

Direct Line & Brake Reports on Safe Driving

Smart roads: put safety first

OUR STRATEGIC ROAD NETWORK – PT. 2



Produced by:



Working in partnership with:



direct line

This is a survey report on safe driving, by Brake and Direct Line. Brake publishes regular survey reports on road safety throughout the year. This report is based on a survey of 1,000 car drivers, conducted by an external research agency, Surveygoo.

We welcome and support this report which has the consistent theme that the public want road safety on the Strategic Road Network (SRN) to be a much higher Government priority and explores important issues around freight safety an issue of increasing importance as the Government looks to explore new connected and autonomous technologies such as truck platooning.

The high volume of freight carried on the SRN brings with it a considerable number of safety challenges. Research for Campaign for Better Transport showed that despite making up a small percentage of overall traffic, HGVs are involved in an unacceptably high number of fatal road traffic collisions and are extremely dangerous in the event of a crash. This high level of risk, allied with the Government's stated priority on safety, is, however, seemingly at odds with recent action that has been undertaken by the Government. For example, in 2015, the Government increased the HGV speed limits for single-carriageway roads, despite its own data illustrating that HGVs are almost seven times more likely to be involved in fatal crashes than cars on these roads. The Government is also allowing trials of longer semi-trailers, even though research has shown that, in terms of manoeuvrability, the trial lorries do not match the performance of existing semi-trailers, and therefore present a potential safety hazard.

This report into drivers' views of the safety of the SRN, ahead of the introduction of measures such as truck platooning, is therefore timely. It is crucial that the Government evaluates the significant safety risks of truck platooning, including the cyber-crime risks, as well as how platoons and other vehicles will interact on our congested motorways, before permitting such trials on our roads.

Beyond new technologies, the Government must look holistically at safety by tackling the existing inefficiency of HGV use, which results in unnecessary lorry miles and extra exposure to collisions; 30% of HGVs are driving around completely empty and only a third are fully loaded. The existing HGV Road User Levy daily charge, which is currently under review, bears no direct relationship to use of the network and does not incentivise efficiency. A distance charging system, which would measure actual HGV usage per mile, could drive significant efficiency gains, improving congestion and safety.

This report also touches on the importance of rail freight for easing congestion and improving SRN safety. Research undertaken by Campaign for Better Transport, sponsored by DfT, has shown that removing 2000 large HGVs each day from each of the key congested transport corridors with parallel rail routes, could significantly reduce road congestion, pollution and road crashes.

This report makes a cogent case for improving the safety of the SRN and we urge the Government to listen to its findings and act.



Philippa Edmunds
Freight on Rail Manager
Campaign for Better Transport





Joshua Harris, director of campaigns, Brake

Motorways and dual carriageways form the spine of our Strategic Road Network (SRN), a network which is used by 4 million vehicles every day, carrying over 30% of all traffic in England. The SRN is of particular importance for freight, with over a billion tonnes transported on its roads every year, more than all other roads and transport modes combined.

Highways England, the government-owned company responsible for operating, maintaining and improving the SRN, has recently published its 'Initial Report', setting out proposals and recommendations for Road Period 2 (2020-2025), which will be funded by the second Road Investment Strategy (RIS2). These recommendations include a continued focus on operations, maintenance and renewals, developing smart motorways and the rollout of expressways. To inform Highways England's approach, its watchdog, Transport Focus, undertook research into road users' priorities for RIS2 investment and identified enhanced safety and a reduction in crashes on the SRN as the number one focus for improvement – unsurprising considering the speeds of traffic on these roads and their use by heavy goods vehicles (HGVs).

Although the allocation of funding for Road Period 2 has yet to be announced, the priorities of Highways England detailed in the Initial Report appear to be centred on economic benefits, such as easing congestion and increasing capacity on the SRN, rather than being primarily focused on safety and casualty reduction. This approach is echoed by government action and can be seen through the trialling of schemes, such as truck platooning and 'all-lane running', on which safety campaigners, including Brake, have voiced significant concerns.

