

NJ FACE INVESTIGATION REPORT



Fatality Assessment & Control Evaluation Project

FACE 01-NJ-020-01

March 7, 2002

Truck Driver Killed In Highway Work Zone Collision

On March 12, 2001, a 52-year-old truck driver was killed when his tractor-trailer truck struck a dump truck protecting a highway work zone. The incident occurred on a major interstate highway as the victim was hauling a container of municipal waste to a landfill. A state road crew was working that morning to fill potholes in the right hand lane of the highway. This mobile operation would drive up to a pothole, fix it, and continue on to the next hole. The work zone was marked by trucks carrying warning signs and arrow boards that drove behind the work crew. Two large dump trucks equipped with impact attenuators drove directly behind the work zone to protect the crew. At about 11:20 a.m., the victim approached the road crew and struck the impact attenuator on a dump truck. The collision caused the victim's truck to flip over on its side and slide down the highway until it came to rest with the truck cab upside down, killing the driver. No workers on the road crew were injured. A second driver involved in the ensuing motor vehicle accident was treated at the local hospital for neck injuries and released that evening. NJ FACE investigators concluded that, to prevent similar incidents in the future, these safety guidelines should be followed:

- **State highway authorities should consider reducing speed limits in construction work zones on high-traffic highways.**
- **State, county, and local authorities should consider stationing law enforcement officers in patrol cars and using radar surveillance for traffic speed control at highway work zones.**



INTRODUCTION

On March 13, 2001, NJ FACE staff received a newspaper report of a fatal motor vehicle accident (MVA) that involved a collision at a highway work zone. FACE investigators contacted the safety representative from the New Jersey Department of Transportation (NJDOT) who arranged an interview with the work crew. On March 29, 2001, a NIOSH FACE investigator accompanied NJ FACE investigators in conducting a group interview of the work crew. Investigators also briefly examined the trucks and equipment involved in the incident and viewed the incident site from a nearby overpass. Additional information was obtained from the police and medical examiner's reports. The victim's employer did not return calls requesting an interview.

The victim's employer was a small truck repair and hauling company. The company had been in business for ten years and employed ten employees at the time of the incident. The victim was a native of Brazil who had worked as a truck driver and mechanic for the company for five weeks.

INVESTIGATION

On Monday, March 12, 2001, a state Department of Transportation road crew met for work at their base maintenance garage at 7:30 a.m. The maintenance garage serviced a nearby major interstate highway that ran east-west through New Jersey. This was a limited access, six-lane (three lanes each direction) freeway with a posted speed limit of 65 mph. As usual, their supervisor gave them their instructions for the day, which was to first clear away some loose insulation that was hanging from under a bridge. Afterwards they were to take a dump truck with asphalt road patch out to the highway and fill potholes until the patching material ran out. The crew went on the road and removed the insulation at 9:30 a.m. At 10:00 a.m., the crew arrived on site to start work on filling the potholes. This was to be a mobile operation, where the crew would drive along the highway and stop to fix the potholes as they came to them. A crew of seven was assigned to the task; one worker for each of the five sign and impact trucks and two to fill the potholes.

The work area was set up with warning signs as outlined in the NJDOT Workzone Safety Charts, which are based on the US Department of Transportation *Manual on Uniform Traffic Control Devices*. The first warning sign to be seen by motorists was a variable message signboard towed along

the far right shoulder of the highway about a mile from the patching operation. This large, trailer-mounted signboard displayed the message “ROAD WORK AHEAD, RIGHT LANE CLOSED.” About three-quarters of a mile ahead of the first sign was a dump truck with a flashing arrow board pointing to the left. This truck was driving on the shoulder just before an exit ramp. About two-tenths of a mile ahead of this truck were two impact trucks, both large dump trucks equipped with arrow boards and impact attenuators (see photo). The two trucks were about 60 feet apart and blocked the right lane, with the arrow boards directing traffic to the left. These impact trucks provided protection for the patch truck 75 to 150 feet ahead of them. The patch truck was a dump truck loaded with asphalt road patch. A single road crew worker was behind the patch truck, shoveling asphalt into the potholes and packing it down with a tamper. As this was a mobile operation, no other signs or warning devices (such as cones) were set up to warn or direct traffic.

Photo 1
Impact truck with damaged arrow board and impact attenuator



Photo 2
Newspaper photo of accident scene



The crew reported that traffic was heavy that morning as their vehicles moved along the highway at about 15 mph, filling the potholes as they came to them. The patch truck contained two tons of asphalt, enough to patch potholes for 1 to 1.5 miles of highway. At 10:25 a.m., the driver of the towed signboard saw the victim’s truck approaching the work zone. The truck was an articulated 18-wheel tractor-trailer pulling a container filled with municipal waste. The tractor-trailer did not appear to reduce speed as it passed the signboard and arrow board trucks on the highway shoulder. The victim’s truck continued in the right lane until he came to the first impact truck. Apparently seeing the truck at the last moment, he turned left to avoid the collision. His truck struck the left rear corner of the impact

attenuator before tipping over and sliding down the highway on its right side. The ground worker saw the truck coming and dove over the guardrail. The driver of the second impact truck saw the impact in his mirror and waited for the ground worker to move away before pulling over to the shoulder to avoid the sliding truck. The tractor-trailer continued to slide for about 1,000 feet, striking a privately-owned van and just missing the patch truck.

