



# Transport User Community

Ventilation on public transport

March 2021

# What did we ask our community?

## Thoughts on ventilation

This week, we wanted to understand the community's thinking around ventilation (including windows and air conditioning). How important is it in relation to other factors around hygiene, cleanliness and social distancing?

## Ventilation examples

In particular, how did respondents feel about certain examples of high-quality ventilation when shown to them? Do they feel that ventilation has a more significant role to play in slowing the spread of the virus than they previously thought? Is it an area they would like to see developed further, and why?

# Who is in our rail and bus communities?

## 60|60

60 people using rail to commute and 60 using bus, prior to Covid-19, with many also driving



Across England, Scotland and Wales



Mix of payment methods



Mix of those currently using public transport and those not



A spread of age, gender and ethnicity



Some have disabilities

# Rail users have a stronger focus on ventilation than bus users



**Rail:** a stronger focus on ventilation



**Bus:** a stronger focus on cleanliness

Ventilation

**Often understood as mitigating against lapses in the other three factors** – recycling the air and essentially ‘forcing’ virus droplets out of the carriage.

**Understood to be a mitigating factor** but to a lesser degree than on rail. It is often seen as a comfort issue as much as a hygiene one.

Space

**Felt to be outside the passenger’s locus of control** – they cannot predict crowding and it is therefore a priority to ensure they have freedom to social distance.

**Passengers are resigned to limited space on buses** and, while recognising it as important, see other factors as mitigating against the inevitable lack of space.

Cleanliness

**Important in principle** but passengers have taken to carrying their own hand sanitiser or gloves. Visible attention to cleanliness is a signifier that the train company is taking the virus seriously.

**A major priority to continue enhancing** - driven largely by a sense that buses are inherently ‘unclean’.

Face Coverings

**Important, but the community will only rely on the protection they perceive from wearing one personally**, as other’s compliance is seen as unpredictable.

**Important because they are compulsory by law** but some sense of resignation here – the community looks to other means to mitigate against what they see as inevitable noncompliance.

*Ventilation: even if I'm cramped, fresh air is known to limit chances of contamination. I disliked cramped conditions before the pandemic and I prefer to keep my distance in current circumstances.*

**Female, 30, North East, rail**

*Air conditioning just blows the dirty air around in my face and I have dust allergies. I want open windows for fresh air and to remove odours onboard. When the bus has the heating on, it is blasted too high and blows dirty air around and when the windows are open, then it is freezing so it's never comfortable on the bus.*

**Female, 41, West Midlands, bus**

*My own perception of what keeps me safe has been reinforced by messaging, whenever I go anywhere it is space predominantly I am looking for, and where space isn't freely available I want people to have face coverings. Cleaning I can do myself with my own wipes and gels, ventilation I know very little about.*

**Male, 39, Wales, rail**

*I'm not a fan of bus air conditioning even when there isn't a virus. I would worry that it was actually doing more damage by moving virus particles around the bus mechanically. It never seems to be set at the right temperature. It's really noisy.*

**Male, 47, North West, bus**

## Open windows are seen as superior to air conditioning because they are visible and within the passenger's control

The communities understand that the virus transmits far less easily outdoors compared to indoors. As a result, ventilation is seen as a way to apply this principle to public transport. **It's "like being outside."**

More broadly, the communities recognise the concept of "stagnant" air and correctly point out that the virus transmits far more easily under these circumstances. The opening of windows is seen as the most reliable way to reduce stagnant air. Some are willing to open windows **even during cold weather** to achieve a good flow of air.

Some gaps in knowledge exist around what air conditioning does and therefore some scepticism about how it can prevent the spread of the virus – people don't understand it and can't see it working so they tend not to trust it. Many assume that air conditioning simply circulates existing air and does little to reduce the spread of droplets throughout the carriage or bus.

