



Improving air quality: national plan for tackling nitrogen dioxide in our towns and cities

British Lung Foundation response

The British Lung Foundation is pleased to submit a response to the government's draft UK air quality plan.

Our response will outline:

- Our view that this plan needs to go further and faster to tackle this health crisis
- Our concerns around the lack of detail, coherence and clarity in this plan
- Our strong support for a UK-wide network of clean air zones in polluted towns and cities
- Our support for national incentives to help people make cleaner choices
- The need for a UK-wide public health campaign and policies that protect vulnerable lungs

All our lungs need clean air

Millions of people in towns and cities across the UK are breathing in levels of pollution that are illegal and harmful for their health. This could be increasing all their risk of getting lung cancer and cardiovascular disease. Latest estimates suggest that the equivalent of 40,000 lives are cut short each year from air pollution. ⁱ It's estimated this equates to a yearly cost of £27.5 billion to the Treasury. ^{ii iii}

The health impacts are worse for people who are most vulnerable - children, elderly people and people with a lung condition. Over 12 million people in the UK live with a lung condition. ^{iv} People with chronic obstructive pulmonary disease (COPD) and asthma face worsening symptoms, exacerbations and increased hospitalisation from acute and everyday pollution exposure. ^v On average, a severe COPD exacerbation costs the NHS £3,726 in England. ^{vi} We support 230 Breathe Easy support groups across the UK. Many patients who attend these groups tell us that pollution restricts their lives and changes what they are able to do with their day. We run a helpline that offers health advice and support to people who have questions about their lung health. Every year, our nurses answer over 17,000 calls. Every month, we receive numerous calls and emails from people who are concerned about air pollution - particularly from parents, schools and patients.

Here are just a few of their stories:

“Last year, I collapsed and was hospitalised. Doctors told me pollution had inflamed my lungs and put pressure on my heart. I was starved of air. This experience has made me very nervous. I always check the Defra website now before judging if I can venture out. If the forecast is for moderate pollution, that’s it - I have to stay inside.”

Carole who lives with COPD in Kent

“I love cycling around Manchester and find it helps me manage my lung condition. But one thing I don’t like is the amount of pollution I end up breathing in. It makes me feel very dizzy; every breath becomes a big effort. I already struggle with my breathing - when pollution is added to the mix, it’s really worrying.”

Dave who lives with bronchiectasis in Manchester

“My son ,Zain, was diagnosed with asthma last year. He was disappointed when he found out and didn’t like the idea of taking inhalers everyday. His symptoms get worse when pollution levels are high. Since we’ve moved back to London my husband has also found his asthma is much worse. Our consultant told us we’re living in one of the most polluted areas in the city. That’s what made me connect our choice of home with our wellbeing.”

Shazia and Zain who live in London

Children’s lungs are disproportionately vulnerable to air pollution as their lungs are still growing, making them less resilient. Children exposed to severe air pollution are up to four times more likely to have poor lung development compared to those growing up in less polluted areas.^{vii} They are also more susceptible to respiratory infections.^{viii} Everyday exposure to pollution has been shown to contribute to increased inflammation of the airways in healthy children and children with asthma.^{ix} Additionally, children’s height means they tend to be exposed to more roadside pollution and more particulate dust which rests at ground level.^{x xi}

Children with smaller lungs are more likely to face further health problems in later life.^{xii} Pollution can negatively impact on children’s development before they are even born, studies have linked pollution with low birth weight and pre-term birth, both of which can impact on children’s long-term lung development.^{xiii xiv}

Lung disease is the UK’s third biggest killer, costing the NHS £9.9 billion a year and business £1.2 billion through work days lost.^{xv} Despite the millions affected, there is currently no plan in place to evaluate or improve respiratory services. We urge the government to use this air quality plan as an opportunity to prioritise lung health and ensure ambitious policies are put in place to protect us all.

1. How satisfied are you that the proposed measures set out in this consultation will address the problem of nitrogen dioxide as quickly as possible?

We think this plan is a step in the right direction but it will need to go further and faster to meet the scale of this public health crisis. We do not feel it has been made sufficiently clear yet what actions will be taken, where they will be taken and how they will be implemented. We recognise modelling is still being carried out by Defra and that areas requiring clean air zones will be identified in the final plan. However, these issues should have been outlined and clarified in this plan for consultation. We don't think this plan, as it stands, provides a comprehensive and robust framework for tackling a major public health problem and it is difficult to assess how effective it will be based on what has been published. We urge the government to publish a strong, holistic and ambitious final plan.

We urgently need a comprehensive package of measures to bring air quality to safe and legal levels. This should include a national network of clean air zones that is supported by changes to the taxation system, national schemes to incentivise cleaner vehicles and a UK-wide public health campaign.

