Improving Large Truck Safety through Better Design and Operation of Work Zones



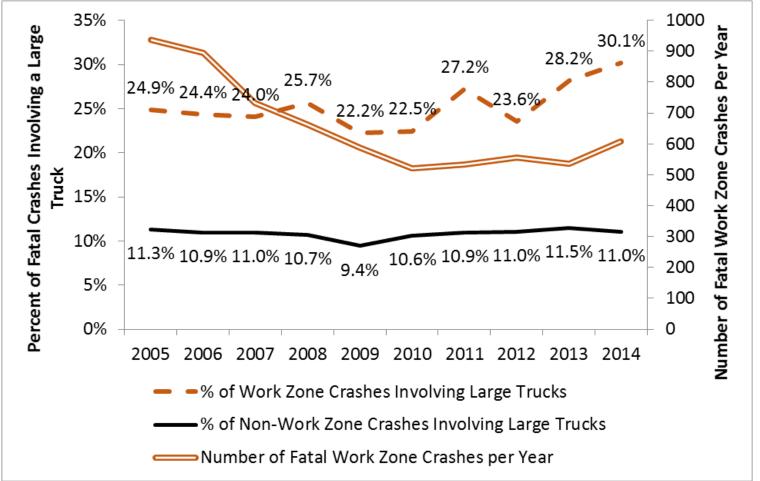
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Outline of Webinar

- Characteristics of large truck crashes in work zones
- Large truck characteristics affecting work zone safety
- Transportation management plan accommodations for large trucks



Large Trucks are Overrepresented in Work Zones...





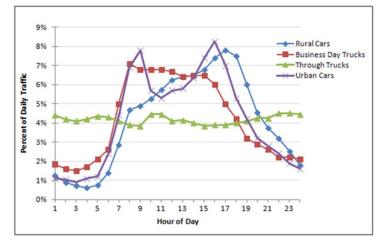
Why the Overrepresentation?

 More large trucks around work zones

 More work zones when trucks travel more

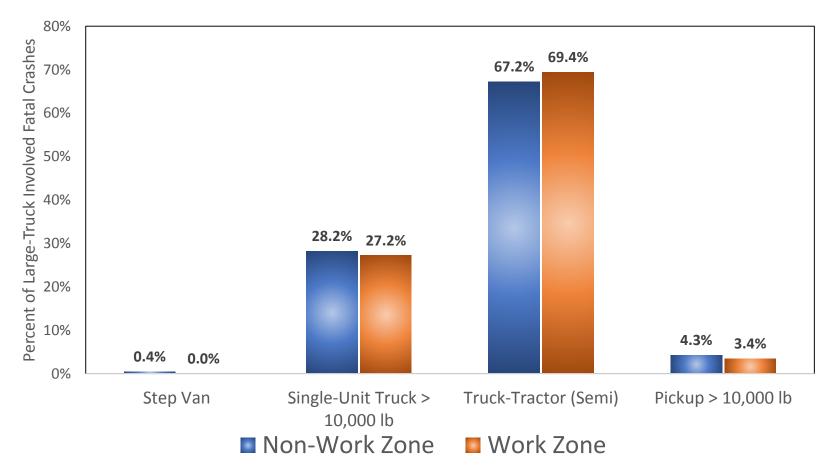
 Work zones more challenging for trucks to negotiate





