



CSA: Introduction to the Safety Measurement System Version 3.0

March 2013



What is Compliance, Safety, Accountability (CSA)?

CSA is the Federal Motor Carrier Safety Administration's (FMCSA) enforcement and compliance program used to achieve the Agency's mission to prevent commercial motor vehicle (CMV) crashes, injuries, and fatalities





CSA's Three Core Components

1. A Safety Measurement System (SMS) that:

- Identifies unsafe carrier and driver **behaviors** that lead to crashes
- Uses **all** safety-based roadside inspection violations to assess compliance with **existing** regulations
- Includes investigation findings
- Is used to prioritize carriers for interventions

2. A safety interventions process that:

- Includes an array of interventions
- Focuses on specific unsafe behaviors
- Identifies causes of safety problems
- Defines and requires corrective actions

3. A Safety Fitness Determination (SFD) process that:

- Requires rulemaking, expected to be published in late 2013
- Would incorporate on-the-road safety performance and replace current system





Purpose of Carrier Safety Measurement System (CSMS)

- **Identify carriers for CSA interventions**
 - Along with investigation findings, determines what problems need to be addressed by the intervention process
 - Monitors carriers on-road performance for improvements throughout the process
 - Identifies appropriate intervention tool to be used for carrier
 - Prioritizes FMCSA resources
- **Provides stakeholders with safety information**



SMS Methodology

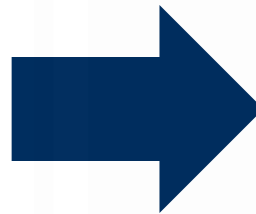
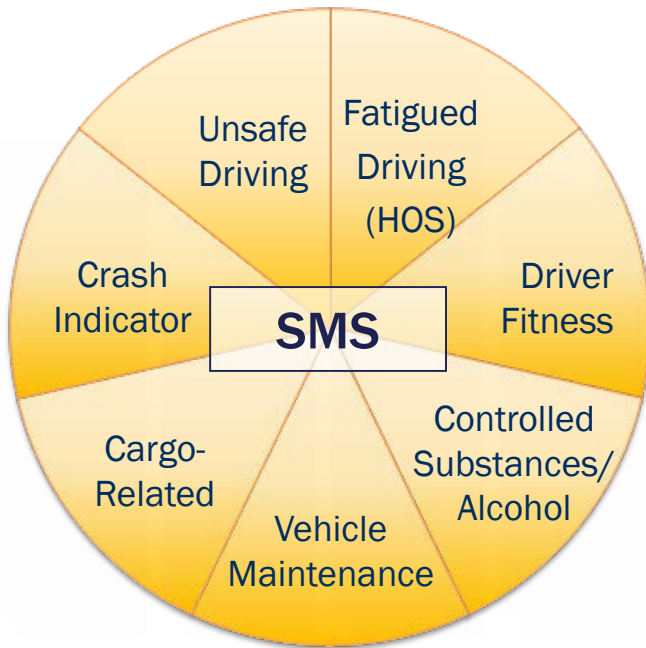




CSMS

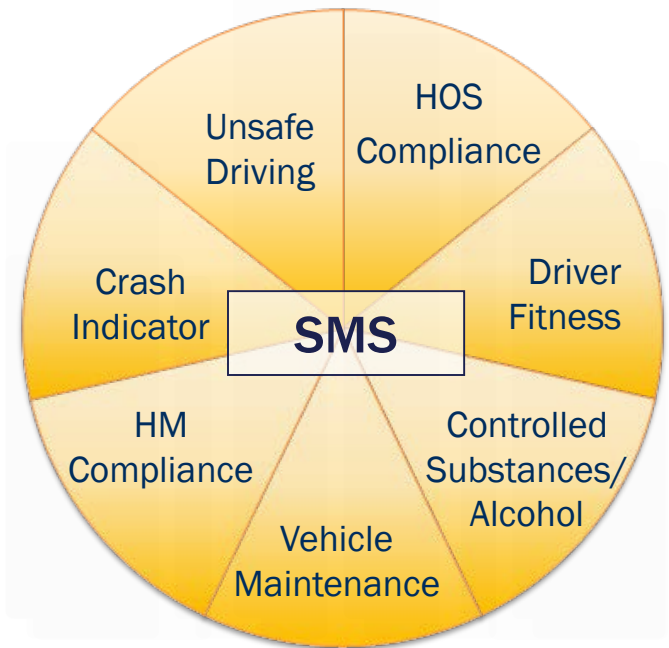
SMS 2.1

Behavior Analysis and Safety Improvement Categories (BASICS)



SMS 3.0

BASICS as of December 2012





Methodology Overview

- Gather 24 months of on-road safety event data (i.e., inspections, crashes) to create a safety event history
- Place each carrier violation and/or crash into a BASIC
- Convert BASIC data into a quantifiable measure/rate
- Develop a percentile rank for each BASIC based on each carrier BASIC measure



★ Safety Event Data

- 525,000 active carriers
- 24 months of carrier on-road safety performance:
 - 6.3 million inspections
 - 11.2 million violations related to the Federal Motor Carrier Safety Regulations discovered
 - 255,000 crashes





BASIC Data

Safety Event Data Sorted by BASIC

- Unsafe Driving (Parts 392 & 397)
- Hours-of-Service (HOS) Compliance (Parts 392 & 395)
- Driver Fitness (Parts 383 & 391)
- Controlled Substances/Alcohol (Parts 382 & 392)
- Vehicle Maintenance (Parts 392, 393 & 396)
- Hazardous Materials (HM) Compliance (Part 397 and HM Regulations (HMRs) Parts 171, 172, 173, 177, 178, 179, and 180)
- Crash Indicator