We need action that goes beyond legal limits

The UK is a long way from meeting legal levels of air pollution and even further away from reaching "safe" levels. The UK has been in breach of European emission targets since 2010 and is still a long way from meeting these. The technical guidance that accompanies this draft plan shows that over 40 local authorities in the UK will still be in breach of these targets in 2020 if no plans are put in place. While we recognise achieving legal compliance is a priority for this plan, we urge the government to remember that the UK is still far from achieving "safe" levels of pollution. The legal limits for particulate matter (PM₁₀) are over twice as high as those recommended by the World Health Organisation (WHO).^{xvi xvii} In reality, the WHO state there is no real "safe" level of pollution and that no level of exposure is good for human health. This plan should be striving to go beyond these legal limits and seeking to lower all pollutants to "safe" WHO levels.

We need a national network of charging clean air zones across the UK

We strongly support the measures laid out in the plan for a national network of charging clean air zones. The technical report shows that a network of charging clean air zones is the most effective way to deliver legal compliance in the shortest time possible. Over ten years, it is estimated to cost the government £600 million, but will deliver six times as much value in health benefits - £3,600 million. It is likely that these health benefits are even higher as these values do not include any morbidity costs, such as the cost of work days lost or direct costs to the health service.

	NO ₂ concentration impact - average reduction µg/m ³ by 2020	Cost to central government - over ten years (£million)	Health benefit - over ten years (£million)
Clean Air Zones	11.00	£600.00	£3,600.00
National retrofit programme	1.50	£4,500.00	£440.00
Scrappage scheme	6.30	£60,000.00	£10.00
Investing in Ultra-Low Emission Vehicles	3.00	£90,000.00	£50.00
Decreasing speed limits	Up to 4.5	£60.00	£1.00
Improving government buying standards	0.004	£5.60	£2.04
Vehicle labelling for consumers	0.13	n/a	£17.50
Influencing driving styles	4.20	£5,300.00	£8.70

Source: Defra (2017) Draft UK Air Quality Plan for tackling nitrogen dioxide - Technical Report - pg.56 - https://consult.defra.gov.uk/airquality/air-quality-plan-for-tackling-nitrogen-dioxide/supporting_documents/Technical%20Report%20%20Amended%209%20May%202017.pdf

The findings in the technical report are supported by successful experiences of implementing clean air zones in other cities across the world. A zone introduced in Berlin in 2008 (which included cars) and expanded in 2010 led to PM and NO₂ emissions 50% and 20% lower than the predicted trend.^{xviii} Even small reductions in vehicle numbers can lead to significant health benefits. The low emission zone which operated in Rome from 2001-2005, achieved a 4% reduction in total number of cars. NO₂ emissions decreased from 22.9 to 17.4 µg/m³ and PM₁₀ emissions decreased from 7.8 to 6.2 µg/m³. As a result of the policy, 264,522 residents who lived alongside busy roads gained an average 3.4 days of life per person.^{xix}

Inconsistent and misleading guidance for local authorities

However, we do not think the evidence in the technical report has been communicated clearly or consistently across the draft air quality plan. As noted above, the technical report states a national network of charging clean air zones is the most effective policy to achieve legal compliance, yet the consultation document states “charging zones should only be used where local authorities fail to identify equally effective alternatives.”^{xx} This guidance is misleading for local authorities and makes it difficult for them to champion a policy that is likely to be challenging to implement. The plan should support local authorities to implement the necessary measures to achieve legal compliance and protect all our health.

We agree that local authorities are best placed to make decisions for their local area and to identify local challenges. However, they require sufficient resources and expertise to make these decisions. This should include funding to carry out feasibility studies and employ air quality specialists, as well as guidance and support to develop clean air zone plans.

Additionally, the consultation document states that a charging clean air zone will only be approved if local authorities can “demonstrate value for money.” Yet, the technical guidance shows that charging clean air zones deliver the most value out of all policy options in both emissions reduction and health benefit, so this requirement is largely unnecessary. The court ruled that cost should not be a factor in planning how to achieve compliance, so it’s unclear why this cost criteria has been applied.

No clear plans for the devolved nations

This plan is meant to deliver legal levels of NO₂ throughout the UK, yet there are no further details on how compliance will be achieved in Wales, Scotland and Northern Ireland. The plan just outlines that further plans need to be written in these nations. It does not establish clear timelines or a consistent approach to this. The Scottish Government has already published a plan and committed to establishing a low emission zone by 2018, yet in reality there has been little transparency around how this plan is progressing. Action is also only being taken in one city, regardless of the fact that pollution is at illegal levels in numerous Scottish cities - Aberdeen, Dundee, Edinburgh and Glasgow. Given the highest rates of lung and heart disease in the UK can be found in Scotland,^{xxi xxii} much more will need to be done to protect the most vulnerable people.

The Welsh and Northern Ireland governments have not even published a plan yet. The Welsh Government state they will write and consult on their plan in the next year, yet in Northern Ireland no timeline or deadline has been provided. This patchwork approach across the nations does not reflect the urgency that is needed in delivering a UK-wide plan.

Many cities in these nations breach the legal limits for NO₂ and many of these places are still likely to breach in 2020 including Glasgow, Cardiff and Edinburgh. A comprehensive UK-wide plan needs to be written that sets clear timelines, objectives and resources for every nation. This will require Defra to work closely with devolved governments. Wherever people live in the UK, they all deserve to breathe clean air.

