

# **CSA 2010 Comprehensive Safety Analysis: Overview of FMCSA's New Commercial Motor Vehicle Safety Compliance Model**

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## **Introduction**

The Federal Motor Carrier Safety Administration (FMCSA) has a high priority initiative underway that will change the way motor carrier safety compliance is measured and enforced. This initiative is called "CSA-2010: Comprehensive Safety Analysis."

CSA 2010 is designed to assess the safety performance of a greater portion of the motor carrier industry and intervene early to change unsafe carrier and driver behavior. This initiative introduces two new Safety Measurement Systems (SMS), one for carriers (CSMS) and one for drivers (DSMS). These new systems will allow the FMCSA and its state partners to identify high-risk carriers and drivers. The data will be placed in Behavioral Analysis & Safety Improvement Categories (BASICS) that represent unsafe behaviors for carriers or drivers. The BASICS categories include:

1. Unsafe Driving
2. Fatigued Driving
3. Driver Fitness
4. Controlled Substances and Alcohol
5. Vehicle Maintenance
6. Loading and Securement
7. Crash History

The current operational model utilizes the compliance review, which is very labor-intensive, and assesses the safety performance of a very limited number of motor carriers. SafeStat is the current way a carrier's safety performance is measured, and is used to select motor carriers for a compliance review based on the four safety evaluation areas (SEAs): driver, vehicle, safety management, and accident. The SafeStat scores do not impact a carrier's safety rating. This will change under the CSA 2010 model, where the safety measurement system will be used to identify

a motor carrier's safety problems, prioritize carriers for intervention, as well as support the safety investigator's decision on the best intervention for that motor carrier.

This initiative represents a major shift in safety enforcement and safety measurement for both motor carriers and drivers. The progressive interventions are designed to change behavior and reduce the potential for large truck and bus crashes, injuries, and fatalities. This paper will provide insights as to how this initiative will impact your motor carrier operations.

This paper will:

- Introduce readers to CSA 2010 operational model and op-model tests being performed.
- Compare/contrast motor carrier safety performance under the current SafeStat process to CSA 2010 Safety Measurement System (SMS).
- Explain the seven BASICS: Behavioral Analysis Safety Improvement Categories.
- Discuss elements of the Operational Model (Op-Model), and how it will impact safety fitness determination.
- Identify steps commercial motor carriers will need to take in order to be prepared for the new compliance model.

## Operational Model

The CSA 2010 Operational Model (Op-Model) updates the current format used by the Federal Motor Carrier Safety Administration (FMCSA) and Commercial Vehicle Safety Alliance (CVSA). It also allows enforcement agencies to identify and intervene with carriers that are not complying with the regulations governing highway safety. When the new safety management system (SMS) is fully implemented by the end of 2010, the FMCSA will have a new operational model, which will utilize the resources and those of its state partners in more efficient manner to make the roads safer for not only motor carriers but the general motoring public as a whole.

CSA 2010 uses a forward-looking model to identify carriers with safety issues on a more regular basis. This is in contrast to the current model, which uses a historical review of past crashes and violations, and a labor intensive onsite compliance review (CR) as the only way to evaluate carrier compliance and safety.

Major changes include enforcement specifically targeted toward drivers. Each and every FMCSA regulation is identified in the SMS methodology, given a weighted point value between 1 and 10. Additionally, it identifies regulations that are the responsibility of the driver as opposed to strictly the responsibility of the motor carrier.

The CSA 2010 operational model has three major components:

- *Measurement:* CSA 2010 measures safety performance in new ways by using roadside inspection and crash results to identify carriers whose history and behaviors could lead to crashes.
- *Evaluation:* CSA 2010 allows the FMCSA to correct high-risk behavior by contacting more carriers and drivers with interventions tailored to their specific safety issue, as well as new safety fitness determination methodology.
- *Intervention:* CSA 2010 covers the full range of safety issues from data collection, evaluation, and creation of intervention tools for enforcement officials that will increase the effectiveness of safety interventions to improve safety on our roads

