Supporting **eyes** and **ears**

To spot and avoid vulnerable road users, operators have traditionally gone for a combination of direct vision, cameras, sensors and audible warning systems. But now the initiative is focusing on human error with automated braking systems. Kevin Swallow reports

Eighteen months have passed since the mayor of London Sadiq Khan unveiled the Direct Vision standard (DVS) for trucks. Under that, Transport for London will rate trucks from nil to five stars based on how much HGV drivers can see directly through their cab windows, as opposed to indirectly through cameras or mirrors.

Its aim is to improve safety for all road users, vulnerable or otherwise. The process finished a second consultation in January; a third is planned on the final scheme. Whichever proposals are approved, from 2020 all trucks over 12 tonnes gvw will have to hold a star-based safety permit when in London. Trucks rated zero will be banned without extra safety systems (such as blind spot camera systems and impact protection systems), warnings and urban driver training.

The Freight Transport Association has campaigned for the use of technology to be included within DVS, reveals Natalie Chapman, FTA's head of policy for London. She welcomed news from TfL that it would recognise the investment that companies have already made in vehicle technology to improve safety when DVS is launched.

Yet all of the literature produced by TfL cites direct vision as the easiest way to reduce blind spots on a truck, and to this end truck manufacturers have been busy. After toying with the window in the lower section of the passenger door – since rejected as only cosmetic by TfL – the focus is on making cab-forward chassis more versatile to meet a potential demand from general haulage and construction, and not just refuse collectors and local authorities.

Tottenham-based O'Donovan Waste Disposal was an early adopter of this by fitting a skiploader body to a Mercedes-Benz Econic, now available as a tractor unit using the low-frame Antos chassis.

Even Dennis Eagle recognised it cannot survive on refuse vehicles alone, and has developed construction specifications for its low-entry cab. It launched a low-entry 8x4 chassis with the Elite 6 cab last year. Scania has now joined the low-entry cab market with its L-series.

However, a low-entry cab is not a one-size-fits-all solution, either for direct vision or differing market sectors, and technology is what makes the difference, argues Tom Brett, Brigade Electronics' UK managing director. He says: "The glass panel door on the nearside helps to improve visibility until someone sits in the passenger seat, or a bag is placed there. A dirty glass panel or severe weather conditions may also affect visibility. Large windscreens that are supposed to improve driver visibility to the front are also reduced when an oversized sun visor is pulled down so the driver is unable to view the front projection mirror (class VI), creating a blind spot."

Operators can source 360° cameras to provide a complete aerial view of the truck, cameras in specific locations, ultrasonic obstacle detection sensors and reversing alarm systems to support direct vision (pictured, p18). Brett adds: "The 360° camera systems and

"The automatic warning and braking reactions of the ABA4 pedestrian detection system are effective from speeds of 15 to 50kph"
Bob Gowans

ultrasonic proximity sensors are essential to provide drivers with full vision around the vehicle and alert them in the event that they have not seen an obstacle. After all, if you are not looking, you will not see."

In 2015, Lancashire-based Vision Techniques launched its Cyclist Detection Safety Systems range for trucks. Its TurnSafe range is designed to replace an ultrasonic sensor system, which can go off any time it identifies anything next to the vehicle. "The TurnSafe range only picks up things moving alongside or towards the vehicle," says Jonathan Peach, general manager.

In January, Safety Shield Systems launched a refreshed vulnerable road user detection system, featuring smaller cameras and updated UK supply chain. Its camera-based Cycle Safety Shield+ system automatically detects and tracks pedestrians, cycles and motorcycles, and monitors their distance, taking into account truck speed. If any of those are determined to potentially be at risk, a pedestrian-shaped alert light mounted on the dash illuminates. If they enter the danger zone, the indicator will flash red and emit an alarm. The system consists of a dash-mounted unit and optionally one or two flank-mounted cameras. Also new is the option to record (seven days' capacity) and low-light visibility.

ELIMINATING HUMAN ERROR?

Finding ways to reduce human error is where many people are looking next, as automation creeps into truck technology, explained FTA's Chapman.

Active Brake Assist 4 (ABA4), available from Mercedes-Benz since 2016, is an automated braking system that was developed from established ABS technology used for adaptive cruise control that slows the vehicle on the road when it detects a slower or stationary vehicle in front of it.

When the forward-facing radar identifies vulnerable road users, ABA4 simultaneously issues an audible warning and automated partial braking – approximately 50% of the braking capacity associated with an emergency stop – to reduce the truck's speed (see also pp21-22 for more on braking).

Bob Gowans, product and sales technical manager, says that ABA4 uses cab-mounted short- and long-range radar. He adds: "The automatic warning and braking reactions of the pedestrian detection system are effective from vehicle speeds of 15 to 50kph."

The OnCity Urban Turning Assist developed by Wabco, launched at the IAA show in Hanover, Germany in 2016, is also a collision avoidance system that uses radar-like technology and automatic braking. Unlike Mercedes-Benz, Wabco fits the radar to the nearside of the truck and uses a 180° field of vision.

Jorge Solis, Wabco president for the OEM division, explains that OnCity detects and distinguishes moving and stationary objects, including pedestrians and cyclists. It alerts the driver to a potential collision both before and during a turning manoeuvre. TE

THE WASTE CASE

Waste management and skip hire company RTS Waste runs 40 trucks from three sites based in London, Kent and Somerset, and is registered with the Fleet Operator Recognition Scheme. To meet its terms, vehicles need to minimise vehicle blind-spots using nearside proximity and front projection mirrors, sensors, cameras and audible warning systems.

The fleet is fitted with several Brigade Electronics products: Backeye360 for a bird's-eye view around the vehicle; a four-way camera recording system; and Sidescan sensor system that detects cyclists in the blind spot when a vehicle is turning left.

Transport manager Matt Jeffrey says that since low-cab vehicles are not ideal in a landfill or on construction sites, drivers rely on extra technology to watch, listen out for and warn vulnerable road users. He adds that, in reviewing the recordings for driver training, it discovered that the cameras even recorded a theft from a vehicle.

FURTHER INFORMATION

TfL DVS 2a consultation – https://is.gd/ciraco
Eye in the sky – https://is.gd/ewakum