

# AIR QUALITY AND VEHICLES: THE TRUTH



The impact of road transport on air pollution and how to improve it.

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# Air Quality and Vehicles – The Truth

## THE IMPACT OF ROAD TRANSPORT ON AIR POLLUTION AND HOW TO IMPROVE IT

### PREFACE

The authors of this paper have been very concerned of late with the misinformation that has been spread by the national media about the impact of air pollution from vehicles on the health of the population. Is it a major health crisis or simply a major health scare fed to a gullible public by journalists wanting a story?

The promotion of such stories has also led to Government over-reaction and a number of local councils proposing “Clean Air Zone” schemes aimed at restricting some vehicles from entering some roads, or charging them extra to do so in the name of reducing pollution. For example, road closures to all but electric vehicles are proposed in the borough of Islington in London and in the City of London itself. Transport for London (TfL) are also extending the Ultra Low Emission Zone (ULEZ) to cover all of London within the North and South Circular which will impose enormous costs on Londoners for very little health benefit.

“Is it a major health crisis or simply a major health scare fed to a gullible public?”

Other cities that are planning schemes to charge drivers are Birmingham, Manchester, Cardiff, Glasgow, Edinburgh, Reading, Derby and Cambridge. Typically these schemes target older vehicles, particularly diesels, that were legal (i.e. complied with emission standards) when purchased. Many other towns and cities may follow with similar plans so don't be surprised if you face paying to drive on roads you have already paid for.

The prime objective often appears to be simply the desire to extract money from car drivers and other vehicle users.

We have published in this paper a full analysis of the issues that actually gives the truth about the claims made for air pollution, and rebuts many of the allegations.

Is there actually a public health crisis with as many as 40,000 deaths per year from air pollution? The simple answer on both counts is NO. The evidence does not support such claims, or the statistics are being distorted to mislead the public.

In reality air quality has been steadily improving and will continue to do so from technical improvements to vehicles. Meanwhile life expectancy has been increasing. There is no public health crisis!

“There is no public health crisis.”

Life expectancy might be improved slightly, for example by a few days if all air pollution was removed. But air pollution does not just come from vehicles but from many other sources of human activity such as heating, industrial processes, farming, building, cooking and domestic wood burners. Only about 50% comes from transport. The air outside is typically cleaner than in people’s own homes or in offices and that is where they spend most of the time.

Removing all air pollution would be economically very expensive and leave us with no transport (buses, trains, aeroplanes or cars) and also stop all deliveries of food and other goods. You would not want to live in such a world.

It has also been alleged that air pollution causes asthma. That is not true based on widely available evidence although it might exacerbate existing conditions in extreme cases. Similarly allegations of other health impacts are either unproven or simply false.

We give all the evidence on our claims above in this paper.

But we do accept that air pollution does need to be improved, particularly in certain locations. The public are concerned about it. However we argue that measures taken to improve matters should be proportionate and cost effective. There needs to be a proper cost/benefit analysis before imposing restrictions or charges.

There are many measures that can be used to reduce vehicle emissions without restricting motorists or imposing major extra costs on them. We give some in this paper. Many of the measures taken by the Government already such as adopting improved vehicle standards will lead to substantial reductions in emissions over the next few years.

There is no need to panic!

Roger W. Lawson

Director, Freedom for Drivers Foundation

## 1. Introduction

It is undoubtedly true that there are concerns about air pollution in the UK from motor vehicles. This has been driven partly by somewhat hysterical and biased television and press articles on the subject. But it is also true that the UK is breaching EU defined air pollution limits in a number of cities which the Government has committed to tackle. In addition, if you live in one of the major conurbations such as London the air quality on a number of streets in certain weather conditions can be perceived to be poor by any pedestrian. There are also concerns about the long-term health impacts of certain pollutants – particularly NOX (nitrous oxides) and particulates – as reported by a number of scientific studies.

But is there a major public health crisis caused by motor vehicles as some people have alleged? Does it justify forcing diesel or petrol engine driven vehicles off the road, or imposing severe charges on users of such vehicles to deter their use as is happening in London and will soon spread to other major UK cities? We believe otherwise and we give our reasons in this note.

The key questions are:

- **Is there a major health risk from air pollution and is it caused by vehicles?**
- **Are the proposed solutions (regulatory or otherwise) a justifiable and proportionate response to the risks identified?**

We will attempt to answer those questions in this paper.

## 2. Public Health Crisis?

Some people allege that air pollution is a major health issue. For example, London Mayor Sadiq Khan said on Twitter in 2017: “Air pollution is the public health crisis of our generation”. But in reality people are living longer and there have been no deaths directly or solely attributable to air pollution (based on coroners reports or death certificates).