The safety of roads and road users should always be the primary concern when it comes to roads investment, and the allocation of funding for Road Period 2 provides a unique opportunity for the government and Highways England to demonstrate their commitment to casualty reduction. Highways England has a target to reduce the number of people killed and seriously injured in road crashes on the SRN by 40% by 2020, and data from 2016 shows that a 14% improvement has already been made;¹ however, concerns remain that a focus on building capacity shies away from the inconvenient truth that the more vehicles on our roads, the greater the likelihood of deaths and serious injuries.

Over the next year, critical funding decisions for the future of our SRN will be made and these decisions will shape the very nature, and therefore the safety, of these roads for generations to come. Now is a critical time to listen to drivers' views on these issues and put safety front and centre of roads investment.



WHO WE ASKED

Brake surveyed 1,010 drivers, out of whom 1,000 said they drove cars. Additionally, 63 were van drivers, 50 were lorry or bus drivers, and 114 motorcycle or moped riders. A very small proportion said they drove other types of vehicles, for example tractors. The survey was carried out online by Surveygoo in September 2017.

This is Part 2 of a two-part report on the Strategic Road Network (SRN). Part 1 investigated safe travel, in particular cycling options, on the SRN's single-carriageway A roads. Part 2 focuses on the SRN's motorways and dual carriageways.

TRUCK PLATOONING IN THE UK

What is platooning?

Two or more vehicles connected with 'vehicle-to-vehicle communication', allowing them to effectively communicate with each other and operate as a single unit. The lead vehicle takes control of the speed and direction of all the vehicles in the platoon: when the lead vehicle brakes the following vehicles automatically brake with zero reaction time.²

Transport Research Laboratory (TRL)

The UK government, through the Department for Transport and Highways England, has funded an £8.1 million trial of truck platooning, to be carried out by TRL, to examine its benefits and viability. Platooning trials in a real-world road environment are expected by the end of 2018; however, the government has stated that each phase of testing will begin only when there is robust evidence that it can be delivered safely.

The benefits of platooning have been highlighted as cheaper fuel bills for hauliers and decreased emissions and congestion for other road users. Concerns have been raised, however, over the safety implications and the readiness of the road network, and road users, to accept such a system.

MODAL SHIFT IN FREIGHT TRANSPORT

The government's Rail Freight Strategy clearly articulates the benefits that transporting more freight by rail can have on road congestion and air quality: every tonne of freight transported by rail reduces carbon emissions by 76% compared with road, and each freight train removes between 43 and 76 HGVs from the road.³

Modal shift of freight from road to rail can also bring significant road safety benefits through a reduction in the number of HGVs on our roads. The nature of HGVs – their size, weight, manoeuvrability and the driver's vision – makes them a significantly higher road safety risk compared with other vehicles, and this is borne out by the statistics. Analysis by the Campaign for Better Transport illustrates that HGVs are considerably more likely to be involved in fatal crashes compared with the average for all vehicles – 2016 data shows that HGVs are nearly three times as likely to be involved in a fatal crash on motorways (292%) and more than three times as likely on A roads (320%) than other vehicles.⁴

While the benefits of rail freight are clear, government policy appears to be centred on road freight with a number of recent measures illustrating this focus. The government is in the midst of a trial of longer semi-trailers (vehicles with a length of 14.6m and 15.65m),⁵ is trialling truck platooning (see previous box) and, in 2015, introduced an increase in HGV speed limits, with limits for HGVs weighing more than 7.5 tonnes increasing from 40mph to 50mph on single carriageways, and from 50mph to 60mph on dual carriageways.

OUR STRATEGIC ROAD NETWORK

PART TWO: SMART ROADS: PUT SAFETY FIRST

A dual carriageway is a road with physical separation between traffic travelling in opposite directions and has a national speed limit of 70mph (for cars). All motorways are dual carriageways, but not all dual carriageways are motorways. Motorways can be distinguished by:

- generally having three lanes of traffic in each direction;
- the use of blue signage;
- the presence of the Traffic Officer Service; and
- not permitting the presence of non-motorised users and slow-moving vehicles.

