



**Occupational Safety
and Health Administration**

**2015 Annual New Jersey
Asphalt Paving Conference**



Rapid Curing Reinforced Concrete

BETTER than Asphalt for Today's Highways

**Brian Crain
Compliance Officer
USDOL / OSHA**



**2015 Annual New Jersey
Asphalt Paving Conference**



Work Zone Safety

Preventing Runovers and Backovers

**Brian Crain
Compliance Officer
USDOL / OSHA**





4,405 workers died on the job in 2013

"No one should have to sacrifice their life for their livelihood, because a nation built on the dignity of work must provide safe working conditions for its people."

— Secretary of Labor Thomas E. Perez



Every day in America, 12 people go to work, and never come home.

Making a living shouldn't have to cost you your life. Workplace fatalities, injuries, and illnesses are preventable. Safe jobs happen because employers make the choice to fulfill their responsibilities and protect their workers.

— Dr. David Michaels Assistant Secretary of Labor for Occupational Safety and Health



What's most important:

These deaths and injuries are mostly preventable -
Preventable by basic safety precautions!

Protecting workers from traffic hazards with
crash attenuators, barricades, warning signs and
other devices

Providing a safety harness, line and anchor to
prevent workers from falling off a roof

Shoring a trench to make sure it doesn't collapse

Guarding a machine or tool so a worker doesn't
suffer an amputation



Mission Statement

Under the Occupational Safety & Health Act, employers are responsible for providing a safe and healthful workplace.

OSHA's mission is to assure safe and healthful workplaces by setting and enforcing standards and by providing training, outreach, education and assistance.



Internal Traffic Control



Overview

- An effective Internal Traffic Control Plan (ITCP) informs all workers within the work space about the location of others.
- ITCP creates “zones” designed to minimize interaction between workers on foot and construction vehicles.



Overview

- An ITC plan designates routes and operating procedures for large trucks delivering materials.
- The plan creates a traffic pattern minimizing backing.
- ITC facilitates communication among key work zone parties in advance of arrival to the construction site.



Overview

- Limits access points to the work zone
- Coordinates truck and equipment movements
- Provides Information on traffic paths and safe/unsafe work areas for workers
- Heightens awareness of workers on foot in relation to vehicle traffic in the work area



What is the difference between Internal Traffic Control and a Temporary Traffic Control?

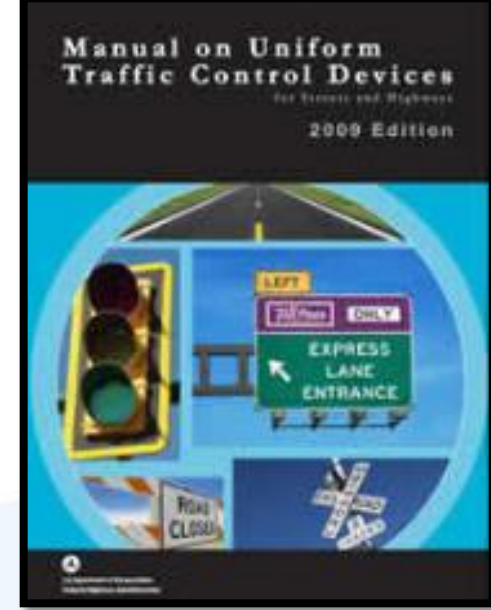


- Temporary Traffic Control Plans focus on moving traffic safely through a work zone.

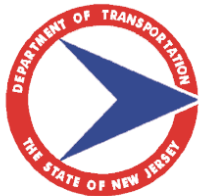


- Internal Traffic Control Plans focus on keeping workers on foot from being struck by construction equipment and large trucks within the work zone.

Temporary Traffic Control Plans are defined and prescribed in the U.S. Federal Highway Administration's "*Manual on Uniform Traffic Control Devices*" or "*MUTCD*"



New Jersey
Department of Transportation



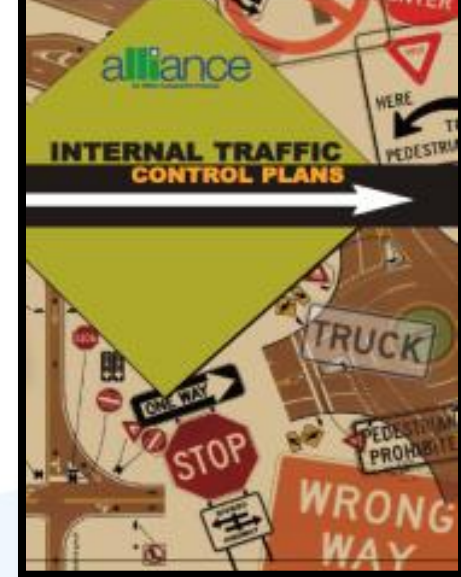
Standard Specifications
for Road and Bridge Construction

2007

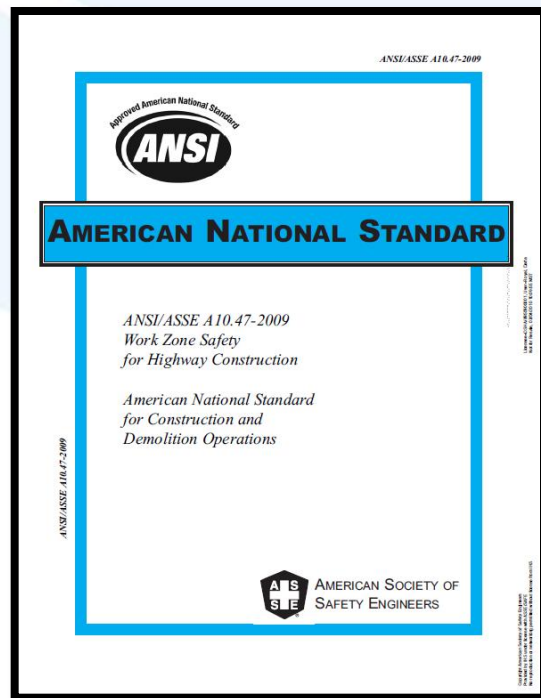
As well as the NJ Dept of Transportation "*Standard Specifications for Road and Bridge Construction*"



Internal Traffic Control is normally considered an industry *recommended practice* and not prescribed by law.



However, ANSI/ASSE A10.47-2009 states:
6.3 Internal Traffic Control Plans (ITCP).
Employers shall develop Traffic Control Plans for inside their work zones to minimize backups and other conflicts between workers and work vehicles/equipment and to maximize the separation of vehicles and workers on foot.

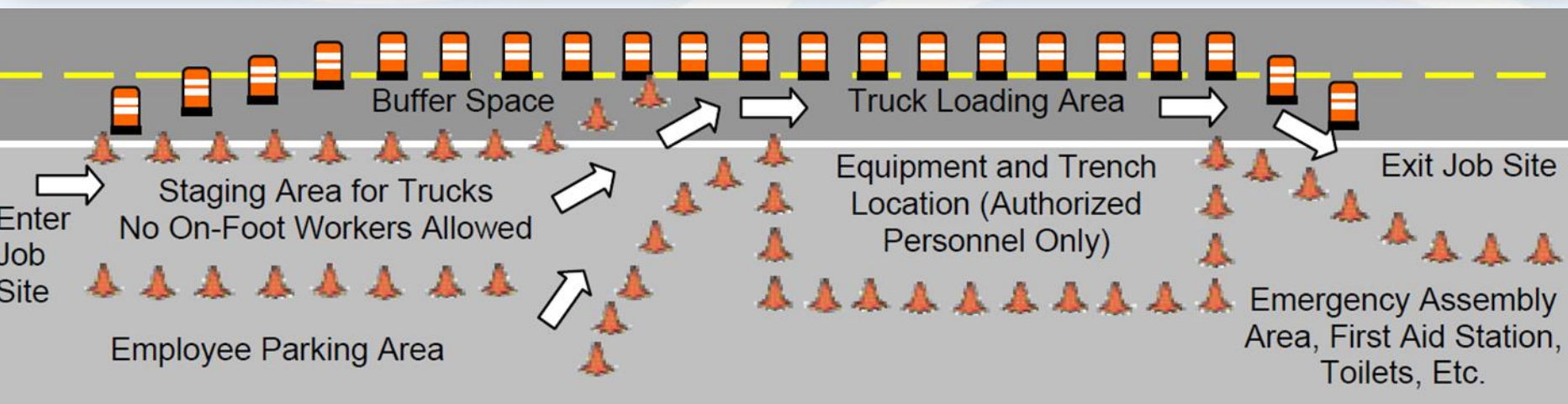
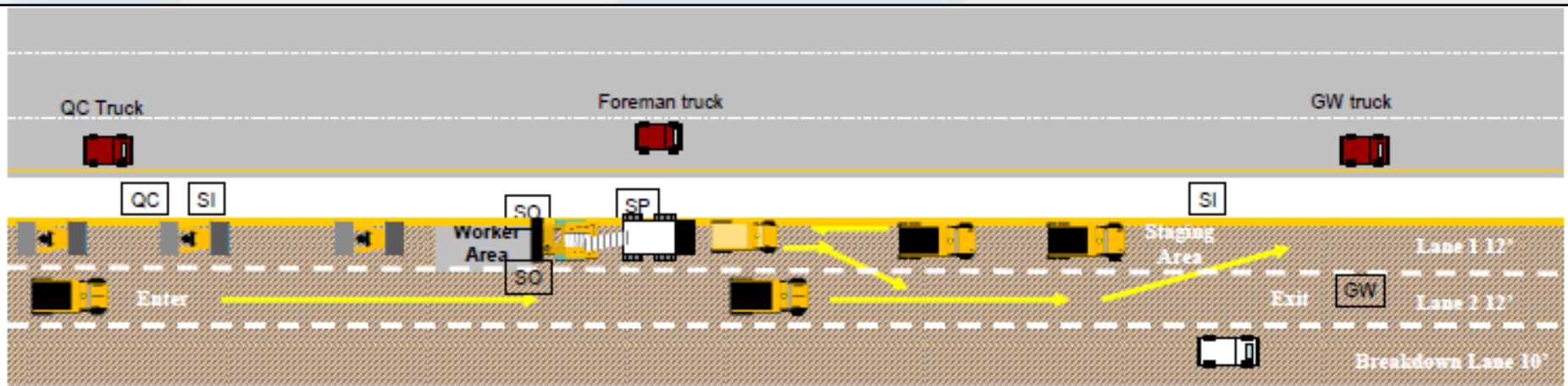


