

# Heavy Truck Safety

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U.S. DOT-FMCSA



# SYNOPSIS

- Nationwide CMV Vehicle OOS Rate - Approx. 20%
- Heavy Truck Inspection Project OOS Rate - Approx. 37%
- Bad brakes (and heavier weights) lead to longer stopping distances
- Permitting vehicles to carry loads in excess of their GVWR
- Accident reporting forms need to capture weight data/permit data
- Intermodal Containers as non-divisible loads may be carrying loads in excess of their GVWR - OOS Rate approx. 35%
- Communication: CMV inspectors, Permit office, Road office, Bridge office
- Carriers operating within your state should be operating safely
  - Or.....perhaps not operating

# CSA

## Compliance Safety Accountability

The FMCSA CSA program is an important initiative to improve the efficiency and effectiveness of FMCSA's enforcement and compliance program to achieve the agency's mission to reduce commercial motor vehicle (CMV) crashes, fatalities, and injuries.



# CSA BASIC and Weight Violations (circa 2010)

- New CSA 2010 Safety Measurement System (SMS) began including roadside inspection Weight violations (392.2W)
- In CSA 2010 Operational Model Test
  - Weight violations one of the most frequently cited violations uploaded to FMCSA (~440k/ 2 years)
  - No FMCSA federal equivalent regulations for weight violations
    - Lack authority to address and pursue weight issues
    - State Enforcement Issue

# Recommended Option to Address CSA Issue

## **Recommended Option: Short term**

- Remove Weight violations from CSA calculation

## **Recommended Option: Long term**

- Partner with FHWA
- Perform analytical study in cooperation with FHWA to more formally establish the relationship of S/W and safety

## Commercial Vehicle Weight Enforcement Activities

	<i>2008</i>	<i>2009</i>	<i>2010</i>
<b>All Weighs</b>	200,419,382	182,256,996	198,564,690
<b>Weigh-in-Motion</b>	119,826,305	116,176,399	118,025,789
<b>Static Weighs</b>	80,593,077	66,080,597	80,538,901
Semi-portable Scales	357,502	373,073	285,484
Fixed Scales	79,644,702	65,182,174	79,703,573
Portable Scales	590,873	525,350	549,844
<b>Violations</b>	555,168	489,975	478,576
Axle Weight Violations	248,813	220,631	216,735
Gross Weight Violations	120,384	116,291	114,171
Bridge Weight Violations	185,971	153,053	147,670

<b>PERMITS</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
Total	5,215,724	4,528,654	4,836,663
Non-Divisible	3,693,248	3,285,801	3,510,301
Non-Divisible Annual Permits	322,288	298,805	303,230
Divisible Trip Permits	489,712	369,906	341,737
Divisible Annual Permits	710,476	574,142	683,395