Motorways carry almost half of all British lorry traffic, compared to one-fifth of car traffic⁶ and account for 5% of road deaths and 3% of serious injuries.⁷ In 2016, the latest year for which data is available, there were 77 deaths and 729 serious injuries on the motorways of the SRN.⁸



Direct Line & Brake Reports on Safe Driving: Smart roads: put safety first

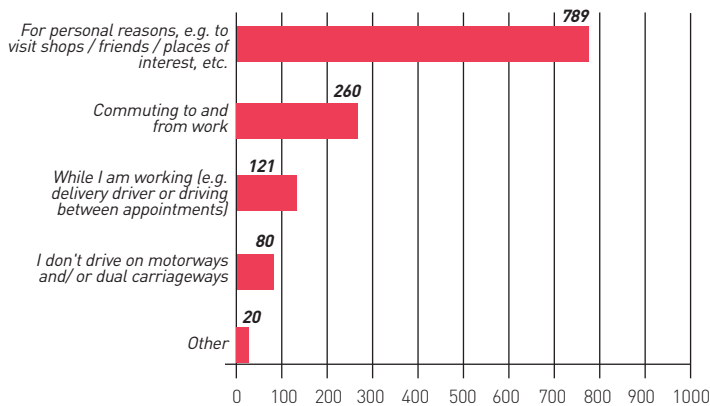


Q1: What are the reasons you drive on motorways and/ or dual carriageways?

Of 998 respondents, nearly all (918) said they drive on motorways and/ or dual carriageways. These roads form the backbone of the Strategic Road Network (SRN), which Highways England states is “arguably the largest and single most important piece of infrastructure in the country.”⁹ Drivers told us that they most frequently used these roads for personal reasons (e.g. to visit shops/friends) and to commute to and from work.

- For personal reasons, e.g. to visit shops / friends / places of interest, etc. 789
- Commuting to and from work 260
- While I am working (e.g. delivery driver or driving between appointments) 121
- I don't drive on motorways and/ or dual carriageways 80
- Other 20

Q1. What are the reasons you drive on motorways and/ or dual carriageways?

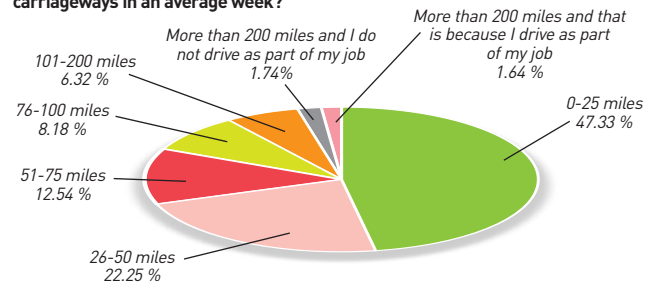


Q2: Estimating as best you can, how far do you drive on motorways and/ or dual carriageways in an average week?

Nearly all (90%) of drivers who drive on motorways and/ or dual carriageways said they drive 100 miles or less in any given week on these roads, with nearly a half (47%) of drivers stating that they drive 25 miles or less per week (equivalent to a maximum daily average of 3.6 miles).

- 0-25 miles 47.33 % 434
- 26-50 miles 22.25 % 204
- 51-75 miles 12.54 % 115
- 76-100 miles 8.18 % 75
- 101-200 miles 6.32 % 58
- More than 200 miles and I do not drive as part of my job 1.74% 16
- More than 200 miles and that is because I drive as part of my job 1.64 % 15

Q2. Estimating as best you can, how far do you drive on motorways and/ or dual carriageways in an average week?