Concepts in Common

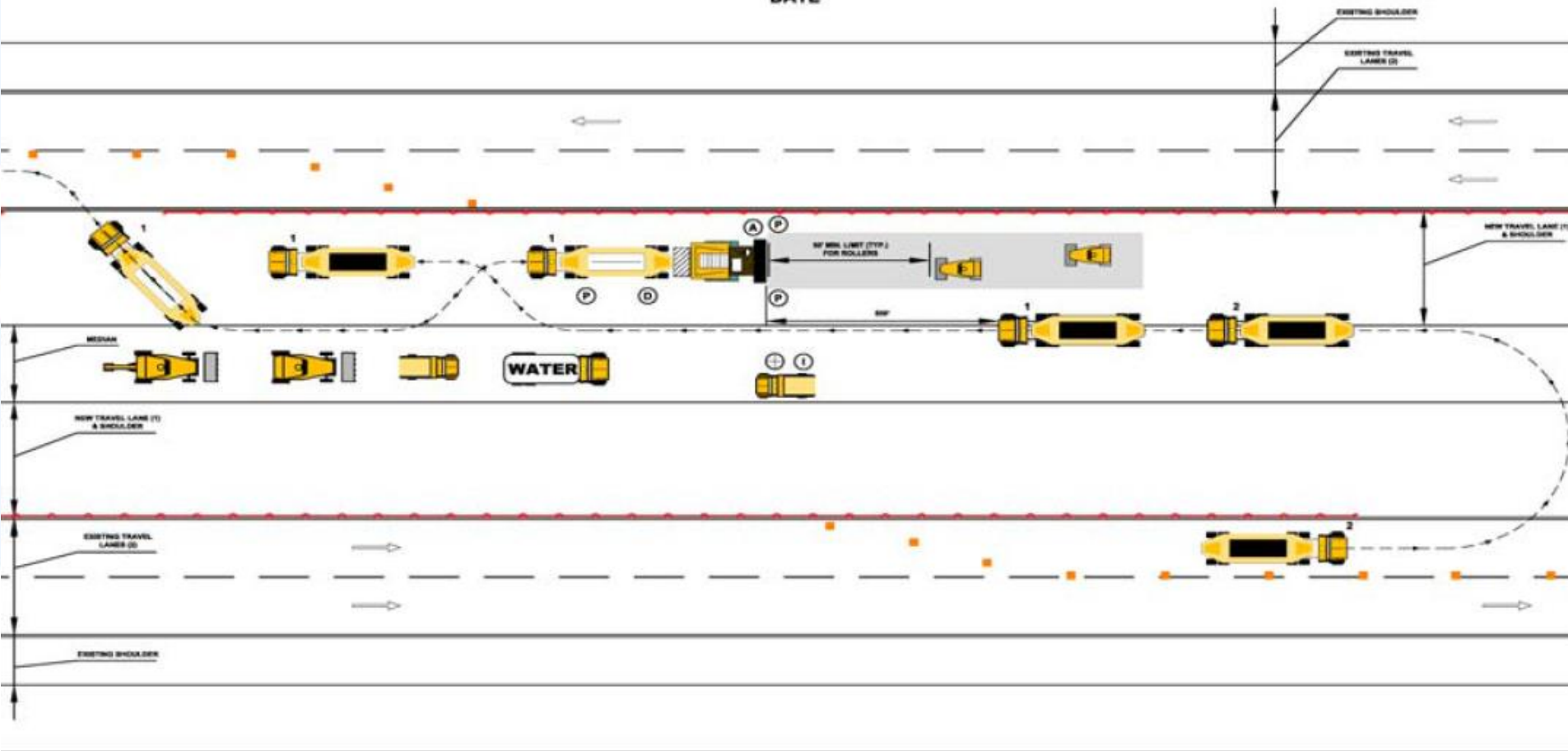


- While TTCs and ITCs each have a distinct focus, they carry common themes including:
 - Providing clear direction to drivers
 - Separating moving vehicles from workers on foot
 - Using temporary traffic control devices to mark traffic paths
 - Maintaining a smooth traffic flow

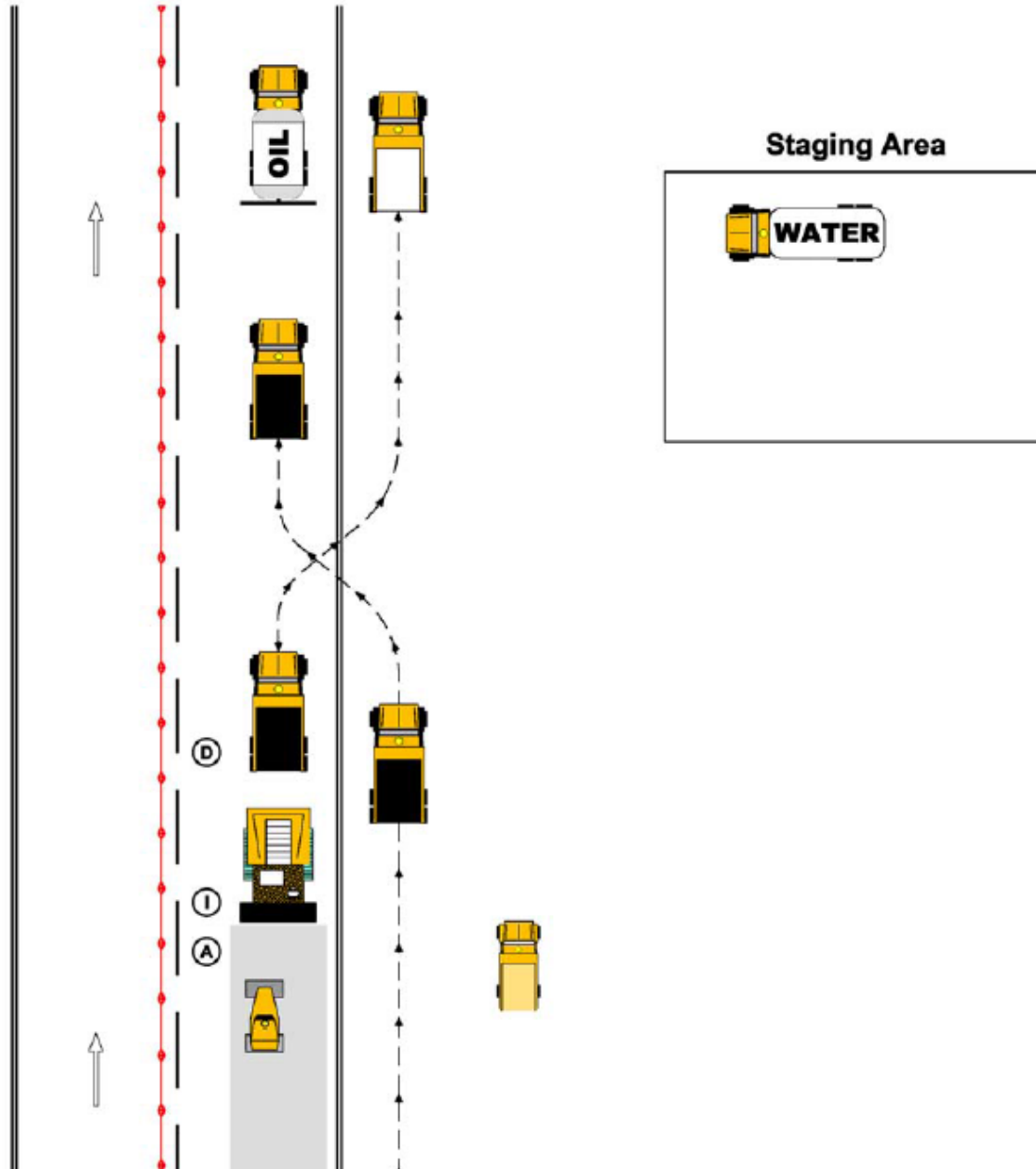
Sample Internal Traffic Control Plans



INTERNAL TRAFFIC CONTROL PLAN
OPERATION TYPE
PROJECT NAME
PROJECT LOCATION
DATE

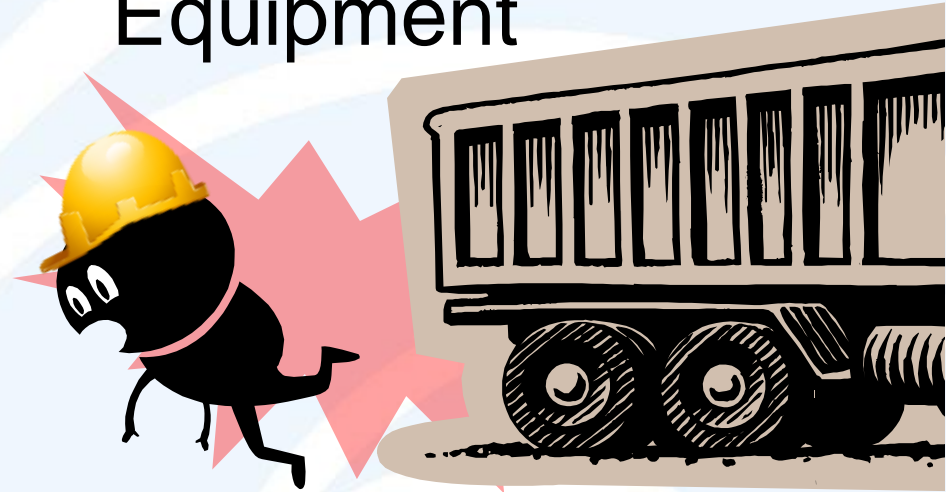
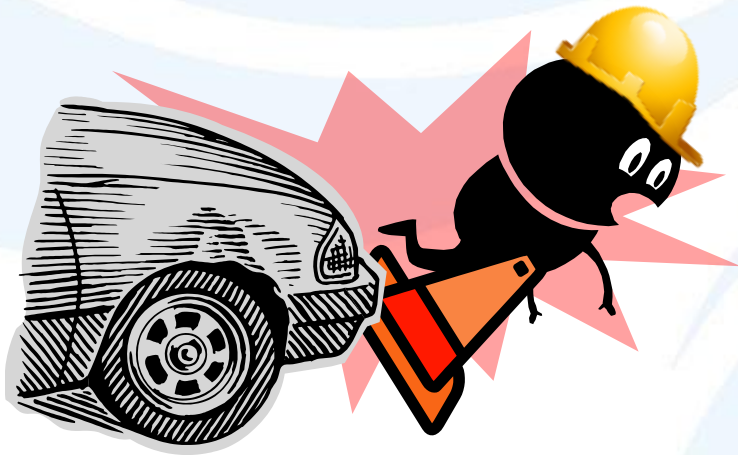


PAVING MODEL PLAN "TRAFFIC SEPARATE"



Two “Struck-By” Hazards

- Workers Struck-by Motorists
- Workers Struck-by Construction Trucks and Equipment



MORE WORKERS ARE KILLED BY CONSTRUCTION VEHICLES THAN BY MOTORISTS



Why Internal Traffic Control?

ITCPs Protect Workers on Foot

- Workers on foot or “pedestrian workers” are those employees who perform most of their duties outside vehicles and equipment. They are **particularly vulnerable** to being struck-by work zone hazards. **Every person on the site has the responsibility to be vigilant and work safely.**



FATALITY ASSESSMENT AND CONTROL EVALUATION (FACE) PROGRAM

Through the Fatality Assessment and Control Evaluation (FACE) Program, NIOSH conducts investigations of fatal occupational injuries. The primary intent of this program is to provide interested users with access to the full text of hundreds of fatality investigation reports.

