

Report of the Strategic Director of Health and Wellbeing to the meeting of Environment and Waste Overview and Scrutiny Committee to be held on September 26th 2017.

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Subject:

Air Quality and the fraction of mortality attributable to particulate air pollution across the Bradford District

Summary statement:

In December 2016 a report was brought before members of the committee to provide update on air quality across the Bradford District. Members have now requested a further update. This report provides information on the health impacts of air quality on the residents of Bradford, an update on the national context, the results of the routine monitoring which is carried out and the steps which are being put in place to tackle this problem.

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1. SUMMARY

In December 2016 a report was brought before members of the committee to provide update on air quality across the Bradford District. Members have now requested a further update. This report provides information on the health impacts of air quality on the residents of Bradford, an update on the national context, the results of the routine monitoring which is carried out and the steps which are being put in place to tackle this problem.

2. BACKGROUND

- 2.1 Poor air quality is a significant public health issue. The burden of particulate air pollution in the UK in 2008 was estimated to be equivalent to nearly 29,000 deaths and an associated loss of population life of 340,000 life years lost.

The Public Health Outcome Framework indicator Fraction of Annual All-Cause Adult Mortality Attributable to human-made particulate Air Pollution (measured as fine particulate matter, PM2.5) Is a measurement of the mortality associated with long-term exposure to man made air pollution. The indicator is expressed as the percentage of annual deaths from all causes in those aged 30 and over.

In Bradford the indicator in 2015 was 4.2% compared to Yorkshire and Humber 4.3% and England 4.7%, this equates to approximately 2,300 years of life lost per annum in Bradford due to the health effects of particulates.

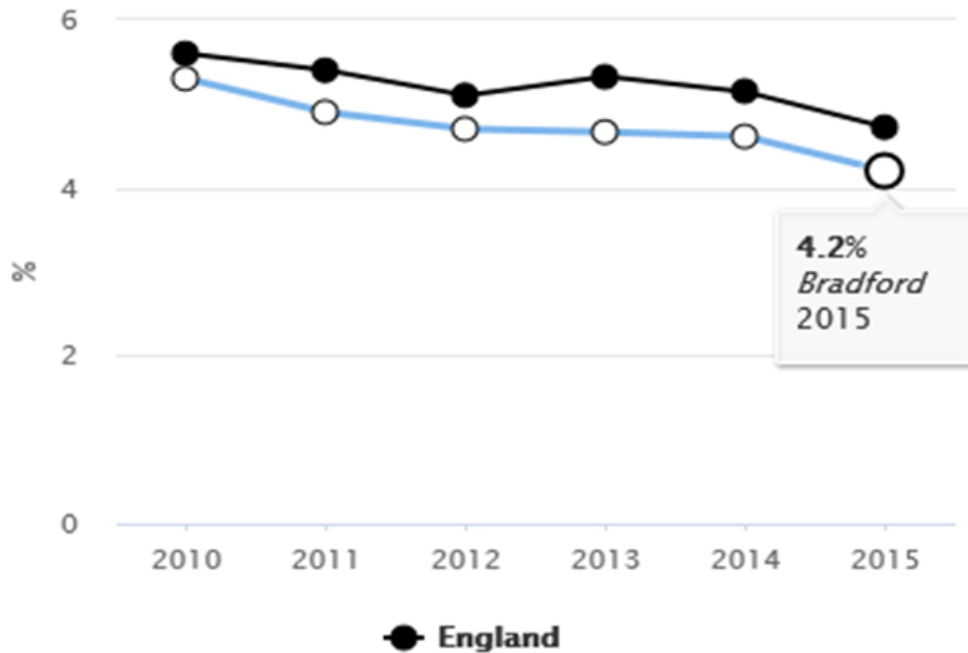
The indicator is a district wide indicator and does not capture the variation across the district. In urban areas the % will be significantly higher and conversely it will be much lower in rural areas where pollution is lower.

