

The Massachusetts Department of Public Health, in cooperation with the National Institute for Occupational Safety and Health, conducts research-oriented investigations of fatal work-related injuries. The goal of the project, known as Massachusetts FACE (Fatality Assessment and Control Evaluation), is to prevent occupational fatalities by identifying factors that contribute to these deaths and then developing and disseminating prevention strategies.

We hope you find the "FACE Facts" informative and that you will share it with others. This document is in the public domain and may be copied freely. If you have comments or questions, please call the FACE Project at (617) 624-5628.

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FACE Facts



Massachusetts Police Officers Killed in Highway and Street Work Zones



Workers on highway and street construction sites (work zones) are at risk of serious injury from the movement of construction vehicles and equipment within the work zones as well as from passing motor vehicle traffic. Within a 15-month period during 2000 - 2001, three Massachusetts municipal police officers were fatally injured while performing traffic details in work zones.

Incident #1 A 60-year-old male police officer was fatally injured when he was crushed beneath a dump truck loaded with asphalt in a highway work zone. The work zone was located in front of an entrance way to a parking lot serving a group of retail stores. Motorists had to pass through the construction site to access the parking lot. The victim was assisting two dump trucks in the work zone to back in front of the parking lot entrance way. While walking away from the dump trucks, in preparation to help them back, the truck involved in the incident started backing without the officer's knowledge and ran over him. In this incident, there was no internal traffic control plan (ITCP) for the work zone; paving was performed during peak retail hours; the

dump truck backup alarm was inoperable; and the officer was wearing the same color as the surrounding temporary traffic control devices.

Incident #2 A 66-year-old male police officer was fatally injured when he was struck by a backing dump truck loaded with asphalt. The dump truck, which had a functioning backup alarm, was backing within a highway work zone to a small unpaved section of a turnout that was located approximately 1,000 feet away from where the truck was stopped. The victim, with his back to the dump truck, was walking towards the turnout at the edge of the work zone in a closed travel lane facing oncoming traffic when the dump truck started backing. The dump truck struck the victim and ran over him. In this incident, there was no internal traffic control plan (ITCP) for the work zone.

Incident #3 A 38-year-old male police officer was fatally injured when a motorist intruded into a street work zone striking him. The victim was directing traffic through a detour at a four-way intersection located several hundred feet after a crest of a hill. Traffic heading west was turning right at the detour and traffic heading south was turning left at the detour. A motorist traveling west failed to turn right and skidded sideways through the detour, striking the victim, the victim's parked truck, a stone wall, and a tree. In this incident, the work zone lacked adequate signage, and the officer was wearing the same color as the surrounding temporary traffic control devices.

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Prevention Strategies

To ensure the safety of all individuals in and around highway/street work zones, contractors should:

Develop and implement Internal Traffic Control Plans (ITCP) to coordinate the flow of construction vehicles, equipment, and workers on foot within work zones. To reduce the hazard associated with backing construction vehicles, an ITCP should minimize backing of all construction vehicles and equipment on site. This can be accomplished by reviewing and planning tasks so that vehicles can navigate safely through the construction site while backing as little as possible. The ITCP should also include walkways for workers on foot that are clear of backing construction vehicles and equipment. In addition, some areas within the work zone might have to be designated as areas that are prohibited for workers on foot.

Develop work zone backing procedures to include designated signalers to direct backing construction vehicles. Equipment operators and truck drivers should be aware of who the signalers are and the established backing protocol. Construction vehicle and equipment operators should never start backing in a work zone without a clear and understandable signal from a signaler that he is ready and it is safe to start backing.

Ensure that work zones are setup, at a minimum, in accordance with the *Manual on Uniform Traffic Control Devices (MUTCD), Part 6*, developed by the U.S. Department of Transportation Federal Highway Administration. The MUTCD sets forth the basic principles that govern the design and use of traffic control signs and devices and provides uniform work zones designs. In incident #3, a "road closed" warning sign indicating the distance to the closure should have been setup in the advanced warning area of the work zone.

Consider traffic demands and construction site surroundings (residential, commercial, and/or retail) when scheduling highway/street construction projects. Construction site surroundings and traffic demands will impact the work zone design, and time of day and year work should be performed. In incident #1, the work zone was located in front of an active entrance way to a parking lot for retail stores, and the work was being performed during retail operation hours and a busy holiday season,

Perform regular preventive maintenance on vehicles and equipment to ensure vehicles and equipment are in safe working condition. When a problem, such as an inoperable back up alarm, is identified, the vehicle or equipment should be taken out of service and repaired before being placed back in service.



Local municipal police departments should consider:

Work zone safety training for officers.

Police officers employed by Massachusetts cities and towns typically do not receive training on work zone safety, although this training is currently available for the Massachusetts State Police. Work zone safety training would provide officers with the knowledge to better protect themselves, construction workers, pedestrians, and motorists. This training should include safe backing procedures and proper work zone setup and design that meet requirements of MUTCD, Part 6.

The Effectiveness of Officer Personal Protective Equipment.

Officers performing traffic details should wear personal protective equipment (PPE), such as high-visibility safety apparel. Safety apparel should routinely be inspected to ensure it has not faded and that retroreflective properties have not been lost. In addition, to ensure that officers do not blend into the background, choose safety apparel colors that are different than the surrounding construction equipment and landscape.

Manufacturers of heavy construction equipment, such as dump trucks, should:

Explore the possibility of incorporating collision warning devices on their equipment that would assist operators in backing. In incidents # 1 and # 2, the police reported that the truck operators stated they did not see the victims behind the trucks prior to backing over them. Equipment manufacturers should evaluate current research being conducted on navigation and warning aids for mobile equipment to develop collision warning systems for their products. See references for information on these collision warning devices and the research being performed.



References

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