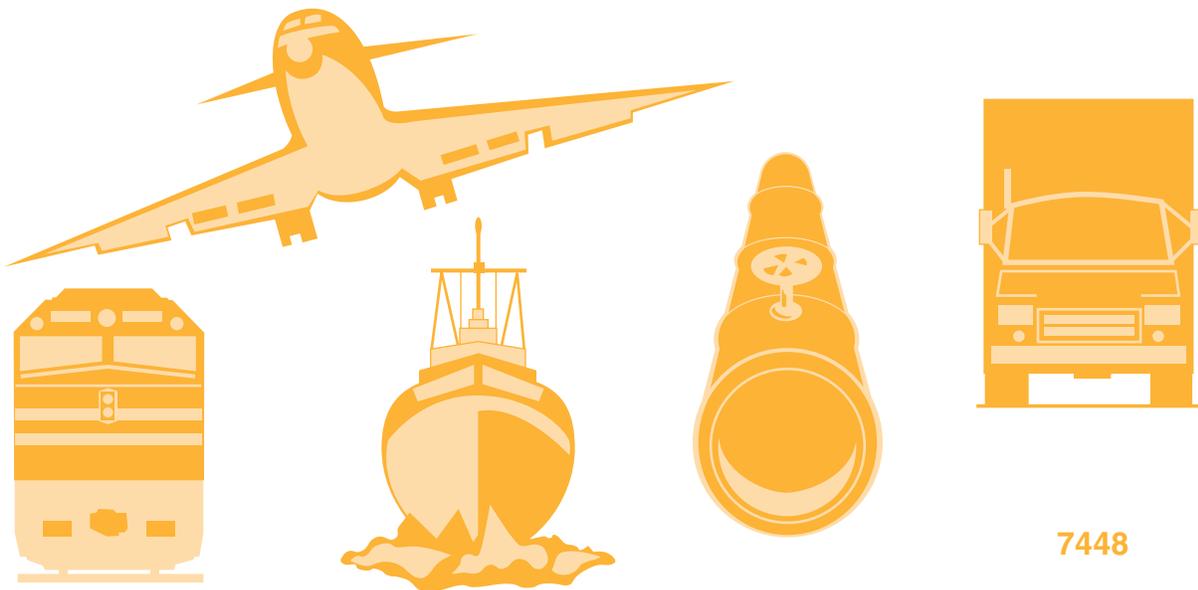


# NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C. 20594

## SAFETY REPORT

Analysis of Intrastate  
Trucking Operations



7448



# **Safety Report**

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## **Analysis of Intrastate Trucking Operations**

**NTSB/SR-02/01  
PB2002-917001  
Notation 7448  
Adopted March 28, 2002**



**National Transportation Safety Board  
490 L'Enfant Plaza, S.W.  
Washington, D.C. 20594**

**National Transportation Safety Board. 2002. *Analysis of Intrastate Trucking Operations. Safety Report NTSB/SR-02/01. Washington, DC.***

**Abstract:** Virtually all commercial trucks, drivers, and motor carriers are subject to safety regulations. Those operating in interstate commerce are subject to the *Federal Motor Carrier Safety Regulations* (FMCSRs) and the Hazardous Material Regulations as well as to State laws and regulations. Those operating in intrastate commerce are subject to the FMCSRs that have been adopted by the States or to State laws that are identical to or have the same effect as the FMCSRs. A limited number of variances related to safety are permitted for drivers and vehicles operating in intrastate commerce; these include a lower driver age, relaxed medical qualifications, expanded hours of service, exemption of specific commodities from some safety regulations, and exemption of some vehicles from vehicle safety regulations.

The National Transportation Safety Board analyzed data from the Motor Carrier Management Information System, Trucks Involved in Fatal Accidents, U.S. roadside inspections, and other sources to describe the general characteristics of intrastate motor carriers, to identify intrastate carrier accident characteristics, and to compare these characteristics with accidents involving interstate carriers. The data indicate that intrastate carriers and interstate carriers share many similarities in terms of operating characteristics and characteristics of their accident-involved trucks and drivers. Most of the differences in the characteristics of accident-involved trucks of intrastate and interstate carriers appear to reflect differences in operational factors, such as size of fleet, operating hours, and types of cargo hauled.