Fraction of mortality attributable to particulate air pollution (2015)

Proportion -%

Area	Recent Trend	Count	Value	Lower CI	Upper CI
England	—	-	4.7	-	-
Yorkshire and the Humber region	—	-	4.3	-	-
Calderdale	—	-	3.7	-	-
Kirklees	—	-	3.9	-	-
York	—	-	3.9	-	-
North Yorkshire	—	-	4.0	-	-
Barnsley	—	-	4.0	-	-
Sheffield	—	-	4.1	-	-
Bradford	—	-	4.2	-	-
Wakefield	—	-	4.2	-	-
Leeds	—	-	4.3	-	-
Rotherham	—	-	4.4	-	-
Doncaster	—	-	4.5	-	-
Kingston upon Hull	—	-	4.8	-	-
East Riding of Yorkshire	—	-	4.8	-	-
North Lincolnshire	—	-	4.8	-	-
North East Lincolnshire	—	-	5.7	-	-

Fraction of all-cause adult mortality attributable to air pollution - Bradford 2010-2015



Public Health England have made available the above data from 2010 to 2015, caution is required when considering the apparent trends over time for a number of reasons:

Concentrations of PM 2.5 vary from year to year due to the weather. This variation due to weather is generally greater than the year to year variation from changes in emissions. The data presented are of modelled concentrations of PM2.5 arising from human activities. There is some uncertainty associated with the apportionment of particles as human-made or naturally occurring.

The methods and data inputs for the pollution modelling are continually updated and improved. For example, additional information became available and changes were made to the methods used to map domestic combustion emissions in the modelling of 2015 concentrations. This has led to increases in modelled PM2.5 concentrations in some locations. The changes will be further refined with further new data and method changes before the 2016 concentration modelling is undertaken.

2.2 The National Air Quality Plan for Nitrogen Dioxide

On July 31st 2017 the National Air Quality plan for nitrogen dioxide was published following a previous draft plan sent out for consultation in May 2017. Prior to publication of the final plan, Defra had advised the Council that the national modelling carried out by them indicated that a Clean Air Zone would be required in Bradford to tackle the high levels of nitrogen dioxide and named Bradford as requiring action. However, the final published plan stated that Bradford was not

required to carry out a feasibility study or implement measures over and above those already planned as the revised modelling had indicated that the levels of nitrogen dioxide would fall below the threshold of 40 micrograms/cubic metre by 2021.

Defra explained that the draft plan had relied on modelling which used estimated 2013 traffic data, whereas the final plan used 'actual' 2015 traffic data and this caused the modelling to predict that the air pollution will be lower than originally modelled for Bradford. Other local authorities including Portsmouth, Bournemouth and Leicester have also been advised they will no longer require a clean air zone.

Defra modelling for Bradford 2017-2027

NO2 ug/m3	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Bradford (Draft Defra plan)	48	46	44	43	41	39	37	35	32	31	30
Bradford (Final Defra plan)	47	45	43	41	39	37	35	33	32	30	29

The figures contained in the National Air Quality Plan indicate that Bradford will only just reach compliance in 2021, it is therefore important that the commitments to improve air quality given in the Bradford Low Emissions Strategy and the West Yorkshire Low Emissions Strategy are delivered. Environmental Health continues to work with partners to achieve this.

2.3 Bradford Council Air Quality Monitoring Data

Bradford undertake air quality monitoring at a number of locations across the district. The following two tables below present the levels of Nitrogen Dioxide and particulates as measured at six of the permanent air quality stations.

Site ID	Annual mean concentrations NO ₂ (µg/m ³)										
	(annual average air quality objective level = 40µg/m ³)										
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016*
Shipley Airedale Rd	70	68	53	108	74	54	52	52	54	48	52
Manningham Lane	47	43	49	46	49	-	-	-	35	42	42
Mayo Avenue	54	-	71	81	83	71	72	75	42	42	46
Thornton Road	44	25	19	18	-	47	50	63	51	33	31

* Provisional data not yet reported to DEFRA

Site ID	Annual Mean Concentration PM10 ($\mu\text{g}/\text{m}^3$) (annual average air quality objective level = $40 \mu\text{g}/\text{m}^3$)								
	2008	2009	2010	2011	2012	2013	2014	2015	2016
Bingley – Ferncliffe Road	15	15	14.0	12.0	15.0	15.4	13.3	12.6	Not yet verified
Keighley – Town Hall Square	16	20	17.0	13.0	17.3	16.6	12.4	14.0	Not yet verified
Shipley Airedale Rd	-	-	39	30	-	-	-	19.6*	Not yet verified

Note – the results for the PM10's are background and urban centre sites so not typical of worst case roadside concentrations. They indicate that particulate concentrations have generally remained about the same over the past few years.

*During 2012 to 2015 the Shipley Airedale Road site measured PM_{2.5} only. A new dual head PM_{2.5} / PM₁₀ system was installed in August 2015. The PM₁₀ result shown here is an annualised figure based on measurements made between September 2015 and December 2015 only.

