
Prepared by:
Thomas M. Corsi
Michelle Smith Professor of Logistics
Co-Director, Supply Chain Management Center

Vivek Vaid

Logistics, Business and Public Policy Group
Robert H. Smith School of Business
University of Maryland
College Park, MD 20742

Prepared for:
Analysis Division,
Office of Information Management
Federal Motor Carrier Safety Administration

July 2010
# Table of Contents

- Executive Summary .......................................................... 1
- Introduction ........................................................................... 4
- Report Outline ....................................................................... 6
- Compliance Review Results ................................................... 7
- Driver Performance Results ..................................................... 8
- Vehicle Performance Results .................................................. 15
- Safety Management Performance Results ............................... 20
- Crash Rate Performance Results ............................................ 22
- Summary .............................................................................. 26
Executive Summary

This report provides a summary of the safety performance of carriers across all the individual segments in the industry. It includes summaries for both for-hire and private carriers in each segment and is drawn from measures that are collected as part of FMCSA’s SafeStat algorithm\(^1\). This year’s analysis reflects the addition of seven additional measures of safety performance. Six of these additional measures are behavioral analysis and safety improvement categories (BASICs) and one is a crash involvement measure (Crash Indicator). The BASICs involve a more detailed breakdown of both the driver and vehicle safety performance measures within SafeStat, while the crash indicator focuses on a crash frequency and severity indicator. These seven measures are part of FMCSA’s safety measurement system (SMS)\(^2\) methodology developed to support an improved process in FMCSA for motor carrier safety fitness determination, i.e. the Comprehensive Safety Analysis 2010 (CSA 2010) initiative.

The discussion is divided into five sections and gives results for the for-hire and private firms, separately, across all the industry segments. The initial section is a discussion of compliance review (CR) data from reviews conducted in the 18 month time period prior to the date of the data collection. The second section focuses on driver performance based on CR results and roadside inspections across the industry’s segments. Section three is devoted to vehicle performance, again based on CR results and roadside inspections. Section four assesses the performance of for-hire and private motor carriers across all industry segments in the area of safety management practices. Section five compares the segments in terms of fatality and total crash rate measures that are based on State-reported crashes as well as on crash rate information collected during CRs.

In meeting its objective to reduce truck crashes and the associated injuries and fatalities, FMCSA has a range of enforcement tools. With limited resources, however, the FMCSA benefits from databases that enable it to more effectively target those resources toward specific problem areas. In monitoring the safety performance of all for-hire and private carriers, it is important to recognize that the motor carrier industry has distinct operating segments with significantly different environments and safety performance records. The assessment of the safety performance of for-hire and private carriers in each of the industry’s major operating segments is a key decision tool that will facilitate more effective use of FMCSA resources.

The comparison between the overall average percentage of firms with satisfactory ratings on time sensitive CRs (i.e., CR conducted in the eighteen month period leading up until September 2007) shows only a slight difference in performance between the for-hire and the private segments. Overall, on average across all operating segments, 75.96 percent of the for-hire firms have satisfactory ratings, while the comparable percentage with a satisfactory rating among the private carrier segments is 75.76.

---


Overall, on the driver performance measures, the private carriers demonstrate better performance than do for-hire carriers on the overall DRSEA score (which combines information on compliance reviews, roadside inspections, traffic enforcements, moving violations and closed enforcement cases). On a disaggregated basis, the private carriers across all segments have lower scores on the moving violation indicator and on the unsafe driving BASIC measure. In contrast, the for-hire carriers across all segments have lower scores on the driver fitness BASIC measure. However, on two additional BASIC measures (fatigued driving, and substance and alcohol abuse) there is little difference across all segments in the average performance of for-hire and private carriers. Clearly, however, there are some individual segments in both the for-hire and private sectors that stand out as the best performing sectors in the driver performance categories. These segments among both for-hire and private carriers involve tank operators and passenger carriers. In terms of the worst performing segment on driver measures, the for-hire refrigerated carrier segment stand out. Also, notable for being the worst segment on a number of driver measures are the farm-combined for-hire carriers, the TL general freight for-hire carriers and the household goods for-hire carriers. Among the private carriers, the worst performing segments in terms of driver measures are the furniture carriers and the refrigerated carriers.

On the vehicle performance measures, the for-hire carriers demonstrate better performance than do the private carriers on the vehicle out-of-service measure and the improper loading/load securement BASIC. However, on the other hand, the private carriers do better than do the for-hire carriers on the VHSEA. It should be noted, however, that the overall performance differences between the for-hire and private carrier segments on these measures is somewhat less than the performance differences observed between the two segments on the driver measures. There is little difference across all segments in the average performance of for-hire and private carriers on the vehicle maintenance BASIC. Clearly, however, there are some individual segments in both the for-hire and private sectors that stand out as the best performing sectors in the vehicle performance categories. These segments among both the for-hire carriers involve tank operators and passenger carriers. Among the private carriers the following segments stand out on the basis of their leading vehicle performance indicators: refrigerated carriers, passenger carriers, tank carriers, and furniture carriers. At the other end of the spectrum, the segments with the highest vehicle performance scores involve the following for-hire segments: large machinery carriers, intermodal carriers, and building materials carriers. Among the private carriers the worst performing segments on vehicle measures involve the following segments: large machinery carriers, farm-combined carriers, and intermodal carriers.

In 2008, the average percentage of carriers across all segments with no safety management violations is higher for the for-hire carriers (62.11 percent) than it is for the private carriers (58.78 percent). The explanation for the higher percentage of carriers with no violations may stem from a somewhat higher percentage of the for-hire carriers than of the private carriers having knowledge of general safety management requirements and regulations. Indeed, for-hire carriers have greater exposure to FMCSA rules, regulations, and requirements as a consequence of transactional nature of the business relationships with their shipper customers. The for-hire carriers also have lower safety management scores (based on their performance in CRs) than do the private carriers. The comparable scores are 14.89 across all segments on average for the for-hire carriers versus 20.37 across all segments on average for the private carriers. On both safety
management measures, the best performing segments among both the for-hire and the private carriers are the tank carriers and the passenger carriers. Among the for-hire segments, the worst performing segments in the safety management area are the household goods carriers and the general freight carriers (TL). Among the private carriers, the worst performing segment with respect to safety management issues is the refrigerated industry segment.

On the critical crash rate measures, there is a decided advantage, in terms of lower fatal and total crash rates per power unit, for the private carriers. These differences, however, may be attributable in large measure to the failure of this metric to control for differences in average vehicle miles traveled by power units in each segment. On average, annual vehicle miles per power unit are higher among for-hire carriers than is the annual vehicle miles traveled per power unit among private carriers, differences in crash rates per power unit would be mitigated if annual vehicle miles traveled were included in the metric. Thus, while for-hire carriers may have significantly higher crashes per power unit, each power unit travels significantly more miles annually than would a power unit operated by a private carrier. Nevertheless, the for-hire carriers with the lowest crash rates are the passenger carriers and the tank operators. Among the private carriers, the same two segments are the best performers.