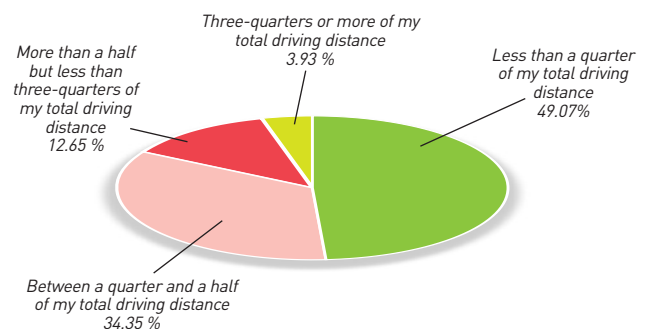


Q3: What proportion of your total driving distance, on average, is on motorways and dual carriageways?

Nearly half (49%) of respondents said that less than a quarter of their total average driving distance was on motorways and dual carriageways. Just 17% stated that they use these roads for more than half of their average driving distance.

- Less than a quarter of my total driving distance 49.07% 450
- Between a quarter and a half of my total driving distance 34.35 % 315
- More than a half but less than three-quarters of my total driving distance 12.65 % 116
- Three-quarters or more of my total driving distance 3.93 % 36

Q3. What proportion of your total driving distance, on average, is on motorways and dual carriageways? ?





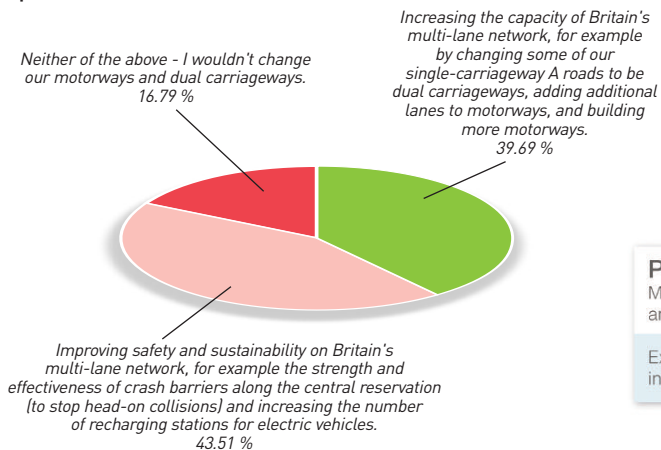
Q4: If you were the government, and you had a limited amount of money to spend on improving motorways and dual carriageways, which of the following would you prioritise?

Drivers prioritised government investment in the improvement of safety and sustainability on Britain's multi-lane network over an increase in capacity. However, the results were close, perhaps reflecting the findings of Questions 2 and 3, i.e. that these roads are not regularly used by the majority of drivers and, therefore, that there is a low level of awareness of the network's infrastructure needs.

I would prioritise spending on...

- Increasing the capacity of Britain's multi-lane network, for example by changing some of our single-carriageway A roads to be dual carriageways, adding additional lanes to motorways, and building more motorways 39.69 % 364
- Improving safety and sustainability on Britain's multi-lane network, for example the strength and effectiveness of crash barriers along the central reservation (to stop head-on collisions) and increasing the number of recharging stations for electric vehicles 43.51 % 399
- Neither of the above - I wouldn't change our motorways and dual carriageways 16.79 % 154

Q4. If you were the government, and you had a limited amount of money to spend on improving motorways and dual carriageways, which of the following would you prioritise?