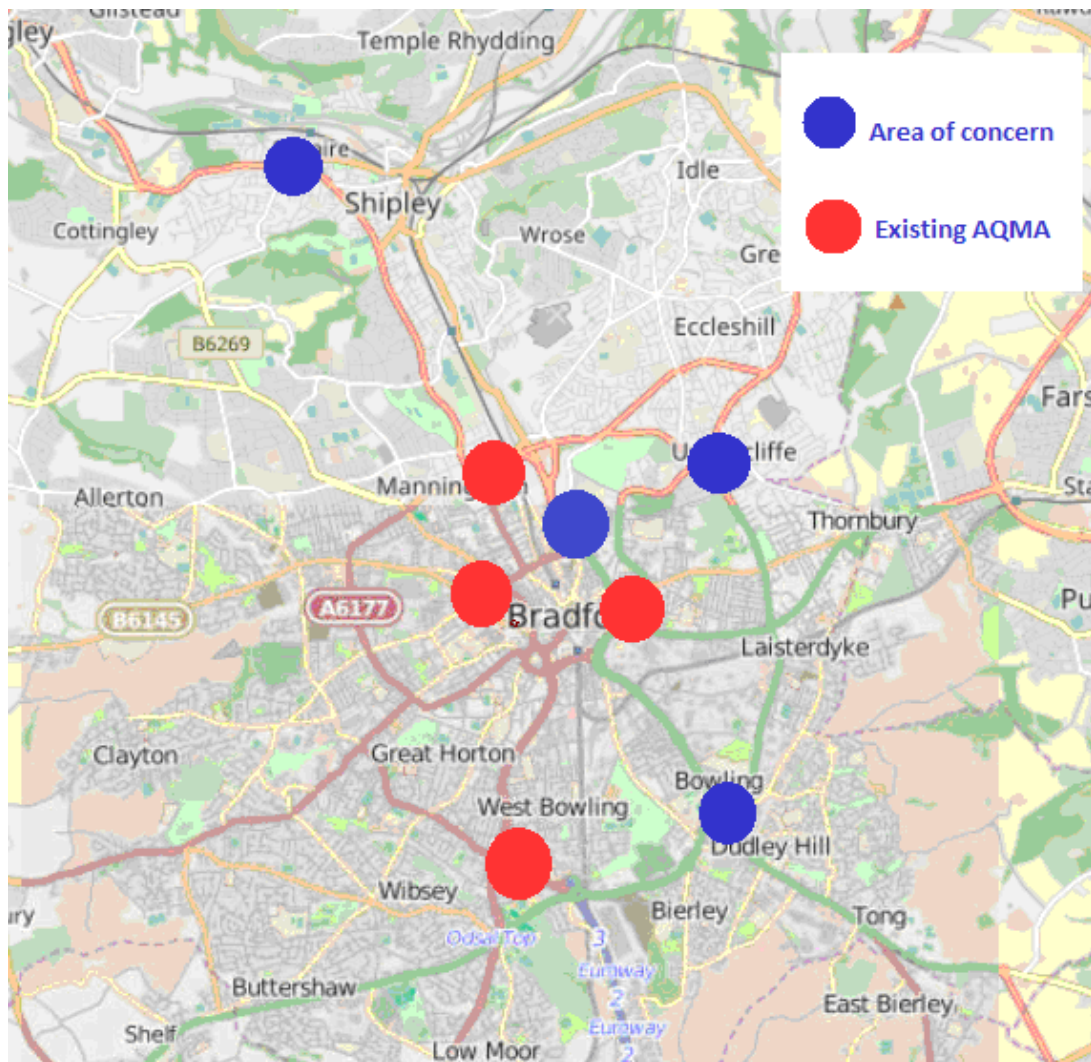
In addition to the air quality stations, diffusion tubes, which measure nitrogen dioxide, are sited at locations within the city where it is considered that air quality may be a problem. The results from this monitoring have indicated that there are air quality problems in further areas. Additional data is being collected and analysed to allow a considered decision to be made about the need to declare further Air Quality Management Areas. The following table presents the data for the areas currently under consideration. An annual report is submitted to Defra about the results of the air quality monitoring and the latest report is currently being drafted, this will identify if the areas identified have not improved and if this is the case formal adoption of the areas as air quality management areas will commence.