Focusing on individual for-hire segments, there are two segments with performance results that are at or near the top in almost every safety performance category in the area of drivers, vehicles, safety management, and crashes. These segments are the tank operators and the passenger carriers. Recall also from past year’s analysis that general freight LTL carriers had excellent scores on many safety management performance categories. As noted above, the analysis no longer disaggregates the LTL carrier performance from that of the general freight TL carrier segment. At the other end of the performance spectrum for the for-hire carriers is the refrigerated carrier group. This segment had the worst performance across all the for-hire segments in nearly all of the driver performance categories, both SafeStat measures and the BASIC measures.

Turning to private carriers, tank carriers stand out for their overall performance excellence. Tank carriers and private carriers stand out for their excellence in driver performance, vehicle performance, safety management issues, and crash record. At the other end of spectrum, there are two segments with very poor records in the vehicle performance categories, both SafeStat measures and the BASIC measures. These segments are the farm-combined carriers and the large machinery carriers.

Regardless of the specifics of performance for individual segments, the information in this report provides a continuing source for use in tracking longitudinal performance of the carrier segments. Indeed, any drastic year-to-year change in performance by an individual for-hire or private carrier segment will provide FMCSA with an opportunity to focus resources on the problem to determine its cause and suggest remedial actions. The ability to very quickly compare the safety performance of both for-hire and private carriers across an array of segments will be an important asset in assisting the FMCSA in accomplishing its objective of improving safety performance.
Introduction

This report is the result of the cooperative agreement between the Federal Motor Carrier Safety Administration and the Supply Chain Management Center of the Robert H. Smith School of Business entitled “Motor Carrier Operations and Safety Data Collection and Analysis.” (DTMC75-H-0001) The report constitutes a profile of the safety performance of the motor carrier industry and its significant operating segments. The measurement of carrier safety performance relies both on the motor carrier safety status (SafeStat)\(^3\) analysis methodology as well as the safety measurement system (SMS)\(^4\) methodology developed to support an improved process in FMCSA for motor carrier safety fitness determination.

The SafeStat methodology provides a number of safety performance indicators based on the results of a carrier’s roadside inspections, compliance reviews (CRs), closed enforcement cases, moving traffic violations, and crashes. This study evaluates the performance of motor carriers grouped into individual segments based both on type of operation (for-hire and private) and on major commodity handled. Each segment is compared across a series of individual performance measurements. The report compares performance of both for-hire and private carriers in the various industry segments.

The study draws on ten cross-sectional profiles of the SafeStat data compiled in September 2000, September 2001, September 2002, September 2003, September 2004, September 2005, September 2006, September 2007, September 2008, and September 2009. Each profile brings together available safety performance data on the carriers included in the Motor Carrier Census file. In total, more than 400,000 individual carriers are reviewed in conjunction with each profile. The results reported here include a subset of all carriers with sufficient safety data to enable the SafeStat methodology to evaluate performance in at least one of four major evaluation categories: driver, vehicle, safety management, or crash/accident. In addition, this year’s analysis reflects the seven behavioral analysis and safety improvement categories (BASICs). The BASICs involve more detailed breakdown of both the driver and vehicle safety performance measures within SafeStat, while the crash indicator BASIC focuses on a crash frequency and severity indicator. It should be noted that carriers self-select their operating categories as part of the process of completing their MCS 150 form (the Motor Carrier Identification Report). On that form, carriers can check the major operating categories in which they participate. Carriers can indicate multiple areas of participation. As a result, our analysis of a individual segment includes all carriers indicating that they participate in that segment. Consequently, a carrier’s safety performance record will appear in multiple industry categories, if the carrier participates in multiple categories.

The report provides a systematic review of motor carrier safety performance across a wide range of specific dimensions in all the major motor carrier segments. There is specific emphasis on the differences in safety performance between for-hire and private carriers as well as an emphasis on


differences across commodity-based segments. It is anticipated that the identification of good safety performance will constitute a basis for further examination of the specific policies and procedures of each segment’s safety leaders. Establishing the reference points of safety leaders in each segment will assist in efforts by other carriers in the respective segments to enhance their own safety performance.

While the report is based on ten cross-sectional profiles of the SafeStat data, it is important to note that some specific performance indicators (e.g., specific inspections, crash rates) can contribute to a carrier’s SafeStat score in more than one profile. For example, the September 2009 SafeStat score for a particular carrier relies on a carrier’s performance during the 18 months prior to September 2009 for CRs and during the 30 months prior to September 2009 for inspection data. Thus, some carrier safety performances actions (e.g., the results of vehicle inspections conducted in August 2008) influence a carrier’s overall SafeStat score in both September 2008 and September 2009. However, all indicators within SafeStat are time-weighted. As such, if an inspection impacts a carrier’s SafeStat score in September 2008 and in September 2009, its impact on the September 2009 score will be less than its impact on the September 2008 score, since the event happened closer in time to the September 2008 SafeStat data collection than to the September 2009 SafeStat data collection. Time weighting the impact of events minimizes the problem of a single event having an impact on a carrier’s SafeStat score in successive time periods. It is necessary, however, to time weight events since safety performance evaluation requires observations of a carrier’s behavior over time to establish a sufficiently robust safety record to make an assessment of a carrier’s overall safety performance.

This study evaluates the safety performance of both for-hire and private carriers in 10 industry segments. In addition to these 20 segment categories, the general freight for-hire segment is split into two segments: one includes the for-hire LTL (less-than-truckload) carriers and one includes the for-hire TL (truckload) carriers. As a result, there are 21 segments evaluated in total: 11 are for-hire segments and 10 are private carrier segments. However, it should be noted that during the past four years, carriers no longer differentiate between truckload and less-than-truckload general freight operations on MCS 150 forms. Thus, many of the analysis tables differentiate the safety performance of LTL general freight carriers from TL general freight carriers only for the 2000-2006 time periods. In fact, in 2007, 2008, and 2009, the LTL for-hire carriers are grouped along with the TL for-hire carriers into a single general freight category. One segment has a different designation for private sector haulers. The segment is labeled “household goods” for the for-hire carriers and “furniture manufacturers” for the private haulers. Finally, the farm-combined segment is an aggregation of the following individual segments: farm supplies, logging, produce, grain feed, produce, and livestock. Throughout the report, references are made to the 21 industry segments evaluated.

