In terms of policies and actions related to the bus sector, the Clean Air for Scotland Strategy has failed to deliver.

- The planned evaluation of the Bus Investment Fund in 2016 amounted to withdrawing funding from 2016/17 onwards. As of August 2017 there has been no published review or evaluation.

- The planned review of the Bus Service Operators Grant (BSOG) by 2016 did not materialise. In 2017 the Scottish Government chose to reduce the level of BSOG top-up payments for low emission buses from 14.4 pence per kilometre to 10.1 pence per kilometre - contrary to its clean air strategy aims.

- The review of guidance and legislation on the powers of local transport authorities regarding bus services by 2016 did not take place. CPT understands this will form part of the forthcoming Transport (Scotland) Bill.

The Scottish Government’s has outlined plans for the introduction of a Low Emission Zone in Scotland by 2018. However, it appears to focus on imposing standards on bus while not addressing the private car. It is unclear, given that car journeys are the biggest contributor to road transport emissions, how this approach would adequately tackle air pollution.

The recent UK Strategy for Tackling Roadside Nitrogen Dioxide Concentrations makes specific reference to the role buses can play, stating ‘Bus services can be part of the solution to our air quality problems.’¹ The Scottish Government should bear this in mind.

The UK National Productivity Investment Fund commits £290 million for reducing transport emissions which includes £60 million for new buses and £40 million for bus retrofits. It is unclear if this includes Scotland or whether the Scottish Government will provide equivalent funding streams. A failure to acknowledge the importance of supporting public transport towards meeting LEZ standards will result in a worsening of

The Scottish Government’s policies to deliver air quality improvements are sound, in particular the emphasis on measures by the local authorities covering the places where action may be needed. Local authorities are in the best position to understand local factors and balance local priorities. However, the apparent unwillingness to properly address private car use, the disconnect between schemes such as the Green Bus Fund and BSOG, and the

¹ UK plan for tackling roadside nitrogen dioxide concentrations Detailed plan, DeFRA, DfT, July 2017
failure to address some of the unintended consequences that may impact upon the bus network of introducing a Low Emission Zone without sufficient lead in time or financial support all point to the conclusion that the Scottish Government is not able to tackle air pollution adequately.

Measures to mitigate congestion, combined with the cleanest vehicles, must be at the heart of Government strategy. If LEZs are to be successful their scope must extend to diesel cars, and they must maximise opportunities for modal switch from car to clean public transport.

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

There is a degree of UK wide convergence on dealing with air quality issues as evidenced by the ‘Improving air quality: national plan for tackling nitrogen dioxide in our towns and cities’ consultation document, produced by the UK Government, the Scottish Government, the Welsh Government and the Department of Agriculture, Environment and Rural Affairs in Northern Ireland.

The proposed Low Emission Zones in Scotland will bear a great deal of similarity to the Clean Air Zones in England and Wales with EURO VI being the UK-wide engine standard. There are benefits to a uniform UK approach given that many bus operators run services in England and Scotland while coach operators may run tours to destinations across the UK.

It remains unclear whether the recently launched Low CVP accreditation scheme for retrofitting NOx abatement systems will be applied across the UK to standardise the process of application. CPT believes this should be the case.

There are national frameworks of low emission zones and urban access regulations across EU countries including France, Germany and the Netherlands. One key difference between the UK and many other European schemes is our apparent reticence to include cars in air quality improvement measures. Within the proposals for English Clean Air Zones only one of the four categories of zones will includes cars. In Scotland there appears to be no current plans for any pilot LEZ to include cars.

In December 2016 the mayors of Paris, Madrid, Athens and Mexico City announced plans to take diesel cars and vans off their roads by 2025, stating that they could no longer tolerate air pollution and the health problems and deaths it causes, particularly for the most vulnerable citizens.

Given that the High Court has been quite damning about previous air quality plans from the UK government and continuing missed targets perhaps it is time to reconsider the approach to road transport and introduce measures and costs that more accurately reflect each modes contribution to transport emissions.
Are the policies sufficiently ambitious?

In terms of the policies that are directly relevant to bus and coach, it is difficult to gauge the level of ambition due to a failure to provide detail at this stage.

 Poor air quality causes 40,000 to 50,000 early deaths in the UK and the cost of these health impacts is estimated at £20 billion every year². Brave political decisions and ambitious and innovative solutions are required.

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

A local authority can currently opt to enter into a Statutory Quality Partnership (SQP) with local bus operators to work together to improve bus services. The local authority may invest in bus priority measures while the operator may commit to introducing newer vehicles or other operational improvements. Within an SQP both parties work together and contribute resources towards the joint commitment of better bus services and the subsequent benefits associated with this goal, including reduced emissions and improved air quality. The cost to benefit ration of this type of partnership working makes it an excellent use of limited local authority resources.

