








Safety Measurement System

Within the Comprehensive Safety Analysis (CSA 2010) Operational Model, the Safety Measurement System (SMS) quantifies the on-road safety performance of carriers and drivers to identify candidates for interventions, to determine the specific safety problems exhibited by a carrier or driver, and to monitor whether safety problems are improving or worsening. SMS replaces SafeStat in the new Operational Model.

The Carrier SMS uses a motor carrier's data from roadside inspections, including all safety-based violations, State-reported crashes, and the Federal motor carrier census to quantify performance in the following Behavior Analysis and Safety Improvement Categories (BASICS).

Behavior Analysis and Safety Improvement Categories (BASICS) & Example Violations

	Unsafe Driving: Operation of commercial motor vehicles (CMVs) by drivers in a dangerous or careless manner.	Speeding, reckless driving, improper lane change, and inattention. (FMCSR Parts 392 and 397)
	Fatigued Driving (Hours-of-Service (HOS)): Operation of CMVs by drivers who are ill, fatigued, or in noncompliance with the Hours-of-Service (HOS) regulations. This BASIC includes violations of regulations pertaining to logbooks as they relate to HOS requirements and the management of CMV driver fatigue.	HOS, logbook, and operating a CMV while ill or fatigued. (FMCSR Parts 392 and 395)
	Driver Fitness: Operation of CMVs by drivers who are unfit to operate a CMV due to lack of training, experience, or medical qualifications.	Failure to have a valid and appropriate commercial driver's license and being medically unqualified to operate a CMV. (FMCSR Parts 383 and 391)
	Controlled Substances/Alcohol: Operation of CMVs by drivers who are impaired due to alcohol, illegal drugs, and misuse of prescription or over-the-counter medications.	Use or possession of controlled substances/alcohol. (FMCSR Parts 382 and 392)
	Vehicle Maintenance: Failure to properly maintain a CMV.	Brakes, lights, and other mechanical defects, and failure to make required repairs. (FMCSR Parts 393 and 396)
	Cargo-Related: Failure to properly prevent shifting loads, spilled or dropped cargo, overloading, and unsafe handling of hazardous materials on a CMV.	Improper load securement, cargo retention, and hazardous material handling. (FMCSR Parts 392, 393, 397, & HM Violations)
	Crash Indicator: Histories or patterns of high crash involvement, including frequency and severity. It is based on information from State-reported crashes.	

A carrier's measurement for each BASIC depends on:

- The number of adverse safety events (violations related to that BASIC or crashes)
- The severity of violations or crashes
- When the adverse safety events occurred (more recent events are weighted more heavily)

After a measurement is determined, the carrier is then placed in a safety event group of carriers (e.g. other carriers with similar numbers of inspections). Percentiles from 0 to 100 are then determined by comparing the BASIC measurements of the carrier to the measurements of other carriers in the safety event group. 100 indicates the worst performance.

Interventions. If one or more of a carrier's BASIC percentiles exceed a threshold, the carrier then becomes a candidate for an intervention. Typically, the intervention process starts with a warning letter, which provides the carrier with an opportunity to review its performance and make improvements without further FMCSA involvement. Thresholds vary depending on the type of carrier and the BASIC. For example, since the consequences of passenger or hazardous material crashes are typically more severe, lower Intervention Thresholds are in place for these types of carriers.