

**Q: - What do the Council and its NHS partners propose to do to address the fact that Slough has the third highest rate of deaths attributable to air pollution in the South East according to recently published research by Public Health England, (in the newspapers last week)?**

The issue of PM2.5 pollution is a significant public health issue that affects most urban conurbations across industrialised countries across the world, responsible for millions of premature deaths across the world. Particulate emissions are particularly harmful to human health because finer particulates can be transported around the body, and can lodge deep into the lungs, brain, blood and heart. The particulates can lead to hardening of arteries and associated increase in strokes, heart disease, and some cancers. It should be noted that indoor air pollution will often give rise to PM concentrations significant higher than ambient air pollution, from gases, aerosols, solvents, and poorly ventilated houses.

PM2.5 concentrations within the UK have continued to show significant decline (76% reduction) between 1970 and 2000, but in recent years PM2.5 concentrations have started to plateau. The particulate concentrations are affected by weather conditions and there will be inter-year variability, pollution levels of particulates in 2016 showed a sharp upturn across most regions in the UK and the levels were highest in London and industrial areas of Wales and Scotland.

The principal reason, why PM2.5 is thought to have plateaued relates to the increasing use of domestic wood burning stoves (it is estimated that approx. 1 million people use wood burning stoves). The Government is intending to implement new regulations to tackle wood burning stoves as part of its new DRAFT air quality strategy see <https://www.telegraph.co.uk/interiors/home/wood-burning-stoves-do-new-rules-mean-heater/>. These types of emissions are not thought to be a significant source of particulates within Slough, but are particularly prevalent in London where it is modelled that wood burning stove PM2.5 emissions far exceed road transport PM2.5 emissions.

Due to the transboundary nature of particulate pollution, and their ability to be carried in jet streams over continents, countries and regions; London, Heathrow and South East will contribute towards the background levels in Slough, and these will not be in the control of authority to reduce. The principal sources of man made PM2.5 emissions are: source: <http://naei.beis.gov.uk/>

- Domestic Wood and Coal Burning (39%)
- Industrial Combustion (17%)
- Road Transport (13%)
- Industrial Processes (10%)

The Government has prepared a new draft air quality strategy <https://consult.defra.gov.uk/environmental-quality/clean-air-strategy-consultation/> and outlined Actions to reduce people's exposure to air pollution as follows:

- We will set a bold new goal to progressively cut public exposure to particulate matter pollution, as suggested by the World Health Organisation. We will reduce PM2.5 levels in order to halve the number of people living in locations where concentrations of particulate matter are above 10 µg/m<sup>3</sup> by 2025.
- We will back these goals up with a comprehensive set of new powers designed to enable targeted local action in areas with an air pollution problem (these mainly relate to wood burning stoves).
- We will review our progress in 2022, and we will consider if we should have more challenging milestones towards WHO goals; the new independent statutory body that we are establishing to hold government to account on environmental objectives may, subject to

consultation, have a role in the scrutiny of air quality policy and any other strategies relating to air quality.

- We will develop and deliver a personal air quality messaging system to inform the public, particularly those who are vulnerable to air pollution about the air quality forecast and provide clearer information on air pollution episodes and health advice.
- We will improve the information we provide about air pollution, health impacts and the simple actions people can take to reduce their exposure and improve air quality.
- We plan to publish a new set of appraisal tools and accompanying guidance this year to enable the health impacts of air pollution to be considered in every relevant policy decision that is made.
- We will equip health professionals to play a stronger role by working with the Medical Royal Colleges and the General Medical Council to embed air quality into the health profession's education and training. Work with local authorities and directors of public health to equip and enable them to lead and inform local decision-making to improve air quality more effectively.
- We will work with the NHS, hospitals, emergency departments, GPs and local authorities to gather better information on where, when and how patients report and are treated for air quality related health conditions, to help evaluate the effectiveness of actions to improve air quality. This will help meet the recommendations of the recent Chief Medical Officer report on air pollution Annual Report of the Chief Medical Officer 2017  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/690846/CMO\\_Annual\\_Report\\_2017\\_Health\\_Impacts\\_of\\_All\\_Pollution\\_what\\_do\\_we\\_know.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/690846/CMO_Annual_Report_2017_Health_Impacts_of_All_Pollution_what_do_we_know.pdf)