The resources available to Local Authorities may prove inadequate to address air pollution in terms of supporting the accelerated bus fleet investment the introduction of an LEZ might require. If Scottish local authorities expect operators to invest heavily for any LEZ pilot by the end of 2018 they should be prepared to either financially support their plans or acknowledge that service levels will likely fall and fares will rise as the operator takes steps to cover this cost.

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

In terms of bus and coach we await the introduction of most of the expected policies and delivery mechanisms. The fact that changes to certain polices have been delayed and that the framework for a pilot LEZ remains vague despite planned introduction next year suggests the Scottish Government is currently unsuccessful in addressing the issues.

CPT hopes the Scottish Government puts in place support and incentives for new vehicles and retro-fitting as part of its LEZ plans.

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² Every breath we take: the lifelong impact of air pollution, Royal College of Physicians, 2016
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?

No, as evidenced by the fact that as of the drafting of this response (August 2017) it is still unclear where the first pilot LEZ may be sited. As such, the best case scenario of an immediate decision on location and an introduction date of 31st December 2018 would still give less than 18 months notice of the LEZ to local bus and coach operators.

Given that the LEZ pilot is likely to introduce Euro VI standards for buses within the zone in question there is an issue for updating the current local bus fleet. 18 months is already insufficient lead in time for operators regardless of where the zone is sited.

Any operator facing notification of an LEZ that impacts upon their service network has limited options: to accelerate the rate of fleet renewal in an attempt to continue running the affected services with Euro VI vehicles, to re-organise the existing fleet to put newer vehicles within the LEZ and push older vehicles outwith the zone boundaries, or to remove services that cannot meet the standards of the LEZ in time.

If an operator increases investment in newer vehicles over a short timeframe, they will likely have to identify revenue to cover this additional cost. This may include increased fares for passengers.

If an operator repositions their fleet to put the newest vehicles within the LEZ this can have an adverse affect on air quality for the areas outwith the zone, where older vehicles will run.

In April 2017 Wandsworth Council called on London mayor Sadiq Khan to take action after Euro 6 vehicles were withdrawn from the area so that they could be deployed within a Low Emission Zone in Putney. Improving air quality in Putney has lead to worsening air quality in Battersea, Tooting and Streatham.

The number of people using bus services will be influenced by the level of fares and the frequency of the service (among other things). Bus passengers are not a captive market. In the absence of financial support, if fares increase and services are reduced because of the cost of upgrading fleets this has to be recovered from passengers - it is unlikely that the same number of people will pay higher fares and cram themselves onto less frequent buses. It is more likely that some trips will switch to other modes, some of which will have a greater impact on air quality and congestion than bus and coach journeys. Other trips will not be made at all and the economic benefits associated to those trips will be lost, with access to education establishments, hospitals, doctor’s surgeries and employment also being put at risk.

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3 TRL, The Demand for Public Transport: A Practical Guide. Report 593
How should the improvement of air quality be prioritised in areas where there have been persistent breaches of NO\textsubscript{2} limit values?

Where there are consistent breaches of NO\textsubscript{2} the Scottish Government should improve air quality through a range of available measures. In terms of road transport these could include, but are not limited to, schemes such as Statutory Quality Partnerships with bus operators, Low Emission Zones that include standards for a range of vehicle types and congestion charging.

Congestion has a direct and link to NOx levels and urban traffic speeds are falling by on average 2% every year, causing NOx emissions to rise\textsuperscript{4}

The technical annex to the recent UK wide consultation on Nitrogen Dioxide highlights the extent to which different modes contribute to NOx emissions.\textsuperscript{5}

![Figure 1.2: UK national average NO\textsubscript{x} roadside concentration apportioned by source of NO\textsubscript{x} emissions, 2015](image)

Diesel cars are overwhelmingly the largest contributor of NOx emissions from road transport. In fact, if both rigid and articulated HGVs are taken together then buses are responsible for less NOx emissions than cars, HGVs and LGVs.

75\% of traffic congestion is caused by excess traffic\textsuperscript{6} and cannot be addressed solely by measures such as traffic light sequencing or speed humps. Congestion will only be solved

\textsuperscript{4} Department for Transport Congestion Statistics 2017  
\textsuperscript{5} Tackling nitrogen dioxide in our towns and cities: A consultation, Defra/DfT/Scottish Government, Welsh Government, Northern Ireland Government, May 2017  
\textsuperscript{6} Travel in London Report 9, Transport for London 2016
by reducing the number of vehicles on the road, which will require demand management and some measure of car restraint.

Improving traffic flow can lead to dramatic reductions in NOx emissions across all vehicle types. Huge reductions in emissions can be achieved by improving city bus. For Euro VI diesel buses, NOx emissions are more than halved by increasing average speeds from 6 kmph to just 8 kmph.

Policy interventions must be based on reducing emissions per passenger, rather than emissions per vehicle. The quickest and most cost-effective solution to our air quality epidemic is to put the bus at the centre of the strategy.