However there have been published reports that claim that over 40,000 deaths are caused by air pollution in the UK – for example this headline from the London Evening Standard on 20/10/2017: “Pollution killing 50,000 people in the UK every year, research finds”. These claims are a gross distortion of the facts.

The most authoritative reports on this subject are published in the UK by COMEAP (Committee on the Medical Effects of Air Pollutants) – see <https://www.gov.uk/government/collections/comeap-reports> . Their latest report on this subject, published in August 2018, is entitled “Mortality effect of long-term particulate exposure to air pollution in the UK”.

Their reports confirm that they are in no doubt that air pollution, particularly particulates and with less certainty gases such as nitrous oxides, affect mortality, i.e. the life expectancy of humans exposed to them over the long-term.

It is worth repeating a couple of statements by COMEAP:

“Airborne particles comprise an anthropogenic component and a natural component”, i.e. pollution arises from human activity while some is present in the natural environment, and “As everyone dies eventually no lives are ever saved by reducing environmental exposures – deaths are delayed resulting in increased life expectancy”. But for public consumption estimates of the impact on life expectancy have been translated into “deaths per annum” which is the figure reported by the media. That is a gross distortion – a trap into which even the RAC Foundation fell.

“COMEAP say there is no doubt that air pollution affects mortality.”

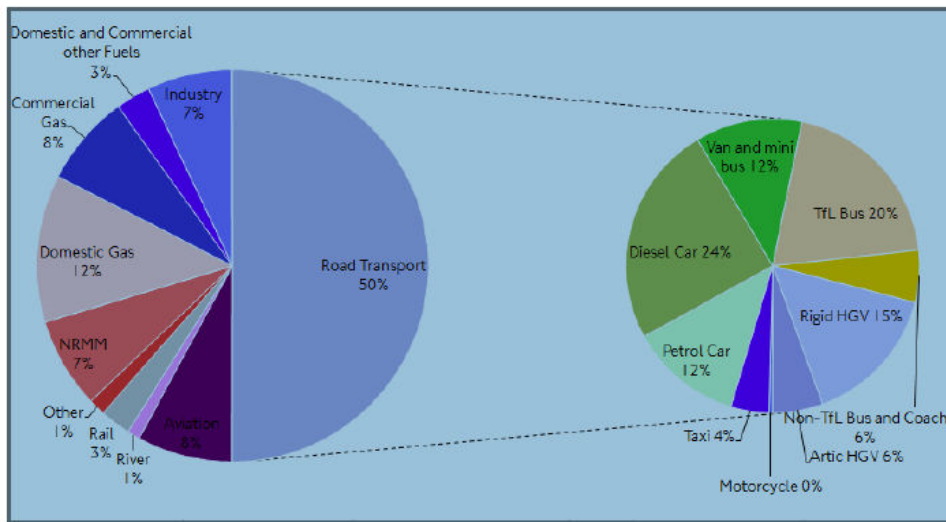
There is also a lot of uncertainty in the figures published by COMEAP, or statistically speaking, the confidence limits on the results are wide, leading to much doubt about how accurate the estimates actually are. **It might be a few days to a few months in terms of reduced life expectancy arising from air pollution.** In other words, you might simply live a few days longer if all air pollution was removed – an impractical objective. But remember that it will only be possible to cut out the anthropogenic component and that a large proportion of pollution comes from other human activities than road transport.

“Reporting deaths per annum is a gross distortion”

### 3. Sources of Air Pollution

The RAC (see Ref. 1) reported that road transport was the major source of air pollution in areas of poor air quality outside London in 2013. In London where the data is more comprehensive, and there are apparently more residential and commercial emissions, it was approximately 50% for NO<sub>x</sub> (nitrous oxides) in 2013. This chart from the London Atmospheric Emissions Inventory gives the breakdown and also shows the contribution of different vehicle types:

Figure 3: NO<sub>x</sub> sources in Greater London in 2013 (LAEI 2013)<sup>20</sup>



Note the relatively small contribution of diesel and petrol cars (24% and 12% of the road transport emissions, or 12% and 6% respectively of all emissions) which are the major concern of our supporters. In other words, even if all private cars were removed from London's roads, which is the stated ambition of Mayor Sadiq Khan, only 18% of all air pollutants would be removed.

Those were the figures in 2013 while air pollution has been falling rapidly since then. Indeed, it has been falling for many years and will continue to do so due to central Government initiatives and improvements in vehicle technology and standards which gradually migrate through the vehicle fleet as older vehicles are scrapped.

