

Meeting: Environment Sub Committee

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Title: Air Quality Review in North Tyneside

Report Sponsor:

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Service Areas:

Public Health, Environmental Health, Environmental Sustainability and Planning.

Wards affected: All

1. Purpose of Report

The Environment Sub Committee Members have indicated that they wish to discuss how the council reviews air quality.

This briefing paper outlines how environmental health assesses air quality and future actions.

- Air Quality Statutory Requirements Placed upon the Council
- Why and Where Air Quality is assessed?
- How we are doing?
- Future Plans- Development of Air quality Policy Guidance

2. Recommendations

The Environment Sub Committee Members consider this report and any required actions.

3. Details

1. Air Quality Objectives- Statutory Requirements Placed upon the Council

- Under the current Local Air Quality Management (LAQM) system, which was established in the Environment Act 1995, all local authorities must regularly review and assess air quality in their areas for several pollutants against national objectives.

Table 1 Standards and Objectives for Specific Pollutants

Pollutant	Standard		Objective
	Concentration	Measured As	
Benzene	5 ug/m ³	Annual Mean	5.00 ug/m ³
1, 3-butadiene	2.25 ug/m ³	Running annual mean	2.25 ug/m ³
Carbon Monoxide	10 mg/m ³	Maximum Running 8 hour mean	10 ug/m ³
Lead	0.25 ug/m ³	Annual mean	0.25 ug/m ³
Nitrogen Dioxide	200 ug/m ³	1 hour mean	200 ug/m ³ not to be exceeded more than 18 times a year
	40 ug/m ³	Annual mean	40 ug/m ³
Fine particulates (PM ₁₀)	50 ug/m ³	24 hour mean	50 ug/m ³ should not be exceeded more than 35 times a year
	40 ug/m ³	Annual mean	40 ug/m ³
Very fine Particulates (PM _{2.5})	25 ug/m ³ ** No safe limit, Local Authority to work towards reducing emission levels. (stipulated in TG Note 16: April 2016)	Annual Mean	No safe limit, Local Authority in England to work towards reducing emission levels
Sulphur Dioxide	350 ug/m ³	15 minute mean	350 ug/m ³ not to be exceeded more than 35 times a year
	125 ug/m ³	24 hour mean	125 ug/m ³ not to be exceeded more than 3 times a year
	266ug/m ³	1 hour mean	266ug/m ³ not to be exceeded more than 24 times a year

** Derived form Air Quality Standards Regulations 2010

- The Air Quality Strategy contains standards and objectives for eight air pollutants; carbon monoxide, benzene, lead, nitrogen dioxide, sulphur dioxide, fine particulates (PM10) and ozone. All except ozone are the direct responsibility of local authorities. North Tyneside has reviewed air quality since 2001.
- The standards are health-based targets based upon health effects and set a level below which no health effects should occur. The objectives are policy targets, which state the

maximum concentration for a pollutant and take into account cost and benefit of meeting the standard. They are set out in table 1

- Carbon monoxide, benzene, lead and sulphur dioxide are not an issue in North Tyneside as there are no large industrial sources. Benzene is associated with leaded petrol and monitoring next to petrol station vapour recovery system has indicated no exceedances. Sulphur dioxide is associated with coal burning and the introduction of the smoke control areas through North Tyneside has led to negligible levels of sulphur dioxide.
- The only pollutants of concern in North Tyneside are nitrogen dioxide and particulates.

3.1 Why, How and Where Air Quality is assessed?

Why we Monitor for Particulates?

WHO estimate in 2012, 1 in 8 deaths are a result of air pollution. Public Health England identify particulates as a contributor to premature deaths. Very fine particulates affect lung function, asthma and cardiovascular conditions. Public Health Outcomes Framework indicator estimates PM2.5 in North Tyneside has a 4.8% attribution to premature deaths which is less than the average in England of 5.6%. It was estimated that in over 25 year old deaths 2112 were premature due to air pollution.

How and Where we Monitor?

The locations of monitoring for nitrogen dioxide and particulates are chosen where there is considered to be a potential for residents to be exposed to the pollutants. Consideration is given to the duration that a person is subject to the pollutant. For example the short term objective for nitrogen dioxide of one hour could affect person's in their garden while the long term annual mean would be at a resident's facade. Particulates and nitrogen dioxide are predominantly arise from traffic and monitoring is focused about busy roads.

