EXETER CITY COUNCIL

EXTER HEALTH & WELLBEING BOARD
7th OCTOBER 2014

LOCAL AIR POLLUTION – EXPOSURE TO ULTRA-FINE PARTICLES IN EXETER AND WRITTEN SUBMISSION TO THE ENVIRONMENTAL AUDIT COMMITTEE

1 PURPOSE OF THE REPORT

1.1 The purpose of this report is to seek the Board's approval for funding to undertake a study into the exposure of Exeter residents to ultra-fine particles ($PM_{2.5}$); and to ask the Board to make a written submission to the Air Quality Enquiry, currently being conducted by the Government's Environmental Audit Committee.

2 BACKGROUND

2.1 Air pollution has been linked to a variety of health effects. The greatest body of evidence is for effects on the respiratory system. These range from immediate effects such as coughing and wheezing, to triggering and worsening respiratory diseases such as asthma or chronic obstructive pulmonary disease (COPD). Recent research has also found a clear relationship between air pollution and cardiovascular problems, including hospital admissions and deaths.

2.2 Air pollution affects all those who are exposed to it, but it has a more serious effect on vulnerable people. Particularly vulnerable groups include children, pregnant women, the elderly and patients with existing respiratory diseases.

2.3 Air pollution does not cause a specific and identifiable 'air pollution disease'. This makes it difficult to measure the impact of poor air quality in health and mortality statistics. Some recent estimates are that fine particles (PM_{10}) cause an annual effect equivalent of 25,000 deaths in England alone. This is more than the number of deaths caused by passive smoking in a year. Estimates of the costs of air pollution to society are equally large. One suggestion is that ultrafine particles ($PM_{2.5}$) cost the UK £15bn per year in health costs.

2.4 Recent modelling suggests that the equivalent of 42 deaths per year in Exeter are attributable to ultra-fine particles ($PM_{2.5}$). The vulnerable groups listed above are likely to be particularly affected. Areas with high levels of air pollution also tend to be relatively deprived.

2.5 Another reason that air pollution effects are hard to identify in health statistics is that exposure varies greatly between individuals. In Exeter, the main source of local air pollution is from traffic. The areas most affected are busy roads, with queuing traffic and where buildings are close to the kerbside.

2.6 Recent research by Kings College London shows that factors such as where you live and work, where you travel and how, and where you take your lunch break will affect your daily exposure to pollution. This means that a single measure of roadside pollution levels alone is not enough to determine the impact of pollution, particularly on individuals.

2.7 In response to measured levels of pollution, and its predicted effects, Exeter City Council has published an Air Quality Action Plan, with four objectives:

2.7.1 To describe the impact of predicted growth and existing plans on NO_2 concentrations within the city.

2.7.2 To identify where further improvements are required, how these could be achieved and where multiple benefits can be realised.