There are important reasons to compare the various industry segments across a wide range of safety performance indicators. First, FMCSA has many tools in its safety enforcement arsenal, ranging from CRs to roadside safety inspections. Many of the safety performance indicators are associated with particular enforcement programs. Thus, the driver out-of-service rate is directly associated with the roadside inspection program. By having longitudinal data across individual segments, FMCSA can target resources to particular segments whose non-compliance rates exceed threshold levels. At the same time, special considerations might be in order for segments
whose performance is significantly better than the norm. Second, information about cross-
segment differences in performance can lead to more detailed investigations about the operating
policies and procedures of either the best performing segments or the worst performing
segments. Third, having cross-sectional trend data can provide early warning signals to FMCSA
if performance in any one segment changes drastically from one time period to the next.
Monitoring trends can provide the basis for early intervention and for a short-term reversal of the
observed negative trend. Overall, there is great merit in summarizing performance data by
industry segments over time.

Report Outline

This report provides a summary of the safety performance of carriers across all the individual
segments in the industry. It includes summaries for both for-hire and private carriers in each
segment and is drawn from measures that are collected as part of both the SafeStat algorithm and
the SMS methodology. The discussion is divided into five sections and gives results for the for-
hire and private firms, separately, across all the segments. The initial section compares the
industry’s segments (for-hire and private firms separately) based on only those CRs conducted in
the 18 months prior to the development of each database. The second section focuses on driver
performance based on CR results and roadside inspections across the industry’s segments.
Section three is devoted to vehicle performance, again based on CR results and roadside
inspections. Section four assesses the performance of for-hire and private motor carriers across
all industry segments in the area of safety management practices. Section five compares the
segments on fatality and total crash rate measures that are based on State-reported crashes as
well as on crash rate information collected during CRs.

This is the second year that the safety performance study has included data from the CSA 2010
Operational Model’s Safety Measurement System (SMS). This year’s analysis includes six
Behavioral Analysis and Safety Improvement Categories (BASICs) and a Crash Indicator. The
BASICs are six categories of data available through the Motor Carrier Management Information
System (MCMIS). These represent behavior categories that can lead to crashes: unsafe driving
fatigued driving, driver fitness, controlled substances and alcohol, vehicle maintenance, and
improper loading/cargo securement. There is one additional variable to measure a carrier’s
record of crash frequency and crash severity. All seven measures are weighted differently based
on data collected from on-road safety performance activities including roadside inspections,
traffic enforcement, and crashes. The underlying premise of the BASIC is that commercial
motor vehicle (CMV) “crashes can be traced to the behavior of motor carriers and/or drivers.”
The BASICs consist of the following:

• Unsafe Driving BASIC—Operating a CMV in a dangerous or careless manner.
• Fatigued Driving BASIC—Operating a CMV by drivers who are ill, fatigued, or in non-
  compliance with the hours-of-service (HOS) regulations.
• Driver Fitness BASIC—Operating a CMV by drivers who are unfit to operate a CMV due to
  lack of training, experience, or medical qualifications.

5. Volpe National Transportation Systems Center, Safety Measurement System (SMS) Methodology, Version 1.2,
• Controlled Substances and Alcohol BASIC - Operating a CMV by drivers who are impaired due to alcohol, illegal drugs, and misuse of prescription or over-the-counter medications.
• Vehicle Maintenance BASIC - CMV failure due to improper or inadequate maintenance.
• Improper Loading/Cargo Securement BASIC - CMV incident resulting from shifting loads, spilled or dropped cargo, and unsafe handling of HM.

The measures for the Unsafe Driving and Controlled Substances and Alcohol BASIC are calculated as the sum of severity and time weighted applicable violations divided by the carrier average power units. For the Fatigued Driving and Driver Fitness BASIC, severity and time weighted applicable violations are divided by the number of time-weighted relevant roadside inspections. The Vehicle Maintenance and Improper Loading BASIC are based on severity and time weighted applicable violations divided by the number of time weighted relevant roadside inspections. A final safety performance indicator included in the SMS is a Crash Indicator. It is built up from the total number of time and severity weighted crashes divided by the average number of a carrier’s power units. The calculation of the BASICS has shifted between September 2008 and September 2009. As a consequence, this year’s safety performance report will analyze the most recent carrier performance on the BASICS.

**Compliance Review Results**

Figures 1 and 2 summarize results from only those compliance reviews (CRs) conducted in the 18 months prior to the development of each of the nine databases. Figures 1 and 2 denote these CRs as time sensitive compliance review ratings.

As shown in Figure 1, the for-hire industry segments combined had an average of 77.1 percent of the firms achieving a satisfactory rating from CRs conducted in the 18 months prior to the development of the SafeStat 2009 database. This represents a decline in percentage of carriers with a satisfactory score from a high of 81.96 in 2002 as a reflection of greater program emphasis to target carriers with safety performance problems for CRs. The passenger carrier and tank segments achieved the highest satisfactory ratings in 2009 with 88.4 percent of passenger carriers and 82.8 percent of tank carriers receiving a satisfactory rating. It should also be noted that in 2006, over 90 percent of the LTL carriers receiving a time-sensitive CR had a satisfactory rating as well. The refrigerated carrier for-hire segment and the household goods segment had

---

the lowest percentage of firms with a satisfactory rating in 2009 with satisfactory rates of 71.1 and 73.2, respectively. However, for both of these segments the percentage of firms with satisfactory ratings in 2009 is higher than the comparable percentages in 2008.

Figure 2 demonstrates that on average across all private segments the percentage of firms with a satisfactory rating on CRs conducted in the 18 months prior to the development of the SafeStat 2009 database was 74.8 percent, a decrease from a high of 78.61 percent in 2002. This also reflects a targeting of firms with potential safety performance problems for CRs. The following private carrier segments had at least 80 percent of the firms achieve a satisfactory rating on CRs conducted in the 18 months prior to the development of the SafeStat 2009 database: furniture and tank carrier segments. The segments with the lowest percentage of satisfactory ratings were the refrigerated and large machinery segments with only 67.8 percent of the refrigerated carriers achieving a satisfactory rating and 70.0 percent of the large machinery carriers being rated with a satisfactory score.

There is only a slight difference in the percentage of for-hire and private carriers receiving a satisfactory rating in time-sensitive CRs conducted in the eighteen months prior to September 2009. On average across all segments, 77.1 percent of the for-hire firms have satisfactory ratings, while the comparable percentage among the private carrier segments is only marginally lower at 74.8.

**Driver Performance Results**

This section reviews the performance of carriers overall and in each of the major segments in the area of driver safety behavior. The SafeStat database includes three specific measures of driver behavior that allow comparisons to be made across the major segments of the industry. The first measure involves the percentage of each carrier’s roadside inspections in which the vehicle’s driver had at least one driver out-of-service violation. This driver out-of-service rate is summarized across all carriers for each of the ten SafeStat databases (2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, and 2009) and compared across the individual segments. The second measure is the Driver Safety Evaluation Area (SEA) score. The Driver SEA combines data from the roadside inspections with data from CRs occurring in the 18 months prior to the compilation of each database (2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008 and 2009). The Driver SEA is a percentile score with 100 representing the highest or worst performance. The Driver SEA is based entirely on inspection data, if the carrier had no CR in the period 18 months prior to the database construction. The third driver-related indicator from SafeStat is a moving violation indicator measure (based on moving violation citations issued to a carrier’s drivers divided by the number of a carrier’s drivers), where available. The moving violation
measure is converted to a percentile score with 100 representing the highest or worst performance.