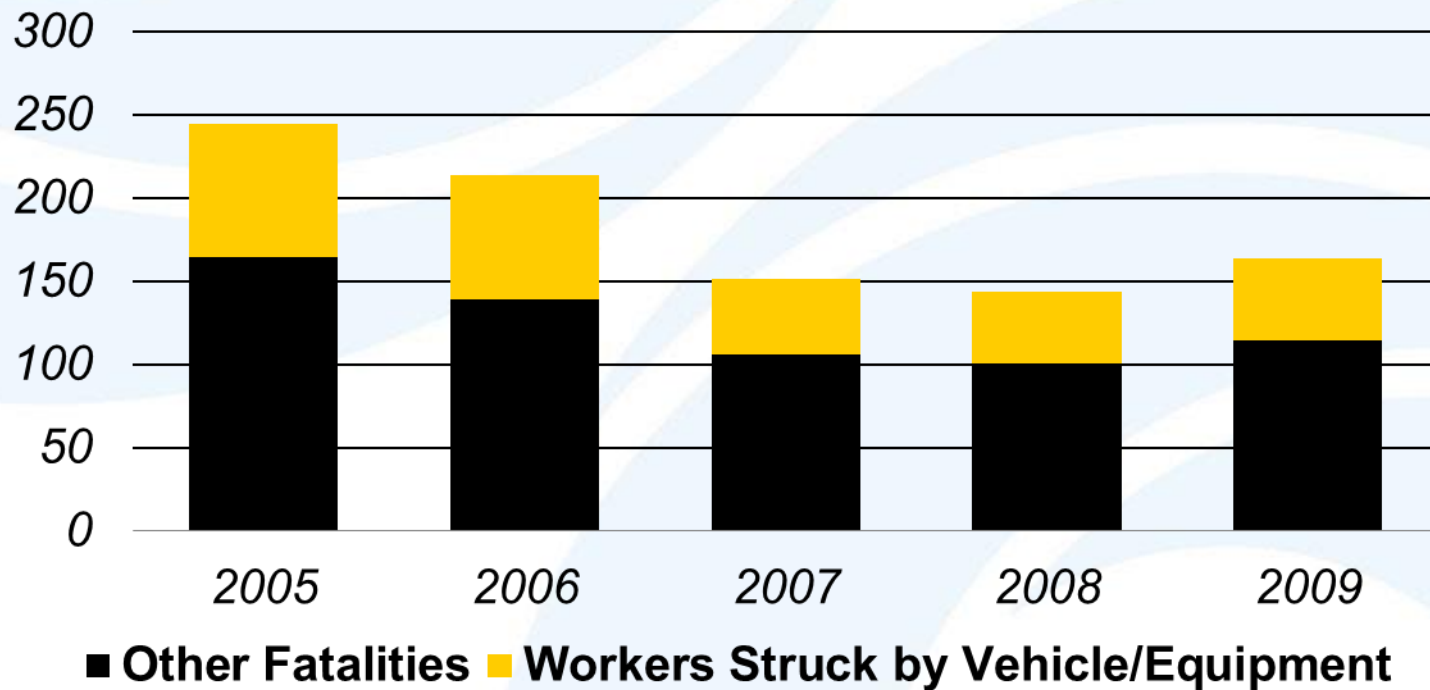
State FACE Reports: Highway Work Zones

The following reports are the products of our Cooperative State partners and are presented here in their original unedited form from the states. The findings and conclusions in each report are those of the individual Cooperative State partner and do not necessarily reflect the views or policy of NIOSH.

Report No.	Incident State	Title
2009MA031	MA	Municipal laborer dies after being struck by a motor vehicle while closing a water gate valve - Massachusetts.
2008MA037	MA	Police officer dies when struck by a car at night while directing traffic at a local fair - Massachusetts.
2008MA028	MA	Laborer dies after being backed over by dump truck at a nighttime highway work zone construction site - Massachusetts.
2007MI169	MI	Supervisor/foreman struck by a pickup truck while placing channelizer drum in road.
2007CA001	CA	A laborer dies in a street work zone after being backed over by a dump truck.
2008NI096	NI	Ground man for milling operation dies when struck by a dump truck backing into work zone.
2008NI068	NI	Surveyor dies when struck by oncoming vehicle.
2008MA027	MA	A municipal worker struck by a motor vehicle while patching a pothole - Massachusetts.
2008NY029	NY	Three construction workers killed after being struck by a bus in a highway work zone.
2008NU090	NJ	School crossing guard struck and killed by a sport utility vehicle.
2008NE028	NE	Hispanic carpenter killed when struck by piece of concrete that fell from rigging device during hoist in highway work zone.
2004OK028	OK	A county employee died when he was crushed between two heavy equipment compaction vehicles.
2004OK010	OK	Hispanic heavy equipment operator was killed while jump-starting a pad-foot drum compactor.
2004NY012	NY	Flagger dies after being struck by a pickup truck in a highway work zone.
2004NE040	NE	Hispanic laborer run over and killed by backing dump truck in roadway construction zone.
2004NE007	NE	Engineering technician run over and killed by backing dump truck.
2004CA008	CA	A construction laborer died when he was struck by a fast moving vehicle as he crossed the roadway in a street construction work zone.
2003OR032	OR	Vehicle strikes utility worker in short-duration work zone.
2003OK098	OK	Hispanic laborer died after being struck by a vehicle in a roadway work zone.
2003OK098	OK	A concrete saw operator was killed when he was pinned between the boom and the rear of a backhoe.
2003OK047	OK	A road construction worker was killed when he was run over by an asphalt dump truck.
2003NU070	NJ	Highway worker struck and killed by an auto while filling potholes.
2003NU034	NJ	Municipal road worker struck by a truck at a work site.
2003NI008	NI	Worker dies as a result of being struck and pinned between two vehicles while repairing potholes.
2003KY030	KY	Highway construction worker dies when struck by semi-tractor trailer.
2003WA048	WA	Maintenance worker killed when struck by a vehicle along a highway in Washington State.
2003WA034	WA	Utility construction supervisor killed when struck by a pickup truck at a work zone in Washington State.
2003MI106	MI	Highway worker killed by passenger vehicle while setting up highway work zone warning signal.
2003KY074	KY	Asphalt compactor operator dies when machine slides and falls 17 feet.
2003IA030	IA	Front hopper gate operator run over by chip spreader during street resurfacing.
2002CA003	CA	A construction worker jumps over a cement barrier onto an interstate highway transition road and is killed when struck by an oncoming vehicle.
2001NU098	NJ	Jackhammer operator run over by a truck in a highway work zone.
2001NU030	NJ	Truck driver killed in highway work zone collision.
2001MA039	MA	Police officer dies after being backed over by a dump truck - Massachusetts.
2001IA030	IA	City street worker was struck and killed by a speeding car.
2001CA008	CA	A construction surveyor is run over by a motor grader that was backing up.
2001CA004	CA	A traffic controller is killed when backed over by a dump truck.

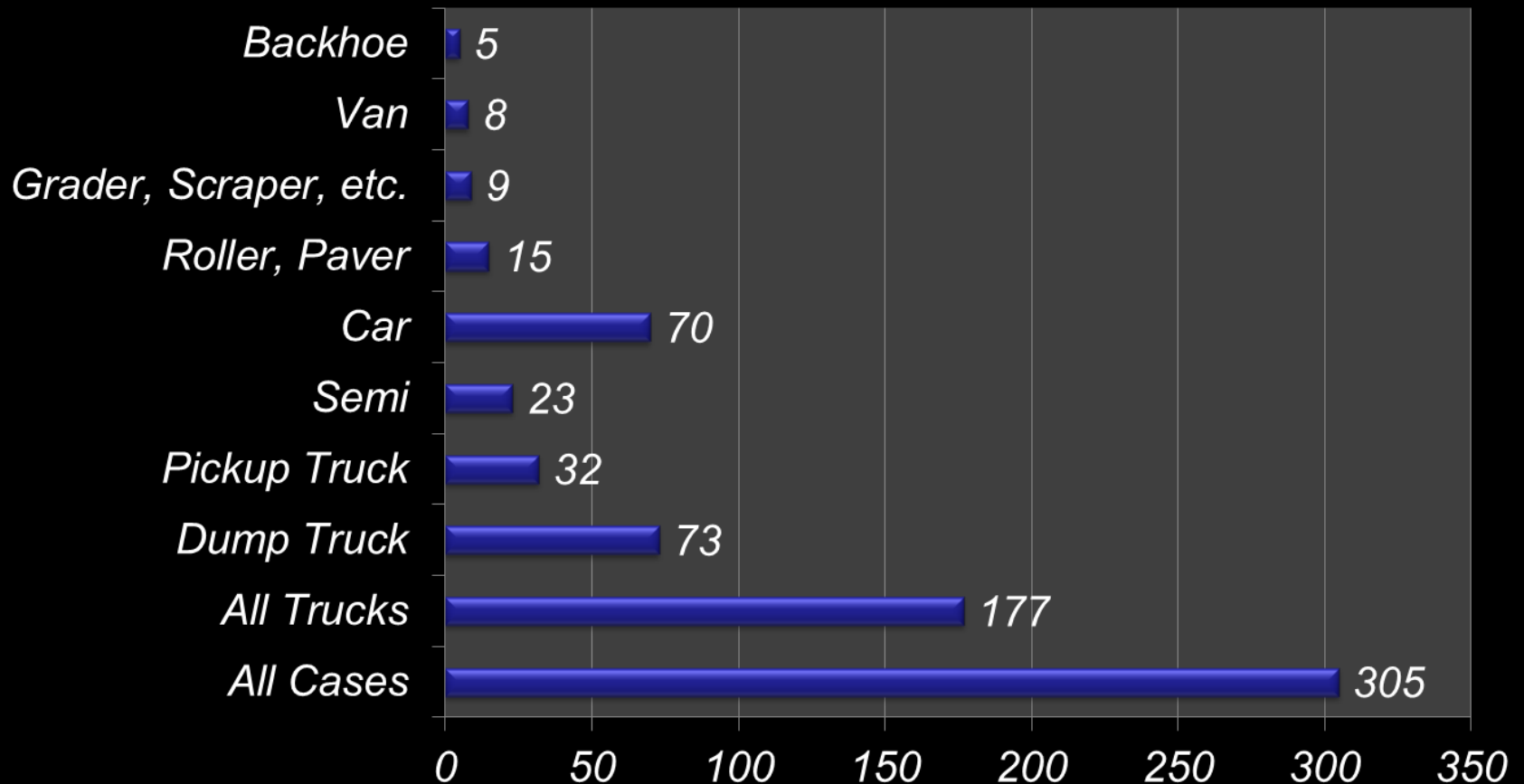
Runovers/Backovers are the Primary Cause of Roadway Worker Deaths

Fatal Occupational Injuries at Road Construction Sites



More Workers are Killed by Construction Equipment than Motorists

Fatal Injuries at Road Construction Sites: 1995 - 2007



Construction Vehicles are the Greatest Hazard



Vehicles Frequently Enter and Exit



Workers on Foot in Close Proximity to Large Vehicles



Blind Spots

- Blind Spots are the locations around equipment and vehicles where workers on foot are invisible to the operator through his windows and mirrors.