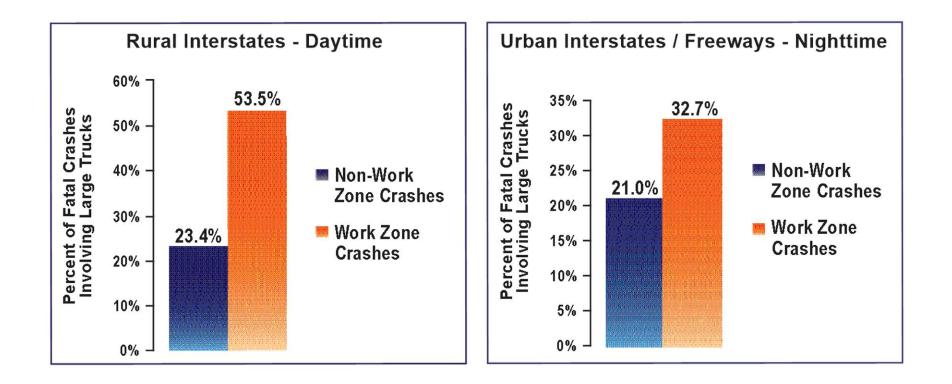


Types of Large Trucks Involved in Fatal Crashes



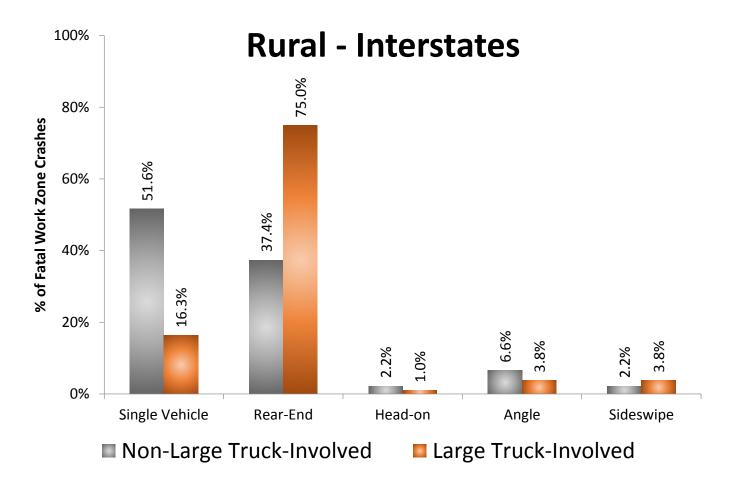


Interstate and Freeway Work Zones are Especially Problematic

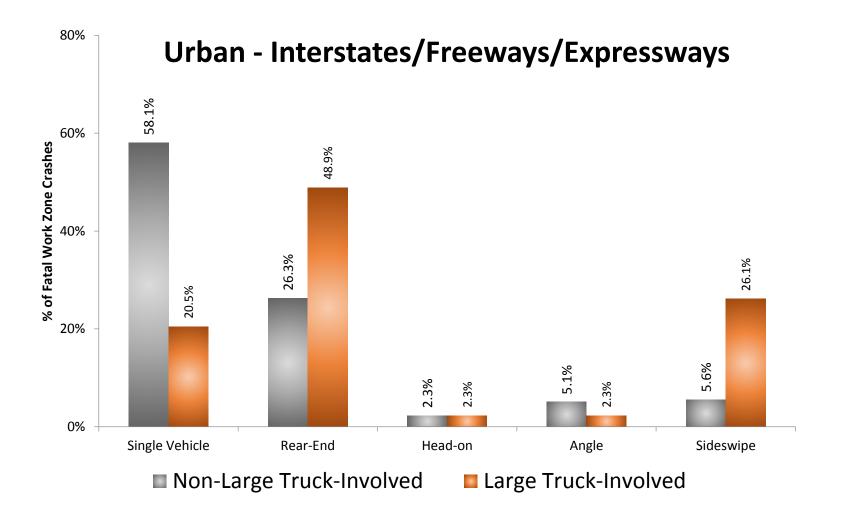




Large Truck Crashes in Work Zones are Different than Non-Truck Crashes









Types of Work Zone Crashes Where Large Trucks are Overrepresented

Roadway Type	Types of Crashes
High-Speed Controlled Access Roadways	Rear-End Collisions Sideswipe Collisions
Other Multi-Lane Roadways	Sideswipe Collisions Angle Collisions Impacts with Objects
Two-Lane Highways	Rear-End Collisions Head-On Collisions