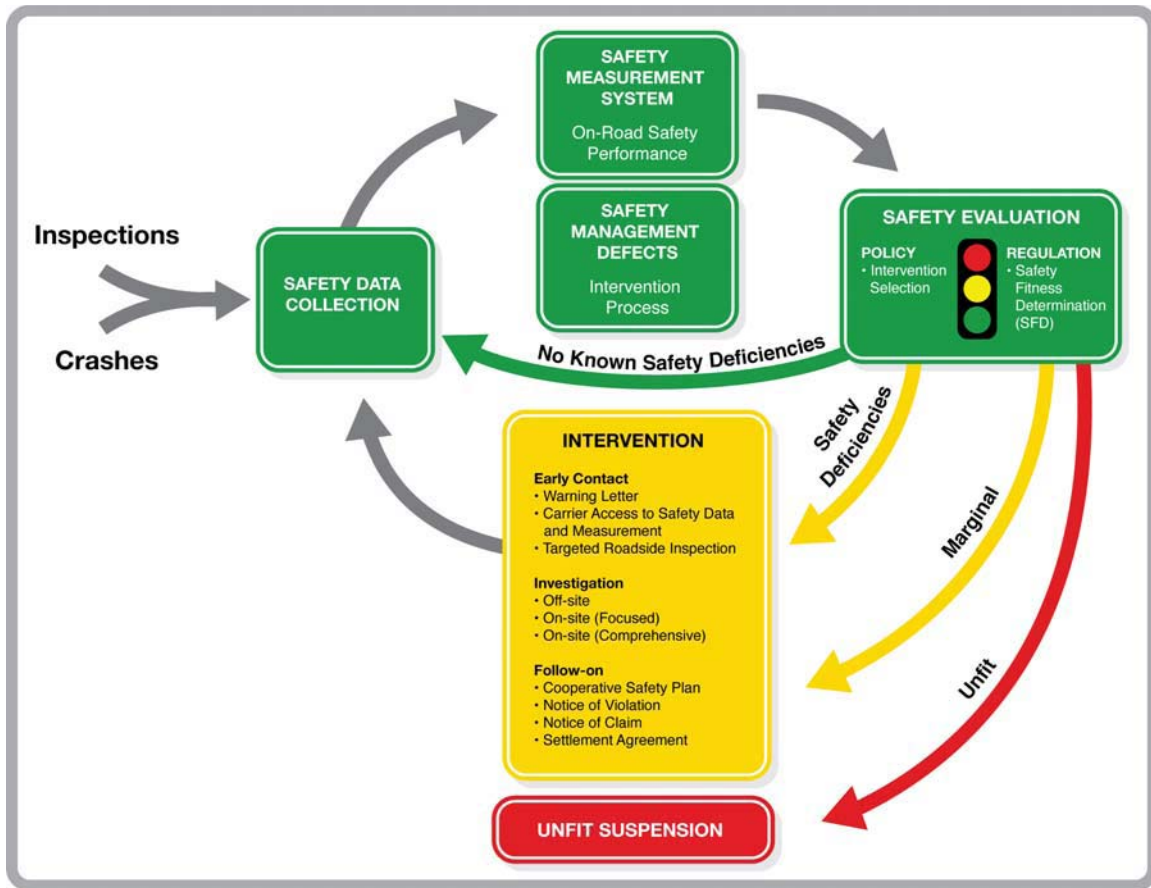


Figure 1. CSA 2010 Operational Model

## Op-Model Test

February 2008 marked the beginning of the FMCSA operational model (Op-Model) test. The test is being conducted to evaluate the validity, efficiency, and effectiveness of the CSA 2010 interventions and measurements. Independent evaluation is being conducted by the University of Michigan Transportation Research Institute (UMTRI). The test will be completed in June 2010.

During the test, there was no regulatory relief. Motor carriers are not being rated under CSA 2010 fitness methodology, because the methodology still needs to be implemented through rulemaking. Regardless, carriers are rated as satisfactory, conditional, or unsatisfactory under the current process. However, the inspections are being done in conjunction with the CSA 2010 Safety Management System's (SMSs) interventions. The first four states included in the Op-Model Test were: Colorado, Georgia, Missouri, and New Jersey. Motor carriers domiciled in the four test states were randomly placed into a test or control group with approximately 34,000 carriers in each group. Carriers in the test group receive the new CSA 2010 interventions, using the new measurement system. Those in the control group receive compliance reviews, using the current FMCSA operational model. The test was implemented in two phases. Phase I was to test

the startup phase, involving three of the seven BASICs. Phase II was launched in late 2008 and included the remaining BASICs.

In the spring of 2009, the Op-Model Test was expanded to include Montana, Minnesota, and the Canadian Provinces of Alberta and Ontario. In the fall of 2009, Kansas, Maryland, and Delaware were added to the Op-Model Test. In the new states, 100% of the carriers and drivers are included in the test. The benefits of including all of the carriers and drivers in the new test states offers:

- More accurate picture of efficiencies, capabilities and benefits;
- Tests integration with national program goals and congressional mandates; and
- Provides more data to evaluate test, including workload and workforce analyses.

Preliminary results from the Op-Model Test indicate the goal of reaching more carriers is being met. Investigators are able to make more contacts within a month, resulting in stronger enforcement. Warning letters are proving to have a positive impact. Almost 5,500 letters have been sent, with 50% of the carriers logging in to view their data and safety assessments.