Behind the Vehicle

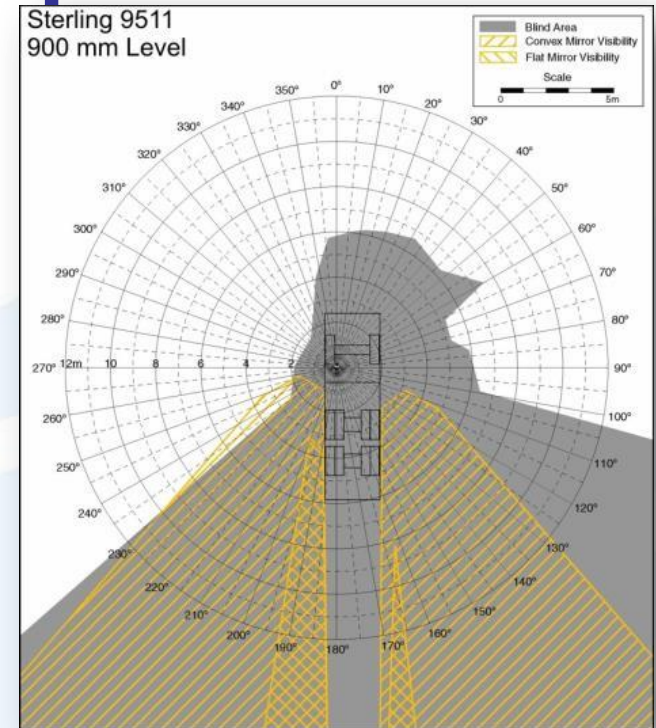


Outside Mirror Range

Workers Are Vulnerable in Blind Spots



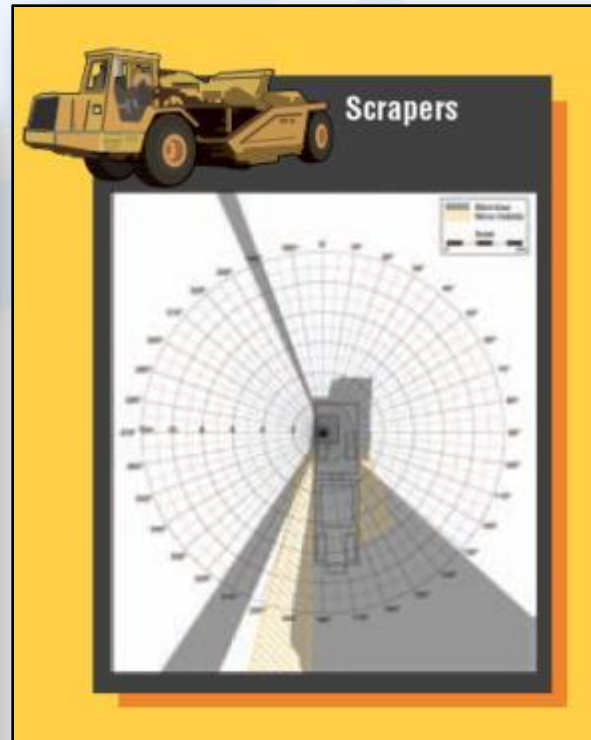
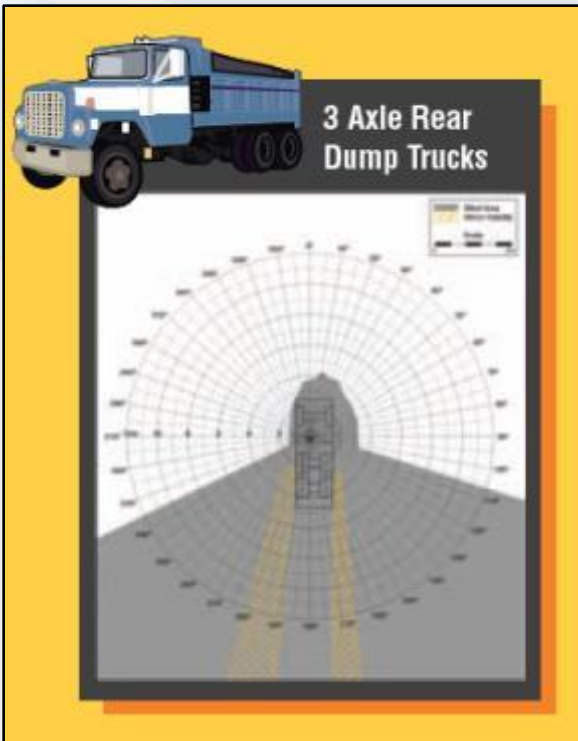
Be Familiar with Your Vehicle's Blind Spots



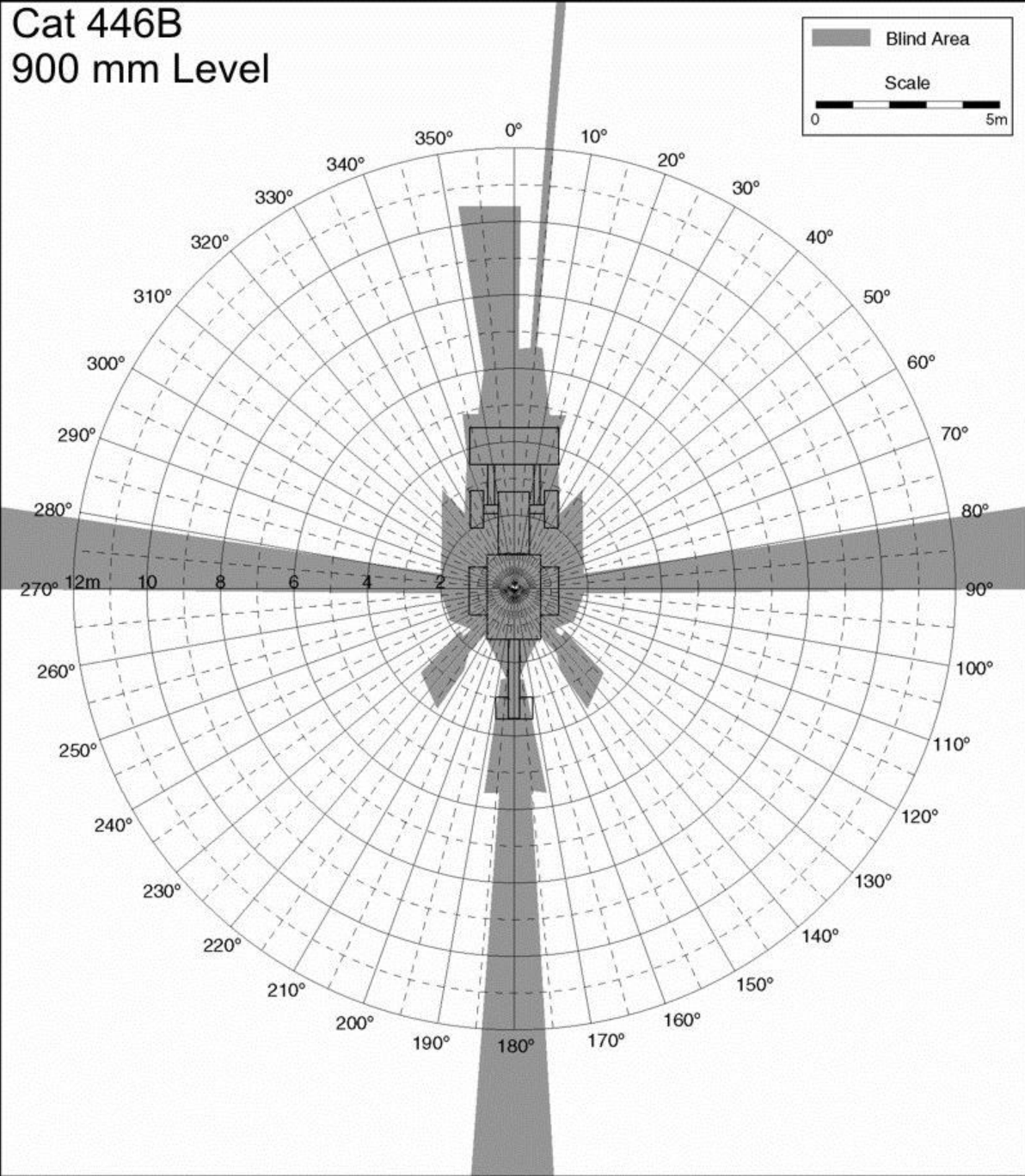
<http://www.cdc.gov/niosh/topics/highwayworkzones/bad/imagelookup.html>

Blind Spots

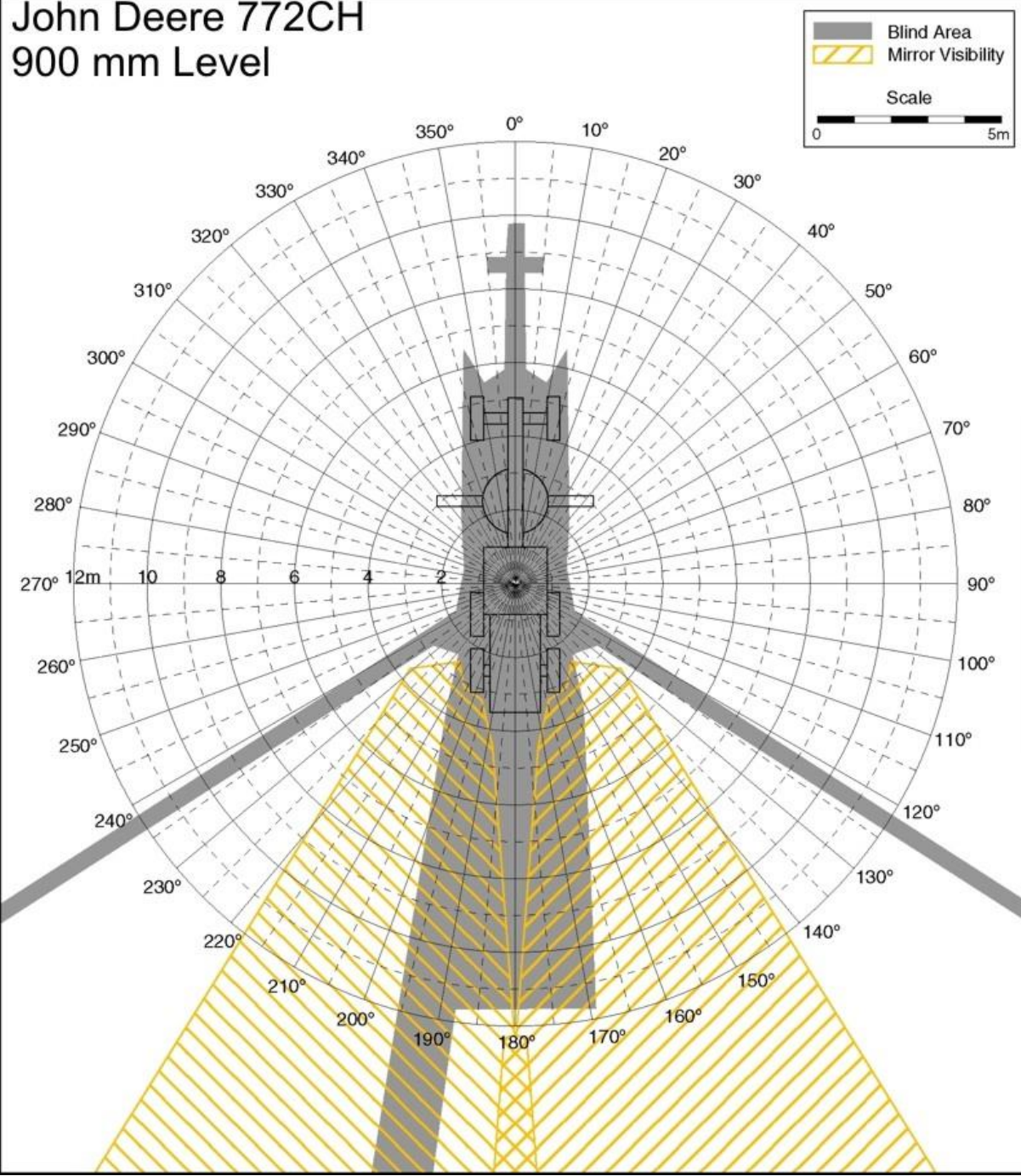
- Each type and make of vehicle has its unique blind spots.