2.7.3 To provide a process for assessing the air quality aspect of the sustainability of future plans and policies.

2.7.4 To provide tools to engage local communities in air quality issues alongside wider sustainability issues.

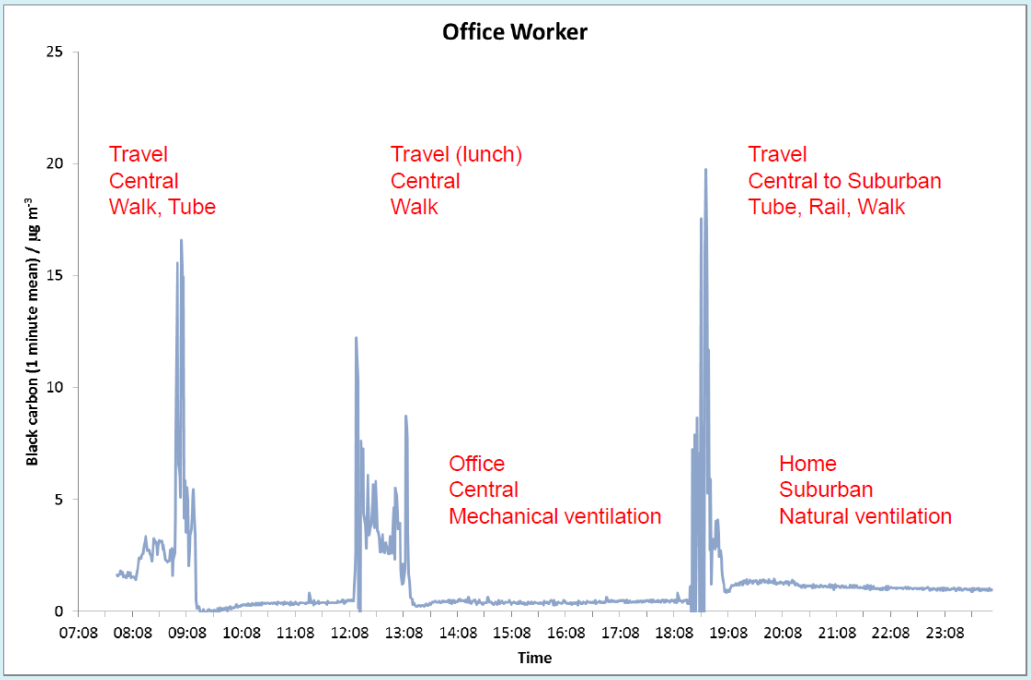
2.8 Current plans and policies are expected to have a low positive impact on air quality, although there is some uncertainty associated with this. This is a modest predicted change, but should be set against the background of significant development in the city and therefore significant upward pressure on emissions. The Action Plan also identifies some new projects that could be pursued by Exeter City Council and partners to further reduce air pollution and its impacts. This includes a commitment to further the understanding of the negative health impacts of poor air quality locally, and to communicate these.

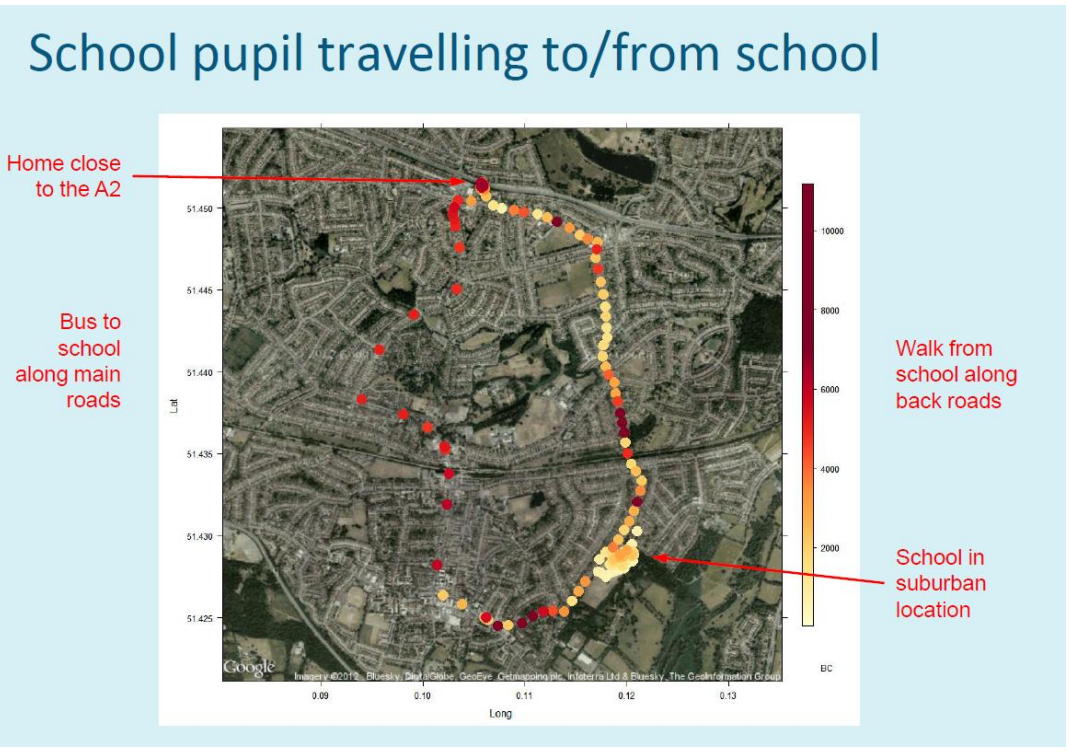
2.9 Despite the Air Quality Action Plan, Exeter City Council and partners can only tackle the local factors that control air pollution, such as traffic congestion. Vehicle emissions standards for example are controlled by EU directives. Some co-ordination by central government could also make local action more effective, for example by creating a national framework for low emission zones.