No measures to raise awareness or protect vulnerable communities

We recognise the proposed measures in this plan are designed to bring NO₂ levels down in the quickest way possible, but it is our view that these measures should be accompanied by policies that protect the most vulnerable communities. Improvement in air quality will not be immediate. During this transition time, the health of children, older people and deprived communities must be protected. We want to see:

- More monitoring outside schools, hospitals and care homes to provide data information to people so they can protect their health
- A UK-wide public health campaign
- Improvements to air quality alerts so they reach the most vulnerable people

2. What do you consider to be the most appropriate way for local authorities in England to determine the arrangements for a Clean Air Zone, and the measures that should apply within it? What factors should local authorities consider when assessing impacts on businesses?

Ambitious clean air zones

Previous policy interventions to tackle air pollution have not gone far enough. Clean air zones should be ambitious in size and scope. They should include all polluting vehicles, including private cars. We should learn from existing interventions where success has been limited. For instance, London's current Low Emission Zone has largely failed to deliver positive health outcomes. In the three years it has been operating there has been little evidence of air quality improvement or improvement in children's lung health.^{xxiii} This has been attributed to the lack of vehicles that it includes - it only includes large vehicles such as coaches, buses, lorries and light goods vehicles, rather than private cars. Additionally, the zone does not cover a wide enough area to be effective, and was modelled on an assumption that the real world emissions from vehicles are the same as those reported by manufacturers. Widespread evidence has shown this not to be the case. The Department for Transport's latest report found that some diesel cars break their own emission standard by a factor of 10.^{xxiv}

Clean air zones should be designed to:

- Meet local needs, identifying the biggest local polluters, and discourage their use via financial charges. Where necessary this should include cars.
- Measure real-world emissions using cameras or sensors, rather than capturing licence plates. This will more accurately identify the most polluting vehicles
- Cover a large enough geography to produce measurably lower emission levels. This area should cover and include public services (hospitals, schools, care homes) used by people who are most vulnerable to the health effects of air pollution
- Promote cleaner transport sources, including active travel where possible
- Be evidenced based, with measurable targets to improve health outcomes
- Either exempt blue badge holders and people who are exempt from vehicle tax for mobility reasons, or extend the time for these groups to replace their vehicle before charging.

Maximise the public health benefits of clean air zones

Clean air zones have the potential to deliver co-benefits across public health. They should be seen as a positive step towards creating cleaner and healthier urban environments. Zones should not just be areas that regulate vehicles, but also spaces that facilitate increased walking, cycling and affordable

public transport. Charging zones should be accompanied by targeted investment into alternative, cleaner transport options. We need to help people make the healthiest and cleanest choices.

Cleaner air will benefit vulnerable people the most and help tackle health inequalities across the UK. Local authorities should work with national public health bodies and local public health teams so that policies tackle a multitude of public health goals - such as improving lung health, increasing physical activity, reducing obesity and addressing health inequalities. Deprived communities are more likely to be exposed to toxic pollution levels, yet have less access to public transport, cycle paths, walking routes and green space.^{xxv} People in the poorest areas of the UK are twice as likely to have COPD and lung cancer compared to people living in the richest areas.^{xxvi} Children in more deprived areas are also likely to be at higher risk, 443 schools in London are located in areas that exceed legal levels of NO₂, 83% of these schools are considered deprived.^{xxvii} Reducing air pollution and promoting active travel will help create greener, safer and healthier communities.

3. i) How can Government best target any funding to support local communities to cut air pollution?

Target the most polluted areas where the most vulnerable people are exposed

Funding should be targeted to towns and cities where pollution levels are the most acute. Areas with high rates of lung disease should also be prioritised, such as Glasgow, Greater Manchester and Liverpool, where lung disease mortality rates are very high and health outcomes are consistently below average.^{xxviii} Funding should be allocated to achieve both environmental and health outcomes. It should be allocated across council departments to facilitate cross-departmental working between health, transport and environmental health teams.

Prioritise funding for schemes that protect vulnerable groups

Evidence shows that the impact of air pollution is felt the most by those whose lungs are already vulnerable - the elderly, children and people with a lung condition. Therefore, funding should be prioritised for schemes that seek to engage and protect vulnerable groups. We think this should include projects that provide data and health information to schools, care homes and hospitals.

ii) What options should the Government consider further, and what criteria should it use to assess them?

Ambitious health targets and outcomes

The government should set national health targets for this air quality plan. These should include targets to reduce early deaths from air pollution and reduce respiratory hospital admissions in the next five years. Respiratory mortality outcomes across the UK have seen little improvement in the last ten years. The government should use this plan to put in place ambitious health targets that improve all our lung health.