Location	Maximum NO ₂ concentration ($\mu\text{g}/\text{m}^3$) measured in the area (annual average air quality objective level = $40 \mu\text{g}/\text{m}^3$)				
	2012	2013	2014	2015	2016*
Junction of Saltaire Road and Bradford Road	79	65	59	56	60
Rook Lane / Rooley Lane / Tong Street area	49	58	58	51	44
Harrogate Road / Killinghall Road/ Dudley Hill Road	54	57	57	45	43
Canal Road	-	-	-	51 (partial year)	51

*provisional data not yet reported to DEFRA

Monitoring commenced at Canal Road in June 2015 following concerns raised by Defra about air quality in this area. Results indicate the air quality objective is exceeded at roadside locations in this area.

Existing AQMAs and Areas of concern



2.4 Bradford Council Low Emission Strategy

In March 2015 the Low Emissions Zone feasibility Study was presented to the Council Executive. At that meeting the following recommendations were agreed:

- (1) That it be acknowledged that further work is needed following the conclusions of the study to develop policies that focus on the following areas that would deliver improved air quality and health improvements through the reductions in;
 - bus emissions,
 - heavy goods vehicle emissions,
 - the proportion of diesel cars within the Districts passenger car fleet, including the taxi fleet within the District,
 - the overall number of passenger vehicles by increasing levels of active travel and public transport uptake.

(2) That this work is progressed by officers revisiting the Bradford Low Emission Strategy and updating it having regard to the findings of the Low Emission Zone feasibility study. Within that review of the Bradford Low Emission Strategy, a full understanding of the impact, benefits and issues around the practical implementation of a Low Emission Zone should be explored.

(3) That the Low Emission Zone study and its findings are referred to the West Yorkshire Combined Authority to reinforce and support the improvements which can be achieved by “cleaning up the buses”. In particular that this item continues to be a key point in negotiations for the bus quality contract or partnership.

Following on from those recommendations funding was secured from Defra to update the Bradford Low Emissions Strategy. That work is ongoing and is scheduled for completion in 2017.

2.5 Other Tangible Action to Improve Air Quality in Bradford

Opportunities to make a practical change may come about through grant funding or simply a change in policy. The table below provides a summary of the practical steps which have already been taken in a bid to tackle poor air quality in the city.

Bradford low emissions measures	Current status	Outputs and results
Electric Vehicle (EV) charging	Surveys completed at 6 sites including on-street hackney carriage bays. Forming part of WY EV strategy. Plans in place for soft-market testing to invite interest in private investors. Discussions with retail centres to introduce EV chargers at shopping centres. Planning conditions for EV charging on housing developments.	2500 charging points conditioned under approved planning permissions / 4000 under 'live' applications. 5 x Local Transport Plan funded chargers at Bradford University and NHS sites. 8 chargers at Council office/depots. 1 rapid charger (£30,000) at Crown Courts
Fleet	New fleet procurement policy drafted to include whole life costing and ULEV Cars and vans to be considered for Ultra Low Emissions Vehicles (ULEV) or very low emissions. Participant of ULEV Readiness project, 6 month Energy Savings Trust(EST) reported Sep 16.	Reduction of 332 tons of CO2 equivalent 2015/16. 7 electric vans and 2 electric pool cars adopted 2016 with 3 additional charging stations. Travel plan hierarchy promotes bus/rail and ULEV car club vehicles for business trips.
Cycling and Walking	Cycle City Ambition Grant award – infrastructure and engagement. Consulting on 2.3km strategic cycle link to Shipley. £4.6 million bid for DfT Access Fund Sep 16. Will provide training for employees and job seekers and invest in cycling facilities in	£19 million Cycle Super-Highway (Bradford-Leeds) separated cycle-lane opened summer 2016. Bikeability scheme trained 1200 children to level 2. 46 schools involved in