As noted above, this year’s analysis includes behavioral analysis and safety improvement categories (BASICs) related to the driver. The driver related BASICs allow comparisons to be made across the major segments of the industry for 2009, since the Safety Measurement System is a relatively new approach to support the Comprehensive Safety Analysis 2010 (CSA 2010) Initiative. The measures for the Unsafe Driving BASIC and the Controlled Substances and Alcohol BASIC are calculated as the sum of severity and time weighted applicable violations divided by the carrier’s average number of power units. For the Fatigued Driving BASIC and the Driver Fitness BASIC, severity and time weighted applicable violations are divided by the number of time-weighted relevant roadside inspections. We could not compare results in the carrier segments between 2008 and 2009 because the calculation of the BASIC measures is in flux.


Focusing on the results from the individual for-hire segments shown in Figure 3, it is clear that the tank operators, with a 4.6 percent rate, are the for-hire segment leaders. Also to be recognized (through 2006) is the performance of the LTL carriers with a 4.2 percent out-of-service rate in that year. At the opposite end of the spectrum, the worst performers are the household goods carriers, with an average out-of-service rate of 11.7 percent, and the refrigerated carriers, with an average rate of 9.3 percent.

---

Examining the private carrier segments shown in Figure 4, tank operators (with an out-of-service rate of 4.7 percent), and bulk carriers (with an out-of-service rate of 6.6 percent) are the private carrier segment leaders. The worst performing private carrier segments are the following (with the out-of-service rates in parentheses): furniture (9.6 percent), TL general freight (9.3 percent); passenger (9.3 percent), and large machinery (9.2 percent).

Figures 5 and 6 focus on the Driver SEA, which is treated as an overall driver performance measure. As noted, within the SafeStat methodology, carrier performance on various driver measures (roadside inspections, CR evaluations, moving violations, etc.) is combined, and carrier scores are converted to percentile rankings, with higher scores equated with poorer performance. While the performance of for-hire carriers and private carriers is nearly equal on driver out-of-service rates, private carriers on average have an advantage over for-hire carriers on the Driver SEA measure. Indeed, nine out of the ten for-hire carrier segments have an average DRSEA score of 30 or more. In contrast, only three out of ten private carrier segments have an average DRSEA score of 30 or more. However, it should be noted that the overall average DRSEA score of the for-hire carriers has decreased from 39.0 in 2000 to 35.9 in 2009, a decline of 8 percent.

As shown in Figure 5, there were two for-hire segments in which the average Driver SEA score equaled or exceeded 40 percent. They are (with the Driver SEA scores in parentheses): household goods carriers (43.9 percent) and refrigerated carriers (44.7 percent. There was only one for-hire segment with a below 30 average DRSEA score: passenger carriers (25.7 percent).
As shown in Figure 6, the private carrier segments with the lowest average Driver SEA scores in the SafeStat 2008 database are the following (with Driver SEA scores in parentheses): tank operators (19.5 percent); bulk (25.7 percent); and farm-combined (26.0 percent). The private carrier segment with the highest average Driver SEA score is the building materials segment with a 35.3 percent average score. This segment’s mean DRSEA score increased from 25.8 in 2008, an increase of 36.8 percent between 2008 and 2009.

Figures 7 and 8 reveal differences across industry segments among for-hire and private carriers for the moving violation indicator. Overall, across all segments, the MVI is 46.3 among for-hire carriers, but only 36.2 among private carriers. This represents a 21.8 percent advantage on this indicator among private carriers.

Looking across the individual for-hire segments, passenger carriers have the lowest average MVI with a score of 23.5. The next lowest segment is the tank segment with an average of 33.6. The for-hire segments with the highest MVIs are the following (with the average scores in parentheses): farm combined (57.5); refrigerated (55.6); and bulk (55.4). Among private carriers, the segments with the lowest MVIs are the passenger carriers (16.0) and tank carriers.
(23.7). The private carrier segments with the highest MVIs are the farm-combined carriers (46.0) and the bulk carriers (49.1).

The BASIC categories provide an opportunity to drill down to carefully dissect the safety performance of each carrier’s drivers. While the driver OOS measure is a broad indicator of any out-of-service violations detected during a roadside inspection/traffic enforcement action, the BASIC categories disaggregate the driver violations into a finer set of categories. This section will examine BASICs in the following individual categories: unsafe driving BASIC, fatigued driving BASIC, driver fitness BASIC, and controlled substance and alcohol abuse BASIC.

The unsafe driving BASIC focuses on a specific list of violations uncovered during roadside inspections and traffic enforcement actions. The list includes: speeding, reckless driving, improper lane changes, and inattention. Each violation is severity weighted (on a scale of 1 to 10) and additional weight is added if the violation is identified as an out-of-service violation. Each carrier’s time and severity weighted violations are divided by the average number of its power units to produce an unsafe driving BASIC measure. Tables 9 and 10 show the results of the unsafe driving BASIC measure for for-hire and private carriers, respectively, overall and for each individual operating segment.

Overall, across all segments, the for-hire carriers have an average unsafe driving measure of 2.6 versus an overall average of 1.3 for the private carriers—a 48.2 percent advantage for the private carriers. Among the for-hire carriers, segments with the lowest unsafe driving BASIC measures are passenger carriers (0.9) and tank carriers (1.9). The for-hire segments with the highest average scores are the refrigerated carriers (3.9), the farm combined carriers (3.3), and the general freight TL (3.0). Among the private carriers, the best segments are the passenger carriers (0.6) and tank operators (0.8), while the worst segments are the building materials carriers (2.6) and the refrigerated carriers (1.6).
The fatigued driving BASIC measure involves drivers who are identified during roadside inspections and traffic enforcements as having violations in the following areas: hours-of-service violations, logbook violations, or operating a commercial vehicle while ill or fatigued. Each violation is severity weighted (on a scale of 1 to 10) and additional weight is given for violations that are identified as out-of-service violations. Each carrier’s time and severity weighted violations are divided by the number of time weighted inspections during the past twenty four months to produce a fatigued driving BASIC measure. Tables 11 and 12 show the results of the fatigued driving BASIC measure for for-hire and private carriers, respectively, overall and for each individual operating segment.