There is no statutory requirement to monitor PM2.5 concentrations and DEFRA's modelled data for Slough clearly indicates Slough is well within EU legal limits for annual concentrations of PM2.5 (25 µg/m3). The Ambient Air Quality Directive (2008/50/EC) introduced additional PM2.5 objectives targeting the exposure of the population to fine particles. These objectives are set at national level and are based on the average exposure indicator (AEI). This is determined as a 3-year running annual mean PM2.5 concentration averaged over the selected monitoring stations in agglomerations and larger urban areas, set in urban background locations to best assess the PM2.5 exposure of the general population. **The UK Modelling indicates Slough has met the exposure reduction target before the 2020 deadline.** <http://ec.europa.eu/environment/air/quality/standards.htm>

<i>Title</i>	<i>Metric</i>	<i>Averaging period</i>	<i>Legal nature</i>	<i>Permitted exceedences each year</i>
PM2.5 Exposure concentration obligation	<b>20 µg/m3</b> (AEI)	Based on 3 year average	Legally binding in 2015 (years 2013,2014,2015)	n/a
PM2.5 Exposure reduction target	Percentage reduction* <b>+ all measures to reach 18 µg/m3</b> (AEI)	Based on 3 year average	Reduction to be attained where possible in 2020, determined on the basis of the value of exposure indicator in 2010	n/a

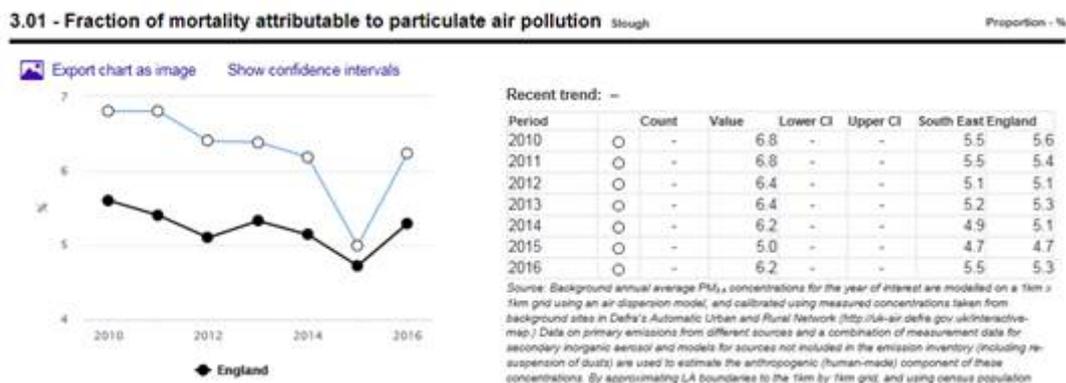
Small particulate pollution have health impacts even at very low concentrations – indeed no threshold has been identified below which no damage to health is observed. Therefore, the WHO

2005 guideline limits aimed to achieve the lowest concentrations of PM possible. The World Health Organisation has recommended more stringent guidelines values for PM2.5 annual concentration of (10 µg/m3) to reduced public health impacts relating to air pollution. Slough currently exceeds these PM 2.5 levels but they are not legally binding. [http://www.who.int/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health](http://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health)

We should recognise that PM2.5 statistics are produced on an annual basis by Public Health England – data set 3.01 Fraction of mortality attributable to particulate air pollutions, see below <https://fingertips.phe.org.uk/search/Air%20pollution#page/3/gid/1/pat/6/par/E12000008/ati/102/are/E06000039/iid/30101/age/230/sex/4>

Background annual average PM2.5 concentrations for the year of interest are modelled on a 1km x 1km grid using an air dispersion model, and calibrated using measured concentrations taken from background sites in Defra’s Automatic Urban and Rural Network (<http://uk-air.defra.gov.uk/interactive-map>). Data on primary emissions from different sources and a combination of measurement data for secondary inorganic aerosol and models for sources not included in the emission inventory (including re-suspension of dusts) are used to estimate the anthropogenic (human-made) component of these concentrations. By approximating LA boundaries to the 1km by 1km grid, and using census population data, population weighted background PM2.5 concentrations for each lower tier LA are calculated. This work is completed under contract to Defra, as a small extension of its obligations under the Ambient Air Quality Directive (2008/50/EC).