Bradford low emissions measures	Current status	Outputs and results
	workplace.	pedestrian training 2300 children. CBMDC cycle to work scheme since 2013 alongside new cycling facilities.
Taxis	Energy Savings Trust feasibility study complete. Medium scenario already adopted for maximum age 12 years, recommended 10 years for new license. Recommended 10 ULEV only licenses for WY with demonstration vehicles. Working towards a WY Clean Air Zone licensing standard.	£1.9m WY fund to install EV infrastructure for taxis. locations surveyed for town centre rapid-charging stations in Bradford.
Commercial fleets	Ecostars appointed as fleet consultant. Will operate Fleet Recognition scheme 2016-2017. Target of 60 local fleet operators.	Currently engaging with bus operators, local authority fleet (who have gained a 4 star award). Other commercial operators include Boots, Nisa, Bradford NHS, Next, Arnold Laver.
Gas refuelling	Gas (Compressed Natural Gas) refuelling infrastructure included in Depot Redevelopment Plan. New site identified with suitable mains pressure efficient HGV refuelling and partnership with First Bus Bradford.	Gas Feasibility Study 2013 estimated £10-20million saving in fuel costs, 77 tonnes NOx and avoided damage costs estimated at £340k.
Car club	New contract for provider awarded in 2015 introduced 3 vehicles including EV version. Seeking to consolidate with CBMDC corporate users and expansion with new bays provided Sep 16.	Traffic regulation orders for Saltaire village approved for 2 bays. CBMDC account for business users mandated in corporate Travel Plan.
Buses	Partnership work between bus operators and local authority. Scenario analysis from the Bradford Low Emission zone feasibility study for investment in new buses shows significant health benefits. The Clean Bus Technology Fund 2017-2019 is now open with £30m available over a two year scheme. The deadline for bids is 17th November.	25 bus retrofits, currently in service with Selective catalytic reduction Technology (SCRT) and Portable emissions monitoring (PEMs) NOx reduction 95% / 1 tonne/year. 60% reduction in particulate matter. All the school buses across West Yorkshire were retrofitted via grant applied for and administered by WYCA.
Procurement	Draft guidance produced. Reference to Social Value Act. Tender matrix to evaluate pollutant emissions. 5% of overall quality score, scale 1-5 e.g. 5 = ULEV and EURO6 / 0 = no information.	Scheduled for approval Spring 2017

3. OTHER CONSIDERATIONS

Defra have indicated that money may be available to improve air quality in local authorities who are not mandated to take action. We will ensure that Bradford is ready to access any available funding to progress improvement in air quality.

4. OPTIONS

This report was provided at member request to provide an update.

5. FINANCIAL & RESOURCE APPRAISAL

The report is for information only and does not give rise to any potential costs to the authority.

6. RISK MANAGEMENT AND GOVERNANCE ISSUES

The report is for information only at member request..

7. LEGAL APPRAISAL

The Council has a statutory duty to review and assess local air quality under the nationwide system of Local Air Quality Management (LAQM) set out within the Environment Act 1995 as it is doing on an ongoing basis.

8. OTHER IMPLICATIONS

8.1 EQUALITY & DIVERSITY

Previous work carried out as part of the LEZ feasibility study included within it a Health Impact Assessment which also looked at the relationship between pollution levels and deprivation. This found that a significant correlation exists between high pollution levels and areas with deprived populations within the District

8.2 SUSTAINABILITY IMPLICATIONS

The WYLES and the Bradford Low Emissions Strategy support modal shift to more walking and cycling. This, and increased use of public transport, offers a more sustainable approach. The Guidance developed as part of the WYLES, to be used as part of the Development Control process, seeks to ensure that all new developments do not negatively impact on air quality and support the introduction of infrastructure to assist in the move towards a low emissions future.

8.3 GREENHOUSE GAS EMISSIONS IMPACTS

It's recognised that measures to improve air quality, for example switching modes from car to rail journeys or moving to electric vehicles will enable a reduction in GHGs. However the

push for greater fuel efficiency and improved emissions standards alone, will not be sufficient to tackle climate change if fuel savings result in increased mileage on our roads. It is recommended that policies to reduce overall vehicle mileage are prioritised and aligned with health and wellbeing objectives.

8.4 COMMUNITY SAFETY IMPLICATIONS

There are no community safety implications.

8.5 HUMAN RIGHTS ACT

There are no human rights issues arising from this report.

8.6 TRADE UNION

There are no trade union issues arising out of this report.

8.7 WARD IMPLICATIONS

There are no ward issues arising out of this report

9. NOT FOR PUBLICATION DOCUMENTS

- None.

10. RECOMMENDATIONS

It is recommended that members consider the contents of the report and support officers in their continued measures to tackle poor air quality across the District.

11. APPENDICES

- None.

12. BACKGROUND DOCUMENTS

- Bradford Air Quality Strategy
- Bradford Low Emissions Strategy.
- Bradford Low Emissions Zone Feasibility Study
- Air quality plan for nitrogen dioxide (NO₂) in UK (2017)