After the Op-Model Test is completed in June 2010, the implementation elements and timeline will be:

**Summer 2010:**

- Replace SafeStat with SMS
- Send SMS results (BASICs scores) to roadside inspectors

**Summer through December 2010:**

- Roll out training to enforcement agencies on new interventions
- Send warning letters nationwide

## Current SafeStat Process versus CSA 2010 Safety Measurement System (SMS)

FMCSA utilizes SafeStat to identify carriers for a compliance review. Roadside inspection results are not all utilized in determining SafeStat scores. The new SMS process is much more comprehensive. Table 1 illustrates the key differences between the current SafeStat process and the CSA 2010 Safety Measurement System (SMS).

**Table 1. Comparison of SafeStat to CSA 2010 SMS**

Current System - SafeStat	CSA 2010 SMS
Organized by four broad categories, safety evaluation areas (SEAs): accident, driver, vehicle, and safety management	Organized by seven specific BASICs
Identifies carrier for a compliance review (CR)	Identifies safety problems to determine whom to investigate and where to focus the investigation
Uses only out-of-service (OOS) and moving violations from roadside inspections.	Uses <i>all</i> safety-based roadside inspection violations
No impact on safety rating	Used to propose adverse safety fitness determination based on carriers' current on-road safety performance (future)

Current System - SafeStat	CSA 2010 SMS
Violations are not weighted based on relationship to crash risk	Violations are weighted based on relationship to crash risk
Assesses carriers only	Assesses carriers and drivers: the driver SMS is a tool for investigators to identify drivers with safety problems during carrier investigations

The new carrier measurement system provides internal tools, including enhanced information on individual drivers, which will allow investigators to more effectively and efficiently conduct carrier investigations.

Under CSA 2010, individual drivers will *not* be assigned safety ratings or safety fitness determinations. A driver profile will be created, based upon 36 months of the driver on road performance. Data will include crash and inspection histories for the individual driver. A driver would authorize FMCSA to release this information to carriers through a third-party contractor. This portion of CSA 2010 will not be activated until late 2010. In the future, FMCSA plans to identify and intervene with drivers beyond the pool of drivers that are addressed in conjunction with motor carrier interventions.

## Understanding the Seven Behavior Analysis and Safety Improvement Categories (BASICS)

It is important to understand the safety improvement categories. Each of these categories is scored independent of the others, and listed independently. If your fleet is ranked as deficient in any section, the FMCSA will send a warning letter and may intervene to make safety improvements.

A carrier will be measured under seven Behavior Analysis & Safety Improvement Categories (BASICS):

1. Unsafe Driving
2. Fatigued Driving
3. Driver Fitness
4. Crash History
5. Vehicle Maintenance
6. Improper Loading/Securement
7. Controlled Substances/Alcohol

*Unsafe Driving:* Operation of commercial motor vehicles (CMV) by driver in a dangerous or careless manner:

- FMCSR Parts 392 & 395: Examples include speeding, reckless driving, improper lane changes and inattentive driving.

*Fatigued Driving / Hours of Service:* Operation of CMVs by drivers who are ill, fatigued, or in non-compliance with the hours of service (HOS) regulations. This includes violations of regulations pertaining to logbooks, as they related to HOS requirements and the management of CMV driver fatigue:

- FMCSR Parts 392 & 395: Examples include HOS, logbook and operating a CMV while ill or fatigued.

*Driver Fitness:* Operations of CMVs by drivers who are unfit to operate a CMV due to lack of training, experience, or medical qualifications:

- FMCSR Parts 383 & 391: Examples include failure to have a valid and appropriate commercial driver's license and being medically unqualified to operate a CMV.

*Controlled Substance/Alcohol:* Operations of CMVs by drivers who are impaired due to alcohol, illegal drugs and misuse of prescription or over-the-counter medications:

- FMCSR Parts 382 & 392: Examples include use or possession of controlled substances/alcohol.

*Vehicle Maintenance:* Motor carrier's failure to properly or adequately maintain CMVs:

- FMCSR Parts 393 & 396: Examples include brakes, lights and other mechanical defects, and failure to inspect or make required repairs.

*Improper Loading/Cargo Securement:* Operation of CMV with potential of shifting loads, spilled or dropped cargo, or unsafe handling of hazardous materials:

- FMCSR Part 392, 393, 397 & Hazardous Materials: Examples include no or improper load securement, failure to prevent cargo shifting, leaking/spilling cargo.

*Crash Indicator:* Crash/incident experience included, such as a history or patterns of high crash involvement, including frequency and severity of crashes. Data would include law enforcement crash reports, crashes reported by carrier, and crashes discovered during onsite investigations.