# American Standard Roadside Inspection Levels

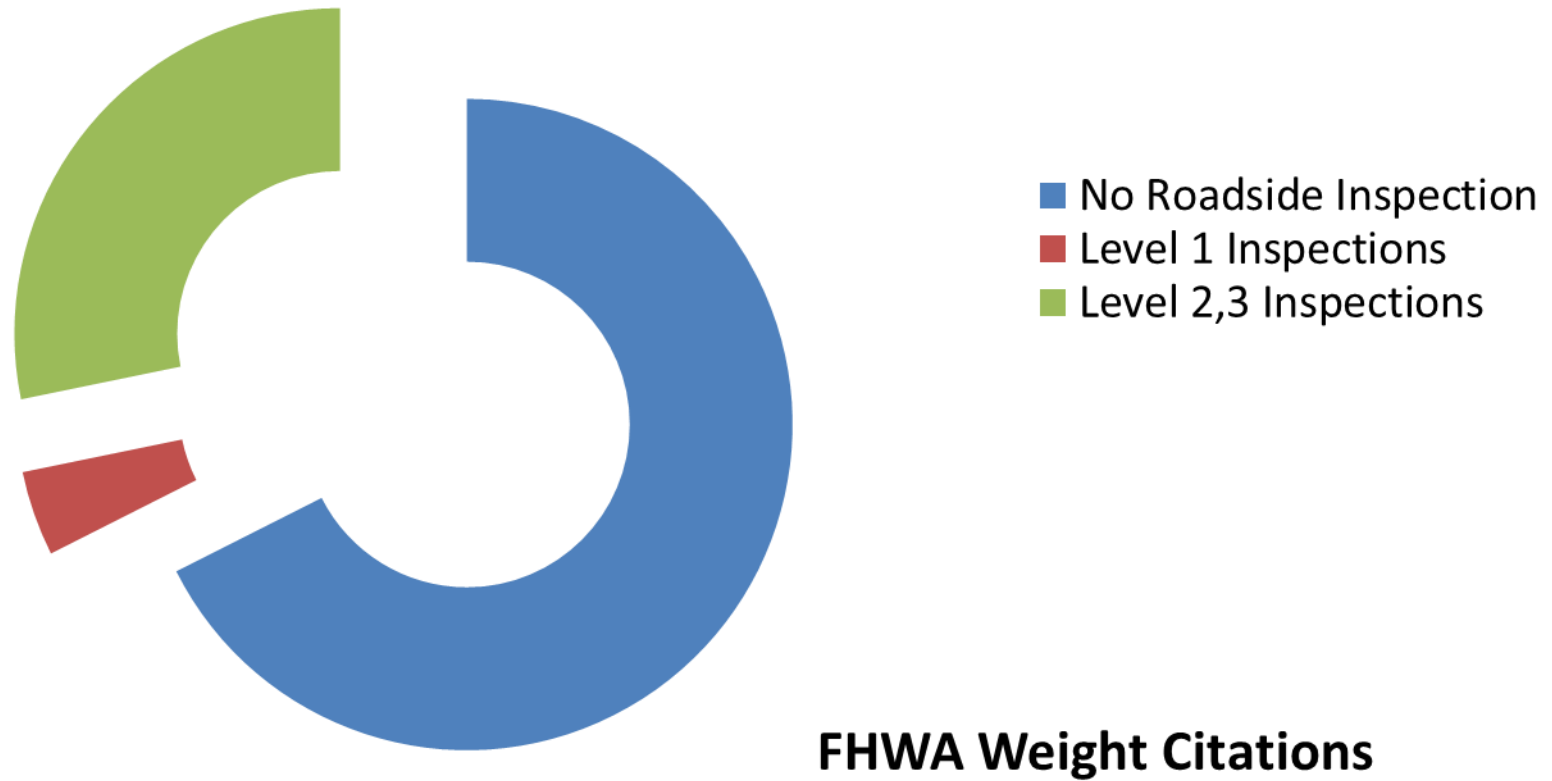
Level 1 - Driver and Vehicle

Level 2 - Driver and Vehicle Walk Around

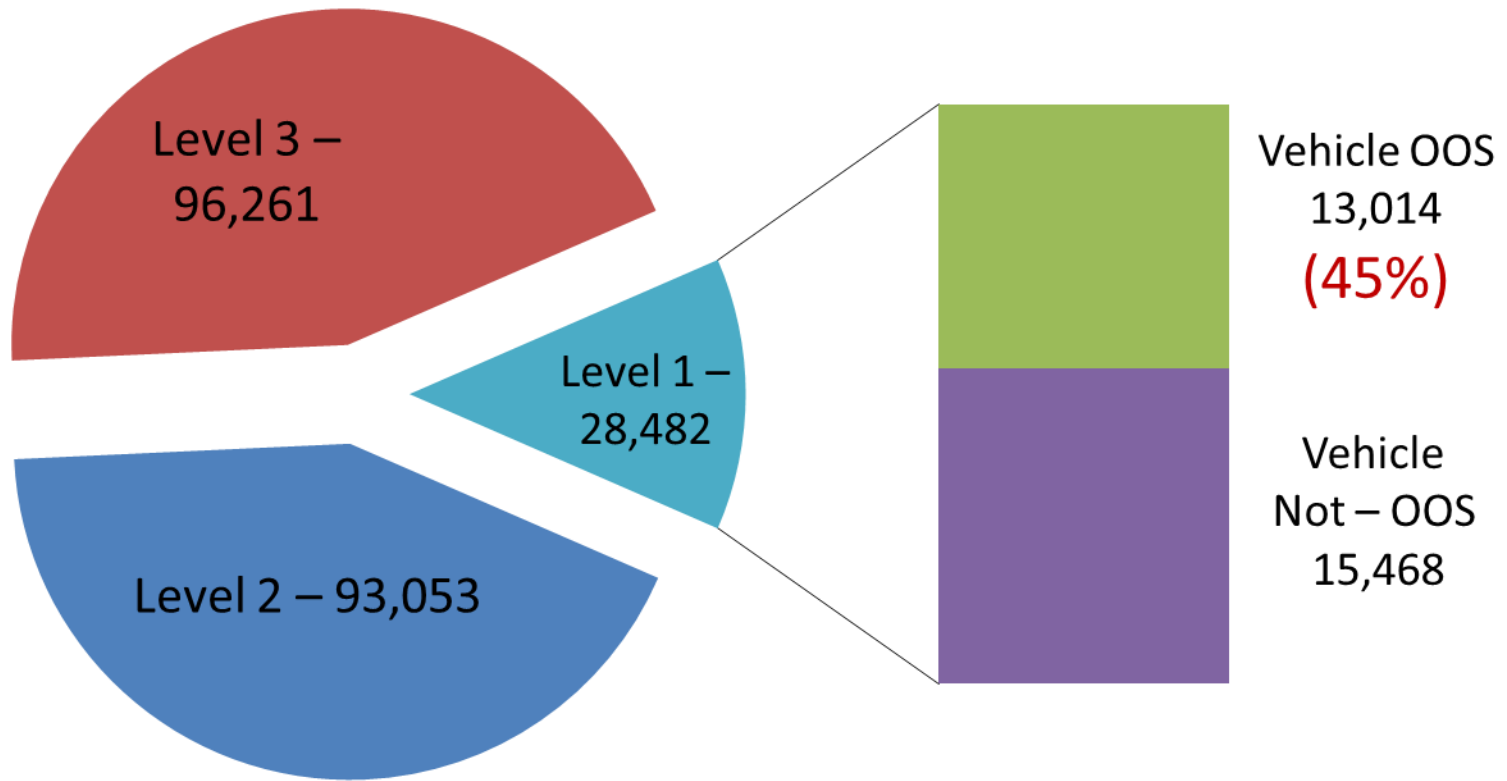
Level 3 - Driver & Credential Inspection



# Weight citations with inspections (2009)



# 2009 CMV Inspections with Weight Violations



For comparison 2009 Truck OOS Rate 21.6%

# Why so few overweight trucks inspected?

- Different State Agencies weigh trucks and inspect trucks
- State Policies on performing Level 2,3 inspections on overweight trucks
- Inspector safety considerations?

# Heavy Vehicle Data Collection Effort

## CVSA/FMCSA/FHWA

**Purpose:** To gather data to determine, impact heavier weights have on a vehicle's structural components, motor carrier safety violations, and safety.

**Duration:** January 15<sup>th</sup>, 2012 – January 15<sup>th</sup>, 2014

**Vehicle Selection:** a heavy vehicle should be included:

- 1.) When it is weighed and found to be over the allowable:
  - (a) axle weight; and/or
  - (b) axle group weight; and/or