★ BASIC Measures

BASIC Data → Quantifiable Measures

Considerations

- **Time Weighting/Timeframe** – More recent events are more relevant
- **Severity Weighting** – Increases weighting of violations shown to create a greater risk of crash involvement/consequence
- **Severity Weight Cap** – Limits the total severity weight a single inspection can have in a BASIC
- **Violation Cap** – Cited section number only counts once per inspection
- **Segmentation** – (Crash Indicator and Unsafe Driving) Segments carrier population into two groups based on types of vehicles operated
- **Normalization** – Based on exposure:
 - For Crash and Unsafe Driving: Power Units (PUs) and Vehicle Miles Travelled (VMT)
 - For all other BASICS: Number of relevant inspections





Considerations for Unsafe Driving BASIC and Crash Indicator Explained

- **Industry Segmentation**
 - Separate carriers into two groups based on the types of vehicles operated so that companies operating fundamentally different types of vehicles are no longer compared with each other:
 - Combination Segment: carriers with combination trucks/motorcoach buses comprising 70% or more of total PUs
 - Straight Truck Segment: carriers with straight trucks/other vehicles comprising more than 30% of total PUs
- **Normalize by a combination of PU and VMT**
 - Increases exposure for carriers with above average utilization (VMT per average PU), where Census VMT data (within 24 months) are available



★ Unsafe Driving BASIC



- Operation of CMVs in a dangerous or careless manner
- Examples:
 - Speeding
 - Reckless driving
 - Improper lane change





Unsafe Driving Measure

$$\text{BASIC Measure} = \frac{\text{Sum of Time \& Severity Weighted Violations}}{\text{Average Power Units x Utilization Factor}}$$

- Violation Severity Weight – Based on crash risk; range from 1 to 10, where 10 is most severe
- Time Weight – 0–6 Months (x3), 6–12 Months (x2), 12–24 Months (x1)
- Utilization Factor: A multiplier between 1 and 3, based on carrier segment and truck utilization (VMT per PU)





Unsafe Driving Measure: Utilization Factor



Unsafe Driving BASIC: Straight Truck Segment

Utilization Rate (VMT / Avg. PU)	Utilization Factor
<20,000	1
20,000 – 60,000	$\text{VMT per Avg. PU} / 20,000$
60,000 – 200,000	3
>200,000	1
No recent VMT data	1

Unsafe Driving BASIC: Combination Segment

Utilization Rate (VMT / Avg. PU)	Utilization Factor
<80,000	1
80,000 – 160,000	$1 + 0.6[(\text{VMT per Avg. PU} - 80,000) / 80,000]$
160,000 – 200,000	1.6
>200,000	1
No recent VMT data	1

- Carriers with above average utilization (up to 200,000 VMT per average PU) receive a positive adjustment to their level of exposure
 - Straight Truck Segment: over 20,000 VMT per average PU
 - Combination Segment: over 80,000 VMT per average PU





HOS Compliance BASIC

- Operation of CMVs by drivers who are ill, fatigued, or in noncompliance with the HOS regulations
- Examples:
 - HOS
 - Form and manner
 - Operating a CMV while ill or fatigued (all Part 395)





HOS Compliance Measure

$$\text{BASIC Measure} = \frac{\text{Sum of Time \& Severity Weighted Violations}}{\text{Total Time Weight of Relevant Inspections}}$$

- Violation Severity Weight – Based on crash risk; range from 1 to 10, where 10 is most severe; Out-of-Service (OOS) violation +2
- Time Weight – 0–6 Months (x3), 6–12 Months (x2), 12–24 Months (x1)
- Normalized by Relevant Inspections – All Levels 1,2,3,6 (including clean) and any other inspections resulting in HOS Compliance violations





Driver Fitness BASIC

- Operation of CMVs by drivers who are unfit to operate a CMV due to lack of experience, or medical qualifications



- Examples:
 - Failure to have a valid and appropriate Commercial Driver's License
 - Medically unqualified to operate a CMV
 - Expired or missing medical examiner's certificate





Driver Fitness Measure

$$\text{BASIC Measure} = \frac{\text{Sum of Time \& Severity Weighted Violations}}{\text{Total Time Weight of Relevant Inspections}}$$

- Violation Severity Weight – Based on crash risk; range from 1 to 10, where 10 is most severe; OOS violation +2
- Time Weight – 0–6 Months (x3), 6–12 Months (x2), 12–24 Months (x1)
- Normalized by Relevant Inspections – All Levels 1,2,3,6 (including clean) and any other inspections resulting in Driver Fitness violations



★ Controlled Substances/Alcohol BASIC

- Operation of a CMV while impaired due to alcohol, illegal drugs, and misuse of prescription medications or over-the-counter medications
- Examples:
 - Use or possession of controlled substances or alcohol





Controlled Substances/Alcohol Measure

$$\text{BASIC Measure} = \frac{\text{Sum of Time \& Severity Weighted Violations}}{\text{Total Time Weight of Relevant Inspections}}$$

- Violation Severity Weight – Based on crash risk; range from 1 to 10, where 10 is most severe
- Time Weight – 0–6 Months (x3), 6–12 Months (x2), 12–24 Months (x1)
- Normalized by Relevant Inspections – All Levels 1,2,3,6 (including clean) and any other inspections resulting in Controlled Substances/Alcohol violations





Vehicle Maintenance BASIC

- Failure to properly maintain a CMV or prevent shifting loads
- Examples:
 - Brakes
 - Lights
 - Other mechanical defects
 - Failure to make required repairs
 - Improper load securement





Vehicle Maintenance Measure

$$\text{BASIC Measure} = \frac{\text{Sum of Time \& Severity Weighted Violations}}{\text{Total Time Weight of Relevant Inspections}}$$

