

Clean Air Day - Technical Notes from FoE Winchester

Legal Obligations

Effectively these come under two headings:

1. Annual Mean NO₂ must not exceed 40µgm⁻³
2. Annual Mean PM₁₀ must not exceed 40µgm⁻³
3. Number of times 24-hour PM₁₀ exceeds 50µgm⁻³ should be no more than 35 times per year

Health Obligations

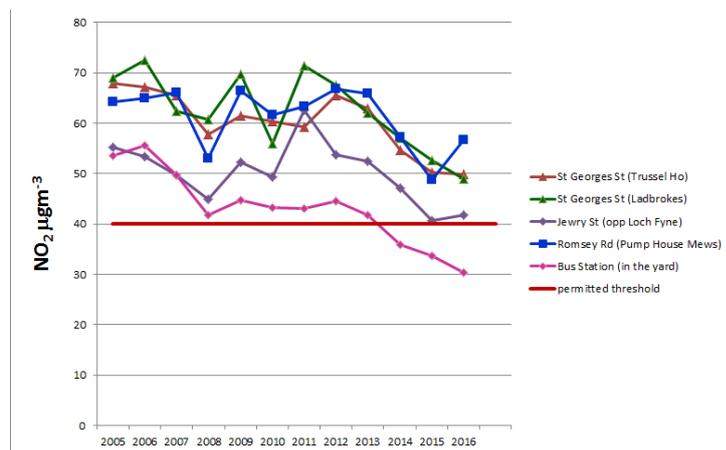
In our view the debate has been too much about legal niceties and not enough about the moral case of the duty of care of the government and local authorities towards their citizens. In this respect everything has hinged on NO_x when particulates are now known to be by far the bigger problem. They are only ignored because the law was badly framed (see footnote 4). Our view is echoed by the recent findings of the Joint Parliamentary Committee¹:

The Government cannot continue to put public health at risk. It needs to:

- *Place the protection of public health and the environment, rather than technical compliance or political convenience, at the centre of air quality policy.*

Data NO₂

The NO₂ levels have trended downwards over the last few years, though some sites are still significantly high²:

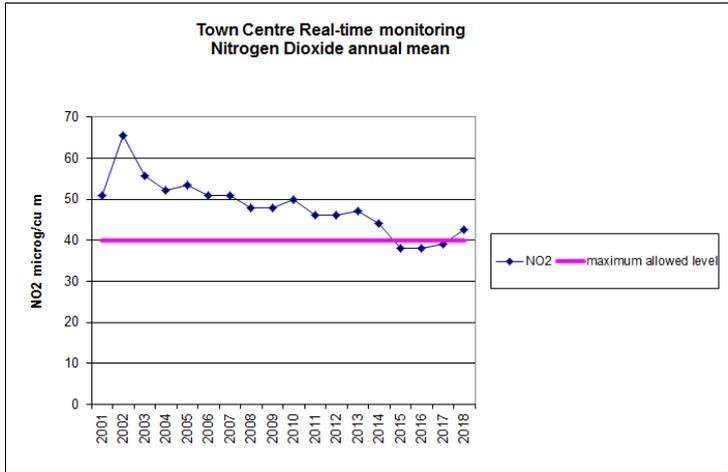


The automatic station(s) in Chesil Street have also shown a general trend downwards³ but this may have stopped:

¹ *Improving air quality*: Fourth Report of the Environment, Food and Rural Affairs Committee, Fourth Report of the Environmental Audit Committee, Third Report of the Health and Social Care Committee, and Second Report of the Transport Committee of Session 2017–19; March 2018

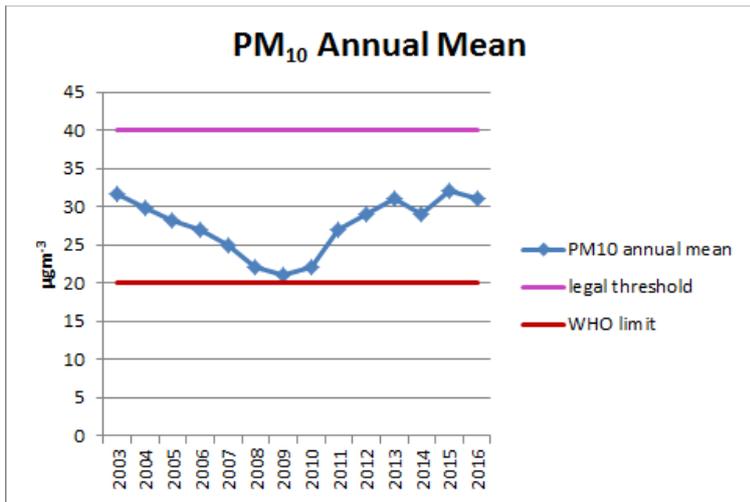
² Note that no report exists yet for data after 2016

³ The station was moved in early 2017. The AQNet data is only available from 21/3/2017. Prior to that the annual mean data comes from the annual reports. We have made following assumptions: the missing AQNet



Data PM10

The PM₁₀ level has never been illegal (mostly because the legal limit was set too high⁴). For some reason, however, the level has not consistently trended downwards. This shows Winchester to the beginning of 2017:



These levels are actually remarkably high. One of the worst sites in the UK (Brixton Road Lambeth) has an annual mean of about 36µg m⁻³. But, more importantly, after a trend downwards they are trending upwards again, possibly as a result of a steadily rising trend of diesel car proportion in the mix, more strongly countering an underlying downward trend due to better technology.