Lung disease accounts for over 700,000 hospital admissions in the UK each year. Lung diseases place a huge and unsustainable strain on NHS hospitals most winters. A&E hospital admissions across England for respiratory disease are rising at double the rate of general admissions,^{xxix} and regularly outstrip those for heart disease, digestive and musculo-skeletal problems. While air pollution is by no means the sole reason for these admissions, improving air quality will help support our struggling health services. Public Health England looked at the impact of two air pollution episodes (related to particulate matter (PM_{2.5}) over a 10-day period in March and April 2014. It was found that the total burden of emergency hospital admissions for respiratory and cardiovascular causes associated with short-term exposure to PM_{2.5} was estimated to be around 1,500 across the United Kingdom (around 3.5% of total emergency respiratory and cardiovascular hospital admissions).^{xxx}

Likewise, Defra should recommend that local authorities put in place respiratory health outcomes and targets. These targets should be measured and monitored alongside emission reduction targets.

Population exposure to particulate matter, PM_{2.5}, is used as the basis of the Public Health Outcomes Framework (PHOF) Indicator 3.014. As recognised in Defra's guidance to public health directors, this indicator should just be used as a starting point and local authorities should gather more information to gain a more accurate and detailed picture of air pollution exposure.^{xxxii} The air quality plan should reinforce the need for public health teams to focus on all pollutants and to ascertain a detailed picture of people's exposure. The guidance for public health directors should be referenced in the plan as well as the National Institute for Health and Care Excellence (NICE) guidelines for outdoor air quality.

Local authorities should work with clinical commissioning groups (CCGs) and sustainability and transformation plans (STPs) across the UK to ensure that respiratory outcomes are aligned and embedded with health planning. Particular alignment is needed in the 15 areas where respiratory has been identified as a local priority - North West London, Hertfordshire & West Essex, Milton Keynes, Luton and Bedfordshire, Cambridge and Peterborough, Dorset, Somerset, Bristol, North Somerset & South Gloucestershire, Cornwall & the Isles of Scilly, Hampshire & the Isle of Wight, Frimley, Northamptonshire, Derbyshire, Northumberland, Tyne and Wear & North Durham, West Yorkshire and Harrogate, Greater Manchester. A holistic approach to tackling air pollution must be taken across transport and health planning to ensure that outcomes are delivered across local and national government.

iii) Are there other measures which could be implemented at a local level, represent value for money, and that could have a direct and rapid impact on air quality?

We think a combination of the measures in this plan should be put in place to support a national network of clean air zones. To ensure a clean air zone network is effective it should be supported by:

- Ring-fenced funding for cycling and walking infrastructure in areas with high pollution levels
- A UK-wide public health campaign
- National schemes to retrofit public transport and emergency services
- National funding and infrastructure for electric vehicles
- A national diesel scrappage scheme

iv) How can Government best target any funding to mitigate the impact of certain measures to improve air quality, on local businesses, residents and those travelling into towns and cities to work?

A targeted diesel scrappage scheme

Many drivers purchased their diesel cars in good faith. In a 2015 BLF survey of lung patients, 49% of respondents said they bought a diesel car because it was better for the environment and 48% bought it as it was cheaper to run.^{xxxiii} The government should invest in schemes that help people make cleaner decisions and that send a clear message to drivers on the best vehicles to drive.

We strongly support the introduction of a national targeted diesel scrappage scheme. This scheme should enable people to trade their cars in for a discount on a cleaner vehicle - an electric or hybrid. The government should also consider a scheme where old cars could be traded in for a discount on season tickets, car club membership or bicycles. Vehicles that are available through this scheme should be drawn up from a prescribed list of real-world emission tested vehicles. It should not be

possible to trade in a polluting vehicle for a second-hand vehicle. This scheme should be targeted at the most polluted urban areas.

We do not support the proposal that these schemes could be run by local authorities. The scheme should be managed and funded by national government to ensure it benefits the people who need it most. Without national management, there is a risk the scheme will be inconsistent and patchy. The scheme should be targeted to the people who need it, not just rolled out in the local authorities where funds are available.

The scheme should be targeted to low-income communities and people with long-term health conditions. It should first target vehicles that are the most polluting.

There should be two categories of discount: one for the general public, and another for blue badge holders and those with disabled tax class vehicles. The second discount should be more generous, allowing people with mobility issues to upgrade to a cleaner vehicle at minimal cost, to enable them to continue to drive where they are physically unable to use clean public transport. Blue badges must be uniformly provided by local authorities to all eligible people with a lung condition following a needs assessment.

A UK scrappage scheme could be designed on the French 'FeeBate' scheme, where a government rebate of up to €1,000 is paid the purchase of a new low emission vehicles, while a purchase tax is placed on high emission vehicles of up to £10,000.^{xxxiii} Assuming a £1,000 government rebate was offered in the UK, and all two million diesel cars which run Euro 1, 2 and 3 fuels were scrapped, the scheme would cost £2 billion.^{xxxiv} Scrappage schemes are generally popular - the UK Government's 2009 scrappage scheme led to almost 400,000 older cars being traded in (as projected).^{xxxv}

A national, fair and equitable exemption framework

We recognise that the most vulnerable communities will benefit the most from improvements in air quality. However there is a risk that clean air zones could disproportionately impact those with mobility challenges. We urge Defra to recommend local authorities carry out thorough health impact assessments that assess the impact on people over 65 with long-term health conditions. We need a national exemption policy that ensures people with blue badges and disabled tax class vehicles get a longer time to change their vehicles, or are exempt from charging zones. While the patients we support overwhelmingly support action to clean up our air, we need to make sure they are not penalised financially as a result of their health conditions.