North Tyneside now operate 2 real time monitoring stations that can measure the short term and long term emission levels for particulates and nitrogen dioxide.

One station is located about the A19 Tyne Tunnel Area within the grounds of Northumbria water Sewage Works. This location is close a cement batching process and aggregate storage area which can increase fugitive particulates.

The other station is located at roadside on High Street East in Wallsend. This equates to the facades of residential houses and its location was chosen as the high street is busy with high sided building creating an canyon which minimises the dilution of air quality .

Both stations measure nitrogen dioxide and particulates less than 10Um in diameter known as PM10



A new onus was placed on Local Authorities to tackle particulates, specifically the fine particulates, less than $2.5\mu\text{m}$ in diameter. These particles are of particular concern because they are inhaled deeper into the respiratory system and are considered to cause the greatest adverse health effects. There is no safe limit for these particulates but an objective level was set. All local Authorities must implement measures to tackle $\text{PM}_{2.5}$ from new DEFRA guidance.

Screening exercise also carried out on new developments.

Nitrogen Dioxide

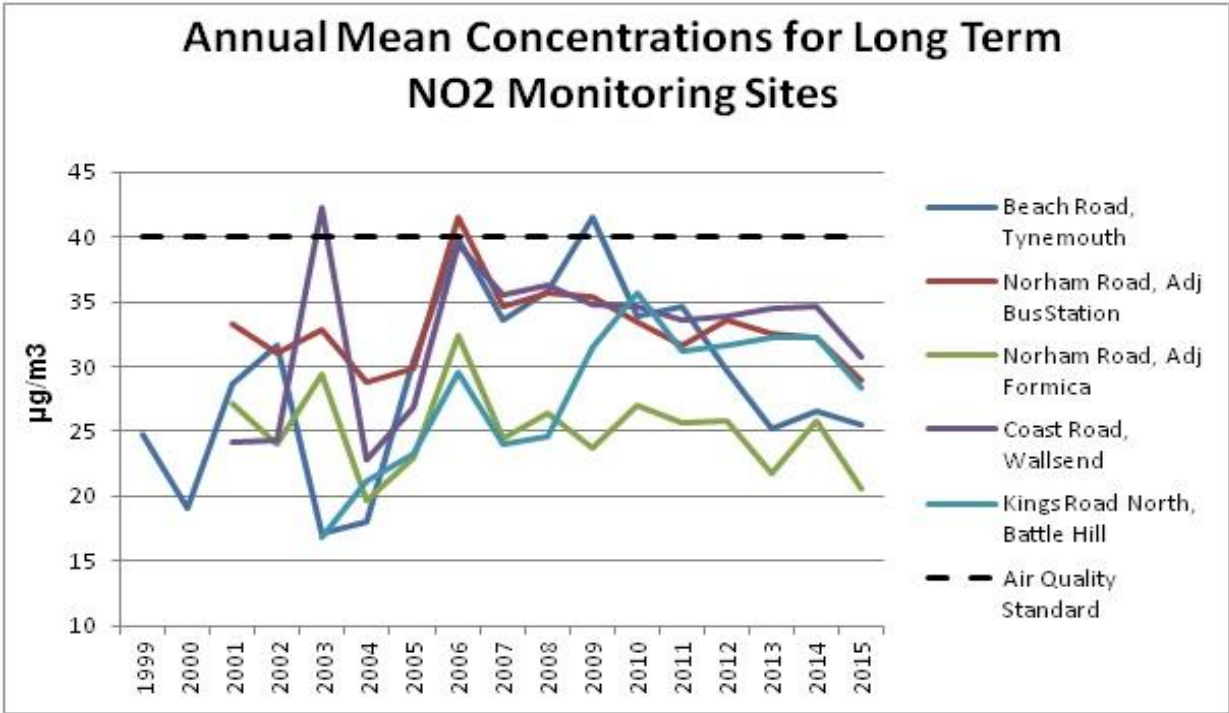
Nitrogen dioxide is associated with traffic pollution and therefore emission monitoring is carried out at busy roadside locations. Monthly indicative nitrogen dioxide diffusion tube monitoring is carried out at 26 locations throughout the borough.



