
Report to: Health and Well Being Board **Date of Meeting:** 17th June 2015

Subject: Air quality

Report of: Dr Janet Atherton,
Director of Public Health

Wards Affected: All

Is this a Key Decision? No

Is it included in the Forward Plan?
No

Exempt/Confidential

No

Purpose/Summary

Air quality is an issue of concern to the local community. This paper summarises the latest evidence of the health impacts of air pollution drawing on a report produced by Public Health England and outlines key actions that could improve air quality in the borough.

Recommendation(s)

That the Board discusses potential actions it could encourage partners to take to improve air quality in Sefton.

How does the decision contribute to the Council's Corporate Objectives?

	<u>Corporate Objective</u>	<u>Positive Impact</u>	<u>Neutral Impact</u>	<u>Negative Impact</u>
1	Creating a Learning Community		X	
2	Jobs and Prosperity		X	
3	Environmental Sustainability	X		
4	Health and Well-Being	X		
5	Children and Young People	X		
6	Creating Safe Communities	X		
7	Creating Inclusive Communities		X	
8	Improving the Quality of Council Services and Strengthening Local Democracy		X	

Reasons for the Recommendation:

Air quality will continue to be a concern in Sefton. The Health and Well Being Board is well placed to encourage partners across the system to address air quality, within the context of other risk factors for poor health and well being.

What will it cost and how will it be financed?

(A) Revenue Costs

None

(B) Capital Costs

None

Implications:

The following implications of this proposal have been considered and where there are specific implications, these are set out below:

Legal	
None. The environmental services department will identify any implications arising from national decisions following the Supreme Court ruling.	
Human Resources	
None	
Equality	
1. No Equality Implication	<input checked="" type="checkbox"/>
2. Equality Implications identified and mitigated	<input type="checkbox"/>
3. Equality Implication identified and risk remains	<input type="checkbox"/>

Impact on Service Delivery:

None

What consultations have taken place on the proposals and when?

The Head of Corporate Finance and ICT has been consulted and has no comment on the report as there are no direct financial implications for the Council (FD.3575/15)

The Head of Corporate Legal Services (LD/2867) has been consulted and has no comments on the report.

Are there any other options available for consideration?

Implementation Date for the Decision

Following the expiry of the “call-in” period for the Minutes of the Cabinet/Cabinet Member Meeting

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Background Papers:

The following paper is available for inspection by contacting the above officer:

Estimating Local Mortality Burdens associated with Particulate Air Pollution. Public Health England, April 2014. <https://www.gov.uk/government/publications/estimating-local-mortality-burdens-associated-with-particulate-air-pollution>

1 Introduction

- 1.1 This report provides information to raise the Health and Wealth Being Board's awareness of the impact of air pollution on health, within the context of other risk factors for individual, community and population health.
- 1.2 In particular, this report uses two information sources to scope the impact: the Public Health England estimates of local mortality burdens and the Global Burden of Disease study. The former gives mortality burdens for Sefton compared to other local authorities and is a public health outcome framework (PHOF) indicator. The latter positions ambient particulate matter (PM) pollution with other risk factors contributing to mortality and morbidity at the UK level.
- 1.3 Information about local data air quality monitoring stations in Sefton is presented to indicate that action is ongoing to address inequalities within Sefton and the local response to exceedances of air quality thresholds. There is also a brief explanation of recent rulings concerning breaches.
- 1.4 The report also includes suggestions for taking forward work in Sefton and regionally to improve health through tackling air quality.

