



Vehicle Operation Hazards

Brett S Fortin
Compliance Assistance Specialist
Springfield Area Office

Disclaimer

- ▶ This information has been developed by an OSHA Compliance Assistance Specialist and is intended to assist employers, workers, and others as they strive to improve workplace health and safety. While we attempt to thoroughly address specific topics **[or hazards]**, it is not possible to include discussion of everything necessary to ensure a healthy and safe working environment in a presentation of this nature. Thus, this information must be understood as a tool for addressing workplace hazards, rather than an exhaustive statement of an employer's legal obligations, which are defined by statute, regulations, and standards. Likewise, to the extent that this information references practices or procedures that may enhance health or safety, but which are not required by a statute, regulation, or standard, it cannot, and does not, create additional legal obligations. Finally, over time, OSHA may modify rules and interpretations in light of new technology, information, or circumstances; to keep apprised of such developments, or to review information on a wide range of occupational safety and health topics, you can visit OSHA's website at www.osha.gov.

Disclaimer



This presentation focuses on hazard identification and recommended abatement to ensure employee safety

Vehicle operations can have multiple jurisdictional authorities such as but not limited to Department of Transportation regulations both federal and state, Federal Motor Carrier Safety Administration etc.

It is the employer's responsibility to ensure that they follow ALL regulations as it relates to employee and public safety while operating motor vehicles to include but not limited to motor carrier vehicles and trailers, earth moving equipment, material handling equipment (forklifts) and weight handling equipment (cranes)

Scope



- ▶ This presentation does not comprehensively cover each topic as that would require a time frame greater than the time allotted, it is developed instead to highlight the general requirements, items to address and sources of customized help for employers that are looking to improve workplace safety and health.
- ▶ During the course of, this class the word SHALL may appear, this indicated a regulatory requirement
- ▶ Reminder that other jurisdictions, DOT, State or local ordinances make have stricter standards; it is the duty of the employer to be in compliance with these regulations as well
- ▶ Employers can find the information used as reference to this presentation at www.osha.gov

Objectives



At the completion of this training, the attendee will be able to:

- Identify common hazards associated with motor vehicle operations around employees on foot (pedestrians)
- Identify situations to avoid when working around motor vehicles
- Identify means and methods for safely working around motor vehicles when on foot
- Identify hazards associated with vehicle blind spots

Common Hazards Associated with motor vehicles and Pedestrians in a work area

- ▶ Common hazards include but are not limited to:
 - ▶ Unanticipated backing (back overs)
 - ▶ Caught between hazards (hooking up trailers/ auxiliary items)
 - ▶ Struck-by hazards (interior traffic control plan)
 - ▶ Non-work-related traffic (work zones)

Common Hazards Associated with motor vehicles and Pedestrians in a work area

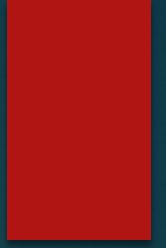
▶ Back over hazards

- ▶ Since 2018 there have been 6 Fatal accidents involving backing equipment and pedestrian employees in Region 1.
- ▶ Although each incident has its own set of circumstances, they all have some commonalities
 - ▶ Operators had backed a piece of equipment with an obstructed view of their rear area
 - ▶ Pedestrian workers were allowed to work in areas where equipment and foot traffic would conflict
 - ▶ Worksite had no written or discussed internal traffic control plan
 - ▶ Employer had not discussed with employees the prohibited areas for foot traffic

Common Hazards Associated with motor vehicles and Pedestrians in a work area

- ▶ Trailer Yard Operations
 - ▶ Employees SHOULD NEVER be allowed to walk through or between trailers that are being connected or disconnected
 - ▶ If a yard assistant is needed to help disconnect a trailer, the Tractor SHOULD be placed in neutral with the parking\service brake FULLY engaged
 - ▶ Employees assisting with backing vehicles MUST remember to stand in a position where they can see the side view mirrors and the operator's face must be visible in that mirror, if you CAN'T see the driver in the mirror, they CAN'T see YOU
 - ▶ Never hook a trailer up with the primary mover (Tractor, Truck etc.) while it is still in reverse gear