3 PROPOSED STUDY INTO LOCAL EXPOSURE TO ULTRA-FINE PARTICLES

3.1 In order to gain local data on exposure to air pollution, a study is proposed which would measure the exposure of five individuals as they go about their normal daily routine. The study would not provide direct data on the health effects of this exposure, but it would allow comparison between activities, locations, modes of travel and individuals. From this data it should be possible to identify some simple behavioural changes that individuals can make to reduce their exposure. Depending on costs for hire of equipment, it may be possible to repeat the exposure measurements after giving the participants advice on exposure reduction.

3.2 A similar study has been conducted by Kings College, London. In their project, the results were immediately recognisable and personal to the volunteers (toddler, school pupil, officer worker, home worker, cycle courier, ambulance driver and pensioner). For example, exposure throughout the day for the office worker is shown below, together with a map showing exposure by location for a school pupil. This work increased the understanding of personal exposure, but it also provided highly visual outputs for public information, which could be used to encourage behavioural change.





3.3 The proposed Exeter study methodology is still being developed, including detailed costs for hire of equipment. The proposed study methodology and budget will be presented to the next meeting of the Board.

4 PROPOSED WRITTEN SUBMISSION TO THE ENVIRONMENTAL AUDIT COMMITTEE'S AIR QUALITY ENQUIRY

4.1 The UK Parliament's Environmental Audit Committee is currently making an enquiry into air quality, following up on its 2011 report on Air Quality. Since then further scientific evidence has emerged on the link between air quality and health. The European Commission has started proceedings against the UK for failure to meet pollution limits on nitrogen oxides.

4.2 The new inquiry will aim to identify the state of progress on the recommendations from the 2011 report which focussed on a need for action in six areas:

1. the priority and targets on air quality in Defra's planning;
2. strategy and inter-departmental co-ordination, including on transport and planning matters;
3. support for local authorities in tackling air pollution, and how any European Commission fines might fall on them;
4. the implications of local authorities' enhanced responsibilities for public health;
5. Low Emissions Zones and vehicle emissions limits; and public awareness campaigns.

The inquiry will also examine the role that might be played by new environmental technologies, and the scope for wider transport policies — for example on public transport and cycling and walking, to cut air pollution.

4.3 The Committee is accepting written submissions from interested parties, and a draft submission has been prepared on behalf of the Chair and Vice-Chair of the Exeter Health and Wellbeing Board, and the Portfolio Holder for Environment, Health and Wellbeing. A copy of the submission is attached to this report.

4.4 The draft submission summarises the current levels of air pollution in Exeter, and what is already being done by Exeter City Council and partners to reduce vehicle emissions. It makes recommendations for Government action which would improve understanding of the impacts of local air quality, and support Local Authorities in their efforts to reduce pollution.

5 RESOURCE IMPLICATIONS

5.1 There are no resource implications associated with the written submission to the Environmental Audit Committee.

5.2 A budget will be required for the personal exposure study. The costs have not yet been finalised, but will be less that £2,000.

6 RECOMMENDED

That the Board:

1 Endorses the proposal to make a submission to the Environmental Audit Committee as contained in this report; and

2 Earmarks a budget of £2,000 to carry out a personal exposure study, subject to an appropriate project brief being agreed at the next Board meeting.

ASSISTANT DIRECTOR ENVIRONMENT
Originator: R. Norley, Assistant Director Environment

Local Government (Access to Information) Act 1972 (as amended)
Background papers used in compiling this report:-

Public Health England, PHE-CRCE-010: Estimating Local Mortality Burdens associated with Particulate Air Pollution 2014. http://www.hpa.org.uk/Publications/Environment/PHECRCEReportSeries/PHECRCE010/

Exeter City Council, Air Quality Action Plan 2011. http://www.exeter.gov.uk/index.aspx?articleid=15179

www.londonair.org.uk/london/asp/LAQNSeminar/pdf/June2013/Ben_Barratt_Insights_into_personal_exposure_to_air_pollution.pdf

Date