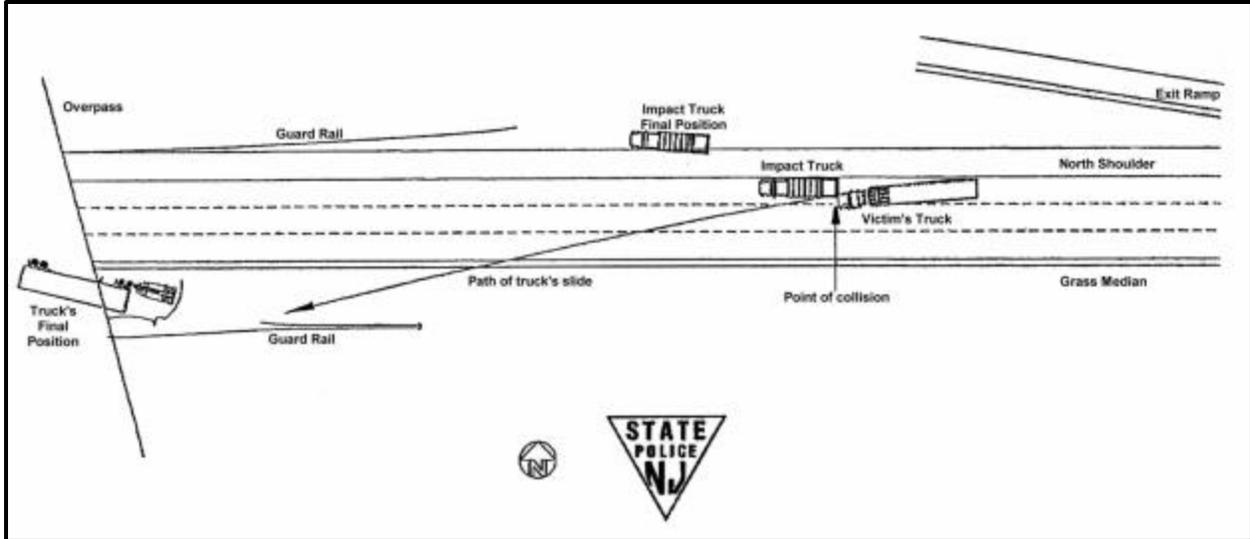


Figure 1
NJ State Police MVA Illustration (edited)

The vehicle came to rest just short of a highway overpass. Garbage was thrown across the highway from the tipped container, and the truck cab had flipped over onto its roof. Members of the road crew went to help the victim, but he was trapped in the wreckage with grievous fatal injuries. Police and EMS soon arrived and closed the highway for several hours to extricate the victim and clear away the debris. The driver of the first impact truck hit by the tractor-trailer was taken to the local hospital where he was treated for minor injuries and released.

RECOMMENDATIONS/DISCUSSIONS

Recommendation #1: State highway authorities should consider reducing speed limits in construction work zones on high-traffic highways.

Discussion: Highway work zones are high-hazard areas. Many states, including New Jersey, have adopted policies for reducing posted speed limits in highway-construction work zones. Under normal circumstances, the *Manual on Uniform Traffic Control Devices* recommends that reduced speed zoning should be avoided as much as practical. However, in highly vulnerable situations such as this, speed zone reductions may be warranted, as reduced speed increases the reaction times for both motorists and construction workers. Highway-construction work zones should set speed limits based on the hazards present for both the motorists and the construction workers.

It should also be noted that in addition to posting speed reductions, many states have doubled traffic fines for speed violations in highway work zones. States have taken this added measure in the hope that motorists will heed posted highway work zone warning signs, traffic-control devices, and the safety of construction workers in the zone.

Recommendation #2: State, county, and local authorities should consider stationing law enforcement officers in patrol cars and using radar surveillance for traffic speed control at highway work zones.

Discussion: It is a common practice in many states, counties, and municipalities to increase law enforcement visibility and radar speed-control surveillance at highway work zones. The presence of law enforcement and use of radar surveillance during active work periods would help to maintain traffic speeds at or below the posted speed limit.

REFERENCES

Manual on Uniform Traffic Control Devices, Part IV: Standards and Guides for Traffic Controls for Street and Highway Construction, Maintenance, Utility, and Incident Management Operations. US Department of Transportation, 1998. American Traffic Safety Services Association, Fredericksburg, VA (540) 898-5400.

Building Safer Highway Work Zones: Measures to Prevent Worker Injuries From Vehicles and Equipment. DHSS (NIOSH) publication 2001-128, NIOSH Publications Dissemination, Cincinnati, OH (800) 356-4674

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Fatality Assessment and Control Evaluation (FACE) Project
Investigation # 01-NJ-020-01

Staff members of the New Jersey Department of Health and Senior Services, Occupational Health Service, perform FACE investigations when there is a report of a targeted work-related fatal injury. The goal of the FACE Program is to prevent future incidents by studying and identifying the risk factors that contribute to workplace fatalities, by recommending intervention strategies, and by disseminating information to employers and employees. NJ FACE data is reported to NIOSH for trend analysis on a national basis. All identifiers are removed from the FACE reports and other data to protect the confidentiality of those who participate in the program.

NIOSH funded state-based FACE Programs include: Alaska, California, Iowa, Kentucky, Massachusetts, Minnesota, Missouri, Nebraska, New Jersey, New York, Ohio, Oklahoma, Texas, Washington, West Virginia, and Wisconsin.

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