  - (c) gross vehicle weight for the roadway on which it is operating.

**OR**

- 2.) When operating under a special permit for weight.

2012-2013 Live Data

7842 Inspections

30 States

Illinois-1887 CA-1119

2868 Vehicle Inspections with Weight  
Citations

CVSA/FHWA/FMCSA

# General Inspection Information

State	No. CMV Inspections	No. CMV OOS	CMV OOS Rate
6 months	231	123	53.25%
1 year	4684	1618	34.54%
<b>18 months</b>	7842	2788	35.55%

What is the Safety Culture  
of the  
Inspected Carriers?

### Vehicle Maintenance Basic OOS Rate

Above 80			Below 80			No Rank		
No. CMVs	No. OOS	OOS Rate	No. CMVs	No. OOS	OOS Rate	No. CMVs	No. OOS	OOS Rate
1062	606	57.06%	4223	1102	26.10%	2568	1087	42.33%

### Crash Basic Comparison Among States

Above 60			Below 60			No Rank		
No. CMVs	No. OOS	OOS Rate	No. CMVs	No. OOS	OOS Rate	No. CMVs	No. OOS	OOS Rate
885	280	31.64%	2143	520	24.27%	4816	1988	41.28%



## CMV Distribution

Combination CMV	# CMVs	OOS Rate
6 month		
Yes	1229	45.40%
No	246	41.87%
12 month		
Yes	3473	38.27%
No	1211	23.86%
18 month		
Yes	5937	37.56%
No	2230	29.29%