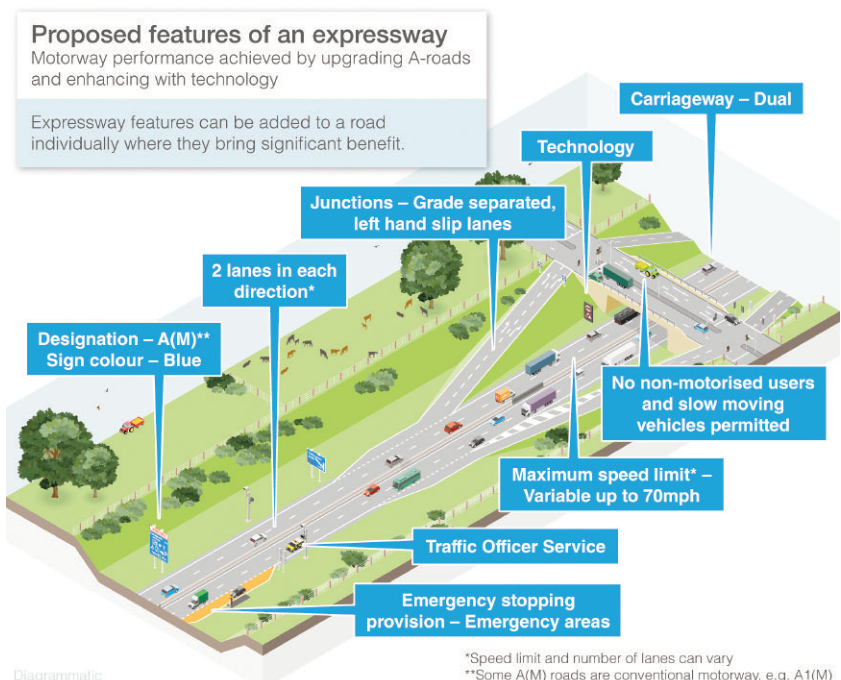
EXPRESSWAYS

In the first Road Investment Strategy (RIS1) (2015-2020), Highways England announced its intention to upgrade England's most important major A roads to 'expressways' by 2040, to provide a more consistent road experience across the SRN's A road network. The distinguishing features of an expressway can be found in Figure 1.

Although expressways are not yet present on the network, Highways England has stated that they will begin to be rolled out by the end of Road Period 1, with the update to the A14 Cambridge to Huntingdon planned to open as the first operational expressway. Highways England has also stated that, in the medium term, the major development on the SRN will be the rollout of expressways and that these roads are expected to be up to six times safer than the A roads they replace.¹⁰

It is crucial that any upgrading of A roads to expressways does not come at the expense of vulnerable road users. Part 1 of this Brake and Direct Line report into Our Strategic Road Network,¹¹ found that introducing segregated cycle routes would persuade more people to make their journeys on the SRN by bike, rather than by car. Highways England's Initial Report notes that as A roads are transformed into expressways, the provision of new or upgraded crossings will allow vulnerable road users to be safely segregated from motor vehicles travelling at high speeds. However, the provision of safe crossings, whilst beneficial, is not the same as the provision of new segregated cycle routes. It is vitally important that cycling infrastructure is not an afterthought and is funded sufficiently so that segregated cycling routes provide a genuine alternative to driving on the SRN.¹²

Figure 1: Proposed features of an expressway (reproduced with permission of Highways England)



Direct Line & Brake Reports on Safe Driving: Smart roads: put safety first

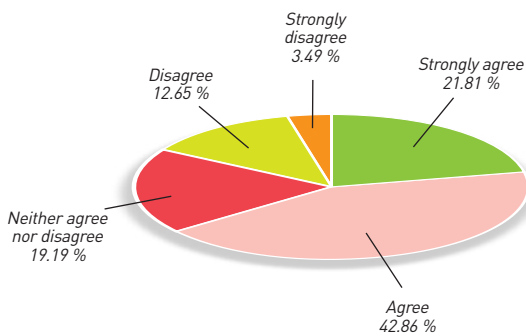
In Question 5, we asked drivers to tell us to what extent they agreed or disagreed with three different statements about safety on motorways.

Q5a. Variable speed limits help improve safety on motorways.

Nearly two-thirds (64%) of drivers strongly agreed or agreed that variable speed limits would help improve safety on motorways, with just 16% stating that in their opinion such measures would not have a safety benefit. Drivers recognise that the fixed 70mph speed limit on motorways for cars is not the optimal measure for road safety and that reductions in the numbers of collisions could be made through variable speed limits.

• Strongly agree	21.81 %	200
• Agree	42.86 %	393
• Neither agree nor disagree	19.19 %	176
• Disagree	12.65 %	116
• Strongly disagree	3.49 %	32

Q5a. Variable speed limits help improve safety on motorways.



Q5b. Allowing the hard shoulder to be used as a driving lane helps improve safety on motorways.