“Cars contributed only 18% of air pollution in 2013”

Nitrogen Dioxide (NO<sub>2</sub>) and particulate emissions from road transport in 2015 decreased by 75% and 87% respectively since 1990 according to the SMMT/Defra – see Reference. 2 (references are listed at the end of this document). With the introduction of Euro 6 standards, these emissions are expected to decrease further. More electric and hybrid vehicles are being sold and there are also local initiatives to restrict older or more heavily polluting vehicles.

Note that NOX and particulate emissions might have fallen more rapidly if the Government had not decided to encourage the purchase of diesel vehicles a few years back by tax structures aimed at cutting CO2. Diesel vehicles tend to produce more NOX and particulate emissions than the equivalent petrol vehicles.

Other major sources of air pollution are from construction, industrial processes, agriculture, power generation, home heating and cooking and even domestic wood burners which have recently grown in popularity. Some of the air pollutants blow into urban conurbations from surrounding parts of the country, or even other countries.

#### **4. What the Experts Say**

Professor Tony Frew, Professor of Respiratory Medicine at the Royal Sussex Country Hospital gave a very interesting interview on TalkRadio in April 2017. To summarise this is what he said in response to the question: Are 40,000 people dying every year prematurely from air pollution? His simple answer was NO, it's not true. It's a zombie statistic. He said it had a very small impact on everybody – if you could get rid of all pollution you might extend life expectancy by 6 months. But if you got rid of all traffic in London you would only get rid of one seventh of all pollutants. How much longer would you live if all transport was removed (including buses, trains and aeroplanes)? His answer was between 20 to 40 days, depending on where you live.

But even those figures are subject to a lot of doubt. In their 2018 report COMEAP experts could not agree unanimously that there is a link between Nitrogen dioxide (NOx) and mortality. A good analysis of the COMEAP and other studies and the impact on life expectancy is by Neil Lock which we published – see References 8 and 16. There are also many studies that show no association between PM2.5 and mortality – see References 13 and 14.

#### **5. Asthma and Other Health Risks**

Some people allege that air pollution is the cause of asthma, but the available evidence is to the contrary. However it might exacerbate existing conditions. See Reference 5 which summarises the evidence on that subject.

Other studies have implicated heart disease and other ailments but all of these reports are based on epidemiological studies, i.e. linking where pollution is high to higher disease prevalence. There is no evidence of a direct cause and effect. The basic problem with such an approach is that diseases of all kinds relate strongly to lifestyles, employment and wealth. So those who live in poorer areas of major cities, where pollution is often higher, tend to be unhealthier.



They have poor diets and are more frequently smokers (smoking is probably a lot more dangerous to your health than general air pollution). You can see how misleading such studies can be if you look at the mortality figures for various London boroughs.

The boroughs with the lowest life expectancy are Barking & Dagenham, Lambeth, Hackney, Greenwich, Tower Hamlets, Newham, Ealing and Islington. Some of these boroughs are traditional industrial areas, with relatively poor residents and high air pollution figures. Contrast that with Kensington & Chelsea which also suffers from relatively poor air quality as a result of high traffic congestion but is one of the boroughs with the longest life expectancy. The scientific reports sometimes try to adjust for other contributory facts but even so the results are often suspect. That is particularly so where the effects are small or statistical confidence limits low, as they often are in such studies.

## **6. It's More Dangerous Inside**

Levels of air pollution within buildings (e.g. within homes or offices) can be several times that outside. To quote from a US Environmental Protection Agency (EPA) Report – see Reference 7: “Studies have found that levels of several organics average 2 to 5 times higher indoors than outdoors”. These come from paints, wood preservatives, aerosol sprays, cleansers, disinfectants, moth repellents, air fresheners and dry-cleaned clothes but other pollutants are animal hair, human skin and office printers/copiers.

“Levels of air pollution within buildings can be several times that outside”

## **7. Air Pollution and Population**

Air pollution in major cities is directly related to the population size and density. It's not just that more people need more transport whether it's buses, trains, cars and taxis or LGVs for delivering goods such as food. More people also cause more pollution from heating in homes and offices, or from industrial processes or building construction. The more dense a city is, then the more concentrated the air pollution is likely to be.

“More people cause more pollution.....”

This is one explanation for why air pollution in London has not improved in recent years as population growth and densification have been political policies of recent Mayors. London's population actually fell in post-war years but has in recent years been growing rapidly and is forecast to continue to do so. Former policies to redistribute the population to new towns have been abandoned and instead policies to promote more growth and “densification” of land development have been pursued. The overall population figure for the UK is also growing rapidly, contributing to air pollution, partly from immigration and such people tend to settle in the major urban conurbations.