## Permitted CMV Distribution

	# CMVs	OOS Rate
6 month		
Yes	258	32.56%
No	1127	47.41%
12 month		
Yes	394	35.79%
No	4290	34.43%
18 month		
Yes	747	34.94%
No	7095	35.62%

# OOS Violations (All CMVs)

Category	Number CMVs	OOS Rate
Brakes	1016	12.96%
Brake Adjustment	627	8.00%
Tires	275	3.51%
Suspension	50	0.64%
Wheels	31	0.40%
Other	789	10.06%
Total	2788	35.55%

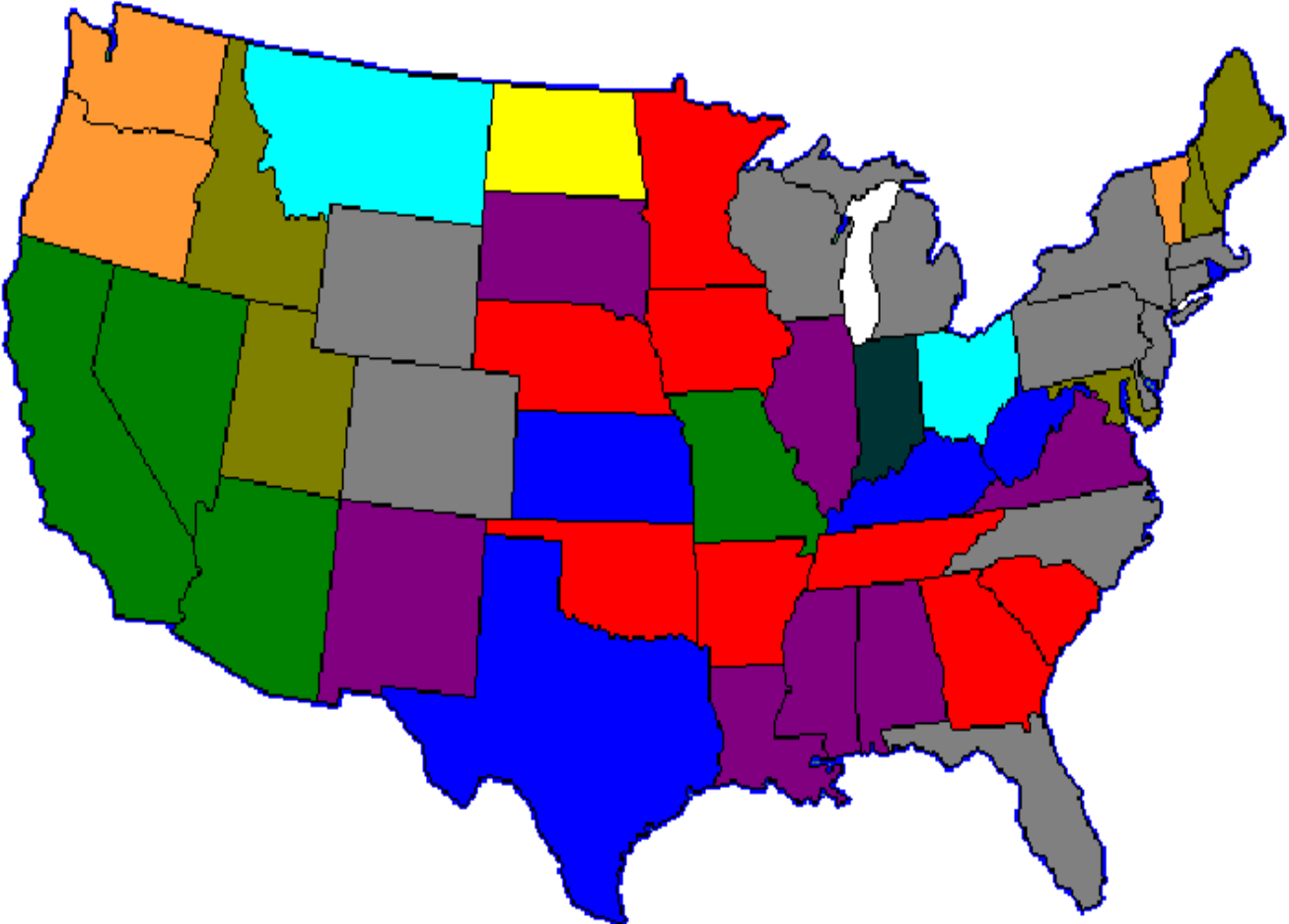
Violation	Violation Count	OOS Violations	OOS Rate
392.2W	254	100	39.37%
392.2-SLLEWA1	1110	388	34.95%
392.2-SLLEWA1	714	271	37.96%
392.2-SLLEWA3	168	73	43.45%
392.2-SLLEWG1	321	118	36.76%
392.2-SLLEWG2	179	85	47.49%
392.2-SLLEWG3	268	142	52.99%
TOTAL	3014	1177	39.05%