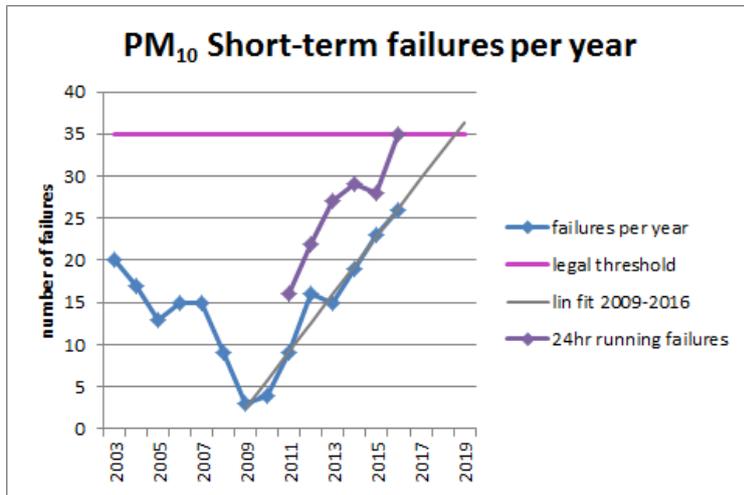
In this case the upward trend might be expected to falter if the diesel proportion levels off (it had not done so by end 2017), though there could still be a rising trend due to rising

data for early 2017 is computed by assuming the yearly distribution in 2017 is the same as in 2018 (i.e. ratio of means (1/1/17 to 23/3/17) to (23/3/17 to 31/5/17) is same as this ratio for 2018). This gives a correction factor for the annual mean of 2017. For the expected 2018 annual mean (based on 2018 data to end of May) we multiply the 'corrected' mean for 2017 by the ratio of the mean (23/3/18 to 31/5/18) to that of the corresponding period for 2017.

⁴ If the European legislators had followed the World Health Authority advice they would have set the annual mean threshold for PM₁₀ at half the level it is.

traffic levels (as suggested by recent ending to downward trend of NO₂). The data trend since 2009 would put Winchester above the legal threshold by 2021.

More disturbing from a legal point of view are the statistics for short-term particulate levels. The number of 24-hour exceedances is showing a steeply rising trend:



The trend of calendar daily failures is set to reach illegality by next year. If we take the 24-hour running means⁵ in excess of 50µgm⁻³ then we had already reached the legal limit by the end of 2016.

It was shortly into 2017 that the City Council stopped measuring particulates for cost reasons. FoE Winchester raised concerns about this with DEFRA who responded that there seemed to be a prima facie case for resuming the monitoring the situation (see appendix).

Data – health implications:

The formula implicit within the PHE report⁶ allows us to interpret the mortality due to particulates in the Winchester area. In fact it states for Winchester District that there is a statistical expectation of 51 deaths per year and 520 years of life lost. In the 8½ years of illegality the cumulative mortality just for PM_{2.5} particulates in Winchester District has thus been 433 deaths and 4420 years of life lost for a population of less than 100,000 . But for those that live in urban Winchester the odds must clearly be worse.

If, for example, we take an estimated population of 4000 within the AQMA and we take the last known PM₁₀ figure of 31µgm⁻³, this probably relates to about 22µgm⁻³ PM_{2.5}. This in turn computes to 6.4 deaths per year and 66 years of life lost, or cumulatively, since the Council went into illegality (on Nox), 55 deaths and 560 years of life lost just for this small population and just for particulates.

⁵ Which appears to be the definition of daily means used by DEFRA

⁶ Public Health England (PHE): *Estimating Local Mortality Burdens associated with Particulate Air Pollution*; 2014

Appendix: DEFRA letter to Winchester FoE



Department
for Environment
Food & Rural Affairs

MCU 3rd floor
Nobel House
Smith Square
London SW1P 3JR

T 03459 335577
Defra.helpline@defra.gsi.gov.uk

Mr Christopher Gillham
Friends of the Earth
16 Upper High Street
Winchester
Hampshire
SO23 8UT

Our ref: DWO428150/MW

16 May 2017

Dear Mr Gillham,

Thanks for your letter of 24 April to Minister Coffey about the recent decision by Winchester Council to discontinue the measurement of particulates in Winchester. I have been asked to reply.

As you may be aware local authorities have an obligation to review and assess air quality, and emission sources in their area and to work towards national objectives through the local air quality management system. Where air quality objectives are not being achieved or are not likely to be achieved, they are required to designate an air quality management area and to put in place an action plan describing the mitigation measures they will put in place.

While recent particulate measurement data from Winchester Council indicate there are no exceedances of national objectives in their area, the Council's obligation to continue reviewing and assessing this pollutant remains. In line with your observation, the data provided by the Council indicates that the hourly PM10 exceedances have increased in recent years and may breach the limit value in future years. However please note that there are other methods of assessment that the Council could choose employ besides automatic continuous monitoring, such as modelling using data from other neighbouring local authority or national monitoring sites.

The Council are expected to submit their 2017 annual status report to Defra by 30 June including their most recent monitoring data.

Yours sincerely,

Matt Wells
Defra - Ministerial Contact Unit