Common Hazards Associated with motor vehicles and Pedestrians in a work area



- ▶ Trailer Yard Operations cont:
 - ▶ Yard speed limits SHALL be posted and enforced by the employer
 - ▶ Faulty equipment such as a broken fifth wheel disconnect SHALL be repaired before allowing to them be put into service, this includes the Yard Jockey Vehicle
 - ▶ Trailer landing gear SHALL be routinely inspected and repaired when needed
 - ▶ Trailers should be positioned to prevent blind corners

Common Hazards Associated with motor vehicles and Pedestrians in a work area

- ▶ Trailer Yard Operations cont:
 - ▶ High visibility gear should be worn in the day light hours
 - ▶ MUST be worn in low visibility conditions including snow, heavy rain and at night
 - ▶ When ambient lighting is reduced, it is recommended that employees wear personal lighting devices to assist drivers with seeing the employees on foot, other drivers on foot
 - ▶ Defective exterior lights SHOULD be repaired immediately

Common Hazards Associated with motor vehicles and Pedestrians in a work area

- ▶ Trailer Yard Operations cont:

- ▶ In yards and other locations, traffic patterns should be set up to for one way traffic flow.

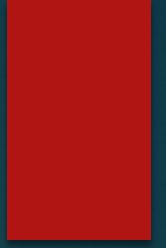
Operators SHOULD be prohibited from going against traffic flow pattern. It is highly recommended this be communicated through in the cab communication system or signage at the yard entrance

With exception of backing into loading dock doors or to hook up trailers, all other backing SHOULD be prohibited and enforced

Common Hazards Associated with motor vehicles and Pedestrians in a work area



Loading and Unloading Equipment

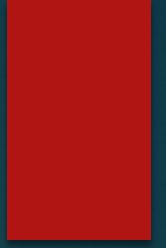


- ▶ When a worker or piece of equipment has to enter an enclosed trailer to load or unload materials precautions must be taken to ensure the trailer does not move while occupied
- ▶ If the dock is equipped with a warning light system, it SHALL be inspected routinely, and defective lights or signals SHALL be replaced immediately or taken from service*
- ▶ If a vehicle is connected to the trailer that is being loaded or unloaded, it SHALL be in park(neutral), with both parking and trailer brakes set.
- ▶ If it is a free-standing trailer, it Shall be supported in a manner which prevents the unanticipated movement or collapse of the trailer.

Loading and Unloading Equipment

- ▶ Do not assume that all trailers are built and designed to support a powered industrial truck
- ▶ Ensure that dock plates are secured in manner which will prevent an unanticipated collapse or movement of the plate. Dock plates SHALL be designed to hold the intended load.
- ▶ Chock systems (if used) Shall be inspected before each use, chocks that use anti-slip teeth shall be replaced when the teeth have been worn down, are cracked or missing
- ▶ Trailer jacks (if used) Shall be installed in manner which will prevent its slippage in the event of a collapse (kickout)
- ▶ If a dock board is equipped with a bumper lock bar, the bar Shall be functional

Loading and Unloading Equipment



- ▶ Dock board slips, cutouts etc. are confined spaces by definition
- ▶ Inspection, service and maintenance activities Must identify this a confined space and provide direction on how to perform the activity in compliance with the confined space standard. 1910.146
- ▶ Lock Tag out devices, jacks, and cribbing Shall prevent the use of the dock board, barrier and other warnings Shall be clearly visible to traffic and employees to prevent accidental back ins or surcharge loads applied from inside the building (forklifts, materials)

Struck By Hazards in Work Areas

- ▶ Back overs don't only occur in work zones or on construction sites.
- ▶ Civilian vehicles such as passenger vehicles pose the same risks.
- ▶ Earthmoving equipment and equipment with machinery mounted on the bed or the rear of the vehicle are the most likely to be involved in fatal back overs
 - ▶ This is primarily due to increased blind spots
 - ▶ Obstructed clear vision to the rear
 - ▶ Articulating motion
 - ▶ Incorrect mirror adjustment or insufficient mirror coverage