# Heavy and Overweight Stopping Distance Testing

2012

5 axle tractor semitrailer

# Max Weight 5 Axles



**Florida, Wyoming, & Michigan** – Allowed up to 122,000 on 5 axles.

**NY & NJ** – Allowed up to 126,000 on 5 axles.

**Massachusetts & Connecticut** – Allowed up to 128,000 on 5 axles.

**Mississippi** – Allows more weight depending on axle spacing's & routes.

**Wisconsin** – Allowed up to 142,000 on 5 axles.

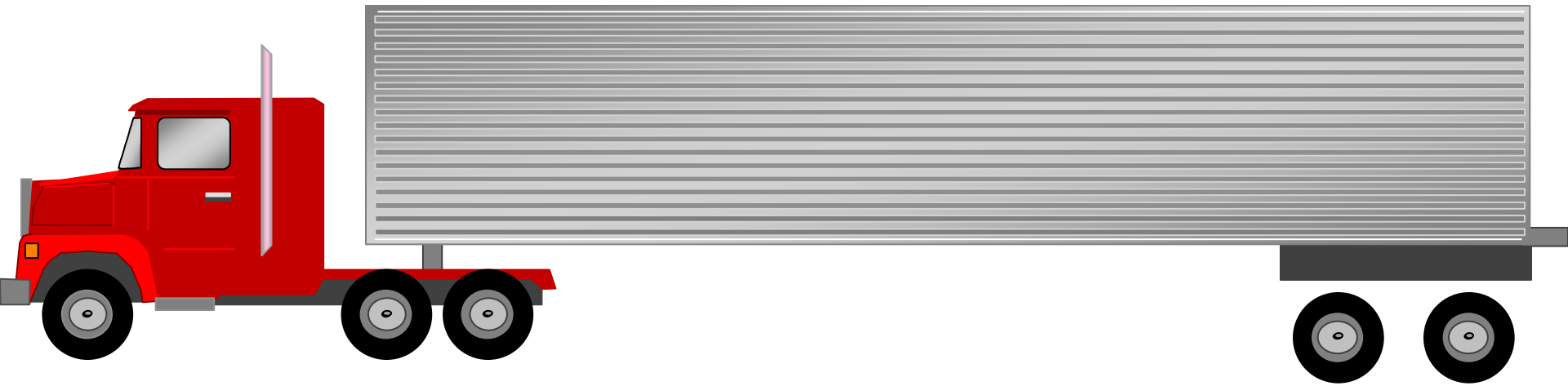
## Legend

- |         |         |          |
|---------|---------|----------|
| 92,000  | 102,000 | 112,000  |
| 96,000  | 104,000 | 116,000+ |
| 98,000  | 106,000 |          |
| 100,000 | 108,000 |          |

# Heavy Overweight Brake Testing

- Impact on brake performance with increasing load
- Impact on brake performance with brake degradation on tractor and trailer.

