

New Technology Can Help Increase Work Zone Safety

OCTOBER 29, 2018 BY **JOBSITE EDITORIAL STAFF**



Keeping workers safe on road construction sites is an ongoing problem, underlined by the fact that the number of fatalities at these sites increase the more projects are underway. “From 2011 to 2016, 532 construction workers were killed at road construction sites, more than double the total for all other industries combined,” according to the **Second Quarter Data Report** from The Center for Construction Research and Training.

Here are some of the key statistics from the report:

- From 2003 to 2016, 1,269 construction workers died at road construction sites, accounting for approximately nine percent of all construction fatalities each year.
- In 2016, the number of road construction site fatalities climbed to 103 from a low level of 72 deaths in 2013—a more than 40 percent increase in three years. The increase, however, mirrors an increase in the number of road construction projects.
- About half of road construction site fatalities were due to being struck by a vehicle or mobile equipment.
- More than 70 percent of the fatalities occurred in the highway, street, and bridge subsectors.
- Construction workers who worked as crossing guards and paving surfacing operators at road construction sites had the highest risk of fatal injuries.

Beginning With Safety

Safety practices start with the layout of a project. Many companies use BIM safety planning from the beginning, including plans to reroute traffic. That way there is less chance that a flagger or other worker is hit by highway traffic. Other common practices involve:

- The incorporation of concrete barriers to separate pedestrians from work areas,
- increased visibility of workers by using non-glare lighting and reflective apparel,
- rumble strips to warn drivers that they are out of their lane,
- and automated flagging system devices.

There are many new ways to alert workers when they are in danger, but many companies have been slow to adopt them.

In addition to these standard measures, truck-mounted attenuators (TMAs) can create a physical barrier between workers and moving vehicles. They also reduce damage in collisions with other vehicles. When there is an accident, “TMAs could operate either by steering the collision’s energy and momentum away from the back of the truck on which it is mounted, or by folding up and collapsing over a short distance and greatly absorbing the collision’s energy,” according to **Construction Solutions**.

Another device that can improve safety is an object detection and camera system for heavy equipment, Construction Solution **reports**. “This system consists of a monitor display that provides operators a real-time, overhead view of their surroundings.”

New Technologies Can Add Safety

There are many new ways to alert workers when they are in danger, but many companies have been slow to adopt them, according to a March 2018 **report** from the Center for Construction Research and Training. These new technologies include work zone intrusion alert technologies (WZIATs) with audio, visual, and sometimes vibration alerts that can get workers’ attention when a collision is about to happen.

Some companies and the products they offer are:

- **Highway Resource Solutions**, Intellicone, lamps, motion detector, and portable site alarm
- **Intellistrobe Safety Systems**, Flagger - W1-AG and Remote Control Radio-FC 401-1
- **Transpo Industries**, SonoBlaster, Single alarm unit, and
- **Astro Optics**, Worker Alert System, pneumatic hose, flashing alarm light, personal vibrating and audio alert.

The report found that “WZIAT’s financial benefits outweigh associated costs if the technologies can prevent between 12.6 percent and 34 percent of the intrusion accidents that lead to injuries and fatalities.”

These technologies can add an extra layer of safety with simple alarms, alarms activated by pneumatic tubes, systems with wireless sensors, automated flaggers, and remote control radios.

Some employees balk at these measures because using new technologies means increased time for training and operation. The report concludes that employers seek ways to use these work zone intrusion alert systems without increasing labor costs.

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