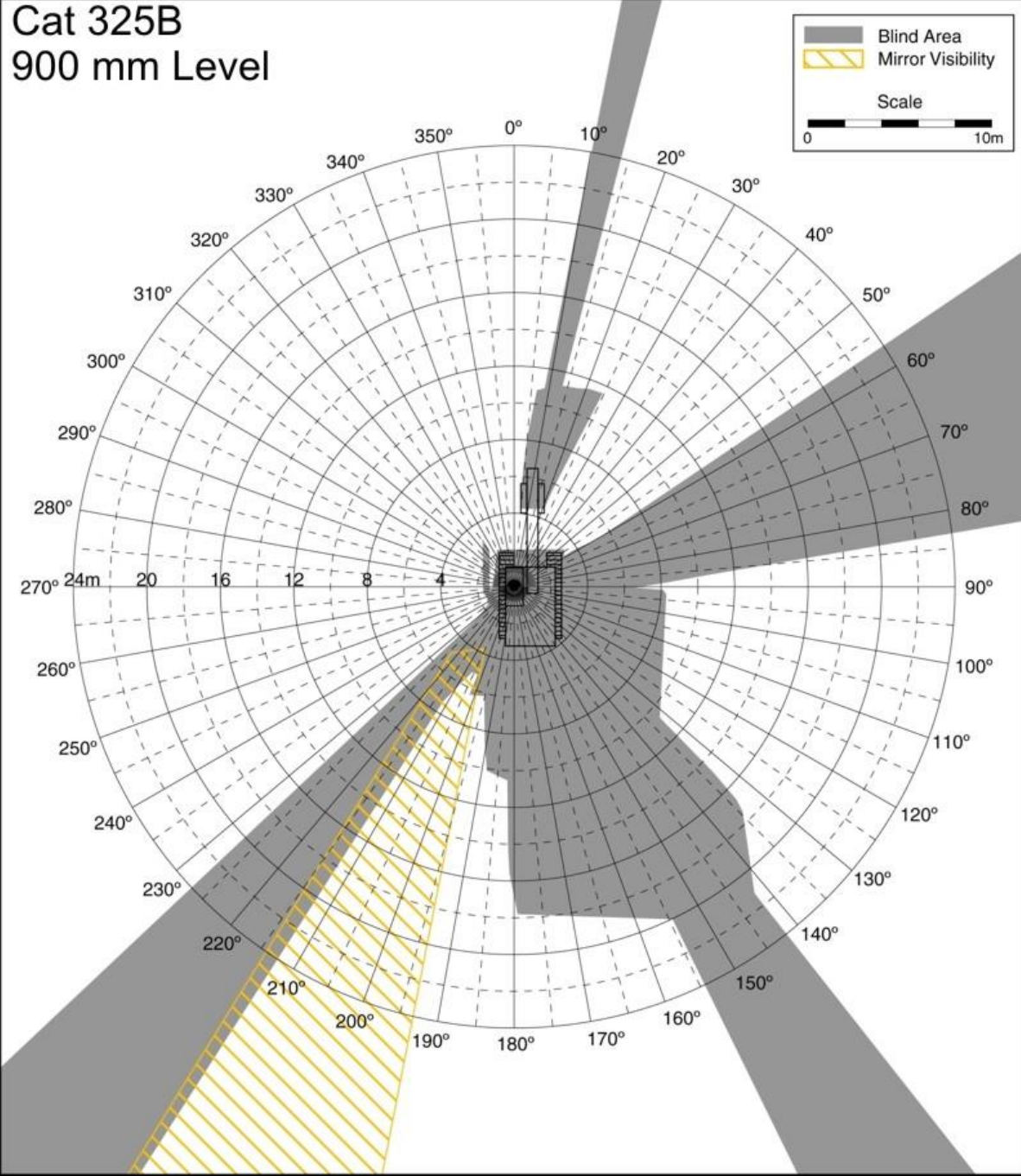
Cat 446B 900 mm Level



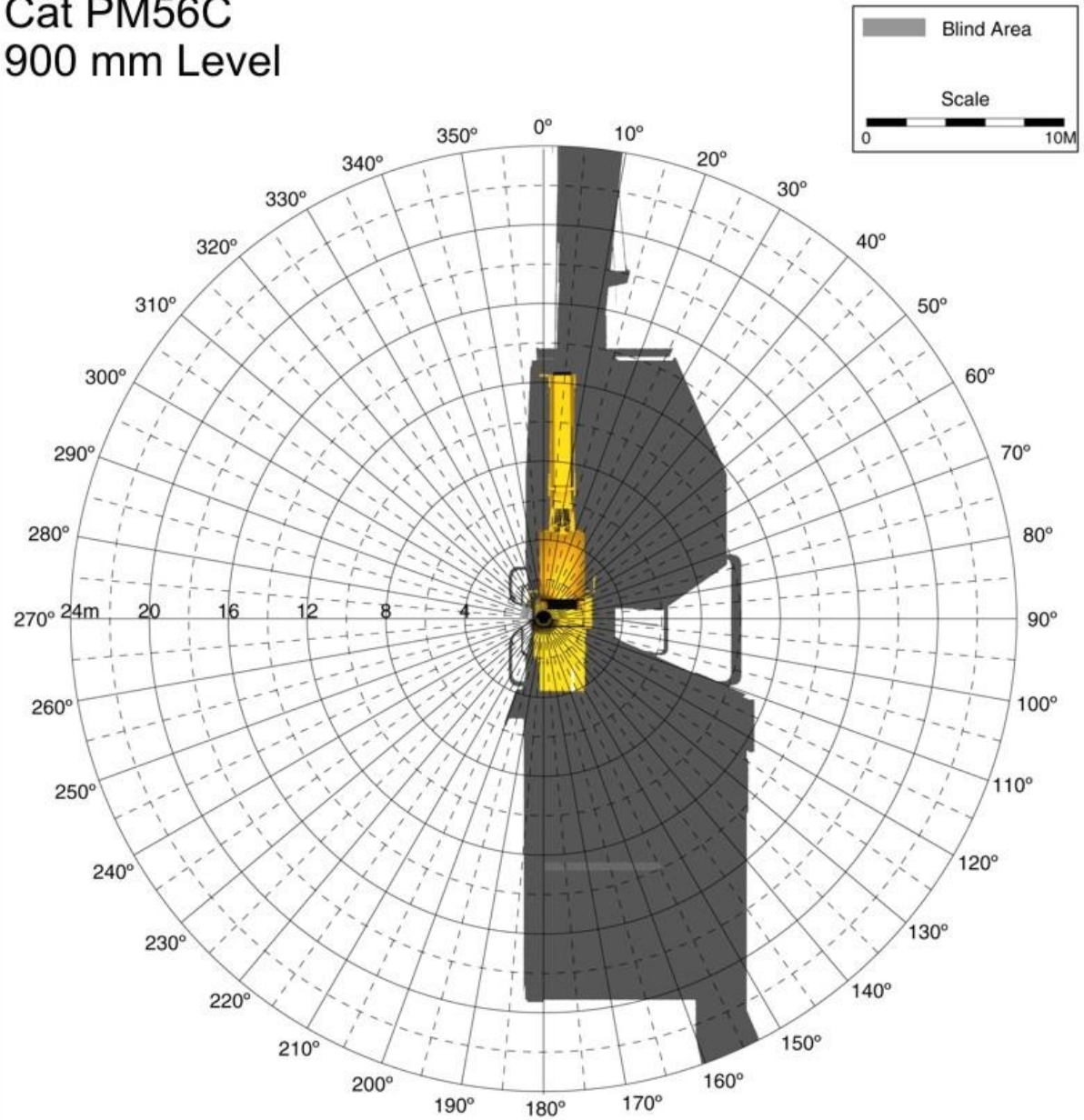
John Deere 772CH 900 mm Level



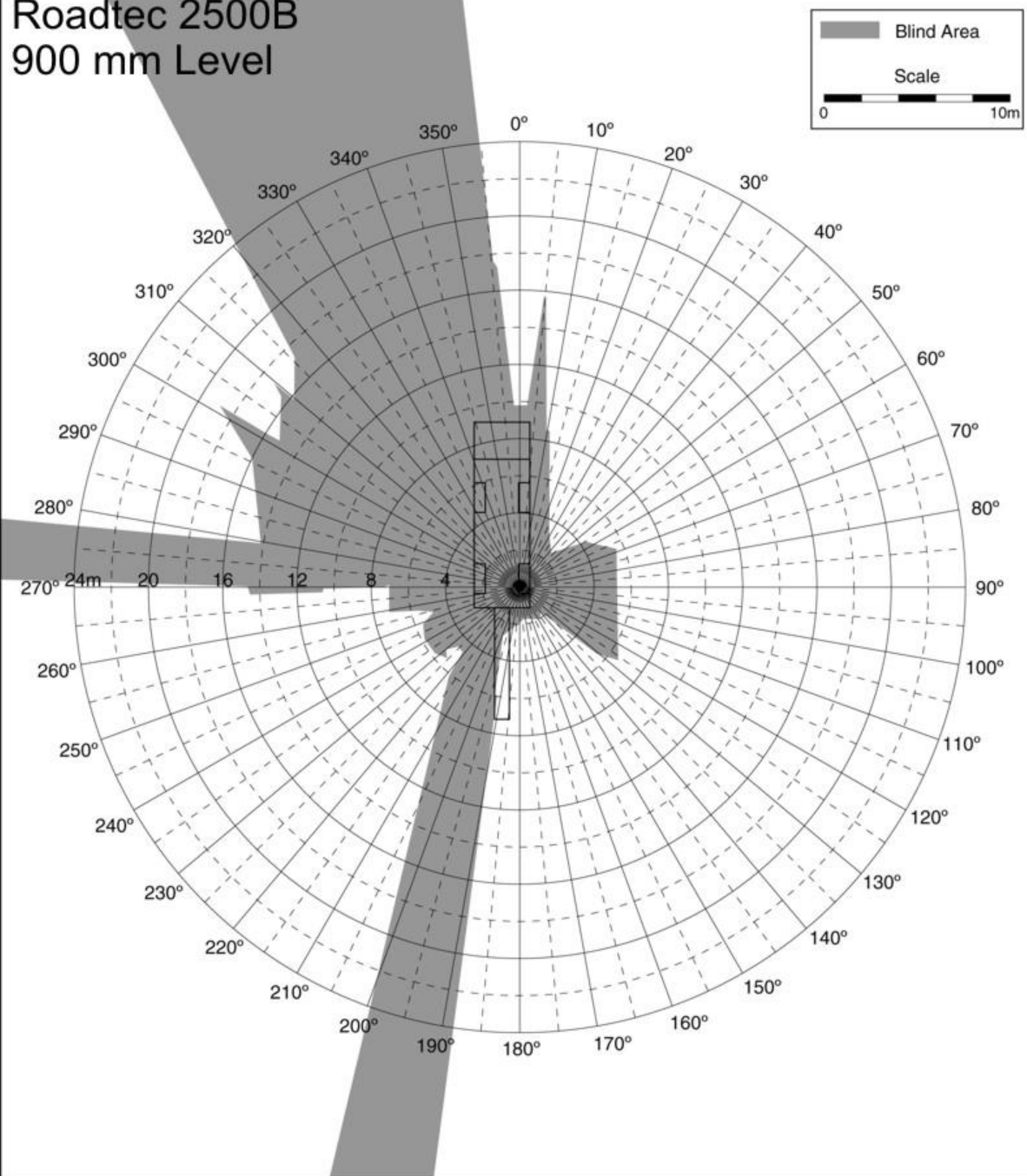
Cat 325B 900 mm Level



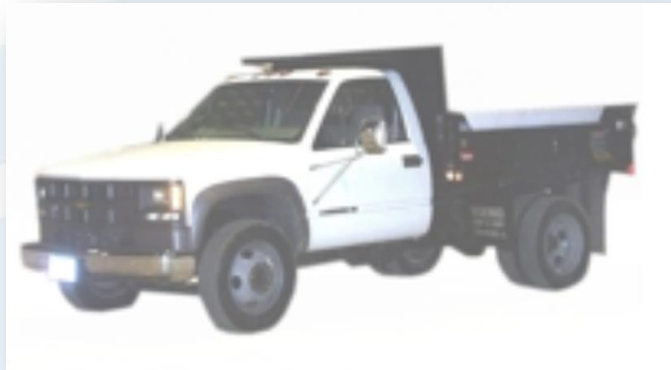
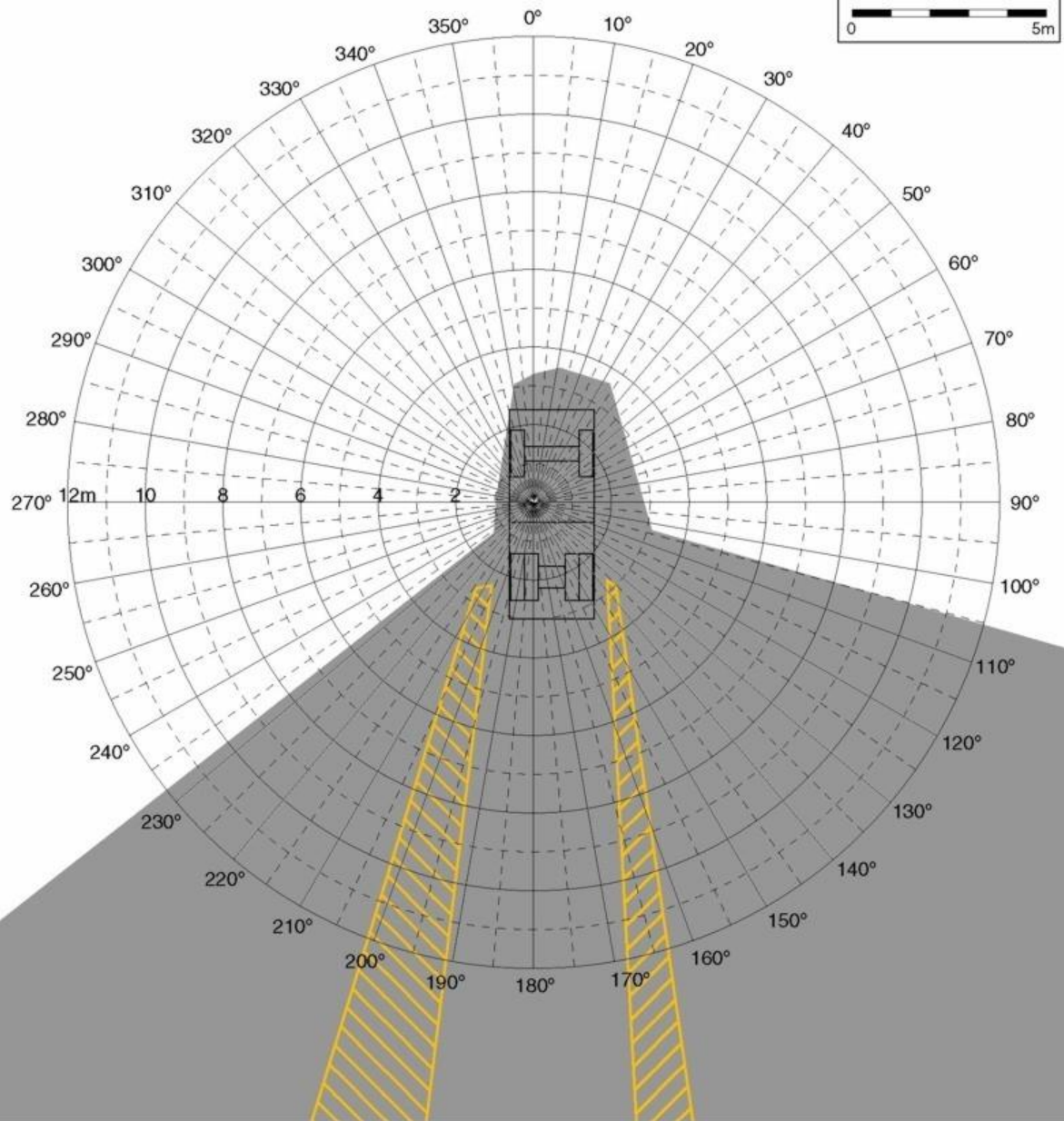
Cat PM56C
900 mm Level