The private carriers have an advantage over the for-hire carriers on the fatigued driving BASIC measure. The private carriers have an average score of 0.8 on this BASIC, while the for-hire carriers have an average score of 1.3—a 37.5 percent advantage for the private carriers. The lowest scores among for-hire carriers are achieved by tank carriers (0.8) and passenger carriers (0.9). In contrast, refrigerated carriers (1.8), truckload general freight carriers (1.5) and household goods carriers (1.5) have the highest scores. Among private carriers, the lowest scores on the fatigued driving BASIC measure occur among tank carriers (0.3). In addition, bulk carriers, farm-combined carriers, large machinery carriers, and passenger carriers have average scores on this measure below the overall average among all private carriers.

The driver fitness BASIC measure involves drivers who are identified during roadside inspections as having violations in the following areas: valid and appropriate commercial driver’s license, current medical certificate, etc. Each violation is severity weighted (on a scale of 1 to 10) and additional weight is given for violations that are identified as out-of-service violations. Each carrier’s time and severity weighted violations are divided by the number of time weighted inspections during the past twenty four months to produce a driver fitness BASIC measure. Tables 13 and 14 show the results of the driver fitness BASIC measure for for-hire and private carriers, respectively, overall and for each individual operating segment.
The average score for the driver fitness BASIC measure is below one for both for-hire and private carriers. The for-hire carriers across all segments have an average score of 0.2, while the comparable average among private carriers is 0.4. The lowest average among for-hire carriers is achieved by tank carriers (0.14), with the second lowest average belonging to the intermodal carriers (0.15). The highest average among for-hire carriers are for household goods carriers (0.35) and passenger carriers (0.25). Among the private carriers, the lowest average driver fitness BASIC measure is among building materials carriers (0.18) and tank carriers (0.25). The highest scores among private carriers on the driver fitness BASIC measure are among furniture carriers (0.52) and large machinery carriers (0.46).

The controlled substance and alcohol abuse BASIC measure involves drivers who are identified during roadside inspections as having violations in the following areas: use or possession of controlled substances or alcohol. Each violation is severity weighted (on a scale of 1 to 10) and additional weight is given for violations that are identified as out-of-service violations. Each carrier’s time and severity weighted violations are divided by the average number of its power units to produce a controlled substance and alcohol abuse BASIC measure. Tables 15 and 16 show the results of the controlled substance and alcohol abuse BASIC measure among for-hire and private carriers, respectively, overall and for each individual operating segment.
The for-hire carriers have an average score on the controlled substance and alcohol abuse BASIC measure that is twice as high as is the average score for the private carriers. Overall, the average score among for-hire carriers is 0.06, while it is only .03 among the private carriers. Among for-hire carriers, tank carriers (with an average score of 0.02) and passenger carriers (0.01) are the best ranked segments. Among private carriers, passenger carriers (0.02) and tank carriers (0.01) have the lowest scores. At the other end of the spectrum among for-hire carriers are the refrigerated carriers (0.11) and the household goods carriers (0.12). Among private carriers, the highest score on the substance and alcohol abuse measure belong to the furniture carriers, the building materials carriers and the intermodal carriers, all with a score of .06.

Overall, on the driver performance measures, the private carriers demonstrate better performance than do for-hire carriers on the overall DRSEA score (which combines information on compliance reviews, roadside inspections, traffic enforcements, moving violations and closed enforcement cases). On a disaggregated basis, the private carriers across all segments have lower scores on the moving violation indicator, on the unsafe driving BASIC measure, on the fatigued driving BASIC, and on the controlled substance and alcohol abuse BASIC. In contrast, the for-hire carriers across all segments have lower scores on the driver fitness BASIC measure. Clearly, however, there are some individual segments in both the for-hire and private sectors that stand out as the best performing sectors in the driver performance categories. These segments among both for-hire and private carriers involve tank operators and passenger carriers.

**Vehicle Performance Results**

This section reviews the performance of carriers overall and in each of the major segments in the area of vehicle safety performance. The SafeStat database includes two specific measures of
vehicle safety performance that allow comparisons to be made across the major segments of the industry. The first measure involves the percentage of each carrier’s roadside inspections in which there was at least one vehicle out-of-service violation. This vehicle out-of-service rate is compared across all individual carrier segments for 2009. The second measure is the Vehicle Safety Evaluation Area (SEA) score. The Vehicle SEA combines data from the roadside inspections with data from CRs occurring in the 18 months prior to the compilation of each database (2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, and 2009). The Vehicle SEA is a percentile score with 100 representing the highest or worst performance. The Vehicle SEA is based entirely on inspection data, if the carrier had no CR in the period 18 months prior to the database construction.

As noted above, this year’s analysis includes behavioral analysis and safety improvement categories (BASICS) related to the vehicle. The vehicle related BASICS allow comparisons to be made across the major segments of the industry for 2009, since the Safety Measurement System is a relatively new approach to support the Comprehensive Safety Analysis 2010 (CSA 2010) Initiative. The measures for the vehicle maintenance BASIC and the improper loading/cargo securement BASIC are calculated as the sum of severity and time weighted applicable violations divided by the number of time-weighted relevant roadside inspections during the previous 24 months.9

Figures 17 and 18 show the vehicle out-of-service rates overall and in each of the segments for for-hire and private carriers for 2008. The overall average vehicle out-of-service rate stood at 21.4 percent among for-hire carriers and 25.0 percent among the private carriers. The for-hire industry segment with the lowest vehicle out-of-service rate was the passenger carrier segment, with a 14.6 percent out-of-service rate. The next best performing segment was the tank carrier segment with a 19.8 percent out-of-service rate. At the high end among for-hire carriers were the intermodal segment (28.4 percent out-of-service rate) and the large machinery segment (29.5 percent out-of-service rate). Among private carriers, the segments with the lowest vehicle out-of-service rates were the following (with percent out-of-service in parentheses): refrigerated carriers (15.6) and furniture carriers (17.2). At the other end were two segments with the highest vehicle out-of-service rates: farm combined carriers (30.1) and the large machinery carriers (36.7).

---

Figures 19 and 20 include information on the overall average vehicle safety evaluation scores across all industry segments for for-hire and private carriers based on the SafeStat 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, and 2009 databases. Based on the SafeStat 2009 database, the overall average Vehicle SEA score for private carriers is 42.1, and it is about six percent higher among for-hire carriers, at 44.5. Figure 19 shows that the for-hire segments with the lowest average Vehicle SEA score is the passenger carrier segment with a VHSEA score of 26.4. It should also be noted that when data were available on the LTL segment it had the second lowest average VHSEA score at 38.5 in 2006. At the opposite end, the segments with the highest average Vehicle SEA scores are intermodal, large machinery, and building materials—all with VHSEA scores at 50 or above.

Figure 20 focuses on the differences in Vehicle SEA scores across the private carrier segments. The segments with the lowest average scores are the following: furniture manufacturers (28.7) and refrigerated (29.0). At the high end, two segments are notable: large machinery (56.8) and building materials (50.0).

