Does Scotland have the right policies (Clean Air for Scotland Strategy), support and incentives in place to adequately tackle air pollution?

First does not believe that there is a clear demonstration that the Clean Air for Scotland Strategy will solve the current and future problems with air quality in Scotland. The Strategy has committed to certain actions in respect of buses and coaches including “review support for green buses”, “Evaluate the Bus Investment Fund”, “review the Bus Operators Grant” and “review guidance and legislation on the powers of local transport authorities”, all to be complete by 2016. None of these has had a positive outcome for improving the ability of bus operators to procure and operate efficiently new “green” vehicles – indeed the incentive to operate low carbon low emissions vehicles has been reduced due to the cut in the enhanced level of Bus Operators Grant (BOG) previously available.

It is important that action is taken that addresses the source of the air quality problems rather than simply being seen to be taking action, even if that action does not solve the problems. So the first stage has to be identification of the problems before deciding on strategies that may not be appropriately targeted. Local circumstances will cause this to be different in every area therefore a locally tailored approach is recommended – there is a need to ensure that the solution does address the problem, but in a way which avoids adverse consequences. So for instance imposition of emissions standards on local buses which are too high, too soon could result in reduced levels of service and increased fares as the only means of operators being able to afford in the required investment – this will work against the government’s objectives to increase public transport modal share, as well as being potentially harmful to the local economy and local businesses.

How does the Scottish policy fit with the UK and EU policy on air quality?

The National Air Quality Strategy published most recently on 27 July as the “UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations” takes a much less prescriptive approach to solving such problems and, whilst continuing to devolve responsibility to local authority level, has not continued to promote an area wide approach nor to concentrate as heavily on bus and coach emissions as previously seen in the Clean Air Zone proposals. This Plan has been produced in order to comply with EU air quality policy and we see the future Scottish policy as fitting within the framework set by both of these.

Are the policies sufficiently ambitious?

The real problem is with unfettered use of private cars and vans, which not only contribute the highest proportion of airborne pollution, but also create congestion. Congestion increases the operating costs of buses by making journeys longer and less predictable in terms of journey times, but also make bus and coach travel less attractive as these increased journey times deter passenger use.

Advice from central government will help local authorities in their identification of the problem and potential solutions. Taking a wider view of the measures that may improve the situation through consideration of wider transportation and land use planning issues is likely to yield wider economic and societal benefits for the local area.
Reallocation of road space to favour public over private transport and ensuring that new development can be accessed in a sustainable and environmentally friendly manner are examples of the action that could be taken. Space currently used for roadside parking can be made available as an additional running lane which can provide bus priority without adversely affecting the efficiency of operation of other traffic. Any vehicles caught in traffic congestion are a major cause of air pollution, whether cars, HGVs, LGVs or buses – but bus priority is invariably cheap and deliverable, with rapid payback in better services, while adding wider economic benefits. Recent work for Greener Journeys by KPMG has shown that bus lanes enable more effective management of road-space and speed up journeys offering value to the taxpayer, and that effective investment in bus infrastructure generates £3.32 (and up to £7 in some cases) of benefit for every £1 invested. If we create conditions in which buses can be driven more smoothly at optimum engine efficiency, they will emit less emissions— in Oxford, recent data demonstrates that streets with bus priority exhibited a 19% reduction in NOx over 10-year period. And bus priority creates a virtuous circle— enabling buses to offer better, faster, more reliable and punctual service, so generating additional patronage and revenue providing more money to invest in cleaner vehicles. Conversely, without action to improve the efficiency of bus operation, principally bus priority measures, the business case for such investment is jeopardised.

Are the powers and resources of Local Authorities and SEPA to address air pollution adequate?

This is not a question which First considers it has the ability to answer objectively. However, it is apparent that there is a shortage of local authority resource allocated to enforcement of traffic regulations designed to permit the smooth operation of the highway network through punishment of parking violations and removal of offenders, which would enable bus services to be operated more quickly, more punctually and more efficiently.