2 Health effects of air pollution

- 2.1 There is evidence that both short-term and long-term exposure to various air pollutants can cause a range of adverse health effects. Short-term exposure can result in exacerbation of asthma, effects on lung function, increases in hospital admissions for respiratory and cardiovascular conditions, and increases in mortality. Long-term exposure also increases mortality risk.
- 2.2 Outdoor air pollution has decreased considerably in the UK over recent decades, but it was estimated in 2008 that existing levels of air pollution had an effect equivalent to 29,000 deaths and an associated loss to the population of 340,000 life-years. This can also be represented as a loss of life expectancy from birth of approximately six months.
- 2.3 The effect of long-term exposure to air pollution on mortality is most closely associated with ambient levels of fine particulate matter (PM_{2.5}). There are no safe levels of PM (no evidence for a threshold below which effects would not be expected).
- 2.4 The years of life lost owing to air pollution are distributed unequally across the population, with the heaviest burden borne by those with greatest vulnerability and/or exposure. These can be the elderly, those with existing conditions, and those who spend more time in high polluted locations.

The main air pollutants of concern – PM, NO₂ and O₃

Air pollution is a mixture of toxic particles and gases. The most important is Particulate Matter (PM) smaller than 2.5 microns⁸ in diameter (PM_{2.5}). PM is so fine that the particles float in air to form an aerosol which can be inhaled deep into the alveoli. PM comes from combustion, friction of engine components and brakes. It comprises soot, part burnt diesel and petrol compounds. PM_{2.5} has the strongest epidemiological link to health outcomes.

The gaseous pollutant Nitrogen Dioxide (NO₂) is generated by combustion.

Ozone (O₃) comes from a combination of natural and human processes; unlike the pollutants above. It cannot be managed locally, but can be forecast and alerts sent to vulnerable individuals.

During some weather conditions that lead to acute air pollution episodes NO₂, O₃ and other pollutants react and condense into PM, adding to that which has been emitted.

3 Local mortality burdens associated with particulate air pollution

3.1 In April 2014 Public Health England (PHE) published estimates of local mortality burdens at Local Authority level. This data would be used to regularly estimate an attributable fraction of mortality as described in the Public Health Outcome Framework (PHOF). The estimates are based on modelled concentrations and are therefore to be used as an awareness raising indicator, not for the quantitative evaluation of the health impacts of local measures to reduce air pollution.

3.2 The table below shows the 2010 data presented in the April 2014 report for Sefton and neighbouring areas and the most recent attributable fraction reported in the PHOF (2012).

Area	Mean anthropogenic PM_{2.5} (2010)	Attributable fraction (2010)	Attributable deaths age 25+ (2010)	Associated life-years lost (2010)	Attributable fraction (2012)
England	9.9	5.6	25002	264749	5.1
North West	8.9	5.1	3427	35855	4.4
Sefton	8.1	4.6	145	1464	4.0
Liverpool	9.6	5.4	239	2440	4.5
Knowsley	9.7	5.5	77	862	4.8
St Helens	9.7	5.5	98	1027	4.8
Wirral	8.2	4.7	166	1652	3.9
West Lancashire	8.3	4.7	52	506	*

* 2012 data at upper tier only i.e. Lancashire

4 The contribution of particles to deaths in Sefton is about the same as in neighbouring boroughs or may even be less, although direct comparison is difficult, given the methodology of calculating this indicator.

5 Global Burden of Disease – contribution of ambient PM pollution to mortality and morbidity

- 5.1 The Global Burden of Disease study 2010 enables comparisons to be made between risk factors and their contribution to both mortality (death rates and years of life lost) and morbidity (years lived with disability and disability adjusted life years). This analysis is available for the UK, but gives a perspective of where air quality ranks amongst other risk factors such as smoking, diet, physical activity and alcohol use.
- 5.2 Ambient particulate matter (PM) pollution is ranked eighth for contributing to total deaths in the UK, with rates far lower than dietary risks, high blood pressure, smoking and physical inactivity (Figure 1). It is ranked eleventh for contributing to total disability adjusted life years (Figure 2).