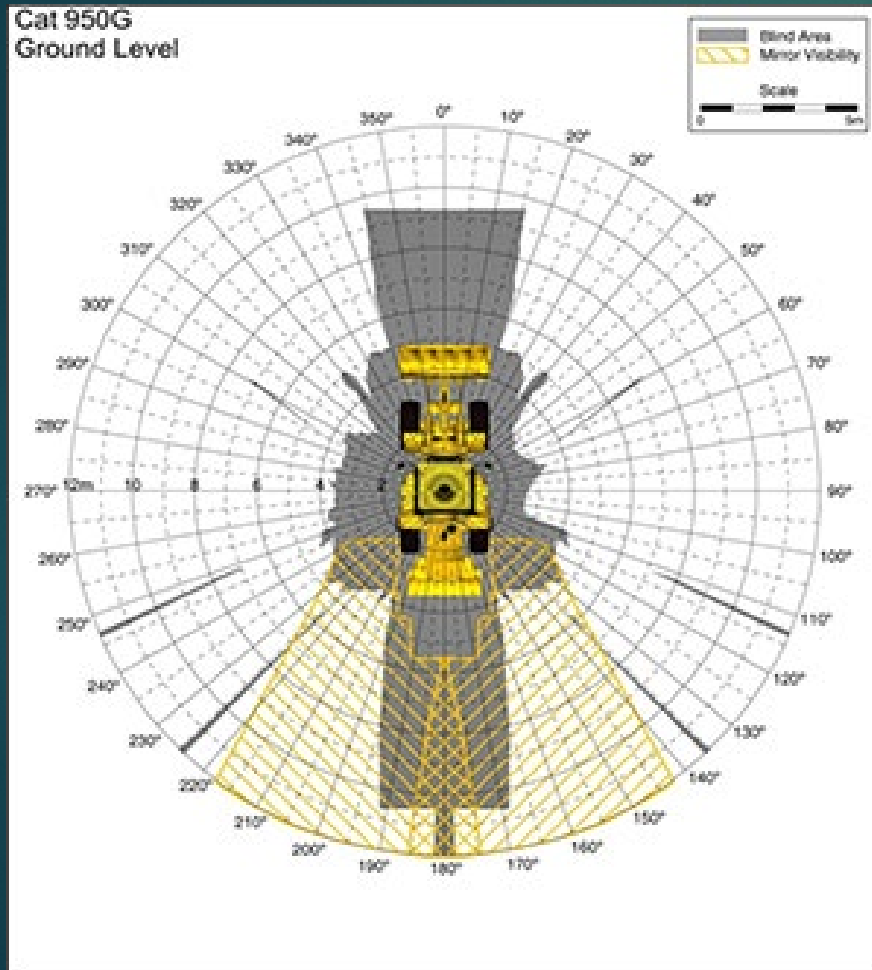
Reverse Signal Alarms

- ▶ As their name suggests, Reverse Signal Alarms **MUST** be automatic and activate when the vehicle's transmission is shifted into reverse
- ▶ **SHALL** be inspected before the beginning of each shift and after a prolonged break (lunch).
- ▶ Should be mounted in a manner which maximizes sound disbursement.
- ▶ Must be kept clean and free of mud, road grime and other debris
- ▶ Do not mount devices in front of the alarm, train employees to be aware of dead spots with reverse signal alarms

Reverse Signal Alarms

- ▶ When testing the reverse signal alarm, best practice is to have a second employee listen for the sound when the vehicle is shifted into reverse.
 - ▶ Assisting employee must stand in a location where operator can observe them and follow hand and verbal signals
 - ▶ Equipment should have service brake applied while performing this operation
 - ▶ While in reverse, observe if backing lights are illuminated also, if they are defective or the signal alarm is defective, vehicle SHALL be removed from service until repaired
 - ▶ Vehicles equipped with safety devices such as the ones listed above and including beacons, horns, safety belts MUST have their safety devices be fully operational or it SHALL be removed from service

