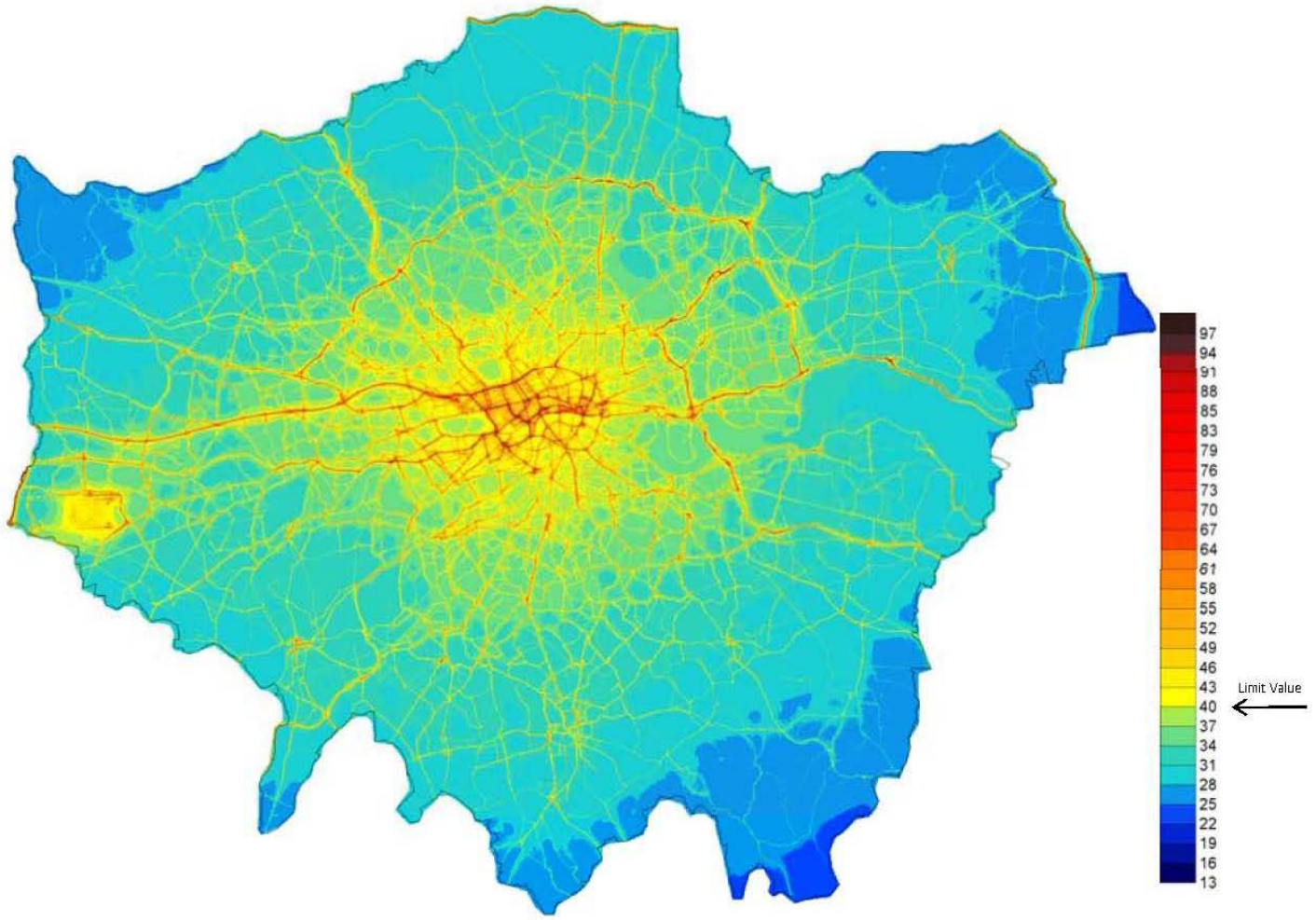


EU legal standards compared to WHO guidelines

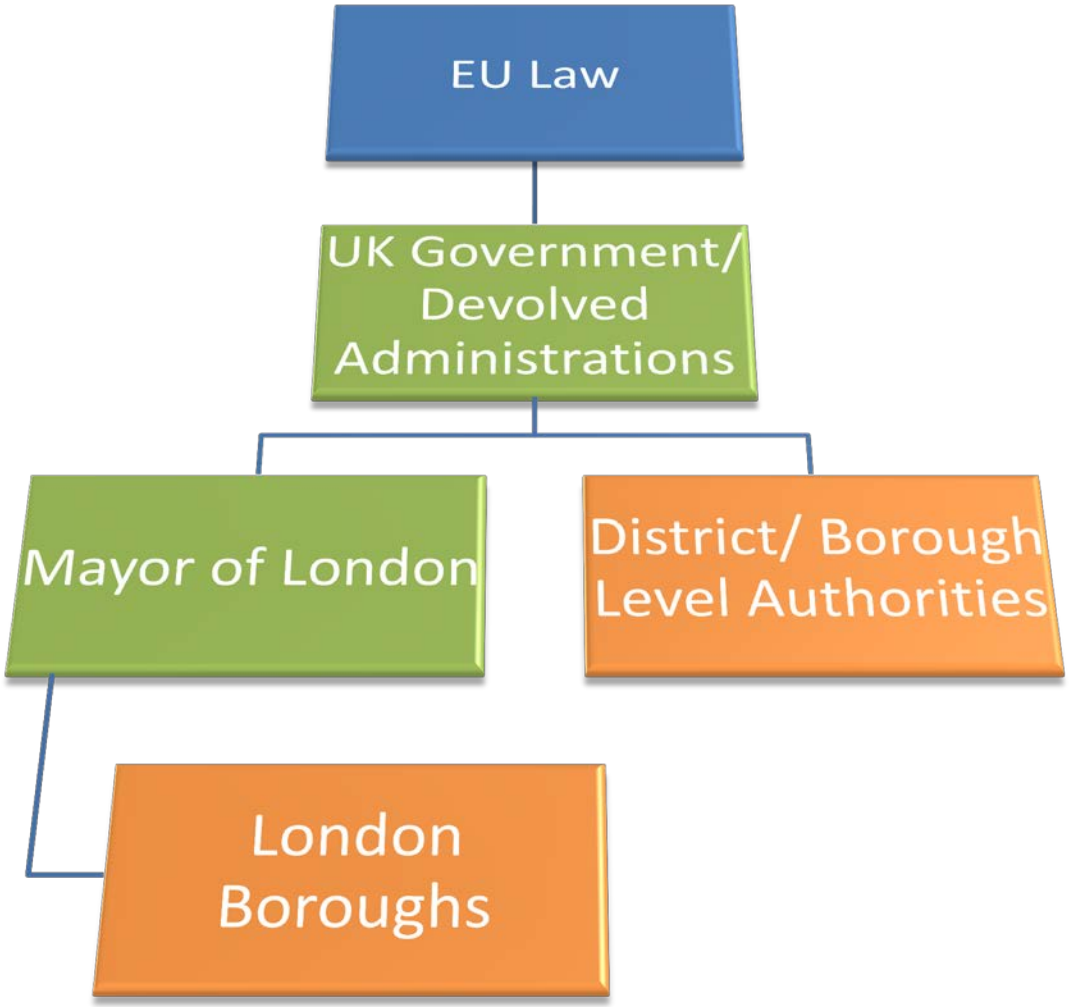
Pollutant	Legal standard		WHO guideline	
	Short term	Annual mean	Short term	Annual mean
Fine particulate matter ($PM_{2.5}$)	1. 25 μg/m^3 annual mean to become limit value in 2015 2. 20 μg/m^3 exposure concentration obligation based on 3-year average by 2015 3. Exposure reduction target in percentage by 2020		25 μg/m^3 24-hour mean	10 μg/m^3