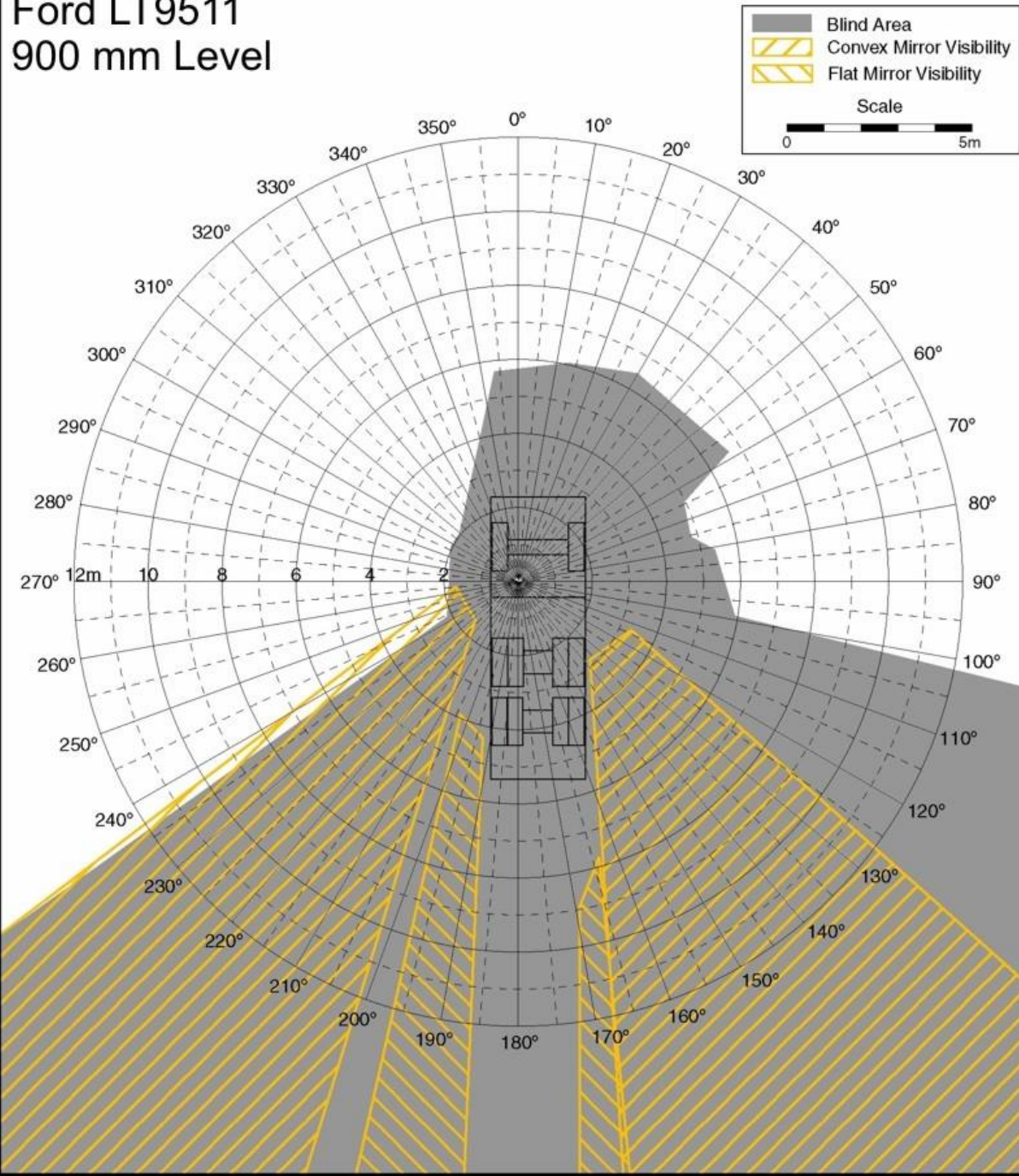
Roadtec 2500B 900 mm Level



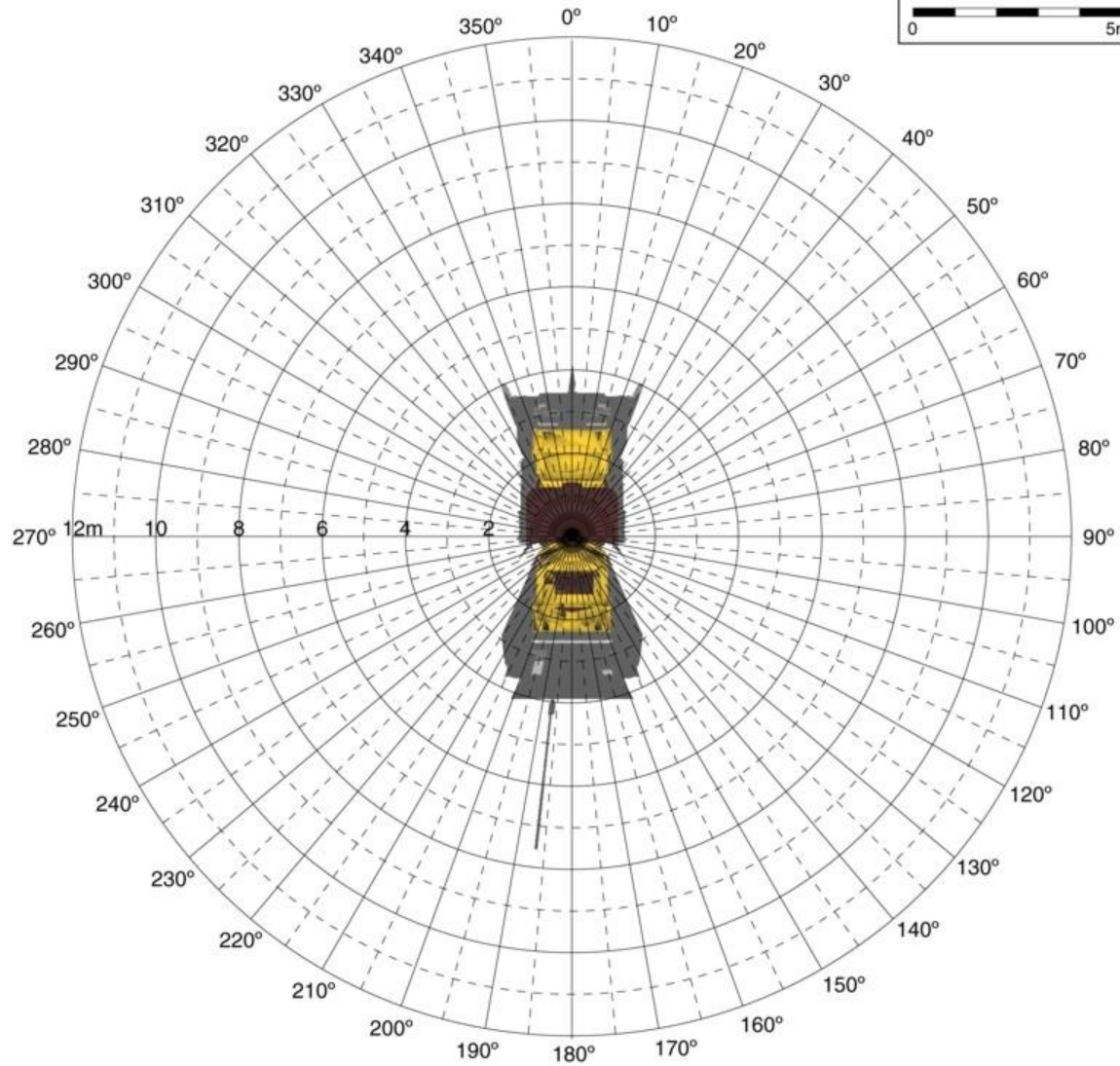
GMC 3500HD 900 mm Level



Ford LT9511 900 mm Level



Cat CB 534D 900 mm Level



Construction Worker Killed By Roller



A freak accident involving a roller claimed the life of a construction worker in Broward County.