Converting BASIC data to a quantifiable measure/rate is based on these considerations:

- *Time weighting/time frame:* More recent events are more relevant;
- *Severity weightings:* Increase weighting of violations that have been shown to create greater risk of crash involvement;
- *Normalizing:* Based on exposure, and use of number of inspections or power units;
- *Single inspection cap:* Limit violation weight of a single poor inspection; and
- *Inspection cap:* Limit weight of single inspection.

Percentiles from 0-100 are used to compare the BASIC scores to the scores of other carriers in their peer group. The worst possible score is 100. Once a score is issued, the carrier is placed in a peer group with similar size or number of inspections.

The SMS uses carrier data from roadside inspections. This includes all safety-related violations, state-reported crashes, and the MCS-150 (Motor Carrier Census) to quantify how well or badly a carrier is performing in each BASIC.

## **Safety Fitness Determination (SFD)**

Under the proposed Safety Fitness Determination (SFD) rule, carriers would get a rating of Unfit, Marginal, or Continue Operation, based upon their on-road safety performance data, as well as major safety violations found as part of an investigation. The rating would be updated on a *monthly* basis. Draft rulemaking is currently in review within the Department of Transportation (DOT); Notice of Proposed Rule Making (NPRM) is expected to be published in early 2010.

CSA 2010 incorporates the existing safety rating process and will continue to do so until SFD would go into effect. Drivers will not be rated. Ratings are issued based on investigation findings:

- On-site, comprehensive investigations can result in Satisfactory, Conditional or Unsatisfactory ratings
- Onsite, focused investigations can result in Conditional or Unsatisfactory Ratings
- Offsite investigations do not result in a rating
- Carriers can request an administrative review of its safety rating (§385.17)

The differences in the current compliance review (CR) process and CSA 2010 intervention process are discussed in Table 2.

**Table 2. Comparison of Current Compliance Review and CSA 2010 Intervention Process**

<b>Current CR Process</b>	<b>CSA 2010 Intervention Process</b>
Broad one-size-fits-all investigation	Array of interventions can be tailored to address extent and scope of specific safety deficiencies
Resource-intensive for enforcement agencies and time-consuming for carrier; fewer carriers contacted	Less resource-intensive for enforcement agencies and less time-consuming for carrier; more carriers contacted
Focuses on broad compliance based on rigid set of acute/critical violations	Focuses on improving behaviors that are linked to crash risk
Discovers what violations exist at that time	Discovers what safety problem(s) are, why they exist, and how to correct them
Major safety problems result in fines (Notice of Claim (NOC))	When problems found, major focus on carrier proving corrective action; significant problems continue to result in fines
Focuses on carrier	Expands focus to driver violations

## **Carrier Action Plan**

Motor carriers need to be prepared for the implementation of CSA 2010. It will be released the summer of 2010. Carriers need to “raise the awareness that every inspection counts and every violation counts.” Carriers should train drivers to get good inspections and remind them to have due diligence with their responsibilities (i.e., pre-trip inspections, and adhering to hours of service regulations). Carriers should establish an action plan for CSA 2010. That includes the following elements:

- Educate yourselves and your employees:
  - Understand the SMS Methodology and the BASICs
  - Check the website for information and updates (<http://csa2010.fmcsa.dot.gov>)
  - Raise awareness that every inspection counts and every violation counts
- Ensure compliance:
  - Review inspections and violation history over the past two years
  - 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 Census (Form MCS -150)
- Routinely monitor and review inspection and crash data
- Question potentially incorrect data (DataQs: <https://dataqs.fmcsa.dot.gov>)
- Tighten your driver selection standards and retention standards so you are selecting and retaining drivers with fewer moving citations, violations and crashes. Negative reports about a driver's safety performance that are found through CSA 2010 are shown as a negative report for your fleet.

## Conclusion

This paper has outlined the elements and impact of Comprehensive Safety Analysis (CSA) 2010 on organizations that operate commercial motor vehicles. The initiative is designed to change behavior and reduce the potential for large truck and bus crashes, injuries, and fatalities. It represents a major shift in safety enforcement and safety measurement for both motor carriers and drivers. Additional information and updates on the Comprehensive Safety Analysis 2010 process are available at the FMCSA/CSA 2010 website (see Bibliography below)

Demonstrate your organizations support for the CSA 2010 initiative by establishing corporate safety goals that include the seven Behavior Analysis and Safety Improvement Categories. Motor carriers and drivers will have increased accountability for their safety performance under CSA 2010. Establish your action plan to maintain the “continue operation” rating from FMCSA.

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