Common equipment Blind Spots



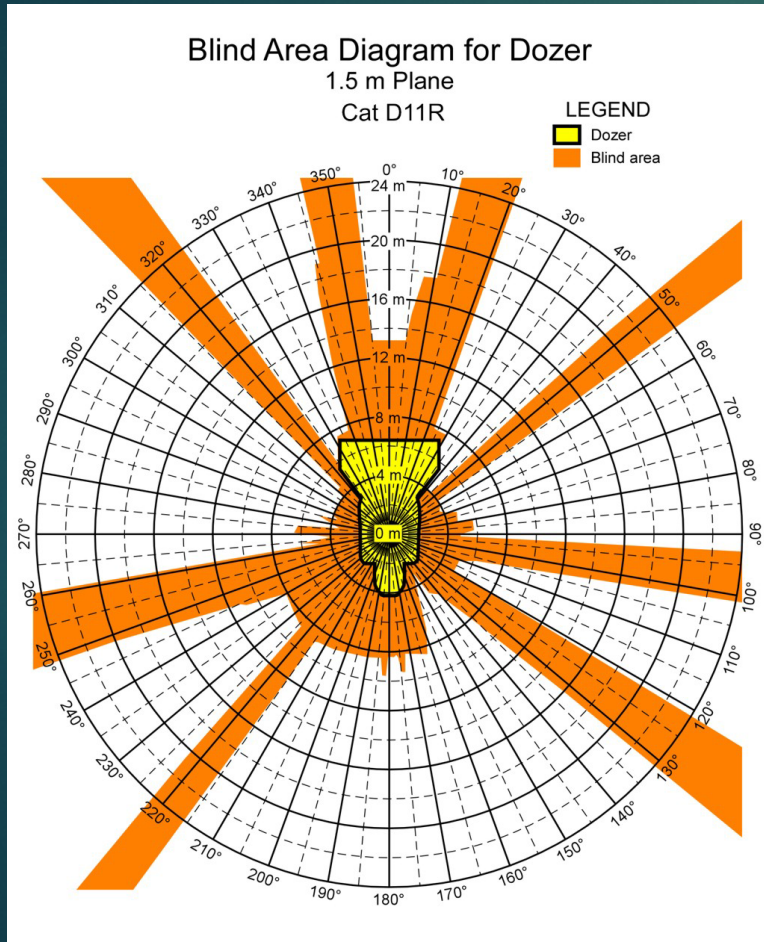
Loader

Excavator



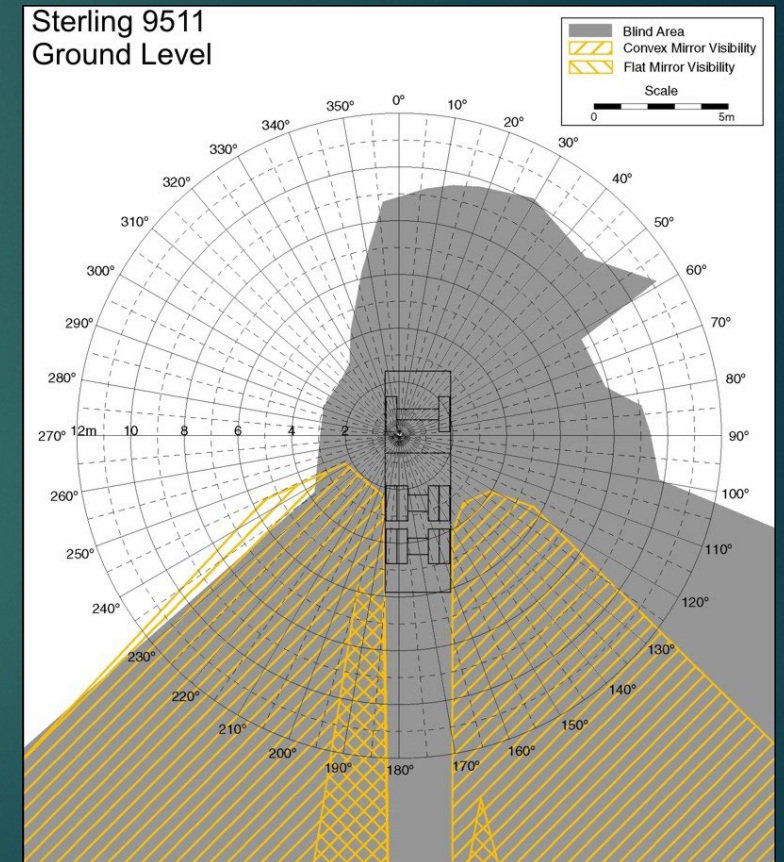
Example equipment does not constitute an endorsement of the tested machine, manufacturer or equipment by the Agency

