

Engineering out risk

Bus operators have come up with many ways of keeping the people that work in depots safe around operating buses, reports Will Dalrymple

What is the biggest health and safety risk in bus depots? “Moving vehicles and pedestrians, without a doubt; people that are walking about and vehicles that are moving. The worst thing that can happen is that someone is caught between a moving object and an immovable one – like a parked bus or a wall,” observes Richard Harrington, Go-Ahead engineering director.

He adds: “When you carry out risk assessments, the first step is to eliminate the risk and take the hazard out. Here, we can’t, so it’s then a process of putting control measures in place.”

The risks can’t be eliminated because of the nature of the operation. Twice a day, depots experience their peak activity: early mornings, when the fleet is run out for rush hour operations, and evening/night, 6pm-3am, when the buses are run in again.

That latter operation in particular poses extra risks, partly because it is likely to be dark and takes place at the end of the day when people might be less alert. But also there is more to do: buses need to be fuelled, washed (externally), parked, cleaned (internally) and ‘plated’ for run-out next day.

Across every depot in the country, the same tasks need doing, but each faces unique spatial and human resources constraints. “There are so many different factors. Every site has



unique challenges,” says Tony Cockcroft, Stagecoach Manchester engineering director.

How depots carry out these operations efficiently and safely, day in and day out, rests partly on physical equipment, but mostly on training and management, according to teams from bus operators Stagecoach, Go-Ahead

and Metroline approached for this article.

The situation is made even more complicated by the fact that the people actually parking up the vehicles may not be employed by the bus operator, but by another specialist contractor that also employs fuellers and cleaners.

From the contractors’ side, Guy Pakenham, managing director of Cordant Services, which provides shunting, fuelling and cleaning services for Go-Ahead and others, says: “We’re not the owners of the site. First and foremost, there needs to be extremely good information sharing and cooperation between the bus operators and our staff. It’s essential because there are lots of things to do with safety in our control, and lots for the owner of the site. Second, we need dedicated on-site non-working supervision and management staff. We have a lot of initiatives that we have introduced to get all the good stuff out of the health and safety manual and into the heads and behaviour of our staff. But they still need monitoring, encouraging and policing.”



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Tony Cockcroft on an automated depot shunting

These themes were echoed by the other operators. Metroline’s health and safety manager Ken Thomas says: “The fundamental way that we deal with this is in the training of staff.” And that includes reminding them – as his colleague, Sinead Maguire, head of transport safety, points out: a supervisor is always on hand during run-ins “to make sure that people are sticking to the rules and doing what they should be.”

As regards health and safety risk, “vehicle congestion is the big one. Having clearly-defined walkways with sufficient barriers is a good start,” says Cockcroft. All three operators separate pedestrians (who might be bus drivers or other staff) from bus lanes.

Site design plays a big part in keeping people safe. Metroline has designed a one-way system for its depots. Stagecoach installs low-level lights or lights in the ground to help prevent shadows in the parking area. Some depots install barriers on the edges of the walkways, partly to protect pedestrians and also to prevent them from straying. “A painted line is only a painted line,” remarks Thomas. They aren’t possible where pedestrian and vehicle traffic meet, there can be no barriers, but instead zebra crossings.

There are other rules for pedestrians. The operators also control visitor traffic, either preventing them from entering the depot completely (by locating the lost property desk near the front gate, for example), or by making sure that they either have a chaperone or are given a site induction. For worker pedestrians, other common rules relate to a big potential distraction: no mobile phone use in an outside area of the depot, or off of a designated walkway. For Go-Ahead, staff must wear a high-vis jacket before stepping off of walkways.

Drivers, too, are subject to rules. For example, at Metroline, they can’t stack up too tightly as they queue for the fuel island; it paints box junctions on the



ground to remind drivers. Go-Ahead backs that up with a proximity alarm system that goes off if a bus enters a fuel island while another is already in there. “If the alarm goes off, that will be investigated and action taken,” warns Harrington.

SLOW DOWN

Speed limits are another popular tool for safety; all three operators enforce a speed limit, which is 5mph for Metroline and Go-Ahead. Stagecoach has installed automated speed limit signs. Metroline takes speed enforcement a step further. Group engineering director Ian Foster comments: “We had a trial geofencing vehicles as they came into a depot; they couldn’t exceed 5mph. To be honest it was a bit clunky.” Instead, it has trialled a speed camera system, which will be rolled out across all of its sites. “The next phase of that possibly is taking a picture of the vehicle and the driver when they exceed it. That can help us identify drivers that go too fast.”

When training isn’t enough, sometimes the way things are done is changed. Packenham observes that it is a common practice in depots to

direct drivers reversing vehicles with a banksman. Its assessment of risk has led to it move those external helpers from the rear of the vehicle – where they are vulnerable – to either the front of the vehicle, or the inside. In addition, he reveals that the company is trialling a reversing indicator system (pictured, left). “This is like a small traffic light system placed at the back and to one side of the bus, and the shunter uses it and looks at the traffic light to know where it is.”

The operators are also interested in the possibility of future technology to help improve depot safety. In Manchester, Stagecoach and Fusion Processing trialled fitting a bus with the CAVstar automatic pilot system to steer a bus into a parking space without a driver. “They drew up a parking route for a vehicle, and implemented it into the bus’s electronic control unit, and it would follow the route by using radar on each side of the vehicle,” reports Cockcroft.

“I think that is definitely a way to take risk out as we move forward,” states Harrington, who has seen demonstrations in China. At the same time, he also voices doubts about the readiness of the current technology. “One of our garages fuels 60 buses/hour at the fuel island. Will the system be capable of working as quickly as the shunters?”

For Go-Ahead and Metroline, such technology would go hand-in-hand with electrification. The latter’s corporate cousins, SBS Transit, already do so in Singapore. Foster explains: “The way that the Metro system operates is totally automated; vehicles come in for maintenance and follow set routes through automated washing. But for us, while diesel is around, it’s more difficult with fuelling. I believe automatic external cleaning is possible, but not internal at this time.” That’s because of the present need for COVID deep cleaning, he adds. [ITE](#)