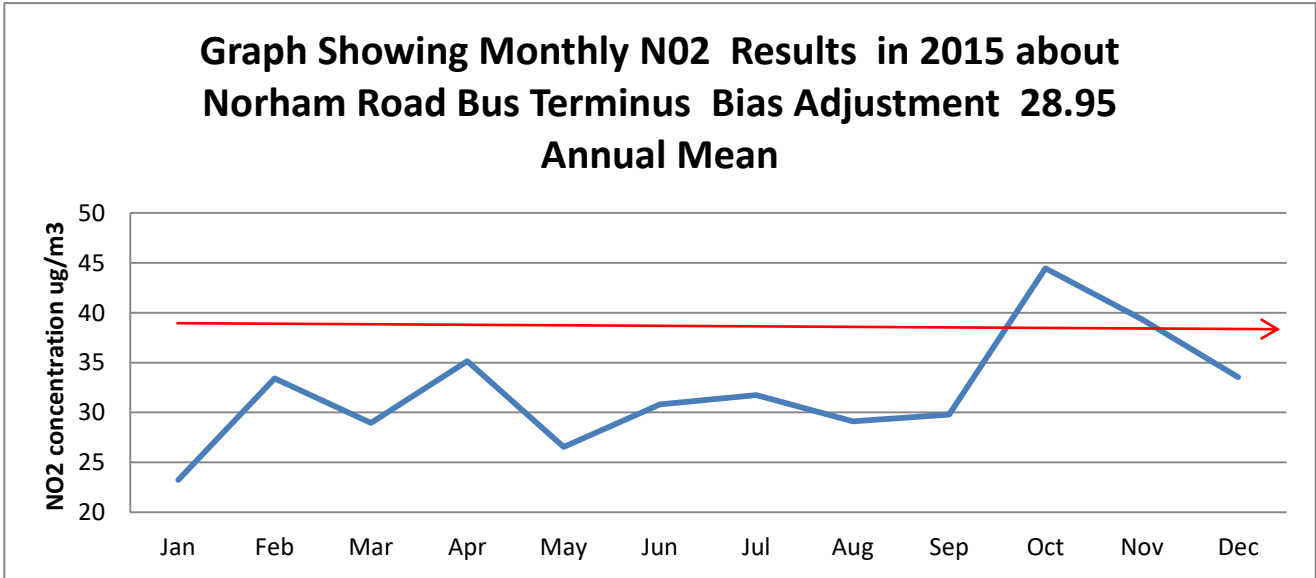
3.4 How Are We Doing?

Air quality in North Tyneside is predominantly good. The majority of the borough has levels of air pollutants well below the national air quality objective levels.

- Long term trends in air quality

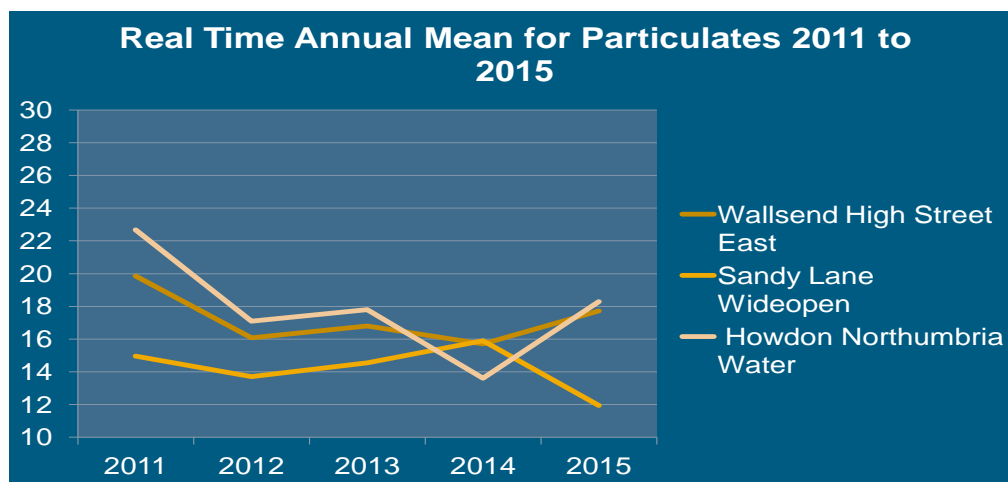


Nitrogen dioxide annual mean concentrations have fluctuated over the years. There has been a slight drop in nitrogen dioxide over the years but legislation to reduce car emissions have been counteracted by increased car usage so that over 2011 to 2015 levels of nitrogen dioxide have stayed level. All nitrogen dioxide monitoring indicates there is no likelihood of an exceedance of the objective. The highest annual mean exposure to Nitrogen dioxide levels is about 30 ug/m³ which is still 25 % below the objective.