Particulate matter (PM_{10})	35 days over 50 μg/m^3 since 2011	40 μg/m^3 since 2011	50 μg/m^3 24-hour mean	20 μg/m^3
Nitrogen dioxide (NO_2)	18 hours over 200 μg/m^3 since 2010	40 μg/m^3 since 2010	200 μg/m^3	40 μg/m^3

Concentration and trends – Mayor's Air Quality Strategy

NO_2 annual mean concentrations for 2008



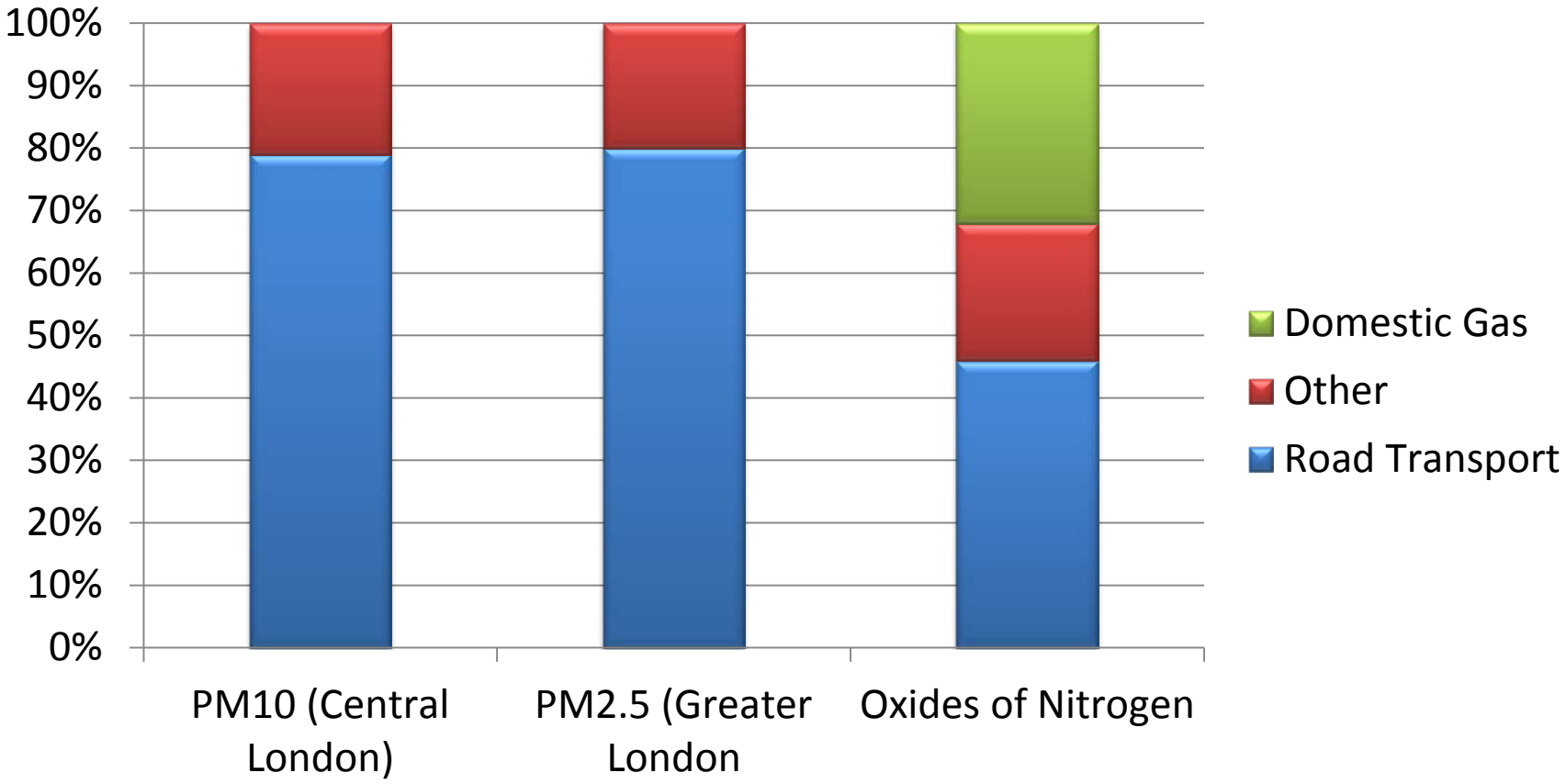
Air quality responsibilities



- UK breaching its legal responsibilities
- Legal action expected to commence shortly

