ACEC Seminar

Occupational Safety and Health
MassDOT Highway Division

February 1, 2024

Regulatory Background

- MA Dept. of Labor Standards through MGL (ch. 149 sec 6) had limited authority over worker safety in MA workplaces through a law from 1930s. State workers were exempted in this law.
- When OSHA law passed in 1970 only covered private sector workers. Jurisdiction for worker safety for private sector shifted to Federal OSHA requirements and federal OSHA inspectors.
- 2009 Executive Order 511.
- 2014 New MGL (ch. 149 sec 6 1/2) passed mandating OSHA equivalent protections (OSHA standards) for all public sector in MA, enforced by MA DLS inspectors. Law goes into effect a few years after passed, regulations also passed (454 CMR 25.00).
- August 2022 MA DLS becomes OSHA "state-plan" state.
- Note that primary drivers for compliance with technical worker safety requirements, insurance carrier and regulatory worker protection standards and enforcement, not in place for MA state workplaces historically. MA self-insured. No regulatory worker protections until new MGL.

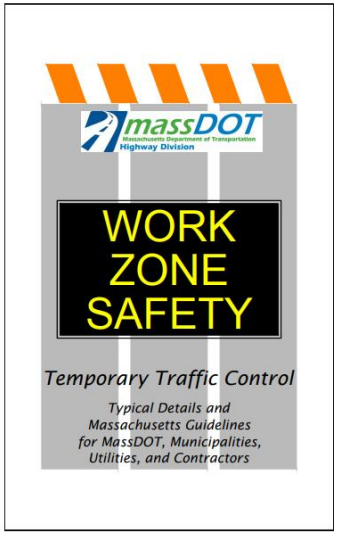
Fiscally Smart Safety

Barrier to OSHA Protections for state workers was perception of cost. No- or low-cost safety solutions:

- Look at workers comp losses versus cost of the safety correction, injury costs typically many times over what the safety protection would have cost.
- Actually use the safety protections you already have.
- Prioritize based on risk.
- Don't waste money on the wrong safety protections, do technical due diligence.
- Involve staff in equipment selection to make sure it is practical and will be used.
- Safety training without backing it up in the field is a waste of time and money.

OSHA Requirements

- MUTCD 2009 incorporated by reference into OSHA standards. Current is 2023 (not yet adopted by MassDOT). MassDOT has its own guidelines for state roadways.



- Many other potentially relevant OSHA standards:
  - Fall Protection
  - Confined Space Entry
  - Trench
  - Silica
  - Walking/Working Surfaces (holes)
  - Equipment-specific requirements
  - PPE
  - Etc.

- Risk evaluation more important than compliance:
  - For example: internal traffic control plan not required, although approximately 50% of fatalities are from internal construction vehicles not passing traffic.

Working On or Adjacent to Roadways

- You are working in a dangerous area so LIMIT the amount of time you spend there.
  - Plan ahead. Do just the work that you need to do, don't add time to being on or adjacent to the roadway for any other reason.
  - Do NOT stop in a work zone or roadway area to check your phone, chat with a co-worker, do anything other than the necessary work.

When You Are Out of Your Vehicle

- You are at risk from passing vehicles, and from internal vehicles (part of the work).

- Passing Vehicle Risk
  - Never turn your back on traffic
  - Never step outside of the cones.
  - Maintain awareness of traffic activity.
  - When walking to and from your vehicle after arrival/upon leaving, walk to the interior of the work zone, on the shoulder or the grass.

When You Are Out of Your Vehicle

- You are at risk from passing vehicles, and from internal vehicles (part of the work).

- Internal Vehicle Risk
  - Always be aware of the vehicles around you.
  - Most common cause of fatalities is back-overs.
    - Maintain communication/eye contact with the driver of a vehicle that's backing up.
    - Listen for back-up alarms.
    - Limit time in hazardous areas, stay off your cell phone.

Back-Over Risk

- If you can't see the driver in their rearview mirror, they can't see you.

- Our brain tunes out back-up alarms, and sometimes they aren't working.

Back-Over Risk

- For Drivers: It is a VERY good practice to circle your vehicle before you drive to see what's around you, especially if you're driving a larger vehicle. Again, risk versus regulation.

- Be especially mindful of anyone on foot.

Safety is About People…

Michael McDaniel, Jr., 48

Leaving the Work Zone in Your Vehicle

- Keep your eyes on your mirrors and maintain awareness of passing traffic.

- Proceed forward out the end of the work zone – not sideways, wait for a break in traffic before merging.
  - Exits from the side of the work zone are unexpected for passing traffic

Managing Hazards

- ELIMINATION of the hazard is the most protective option, much more effective than hazard controls.
  - Use of drones for bridge inspection. Avoid sending a person into a hazardous environment (at height, confined space, steep slopes).

Recent MassDOT Safety Program Initiatives

- PPE
  - New MBTA requirements for ROW PPE
  - Comprehensive safety boot program
  - FR clothing for electricians
- Fall Protection
  - Equipment Evaluation and Replacement
  - Daily Equipment Inspection
  - Enhanced Training
  - Self-Rescue Device
- Confined Space Entry
  - Updated procedure
  - New Air Meters
  - Rescue Air
  - Enhanced Training

Fall Protection

- MassDOT staff do frequent work in bucket trucks and other work at height, such as bridge and construction inspections.