Are the policies and delivery mechanisms (support and incentives) being effectively implemented and successful in addressing the issues?

First appreciates that the low carbon agenda is a different one to reducing airborne pollution, but the two are inextricably linked. The most modern fuel efficient buses not only have lower carbon production but also emit less NOx and particulates. The low carbon bus fund and BOG both have the potential to make investment in the latest fuel efficient and low emissions buses more affordable for operators. The benefits that these schemes can bring for operators of these vehicles need to be preserved. The reduction in the rate of BOG for low carbon buses was cut from 14.4p per km to 10.1p per km in 2017— this acts against policies to reduce carbon production and improve air quality.

Is Scotland on target to have a pilot low emission zone (LEZ) in place by 2018 and should there be more than one LEZ pilot?

First considers that this is not an appropriate question to ask. Putting pilot zones into operation does not in itself resolve air quality problems. Taking appropriate action to solve the problems, by replacing current high pollution transport use with greener and cleaner alternatives, would be more beneficial to the environment.

How should the improvement of air quality be prioritised in areas where there have been persistent breaches of NO2 limit values?

It is necessary to address the source of the problem. Measures such as Clean Air Zones recommended in the national Air Quality Framework are not necessarily going to achieve this. Mandating for instance that buses and coaches meet the Euro VI emissions standards does nothing to solve the air quality problems caused by non-transport activity, and within
transport does not address highly polluting diesel cars and vans, nor non road use such as rail and waterborne emissions.

**Is adequate consideration given to air pollution from agriculture?**

This is not a question which First considers it has the ability to answer objectively.

**Are there conflicts in policies or barriers to successful delivery of the air quality objectives?**

Yes – imposing expensive standards on bus operators will lead to higher costs which operators cannot afford to absorb, leading to higher fares and/or fewer and more infrequent bus services which will effect modal transfer back to the less efficient and more polluting private car. More needs to be done to maximise the benefits of bus use as set out below.

Bus is the main mode of travel to city centres and is the backbone of our passenger transport system, carrying three times as many passengers as rail (National Travel Survey, Table NTS0409, 2015 data). Buses get people out of private vehicles and into shared transport - the more switching from car to bus, the cleaner the air we breathe – for every car driver that swaps to bus, over **0.5 grams** less of NOx will be emitted to the local environment for each kilometre driven. Bus is also able to increase capacity and frequency, and meet new areas of demand, quickly and flexibly. By contrast, heavy and light rail take years to design, procure and build.

Professor David Begg, working with Greener Journeys, has recently undertaken a comprehensive study of the contribution buses can make to solving air quality problems.


http://www.greenerjourneys.com/publication/tackling-pollution-congestion/

The latest diesel bus designs offer excellent air quality performance - Euro VI buses emit up to 99.5% less NOx emissions and 98% less PM emissions compared to buses purchased 10 years ago. Unlike cars, Euro VI buses deliver ultra-low emissions on the road not just in the test lab. Recent test comparing real-world heavy duty Euro VI bus emissions with real-world Euro 6 diesel car emissions found average NOx emissions from buses of 165 mg/km, nearly one-third or better of the average emissions from Euro 6 cars (480-560 mg/km) (http://www.theicct.org/nox-europe-hdv-ldv-comparison-jan2017). Given that on average a bus is carrying 11.4 passengers and a car 1.5 persons, per capita bus emissions are at least 23x lower compared with the cleanest diesel car. However, due to the typical 15-20 year service life of buses and coaches, these vehicles are still relatively uncommon when the entire vehicle fleet is considered and it will take a long time to achieve 100% Euro VI coverage. But there is a need to consider the potential impact of restrictions on buses that are “too strict, too soon” – such investment is very costly and may result in the perverse effect of fewer, and less affordable, bus services.