Sources of air pollution in London

Emissions, source *Mayor's Air Quality Strategy 2010*



- Diesel cars 21.7x PM_{10} and 2.1x NOx of petrol cars (DfT 2009)

World Health Organisation has classified diesel exhaust as carcinogenic for humans

Solutions

Clean Air in London has proposed 45 measures

Adaptation and mitigation

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

People need to be warned about the dangers of air pollution and given advice about protecting themselves and reducing pollution for themselves and others

Boris' Pollution Suppressor

Reducing pollution by monitors used to report legal breaches

Don’t forget indoor air quality: European citizens spend over 90% of their time indoors on average

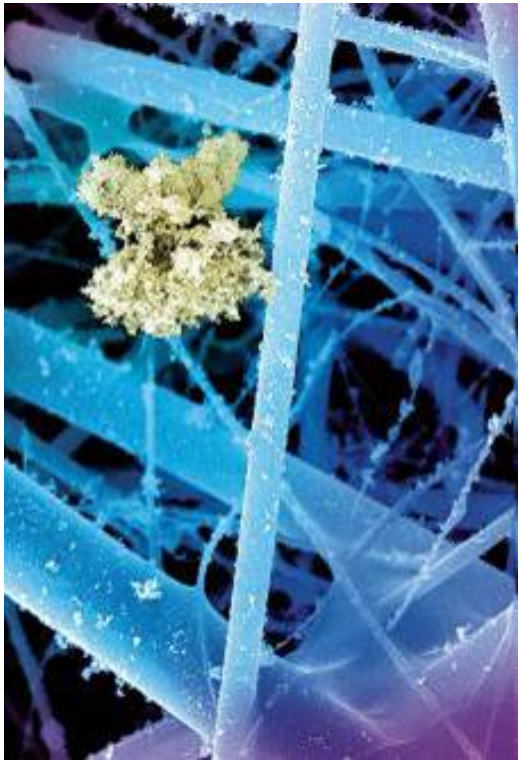


Photo of soot particles in air filter

Photo: Lennart Nilsson

If your hospital or workplace has a mechanical ventilation system or air conditioning (i.e. it is likely to contain the necessary ducting) please ask:

“Does our ventilation system include regularly maintained air filters that comply with European standard EN 13779 and, if not, why not?”

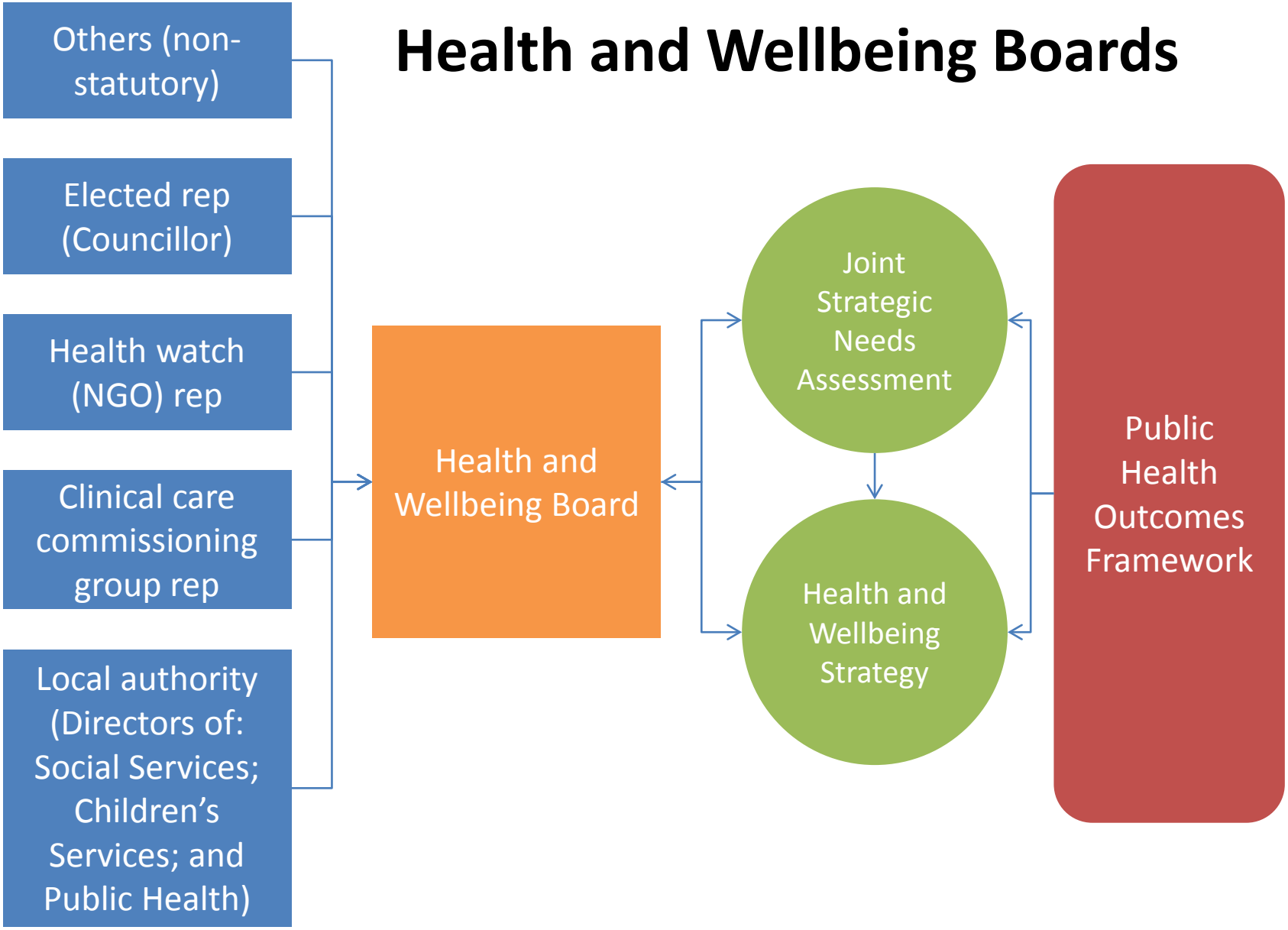
For more information visit www.keepthecityout.co.uk

