Press Release

Findings from the DEKRA Road Safety Report 2026

Road work zones must become safer

- Energy-absorbing attenuators can save lives
- DEKRA road tests demonstrate high effectiveness of C-ITS systems
- Emergency braking assistants reliably detect many hazards

A brief moment of inattention behind the wheel is all it takes: People working at a road construction site quickly face an acute risk to their lives. The DEKRA Road Safety Report 2026 "Working in Road Traffic" shows – among other things, through crash tests and driving tests – how the risk can be reduced, especially at short-term work sites. Energy-absorbing attenuators, digital construction zone warnings, and modern emergency braking assistants offer significant safety potential even in complex scenarios. "However, it is also clear that existing safety concepts need to be further developed and technical solutions need to be utilized more consistently," says DEKRA accident researcher Markus Egelhaaf.

A look at the U.S., for example, reveals just how significant the risks in the vicinity of road construction sites are overall. In 2023, according to the National Highway Traffic Safety Administration (NHTSA), there were 899 fatalities in over 100,000 accidents in work zones – that is, on road sections where construction, maintenance, or utility work is taking place. In addition to road users, workers on the construction sites were often directly affected. In 2023, , 176 people who were (on foot) in construction zones were struck by vehicles and fatally injured, 40 of them while working at a construction site.

An analysis published as early as 2008 by the Federal Highway and Transport Research Institute (BASt) showed the following for Germany: Of 951 accidents analyzed in which employees, vehicles, or equipment of the road construction authorities were damaged at short-term work sites, approximately 60 percent were caused by colliding trucks. Rear-end collisions and sideswipes were particularly common. In about 80 percent of the cases, the injured workers were in their vehicles at the time of the accident. "The data from the BASt study also shows that a large proportion of the accidents can be attributed to typical behavioral errors," explains Markus Egelhaaf. These include inattention and distraction, often caused by monotonous traffic situations or activities

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unrelated to driving. Inappropriate speed is also a key factor. “Against this backdrop, improved safety measures take on particular importance,” says the DEKRA expert.

Crash tests reveal significant differences

Two DEKRA crash tests demonstrate just how significantly technical safety systems, in particular, can influence the consequences of accidents. In each test, a van weighing approximately 3 metric tons collided at about 80 km/h (~50 mph) with the rear of a security vehicle weighing just under 18 metric tons. In one test, the security vehicle was equipped with a vehicle-mounted impact absorber; in the other, with a warning sign mounted on a trailer.

The result: The impact absorber dissipated the impact energy in a controlled manner. The van’s passenger compartment remained largely intact, with maximum head acceleration at around 17 g. The safety vehicle was also displaced only slightly forward – an important factor for workers who are positioned in front of the vehicle during real-world operations. The crash with the barrier sign on the trailer played out differently. The drawbar buckled, and the trailer was pushed under the safety vehicle. Since very little energy was absorbed in this scenario, the forces on the occupants – and thus the risk of injury – were higher, with a maximum head acceleration of approximately 25 g. The safety vehicle was displaced significantly further toward the simulated work site – in a real-world scenario, this poses a greater danger to the personnel working there.

Warning from a distance of several hundred meters

The crash tests vividly demonstrated the level of safety that can be achieved through appropriate safety measures. “At the same time, however, it also became clear that these systems are subject to physical limitations,” the DEKRA crash researcher points out. In the event of a high-speed collision involving a heavy commercial vehicle, even with high-performance damping elements, serious accident consequences are still to be expected. For this reason, the expert considers supplementary active safety measures to be necessary – ideally, measures that completely prevent a collision. These include both traditional warning measures, such as portable rumble strips, and modern connected solutions like C-ITS-based short-range warnings.

The abbreviation C-ITS stands for “Cooperative Intelligent Transport System” and refers to technologies for multi-modal communication of vehicles with other vehicles, infrastructure, and non-motorized road users. C-ITS enables the exchange of information and warnings about traffic and hazardous situations via direct communication and/or through a backend system.

To test the effectiveness of this technology, DEKRA conducted road tests using a C-ITS-enabled passenger car and a correspondingly equipped warning trailer. The tests showed that the warning messages were issued with a high degree of reliability and that the passenger car driver was informed in a timely manner even at approach speeds of 130 km/h (~81 mph). “This gives drivers enough time to reduce their speed or initiate a lane change early,” said the DEKRA accident researcher.

Emergency braking assistants can detect hazards early

In addition to C-ITS communication, DEKRA also examined emergency braking assistance systems for heavy-duty commercial vehicles. The road tests focused on the systems’ detection and response capabilities in relation to mobile warning signs. A tractor-trailer without a semi-trailer was driven at various speeds – including 60 km/h (~37 mph) on sections resembling country roads and 85 km/h (~53 mph) in a section classified as a freeway – toward a secured construction zone consisting of warning beacons, a mobile barrier sign, and a towing vehicle.

In numerous scenarios, the systems issued early visual and audible warnings and initiated automatic braking maneuvers. On straight stretches at 60 km/h (~37 mph), the tested system responded reliably in all tests. At 85 km/h (~37 mph), it exhibited consistent behavior particularly when the barrier trailer was positioned on the right. Even at night, detection performance remained high. Limitations became apparent where curves or lateral obstructions narrowed the field of view.

“The tests make it clear that even high-performance driver-assistance systems reach geometric and physical limits,” concludes Markus Egelhaaf. In addition, C-ITS can help alert road users early on to construction zones and other hazardous situations. The same applies to other measures such as rumble strips or mobile early-warning devices. “The greatest safety benefit is achieved when technical systems support people in perception and decision-making, make critical situations recognizable early on, and thereby create more time for an appropriate response,” says Markus Egelhaaf. Where accidents nevertheless cannot be prevented, energy-absorbing crash cushions make an important contribution to mitigating the consequences of accidents.

Further background information on this topic, as well as on many other aspects related to “Working in Road Traffic”, can be found in the DEKRA Road Safety Report 2026. It is available online at www.dekra-roadsafety.com.

Captions

1: Safety vehicles equipped with impact absorbers provide greater safety in certain crash scenarios.

2: Modern truck emergency braking systems can prevent many collisions.

About DEKRA

For more than 100 years, DEKRA has been a trusted name in safety. Founded in 1925 with the original goal of improving road safety through vehicle inspections, DEKRA has grown to become the world's largest independent, non-listed expert organization in the field of testing, inspection, and certification. Today, as a global partner, the company supports its customers with comprehensive services and solutions to drive safety and sustainability forward. In 2025, DEKRA generated revenue of 4.4 billion euros. More than 48,000 employees are providing qualified and independent expert services in approximately 60 countries across five continents. DEKRA holds a Platinum sustainability rating from EcoVadis, placing it among the top 1% of the globally assessed companies.