Many people with long-term and advanced respiratory conditions have reduced mobility and are likely to be over 65. Most COPD patients are not diagnosed until they are in their fifties, with the average age of death being 76.^{xxxvi} People with advanced COPD often struggle to walk, rely on an oxygen cylinder to breathe and rely on cars to get to health appointments, to work or to socialise. Patients often tell us it is difficult for them to use public transport, because they're not able to walk long distances, use stairs or access stations. They may not always identify as disabled and are often described as having an "Invisible illness." Many of these people are likely to be in receipt of attendance allowance and/or have a blue badge, however we are also aware that many patients we support do not realise they are eligible for these benefits.

There is a risk that clean air zones could exacerbate existing health inequalities. People living with disabilities and long-term conditions are more likely to come from a low-income background and have less money to upgrade their vehicle. Around a third of all disabled adults aged 25 to retirement are living in low-income households. This is twice the rate of that for non-disabled adults, as it has been throughout the last decade.^{xxxvii}

There are over 880,000 people across the UK who are in receipt of a blue badge.^{xxxviii} It is unclear how many of these people have a lung condition, however we would be delighted to work with the government to ensure these people are adequately consulted and supported in the transition towards establishing clean air zones.

4. How best can governments work with local communities to monitor local interventions and evaluate their impact?

Support with data collection that reflects air quality exposure

Funding and guidance should be provided to local authorities to improve the collection of data on air quality exposure. The majority of current air quality data does not reflect the quality of air that the most vulnerable people are breathing in. For example, a freedom of information request by the BLF to local authorities found that 57% of respondents (182 out of 322) were not monitoring air pollution within 10 metres of any of their schools.^{xxxix} In the places identified by the WHO as having harmful levels of PM₁₀, 23% were not monitoring pollution outside schools, with 47% monitoring one to two schools and 30% monitoring over two schools.^{xl} This inconsistent approach to monitoring has resulted in a patchwork approach to data collection across the UK, and means parents and schools don't have the data they need to protect children's health.

Defra should amend LAQM guidance to require local authorities to introduce air quality monitors within 1km² of each schools, hospital and care home. Monitoring must be regular with reporting suitable for all audiences. Improved air quality monitoring will allow measurement against pollution reduction targets, allow services to protect the health of their vulnerable users, highlight which routes are safest for travelling to them, inform public advice and warnings and provide a more detailed picture of pollution exposure.

Support with more funding, resources and expertise

FOIs submitted earlier this year found that many local authorities are struggling to meet local air quality monitoring requirements because of financial challenges.^{xli} These findings were supported by a survey from the Local Government Information Unit who found that three-quarters of local councils had little or no confidence in the sustainability of local government finances and more than one in 10 believed they were in danger of failing to meet legal requirements to deliver core services.^{xlii} Overwhelmingly, council leaders stated that social care pressures were their top priority. This air quality plan does not reflect the financial and policy challenges that local authorities are already facing. To ensure that local authorities can prioritise air quality, they must receive adequate funding, resources and expertise.

5. Which vehicles should be prioritised for government-funded retrofit schemes?

Public transport and emergency services should be prioritised for retrofit

Old public transport vehicles in polluted areas and along the most polluted routes should be prioritised for retrofit. This should include taxis, buses and trains. While we strongly support the introduction of charging clean air zones, these should be accompanied by meaningful investment in cleaner public transport. As well as investment to make public transport more efficient and affordable. Emergency vehicles, such as ambulances, should be prioritised for retrofit, as they transport vulnerable people.

In the long-term, we not only have to clean up the polluting vehicles on our roads but reduce the number of vehicles all together. This will require a modal shift towards walking, cycling and public

transport. Therefore, cleaner and more affordable public transport should be a priority in this government plan.

6. What type of environmental and other information should be made available to help consumers choose which cars to buy?

Accurate, robust and relevant health information through a public awareness campaign

The government should ensure that drivers receive clear and accurate health information on air pollution. We need a UK-wide public health campaign to ensure that everyone knows how exposed they are to air pollution, how they can protect themselves and how they can be part of the solution.

Many drivers are not aware how exposed they are to air pollution in their own car. Studies have found that drivers actually breathe in higher amounts of pollution than cyclists on the same road. For the cyclist, emissions dissipated into the wider atmosphere which reduced their exposure but for the car driver, these emissions were circulated and built up in the cabin.^{xliii} The government should include this as a key message to drivers in a national health campaign. As well as clear health advice on how they can reduce their exposure.

A campaign based on clear, accurate and robust health information will ensure that people know how to protect themselves. It will also help dispel myths around pollution exposure and reassure people that they are taking effective steps to protect themselves. For instance, we are often contacted by members of the public and organisations who are keen to use face masks. The majority of face masks do not effectively protect people from pollution, as small particles are still able to get through any gaps.