- Violation Severity Weight – Based on crash risk; range from 1 to 10, where 10 is most severe; OOS violation +2
- Time Weight – 0–6 Months (x3), 6–12 Months (x2), 12–24 Months (x1)
- Normalized by Relevant Inspections – All Levels 1,2,5,6 (including clean) and any other inspections resulting in Vehicle Maintenance violations





HM Compliance BASIC



- Unsafe handling of HM on a CMV
- Examples:
 - HM package is not properly loaded and secured on vehicle
 - Shipping papers are not provided or do not include proper shipping name or class/division of the HM offered or transported
 - Placards/markings are not provided or properly affixed to packages and vehicles that require them





HM Compliance Measure

$$\text{BASIC Measure} = \frac{\text{Sum of Time \& Severity Weighted Violations}}{\text{Total Time Weight of Relevant Inspections}}$$

- Violation Severity Weight – Based on crash risk; range from 1 to 10, where 10 is most severe; OOS violation +2
- Time Weight – 0–6 Months (3), 6–12 Months (2), 12–24 Months (1)
- Normalized by Relevant Inspections – All Levels 1,2,5,6 (including clean) and any other inspections resulting in HM Compliance violations

*HM Compliance measures and percentiles are only available to motor carriers and enforcement personnel who are logged in to the SMS



★ Crash Indicator



- Histories or patterns of high crash involvement, including frequency and severity
- Based on State-reported crash records





Crash Indicator Measure

$$\text{Crash Indicator Measure} = \frac{\text{Total of Time \& Severity Weighted Applicable Crashes}}{\text{Average PUs} \times \text{Utilization Factor}}$$

- Time Weight – 0–6 Months (x3), 6–12 Months (x2), 12–24 Months (x1)
- Crash Severity Weight – Range from 1 to 3, crashes involving injury/fatality or HM release have more weight
- Utilization Factor – A multiplier between 1 and 3, based on carrier segment and truck utilization (VMT per PU)
- All crashes are used regardless of preventability

* Crash Indicator measures and percentiles are only available to motor carriers and enforcement personnel who are logged in to the SMS





Crash Indicator: Utilization Factor

Crash Indicator: Straight Truck Segment	
Utilization Rate (VMT / Avg. PU)	Utilization Factor
<20,000	1
20,000 – 60,000	$\text{VMT per Avg. PU} / 20,000$
60,000 – 200,000	3
>200,000	1
No recent VMT data	1

Crash Indicator: Combination Segment	
Utilization Rate (VMT / Avg. PU)	Utilization Factor
<80,000	1
80,000 – 160,000	$1 + 0.6[(\text{VMT per Avg. PU} - 80,000) / 80,000]$
160,000 – 200,000	1.6
>200,000	1
No recent VMT data	1

Carriers with above average utilization (up to 200,000 VMT per average PU) receive a positive adjustment to their level of exposure:

- Straight Truck Segment: over 20,000 VMT per average PU
- Combination Segment: over 80,000 VMT per average PU





Insurance/Other Category

Carriers logged in to the SMS will see the Insurance/Other category in addition to the seven BASICS

- This category includes violations cited during investigations that do not coincide with the seven BASICS
 - Insurance or authority violations
- If one of the Serious Violations in this category is discovered during an investigation within the last 12 months, the category will show an exceeded the threshold symbol





Percentile

BASIC Measures → Percentile Rank

- Based on each BASIC measure, develop a percentile rank indicating the carrier's BASIC performance
 - Provides a relative assessment of performance
 - Allows for prioritizing intervention resources by behavior
 - Higher percentage = worse performance (i.e., 87% means carrier is worse than 87% of carriers that have similar numbers of safety events in the given BASIC)
- Considerations
 - **Data Sufficiency Standards** – define events/exposure necessary to generate a robust measure
 - **Current Inspection and Crash Data** – assignment of percentile dependent on age and result of most recent inspection (12 months)
 - **Safety Event Grouping** – compare measures of carriers with similar numbers of safety events





Percentile (Data Sufficiency Standards)

Data Sufficiency Standards

- Minimum number of inspections with applicable violations required for percentile to be assigned
- Assists in identification of patterns of carrier behavior based on noted safety problems across multiple inspections

BASIC	Number of Inspections
Unsafe Driving	3
HOS Compliance	3
Driver Fitness	5
Controlled Substances/Alcohol	1
Vehicle Maintenance	5
HM Compliance	5
Crash Indicator	2 Crashes





Percentile (Safety Event Grouping: Unsafe Driving)

Safety Event Grouping

- Percentiles are assigned to carriers with similar number of safety events
- Below are the tables used to determine safety event grouping for each BASIC (note: the Unsafe Driving BASIC and Crash Indicator split between segments)

Unsafe Driving BASIC: Straight Truck Segment	
Safety Event Group	Number of Inspections with Unsafe Driving Violations
Straight Truck 1	3-4
Straight Truck 2	5-8
Straight Truck 3	9-18
Straight Truck 4	19-49
Straight Truck 5	50+

Unsafe Driving BASIC: Combination Segment	
Safety Event Group	Number of Inspections with Unsafe Driving Violations
Combination 1	3-8
Combination 2	9-21
Combination 3	22-57
Combination 4	58-149
Combination 5	150+





Percentile (Safety Event Grouping: Crash Indicator)

Crash Indicator: Straight Truck Segment	
Safety Event Group	Number of Crashes
Straight Truck 1	2
Straight Truck 2	3-4
Straight Truck 3	5-8
Straight Truck 4	9-26
Straight Truck 5	26+

Crash Indicator: Combination Segment	
Safety Event Group	Number of Crashes
Combination 1	2-3
Combination 2	4-6
Combination 3	7-16
Combination 4	1-45
Combination 5	46+





Percentile (Safety Event Grouping: Remaining BASICS)

HOS Compliance, Driver Fitness, Vehicle Maintenance, HM Compliance BASICS Safety Event Groupings	
Safety Event Group	Number of Inspections with Applicable Violations
1	3-10 (HOS Compliance) 5-10 (all others)
2	11-20
3	21-100
4	101-500
5	501+