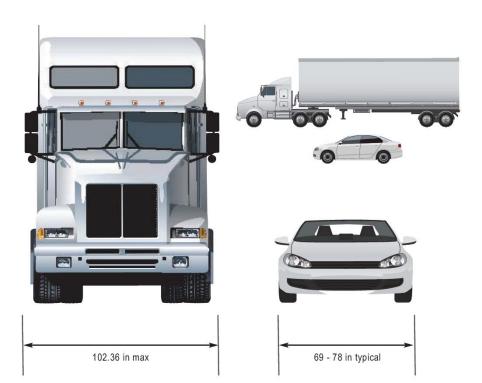


Large Truck Characteristics Affecting Work Zone Safety

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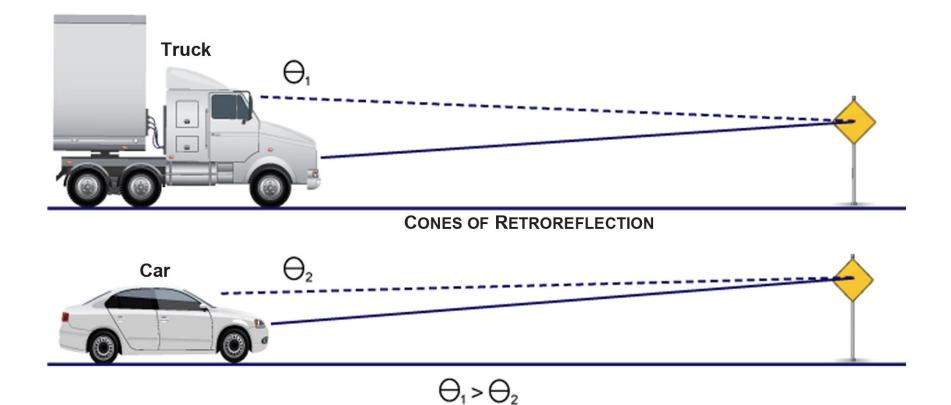
Large Trucks

- Longer and wider
- Heavier
- Higher center-of-gravity
- Larger blind spots
- Lower acceleration and deceleration rates
- Greater distance between driver eye and vehicle headlights





Signs and Markings Appear Less Bright to Truck Drivers

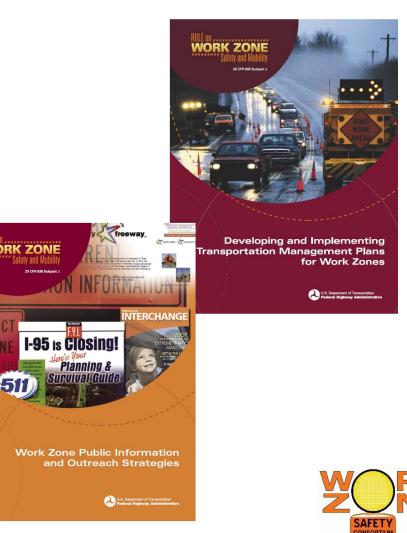




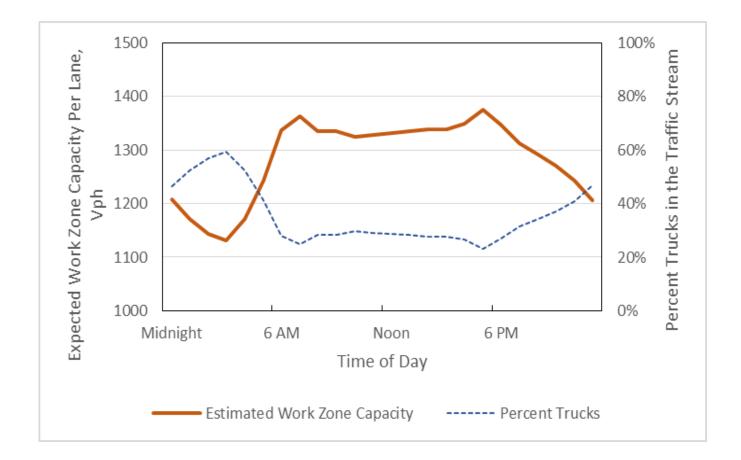
So How Can Large Truck Safety in Work Zone be Increased?

