



Safety perceptions on smart motorways:

the driver view
December 2023

Foreword

When the Government published its response to the Transport Select Committee Inquiry into the roll-out and safety of smart motorways in January 2022, it undertook to 'work with Transport Focus to consider the benefits of more focused research to provide greater insight on safety perception'. The conclusion was that new research would be beneficial and, as the independent watchdog for users of National Highways' roads, Transport Focus is pleased to have carried it out. This is a high-level summary of the research findings and the full research report is available on our website.

Smart motorways have proved controversial because some perceive them to be less safe than a conventional motorway, despite evidence showing that in most ways they are at least as safe. Transport Focus, working with the Department for Transport and National Highways, set out to build on existing insight and improve understanding of road user perceptions of safety, positive and negative. In particular, we wanted to get to the heart of why road users perceive smart motorway safety in the way that they do, getting beyond top-of-mind views about the hard shoulder.

The objectives were:

- to understand the key themes influencing perceptions of safety on smart motorways
- to understand if safety perceptions vary depending on the type of smart motorway and between different categories of driver
- to understand if safety perceptions vary depending on other factors
- to identify what road users feel could be done to improve safety perceptions.

This qualitative research shows that smart motorway safety perceptions are, ultimately, driven primarily by concern over the consequences of not having a hard shoulder. For some this is on top of feeling less safe on any motorway, smart or otherwise, because they are big, fast roads with lots of traffic. Asked what could be done to improve smart motorway safety perceptions, road users' views fell into three broad categories. **Awareness** of them and how they work. **Trust** in them, including that they are safe. **Education** so people know how to drive safely on them.

I am sure these findings will be valuable to the Department for Transport and National Highways as they continue to consider the future role of smart motorways in our transport system.

Alex Robertson
Chief executive

The context: feeling safe driving on any motorway

Motorways are designed to get people to their destination quickly, and this convenience is what initially came to mind among the road users involved in this research – particularly among higher confidence drivers. While the convenience they provide is more top-of-mind than motorway safety, once asked to think about safety it was also considered to be important. Overall, those we spoke to did not want improvements to the convenience aspect of motorways compromising safety.

When asked to describe feeling unsafe when using a motorway, those taking part tended to talk about feeling stressed or anxious that a dangerous situation could occur. The most common safety concern is other drivers on the road, and doubt that they all understand how to drive safely on a motorway.

Specific concerns about driving on motorways include:

- being alongside lorries because space feels constrained
- the sheer volume of traffic on the road
- behaviour of other drivers, such as looking at phones, speeding and sharp braking
- that competence to drive on a motorway is not tested before a driving licence is issued
- a general feeling of being less 'in control' on motorways than on quieter roads.

The research shows that hard shoulders play an important role in helping people to feel safe on a motorway. Whether true or not, they are perceived to be a safe refuge. They are what people are used to and what many were taught about when learning to drive. Some also think about the hard shoulder in the context of access for emergency vehicles if there is a crash and emergency breaks if suddenly unwell or children are desperate for the toilet (not in fact a permitted use of the hard shoulder).

“It’s not even just accidents, I’ve been on a motorway many times with children who need an emergency toilet stop or someone who’s sick.”

Lower confidence car driver,
primarily using controlled motorways



What drives people's perceptions of safety when using a smart motorway?

Among those involved in the research there was recognition that smart motorways ease congestion and that the vast majority of journeys take place without problems. Nevertheless, there were safety concerns in their minds. Three key themes emerged that underlie perceptions of safety when it comes to smart motorways:

- general unease about not having a hard shoulder
- lack of understanding
- lack of trust.

General unease about not having a hard shoulder

Those taking part said that not having a hard shoulder, either ever or not all the time, makes drivers feel:

- they have nowhere to go in an emergency such as a breakdown
- concerned about how emergency vehicles would get to an accident
- heightened underlying unease about not trusting others to drive appropriately, including obeying the red X.

"I think without a hard shoulder, if a vehicle does break down, you've got more vehicles swerving, you've got more vehicles adjusting speed, slamming brakes on, that tends to happen."

Lower confidence motorcyclist,
primarily using dynamic hard shoulder motorways

Lack of understanding

In our sample of road users there were gaps in understanding of the different types of smart motorway, as well as of their benefits beyond a broad sense of easing congestion by providing an extra lane. Some acknowledged their own lack of certainty on occasions about whether the hard shoulder was or wasn't to be used, and are suspicious that others may not know either.

"I don't understand how it's being called a smart motorway if they're removing the hard shoulder because it doesn't seem like a very smart thing to do because if someone does break down, like people aren't necessarily always going to break down right near a layby. So, if they do break down and it's not a hard shoulder that I don't understand what happens then."