The nitrogen dioxide levels fluctuate with the seasons with higher emissions occurring in the cold months when car combustion is less efficient. The overall annual mean however for all NO₂ locations are well below the annual objective of 40 ug/m³. The real time monitoring stations results for particulates in 2016 progress report indicate particulates well below the annual objective.

Particulate Monitoring At Real Time Stations 2011 to2015



The estimated background level for very fine particulate levels PM_{2.5} in North Tyneside is 8-10 Ug/m³ and the overall levels is 12-13 ug/m³.

The technical guidance advises that all local authorities must strive to reduce the very fine particulates and therefore for that purpose an air quality policy guidance is being developed with the support of a steering group to identify actions to reduce particulate levels.

3.5 Future Plans- Development of Air Quality Policy Guidance

An Air Quality steering group is to be established involving Public Health team, Transport Planners, Development Control, Environmental Sustainability and Environmental Health to prioritise actions and measures to tackle PM_{2.5}. Each member of the steering group will be tasked to identify actions to work towards improving air quality.

The Air Quality policy will focus on the measures to promote air quality and reduce very fine particulates and will therefore focus on a number of measures.

3.5.1 Provide information to the public and developers on Air Quality

- Provide information to the public on air quality by the publication on webpage of the annual air quality reviews.
- Provide a consultation role in planning reviewing requirements for air quality assessments and mitigation and in transport planning.
- Provide guidance and direction to developers on information expected for air quality assessments and mitigation measures for dust control during construction.

3.5.2 Regulate and monitor polluters.

Environmental Health regulate specific industrial processes for air emissions. There are currently 48 industrial processes regulated by North Tyneside. Environmental health also regulate smoke control areas.

3.5.3 Ensuring planning polices and local plans emphasis the need to minimise pollution from new development and are kept up to date.

The Local Plan is expected to be adopted in 2017.

3.5.4 The transport strategy to consider air quality in traffic management measures traffic calming , improved traffic flow, bus lane schemes and by promoting alternative modes of transport eg walking and buses and by improving the flow of traffic.

Such measures to include for example:

- Traffic management measures such as introduction of bus lanes, cycle lanes, traffic light sequencing measures to ensure traffic runs smoothly.
- Reduce emissions from new developments (during the construction phase and in subsequent use) and existing buildings by implementing energy efficiency measures and affordable warmth schemes to reduce heat loss and drive down fuel bills.
- Reduce emissions from road transport; this includes encouraging alternatives to the car, reducing emissions from vehicles on the road and encouraging the uptake of alternative 'low emission' vehicles. Other measures to consider include the introduction of electric charging points, parking charges, reducing of engines idling etc.
- Promotion of alternative modes of travel e.g. public transport, cycling initiatives, car sharing schemes, introduction of green travel plans.

3.5.5 Public health and the sustainability team will provide support to environmental health in communicating the effects of air quality and the benefits of sustainable actions.

4. Summary

Air quality is good within north Tyneside however there is a requirement to now consider measures to improve the very fine particulates. The planning process is an opportunity to embed interventions such as traffic planning, spatial planning and use of renewable energy sources that can contribute to improving air quality. The steering group will consider actions to improve air quality.

5. Background Information

The following documents have been used in the compilation of this report and may be inspected at the offices of the author.

Department for Environment Food and Rural Affairs, Local Air Quality Management Technical guidance (TG16) April 2016.

Public Health England, Estimating Local Mortality Burdens Associated with Particulate Air Pollution, PHE 2014.

World Health Organisation, News Release, 2014

<https://www.who.int/mediacentre/new/releases/2014/air-pollution/en/>