The BASIC categories provide an opportunity to drill down to carefully dissect the safety performance of each carrier’s vehicles. While the vehicle OOS measure is a broad indicator of any out-of-service violations detected during a roadside inspection, the BASIC categories disaggregate the vehicle violations into a finer set of categories. This section will examine BASICs in the following individual categories: vehicle maintenance and improper loading.
The vehicle maintenance BASIC focuses on a specific list of violations uncovered during roadside inspections. The list includes the following types of violations: brakes, lights, other mechanical defects, and the failure to make required repairs. Each violation is severity weighted (on a scale of 1 to 10) and additional weight is added if the violation is identified as an out-of-service violation. Each carrier’s time and severity weighted violations are divided by the number of its roadside inspections to produce a vehicle maintenance BASIC measure. Tables 21 and 22 show the results of the vehicle maintenance BASIC measure for for-hire and private carriers, respectively, overall and for each individual operating segment.

On the vehicle maintenance BASIC, there is little difference in the overall average score among for-hire and private carriers. In fact, the overall average among the for-hire carriers is 6.35, while the overall average among private carriers is only slightly less at 5.90. Among the for-hire carriers, the individual segments with the lowest scores on this measure are the passenger carriers with a score of 4.22 and the tank operators with a score of 5.11. At the other end of the spectrum among for-hire carriers are the farm combined carriers (7.05 score) and the intermodal carriers (7.04 score). Among the private carriers, the lowest scores belong to the tank carriers (4.38 score); and the passenger carriers (4.57 score). In contrast the worst performers in terms of vehicle maintenance are the farm combined carriers (7.33 score) and the large machinery carriers (7.32 score).
The improper loading BASIC focuses on a specific list of violations uncovered during roadside inspections. The list includes the following types of violations: incidents resulting from shifting loads, spilled or dropped cargo, and unsafe handling of hazardous materials. Each violation is severity weighted (on a scale of 1 to 10) and additional weight is added if the violation is identified as an out-of-service violation. Each carrier’s time and severity weighted violations are divided by the number of its roadside inspections to produce an improper loading/cargo securement BASIC measure. Tables 23 and 24 show the results of the improper loading BASIC measure for for-hire and private carriers, respectively, overall and for each individual operating segment.

On the improper loading/cargo securement BASIC, the for-hire carriers have an average score (across all segments) of 1.56. The comparable number among private carriers is 1.83—approximately 17 percent higher than the overall average among for-hire carriers. Among the for-hire carriers, the individual segments with the lowest scores on this measure are the passenger carriers with a score of 0.27 and the household goods carriers with a score of 0.88. At the other end of the spectrum among for-hire carriers are the large machinery carriers (2.60 score) and the building materials carriers (2.17 score). Among the private carriers, the lowest scores belong to the refrigerated carriers (0.75 score) and the furniture carriers (0.75 score). In contrast the worst performers in terms of improper loading are the large machinery carriers (3.15 score) and the farm combined carriers (2.32 score).

Overall, on the vehicle performance measures, the for-hire carriers demonstrate better performance than do the private carriers on the vehicle out-of-service measure and the improper loading/load securement BASIC. However, on the other hand, the private carriers do better than do the for-hire carriers on the VHSEA and the vehicle maintenance BASIC. It should be noted, however, that the overall performance differences between the for-hire and private carrier segments on these measures is somewhat less than the performance differences observed between the two segments on the driver measures. Clearly, however, there are some individual segments in both the for-hire and private sectors that stand out as the best performing sectors in the vehicle performance categories. These segments among the for-hire carriers involve tank carriers and among the private carriers involve refrigerator and furniture carriers.
operators and passenger carriers. Among the private carriers the following segments stand out on the basis of their leading vehicle performance indicators: refrigerated carriers, passenger carriers, tank carriers, and furniture carriers. At the other end of the spectrum, the segments with the highest vehicle performance scores involve the following for-hire segments: large machinery carriers, intermodal carriers, and building materials carriers. Among the private carriers the worst performing segments on vehicle measures involve the following segments: large machinery carriers, farm-combined carriers, and intermodal carriers.

Safety Management Performance Results

This section discusses the overall safety management practices of the motor carriers. The compliance review (CR) examines various aspects of a carrier’s knowledge of and compliance with regulations dealing with drivers, vehicles, insurance regulations, etc. Within the SafeStat methodology, a Safety Management Review Measure (SMRM) is computed based on the results of the CR. Specifically, the SMRM is based on the safety management-related acute and critical violations of regulations discovered during a CR. The measure attaches a severity weight of 1 or 2 to critical violations (depending on whether they are compliance/paperwork or performance oriented, respectively) and a value of 3 for all acute violations. The measure combines the severity weight and frequency of occurrence, while controlling for the number of records checked. Figures 25 and 26 report on the average percentage of carriers (for-hire and private, respectively) overall and in each industry segment having zero safety management violations uncovered during a CR. Figure 27 and Figure 28 present information on the average SMRM scores of carriers (for-hire and private, respectively) overall and in each of the industry segments.

As shown in Figure 25, the average percentage of for-hire carriers across all segments with no safety management violations uncovered during a CR increased between 2000 and 2005, from 58.38 percent to a peak value of 67.94 percent. By 2009, this percentage had decreased to 63.56 percent. In 2009, the segments with the highest percentage of carriers with no safety management violations are the tank carriers and the passenger carriers. The segments with the lowest percentage of carriers with no safety management violations are the household goods carriers and the refrigerated carriers.
Figure 26 shows that the average percentage of private carriers across all segments with no safety management violations uncovered during a CR increased between 2000 and 2007, from 47.6 percent to a peak value of 62.25 percent. By 2009, this percentage had shrunk to 57.55 with no safety management violations. The private carrier tank segment had 67 percent of its carriers with CRs having no safety management violations. The private carrier segments with the lowest percentage of carriers with no safety management violations are the refrigerated carriers and the bulk carriers.

Thus, in 2008, the average percentage of carriers across all segments with no violations is higher for the for-hire carriers (63.56 percent) than it is for the private carriers (57.55 percent). Indeed, it seems that a somewhat higher percentage of the for-hire carriers in comparison to the private carriers have more extensive knowledge of and are in compliance with the general safety management requirements and regulations.

Figure 27 and Figure 28 show the average SMRM scores across all industry segments among for-hire carriers and private carriers, respectively. As shown in Figure 27, the average score among for-hire carriers decreased from 19.77 in 2000 to 16.31 in 2009. The average score reached a low point in 2005 with a mean score of 13.87. In 2009, the for-hire segments with the lowest average score (in parentheses) were: tank carriers and passenger carriers. Among the for-hire segments with the highest average scores (in parentheses) were: household goods (19.43); and general freight TL (18.57).
Among the private carriers (Figure 28), the average SMRM score across all industry segments decreased from 31.3 to 21.04 between 2000 and 2009. The average score reached its lowest point in 2003 with a mean score of 18.74. The tank carrier segment had the lowest average score in 2009 of 13.56, followed by an average score of 19.25 for the general freight TL carriers. At the other end, the building materials and the large machinery carriers had the highest scores.