Progress in clean diesel bus technology has dramatically exceeded diesel car technology. Real world testing of Euro VI diesel buses demonstrates a 95% reduction in NOx emissions compared with Euro V\textsuperscript{7}. Currently a journey by a Euro 6 diesel car emits 10 times the per passenger NOx of a comparable journey by a Euro VI diesel bus\textsuperscript{8}.

Measures to encourage modal switch from car to bus can be transformative. Bus priority measures can deliver 75% fewer emissions per bus passenger km than for car passengers\textsuperscript{9}. Buses also reduce congestion. A fully loaded double decker bus can take up to 75 cars off the road.

While it may be anticipated that there will be a significant reduction in the emissions from the vehicle fleet by 2030, the congestion problem – will remain a huge barrier to progress.

Scotland’s air quality strategy must focus on reducing emissions per passenger and on moving people not vehicles if we are to ensure the success of schemes such as LEZs in our cities - and the role of the bus must be maximised. If buses are viewed as a problem, the downward spiral caused by congestion which has already resulted in 10% fewer bus passengers every decade\textsuperscript{10} will accelerate and those without a car, many of whom are on low incomes, will be more severely disadvantaged and marginalised.

To ensure the success of LEZs, policy makers must base decisions on the evidence, not on political expediency; address head on the issue of diesel cars; and recognize the importance of encouraging the switch to more sustainable transport.

\textsuperscript{7} The Journey of the Green Bus, Low CVP 2016
\textsuperscript{8} Low Carbon Vehicle Partnership 2017 analysis using COPERT Factors at 25km/h average speed, using average passenger loading (DfT)
\textsuperscript{9} Professor Peter White, University of Westminster 2015
\textsuperscript{10} The Impact of Congestion on Bus Passengers, Professor David Begg 2016
Are there conflicts in policies or barriers to successful delivery of the air quality objectives?

Yes. There is a conflict in Scottish Government policy towards the purchase and operation of low emission buses.

The Scottish Government has administered seven rounds of its Green Bus Fund. The aim of the fund is to further support the wider roll out of low carbon buses across Scotland. It looks to achieve this by offering successful bidders up to 80% of the price differential between a LCV and its diesel equivalent.

The Bus Service Operators Grant is a scheme that subsidises bus fares for passengers by paying operators of registered bus services a rate per kilometre operated. The BSOG scheme includes a low carbon top-up rate whereby vehicles that meet the government’s criteria for low carbon vehicles receive an additional payment.

Prior to 2017/18 the base BSOG rate was 14.4 pence per kilometre and the LCV top-up rate was an additional 14.4 pence per kilometre. Changes to the payment rates introduced in April 2017 means that low carbon buses now attract a lesser top-up rate of 10.1 pence per kilometre.

The BSOG top-up rate was reduced as the amount of mileage being operated in Scotland by low carbon vehicles was growing at a rate that exceeded the BSOG budget. Rather than increase the BSOG budget in line with low carbon vehicle mileage claims the Scottish Government took the disappointing decision to reduce the rate.

There is a clear disconnect between the Green Bus Fund which advocates the purchase of low carbon buses and reductions to the BSOG top-up rate which cuts payments to operators because they are perceived as operating too much mileage through low carbon bus use.

Reducing the BSOG top-up rate has additional consequences. It undermines the business case for commercial bus operators to purchase further low carbon vehicles either directly or through the Green Bus Fund.

In terms of funding from government, CPT advocates aligning central schemes to support air quality improvement. This would mean reinstating the previous low carbon vehicle rate within the BSOG scheme and not cutting support for these vehicles. The Bus Investment Fund should return and be targeted at measures that improve bus service networks and encourage modal shift. The forthcoming Transport (Scotland) Bill should highlight the value of local partnership working between transport authorities and bus and coach operators and encourage further SQP schemes.

The government should also consider the introduction of a programme of financial support for the cost of upgrading bus fleets impacted upon by the introduction of an LEZ, mirroring the UK National Productivity Investment Fund commitments (both for new vehicles and
retrofitting), otherwise the introduction of an LEZ may damage the bus network and lead to increased car use.

Another important factor to remember about the limited lead in time is the physical ability of operators to upgrade fleets. When considering the UK as a whole and the planned Clean Air Zones across England, there will potentially be a huge demand for new vehicles or for retrofit solutions that suppliers will likely not be able to meet. There are also not technical retrofit solutions for all vehicle types and capacity for retrofitting is likely to be taken up in the short term by London.

Alongside vehicle supply there are issue around vehicle certification and the additional workload for the DVSA.

The only way the LEZ proposals can be successful is through a phased approach that takes into account the variety of potential uses for bus and coaches and targets only those vehicles travelling regularly through the zone, and that provides long lead in times for the upgrade of those vehicles.