Note: a building may have ventilation, air conditioning and/or air filters

Engagement and education

- **Content, content, content…**
  - Popular topics include: London and UK are the worst in Europe; death and serious illness; legal action by the European Commission; Olympics; smog; and ‘cover-ups’
- **Communication, communication, communication….**
  - **Website.** Popular categories include: guides; and action e.g. ‘10 steps’
  - **Twitter.** Immediate, powerful and high ‘return on effort’
  - **Media.** Television, radio, online and print. Stories, briefings and quotes. Must be willing to respond quickly

Health and Wellbeing Boards



Public health outcomes framework for 2013-2016

- 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, $PM_{2.5}$) per 100,000 population"

- Committee on the Medical Effects of Air Pollution (COMEAP) recommends Mortality Burden is expressed as: attributable deaths; total years of life lost; and attributable fraction

$PM_{2.5}$: 12.5 $\mu g/m^3$ (2009); 13.0 $\mu g/m^3$ (2010); 13.5 $\mu g/m^3$ (2011)

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Region: London Profiles

Compared with England: Lower Similar Higher Not compared

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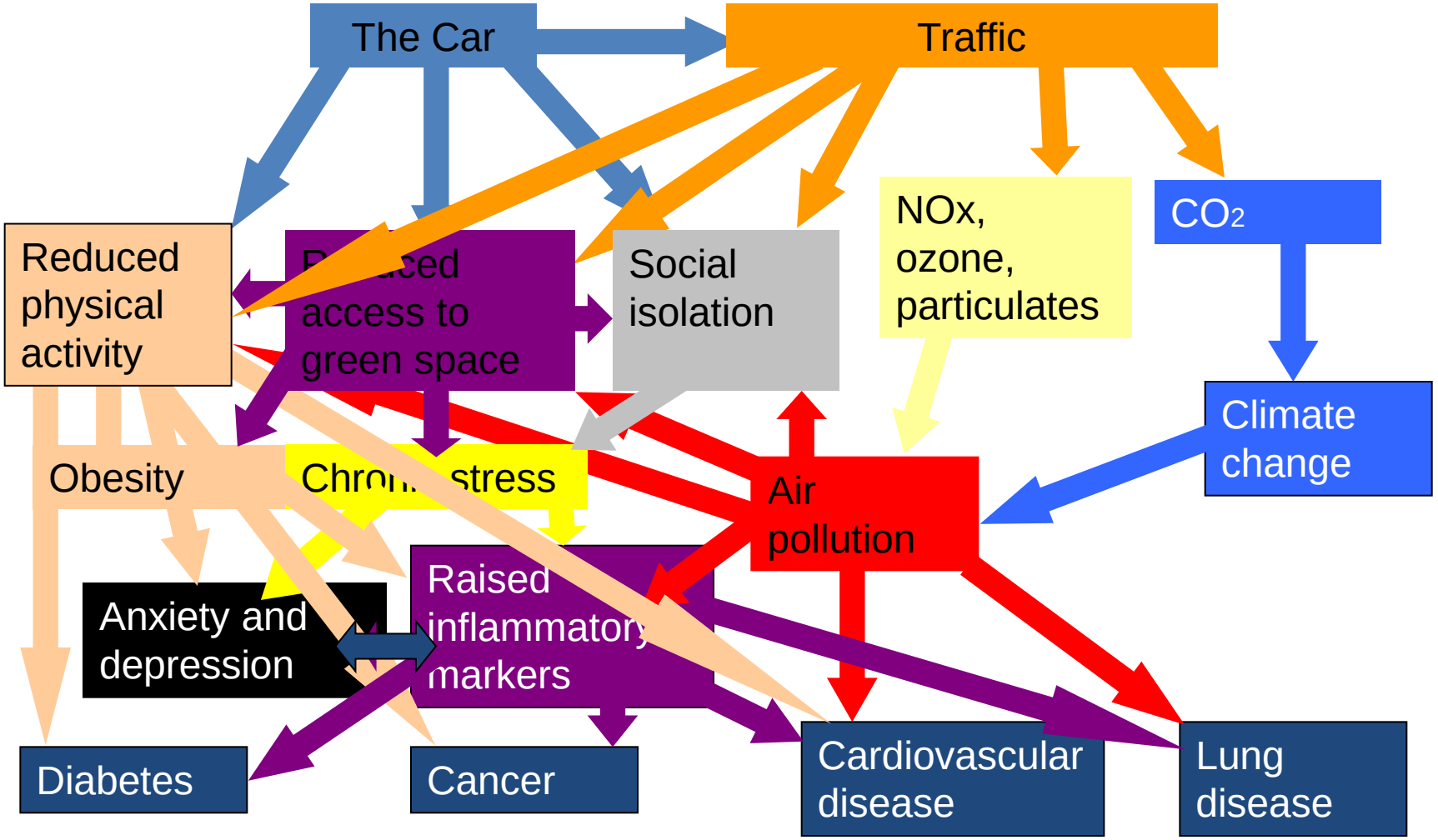
Southwark	7.90	–	–
Islington	7.90	–	–
Hackney	7.80	–	–
Lambeth	7.70	–	–
Camden	7.70	–	–
Newham	7.60	–	–
Wandsworth	7.30	–	–
Waltham Forest	7.30	–	–
Greenwich	7.20	–	–
Lewisham	7.20	–	–
Brent	7.20	–	–
Ealing	7.20	–	–
Haringey	7.10	–	–
Hounslow	7.10	–	–
Barking and Dagenham	7.10	–	–
Redbridge	7.00	–	–
Merton	6.90	–	–
Richmond upon Thames	6.80	–	–
Barnet	6.80	–	–
Kingston upon Thames	6.70	–	–
Enfield	6.60	–	–
Bexley	6.60	–	–
Croydon	6.50	–	–
Hillingdon	6.50	–	–
Harrow	6.40	–	–
Sutton	6.40	–	–
Havering	6.30	–	–
Bromley	6.30	–	–

