

Arboretum, Dunkirk and Lenton, Radford and Park Area Committee
Wednesday, 18 May 2016

Title of paper:	Air Quality and health in Nottingham: overview of Local Air Quality Management process and action being taken to reduce air pollution and improve citizen health.	
Director(s)/ Corporate Director(s):	Andrew Errington Andy Vaughan	Wards affected: Citywide
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Other colleagues who have provided input:	None.	
Date of consultation with Portfolio Holder(s) (if relevant)		
Relevant Council Plan Key Theme:		
Strategic Regeneration and Development		<input checked="" type="checkbox"/>
Schools		<input type="checkbox"/>
Planning and Housing		<input checked="" type="checkbox"/>
Community Services		<input type="checkbox"/>
Energy, Sustainability and Customer		<input checked="" type="checkbox"/>
Jobs, Growth and Transport		<input checked="" type="checkbox"/>
Adults, Health and Community Sector		<input checked="" type="checkbox"/>
Children, Early Intervention and Early Years		<input type="checkbox"/>
Leisure and Culture		<input type="checkbox"/>
Resources and Neighbourhood Regeneration		<input type="checkbox"/>
Summary of issues (including benefits to citizens/service users):		
<p>The health impacts of air pollution are increasingly well understood. The World Health Organisation considers air pollution to be a major environmental risk to health. By reducing air pollution levels, countries can reduce the burden of disease from stroke, heart disease, lung cancer, and both chronic and acute respiratory diseases, including asthma.</p> <p>Air pollution in the form of particles and nitrogen dioxide from combustion processes (including, and in urban areas mainly from, vehicle engines) has a significant adverse impact on health. It is estimated that in the UK the effects of these two pollutants bring forward the deaths of over 52,000 people each year (equating to approximately 2300 Life-years lost per year in Nottingham), reducing life expectancy by 6 months on average (this translates to few weeks for some people and by over 10 years for people with respiratory illnesses such as Chronic Obstructive Pulmonary Disease (COPD), emphysema, asthma).</p> <p>Nitrogen dioxide (NO₂) levels (emitted from combustion processes and road transport, particularly diesel engined vehicles), is the reason Nottingham has two Air Quality Management Areas and will be required to introduce a 'Clean Air Zone' to reduce levels of NO₂ along the ring road.</p> <p>Current levels of particles and nitrogen dioxide, even where they do not exceed EU or UK limit values, are known to adversely affect health and therefore ongoing action by organisations and individuals is required to reduce emissions and so improve air quality.</p>		

Recommendation(s):	
1	To note the health impacts of air pollution and the measures being taken by Nottingham City Council (and its partners) to regulate, reduce and minimise emissions.
2	To note that many of the measures that reduce, or negate emissions of harmful air pollutants, and that could be taken by each of us as individuals, also improve our physical and mental health and well-being, and are financially neutral or beneficial.

1 REASONS FOR RECOMMENDATIONS

- 1.1 The health impact of air pollution and the steps that are being taken by Nottingham City Council, other organisations, and those we can take as citizens to reduce emissions, benefits our physical and mental health and wellbeing.
- 1.2 Improving the long term health of citizens will reduce costs to Local Authority Public Health and adult care services, and to the NHS for acute and chronic respiratory health care interventions.

2 BACKGROUND

- 2.1 The health impacts of air pollution are increasingly well understood. The World Health Organisation considers air pollution to be a major environmental risk to health. By reducing air pollution levels, countries can reduce the burden of disease from stroke, heart disease, lung cancer, and both chronic and acute respiratory diseases, including asthma.
- 2.2 Despite significant reductions in visible smoke and sulphur dioxide emissions in the UK since the Clean Air Act of 1956, current background levels of mostly invisible air pollution still pose a significant risk to health. The air pollution episodes in Paris in March 2014 and across the UK in April 2014 included visible smog conditions. This raised the issue of air quality in public awareness. However the health risks posed by invisible air pollution on a day to day basis in towns, cities and along major traffic routes are less obvious and may be less readily recognized as a key health issue by the wider population.
- 2.3 Today it is mostly invisible air pollution, consisting mainly of nitrogen dioxide and particles, which are the biggest concern. These are emitted by any process that burns fossil fuels, such as coal, gas, petrol and diesel, including the internal combustion engines used in vehicles. In urban areas the concentrations of these pollutants in the air are roughly apportioned as a third from domestic and commercial heating and processing, a third from local transport emissions and a third from distant sources (emissions from domestic and commercial sources, road transport, secondary particle formation from agricultural emissions and sometimes even sand/dust particles from the Saharan desert). Of the transport related sources of nitrogen dioxide and particles it is important to note that diesel engines emit substantially higher levels of nitrogen dioxide and particles per gallon/litre of fuel used, compared to petrol engine vehicles, no matter which EURO emission standard the vehicle is expected to comply with.

