

Mobile Barriers Enhance Safety, Boost Productivity

Movable systems are expensive but provide better work-zone protection that can include generators, lighting and signage, experts say **BY PAULA MOORE**



Colo., and Barrier Systems Inc. of Rio Vista, Calif.

The California Dept. of Transportation (Caltrans) developed its own technology called the Balsi Beam, named after Mark Balsi, a Caltrans maintenance worker severely injured when a car crashed into a work zone where he was picking up trash. Created in the early 2000s, the Balsi Beam system consists of a tractor-trailer combination. The trailer becomes a work space between the rear axles and the tractor that's shielded on one side with two steel beams.

RIGHT MOVES
Movable barriers like the MBT-1 not only give crews protected work space during road projects but also improve traffic flow.

Orange cones and concrete barricades still may be the norm for keeping workers and drivers safe on road construction projects, but movable barriers are being used more often as owners and contractors look to improve safety and productivity.

Such systems—whether they're called mobile barriers, movable barriers, protective beams or zipper walls—generally include a prime mover plus a metal blocking section that extends between the work zone and traffic.

The barriers are used largely on congested road, highway and bridge projects, from paving to expansions, and can be driven to the construction site and moved as needed. These systems can include power generators, work lighting and signage, too. Prices vary depending on size but can be in the hundreds of thousands of dollars. Barriers also are often leased.

The leading companies that manufacture these products—which are designed to make workers safer but also improve traffic flow and cut project duration and cost—include Mobile Barriers LLC of Golden,

Other agencies like the concept. “Our experience with mobile barriers is great, from the worker safety and traffic management perspectives,” says Eric Hemphill, director of maintenance for the North Texas Tollway Authority (NTTA) in Plano, Texas. “Our crews are more comfortable working behind them, and because of that, their productivity has increased.” NTTA bought one of Mobile Barriers’ first MBT-1 barriers about five years ago and now has two. The authority expects to get at least two more in the near future.

Work-Zone Crashes

Data from the Federal Highway Administration show there were 87,606 work-zone crashes nationwide in 2010 alone, about 1% of which included fatalities among drivers and construction workers, with 30% involving injuries. More than 20,000 workers are injured in road construction work zones every year from multiple causes, including “transportation incidents,” the FHWA says.

Kevin Groeneweg, CEO of Colorado-based Mobile Barriers, calls the MBT-1 barrier “a game changer”

30%

Number of work-zone crashes that involve injuries to drivers, construction workers or both.



BRIDGING GAPS
Movable barriers like the Road Zipper System can quickly add a temporary buffer lane, as on Philadelphia's Ben Franklin Bridge, during construction.

ZIPPING ALONG
The Road Zipper System's Barrier Transfer Machine, at work on a Utah street project, transfers the barrier wall laterally from place to place.

because of its speed. "I'm just a frustrated driver," says Groeneweg. "John Barton at the Texas Dept. of Transportation said it well when he suggested the quicker we get on and off the road during a construction project and reopen it to flow, the better off we are." Barton is TxDOT's deputy executive director.

Groeneweg, who holds a law degree and a master's degree in finance from the University of Iowa and was formerly a senior officer at what's now Janus Capital Group Inc. of Denver, came up with his idea for a mobile barrier in June 2004, while stuck in a traffic jam.

"I was looking at a low-boy trailer, wishing the guy would get out of the way, when I thought, what if we tipped the low boy on its side?" Groeneweg recalls. "That was the idea for the MBT-1."

The basic MBT-1, generally painted yellow for good visibility, includes a standard tractor-trailer pulling wall sections measuring 20 ft long and 5 ft high. As many as three wall sections can be used, making the entire barrier 42 to 102 ft long. Adding a truck-mounted attenuator (TMA) to the rear adds another 17 ft. An MBT-1 can cost \$300,000, which, amortized over a 20-year lifespan, is around \$15,000 a year, according to the Mobile Barriers website.

To demonstrate the product's effectiveness, Walt Black, Mobile Barrier's vice president of equipment, told the story of four highway construction crewmen on a job in San Antonio, Texas. They were eating lunch behind a movable barrier when a distracted driver hit the barrier going 75 miles an hour. "Those guys said they would have been dead if not for the barrier," Black says.

California-based Barrier Systems, a subsidiary of Omaha-based transportation, industrial and agricultural solutions conglomerate Lindsay Corp., introduced its QuickChange Movable Barrier in the mid-1980s. Now called the Road Zipper System, the technology pins together one-meter sections of reinforced concrete to form a barrier wall, which is controlled by a barrier transfer machine (BTM) that lifts the barrier and passes it through a conveyor.

Though movable barriers are used mostly for roadwork so far, some barrier makers are marketing them for other projects. They can become portable security measures for oil wells, hospitals, government buildings and the like, where they can become rolling perimeters that augment a front gate or enhance checkpoints and inspection stations. Barrier Systems also envisions using them to create disaster evacuation routes in areas like the East and Gulf coasts during hurricane season.

While Barrier Systems uses the Road Zipper largely on highway construction and traffic-management projects, it also has made bridges a specialty, working on the Golden Gate Bridge in San Francisco as well as spans in cities from Philadelphia to Auckland, New Zealand.

"Our movable barrier is used for long projects—long in calendar length and long in linear terms. Cones are cheap and fast, and if you care about safety, you put up a concrete barrier," says Chris Sanders, senior vice president of Lindsay Transportation Solutions, who some industry experts call the "godfather" of movable construction barriers. "If you care about all those things, you do a movable barrier."

Movable barriers also improve traffic flow on road construction projects because they can be used to add or decrease lanes faster than cones or barricades can, experts note. "Our product is very expensive compared to cones and portable barriers, whether they're steel or concrete—two to four times more expensive," says Sanders. "But it's really about mobility, moving lanes back and forth."

Researchers are now studying the effectiveness of movable barriers. Oregon Dept. of Transportation and Oregon State University released a report in 2013 that looked at Mobile Barriers' MBT-1. The study found that because of the barrier, construction workers felt more protected and were able to perform better, and traffic benefitted from being able to move faster than with other safety devices. The study called the barrier "an effective and beneficial tool." ■