Source: Defra

Air pollution among other public health risks



From a presentation by Dr William Bird of Natural England

Summary

- Is air pollution still a problem?
- What is poor air quality?
- Health impacts
- Legal framework, responsibilities and breaches
- Sources
- Solutions
- Health and Wellbeing Boards: assess and address air pollution

2013 is the European Commission's 'Year of Air'

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Supplementary slides for reference

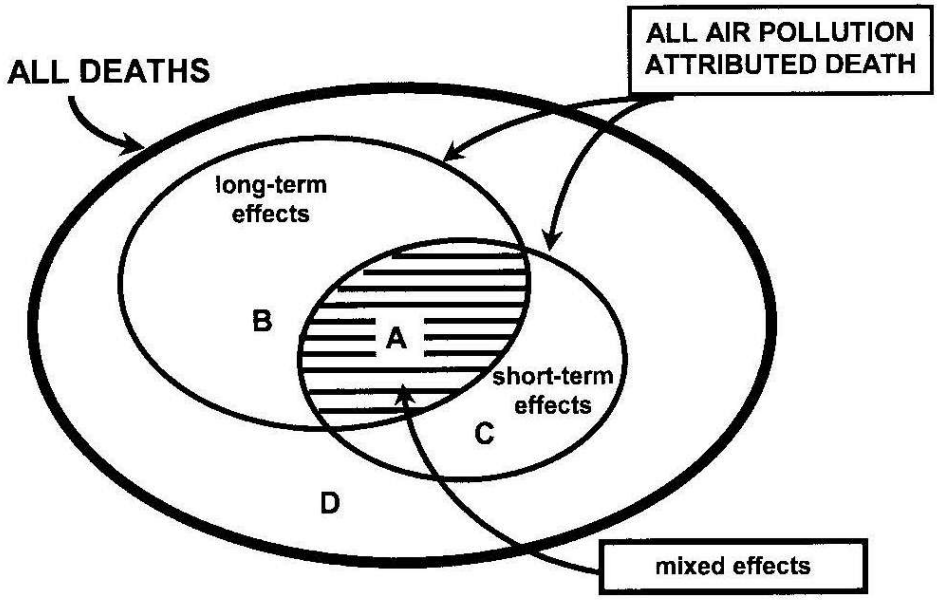

FIGURE 1. Graphic illustration of deaths due to ambient air pollution in a population, including cases related to both long term and short term air pollution. Exposure may affect the occurrence (event) of death ("short term effects") and/or increase the underlying frailty in the population ("long term effects"), leading to a shortening of lifetime. The four different types of cases, A, B, C, and D, correspond to the category definitions given in table 1. Circle sizes do not reflect relative effects. (Adapted from a report of the UK Department of Health (8)).

Assessment of Deaths Attributable to Air Pollution:
Should We Use Risk Estimates based on Time Series or on Cohort Studies
N. Kunzli, S. Medina et al. American Journal of Epidemiology, 2001

Health impacts

- Public health risks:
  - *Smoking was responsible for 79,100 attributable deaths in England in 2011.* DoH, 2012. *"Men who quit smoking by 30 added 10 years to their life."* NHS, July 2010
  - *Long-term exposure to $PM_{2.5}$: 29,000 attributable deaths in the UK at an average loss of 11.5 years. COMEAP, December 2010*
  - *"There are between 15,000 and 22,000 alcohol-related deaths every year in England. Most of these deaths are premature: on average, every man in this group loses 20 and every woman 15 years of life compared with the average."* DoH, June 2008
  - *"Obesity is responsible for 9,000 premature deaths each year in England, and reduces life expectancy by, on average, 9 years."* DoH, September 2007
- 1,901 people killed in road accidents in GB in 2011. DfT, 2012

Attributable deaths by London borough in 2008

Inner London has highest pollution. Outer London shows more early deaths as borough size is bigger (incl. non-anthropogenic)

Note: Provisional calculations prepared by Campaign for Clean Air in London (30 June 2010 as at 12 noon)