Studies have shown that providing the public with clear, concise and meaningful data and information on air pollution significantly helps raise awareness of the problem. However, if this data is not accompanied with clear ways in which people can reduce their exposure people often report feeling “powerless” and unable to protect themselves.^{xliiv} Health advice could be delivered in partnership with trusted voices such as health charities and/or health practitioners. It should also be written in simple and easy to understand language that is tailored for different groups. This campaign should seek to target hard to reach groups and vulnerable people. The British Lung Foundation would be very happy to work with Defra to support such a campaign.

Amend the tax system to ensure drivers have accurate information at point of purchase

The tax system should be amended to ensure that the most harmfully polluting vehicles are paying the most tax. We are pleased the government has recognised the role of tax system in facilitating the rise in diesel vehicles on our roads and urge them to address this in the Autumn Statement. It’s unfortunate that no measure has been proposed to amend tax in this plan.

We want HM Treasury to reform vehicle excise duty (VED) to factor in NO₂ and PM emissions when calculating VED bands. Alongside this the Government should increase funding for alternatives to private car travel - such as clean public transport (retrofitting and procuring zero emission buses) and active travel (including walking, cycling, and wheelchair usage), with built environment improvements to support these changes. These policies must be part of a package including a scrappage scheme and investment in public and active travel, to not unfairly impact on people who drive diesel cars and do not have access to alternative modes of travel.

Diesel cars produce more NO₂ and PM₁₀ than petrol cars, depending on their emissions standard: Euro 4 (2005) diesel cars produce over three times more NO₂ than Euro 4 petrol cars, with Euro 5 (2009) producing three times as much, and Euro 6 (2014) producing 25% more than their petrol equivalents of

the same Euro stage.^{xlv} In 2014, diesel cars constituted over half of all cars sold and over a third of the total car fleet - up from a tenth in 1995.^{xlvi} Diesel in the light goods vehicle fleet increased from half in 1994 to almost all in 2014.^{xlvii} Leaders in other global cities have recognised this, the mayors of Paris, Mexico City, Madrid and Athens have all committed to banning diesel by 2025 and incentivising cleaner transport options.^{xlviii}

Currently, diesel cars fit in lower VED bands as diesel releases less CO₂,^{xlix} despite releasing more harmful pollutants compared to petrol cars of a similar Euro stage. VED bands are based on engine size, or fuel type and CO₂ emissions, depending on registration date.^l Models show a near total phase out of diesel cars in inner London would result in nearly all of London complying with legal NO₂ limits 2025, saving 1.4 million life years with economic benefits of up to £800 million.^{li} This modelling shows that policies to phase out diesel will need to be ambitious to achieve change.

Defra evidence shows that financial incentives are effective in influencing behaviour.^{lii} A change to the tax system will send a clear message to drivers about which vehicles are the most polluting. It will help dis-incentivise the purchasing and maintenance of polluting diesel vehicles, leading to a long-term phase-out. We do not support an additional tax on diesel at the pump, which could significantly impact on the cost of living.

7. How could the Government further support innovative technological solutions and localised measures to improve air quality?

National public health alerts and improved health information

Improvements to air quality will not be immediate. During this transition time, the health of children, older people and people with a lung condition must be protected.

Many of the people we support are affected when pollution levels are high, yet many say they struggle to access timely and localised information on pollution. Good progress has been made in London - on high and very high pollution days, Transport for London has started issuing alerts at 2,500 bus stops, 140 road side locations and all tube stations. These steps are very welcome, however people living in other cities across the UK are not benefitting from the same support. Everyone deserves to have access to relevant data and health advice so they can reduce their exposure.

Likewise, many of the people we support are signed up to pollution alert services such as AirText and LondonAir. In April 2016, 10,962 people across London were signed up to receive pollution alerts from AirText. We are aware of numerous health alert services in London and the South East, in Scotland and Northern Ireland, but many more local authorities still do not have a service. Defra should set out a national approach to delivering alerts across the country to the most vulnerable people. These alerts need to be in accessible format, localised and timely. We would be happy to support Defra to deliver and signpost people to these alerts.

The Defra UK-Air website was established to facilitate information sharing between national and local government. We recognise that improvements have been made but we still do not think it is user-friendly service for the general public. It is difficult to find relevant, localised and timely air pollution information on the site. This website also relies on people being able to access the internet and for them to go searching for the data - something that older, less tech savvy people struggle to do. Defra should review the current website and look at how it can better serve the people who need it.

Additionally, Defra should:

- Introduce mandatory monitoring of PM_{2.5} by local authorities across the UK, particularly where populations are exposed to high levels of pollution.
- Work with NICE to update guidelines for healthcare professionals on relevant conditions to offer advice on managing pollution exposure.