Florida Highway Patrol officials said the roller "collided" with the worker.



CASE STUDIES

Fatality Assessment and Control
Evaluation (FACE) Program



NIOSH In-house FACE Report 2006-

03
Virginia

July 18, 2006, at approximately 8:00 p.m

Laborer Dies After Being Run Over by a Backing Dump Truck During a Nighttime Paving Project

A 21-year-old male road construction worker was fatally injured when a dump truck partially loaded with asphalt backed over him. The victim was a member of a road construction crew working at night on a state highway paving project.



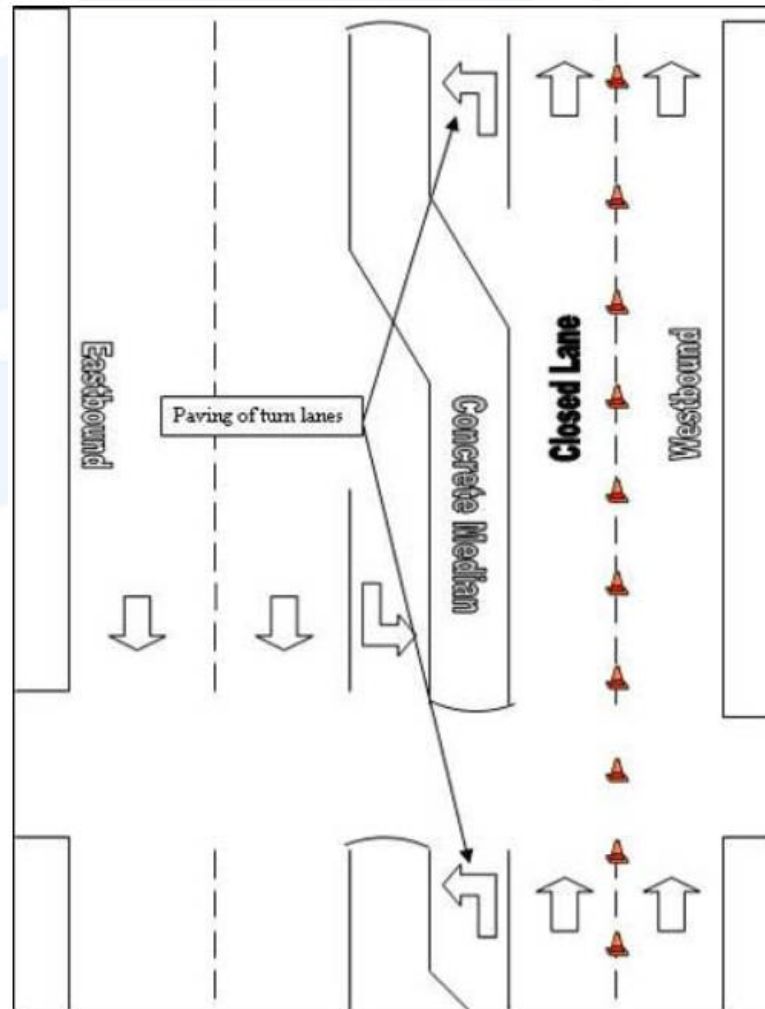
The victim had been employed as a general laborer with the paving company for 3 months. His primary responsibility was driving a van to transport workers who did not possess driver's licenses to and from the job site. When not driving, he would sometimes perform flagger or laborer duties.

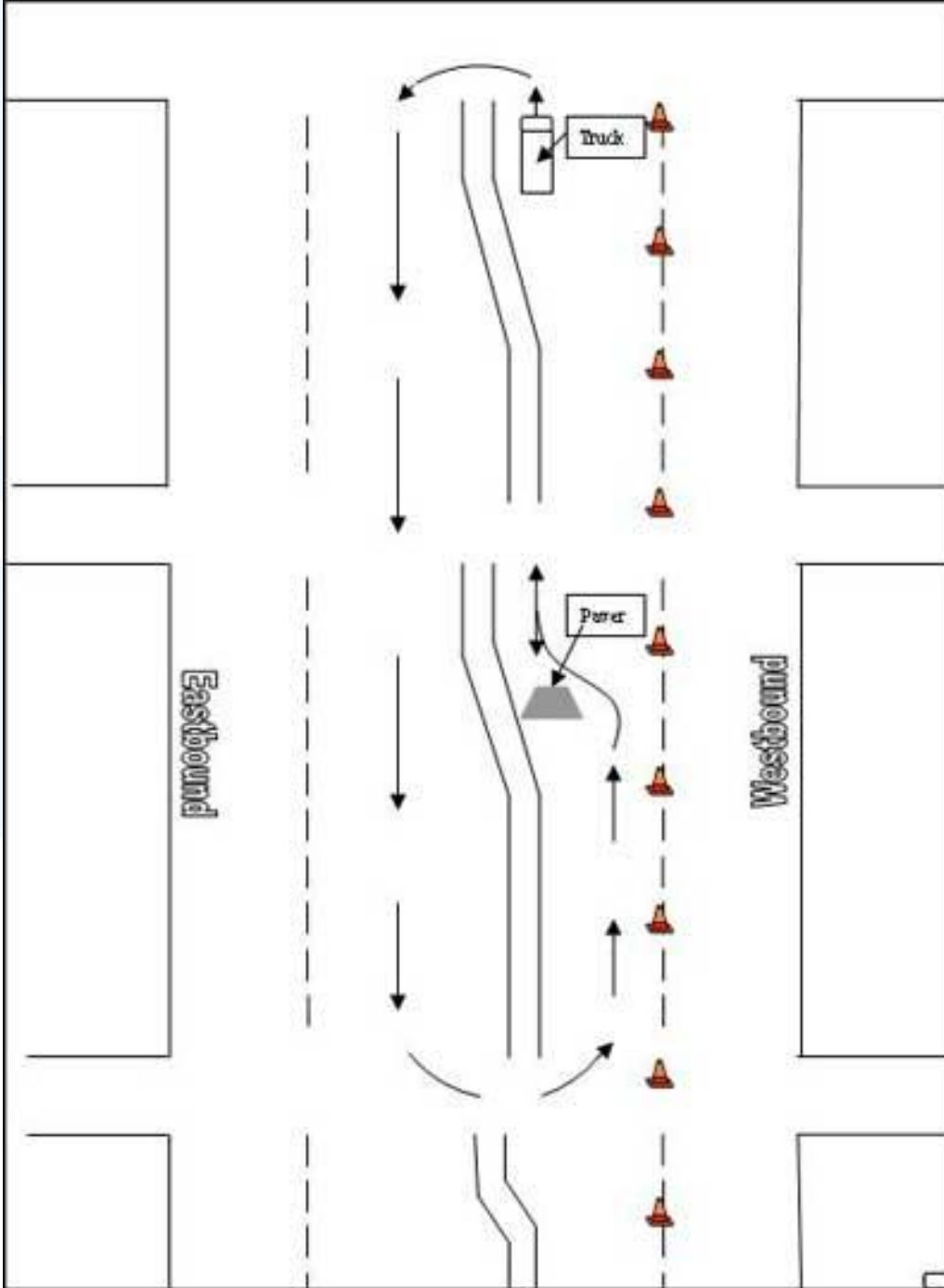
The employer had been contracted by VDOT to pave an urban stretch of 4 lane divided state highway. Paving of the travel lanes had been completed, and before lane line painting could begin, the paving of the turn lanes approaching the intersections needed to be completed.

The project was being completed with one paver, two rollers, a sign truck, a distributor truck, and 15 dump trucks. An independent trucking company had been contracted to assist with hauling asphalt from the asphalt plant to the project site. All dump trucks hauling asphalt on the project were owned and operated by independent contractors



Work on the turn lanes began on the evening of July 18, 2006, at approximately 8:00 p.m., with closure of the inside westbound lane and the set up of the work zone. Traffic cones were used to close the westbound lane and channel traffic past the work zone. The project area was described as being very dark with the absence of street lights. Parking lot lighting from adjacent businesses provided the only ambient lighting.





The employer's normal standard operating procedure (SOP) briefed verbally to drivers was for trucks not to back through the intersections. The SOP was for the trucks to perform a u-turn, enter the EB lane and travel past the paver before turning back into the WB lane.

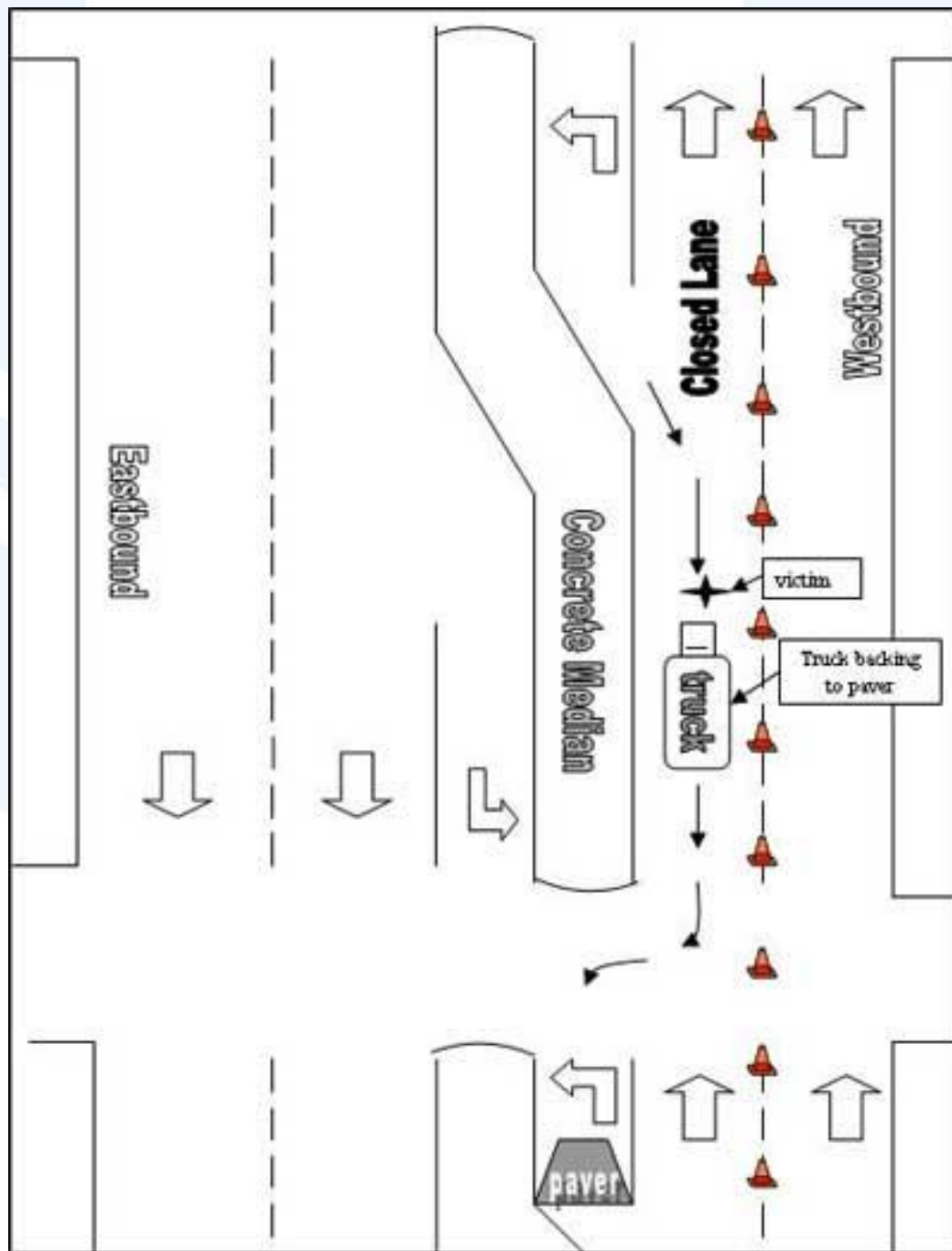
The truck would then pull forward in front of the paver, minimizing the backing distance. Spotters were located only at the paving machine to assist the driver in aligning the truck with the paver.