Controlled Substances/Alcohol BASIC Safety Event Groupings	
Safety Event Group	Number of Inspections with Controlled Substances/Alcohol Violations
1	1
2	2
3	3
4	4+





Percentiles and Investigations

- Goal is to identify carriers with both
 - Crash rates higher than the population average AND
 - Known on-road compliance issues
- Intervention Thresholds for carriers are organized by BASIC and are set based on the BASIC's relationship to crash risk/consequence
- Carriers that exceed the BASIC threshold are identified for interventions

BASIC	General	HM	Passenger
Unsafe Driving, HOS Compliance, Crash Indicator	65%	60%	50%
Driver Fitness, Controlled Substances/Alcohol, Vehicle Maintenance	80%	75%	65%
HM Compliance	80%	80%	80%





BASICs Exceeding the Threshold

Carrier BASIC Assessments (exceeded the threshold symbols) are determined by two inputs:

- SMS results
 - Percentiles calculated based on on-road performance
 - BASIC is considered exceeding the threshold if percentile is above the Intervention Threshold for that BASIC
- Serious Violations discovered during investigations
 - Egregious noncompliance requiring immediate corrective action is necessary, OR
 - Directly related to carrier's management and/or operational controls
 - If a Serious Violation is found, BASIC is considered to be in an exceeded the threshold status and will be displayed accordingly on a carrier's record for 12 months



SMS Screenshots





Carrier Measurement: SMS Results

ABC Trucking

DOT#: 000000

SMS Methodology

Welcome to the Motor Carrier Safety Measurement System

The SMS provides an assessment of a motor carrier's on-road performance and investigation results within the Behavior Analysis and Safety Improvement Categories (BASiCs). Assessments cover 24 months of activity and results are updated monthly. For current Motor Carrier Safety Ratings visit [SAFER](#) and for current operating authority and insurance information visit [Licensing and Insurance](#) (L&I) system.

SMS Enhancements

Effective December 2012 SMS has been updated to version 3.0

[More details](#)



Select a BASiC below to view details

BASiCs Overview	PERFORMANCE	BASiCs Status
Unsafe Driving	80.1%	
Hours-of-Service (HOS) Compliance	0%	
Driver Fitness	< 6 Insp. w/ viol.	
Controlled Substances and Alcohol	0%	
Vehicle Maintenance	< 6 vehicle insp.	
Hazardous Materials (HM) Compliance	Not Public	Not Public
Crash Indicator	Not Public	Not Public

History [USE OF SMS DATA INFORMATION](#)
For more information on the BASiCs Overview please visit our [Information Center](#)

ICON LEGEND
 Serious violation cited within last 12 months from an investigation.
 Denotes this carrier exceeds the FMCSA intervention threshold relative to its safety event grouping based upon roadside data and/or has been cited with one or more serious violations within the past 12 months during an investigation. Therefore, this carrier may be prioritized for an intervention action and roadside inspection.

Print-Ready Measurement Profile

SUMMARY OF ACTIVITIES

	Number	OOS Rate
Total Inspections:	26	
Driver Inspections:	26	0 %
Vehicle Inspections:	1	100 %
Placardable HM Inspections:	0	0 %
% Placardable HM Inspections:	0 %	
Total Crashes*:	4	
Injury/Fatal Crashes:	2	
Fatal Crashes:	0	
Injury Crashes:	2	
Towaway Crashes:	2	

*Crashes listed represent a motor carrier's involvement in reportable crashes, without any determination as to responsibility. [Continue for details.](#)

RECENT INVESTIGATIONS

The following are up to five most recent investigations.

Intervention Type	Date
Non-Ratable Review	10/17/2012
Safety Review	7/26/1990

DATA CENTER

Scope:

File Type:

[PRINT](#) [DOWNLOAD](#)





Carrier Measurement: SMS Results

ABC Trucking DOT#: 000000 SMS Methodology

Welcome to the Motor Carrier Safety Measurement System
The SMS provides an assessment of a motor carrier's on-road performance and investigation results within the Behavior Analysis and Safety Improvement Categories

SMS Enhancements
Effective December 2012
SMS has been updated to

Select a BASIC below to view details

BASICs Overview	What Does This Mean?	PERFORMANCE	On Road	Investigation	BASICs Status
Unsafe Driving	(Based on a 24-month record ending February 22, 2013)	80.1%			
Hours-of-Service (HOS) Compliance		0%			
Driver Fitness		< 5 insp. w/ viol.			
Controlled Substances and Alcohol		0%			
Vehicle Maintenance		< 5 vehicle insp.			
Hazardous Materials (HM) Compliance		Not Public	Not Public		Not Public
Crash Indicator		Not Public	Not Applicable		Not Public

MEASUREMENT PROFILE

Number	OOS Rate
26	
26	0%
1	100%
0	0%
0%	
4	
2	
0	
2	
2	

for carrier's involvement in reportable violation as to responsibility. Continue for details.

USE OF SMS DATA/INFORMATION

History

For more information on the BASICs Overview please visit our [Information Center](#)

ICON LEGEND

- Serious violation cited within last 12 months from an investigation.
- Denotes this carrier exceeds the FMCSA intervention threshold relative to its safety event grouping based upon roadside data and/or has been cited with one or more serious violations within the past 12 months during an investigation. Therefore, this carrier may be prioritized for an intervention action and roadside inspection.

PRINT **DOWNLOAD**



Violation Details Provided in the SMS

ABC Trucking DOT#: 000000 SMS Methodology

CARRIER OVERVIEW

UNSAFE DRIVING

UNSAFE DRIVING

HO 8 COMP.

DRIVER FITNESS

DRUG ALCOHOL

VEHICLE MAINT.