Incorporate Large Truck Considerations into Transportation Management Plan

- Traffic control plan
- Traffic operations plan
- Public information and outreach plan



Include Temporal Effects of Large Trucks in Impact Analyses





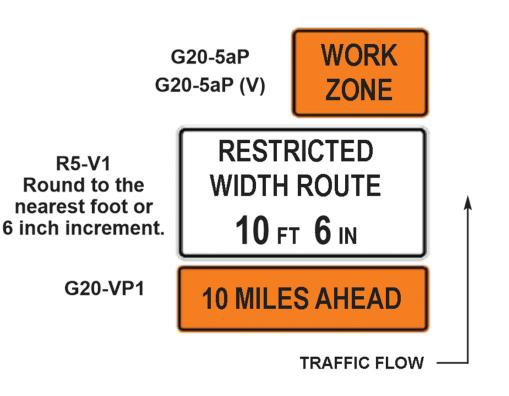
Work Zone Design Practices to Better Accommodate Large Trucks

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Lane Width Considerations

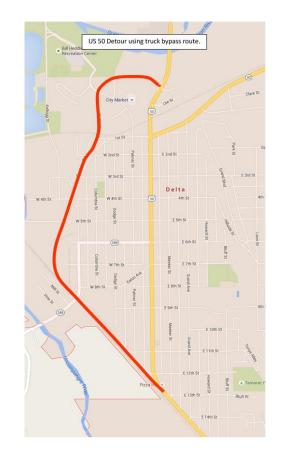
- 11 ft minimum, 12 ft desirable
- Differential lane widths
- Provide sufficient warning of limited lane width work zones





Encourage Large Truck Diversion

- Ensure that the route can accommodate:
 - Volumes
 - Heights, widths, and weights
 - Turning, off-tracking
- Minimize additional travel distance
- Good outreach is critical