In 2009, the average percentage of carriers across all segments with no safety management violations is higher for the for-hire carriers (63.56 percent) than it is for the private carriers (57.55 percent). The explanation for the higher percentage of carriers with no violations may stem from a somewhat higher percentage of the for-hire carriers than of the private carriers having knowledge of general safety management requirements and regulations. Indeed, for-hire carriers have greater exposure to FMCSA rules, regulations, and requirements as a consequence of transactional nature of the business relationships with their shipper customers. The for-hire carriers also have lower safety management scores (based on their performance in CRs) than do the private carriers. The comparable scores are 16.31 across all segments on average for the for-hire carriers versus 21.04 across all segments on average for the private carriers. On both safety management measures, the best performing segments among the for-hire carriers are the tank and the passenger carriers. Among the for-hire segments, the worst performing segments in the safety management area are the household goods carriers, the refrigerated carriers, and the general freight carriers (TL). Among the private carriers, the worst performing segments with respect to safety management issues are the refrigerated carriers, the bulk carriers, the large machinery carriers and the building materials carriers. The best segments for private carrier performance resides among the tank carriers and the general freight TL carriers.

### Crash Rate Performance Results

This section focuses on the crash rate performance of all carriers combined as well as across each of the industry’s major segments. There are several major sources of crash information that are
incorporated into the SafeStat methodology. The first is based on information collected during a CR. For each carrier a crash rate is calculated based on the number of crashes and the reported annual vehicle miles of the carrier. This crash rate is available in the SafeStat methodology only for carriers who have a CR in the 18-month period prior to the construction of the SafeStat database. Figures 29 and 30 display the percentage of firms in each for-hire and private carrier segment that had no crashes to report during CRs conducted in the 18-month period prior to each year’s data analysis time frame (i.e., 2003-2009). The crash rates reported in Figures 31 through 34 are based on State-reported crashes and fatalities and have a broad coverage of carriers. Figures 31 and 32 are based on total crash rates for for-hire and private carriers, respectively. Figures 33 and 34 provide data on the fatal crash rates for for-hire and private carriers. Figures 35 and 36 report on the crash indicator assessment within the Safety Measurement System (SMS) methodology adopted for the CSA 2010 initiative. The crash indicator reports on histories or patterns of a carrier’s crash involvement. It is based on information from state-reported crash reports. The indicator calculates a carrier’s time and severity weighted applicable crashes and divides by the average number of a carrier’s power units.

Figures 29 and 30 include information on the percentage of firms across each industry segment for both for-hire (Figure 29) and private (Figure 30) with no crashes reported during CRs conducted in the 18 months prior to September 2008. There has been a steady increase among for-hire carriers in this percentage between 2000 and 2009. In 2000, the average percentage of firms with no crashes stood at 65.4 percent. By 2009, this figure increased to 85.1 percent—an increase of 30 percent. In 2009, the only segments reporting less than 80 percent of their carriers with no crashes reported on CRs were intermodal and tank carriers.

Figure 30 shows an increase among private carriers in the average percentage of carriers with no reported crashes during a CR. Indeed, this figure increased from an average across segments of 85.5 percent in 2000 to an average of 91.67 percent in 2009. The only private carrier segments with less than 90 percent of its carriers reporting no crashes on their CRs are intermodal carriers, passenger carriers, and tank operators.
Figure 31 through Figure 36 focus on crash measures derived from state-reported crash information and are applicable to all carriers, not just carriers who have had CRs in the time immediately prior to the construction of each SafeStat database. Figure 31 and Figure 32 report on the total crash rate per power unit for both the for-hire and private carrier segments, respectively. The crash rate among for-hire carriers is greater than is the crash rate among private carriers. In 2009, the overall average crash rate among for-hire carriers is .0461 total crashes per power unit, while the rate among private carriers is .0314 per power unit. In 2009, the for-hire carrier segments with the lowest average total crash rates are: household goods carriers and tank carriers. Among the private carriers, the segments with the lowest average total crash rates in 2009 are: large machinery carriers and furniture carriers. At the other end of the spectrum, the for-hire segments with the highest crash rates are the intermodal and tank carriers, while the highest rates among private carriers belong to the refrigerated carriers and the building materials carriers.

As shown, the overall average fatal crash rate per power unit is higher among for-hire carriers compared to the rate among private carriers. On average (2009 data), across all segments the for-hire carriers have a fatal crash rate per power unit of .0020, while the rate across all segments for private carriers averages .0013. This equates to one fatal crash every 500 power units for for-hire carriers on average and one fatal crash every 769 power units for the private carrier segments.
However, it is critical to emphasize that evaluating crash rates on the basis of crashes per power unit makes no adjustment for vehicle miles traveled. Thus, if for-hire carriers operate their vehicles more miles annually than do private carriers, this difference in vehicle use patterns could offset some or all of the observed differences in crash rates per power unit. There is no data source, at present, collecting annual average vehicle miles traveled for the census of motor carriers.

Among the for-hire carriers, household goods carries and large machinery carriers have the lowest average fatal crash rates per power unit. The for-hire segment with the highest average fatal crash rates per power unit are bulk carriers and tank carriers. Among the private carriers, the segments with the lowest average fatal crash per power unit are the furniture carriers and the general freight TL carriers. In contrast, the building materials carriers have the highest fatal crash rate.

![Figure 33: Fatal Crashes per Power Unit - For Hire Carriers](image1)

![Figure 34: Fatal Crashes per Power Units - Private Carriers](image2)

Tables 35 and 36 report on the crash indicator measure developed as part of the Safety Management System (SMS) methodology for CSA 2010. As noted earlier, this indicator takes account of both the frequency and severity of a carrier’s crashes based on state-reported crashes. The indicator has a time-weighting to place more emphasis on a carrier’s most recent crashes. The indicator includes a time-span of twenty four months from the time of the database creation (September 2009). The private carriers on average have a lower crash indicator score than do the for-hire carriers. The private carriers have an average crash indicator score of 0.33, with the for-hire carriers having an average score of 0.38. The best for-hire carrier segments are the tank operators and the passenger carriers. These two segments are also the best performing segments among the private carriers. The worst performing for-hire segment is also the worst performing private carrier segment. That distinction belongs to the farm combined industry segment.
In sum, on the critical crash rate measures, there is a decided advantage, in terms of lower fatal and total crash rates per power unit, for the private carriers. These differences, however, may be attributable in large measure to the failure of this metric to control for differences in average vehicle miles traveled by power units in each segment. On average, annual vehicle miles per power unit are higher among for-hire carriers than is the annual vehicle miles traveled per power unit among private carriers, differences in crash rates per power unit would be mitigated if annual vehicle miles traveled were included in the metric. Thus, while for-hire carriers may have significantly higher crashes per power unit, each power unit travels significantly more miles annually than would a power unit operated by a private carrier. Nevertheless, the for-hire carriers with the lowest crash rates are the passenger carriers and the tank operators. Among the private carriers, the same two segments are the best performers.