- 2.4 The UK's Air Quality Strategy of 1995 recognised the increasing impact of invisible air pollution on health and together with EU legislation introduced 'Local Air Quality Management' requiring Local Authorities to undertake periodic reviews and assessments of air quality in their areas and take action where air quality did not meet relevant air quality standards.
- 2.5 Nottingham City Council's work over the past 18 years has controlled industrial and domestic emissions and constrained traffic growth, and if there hadn't been an increase in the proportion of diesel engine cars from approximately 5% of all UK cars in 1995 to over 50% in 2014, together with the failure of diesel engine emission controls to meet emission limits, concentrations of nitrogen dioxide and particles would now be well within the air quality standards and we would all be breathing much cleaner air.
- 2.6 Furthermore, the evidence of the adverse health effects of air pollution has increased significantly over the past 5 years. Epidemiological studies have concluded that in the UK particle pollution brings forward the deaths of approximately 29,000 people each year (shortening life from between 6 months to 11 years), and nitrogen dioxide is also linked to approximately 23,000 early deaths in the UK each year. In Nottingham this is estimated to be approximately 250 peoples' deaths being brought forward each year. In comparison 4 people died as a result of road traffic accidents on Nottingham's road during 2014 (2015 figures have yet to be officially verified).
- 2.7 The Public Health Outcomes Framework indicator currently includes a target for PM2.5 particles (See Figure 3 for map of PM2.5 concentrations in Nottinghamshire in 2014: Figure 3) and one is being considered for nitrogen dioxide.
- 2.8 Furthermore many of the actions required to reduce harmful emissions and reduce deaths caused by particles and nitrogen dioxide link to many other health indicators and similar solutions.
- 2.9 Environmental Health and Public Health developed the air pollution and health chapter for the local joint strategic needs assessment. A public consultation to prioritise health impacts and help determine which are to receive priority action is currently being undertaken. Early indications are that air pollution is a major health concern for citizens in Nottingham.
- 2.10 The Local Air Quality Management process that commenced in 1997 initially identified, declared and then refined the extent of two Air Quality Management Areas where modelling predicted the annual mean air quality objective for nitrogen dioxide of 40 ug/m³ would not be met (Figure 1 appended). The main source of the nitrogen dioxide in urban areas is road transport, and we now know that the largest contribution is from diesel engine vehicles.
- 2.11 National, regional and local action is being taken to reduce emissions from a range of sources, focussing particularly on emissions from road transport. DEFRA has proposed the implementation of Clean Air Zones where computer modelling predicts the air quality limit values for nitrogen dioxide will be breached. (Figure 2 appended).
- 2.12 On the 25th January 2016 it was announced that Nottingham (along with four other cities) had won 6.1 million pounds, as part of a government initiative, to encourage and facilitate the more rapid adoption of electric and hybrid vehicles and other low emission technologies (by citizens and business) in Nottingham.

2.13 However, sustained action by government, local authorities, business and transport providers and most importantly citizens is required if the both the air quality limit values and the long term goal of reducing harmful emissions as far as practicable are to be achieved.

2.14 Nottingham City Council is currently working with Public Health England to develop effective and life-style changing communications and messages to do this.

3 OTHER OPTIONS CONSIDERED IN MAKING RECOMMENDATIONS

3.1 N/A

4 FINANCE COMMENTS (INCLUDING IMPLICATIONS AND VALUE FOR MONEY/VAT)

4.1 Not currently quantifiable.

5 LEGAL AND PROCUREMENT COMMENTS (INCLUDING RISK MANAGEMENT ISSUES, AND LEGAL, CRIME AND DISORDER ACT AND PROCUREMENT IMPLICATIONS)

5.1 N/A

6 STRATEGIC ASSETS & PROPERTY COMMENTS (FOR DECISION RELATING TO ALL PROPERTY ASSETS AND ASSOCIATED INFRASTRUCTURE) (AREA COMMITTEE REPORTS ONLY)

6.1 N/A

7 EQUALITY IMPACT ASSESSMENT

7.1 An EIA is not required because Health impacts and inequality are detailed in JSNA chapter (see 9.4 below)

8 LIST OF BACKGROUND PAPERS OTHER THAN PUBLISHED WORKS OR THOSE DISCLOSING CONFIDENTIAL OR EXEMPT INFORMATION

8.1 None.

9 PUBLISHED DOCUMENTS REFERRED TO IN COMPILING THIS REPORT

9.1 Nottingham City Health and Wellbeing Board 29th October 2014
<http://committee.nottinghamcity.gov.uk/documents/s11069/item10AirQuality.pdf>

