The General Accounting Office (GAO) produced a 111-page highly critical Congressional report of the Compliance, Safety, Accountability (CSA) program and its Safety Measurement System (SMS). The title of the report sets the stage, “Modifying the Compliance, Safety, Accountability Program Would Improve the Ability to Identify High Risk Carriers”. The GAO’s own words are a powerful endorsement of many of the arguments the Alliance for Safe, Efficient, and Competitive Truck Transportation (ASECTT) has been making for years.

The GAO concludes that. “First, for SMS to be effective in identifying carriers more likely to crash, the violations that FMCSA uses to calculate SMS scores should have a strong predictive relationship with crashes. However, based on GAO’s analysis of available information, most regulations used to calculate SMS scores are not violated often enough to strongly associate them with crash risk for individual carriers. Second, most carriers lack sufficient safety performance data to ensure that FMCSA can reliably compare them with other carriers.” The lack of sufficient data to measure most carriers operating on the highways is called out repeatedly. “Most carriers operate few vehicles and are inspected infrequently, providing insufficient information to produce reliable SMS scores.” The FMCSA’s data sufficiency thresholds are too low according to the GAO. “FMCSA requires a minimum level of information for a carrier to receive an SMS score; however, this requirement is not strong enough to produce sufficiently reliable scores. As a result, GAO found that FMCSA identified many carriers as high risk that were not later involved in a crash…”

 Expanding on its first point, GAO points out that “The relationship between violation of most regulations FMCSA included in the SMS methodology and crash risk is unclear, potentially limiting the effectiveness of SMS in identifying carriers that are likely to crash.” The relationship is particularly problematic for individual carriers as opposed to tendencies for groups of carriers. “However, we found that FMCSA’s safety data do not allow for validations of whether many regulatory violations are associated with higher crash risk for individual carriers.” In this area, as others, the lack of sufficient data undermines the program. “We found that 593 of the approximately 750 regulations we examined were violated by less than one percent of carriers. Of the remaining regulations with sufficient violation data, we found 13 regulations for which violations consistently had some association with crash risk in at least half the tests we performed, and only two violations had sufficient data to consistently establish a substantial and statistically reliable relationship with crash risk across all of our tests.” **Only two out of 750 regulations measured by SMS are statistically correlated with crash risk!**

ASECTT has often pointed out another of the key findings of the GAO study, “SMS is intended to provide a safety measure for individual carriers, and FMCSA has not demonstrated relationships between groups of violations and the risk that an individual motor carrier will crash. Therefore, this approach of aggregating data does not eliminate the limitations we identified.”

Regarding its second major conclusion regarding insufficiency of data, the GAO points out that the fragmentation of the trucking industry is problematic for any mathematical calculation of safety. “About two-thirds of carriers we evaluated operate fewer than four vehicles and more than 93 percent operate fewer than 20 vehicles. Moreover, many of these carriers’ vehicles are inspected infrequently.” Just as Professor James Gimpel pointed out in his evaluation of SMS, small samples cannot be relied on to draw conclusions. GAO states, “As a result, there is less confidence that SMS scores are effectively determining which carriers are riskier than others.”

The GAO study contains numerous charts showing the high variability of scores for smaller carriers which raises questions about the accuracy of the scores. “FMCSA acknowledges that violation rates for carriers with low exposure can be less precise and they attempt to address this limitation in two main ways, but the methods incorporated do not solve the underlying problems. As a result, SMS scores for these carriers are less reliable as relative safety performance indicators …” GAO continues, “For most BASICs, we found FMCSA’s data sufficiency standards too low to ensure reliable comparisons across carriers. In other words, many carriers’ violations rates are based on an insufficient number of observations to be comparable to other carriers in calculating an accurate safety score.”

SMS’s bias against smaller carriers is well known. The GAO study is emphatic in making this point, “FMCSA’s methodology is not adequately accounting for differences in exposure, as it is intended to do, but rather is systematically assigning higher scores for carriers with fewer inspections.”

ASECTT has challenged FMCSA’s correlation of averages in branding broad groups of carriers as being less safe than others. The GAO study picks up on this theme also. “Overall, SMS is successful at identifying a group of high risk carriers that have a higher group crash rate than the average crash rate of all carriers that we evaluated. However, further analysis shows that a majority of these high risk carriers did not crash at all, meaning that a minority of carriers in this group were responsible for all the crashes.”

The GAO study recommends that FMCSA adopt a much higher data sufficiency threshold of at least 20 vehicles or 20 inspections before scoring a carrier. This is consistent with the Gimpel study. This would substantially reduce the number of carriers with a percentile score in at least one BASIC, from 90,000 to 44,000 but would have virtually no impact on the number of trucks measured. The GAO states that while fewer carriers would be measured, the carriers that are measured would have more statistically valid measures and thus SMS would be much more equitable to individual carriers. The study points out numerous advantages of this methodology over the FMCSA’s current approach including that it would be a better mechanism for CSA’s original purpose of prioritizing its enforcement resources.

Regarding the upcoming May 2014 rulemaking, the GAO is skeptical - “…basing a carrier’s safety fitness determination on limited performance data may misrepresent the safety status of carriers, particularly those without sufficient data from which to reliably draw such a conclusion.” While the GAO does not comment on the advisability of publishing SMS results on the internet because of ongoing litigation, the report does raise a very valid concern, “… the public, unlike law enforcement, may not understand the relative nature of the system and its limitations.”

The GAO study does applaud the Agency for adopting a data-driven approach and adding additional intervention mechanisms that have allowed it to increase its intervention activity, primarily through the use of warning letters.

The recommendations for executive action are strong. “To improve the CSA program, the Secretary of Transportation should direct the FMCSA Administrator to take the following two actions:

Revise the SMS methodology to better account for limitations in drawing comparisons of safety performance information across carriers; in doing so, conduct a formal analysis that specifically identifies:

* limitations in the data used to calculate SMS scores including variability in the carrier population and the quality and quantity of data available for carrier safety performance assessments, and
* limitations in the resulting SMS scores including their precision, confidence, and reliability for the purposes for which they are used.

Ensure that any determination of a carrier’s fitness to operate properly accounts for limitations we have identified regarding safety performance information.”

ASECTT completely agrees, but continues to also believe that until the system has been fully validated for individual carriers SMS data should not be presented to the shipping public and the FMCSA should live up to its federal duty to determine which carriers are safe to operate on the highways and shut down the unsafe operators.