HM COMP.

CRA 8H

HISTORY

Unsafe Driving
Operation of CMVs by drivers in a dangerous or careless manner. (FMCSR Parts 392 and 392Z)

BASIC Overall Status
Exceeds the Intervention Threshold to be prioritized for intervention
(Based on a 24-month record ending February 22, 2013)

Data Center
Scope: Logged In users only
File Type: Excel
PRINT **DOWNLOAD**

On-road Performance Detail Investigation Results Detail Performance Tools

On-road Performance Overview

MEASURE: 6.65
PERCENTILE: 80.1%
(Threshold: 65%)

Safety Event Grouping: 9-21
Segment: Combo

Average Power Units: 13.7
Vehicle Miles Traveled (VMT): 1,020,624
VMT Year: 2012 VMT Source: Investigation (MC 8-151)

Average Power Units (APU) x Utilization Factor (UF): 13.7
Total Inspections with Unsafe Driving Violations: 17
Total Unsafe Driving Violations: 17

80.1%

The Unsafe Driving measure/percentile is based on Roadside Inspection reports. Some Unsafe Driving violations are reported when a Roadside Inspection was performed following a traffic stop for the Unsafe Driving violation. These reported violations do not always result in the issuance of a citation to the driver.

Information Center
Select a topic below to view information:

- What is a percentile?
- How is a carrier's Behavior Analysis and Safety Improvement Category (BASIC) Overall Status determined?
- What can a motor carrier do to improve?
- How can a carrier improve in the Unsafe Driving Behavior Analysis and Safety Improvement Category (BASIC)?

[View all possible Unsafe Driving violations](#)
[Request a data correction review](#)

UNSAFE DRIVING

Violation	Description	# Total Violations	# OOS Violations	Violation Weight
392.16	Failing to use seat belt while operating CMV	1	0	7



★ Further Drilldown in the SMS

UNSAFE DRIVING				
Violation	Description	# Total Violations	# OOS Violations	Violation Weight
392.16	Failing to use seat belt while operating CMV	1	0	7
392.2C	Failure to obey traffic control device	1	0	5
392.2S	Speeding	1	0	1
392.2-SLLS2	State/Local Laws - Speeding 6-10 miles per hour over the speed limit	14	0	4

Go to Page: Previous Next Violations per page: Displaying 1 - 4 of 4 Violations



★ Further Drilldown in the SMS

INSPECTION HISTORY									
Report				Vehicle			Measure		
	Inspection Date	#	ST	Plate #	Lic ST	Type	Severity Weight (A)	Time Weight (B)	Time Severi Weight (AxB)
1	11/12/2012	NE00CX000100	NE	14-2556	NE	Truck Tractor	5	3	15
Violation: 392.2C Failure to obey traffic control device (Non-OOS)							5		
2	5/21/2012	NE00EC000081	NE	14613	NE	Truck Tractor	4	2	8
Violation: 392.2-SLLS2 State/Local Laws - Speeding 6-10 miles per hour over the speed limit (Non-OOS)							4		
3	4/2/2012	NE00CX000078	NE	14-1024	NE	Truck Tractor	4	2	8
Violation: 392.2-SLLS2 State/Local Laws - Speeding 6-10 miles per hour over the speed limit (Non-OOS)							4		
4	2/24/2012	NE00DK000072	NE	141627	NE	Truck Tractor	4	2	8
Violation: 392.2-SLLS2 State/Local Laws - Speeding 6-10 miles per hour over the speed limit (Non-OOS)							4		
5	2/2/2012	NE00CZ000076	NE	14-743	NE	Truck Tractor	4	1	4
Violation: 392.2-SLLS2 State/Local Laws - Speeding 6-10 miles per hour over the speed limit (Non-OOS)							4		
6	1/2/2012	NE00CA000108	NE	14CT613	NE	Truck Tractor	4	1	4
Violation: 392.2-SLLS2 State/Local Laws - Speeding 6-10 miles per hour over the speed limit (Non-OOS)							4		
7	11/25/2011	NE00CZ000059	NE	14-611	NE	Truck Tractor	4	1	4
Violation: 392.2-SLLS2 State/Local Laws - Speeding 6-10 miles per hour over the speed limit (Non-OOS)							4		
8	9/11/2011	NE00EC000057	NE	141097	NE	Truck Tractor	4	1	4
Violation: 392.2-SLLS2 State/Local Laws - Speeding 6-10 miles per hour over the speed limit (Non-OOS)							4		
9	8/14/2011	NE00EC000052	NE	142030	NE	Truck Tractor	4	1	4
Violation: 392.2-SLLS2 State/Local Laws - Speeding 6-10 miles per hour over the speed limit (Non-OOS)							4		
10	8/9/2011	NE00EC000051	NE	141026	NE	Truck Tractor	4	1	4
Violation: 392.2-SLLS2 State/Local Laws - Speeding 6-10 miles per hour over the speed limit (Non-OOS)							4		



★ Further Drilldown in the SMS


The screenshot displays the 'Unsafe Driving' dashboard. At the top left, there is a truck icon and the title 'Unsafe Driving' with a subtitle 'Operation of CMVs by drivers in a dangerous or careless manner. (FMCSR Parts 392 and 397)'. Below this is a 'BASIC Overall Status' section with a warning icon and text: 'Exceeds the Intervention Threshold to be prioritized for intervention (Based on a 24-month record ending February 22, 2013)'. To the right is a 'Data Center' section with 'Scope: Logged in users only' and 'File Type: Excel', and buttons for 'PRINT' and 'DOWNLOAD'. A navigation bar contains three tabs: 'On-road Performance Detail', 'Investigation Results Detail' (highlighted with a red arrow), and 'Performance Tools'. The main content area is titled 'Investigation Results Overview' and contains a document icon with the text 'No serious violation(s) discovered'. Below this is a paragraph: 'Certain violations found during an investigation can result in a [warning icon] for a BASIC. The status remains for 12 months following the investigation.' To the right is an 'Information Center' with a list of topics: 'What are the Serious Violations?', 'How is a carrier's Behavior Analysis and Safety Improvement Category (BASIC) Overall Status determined?', 'What can a motor carrier do to improve?', and 'How can a carrier improve in the Unsafe Driving Behavior Analysis and Safety Improvement Category (BASIC)?'. A 'Request a data correction review' button is at the bottom right. A red arrow points to the 'SERIOUS VIOLATIONS FROM INVESTIGATIONS' section header, which contains the text 'There are no Serious Violations to display'.



