Learning from Bristol: a novel method for local air quality action planning

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More than 188 people every year die from air pollution in Bristol. This research examines what measures have been implemented to reduce emissions from road traffic and the impact they have had on local air quality.

- Bristol City Council declared its first Air Quality Management Area (AQMA) on 1st May 2001 to cover the City Centre and main radial roads due to exceedences of the national air quality objectives for nitrogen dioxide (NO_2) and particulate matter (PM_{10}). The AQMA was extended to the north-east in 2008 and to the south in 2010 to include new pollution "hotspots" (Figure 1).
- The main source of NOx emissions in Bristol is road traffic (70%) with cars and taxis contributing the largest proportion (39%) due to the large number of these vehicles.
- Progress on implementation of measures ascertained by comparing Bristol City Council's AQAPs/Local Transport Plans (LTPs) and subsequent Air Quality Action Plan Progress Reports (AQAP-PRs).
- The Bristol LTP submitted in July 2000 included a Local Air Quality Strategy and a draft AQAP. The AQAP (published April 2004) considered 56 measures, including 27 LTP 'top-up' measures. Joint Local Transport Plans (JLTP2 2006/7-2010/11 & JLTP3 2011) included some additional AQ measures.
- Trends in local NO_2 concentrations at Bristol City Council's continuous monitoring sites were also assessed against implementation of AQAP measures to determine if there was any discernible impact resulting.

