Agenda item

DERBYSHIRE HEALTH PROTECTION BOARD

10th October 2016

Air Quality Trends and Health; Medium Term Update

1. Purpose of the report

At the request of the Health and Wellbeing Board, to provide an overview to the Health Protection Board of performance and trends in the key work stream area of air quality.

2. Background

The key airborne pollutants which have an adverse impact on health are respirable particulate (PM_{10}), fine particulate ($PM_{2.5}$) and nitrogen dioxide (NO_2). Road transport is estimated to be responsible for up to 70% of the harm associated with air pollution.

The local mortality burden attributed to particulate matter (PM) air pollution in Derbyshire is calculated as being equivalent to 533 deaths and an associated loss to the population of 5466 life-years. The local mortality burden attributed to NO_2 has not yet been calculated, but is considered likely to be approximately the same again.

Indicator 3.01 of the Public Health Outcomes Framework measures "*Fraction of mortality attributable to particulate air pollution*". Predicted mortality fractions equal or exceed the England rate of 5.6% in four of the nine Derbyshire unitary and District Council areas (Derby, Bolsover, Erewash and North East Derbyshire).

3. Performance

NO_2 is the most widely measured air pollutant across Derbyshire. The two graphs below illustrate the long-term trends in nitrogen dioxide exposure at all of the monitoring locations hosted by the City and District Councils across the County.

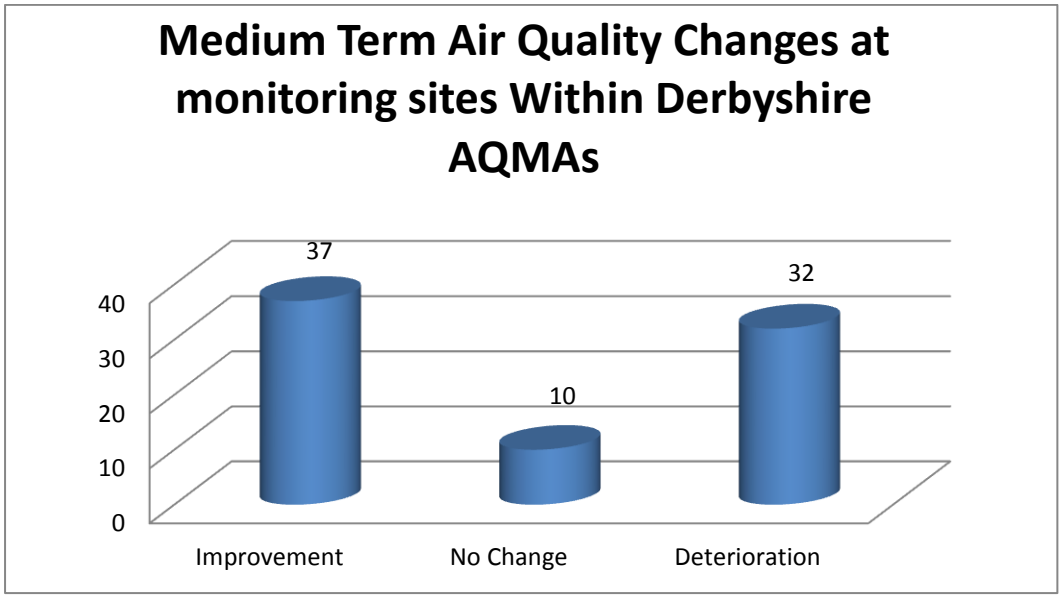
The data presented in the graphs illustrate the change in air quality over the last five years based on simple linear regression of the annual average reading from each monitoring location.

Graph 1 illustrates monitoring trends within the 6 Air Quality Management Areas (AQMAs) in Derbyshire. AQMAs are geographical areas where the annual average concentration of NO_2 has been established to exceed health based Air Quality Objectives set within the an EU Directive. These AQMAs are currently in;