★ Further Drilldown in the SMS

Unsafe Driving

Operation of CMVs by drivers in a dangerous or careless manner. (FMCSR Parts 392 and 393)

**BASIC Overall Status**

Exceeds the Intervention Threshold to be prioritized for intervention
(Based on a 24-month record ending February 22, 2013)

Data Center

Scope:
File Type:

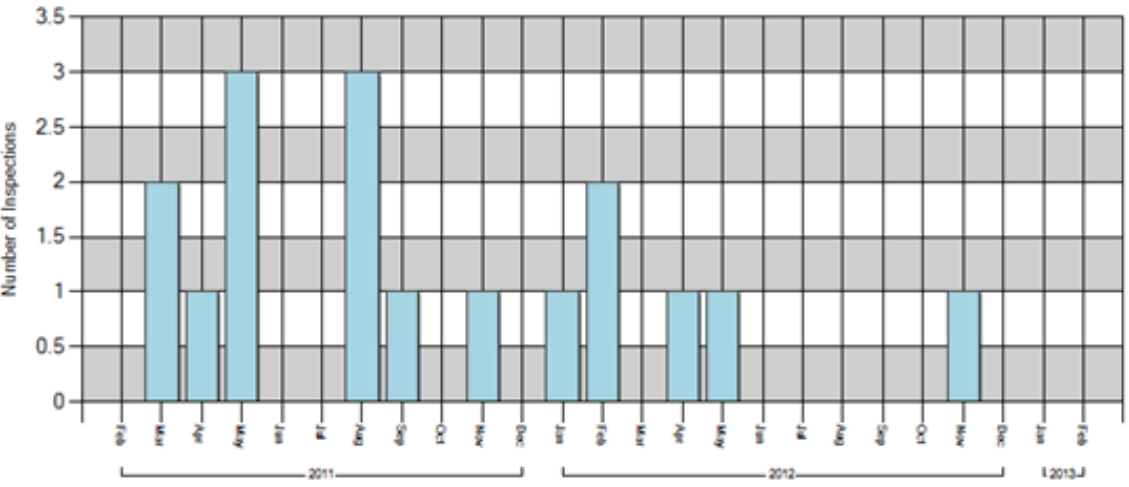
[On-road Performance Detail](#) | [Investigation Results Detail](#) | **[Performance Tools](#)**

Use this page to view graphs of various aspects of your safety performance.

Trends View | Measure View | Performance View

Inspections with Violations

Inspections with Violations in the BASIC by Month



Year	Month	Number of Inspections
2011	Feb	0
2011	Mar	2
2011	Apr	1
2011	May	3
2011	Jun	0
2011	Jul	0
2011	Aug	3
2011	Sep	1
2011	Oct	0
2011	Nov	1
2011	Dec	0
2012	Jan	1
2012	Feb	2
2012	Mar	0
2012	Apr	1
2012	May	1
2012	Jun	0
2012	Jul	0
2012	Aug	0
2012	Sep	0
2012	Oct	0
2012	Nov	1
2012	Dec	0
2013	Jan	0
2013	Feb	0

SMS Effectiveness





SMS Effectiveness – Results

Crash OR HOS Compliance OR
Unsafe ≥ 85

+

1 other BASIC at or above the “all other” motor carrier threshold

OR

Any 4 or more BASICs at or above the “all other” motor carrier threshold

- Carriers meeting the above definition of “high risk” have substantially higher crash rates: more than twice the crash rate of the general carrier population

Group	# Carriers	Post Crashes per 100 Post PU
Carriers under FMCSA's Jurisdiction	276,855	3.58
Carriers with Sufficient Data for 1+ BASICs (SMS 3.0)	161,555	3.82
Carriers with Above Threshold in 1+ BASICs (SMS 3.0)	41,789	5.05
High-Risk Carriers	6,731	8.15