Boroughs ranked by average concentration of PM2.5

	Tot pop	PM2.5	6%
City of London	9,155	**17.590**	4
Westminster	214,750	**16.561**	96
Camden	207,198	**16.188**	107
Kensington and Chelsea	169,015	**16.169**	75
Tower Hamlets	231,664	**16.024**	102
Islington	195,114	**15.921**	100
Waltham Forest	226,706	**15.920**	129
Southwark	276,838	**15.804**	136
Hammersmith and Fulham	178,656	**15.794**	86
Hackney	223,357	**15.702**	96
Lambeth	291,783	**15.696**	139
Wandsworth	289,091	**15.564**	148
Newham	261,691	**15.423**	121
Enfield	291,256	**15.410**	178
Ealing	317,721	**15.405**	167
Brent	277,863	**15.402**	133
Haringey	235,055	**15.321**	99
Lewisham	269,020	**15.300**	153
Hounslow	229,905	**15.258**	121
Greenwich	236,450	**15.244**	150
Merton	198,068	**15.192**	107
Redbridge	252,553	**15.114**	153
Barnet	328,752	**15.112**	201
Richmond upon Thames	184,519	**15.048**	97
Barking and Dagenham	172,357	**15.036**	120
Kingston upon Thames	154,205	**15.015**	91
Croydon	341,021	**14.953**	205
Sutton	185,180	**14.940**	124
Hillingdon	253,432	**14.898**	154
Bexley	218,945	**14.842**	161
Harrow	218,956	**14.819**	119
Bromley	302,464	**14.725**	217
Havering	230,479	**14.621**	182
Greater London (per CCAL)	7,673,219		4,271
Greater London (per Mayor)	7,673,217		4,267

Boroughs ranked by total estimated premature deaths

	Tot pop	PM2.5	6%
Bromley	302,464	14.725	**217**
Croydon	341,021	14.953	**205**
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Kingston upon Thames	154,205	15.015	**91**
Hammersmith and Fulham	178,656	15.794	**86**
Kensington and Chelsea	169,015	16.169	**75**
City of London	9,155	17.590	**4**
	7,673,219		4,271
	7,673,217		4,267

Sources of air pollution in London
Mayor's Air Quality Strategy 2010

- Emissions (not concentrations). Based on 2008 estimates
- PM_{10} (Central London)
  - Road transport 79%. Cars 23%; taxis 20%; LGVs 10%. Buses <10%
  - Tyre and brake wear 35%
- $PM_{2.5}$ (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_{10}; and 2.1x NOx

World Health Organisation has classified diesel exhaust as carcinogenic for humans

Current legal situation

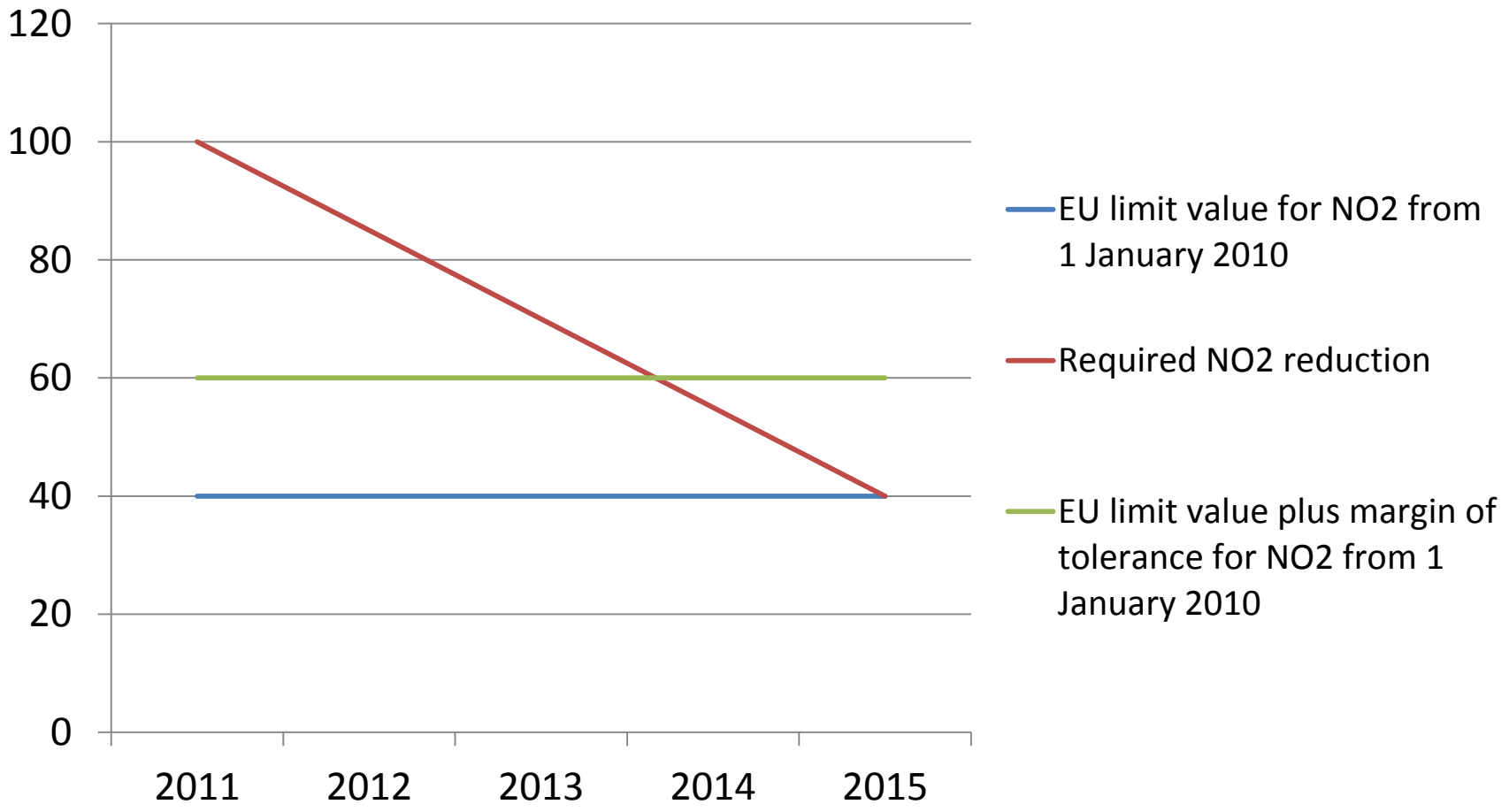
- Member State obligation. Key roles for Mayor and local authorities
- PM_{10}: UK obtained (unlawfully) time extension until 2011 to comply with PM_{10} daily limit value in London. Breached, in any event, in Neasden Lane in 2011 and more widely in 2012
- NO_2: only three of 43 UK zones complied by 2010 deadline. No plan to comply in 16 zones before 2020 (or 2025 in London). London worst capital city in Europe
- 'Clean Air in London' complaint considered under EU Pilot
- Infraction expected soon. Fines are final sanction at fifth stage
- UK population weighted $PM_{2.5}$: 12.0 $\mu g/m^3$ in 2009); 13.0 $\mu g/m^3$ in 2010 and 13.5 $\mu g/m^3$ in 2011 i.e. a steady and significant worsening of this key metric