No written SOP for trucks backing through the work zone was provided to investigators.

At the time of the incident, the paving crew had just finished a turn lane and had backed the paver to the next turn lane, located at an intersection approximately 150 yards east. The paving crew had walked with the paving equipment to the next intersection.

The victim had not walked with the rest of the crew, but had remained further back in the closed lane. None of the work crew or the on site supervisor knew why the victim had not accompanied the rest of the work crew to the paver. According to the site supervisor he was not assigned any tasks in the work zone.





As the driver was backing the dump truck through the work zone, he was looking through his driver's side mirror to aide in aligning the truck with the paver while approaching the intersection.

The driver stated he did not see anyone behind the truck. As he was backing the truck he felt a bump and noticed something appear out from under the front of the truck.

Evidence suggests the victim had his back to the truck when he was struck by the rear right side. The truck was approximately 100 feet from the intersection.

The victim was wearing a high visibility vest and hard hat. A shovel normally used to shovel asphalt spill was beside the victim. Although not assigned the task, he may have been shoveling spilled asphalt when he was struck.

The truck was inspected by VOSH and found to have properly functioning lights and back up alarm.



NIOSH / FACE Recommendations:

#1: Employers should ensure that backing procedures are in place for the use of mobile construction vehicles, and use spotters for assistance when backing trucks and equipment in the work zone.

#2: Ensure that all workers, including sub-contractors, receive work zone safety training and are familiar with standard operating procedures before beginning work or being allowed entry into the work zone.

#3: Employers should ensure that during planning phases of roadway construction, procedures are developed which minimize backing of vehicles and equipment through the work zone.



#4: Employers should ensure that the work zone is properly illuminated.

#5: Employers should consider installing after market electronic signaling devices or sensors on construction vehicles to help monitor the presence of workers on foot within blind areas..

#6: Employers should implement a "buddy system" for employees working around construction equipment.

#7: Employers should consider having paving machine(s) and crew(s) remain in a safe area at the paving location until hand work is complete and all workers are in the clear and accounted for.



NIOSH Nebraska Case Report: 04NE007

April 21, 2004, at approximately 7:45 a.m.,

Engineering Technician Run Over and Killed
by Backing Dump Truck

A 51-year-old male engineering technician was killed when he was backed over by a dump truck in a roadway work zone. The victim entered the work zone behind a dump truck that was backing towards an asphalt milling machine. He bent down to take measurements when he was struck.



The victim had been employed by this company for 28 years, working his way up to an associate engineer for the past 10 years. He had worked on this construction project for several days.

The company the victim worked for had a generic written safety program that did not include requirements for PPE wear. Employees were instructed to follow the safety requirements of the company they were consulting for.

The truck operator was a 47-year-old female. She had been employed by the road construction company for approximately 4 weeks. She had previously operated dump trucks for 6 years with another company.

The construction company had a Safety & Health program detailed in a safety manual that includes a comprehensive vehicle policy. Each truck operator is given 30 minutes at the beginning of their shift to inspect their truck for numerous items, including reverse lights, backup alarms and highway horns. Company documents indicated that the operator inspected the truck involved in the incident that morning.

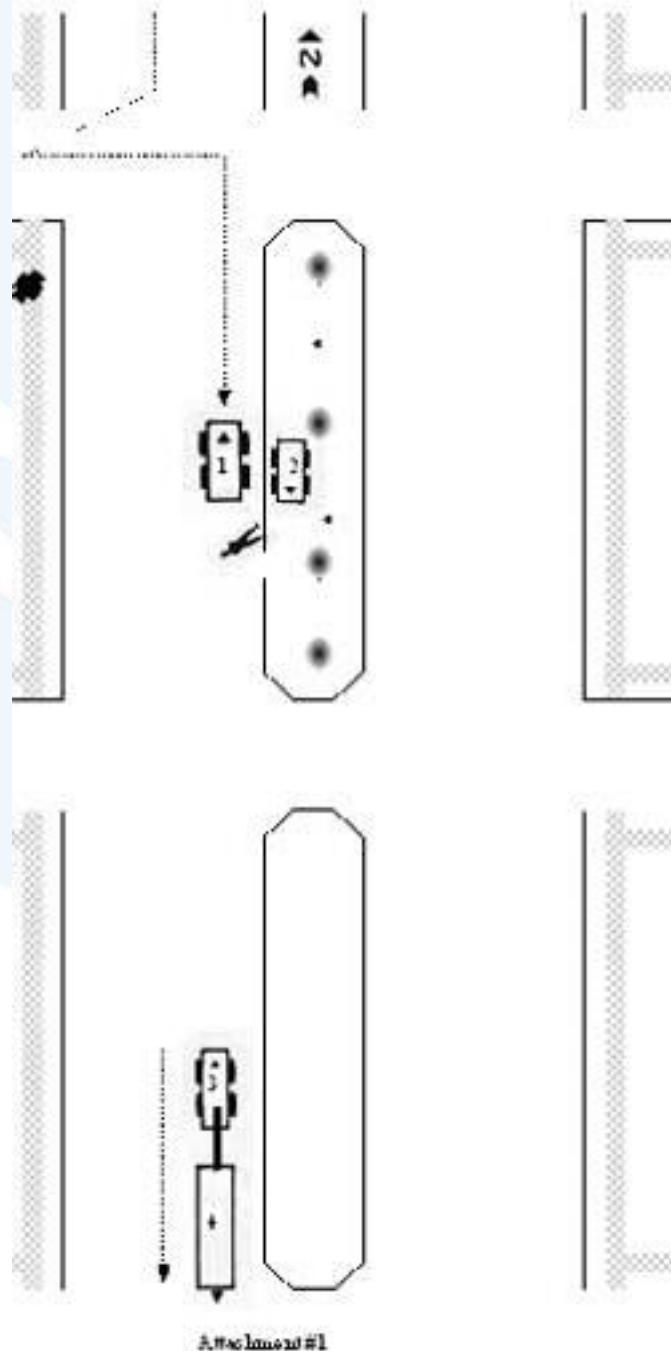


The job site was an inner-city two-lane, tree-lined boulevard, running north and south. Each lane was extra wide and could accommodate side-by-side traffic. The lanes were separated by a wide grassy median with mature trees and shrubs throughout its length. Old asphalt was being removed by a milling machine and a dump truck moving south in the SB lane. The entire operation was in a slow, continual SB motion. The milling machine operators are the designated spotters for the operation but only have control over the truck being loaded with asphalt millings, and the next truck in line for loading.



The dump truck operator pulled into the job site approximately one block north of the milling machine, made a three-point turn and started to back towards the milling machine to wait her turn to be loaded. A skid steer operator approached and had her stop at the intersection so he could dump a bucket of asphalt millings into her truck. As the skid steer pulled away, she honked her horn and continued to back towards the milling machine. While in reverse, the white reverse lights and the reverse audible signal were activated.





The victim arrived at the job site at approx. the same time the truck driver arrived. He parked on a side street, crossed the SB lane into the median and walked north, away from the milling machine operation.

He was wearing blue jeans and a dark blue shirt covered by a dark blue jacket. He was not wearing a hard hat or high visibility clothing.

There was an employee's personal PU truck facing south parked along the south bound lane in the median.

The victim bent over, using a 3 foot level and wooden folding ruler to measure the amount of asphalt that had been removed.

A lady walking her dogs south along the boulevard's southbound lane just north of the dump truck witnessed the incident. She noticed the victim step from the median into the area directly behind the dump truck and bend over. She also noticed that the dump truck was backing towards the victim, but assumed he either heard or saw the approaching danger, as his head kept moving up and down, as though he was looking at the approaching truck.

The witness verified that she could hear the back up alarm and stated she heard a noise as the truck struck the victim.



NIOSH / FACE Recommendations:

#1: Establish a system to ensure the area behind and adjacent to vehicles and equipment is clear to safely operate.

#2: Ensure that the company has a policy that requires that site supervisors be notified before sub-contracted employees enter the work zone.

#3: Ensure that all employees are wearing appropriate personal protective equipment (PPE).

#4: Ensure that equipment warning devices are adequate.



What Can WE ALL Do?

Meet at the beginning of the detail to discuss the days goal

Discuss how the goal is going to be met

Is the proper equipment available?

Frequently drive-through and inspect the site

STOP the process if it is unsafe

LEAD BY EXAMPLE!



What Can **LEADERS** Do?

Bang the Drum! Never stop talking SAFETY!

Invest in SKILLS – Training is the cornerstone

Set baseline standards and regularly check to ensure they are being met

Hold managers Accountable

Reward SAFE Practices

LEAD BY EXAMPLE!



FORMULA FOR SUCCESS





AGC of America
Building Your Quality of Life



New Reporting / Record Keeping Rules

Starting **January 1, 2015 all employers must report:**

- all work-related fatalities within 8 hours

Within 24 hours, all work-related:

- inpatient hospitalizations
- amputations
- losses of an eye



How to report an incident:

- Call the OSHA Hotline
- Call your nearest OSHA area office, during normal business hours
- Visit www.osha.gov/report_online



SHA Hotline

(800) 321-OSHA

24 hours -7days

OSHA Area Offices

Hasbrouck Heights

***Serving Bergen, Passiac**

**500 Route 17 South, 2nd Floor
Hasbrouck Heights, NJ 07604
(201) 288-1700
(201) 288-7315 (FAX)**

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Marlton

*** Serving Atlantic, Burlington, Camden, Cape
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Monmouth, Ocean and Salem**

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(856) 596-5201 (FAX)**



THINK SAFETY!



**Occupational Safety
and Health Administration**