AND

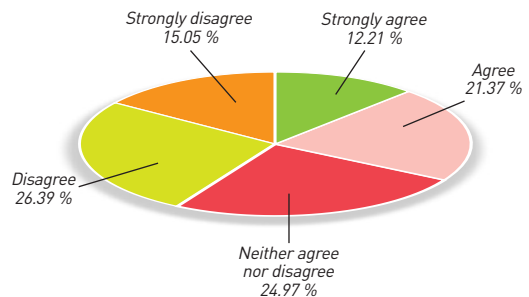
Q5c. Allowing the hard shoulder to be driven on only at busy times improves safety on motorways.

More drivers agreed that allowing the hard shoulder to be driven on only at busy times (45%) rather than at all times (34%) improved road safety. This indicates that drivers value the availability of a continuous hard shoulder for stopping in an emergency and that the introduction of 'all-lane running' may make drivers feel less safe on the SRN.

Q5b.

• Strongly agree	12.21 %	112
• Agree	21.37 %	196
• Neither agree nor disagree	24.97 %	229
• Disagree	26.39 %	242
• Strongly disagree	15.05 %	138

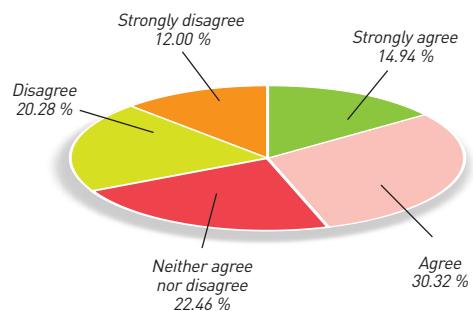
Q5b. Allowing the hard shoulder to be used as a driving lane helps improve safety on motorways.



Q5c.

• Strongly agree	14.94 %	137
• Agree	30.32 %	278
• Neither agree nor disagree	22.46 %	206
• Disagree	20.28 %	186
• Strongly disagree	12.00 %	110

Q5c. Allowing the hard shoulder to be driven on only at busy times improves safety on motorways.





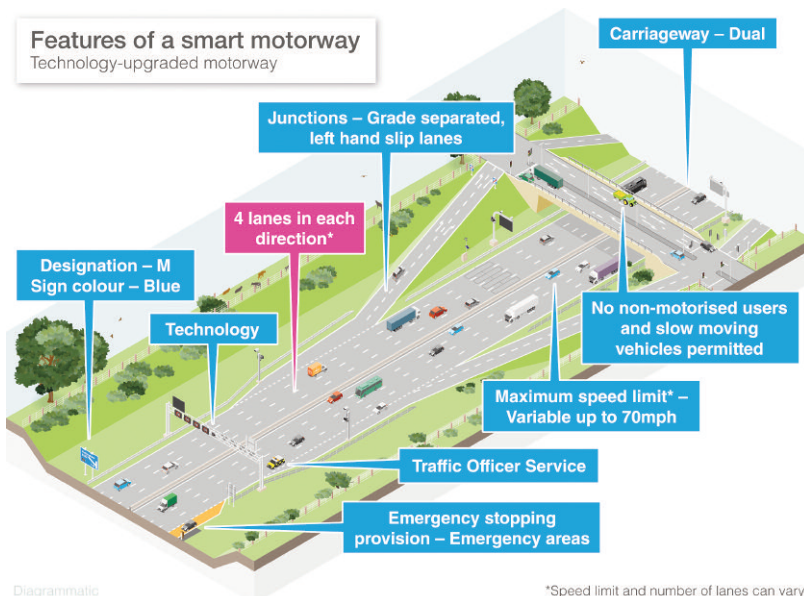
SMART MOTORWAYS

Smart motorways, first introduced in the UK in 2006, utilise technology to expand capacity and ease congestion on the SRN, without the physical widening of the road infrastructure already in place. This is achieved through measures including: the utilisation of the hard shoulder for traffic ('all-lane running'), either permanently or at peak times; changing the speed limit to make traffic flow more smoothly; activating warning signs to alert drivers to traffic jams and hazards ahead; and closing lanes to allow emergency vehicles through. The distinguishing features of a smart motorway can be found in Figure 2.