Nitrogen dioxide is <u>not</u> just a molecule

"Nitrogen dioxide (NO_2), for example, is a product of combustion processes and is generally found in the atmosphere in close association with other primary pollutants, including ultrafine particles. It is itself toxic and is also a precursor of ozone, with which it coexists along with a number of other photochemically generated oxidants. Concentrations of NO_2 are often strongly correlated with those of other toxic pollutants. Its concentration is readily measured but needs interpretation as a potential surrogate for a set of sources and the resulting mixture. Achieving guideline concentrations for individual pollutants, such as NO_2, may therefore bring public health benefits that exceed those anticipated on the basis of estimates of a single pollutant's toxicity."

'Update of WHO air quality guidelines' (AQG) published in 2008

Concentrations of nitrogen dioxide (NO_2) in micrograms per cubic metre ($\mu g/m^3$)



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

Widespread breaches of nitrogen dioxide laws

Current status of infraction action

CLEAN AIR IN LONDON

E AND OE. DRAFT 270612

Zone code	EC code	Zone name	Population exposed to >40 ug/m3 NO2 (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
UK(Gib)		Gibraltar				Gibraltar		Annual
UK0001		Greater London Urban Area	698543	2025	No	London		
UK0002		West Midlands Urban Area	122398	2020	No	Birmingham, Wolverhampton, Dudley, Walsall, West Bromwich, Solihull, Stourbridge, Halesowen		
UK0003		Greater Manchester Urban Area	11070	2020	No	Manchester		
UK0004		West Yorkshire Urban Area	3812	2020	No	Leeds, Bradford, Huddersfield, Wakefield		
UK0005	1	Tyneside	71	2015	Yes	Newcastle, Gateshead	Annual	
UK0006	2	Liverpool Urban Area	1695	2015	Yes	Liverpool	Annual	
UK0007	3	Sheffield Urban Area	2850	2015	Yes	Sheffield	Annual	
UK0008	4	Nottingham Urban Area	Not available	2015	n/a	Nottingham	Annual	
UK0009	5	Bristol Urban Area	Not available	2015	Yes	Bristol	Annual	
UK0010	6	Brighton/Worthing/Littlehampton	Not available	2015	n/a	Brighton and Hove	Annual	
UK0011	7	Leicester Urban Area	Not available	2015	n/a	Leicester	Annual	
UK0012	8	Portsmouth Urban Area	Not available	2015	n/a	Portsmouth	Annual	
UK0013		Teesside Urban Area	Not available	2020	No	Middlesbrough, Stockton-on-Tees, Redcar, Billingham		
UK0014		The Potteries	Not available	2020	No	Stoke-on-Trent, Newcastle-under-Lyme, Kidsgrove		
UK0015	9	Bournemouth Urban Area	Not available	2015	n/a	Bournemouth, Poole	Annual	Until 1 January 2013 (amended AQ plan required)
UK0016	10	Reading/Wokingham Urban Area	Not available	2015	n/a	Reading, Wokingham	Annual	Until 1 Janaury 2013
UK0017	11	Coventry/Bedworth	Not available	2015	n/a	Coventry, Bedworth	Annual	Until 1 January 2014 (amended AQ plan required)
UK0018		Kingston upon Hull	2587	2020	No	Kingston upon Hull		
UK0019		Southampton Urban Area	26052	2020	No	Southampton		
UK0020	12	Birkenhead Urban Area	Not available	2015	n/a	Birkenhead	Annual	
UK0021	13	Southend Urban Area	Not available	2015	n/a	Southend	Annual	
UK0022		Blackpool Urban Area	Not available	Compliant	n/a	Blackpool	n/a	
UK0023	14	Preston Urban Area	Not available	2015	n/a	Preston		
UK0024		Glasgow Urban Area	Not available	2020	No	Glasgow		
UK0025	15	Edinburgh Urban Area	Not available	2015	n/a	Edinburgh	Annual	
UK0026	16	Cardiff Urban Area	Not available	2015	n/a	Cardiff	Annual	
UK0027	17	Swansea Urban Area	Not available	2015	n/a	Swansea	Annual	
UK0028	18	Belfast Metropolitan Urban Area	Not available	2015	n/a	Belfast	Annual	
UK0029		Eastern	3131	2020	No	Essex, Hertfordshire, Bedfordshire, Cambridgeshire, Norfolk and Suffolk		
UK0030	19	South West	3700	2015	n/a	Gloucestershire, Somerset, Dorset, Wiltshire, Devon, Cornwall	Annual	
UK0031		South East	9570	2020	No	Berkshire, Buckinghamshire, East Sussex, Hampshire, Isle of Wight, Kent, Oxfordshire, Surrey		
UK0032		East Midlands	17033	2020	No	Nottinghamshire, Derbyshire, Leicestershire, Rutland, Northamptonshire		
UK0033		North West & Merseyside	5898	2020	No	Cumbria, Lancashire, Greater Manchester, Merseyside, and Cheshire		
UK0034		Yorkshire & Humberside	3609	2020	No	Yorkshire, Humberside		
UK0035		West Midlands	11135	2020	No	Shropshire, Herefordshire, Staffordshire, Warwickshire and Worcestershire		
UK0036		North East	1414	2020	No	Northumberland, County Durham and Tyne and Wear		
UK0037	20	Central Scotland	Not available	2015	n/a	Falkirk	Annual	
UK0038	21	North East Scotland	181	2015	n/a	Perth, Aberdeen	Annual and hourly	Annual and hourly
UK0039		Highland	Not available	Compliant	n/a	Fort William	n/a	
UK0040		Scottish Borders	Not available	Compliant	n/a	Dumfries	n/a	
UK0041	22	South Wales	749	2020	No	Port Talbot, Newport	Annual*	
UK0042	23	North Wales	Not available	2015	n/a	Newtown	Annual	
UK0043	24	Northern Ireland	Not available	2015	n/a	Derry, Belfadare	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 NO2 annual mean limit value
2. Data on population exposure from 2010 Defra report to the European Commission (http://cdr.eionet.europa.eu/gb/eu/annualair/envtom4wa/1_ukquestionnaire_v6_2010_20120417.xlsx)
3. Compliance forecasts produced by Defra (http://www.defra.gov.uk/consult/files/draft-overview-doc.pdf)
4. n/a refers to the fact that the LEZ scenario has not been applied in the zone