Establish Truck-Only Lane(s) through Work Zone



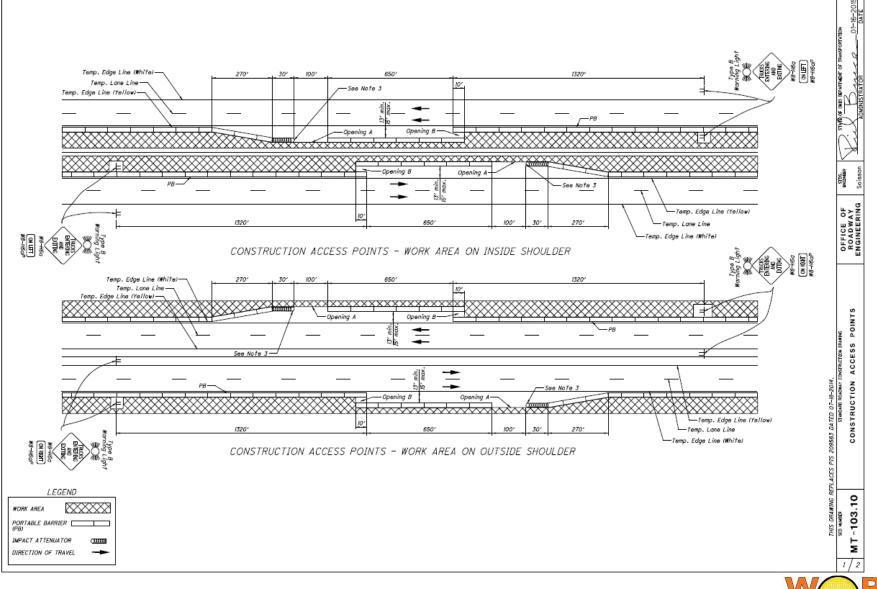


Maintain Adequate Truck Parking at Nearby Rest Areas



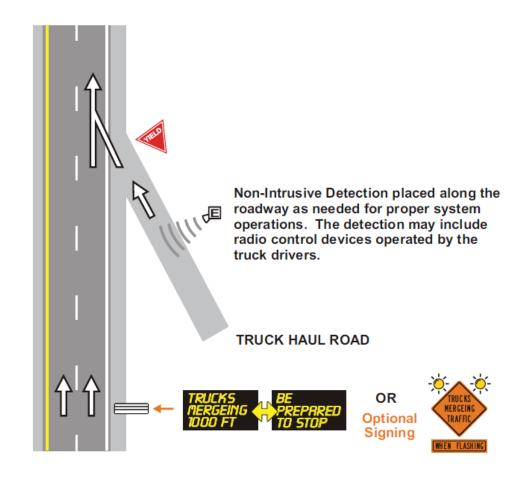


Improve Work Space Access



SAFETY CONSORTIUM

Construction access warnings







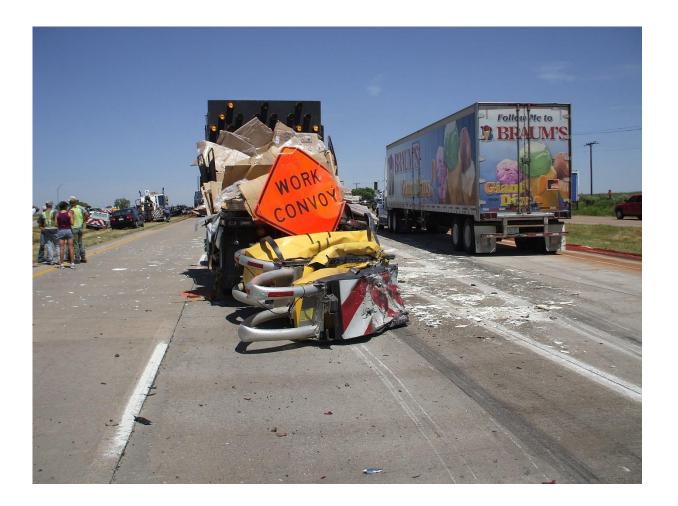


Improve Sight Triangles



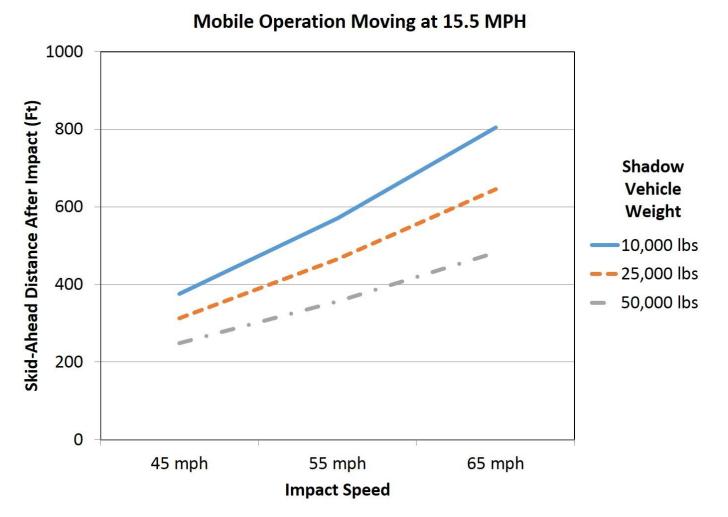


Use Heavier Shadow Vehicles with Proper Truck-Mounted Attenuators





Consequences of an 80,000 lb Truck-Tractor Collision





Other Good Practices

- Establish reasonable design speeds and speed limits
- Maintain good sign, channelizing device, and pavement marking visibility
- Avoid short or no-acceleration lane entrance ramps
- Establish contingencies for hazardous material incidents



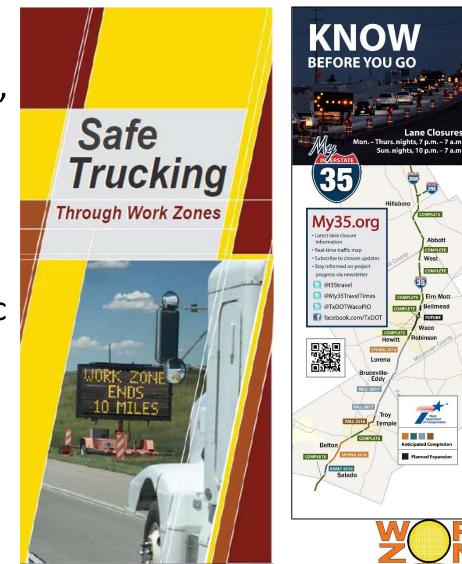




Strategies to Help Truck Drivers Traverse Work Zones Safer and More Easily

Truck Driver-Focused Information and Outreach

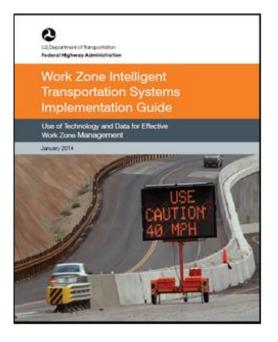
- Distribute at truck stops, rest areas, dispatching centers, etc.
- General work zone safety outreach
- Targeted project-specific information