14. Do you have any other comments on the draft UK Air Quality Plan for tackling nitrogen dioxide?

Lack of measures to protect children's health

This plan has not clearly set out how the government will ensure children's health is protected. As outlined above, children are particularly vulnerable to the impacts of air pollution. Research from Greenpeace found that over 2,000 schools and nurseries are situated within 150 metres of a road emitting illegal levels of NO₂.^{liii}

We strongly support the production of school travel plans and urge the government to encourage schools to ensure low pollution routes are put in place for students. All schools should be provided accurate and clear health advice on air pollution. Defra should consult widely with schools, children and parents to ensure they have the information and support they need to reduce children's exposure to air pollution.

Additionally, planning applications for schools, care homes, hospitals and doctors surgeries in areas with illegal air quality should not be considered.

Introduce real-world emissions testing for all vehicles

We want UK governments to work with pollution and transport experts to develop new real-world emissions testing for all vehicles. Real world testing typically involves driving a vehicle for around 1.5 hours over a test route on public roads and measuring emissions.^{liv} This will provide consumers with accurate pollution information. Once standards have been developed, governments should require:

- Local authorities to assess new and existing bus stock using this test, to ensure compliance.
- New cars to be sold with a compulsory energy certificate similar to that for household products.
- Vehicles to clearly display official stickers/signage indicating the pollution rating of each car.
- Use real world emissions data in modelling air pollution.

Real world emissions testing is required as laboratory testing is unreliable.^{lv} Independent reports suggest diesel cars produce higher levels of emissions under real-world driving conditions than their own emissions standards suggests - some breaking their own emission standard by a factor of 10.^{lvi}

About the British Lung Foundation

The BLF is the only UK charity looking after the nation's lungs. We offer hope, help and a voice. Our research finds new treatments and cures. We help people who struggle to breathe to take control of their lives. And together, we're campaigning for better lung health. With your support, we'll make sure that one day everyone breathes clean air with healthy lungs.

For further information, please contact:

Harriet Edwards
 Policy and public affairs officer
 Harriet.edwards@blf.org.uk
 0207 688 5827