Common equipment Blind Spots



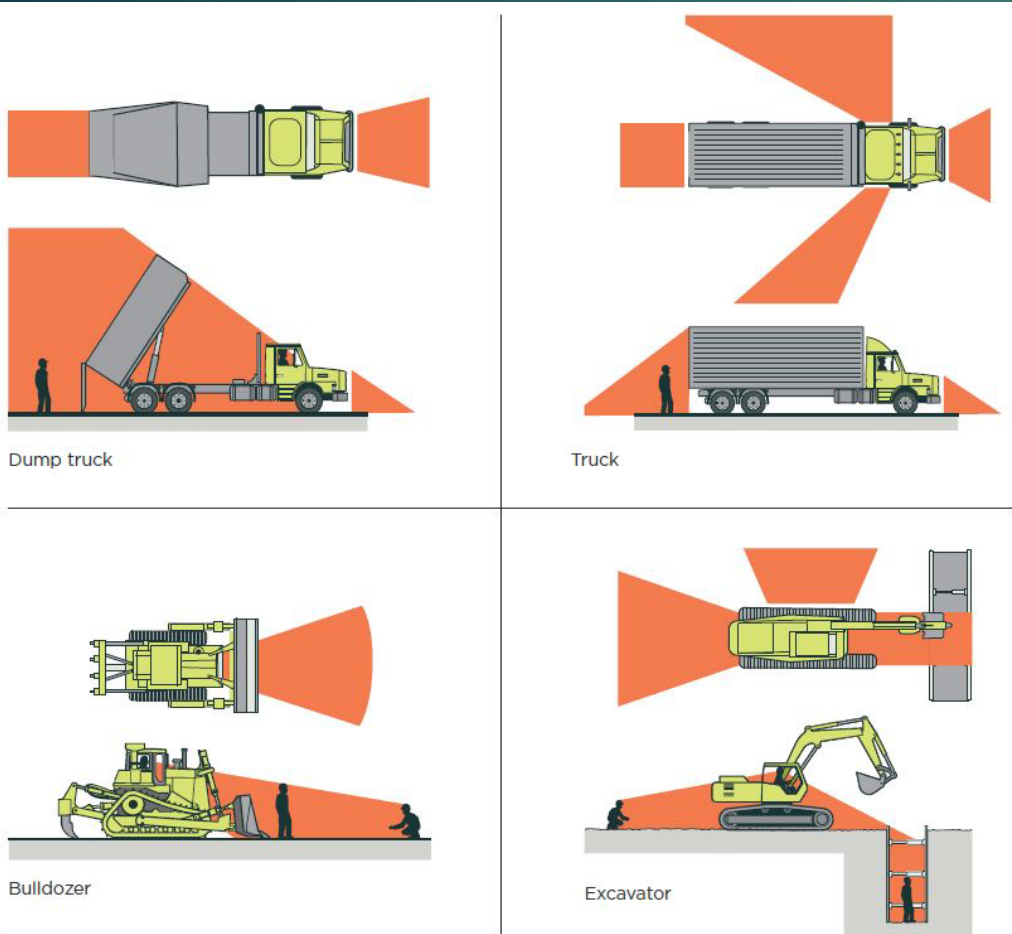
Bulldozer

Dump Truck\Heavy Hauler



Example equipment does not constitute an endorsement of the tested machine, manufacturer or equipment by the Agency

Common equipment Blind Spots



Blind spots are not at ground level, they increase from the height of the obstruction to the ground level

This includes voids, such as trench

Distance to seeing ground level (0") from some equipment can be over 50 ft. of lateral travel distance.

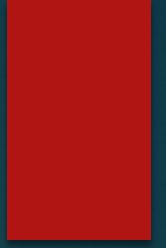
Considerations of Work Zones

- ▶ The Manual of Uniform Traffic Control Devices (MUTCD) addresses work zones and requirements there in are incorporated by reference in 29 CFR 1926.200
- ▶ Common mistakes in setting up work zones include the following
 - ▶ Too close to a corner, or turn lane
 - ▶ At the crest of a hill
 - ▶ In the middle of a long sweeping curve
- ▶ When selecting the setup of work zone, particular attention for warning signs should be given to traffic patterns, most specifically giving outside traffic ample time to react to the change in traffic patterns.