**5 axle tractor trailer combination  
(80,000 lb)**



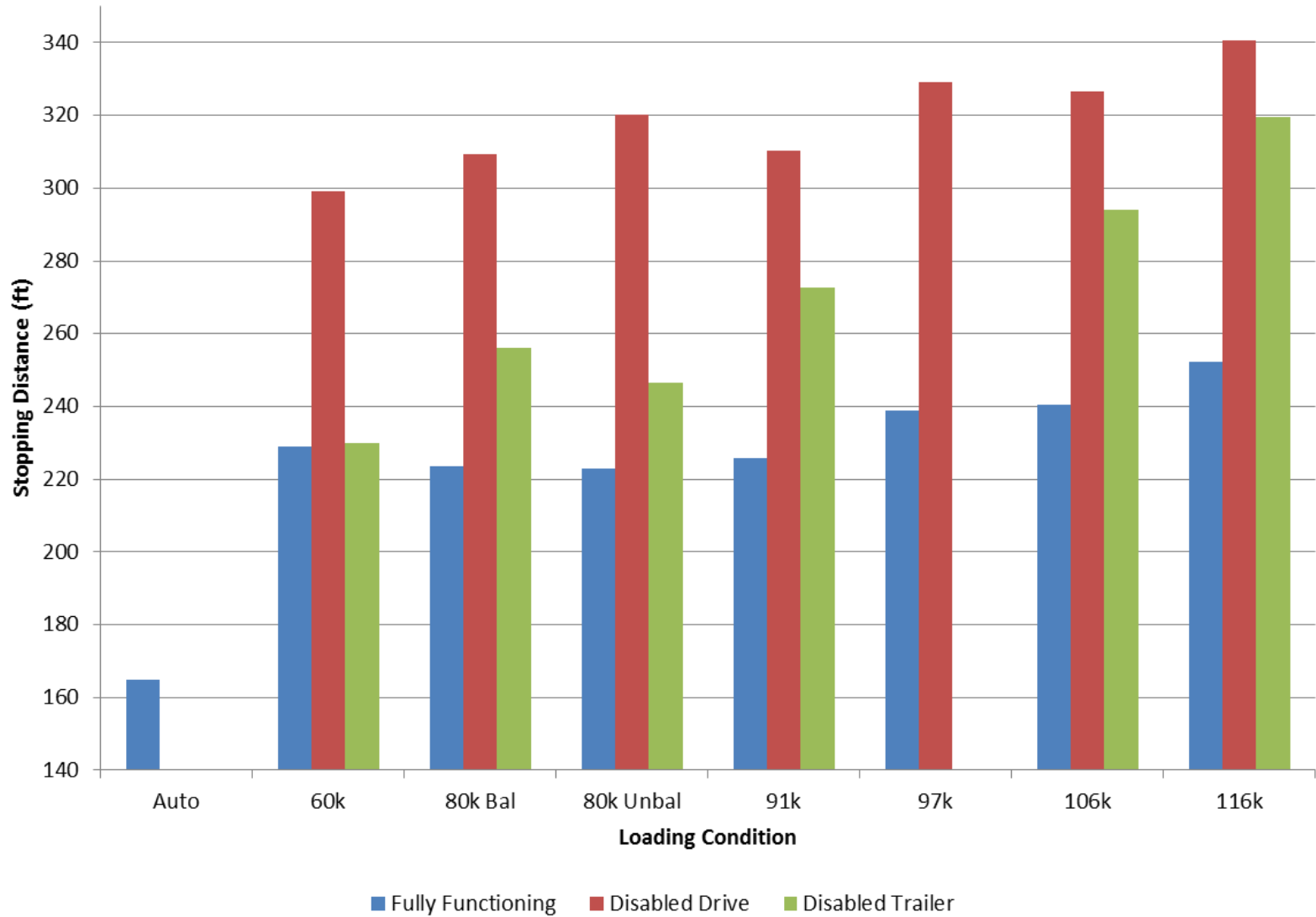
**2 brakes OOS before vehicle/vehicle combination is placed OOS  
(20% x 10) = 2.0**



# FY 2012 Testing

- Reduced Stopping Distance Tractor
  - 2011 NHTSA requirement 60 mph – 250 feet
- New brakes/drums/tires
- Performed complete - FMVSS 121 burnish
- 20 mph, 60 mph stopping distance tests
  - Best Effectiveness
  - 2 brake wheel ends out on trailer
  - 2 brake wheel ends out on tractor

## Average Corrected Stopping Distances for 60-mph Panic Stops



# 2010 South Carolina DOT Pilot Program for Overweight Containers (09-10)

- Container inspections 1,762 to 2,778
- Vehicle related violations 1,604 to 3,446
- Vehicle violations not related to increased loads (90K- 2009, 100K – 2010)
- Brake Violation Increase 279 – 929 (233%) (their calculation)
- Tire violation Increase 238 – 347 (58%)
- “Increase in brake violations likely related to increase in “level one” inspections.”

# 2010 South Carolina DOT Pilot Program Review and Recommendations Memorandum

- Terminate Pilot on November 1, 2010
- Expand Pilot to all international shipping containers
- Allow Axle weights of 20K, Tandem 48K, Tri - 55K
- Signed by SC Secy of Transportation 10/27/10

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# FMCSA Contact

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