SMS Effectiveness – Results

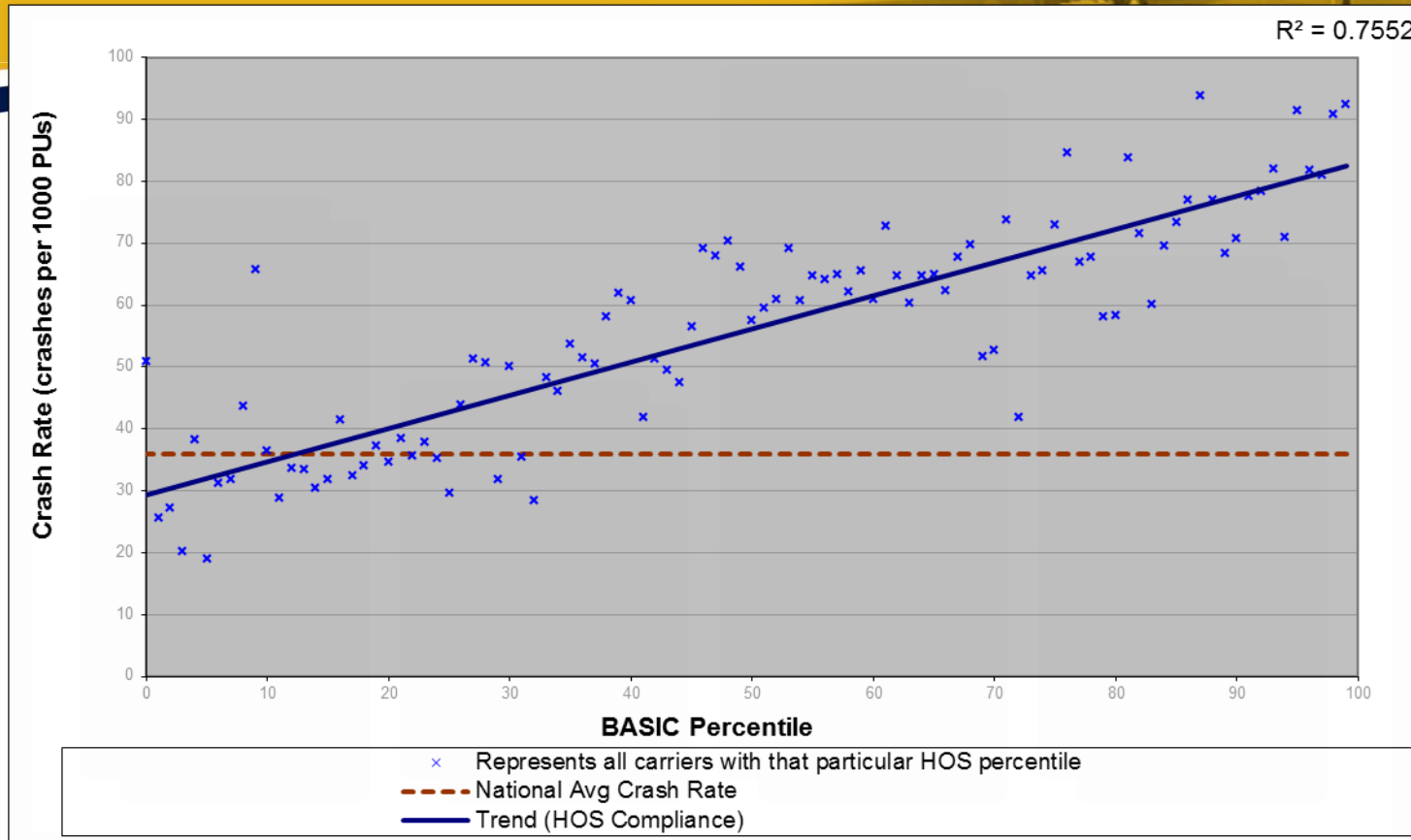
- Strongest relationships with future crash risk exist for the Unsafe Driving, HOS Compliance, Vehicle Maintenance BASICs, and the Crash Indicator
- Other BASICs show a weaker relationship to crash risk
- FMCSA optimizes resources and oversight responsibilities through more stringent Intervention Thresholds for BASICs with strongest associations to crash risk

BASIC	Above Threshold : Crashes per 100 PU	Below Threshold: Crashes per 100 PU	Increase in Crash Rate
Unsafe Driving	7.10	3.90	82%
HOS Compliance	6.97	4.00	74%
Driver Fitness	2.85	4.43	-36%
Controlled Substances / Alcohol	2.81	5.25	-47%
Vehicle Maintenance	5.79	3.87	50%
HM Compliance	5.27	4.04	31%
Crash	6.59	3.58	84%
1+ BASIC (any BASIC)	5.05	3.05	66%