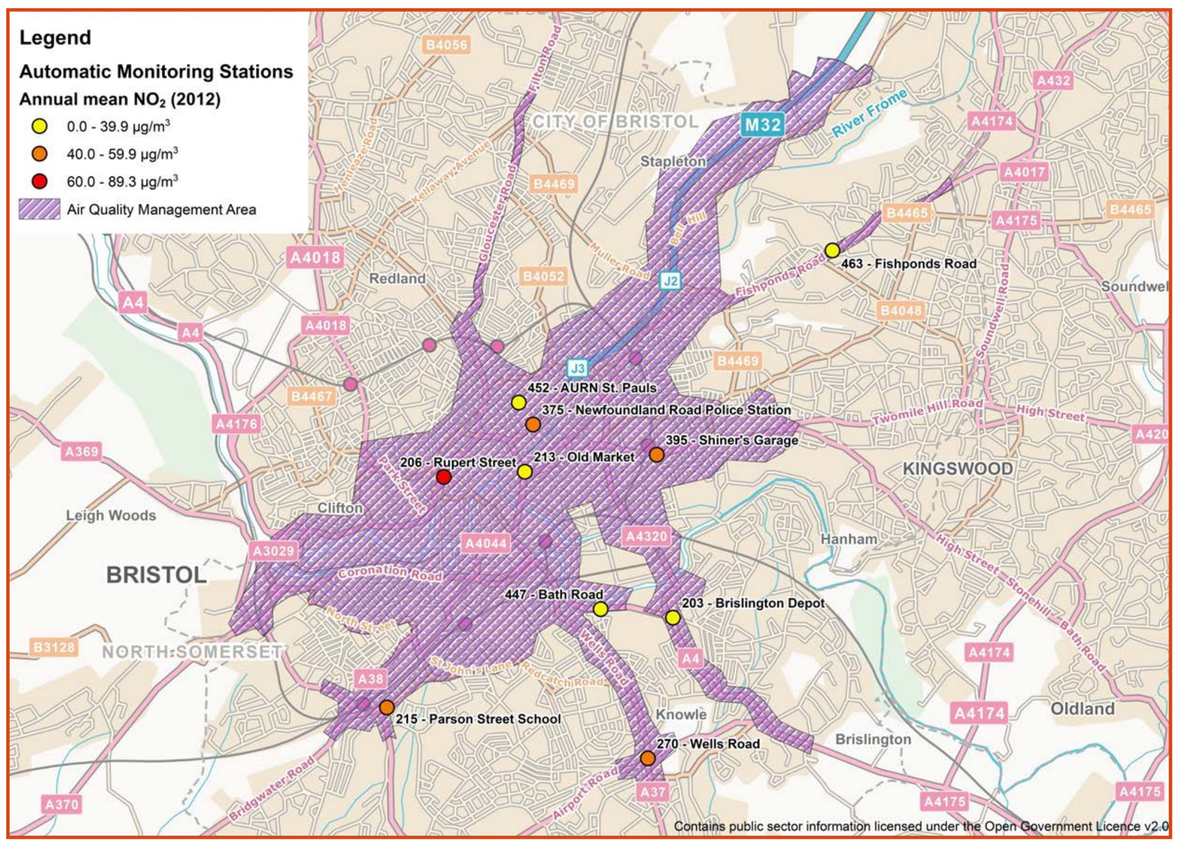

Figure 1: Bristol AQMA and automatic monitoring sites showing 2012 annual mean nitrogen dioxide concentrations

- Only one measure was considered complete by 2013: M32 Management (bus lane and speed limit reduction).
- Eight further measures were not implemented due to lack of funding, failing feasibility or cost-effectiveness tests, or were just no longer reported.
- Good progress made with 21 ongoing measures, i.e. take-up of Travel Plans by 96% of Local Education Authorities in the AQMA; delivery of £22 million Cycling City Project; establishment of Bristol-Bath Freight Consolidation Centre Scheme (Figure 2) ; and introduction of an Enhanced Traffic Control Centre.
- Site-specific measures included: Showcase Bus Routes/ Greater Bristol Bus Network (GBBN) improvements on specific radial routes serving the City Centre (Figure 3).

Figure 2: Bristol-Bath Freight Consolidation Centre Scheme

Figure 3: Showcase Bus Routes/ Greater Bristol Bus Network (GBBN) improvements

- Significant reductions in local NO_2 at Wells Road (Figure 4) may be associated with GBBN scheme. Reductions, although not significant, were also found at Bath Road & Parson Street School following GBBN. Shiner's Garage & Old Market however did not show any improvement after GBBN.
- Significant reductions in local NO_2 at Rupert St (Figure 5) may be associated with the Enhanced Traffic Control Centre easing congestion/ M32 Management.

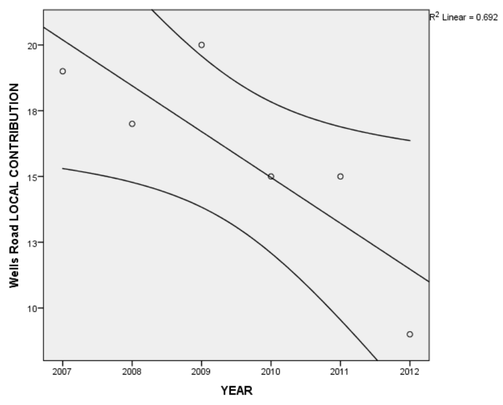

Figure 4: Wells Road local NO_2 trend

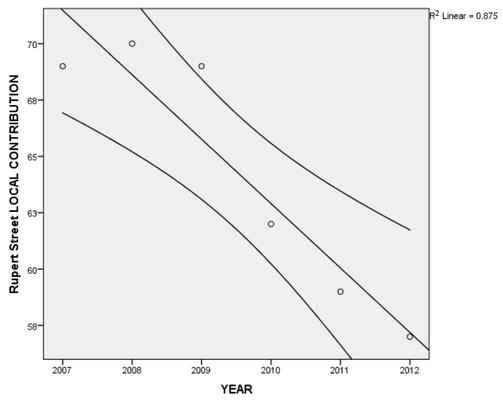

Figure 5: Rupert Street local NO_2 trend

- Where trends in local NO_2 are significant they are downward, but most sites had no significant trend.
- Reporting of Air Quality measures in LTP Progress Reports often not explicit & sometimes missing altogether.
- Impossible to link AQAP implementation with reductions in local NO_2 in most cases.
- More directly focused measures could deliver greater impact on local NO_2 in AQMAs.

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