**Summary**

In meeting its objective to reduce truck crashes and the associated injuries and fatalities, FMCSA has a range of enforcement tools. With limited resources, however, FMCSA benefits from data that enables it to more effectively target those resources toward specific problem areas. In monitoring the safety performance of all for-hire and private carriers, it is important to recognize that the motor carrier industry has distinct operating segments with significantly different environments and safety performance records. Assessment of the safety performance of for-hire and private carriers in each of the industry’s major operating segments is a key decision tool that will facilitate more effective use of FMCSA resources.

The comparison between the overall average percentage of firms with satisfactory ratings on time sensitive CRs (i.e., CR conducted in the eighteen month period leading up until September 2007) shows only a slight difference in performance between the for-hire and the private segments. Overall, on average across all operating segments, 75.96 percent of the for-hire firms
have satisfactory ratings, while the comparable percentage with a satisfactory rating among the private carrier segments is 75.76.

Overall, on the driver performance measures, the private carriers demonstrate better performance than do for-hire carriers on the overall DRSEA score (which combines information on compliance reviews, roadside inspections, traffic enforcements, moving violations and closed enforcement cases). On a disaggregated basis, the private carriers across all segments have lower scores on the moving violation indicator and on the unsafe driving BASIC measure. In contrast, the for-hire carriers across all segments have lower scores on the driver fitness BASIC measure. However, on two additional BASIC measures (fatigued driving, and substance and alcohol abuse) there is little difference across all segments in the average performance of for-hire and private carriers. Clearly, however, there are some individual segments in both the for-hire and private sectors that stand out as the best performing sectors in the driver performance categories. These segments among both for-hire and private carriers involve tank operators and passenger carriers. In terms of the worst performing segment on driver measures, the for-hire refrigerated carrier segment stand out. Also, notable for being the worst segment on a number of driver measures are the far-combined for-hire carriers, the TL general freight for-hire carriers and the household goods for-hire carriers. Among the private carriers, the worst performing segments in terms of driver measures are the furniture carriers and the refrigerated carriers.

On the vehicle performance measures, the for-hire carriers demonstrate better performance than do the private carriers on the vehicle out-of-service measure and the improper loading/load securement BASIC. However, on the other hand, the private carriers do better than do the for-hire carriers on the VHSEA. It should be noted, however, that the overall performance differences between the for-hire and private carrier segments on these measures is somewhat less than the performance differences observed between the two segments on the driver measures. There is little difference across all segments in the average performance of for-hire and private carriers on the vehicle maintenance BASIC. Clearly, however, there are some individual segments in both the for-hire and private sectors that stand out as the best performing sectors in the vehicle performance categories. These segments among both the for-hire carriers involve tank operators and passenger carriers. Among the private carriers the following segments stand out on the basis of their leading vehicle performance indicators: refrigerated carriers, passenger carriers, tank carriers, and furniture carriers. At the other end of the spectrum, the segments with the highest vehicle performance scores involve the following for-hire segments: large machinery carriers, intermodal carriers, and building materials carriers. Among the private carriers the worst performing segments on vehicle measures involve the following segments: large machinery carriers, farm-combined carriers, and intermodal carriers.

In 2008, the average percentage of carriers across all segments with no safety management violations is higher for the for-hire carriers (62.11 percent) than it is for the private carriers (58.78 percent). The explanation for the higher percentage of carriers with no violations may stem from a somewhat higher percentage of the for-hire carriers than of the private carriers having knowledge of general safety management requirements and regulations. Indeed, for-hire carriers have greater exposure to FMCSA rules, regulations, and requirements as a consequence of transactional nature of the business relationships with their shipper customers. The for-hire
carriers also have lower safety management scores (based on their performance in CRs) than do
the private carriers. The comparable scores are 14.89 across all segments on average for the for-
hire carriers versus 20.37 across all segments on average for the private carriers. On both safety
management measures, the best performing segments among both the for-hire and the private
carriers are the tank carriers and the passenger carriers. Among the for-hire segments, the worst
performing segments in the safety management area are the household goods carriers and the
general freight carriers (TL). Among the private carriers, the worst performing segment with
respect to safety management issues is the refrigerated industry segment.

On the critical crash rate measures, there is a decided advantage, in terms of lower fatal and total
-crash rates per power unit, for the private carriers. These differences, however, may be
attributable in large measure to the failure of this metric to control for differences in average
vehicle miles traveled by power units in each segment. On average, annual vehicle miles per
power unit are higher among for-hire carriers than is the annual vehicle miles traveled per power
unit among private carriers, differences in crash rates per power unit would be mitigated if
annual vehicle miles traveled were included in the metric. Thus, while for-hire carriers may
have significantly higher crashes per power unit, each power unit travels significantly more miles
annually than would a power unit operated by a private carrier. Nevertheless, the for-hire
carriers with the lowest crash rates are the passenger carriers and the tank operators. Among the
private carriers, the same two segments are the best performers.

Focusing on individual for-hire segments, there are two segments with performance results that
are at or near the top in almost every safety performance category in the area of drivers, vehicles,
safety management, and crashes. These segments are the tank operators and the passenger
carriers. Recall also from past year’s analysis that general freight LTL carriers had excellent
scores on many safety management performance categories. As noted above, the analysis no
longer disaggregates the LTL carrier performance from that of the general freight TL carrier
segment. At the other end of the performance spectrum for the for-hire carriers is the
refrigerated carrier group. This segment had the worst performance across all the for-hire
segments in nearly all of the driver performance categories, both SafeStat measures and the
BASIC measures.

Turning to private carriers, tank carriers stand out for their overall performance excellence. Tank
carriers and private carriers stand out for their excellence in driver performance, vehicle
performance, safety management issues, and crash record. At the other end of spectrum, there
are two segments with very poor records in the vehicle performance categories, both SafeStat
measures and the BASIC measures. These segments are the farm-combined carriers and the
large machinery carriers.

Regardless of the specifics of performance for individual segments, the information in this report
provides a continuing source for use in tracking longitudinal performance of the carrier
segments. Indeed, any drastic year-to-year change in performance by an individual for-hire or
private carrier segment will provide FMCSA with an opportunity to focus resources on the
problem to determine its cause and suggest remedial actions. The ability to very quickly compare
the safety performance of both for-hire and private carriers across an array of segments will be
an important asset in assisting the FMCSA in accomplishing its objective of improving safety performance.