As advised PM2.5 modelled concentrations have shown a sharp upturn in 2016, but there is a no particular explanation for this other than climatic/weather effects and that the increase is reflected across most regions in the UK. The 2017 data sets have yet to be released so we currently do not know if 2016 is a one off blip. We will report on the latest modelled PM2.5 fraction within our next Annual Status Report



Slough Borough Council is taking the following measures and strategic actions to address PM2.5 pollution over the next few years

- The Council Five Year Plan (2018-2023) is a rolling 5 year plan and has outcomes based on improving children’s and adults health, wellbeing and the ability to manage their health through increases in levels of physical activity and hence less dependency on car use (which is very high within Slough). Health is still a key outcome and the new plan has a measure on improving air quality concentrations over the longer term. The Council have pledged to prepare a low emission strategy, expand its EV infrastructure and also tackle poor health outcomes.

- The new Low Emission Strategy (2018-2025) is aimed at enabling and accelerating the uptake of ULEVs through the installation of more EV chargers, setting up of a town centre EV car club, and promoting electric taxis this in turn will reduce NOx and PM emissions. Please see the following link relating to the low emission strategy: <http://www.slough.gov.uk/pests-pollution-and-food-hygiene/low-emission-strategy-2018-2025.aspx>
- The Low Emission Strategy is also aimed at promoting best practice dust controls on construction sites including adoption of Non Road Mobile Machinery Emissions standards; construction machinery above net power rating of 37kW will be required to meet stage IIIA, enforced as a requirement of the planning permission on the development, normally through a s106 or planning conditions, this is aimed at reducing particulate emissions.
- The Low Emission Strategy will require planning controls on Major Development that all HDVs travelling through the AQMAs will use best endeavours to operate to EURO VI standards (i.e. Clean Air Zone compliant).
- The new draft transport strategy (2017) is aimed at supporting the new Local Plan that is being developed for slough and will run to (2036). The strategy is aimed at reducing congestion by significantly increasing modal shift away from dependency on cars in Slough, as well as road widening to enable traffic to flow more smoothly, a new mass rapid transit system on the A4, and future proposals for park and ride scheme and improved cycle infrastructure - see weblink <http://www.slough.gov.uk/council/strategies-plans-and-policies/the-emerging-local-plan-for-slough-2016-2036.aspx>
- The Slough Wellbeing Board takes a lead on promoting a healthier Slough and has developed the Slough Wellbeing Strategy (2016 – 2020) there are a number of strategic aims; including improving health and wellbeing and reducing gaps in life expectancy. The Health and Adult Social Care Priority Delivery Group (PDG) supports the Slough Wellbeing Board. The Low Emission Strategy has been presented to the PDG to raise awareness of the impact on poor air quality on public health and we will report to the group on progress made with the Low Emission Strategy on an annual basis. Public health colleagues will raise the awareness of the harm of air pollution on human health. <http://www.slough.gov.uk/council/strategies-plans-and-policies/slough-wellbeing-board.aspx>
- Future local air quality modelling will need to consider local sources of PM2.5 and model these impacts. A detailed source apportionment model for PM2.5 will be undertaken so we can understand why Slough experiences PM2.5 air pollution and the principal sources and we will use the outputs of this modelling to determine additional actions within our Air Quality Action Plan.
- The Council has signed up to the Airtex Service which is a free app subscription service that provides Members of the Public text alerts on pollution episodes, excess cold and hot weather, including useful health advice and precautions to take when air pollution levels are high including PM2.5 <http://www.airtext.info/>
- NHS and SBC are already building up more sustainable transport options for both staff and goods delivery eg Electric car and bike fleet, bicycles in the town, NHS fleet logistics
- GPs referring patients to air quality advice for people with known respiratory or heart disease