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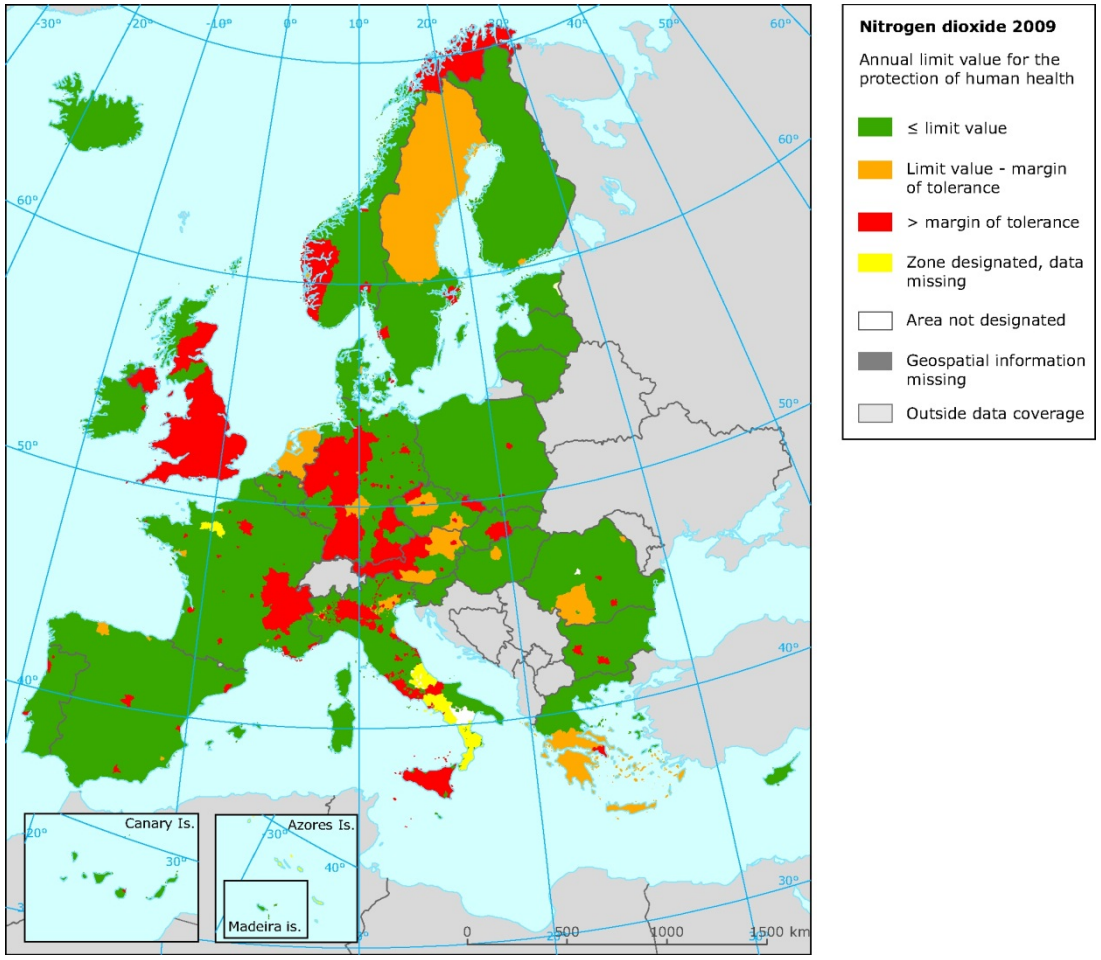
Key issues: 'Year of Air' in 2013

UK has highest % age of zones exceeding LV+MOT



‘The London Matrix’: Clean air urgently and sustainably in all large cities

	Air quality	Climate change
London (or any city)	**2012**	
Rest of world		

10 steps for ‘Clean Air in Cities’

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
8. Spread the word
9. Support ‘Clean Air in London’
10. Feedback ideas

We need to protect public health and encourage sustainable development

Useful links

- Clean Air in London - http://cleanairinlondon.org
- London air quality monitoring and info www.londonair.org.uk
- Air quality alerts - www.airtext.info, www.airalert.info/
- Air quality and health science - http://comeap.org.uk/
- Healthy Air Campaign - http://healthyair.org.uk/
- UK Government air quality pages - http://uk-air.defra.gov.uk/
- Mayor's air quality pages - www.london.gov.uk/improving-air-quality
- Policy Exchange report on air quality - http://www.policyexchange.org.uk/publications/category/item/something-in-the-air-the-forgotten-crisis-of-britain-s-poor-air-quality
- Environmental Audit Select Committee report on air quality - http://www.publications.parliament.uk/pa/cm201012/cmselect/cmenvaud/1024/102402.htm
- BBC http://www.bbc.co.uk/news/uk-england-london-13863502