*I feel open windows is the best for me as you can open them freely and no risk of them breaking and needing to wait for someone to come fix it. Have safety on them of course and not open to wide or anything like that. I think they should be open by default if I'm honest, we have recently been told to keep our windows open in our homes to keep the virus out and the house all clean and air pass through freely.*

**Female, 30, North East, rail)**

*I do not know much about the capabilities of air-conditioning systems on trains (or anywhere else for that matter). If the systems are capable of filtering the air or circulating clean air in, as the inside air is taken out then that has to be great. If, as I suspect, the systems cannot do this but just circulate the same air and control the temperature then opening windows has to be better.*

**Male, 64, South West, rail**

*Best option for clean fresh air is to open windows and let natural air in and out of bus. Not convincing of ventilation systems as air can be recycled back in buses. Best option is windows being left open.*

**Female, 50, Scotland, bus**

## While valued, bus passengers feel no air filtration system can replace the need for open windows on buses

The bus community felt that this example sounded impressive and they would be pleased to see a system like this being applied on buses.

However, there is a strong assumption that 'fresh air' from open windows is the superior solution to air filtration. Many worry that the latter could replace the former, which would have the effect of lowering their confidence overall.

The core issue here is in terms of educating bus users about the value of air filtration over and above open windows. The value is not intuitive and fears around "blowing dirty air around" persisted.



### Anti-virus air filters being fitted to our bus fleet

All of our buses are currently being fitted with new air filters that will take out 99.99% of viruses and bacteria, an extra safety measure in the fight against Covid.

Buses already have a natural means of refreshing the air, as doors open at regular intervals and we encourage windows to be kept open. Our new air filters will take out 99.99% of viruses and bacteria as air flows into both decks and the driver's cab to help keep the air cleaner and consequently bus travel safer. A good flow of fresh air is regularly cited as the next most important safety protection after 'Hands Face and Space'.

The filters are produced by train builder Bombardier and capture airborne particles that may contain pathogens and viruses such as COVID-19 (SARS-CoV-2). The filters eliminate 99.99%\* of these particles. The conversion of the whole bus fleet will be complete within 30 days. We will continue to use these filters as standard as and when they need to be replaced.

The new filters represent a significant addition to our safety measures on buses lined up to defeat the virus and give you and all our passengers the confidence that you are travelling safely.

(\*Additive Tested against ISO18184 ISO20743 & SARS-COV-2).



*I feel quite untrusting of anything that says 99.99%. I do feel that it would help and be effective but I can't imagine it's that effective because every company would be doing it! If my bus services started using it, I'd probably feel happier getting the buses more often and maybe walk less.*

**Female, 30, West Midlands, bus**

*I think this is a really good idea, especially because passengers are being made aware explicitly so they'll feel more comfortable on buses. Air filtration does have the potential to reduce transmission I assume, though I don't know the specific science behind it, but it would make me feel safer on buses.*

**Female, 25, South East, bus**

*I think to have these filters would be a great help and reassurance to people but I still don't think you can beat windows open with proper fresh air. If the air filters are proven to work then I would definitely tell people about it on social media.*

**Male, 53, South East**

## While an advanced air conditioning system sounds impressive, rail passengers doubt whether it would be as good in practice as is claimed

The fact that all air is exchanged very frequently in this example is an improvement on many people's preconceptions of air conditioning recirculating the same air.

However, some rail users worried that the system would be used as a 'substitute' for conventional fresh air and window ventilation.

Many agreed that the system sounds great in theory, but there was scepticism about whether it would be work as effectively in practice. There is a reluctance to trust the tech and it almost sounds 'too good to be true'.



*This wouldn't make a difference. I catch the train because I have to and my perception is that they're not safe. Perception is based on what I can see, customers not social distancing, not wearing masks properly (and staff not enforcing this) and dirty trains. All of these things would need to change for me to feel more comfortable.*

**Female, 29, North West, rail**

*I'm not sure air conditioning would really make me more confident about using trains. I think having fresh air from open windows is a much better idea. Air conditioning systems often just recirculate the old air around, so this could end up making the situation worse as it could possibly spread the virus more widely.*

**Male, 53, South East, rail**

*The idea of this sounds amazing however I am hesitant as to the reliability and truth of what I'm reading. It also seems a very expensive option and I am unsure how this would impact older trains. I was always under the impression that air conditioning cooled circulating air. For example does this require an expensive filter, how often does it need to be changed? What is the assurance that this system will be maintained? Overall I think I trust windows more.*

**Female, 30, South East, rail**