SMS Effectiveness – HOS Compliance BASIC

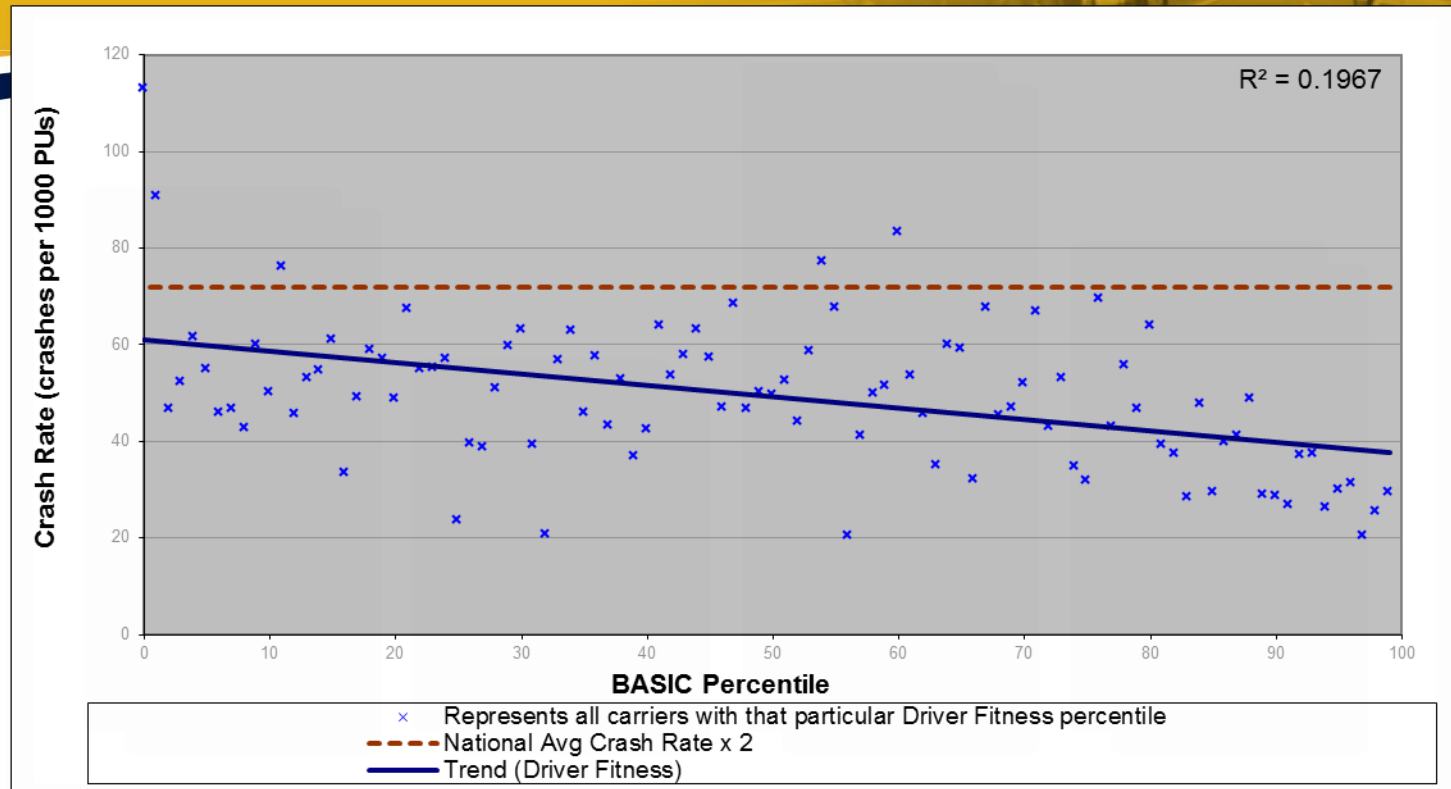


- Strong relationship between HOS Compliance BASIC and future crash risk
- Recent American Transportation Research Institute (ATRI) paper shows similar findings





SMS Effectiveness – Driver Fitness BASIC



- Negative relationship between Driver Fitness BASIC and future crash risk
- Recent ATRI paper shows similar findings
- Three quarters of carriers above Driver Fitness, exceed threshold in another BASIC
- Recent Aspen improvements provide for higher severity weights for safety-based “operating while suspended” violations



Carrier and Driver Information





How Can a Carrier Improve?

- **“Good” Inspections**
 - 38.5% of inspections have no safety-based violations cited
 - 46.5% of inspections have no violations cited that impact SMS
- **“Get Well” Rules**
 - Unsafe Driving and Controlled Substances/Alcohol BASICs
 - No percentile assigned if no inspections with a violation in these BASICs in the last year
 - Crash Indicator
 - No percentile assigned if no crashes in last year
 - HOS Compliance, Driver Fitness, Vehicle Maintenance, and HM Compliance BASICs
 - No percentile assigned if:
 - No inspections with a violation in that BASIC within the past year; **and**
 - Most recent relevant inspection does not have a violation of that BASIC





Carrier Access to Measures and Percentiles

- Carriers have access to full SMS results and BASIC measurements
- The public has access to SMS results and BASIC measurements except for percentiles for the HM Compliance BASIC and Crash Indicator
 - HM Compliance violations will not be available to the public for one year
 - List of crashes are available to the public
 - Similar to the Accident Safety Evaluation Area in SafeStat
 - List of crashes represents a motor carrier's involvement in 24 months of reportable crashes, without any determination as to responsibility



★ Driver Information

- The measurement system provides an internal tool to address CMV drivers called the Driver Safety Measurement System (DSMS):
 - Provides enhanced information on individual drivers to investigators to identify drivers with safety problems
 - Allows for prioritizing driver sampling during carrier investigation
 - Supports investigator follow-up on significant violations (e.g., Red Flag Violations)
 - DSMS data are not available to the public or to employing motor carriers; they are used as an investigative tool
- Under CSA, individual drivers are *not* assigned safety ratings or safety fitness determinations





Driver Information

- **Pre-employment Screening Program (PSP)**
 - PSP was mandated by Congress and is *not* a part of CSA
 - “Driver Profiles” from FMCSA’s Driver Information Resource are available to carriers through PSP
 - Driver Profiles are only released to potential employer with driver authorization
 - To sign up for an account, visit: www.psp.fmcsa.dot.gov





Roadside Data Uniformity

- Data collected at the roadside is the foundation of all data-driven traffic safety initiatives
- CSA relies on roadside data in its SMS Methodology
- The CSA SFD methodology would use roadside data as a component of safety fitness determinations





Roadside Uniformity – Background

Effort organized into four core initiatives:

1. Consistent documentation of roadside inspection and violation data
2. Standardized processes for DataQs (request for data review)
3. Increased awareness of high-level goals of the inspection program
4. Inspection selection processes



★ Rating Process

Existing Safety Rating Process:

- Based on the results of an onsite investigation

Proposed Safety Fitness Determination (SFD):

- Would continue to include major safety violations found as part of investigations
- Would also incorporate on-road safety performance

Draft rulemaking is currently under development





What Can Carriers Do?

- **Educate yourselves and your employees**
 - Understand the SMS Methodology and the BASICs
 - Check the website for information and updates (<http://csa.fmcsa.dot.gov>)
 - Raise awareness that every inspection and every violation counts
- **Ensure compliance**
 - Review inspections and violation history over the past two years
 - Log in to SMS Online via the Portal: <https://portal.fmcsa.dot.gov>, or A&I <https://ai.fmcsa.dot.gov>, review BASIC assessments, and address safety problems now
 - Educate drivers about how their performance impacts their own driving record and the safety assessment of the carrier
- **Check and update records**
 - Motor Carrier Identification Report (MCS-150)
 - Routinely monitor and review inspection and crash data
 - Question potentially incorrect data (DataQs: <https://dataqs.fmcsa.dot.gov>)





For more information regarding SMS and
to view your data, visit

<http://ai.fmcsa.dot.gov/SMS>

For more information regarding CSA, visit

<http://csa.fmcsa.dot.gov>

or call

1-877-254-5365