Alternative fuels - both gas and electric - have a significant cost premium, particularly capital but also potentially operating costs, due to unknowns in terms of whole life costs – and other as yet not fully resolved issues including infrastructure (need for additional electrical substations); range and longevity (in particular of battery packs). Hydrogen fuel cell and similar advanced technologies are practically unaffordable without significant funding support. Diesel electric hybrids are now proving less reliable than anticipated and in many cases not fulfilling their original promise in terms of improved fuel efficiency. So mainstream diesel will remain the prevailing power source and bringing older vehicles up to the Euro VI
standard is likely to maximise the benefits. Source – FirstGroup evidence to consultation on National Air Quality Strategy, July 2017 (unpublished at date of submission).

Inappropriate traffic calming measures can cause adverse effects on local bus service operation and emissions NOx and particulates can be increased by 18-78% – evidence is available from TAS Technical Note “Understanding the Time and Emission Impact of Speed Humps and Tables” June 2017. Other transport modes make significant contributions to NOx emissions – for instance heavy rail, where electric trains produce zero NOx at point of operation but only 25% of the network (709km out of 2819km) is currently electrified (Table 7.14 Scottish Transport Statistics). Ferries and in particular air travel also contribute significantly to air quality problems but as yet research material is not readily available. https://www.transport.gov.scot/publication/scottish-transport-statistics-no-35-2016-edition/

There will be costs to business arising from any measures which require investment. For the bus industry, imposition of emissions standards as has already been mooted for Clean Air Zones will require accelerated investment, for either new build or retrofit. This needs to be affordable in the first instance for those businesses. Where it is affordable, it introduces an increase to operating costs which could result in reduced services or increased fares, both of which will reduce the relative attraction of bus travel and potentially act against wider objectives of accessibility, sustainability and de-carbonisation. Therefore, measures which can alleviate the impact of this through improving efficiency of operation and making bus services more punctual and quicker through removing them from the adverse effects of congestion will help maintain the balance in favour of public transport. Government should issue advice and guidance to local authorities to emphasise the importance of these issues. As demonstrated by research by KPMG for Greener Journeys (The Value of the Local Bus Services to the Economy, The Value of Local Bus Services to Society, 2012, 2014 and 2016), a great deal of the urban economy is underpinned by bus and coach travel and any action which reduces the availability or attractiveness of this will have serious adverse consequences for those who live, work and shop in our urban areas, and for the sustainability of those areas.

The recent (2016) work by Professor David Begg “The Impact of Congestion on Bus Passengers” identifies that: “Bus operators are forced to respond to congestion in one of two ways. First, to try to maintain service frequency. If they do this, then every 10% decrease in operating speeds leads to an 8% increase in operating costs. If this is passed on to passengers through higher fares it results in a 5.6% fall in patronage (DfT fares elasticity of 0.7). The second response is to operate at lower frequency. A 10% deterioration in operating speeds would lead to a 10% reduction in frequency and 5% fewer passengers (based on a frequency elasticity of 0.5).…to the above it is necessary to add the response passengers have to spending longer on board buses. This would lead to a further 5% fall in passengers (because of an in-vehicle elasticity of 0.5). The net result is a direct correlation between operating speeds and patronage: a 10% decrease in speeds reduces patronage by at least 10%.”

A considered approach to roadspace allocation, with priority for public transport; parking policy and land use planning can all have significant beneficial impact. First also supports the suggestion in the National Air Quality Strategy for removing inappropriate barriers to traffic flow where they affect bus services, in particular road humps which can also causes significant problems for vehicle wear and tear, driver fatigue and injury, and passenger comfort and injury. Finally, there are “softer” measures that the Scottish Government could invest in to nudge people into behavioural change. Simply promoting public transport – in particular bus travel – for the environmental, economic and societal reasons outlined and referenced in this consultation responses, as a sustained campaign to encourage responsible travel behaviour, could have significant and wide ranging benefits for Scotland, as well as beneficial local air quality impacts.