9.2 Nottingham City Council Air Quality Review and Assessment: Second and Third Stage report 2001
<http://www.nottinghamcity.gov.uk/CHttpHandler.ashx?id=1701&p=0>

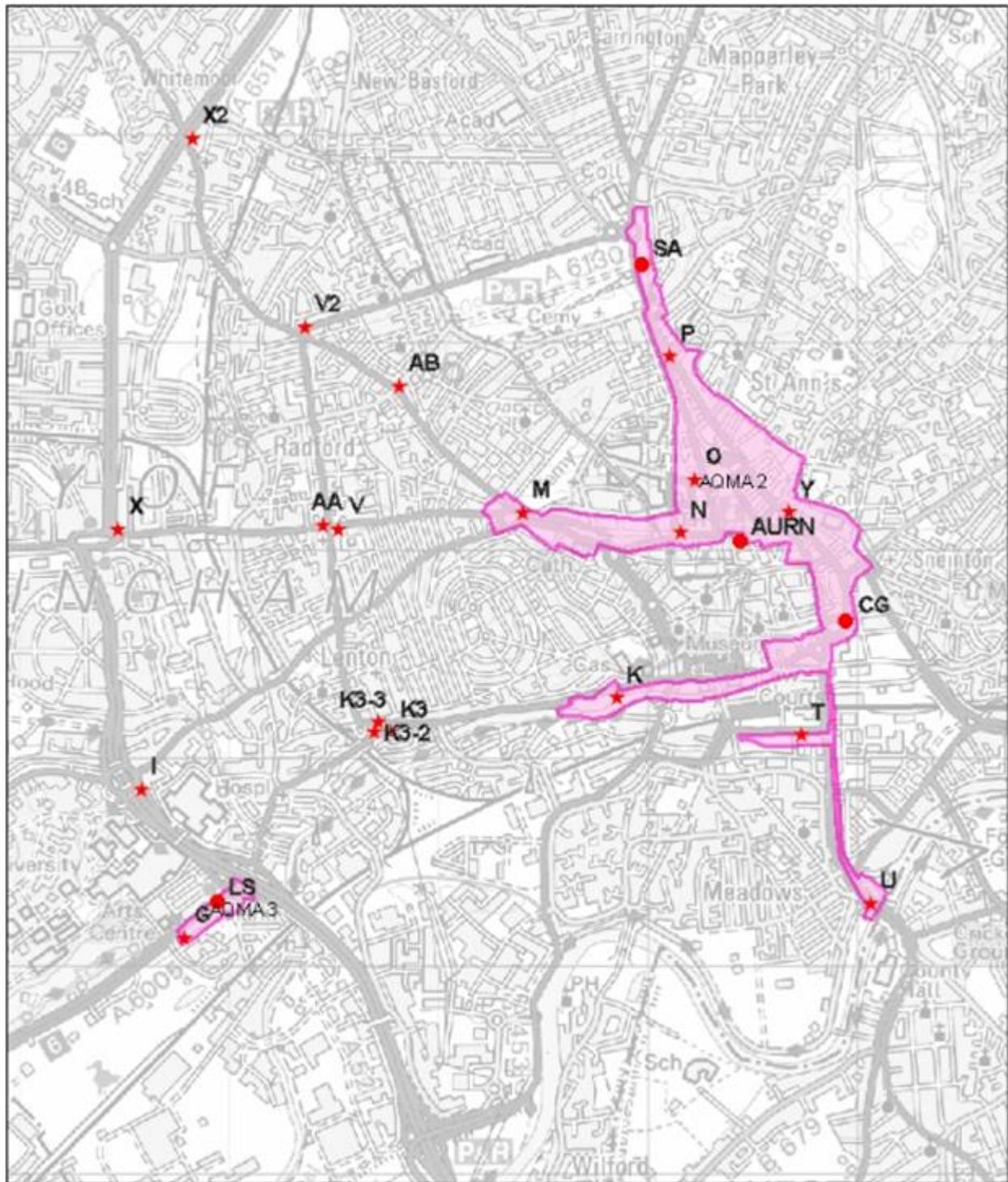
9.3 Nottingham City Council Local Air Quality Management Detailed Assessment 2008
<http://www.nottinghamcity.gov.uk/CHttpHandler.ashx?id=15432&p=0>

9.4 Joint Strategic Needs Assessment Air Quality (2015)

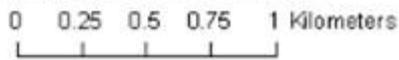
http://jsna.nottinghamcity.gov.uk/insight/Strategic-Framework/Nottingham-JSNA/Adults/Air-Quality.aspx#ww_s1

Figure 1.