Higher confidence car driver,
primarily using all lane running motorways

Lack of trust

Our drivers were not clear how smart motorways work and how reliable the technology is, leading to lack of trust. Where they had experienced things on a smart motorway that felt illogical (for example a speed limit that feels inappropriately low or high), it contributes to doubt that the concept is sound and well run.

“Sometimes I think about it and worry about the fact that we’re relying on the technology to make the decisions... and that’s all great if it works, but we all know that technology doesn’t always work and the fact that there are people behind [the tech] is great but how responsive are they?”

Lower confidence car driver,
primarily using controlled motorways

How do perceptions of safety vary by type of smart motorway?

The research shows that variation in perception of safety between the different types of smart motorway is dominated by the presence or otherwise of a hard shoulder.

All-lane running

Variable speed limits, no hard shoulder, emergency laybys, stopped vehicle detection system

The road users involved in this research recognised that an additional lane and variable speed limits help ease congestion. However, not having a hard shoulder increases ‘what if’ worries: emergency laybys are not seen as an adequate substitute. They are unsure how far apart they are (creating ‘what if I don’t make it that far’ concerns) and about what would happen if the one you need is full.

Dynamic hard shoulder

Variable speed limits, hard shoulder used as running lane at busy times, emergency laybys

They took some comfort from there being a hard shoulder part of the time. However, some felt they were not always clear – and suspected that others might not be either – about when the hard shoulder is and isn’t being used as a live running lane and the reasoning behind this.

Controlled motorway

Variable speed limits, permanent hard shoulder

Of the three types of smart motorway, the controlled motorway engendered the most positive safety perceptions among our sample because it is felt to be closest to a ‘normal’ motorway. The permanent hard shoulder eliminates the worry about where to go in an emergency.



What plays a part in safety perceptions when it comes to smart motorways?

The research shows that witnessing, reading and talking about incidents on smart motorways has a bigger effect on feelings of safety than direct experience of something unsafe on one. Experience of using the hard shoulder in the past makes drivers wonder what they would do if they had a similar experience on a motorway without one.

Lower confidence drivers feel safety concerns much more strongly than higher confidence drivers, and that can make this group less keen to drive on smart motorways. Younger drivers and professional drivers feel safety concerns less strongly.

Other factors those taking part felt impacted on feelings of safety include:

- weather conditions, particularly rain and fog, can make journeys feel less safe
- time of day - travelling at night can feel safer because there is less traffic, but the inherent reduced visibility can make it feel less safe
- nature of the journey - familiarity with a section of road leads to greater confidence that may enhance feelings of safety
- driving alone versus driving with someone else - some suggest that potential distraction from travelling with others reduces feelings of safety, whereas others note that company can reduce anxiety and improve feelings of safety.

What do road users feel would improve safety perceptions on smart motorways?

Road users taking part in the research were asked to indicate what they felt could improve safety perceptions on smart motorways. Their suggestions fell into three broad categories.

Awareness

They felt that greater awareness of smart motorways generally, including how they work, would help improve safety perceptions. Gaps identified include:

- what a smart motorway is, including the different types
- the rationale for them
- how the technology works and its reliability, including safety statistics
- the role of emergency laybys, including size, how far apart they are and what to do if the one you need is full.

Education

They felt that greater education about how to drive safely on a smart motorway would help, including covering them as part of the driving test.

Trust

They felt that minimising occasions that cause road users to doubt how smart a smart motorway actually is would help improve trust. This is linked to people's experience of things that do not feel logical or which are unexplained, such as:

- speed limits that feel lower or higher than appropriate, without explanation of why it has been set as it has
- the hard shoulder on a dynamic hard shoulder motorway being used as a live running lane even when traffic is very light, and vice versa.

How we did this research

This qualitative study was undertaken by Transport Focus working with research agency 2CV. It had three elements:

- First, an initial phase of eight online focus groups comprising six road users each explored in depth safety perceptions of different types of smart motorway. Participants were asked to make a short video before and after using a stretch of smart motorway.
- Second, researchers carried out a series of 'motorway meet-ups'. This involved six individuals from the initial phase exploring their safety perceptions and reflections on a smart motorway journey immediately after they had made it.
- Finally, a second phase of six online focus groups comprising six road users in each were undertaken to further explore findings that had arisen from earlier stages of the research.

We spoke to a mix of drivers of different vehicle types, ages, length of time driving, socio-economic group, frequency of smart motorway use and with different levels of driving confidence. Because of where smart motorways are located on the National Highways network, those taking part were based in London and the South East, the Midlands and West Yorkshire.



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