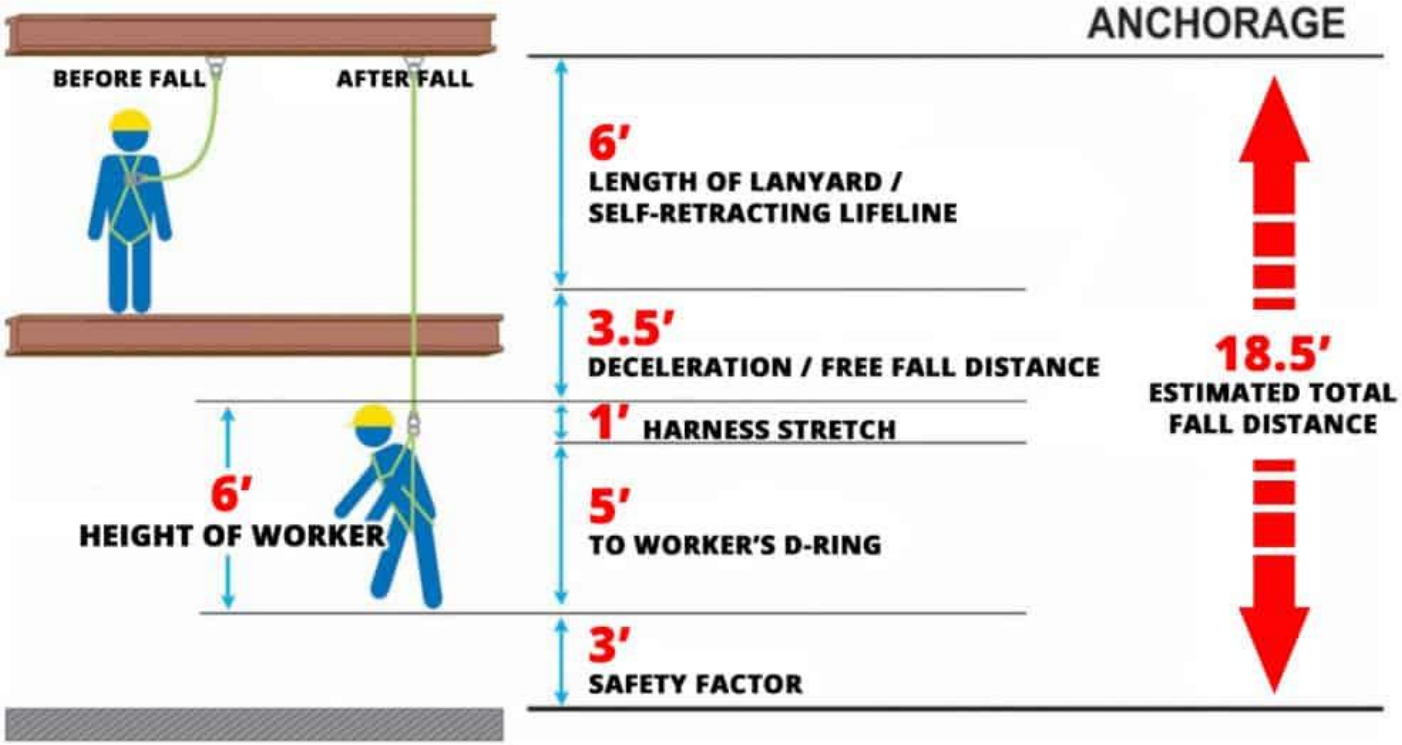
- Increased Safety Measures:
  - Tie-off required, PFAS
  - Equipment inspection
  - Fall clearance distance (injury)
  - Rescue equipment – employees working alone, difficult rescue scenarios

Quincy worker thrown from bucket after crash dies – Boston Herald

Fall Protection

- Personal Fall Arrest Systems
  - Harness
  - Lanyard with shock absorber
  - Anchor point

Fall Clearance Distance



Harness Replacement

- Torso adjuster
- Seat strap
- Embedded trauma suspension straps

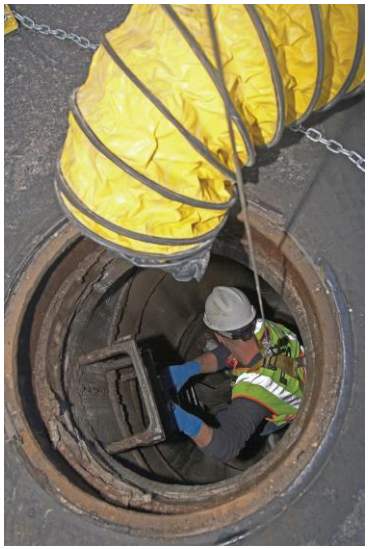
Self-Rescue Backpack

- Qualifies as a rescue plan.
- Self-rescue or rescuer ring tab if unconscious.
- Worn between the harness and lanyard.

Confined Space

Permit-required confined space:

- Person can enter but not designed for human occupancy.
- Potential for a hazardous atmosphere, potential for engulfment or entrapment, or other recognized hazard such as unguarded machinery, exposed live wires, etc.



Manhole

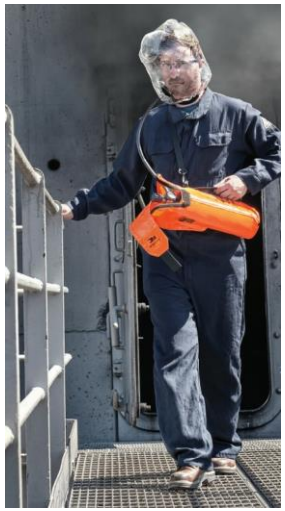
Examples in MassDOT:

- Certain D6 Tunnel System areas (e.g., plenums)
- Certain Bridge Structures
- Manholes
- Utility Vaults

Inside a bridge girder

Confined Space

- Review/upgrade of procedures and equipment:
  - Ventilation (blowers)
  - Air monitoring (O_2, CO, H_2S, flammables)
  - Communication devices
  - Rescue air
  - Attendant duties
  - Mechanical rescue devices



- IMPORTANT: No MassDOT personnel should enter a confined space to conduct a rescue.
  - More than 60% of confined space fatalities are would-be rescuers.