Highways England has overseen an increased roll-out of smart motorways across England and has committed to add more than 240 miles of smart motorways in Road Period 1 (2015-2020), funded through the first Road Investment Strategy (RIS1). Highways England is currently consulting on RIS2 with its Initial Report indicating plans for a further smart motorway rollout, the stated intention being that these roads will become the 'spine' of the SRN and will evolve to take advantage of new technologies.

The introduction of all-lane running has raised significant safety concerns as it removes the availability of a continuous refuge where drivers can pull over and stop during an emergency. Prominent voices of concern included the Transport Select Committee, which called for a halt in the rollout of all-lane running in its 2016 report.¹³ Meanwhile, a 2017 report by Transport Focus into road-user experiences of smart motorways¹⁴ found that respondents intuitively felt that having a hard shoulder would be safer than not. Highways England has stated that analysis into already operational smart motorways indicates that road-user safety on these roads is no worse than before all-lane running was implemented¹⁵ and has also noted in its Initial Report that, in order to improve safety on smart motorways: "we can improve our signs and provide high-visibility orange surfacing in emergency areas, building confidence among drivers."¹⁶

Figure 2: Features of a smart motorway
 (reproduced with permission of Highways England)



Diagrammatic

*Speed limit and number of lanes can vary

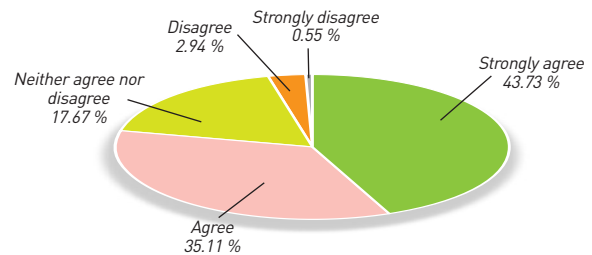
In Question 6, we asked drivers to tell us to what extent they agreed or disagreed with three statements, related to measures that the government has said it plans to test in Britain soon.

Q6a. "There is too much freight on our motorways. We need to invest in railways to carry freight long distances."

More than three-quarters (79%) of drivers agreed that there is too much freight on our motorways and that the government should look to invest in modal shift of freight from road to rail. With the exception of motorcycles, heavy goods vehicles (HGVs) have the highest rate of involvement in road crashes that lead to death and serious injury on motorways of all vehicle types, at a rate of 5 fatal crashes per billion miles travelled in comparison with the all-vehicle average of 2.7.¹⁶

• Strongly agree	43.73 %	401
• Agree	35.11 %	322
• Neither agree nor disagree	17.67 %	162
• Disagree	2.94 %	27
• Strongly disagree	0.55 %	5

Q6a. "There is too much freight on our motorways. We need to invest in railways to carry freight long distances."



Direct Line & Brake Reports on Safe Driving: Safe Roads Between Places



Q6b. “Truck platooning sounds frightening; if it went wrong the casualties could be very high.”

AND

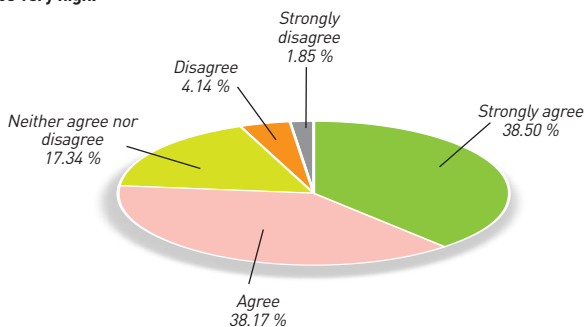
Q6c. “Truck platooning could help improve the safety of our motorways.”