Considerations of Work Zones

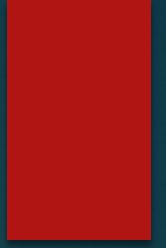
- ▶ Too close to a turn or intersection.
 - ▶ Traffic control in the form of a police officer, flagman and signage should be positioned to address these vehicles.
 - ▶ Cones and other traffic devices should be set up to give operators a clear path of travel
 - ▶ Supervisors should walk or drive the drive the traffic pattern from the vantage point of a driver and make corrections as needed.
 - ▶ Do not assume drivers outside of the work zone know what to do
 - ▶ Check signs to ensure they are pointing in the correct direction and do not conflict with each other. This happens frequently on work zones that are mutli-year or season projects.

Considerations of Work Zones



- ▶ On the crest of a hill
 - ▶ Work zones should pay very close attention to this hazard
 - ▶ Warning signs need to be placed on the up hill and downhill sides of the roadway and provide ample time for drivers to slow down and follow directions
 - ▶ Pay particular attention to roads which run east and west. Sun angles at different times of the day can make seeing the work zone difficult if not impossible
- ▶ Make sure work zones include a safe area where an employee can flee in the case of an uncontrolled vehicle entering the work zone

Considerations of Work Zones



Events in the travel lane which are considered transitory and take less than 1 hr.

Examples include but are not limited to:

Pothole operations

Landscaping on Medians and islands

Dig safe marking

Storm drain maintenance

Work Zones under 45 MPH and 1 HR. duration

Mobile operations often involve frequent short stops for activities such as litter cleanup, pothole patching, or utility operations, and are similar to short-duration operations.

Guidance: Warning signs and high-intensity rotating, flashing, oscillating, or strobe lights should be used on the vehicles that are participating in the mobile work.

Standard vehicle hazard four-way flashers(hazard lights) are not high intensity

Option: Flags and/or channelizing devices may additionally be used and moved periodically to keep them near the mobile work area.

Flaggers may be used for mobile operations that often involve frequent short stops.

Considerations of Work Zones



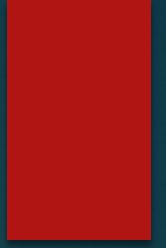
Example of common work zone mistakes

No flashing
beacon\strobe

Parked too far
from curb

Cones must be at least 36
inches tall

Considerations of Work Zones



In the event that an employee has to enter a vehicle's operating space, **non-emergency**

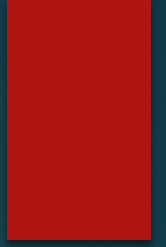
The employee should position themselves to get a clear view of the operator

Signal the driver\operator to get their attention, when it is safe to do so, this means waiting until the operator is not actively swinging, loading, dumping or unloading, unless that action is creating or will create a hazard

Wait for the operator to acknowledge you

Clearly communicate your intentions to them, ask them put the equipment in a safe condition, approach them when it is safe to do and stay in full view of operator

Prohibited Areas



- ▶ Employees should NEVER be allowed in the following areas:
 - ▶ Walking along side an excavation where there is live traffic is on one side of them and the trench on the other
 - ▶ Active land clearing areas where multiple machines are operating
- ▶ Designated access areas should be marked on site or on a sitemap and actively trained to employees
 - ▶ Never allow employees to utilize short cuts through areas where active traffic is or will be
 - ▶ Position areas such as the break area, construction trailer and restrooms in a location which does not encourage short cutting. Sometimes this may mean getting multiple restrooms and positioning them around a large site.

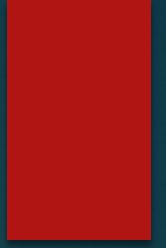
Prohibited Areas



Warning Barrier

Employees should be restricted to being on foot on this side of trench

Non-Work Zone Traffic

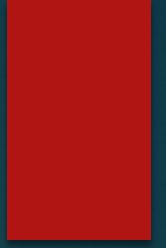


- ▶ Traffic which is not a direct part of the work zone can be particularly dangerous
 - ▶ Employees exposed to vehicle traffic hazards SHALL wear high visibility clothing
 - ▶ Recommended that the clothing be Lime Green, although Orange is acceptable
 - ▶ Traffic Control devices SHALL be inspected to ensure they are undamaged and still reflective
 - ▶ Signs should be erected in a manner which does not allow for easy displacement
 - ▶ Use of barriers may be needed to provide extra protection for employees working in the lane of travel, jersey barriers, water filled barrels or barriers