Utilize Work Zone ITS Where Appropriate

- Real-time traveler information
- Queue warning
- Dynamic merging
- Construction access warning
- Variable speed limits
- Automated enforcement
- Temporary ramp metering







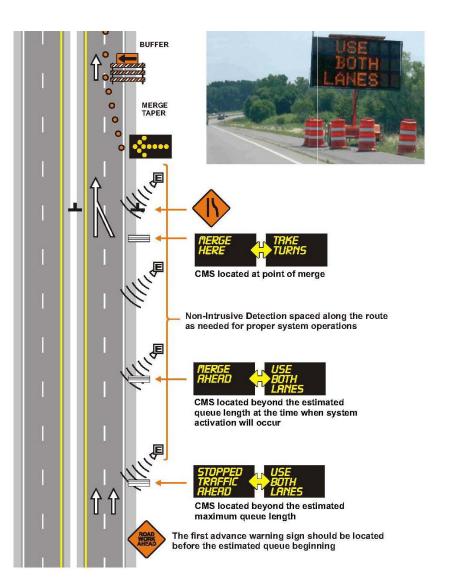
End-of-Queue Warning







Dynamic Merge





Temporary Ramp Metering





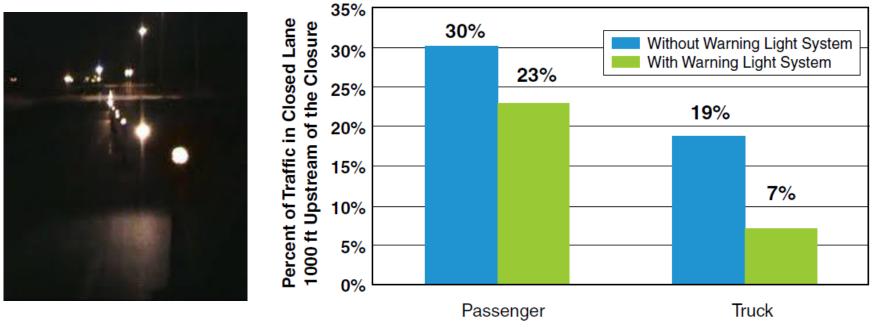


Portable Rumble Strips





Sequential Warning Light Systems



Type of Vehicle



Resources

• Large Trucks in Work Zones webpage:

https://www.workzonesafety.org/work_zone_topics/heavyvehicles/

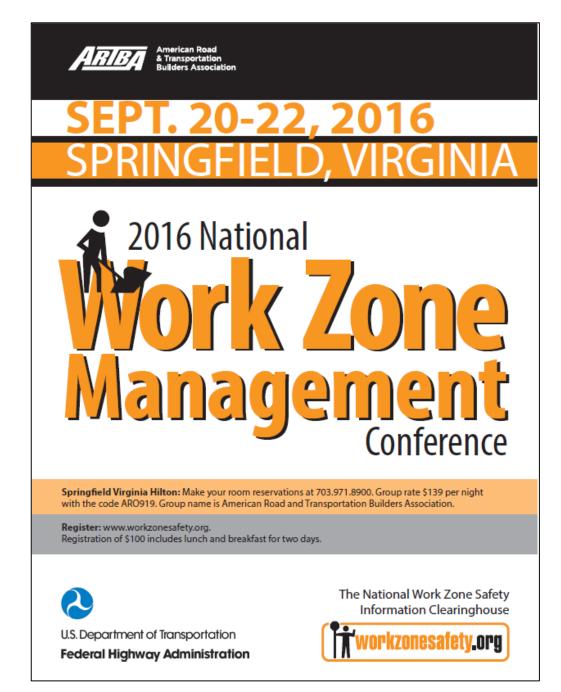




Resources

- Safe Trucking Through Work Zones (brochure)
- Design and Operation of Work Zone Strategies to Improve Large Truck Safety
- National Symposium on Work Zones and Large Trucks (April 13, 2015, Jacksonville, FL)
 - Presentations
 - Summary Report
- Strategies to Enhance Large Truck Safety in Work Zones (Webinar: August 25th, 1 pm EDT)







Questions?

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