Air Quality Management Areas and monitoring sites 2011



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- CONTINUOUS MONITORING
- ★ DIFFUSION TUBE
- AQMA2
- AQMA3

 Environmental Health Noise & Pollution Control Team		Scale = 1:25,000
		Drawn: GES Date: 14/5/2012

Figure 2

DEFRA Roadside baseline projections of annual mean NO₂ concentrations 2020. The modelled exceedance is shown in orange and red,

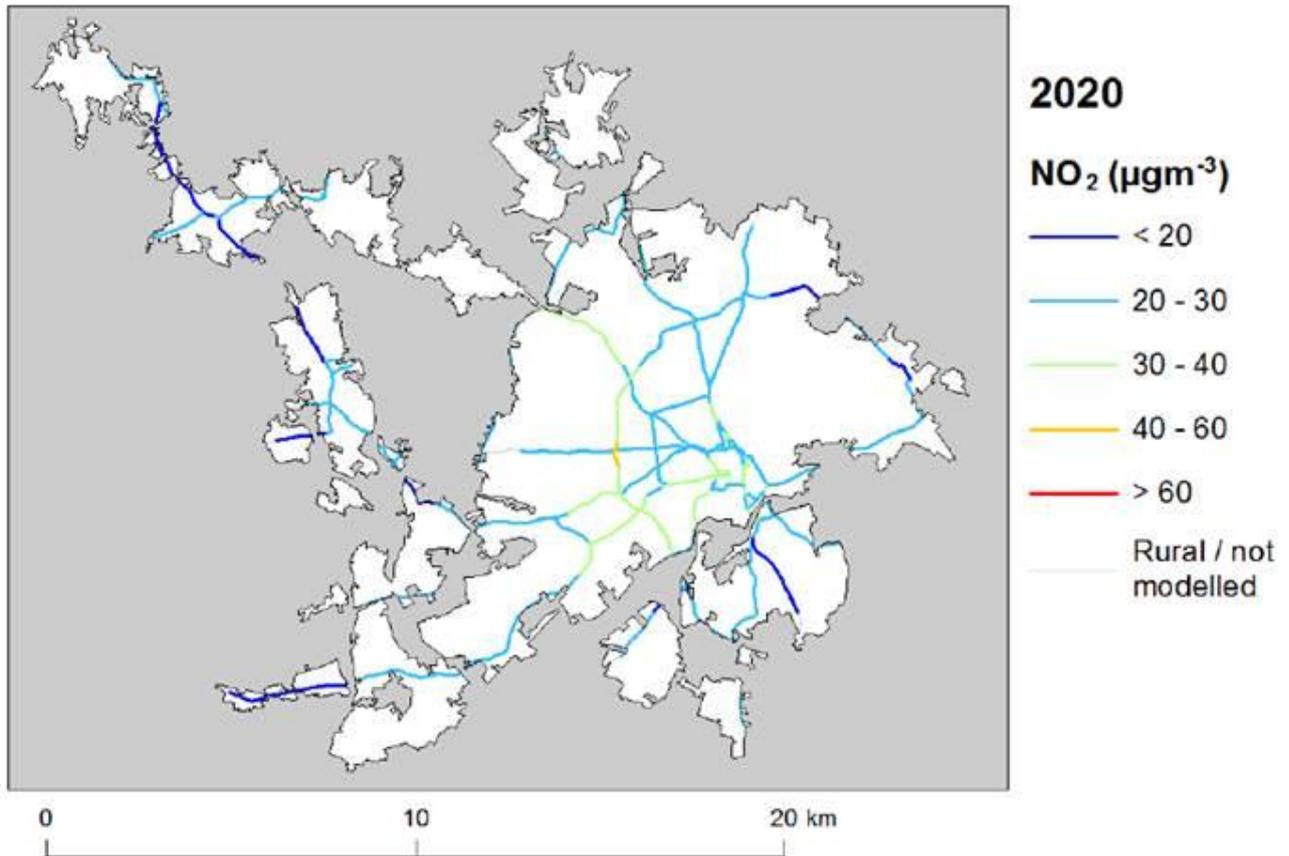


Figure 3: PM2.5 background concentrations 2014