Figure 1: Percentage of total deaths by risk factor, UK, 2010

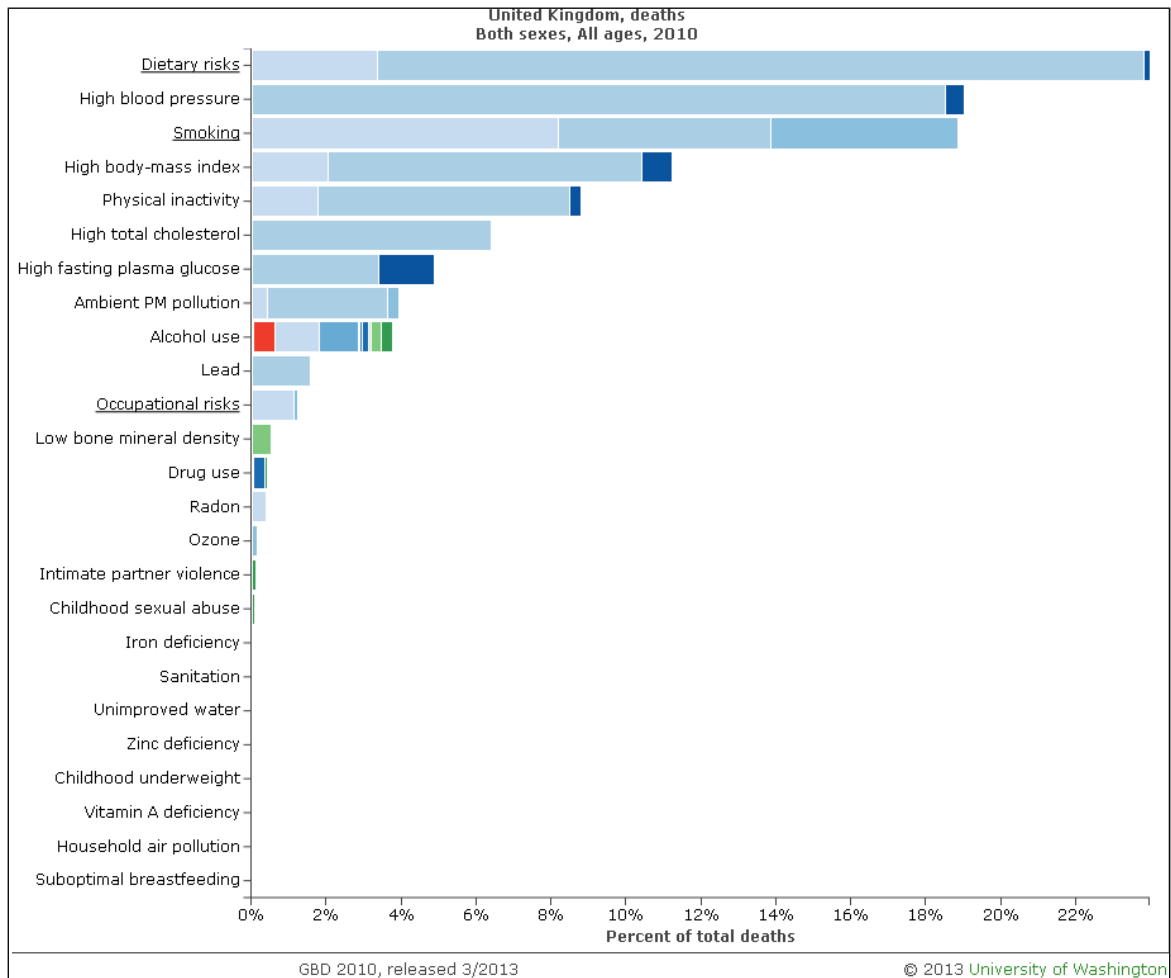
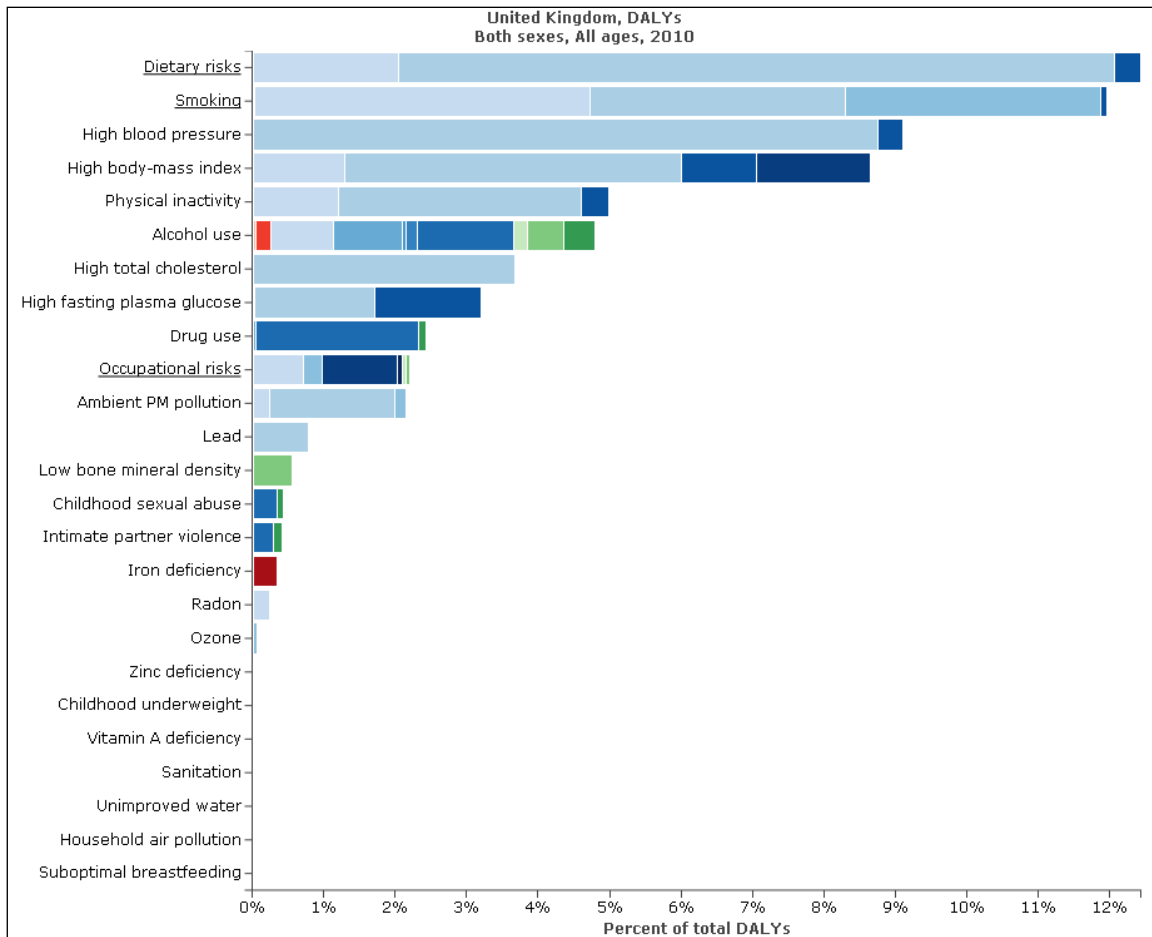