- ⁱ Royal College of Physicians (2016) Every breath we take: the lifelong impact of air pollution p.3
- ⁱⁱ DEFRA (2015) Report: Valuing the impacts of air quality on productivity
- ⁱⁱⁱ Department for Environment, Food and Rural Affairs (2016) Committed Clean Air Zone Impact Assessment p.12
- ^{iv} The British Lung Foundation (2016), The Battle for Breath: the impact of lung disease in the UK, May 2016 <https://www.blf.org.uk/what-we-do/our-research/the-battle-for-breath-2016>
- ^v Halonen et al, (2008) Urban air pollution, and asthma and COPD hospital emergency room visits, *Thorax* Jul; 63(7):635-41. doi: 10.1136/thx.2007.091371. Epub 2008 Feb 11. p365
- ^{vi} McLean et al (2016) Projecting the COPD population and costs
- ^{vii} Anderson, J. et al (2012) Clearing the Air: A Review of the Effects of Particulate Matter Air Pollution on Human Health. *J Med Toxicol*, Volume 8, pp. 166-175. p.170
- ^{viii} Macintyre, E.A., Gehring, U., Molter, A., Fuentes, E., Klümper, C., Krämer, U., et al. (2014). Air pollution and respiratory infections during early childhood: An analysis of 10 European birth cohorts within the escape
- ^{ix} Sara D. Adar et al, Adopting Clean Fuels and Technologies on School Buses: Pollution and Health Impacts in Children *Am J Respir Crit Care Med*, Apr 2015
- ^x Kenagy, H.S. Lin, C. Wu, H. Heal, M.R. (2016) Greater nitrogen dioxide concentrations at child versus adult breathing heights close to urban main road kerbside *Air Qual Atmos Health*. 2016;9:589-595. Epub 2015 Sep 15.
- ^{xi} Columbia University School of Nursing, 'Incidents Affecting Children', accessed 13 July 2016
- ^{xii} Stocks, Janet, and Samantha Sonappa, 'Early Life Influences on the Development of Chronic Obstructive Pulmonary Disease', *Therapeutic Advances in Respiratory Disease*, vol. 7, no. 3, 2013, pp, 161-173.
- ^{xiii} Pedersen M et al, (2013) Ambient air pollution and low birthweight: a European cohort study (ESCAPE), *The Lancet Respiratory Medicine*, Volume 1, No. 9, p695-704 p.695
- ^{xiv} Shah PS, Balkhair T (2011). Air pollution and birth outcomes: a systematic review. *Environment International*, 37(2):498-516.
- ^{xv} British Lung Foundation (2017) Estimating the economic burden of respiratory illness in the UK
- ^{xvi} World Health Organisation (2016) Ambient (outdoor) air quality and health: Factsheet number 313
- ^{xvii} European Commission (2016) Air quality standards
- ^{xviii} German Partnership for Sustainable Mobility (2014) *Clean Air - Made in Germany* p.26
- ^{xix} Cesaroni G, Boogaard H, Jonkers S, et al Health benefits of traffic-related air pollution reduction in different socioeconomic groups: the effect of low-emission zoning in Rome *Occupational and Environmental Medicine* 2012;69:133-139.
- ^{xx} DEFRA (2017) Air Quality Plan: a consultation, page 10, https://consult.defra.gov.uk/airquality/air-quality-plan-for-tackling-nitrogen-dioxide/supporting_documents/Consultation%20Document.pdf
- ^{xxi} The British Lung Foundation (2016), The Battle for Breath: the impact of lung disease in the UK, May 2016
- ^{xxii} British Heart Foundation (2017) Heart statistics - <https://www.bhf.org.uk/research/heart-statistics>
- ^{xxiii} Mudway et al (2015) Effects of Air Pollution and the Introduction of the London Low Emission Zone on the Prevalence of Respiratory and Allergic Symptoms in Schoolchildren in East London: A Sequential Cross-Sectional Study, Accessed: 15 Nov 2016
- ^{xxiv} Department for Transport (2016) Vehicle Emissions Testing Programme: Moving Britain Ahead p.22
- ^{xxv} Public Health England (2016) Working Together to Promote Active Travel: a briefing for local authorities
- ^{xxvi} The British Lung Foundation (2016), The Battle for Breath: the impact of lung disease in the UK, May 2016 <https://www.blf.org.uk/what-we-do/our-research/the-battle-for-breath-2016>
- ^{xxvii} Mayor of London (2016) Analysing Air Pollution Exposure in London, Accessed: November 2016
- ^{xxviii} The British Lung Foundation (2016), The Battle for Breath: the impact of lung disease in the UK, May 2016 - BLF statistics - <https://statistics.blf.org.uk/>
- ^{xxix} Accident and Emergency Departments - Admissions: Written question - 64242
- ^{xxx} Written Question (2017) UK Parliament: 66430 - 3 March 2017 - Kerry McCarthy MP
- ^{xxxi} Defra (2017) Air Quality: Public Health Directors briefing <https://laqm.defra.gov.uk/assets/63091defraairqualityguide9web.pdf>
- ^{xxxii} British Lung Foundation (2015) Patient survey, 232 respondents - available on request
- ^{xxxiii} Elphicke, C (2017) A fair deal for diesel drivers. Available at <http://www.elphicke.com/downloads/a-fair-deal-for-diesel-drivers.pdf> [Last accessed: 11/04/17]
- ^{xxxiv} Ibid
- ^{xxxv} Department for Business, Innovation and Skills (2014) FOI release: Car scrappage scheme in 2009
- ^{xxxvi} Gardiner et. al (2010) Exploring the care needs of patients with advanced COPD: An overview of the literature, <http://www.sciencedirect.com/science/article/pii/S0954611109003059>
- ^{xxxvii} The Poverty Site (2017) Low income and disability, <http://www.poverty.org.uk/40/index.shtml>
- ^{xxxviii} Department for Transport (2017) Blue Badge Scheme Statistics: England 2015, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/479200/blue-badge-scheme-statistics-england-2015.pdf
- ^{xxxix} Vidal, J (2016) 'Councils failing to monitor most British schools for dangerous air pollution' *Guardian*, 6 Oct 2016
- ^{xl} Ibid
- ^{xli} Desmog (2017) <https://www.desmog.uk/2017/05/19/local-authority-air-pollution-reporting-failures>
- ^{xlii} LGIU (2017) <http://www.lgiu.org.uk/briefing/lgiu-2017-state-of-local-government-finance-survey/>
- ^{xliiii} Rank (2001) Differences in cyclists and car drivers exposure to air pollution from traffic in the city of Copenhagen, <http://www.sciencedirect.com/science/article/pii/S0048969701007586>
- ^{xliv} Christian Oltra & Roser Sala & Alex Boso & Sergi López Asensio (2017) Public engagement on urban air pollution: an exploratory study of two interventions, *Environ Monit Assess* (2017) 189:296
- ^{xlv} Transport and Environment (2015) Don't Breath Here p.47
- ^{xlvi} IPPR (2016) Lethal and illegal: London's air pollution crisis p.10
- ^{xlvii} Ibid
- ^{xlviii} McGrath, Matt (2016) *Four major cities move to ban diesel vehicles by 2025*. BBC News, 2 December 2016
- ^{xlix} Office for Low Emission Vehicles (2016) *Tax benefits for ultra low emission vehicles* p.2
- ^l Ibid
- ^{li} Laybourn-Langton L, Quilter-Pinner H, Ho H (2016) *Lethal and Illegal: Solving London's air pollution crisis, IPPR*
- ^{lii} Department for Environment, Food and Rural Affairs (2016) Exploring and appraising proposed measures to tackle air quality: project summary report for contract AQ0959 p.8
- ^{liii} The Guardian (2017) <https://www.theguardian.com/environment/2017/apr/04/thousands-of-british-children-exposed-to-illegal-levels-of-air-pollution>
- ^{liv} Department for Transport (2016) *Vehicle Emissions Testing Programme: Moving Britain Ahead* p.17
- ^{lv} Spence, P (2015) VW emissions scandal: what's it all about?, *The Telegraph*, 4 November.
- ^{lvi} Department for Transport (2016) *Vehicle Emissions Testing Programme: Moving Britain Ahead* p.22