More than three-quarters (77%) of drivers agreed that truck platooning carries a significant road safety risk and that it “sounds frightening” and more drivers disagreed (40%) than agreed (26%) that truck platooning could improve the safety of our motorways. These results indicate that the government needs to rethink its approach to trialling such technologies or that more must be done to convince and inform drivers of any perceived benefits.

Q6b.

Strongly agree	38.50%	353
Agree	38.17%	350
Neither agree nor disagree	17.34%	59
Disagree	4.14%	38
Strongly disagree	1.85%	17

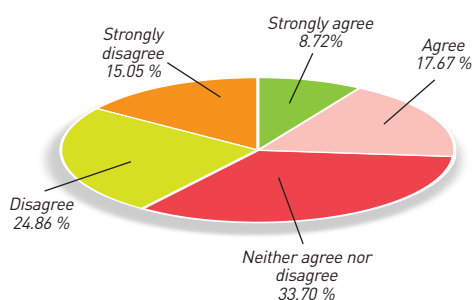
Q6b. “Truck platooning sounds frightening; if it went wrong the casualties could be very high.”



Q6c.

Strongly agree	8.72%	80
Agree	17.67%	162
Neither agree nor disagree	33.70%	309
Disagree	24.86%	228
Strongly disagree	15.05%	138

Q6c. “Truck platooning could help improve the safety of our motorways.”

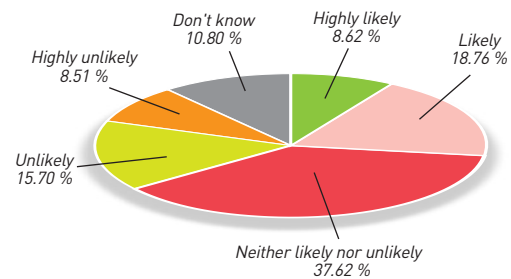


Q7: How likely do you think it is that you could be involved in a fatal or serious crash on a motorway or dual carriageway at some point in the future, while either a vehicle driver or passenger?

More than a quarter of drivers (27%) thought it highly likely or likely that they would be involved in a fatal or serious crash on a motorway or dual carriageway at some point in the future, with a similar proportion (24%) believing this to be unlikely. Almost half (48%) of respondents were unsure about the likelihood of being involved in such a crash, indicating either that they had not considered such dangers or felt unsure as to the risks posed.

Highly likely	8.62%	79
Likely	18.76%	172
Neither likely nor unlikely	37.62%	345
Unlikely	15.70%	144
Highly unlikely	8.51%	78
Don't know	10.80%	99

Q7. How likely do you think it is that you could be involved in a fatal or serious crash on a motorway or dual carriageway at some point in the future, while either a vehicle driver or passenger?



End notes

1. RAS30081, Department for Transport, Reported Road Casualties Great Britain annual report, 2016
2. <https://trl.co.uk/news/news/government-gives-green-light-first-operational-vehicle-platooning-trial>
3. Department for Transport, Rail Freight Strategy, 2015
4. HGV fatal collision rates - MTRU for Campaign for Better Transport, 2017
5. <https://www.gov.uk/government/collections/longer-semi-trailer-trial>
6. Department for Transport, Road Traffic Estimates: Great Britain 2016
7. RAS30006, Department for Transport, Reported Road Casualties Great Britain annual report, 2016
8. RAS30081, Department for Transport, Reported Road Casualties Great Britain annual report, 2016
9. P. 3, Highways England, Strategic Road Network Initial Report, 2017
10. P. 23, Highways England, Strategic Road Network Initial Report, 2017
11. Brake, Our Strategic Road Network – PT. 1: Safe Roads Between Places
12. P. 17, Highways England, Strategic Road Network Initial Report, 2017
13. House of Commons Transport Committee, All lane running: Government response, 2016
14. Transport Focus, Getting to the heart of smart – Road user experiences of smart motorways, 2017
15. <http://www.highways.gov.uk/smart-motorways-programme/>
16. P. 85, Highways England, Strategic Road Network Initial Report, 2017
17. RAS20005, Department for Transport, Road Traffic Estimates: Great Britain 2016