Figure 2: Percentage of disability adjusted life years (DALYs) by risk factor, UK, 2010



5.3 These charts demonstrate the relative position of air quality to other risk factors in the UK. Population and individual interventions to reduce tobacco smoking and improve diet and physical activity will have a greater impact on improving health. It is unlikely that the relative position of these risk factors is different in Sefton to the UK.

6 Local monitoring of air quality and Air Quality Management Areas (AQMA's)

6.1 Regulations made under the Environment Act 1995 (as result of EU Directives on Air Quality) require Local Authorities to assess Air Quality in their Area at regular intervals. Where National Air Quality Standard (NAQS) objectives are not met Air Quality Management Areas (AQMA) must be declared by the Local Authority. Four AQMA's have been declared in Sefton where the NAQS objective for Nitrogen Dioxide (NO₂) has not been met. Action plans are in place to address this exceedence but compliance with the NAQS objective in the short term will be extremely challenging for a number of these AQMA's.

6.2 The European Air Quality Directive required Nitrogen Dioxide (NO₂) limit values of member states to be reached by 1 January 2010. The European Court of Justice has recently ruled in November 2014 that where a member state has not applied for an extension, it is for national courts, should a case be brought before it, to take any necessary measures to ensure the appropriate authority (DEFRA) establishes a plan, so that the period during which the limit values are exceeded is

as short as possible. A case has been brought to the UK Supreme Court in April who ruled that DEFRA must put action plans in place to address these exceedances by the end of 2015. It is our understanding that DEFRA are now working on revised Air Quality Plans.

- 6.3 It is not possible to predict what the implications will be for Local Authorities at this stage, however should the European Court decide to issue infraction fines in the future, the UK Government could, under the Localism Act, require the Responsible Authority to pay all or part of any such fine.
- 6.4 DEFRA have recently undertaken a consultation reviewing Local Air Quality Management undertaken by Local Authorities. A number of proposals have been suggested including regulatory consultation on a statutory instrument to enable the removal of four redundant pollutants (Benzene; 1,3 Butadiene; Carbon Monoxide; and Lead) for Local Authority reporting purposes, streamlining of reporting processes and providing Local Authorities with a role to tackle PM_{2.5} which will be set out in statutory guidance. The results of this consultation are awaited and the implications will be reported in due course.

7 Local actions to improve air quality

- 7.1 Actions to improve air quality should be seen in tandem with those to mitigate against climate change. As such a number of organisations have responsibilities such as Local Authorities, Public Health England, Transport Authorities, Environment Agency as well as national government.
- 7.2 Air pollution is also a cross-boundary issue in terms of geography, so Sefton works with neighbouring areas to address issues. However, the issue can be very local with small hotspot areas, meaning there is scope to take actions on a locality or small geographical area, such as those identified for Well Sefton and Healthy Bootle.
- 7.3 Local strategies and actions to reduce particulate pollution and exposure of the local population include:
- Restriction of exposure to traffic emissions - low emission zones, restriction of heavy goods vehicles and commuter traffic in residential areas, EcoStars scheme, scrappage schemes for diesel vehicles
 - Technological solutions – such as hurry call at Millers Bridge, enhanced road washing
 - Smarter travel choices
 - Increasing active travel – modal shift in transport patterns from private cars to walking and cycling
 - Increasing urban green space – planting of broad leaved trees and plants – reducing urban heat islands
- 7.4 Provision of information to professionals and the public are also advocated. At a national level, air quality information is being communicated more routinely, such as alongside UV levels in weather forecasts. Sefton has a number of routes to communicate information including the Breathing Space website and the air quality alert system. There are other services available to provide information to

at-risk individuals when episodes or elevated levels of pollution are expected, to allow them to plan accordingly.

- 7.5 A Public Health England (PHE) work programme is expected during 2015 which will support national and local government to reduce 25,000 deaths each year in England attributable to air pollution.
- 7.6 A report from Merseytravel to the Merseyside Transport Advisory Group has suggested the Combined Authority takes strategic ownership and leadership on air quality across the Liverpool City Region. Proposals are being produced for a co-ordinated LCR approach.

8 Recommendations

- 8.1 It is recommended that the Board discusses potential actions it could encourage partners to take to improve air quality in Sefton.

Specific actions are outlined at 6.3 and 6.4 above.

Additional policy level actions are:

- To ensure that Sefton's strategic needs assessment (SSNA) continues to include air quality as an environmental risk factor for health, in the context of other risk factors
- To include in the Local Plan a systematic requirement for a health impact assessment, including air quality impacts on health, for all new developments meeting a set criteria (to be determined)