Other considerations

- ▶ Employees utilizing PPE such as hearing protection can be at a disadvantage for hearing unusual traffic noises
 - ▶ Ensuring that clear and concise warning signs and traffic control devices are in place is crucial
 - ▶ Training employees of traffic hazards as well as ways to operate defensively is also critical
 - ▶ Training should include how to ensure they have situational awareness of their surroundings at all times, knowing how to identify escape routes and actions to take in the case of an unanticipated hazard arising in the work area
 - ▶ Ensuring load and unload areas are in protected areas, not where it is convenient

Other considerations



- ▶ Require and enforce documentation of daily equipment checks
- ▶ Enforce and document daily checks of traffic control devices and plan on conducting routine inspections during the workday to correct disrupted barriers or control devices (cones)
- ▶ When complex operations are planned for the day, hold and document a pre-shift meeting to ensure all employees on foot and operators know where to be, how to enter and exit the site, and prohibited areas.
 - ▶ If sub-contractors will be present, ensure they attend this meeting
 - ▶ Plan start and stop times, to include this meeting

Compliance Assistance Specialists

Massachusetts



Boston North Area Office – Andover

CAS- Joseph Green

Shattuck Office Center 138 River Road,
Suite 102

Andover, MA 01810

T-(978) 837-4460

F- (978) 837-4455

Boston South Area Office – Braintree

CAS Peter Barletta

639 Granite Street, Floor 1

Braintree, MA 02184

T- (617)565-6924

F-(617)565-6923

Springfield Area Office

CAS Brett Fortin

1441 Main Street, Room 550

Springfield, MA 01103-1493

T- (413)785-0123

F-(413)785-0136

Sources of Help

OSHA's On-Site Consultation Program offers no-cost and **confidential** occupational safety and health services to small- and medium-sized businesses in all 50 states, the District of Columbia, and several U.S. territories, with priority given to high-hazard worksites. **On-Site Consultation services are separate from enforcement and do not result in penalties or citations.** Consultants from state agencies or universities work with employers to identify workplace hazards, provide advice for compliance with OSHA standards, and assist in establishing and improving safety and health programs.

<https://www.osha.gov/consultation/directory-text>

Sources of Help

MASSACHUSETTS

- OSHA Consultation Program
- Massachusetts Department of Labor Standards
- 37 Shattuck Street
- Lawrence, Massachusetts 01843
- P: (508) 616-0461 (Option 2)
- F:(978)687-0013
- Massachusetts
- Website

MAINE

- Maine Bureau of Labor Standards
- Workplace Safety & Health Division
- 45 State House Station
- Augusta, Maine 04333-0045
- (877) 723-3345 or (207) 623-7900
- (207) 623-7934
- Maine
- Website

NEW HAMPSHIRE

- WorkWISE NH
- Keene State College
- 229 Main Street, Elliot Hall M-3925
- Keene, New Hampshire 03435
- (603) 358-2411
- (603) 358-2399
- New Hampshire
- Website

Sources of Help

RHODE ISLAND

- OSHA Consultation Program, Office of Healthy Housing and Environment
- Rhode Island Department of Health
- 3 Capitol Hill, Cannon Building, Room 206
- Providence, Rhode Island 02908
- (401) 222-7747
- (401) 222-2456
- [Rhode Island](#)
- [Website](#)

VERMONT

- Project WorkSAFE
- Vermont Department of Labor
- P.O. Box 488, 5 Green Mountain Drive
- Montpelier, Vermont 05601-0488
- (888) 723-3937 or (802) 888-0620
- (802) 888-0730
- [Vermont](#)
- [Website](#)

CONNECTICUT

- Connecticut Department of Labor/CONN-OSHA
- 38 Wolcott Hill Road
- Wethersfield, Connecticut 06109
- (860) 263-6900
- (860) 263-6940
- [Connecticut](#)
- [Website](#)



QUESTIONS ?