## 8. What Should Be Done About Air Pollution?

The Government and Local Authorities are right to tackle the worse air pollution problems. Namely those roads where NOX and particulates from road transport exceed legal or recommended limits. But they also need to tackle the non-transport related emissions which we have listed above. Little attention has been paid to them.

As regards road transport, there are actually a large number of approaches that can be used. These include:

- Reducing traffic congestion (which increases emissions) by improving traffic flows at junctions, building more roads where appropriate to increase capacity, stopping the reduction in road space or traffic lanes and removing speed humps which cause vehicles to brake and speed up again and are a known cause of increased pollution.
- Encouraging the take-up of low emission electric, hybrid or alternative fuel vehicles by taxation or other fiscal incentives. This is already being done. But it needs to be focussed on the worse polluting vehicles such as diesel buses, HGVs, LGVs, taxis and Public Service Vehicles. Local authorities often have direct control over such vehicles (e.g. buses and taxis in London). Although big improvements are being made to some of these vehicles by some local authorities and bus companies, diesel buses and HGVs are still a major source of pollutants.
- Encouragement of the improvement in technology both in fuels and in vehicles. For example the latter includes reduction of particulates from brake and tyre wear which is now identified as a significant problem as other emission sources are reduced.
- Suppression of local emissions by green screening, road washing or by the use of air purifiers which are now widely available for homes and office.

Only if other measures cannot resolve the problem should more aggressive measures such as road closures, restrictions on what vehicles can be used on roads, or vehicle charges be imposed.

“Legislation should not be retrospective”

Any new legislation in this area should not be retrospective – for example, people who purchased vehicles that met regulations at the time should not suddenly find that they are going to suffer major charges unless they replace their vehicle. This particularly applies to those who purchased diesel vehicles at the behest of the Government and car manufacturers a few years ago.

## **9. Measures Taken Should be Proportionate and Cost Effective**

We suggest that bearing in mind that the impact of air pollution from vehicles, particularly from cars and motorcycles is relatively small, and will be reducing as the vehicle fleet turns over, we see no justification for aggressive restrictions on such vehicles or high charges being imposed on them.

### **There needs to be a proper cost/benefit justification for imposing restrictions or charges.**

For example, the expansion of the Ultra Low Emission Zone (ULEZ) in London will impose a total cost of £516 million on London vehicle users while the health benefit is valued at £7.1 million over 5 years. See Reference 9 below for details. This is simply unjustifiable.

We are opposed to “gesture politics” such as the imposition of higher parking charges on diesel vehicles which in practice will have minimal impact on emissions. If it is wise to discourage the purchase of diesel vehicles then this should be a matter for national Government, not local authorities and councillors who are “virtue signalling” or seeing it as an opportunity to raise revenue.

## **10. Conclusion**

In conclusion, let it be clear that the Freedom for Drivers Foundation is supportive of improving air quality in the UK, particularly in urban areas and on particular roads where transport is a major generator of emissions. But there is no public health crisis and measures to improve air quality should be both reasonable and moderate. If there ever was an air quality crisis, it was related to the conditions that created the London smogs of 1952 and 1962, decades ago. According to a recent report from Defra, since 1970 NOx emissions have fallen by 72% and Particulates (PM2.5) by 79% - see Reference 18.

The hysteria about air pollution is wrongly being used to generate tax revenues to local government (e.g. the ULEZ in London and similar proposals for other UK cities) without any justification in terms of cost/benefits. The likely improvement in air quality that will result will be unlikely to be noticed by residents because it will simply be too small and it will have no significant long-term impact on health.

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## About the Freedom for Drivers Foundation (FFDF)

The Freedom for Drivers Foundation is a not-for-profit organisation that promotes the interests of vehicle owners. We are independent and aim to represent the mass of individual road users in the UK. We promote your views to national and local Government bodies, and provide information to our supporters and the general public. We try to counter the misinformation spread by many people on the use of private vehicles, and we promote freedom of choice about how you travel.

The Freedom for Drivers Foundation campaigns for:

- More investment in roads
- Lower road taxes
- No road pricing or tolls
- Reduced traffic congestion
- Evidence-based road safety
- Improved parking provision

More information can be obtained from our web site at:

[www.freedomfordrivers.org](http://www.freedomfordrivers.org)

You can register to receive our newsletters here:

<https://www.freedomfordrivers.org/register.htm>



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