



A work zone is a designated area where construction, maintenance, or utility work activities take place on or near a roadway, street, or highway.

Hazards within the work zone need to be properly controlled, following all safety guidance and regulations, which can often be challenging.

- Some of the hazards of working in a work zone include heavy equipment, machinery, noise, vibration, dust, falls, struck-by dangers, fatigue, power lines, and weather conditions.

Work zones typically involve lane closures, traffic pattern changes, reduced speed limits, and the use of traffic control devices such as signs, cones, barriers, and flaggers to manage the flow of traffic safely and efficiently.

- Because the typical flow of traffic may be redirected, slowed, or stopped, which can be surprising to drivers if there isn't sufficient warning, risk increases for both workers and motorists if there isn't sufficient preparation before the work begins.



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**OSHA Standard 1926.200(g)(1)** *At points of hazard, construction areas shall be posted with legible traffic control signs and protected by traffic control devices.*

Review the details of these tragic work zone incidents along with the corresponding safety guidance to understand why these fatalities were preventable.



## VEHICLE STRIKES UTILITY WORKER IN SHORT-DURATION WORK ZONE

*A utility worker was in the process of locating underground gas lines for construction work taking place on both sides of an active five lane road. The worker parked his vehicle half on the sidewalk and half on the bike lane to avoid obstruction and then placed two orange safety cones behind his vehicle to warn motorists.*

*The worker was standing near the left rear of his vehicle when he was struck by a distracted motorist. His injuries were immediately fatal.*

- Analyze the work site, including traffic patterns, and plan the work zone before work begins.
- Face traffic as much as possible when setting up the work zone.
- Park your work vehicle completely off the roadway, if possible, without obstructing pedestrian thoroughfares.
- Position your work vehicle to create an obstacle to prevent oncoming traffic from hitting you.
- Minimize your exposure to moving traffic. Never turn your back to traffic while working in or near active traffic lanes.
- High-visibility apparel, like a safety vest, should be worn by everyone in the work zone.
- Keep all work as far away from moving traffic as possible.



*The tragic aftermath of this incident.*



### CONCRETE FELL FROM RIGGING DEVICE IN HIGHWAY WORK ZONE

*A crew was installing an interlocking concrete retaining wall system as part of a new bridge construction project. During the rigging process they could not locate the eye bolts that were specifically required for this lift but instead fabricated their own bolts to ensure work was not delayed. Four concrete caps were hoisted without incident.*

*As the fifth cap piece was being hoisted to the top of the wall the eye bolts on the rigging device failed and the 1-ton block of concrete fell onto one of the workers standing in a man lift at ground level, killing him instantly. Another worker in the man lift was severely injured.*

- Ensure rigging equipment being used is suitable for the intended load.
- Do not use improvised equipment like job or shop hooks and links, or makeshift fasteners formed from bolts or rods.
- Do not lift loads near, over, or in the vicinity of workers. There should be an adequate safety zone in the event the hoisted load should fall.
- No workers are permitted under pre-cast concrete members being lifted or tilted into position except those workers that are required for the erection of those members.



*Man lift basket with the concrete cap that fell on top of it, killing one man and injuring another.*

**OSHA Standard 1926.251(a)(1)** *Rigging equipment for material handling shall be inspected prior to use on each shift and as necessary during its use to ensure that it is safe. Defective rigging equipment shall be removed from service.*

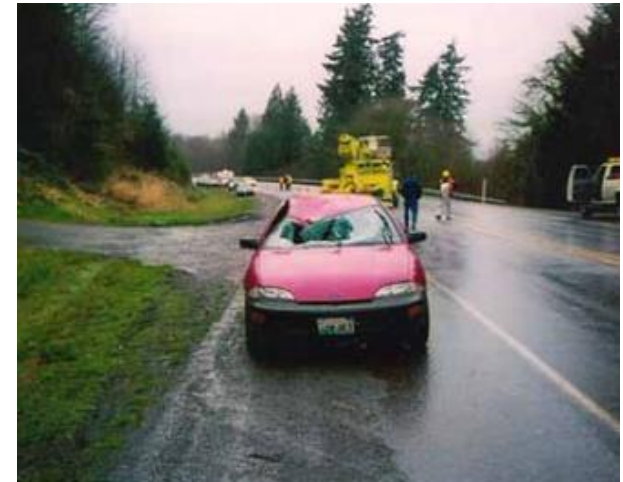


## FLAGGER FATALLY INJURED WHEN STRUCK BY CAR AT WORK ZONE

*A flagger was working with a maintenance team tasked to install a new roadside information sign along a major two-lane highway. Three of the work team members were working on the sign installation while two flaggers were positioned at locations east and west of the work site along the highway.*

*The weather was wet and overcast with gray skies. At the time of the incident the flagger was distracted when a vehicle approached and did not slow or stop as required, and directly hit the flagger. First aid was provided but he died before he got to the hospital.*

- Use positive protective barriers to shield workers from intruding vehicles. These barriers are designed to absorb impact, redirect vehicles, and prevent them from entering the work zone.
- Identify appropriate escape routes for flaggers in the event that a vehicle does not follow intended traffic controls.
- When possible, use an alternative project plan and design options to perform road and highway work so flaggers are not used for traffic control.
- Consider the use of law enforcement vehicles and personnel to help alert vehicle traffic to highway work zones.



*The vehicle involved in this incident.*

**OSHA Standard 1926.201(a)** *Signaling by flaggers and the use of flaggers, including warning garments worn by flaggers, shall conform to Part 6 of the MUTCD.*





## TRAFFIC CONTROL SUPERVISOR STRUCK BY DUMP TRUCK

*A traffic control supervisor was providing services to a crew working on a city street paving project. The crew had re-arranged the work zone for a new paving operation, and the supervisor was picking up some extra cones in the work zone that were no longer required.*

*The asphalt dump truck operator was driving in reverse and did not realize that the supervisor was behind the truck, facing in the opposite direction. The dump truck struck the supervisor and stopped immediately, and it was obvious he was badly injured. He was transported to the nearest hospital but died soon after.*

- To prevent back over fatalities, ensure that backing procedures are in place for the use of mobile construction vehicles, like dump trucks, a spotter is designated to direct the backing, and operators are in communication with the workers on the ground.
- Workers on foot must remain clear of moving equipment. In work zones, staging areas can be planned to minimize backing distances for dump trucks.
- As a dump truck operator, if you have limited visibility, do not move the truck without a spotter.
- Reverse signal alarms should be loud enough to be heard above the surrounding noise level.
- Work zones and traffic control plans must be set up properly, in a way that adequately protects all workers at the work zone job site.



*The dump truck involved in this incident.*



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## INCIDENT REPORTS

- Oregon Case Report 03-OR-032-01; [cdc.gov/niosh/face/stateface/or/03or032.html](http://cdc.gov/niosh/face/stateface/or/03or032.html)
- Nebraska Case Report 05NE028; [cdc.gov/niosh/face/stateface/ne/05ne028.html](http://cdc.gov/niosh/face/stateface/ne/05ne028.html)
- Washington Case Report 00WA011; [cdc.gov/niosh/face/stateface/wa/00wa011.html](http://cdc.gov/niosh/face/stateface/wa/00wa011.html)
- NIOSH In-house FACE Report 2005-10; [cdc.gov/niosh/face/In-house/full200510.html](http://cdc.gov/niosh/face/In-house/full200510.html)

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