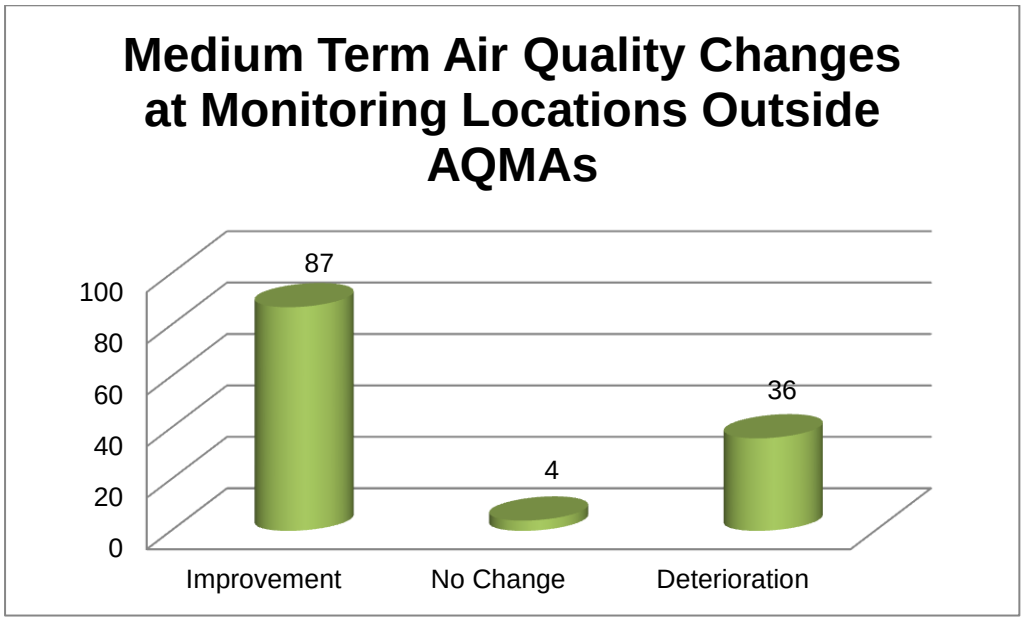
- Derby, along part of the ring road;
- Chesterfield, on Church Street, Brimington;
- Erewash, two AQMAs next to the M1;
- Bolsover, next to the M1;
- High Peak, along part of the A628.

Graph 2 illustrates monitoring trends at all other monitoring locations outside AQMAs

Graph 1 - 5 Year Air Quality Trends Within Air Quality Management Areas (NO_2)



Graph 2- 5 Year Air Quality Trends Outside AQMAs



Due to the expense of monitoring $PM_{2.5}$ and PM_{10}, there are only two locations in Derbyshire where these pollutants are monitored, both located in Chesterfield. One monitor was commissioned in 2015 and so has not yet produced medium-term trend data. The five year trend in monitoring data from the Chesterfield Roadside site (Chatsworth Road, A619) indicates a slight decline in both $PM_{2.5}$ and PM_{10}.

Air quality at all monitoring sites are significantly affected by 'background' air quality – namely pollution brought into the monitoring location from other distant sources in the country, even from the continent. There are no clear trends in changes in background air quality over the 5 year monitoring period.

4. Conclusions

Over the last five years there have been measured improvements in air quality at 47% of sites in Derbyshire where air quality is known to be in breach of EU Air Quality Objectives. Outside these AQMAs there has been a measured improvement at 69% of measurement sites.

Improvements at more than 70% of sites have been observed in Bolsover, Chesterfield and South Derbyshire. In Erewash there has been improvements at 65% of monitoring locations, whilst in Derby and North East Derbyshire there has been improvements at 39% and 26% of sites respectively.

We therefore conclude that whilst there appears to be overall relatively positive progress in air quality improvements, these are not as pronounced in areas of existing poor air quality as they are elsewhere.

5. Risks

Exposure to relatively elevated levels of air pollution is persisting. Adverse health impacts on existing high risk populations are therefore not significantly reducing.

Local authorities are likely to progressively reduce empirical air quality monitoring. The evidence base against which to determine air quality changes is progressively being reduced.

As national planning policy has been revised to promote economic development, the consideration of air quality in the development control process has been watered down.

6. Work areas

- Derby City is currently working with DEFRA and DfT on the creation of a Clean Air Zone.

- Derby City, Chesterfield, Bolsover and Erewash Councils all continue to deliver Air Quality Action Plans aimed at reducing exposure to exceedences of the nitrogen dioxide Air Quality Objective.
- A workshop event in June led by Public Health included a mapping exercise involving partners from across the region to identify all existing activities delivering positive air quality contributions. This is being developed into a Countywide Air Quality Working Group chaired by Derby's Director of Public Health. The aim of the workgroup is to provide strategic support to improve air quality and help drive progress across member organisations and stakeholders.
- Supplementary Planning Guidance is being developed at a regional level for potential adoption by Local Planning Authorities in order to enable air quality sustainability to be given due consideration within the planning and development control process.

Recommendation

That the update report be noted and that Board Members be requested to support the work areas outlined above.