The Safety Board did not issue any new safety recommendations in conjunction with this safety report; however, the Board will continue to monitor the safety of intrastate carriers and commerce in future accident investigations and by following research and projects being conducted by government agencies, academia, and industry.

The National Transportation Safety Board is an independent Federal agency dedicated to promoting aviation, railroad, highway, marine, pipeline, and hazardous materials safety. Established in 1967, the agency is mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The Safety Board makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

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## Acronyms and Abbreviations

<b>CDL</b>	commercial driver's license
<b>CFR</b>	<i>Code of Federal Regulations</i>
<b>CDLIS</b>	Commercial Driver License Information System
<b>CMV</b>	commercial motor vehicle
<b>CVSA</b>	Commercial Vehicle Safety Alliance
<b>CVSP</b>	Commercial Vehicle Safety Plan
<b>DOT</b>	U.S. Department of Transportation
<b>FARS</b>	Fatality Analysis Reporting System
<b>FHWA</b>	Federal Highway Administration
<b>FMCSA</b>	Federal Motor Carrier Safety Administration
<b>FMCSRs</b>	<i>Federal Motor Carrier Safety Regulations</i>
<b>FY</b>	fiscal year
<b>GCW</b>	gross combination weight
<b>GCWR</b>	gross combination weight rating
<b>GES</b>	General Estimates System
<b>GVW</b>	gross vehicle weight
<b>GVWR</b>	gross vehicle weight rating
<b>HMRs</b>	Federal <i>Hazardous Material Regulations</i>
<b>HOS</b>	hours of service
<b>ISTEA</b>	Intermodal Surface Transportation Efficiency Act of 1991
<b>MCSAP</b>	Motor Carrier Safety Assistance Program
<b>MCMIS</b>	Motor Carrier Management Information System
<b>NGA</b>	National Governors Association
<b>NHTSA</b>	National Highway Traffic Safety Administration
<b>NPRM</b>	notice of proposed rulemaking
<b>OOS</b>	out of service
<b>STAA</b>	Surface Transportation Assistance Act of 1982
<b>SPE</b>	skill performance evaluation
<b>TCA</b>	Truckload Carriers Association
<b>TEA-21</b>	Transportation Equity Act for the 21st Century
<b>TIFA</b>	Trucks Involved in Fatal Accidents database
<b>TPV</b>	tractor protection valve

<b>UMTRI</b>	University of Michigan Transportation Research Institute
<b>USDOT</b>	Number assigned to an interstate motor carrier and displayed on its commercial motor vehicles
<b>VIUS</b>	Vehicle Inventory and Use Survey
<b>VMT</b>	vehicle miles traveled

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## Executive Summary

Each trip made in a commercial motor vehicle can be classified as either intrastate or interstate commerce depending on the destination of the cargo being transported. Interstate commerce is subject to the *Federal Motor Carrier Safety Regulations* (FMCSRs) and the *Hazardous Material Regulations* (HMRs) as well as to State laws and regulations. Intrastate commerce is subject to the FMCSRs that have been adopted by the States or to State laws that are “compatible” with the FMCSRs; that is, State laws that are identical to or have the same effect as the FMCSRs. States adopt the FMCSRs as a condition of receiving financial assistance from the Motor Carrier Safety Assistance Program (MCSAP) administered by the Federal Motor Carrier Safety Administration. A limited number of variances related to safety are permitted for drivers and vehicles operating in intrastate commerce; these include a lower driver age, relaxed medical qualifications, expanded hours of service, exemption of specific commodities from some safety regulations, and exemption of some vehicles from vehicle safety regulations.

Data from the Motor Carrier Management Information System (MCMIS), Trucks Involved in Fatal Accidents (TIFA), and U.S. roadside inspections were analyzed to describe the general characteristics of intrastate motor carriers, to identify intrastate carrier accident characteristics, and to compare these characteristics with accidents involving interstate carriers. This information was supplemented by a National Transportation Safety Board-administered survey distributed to intrastate motor carriers. The report focuses only on nonhazardous material carriers operating trucks.

The data indicate that intrastate carriers and interstate carriers share many similarities in terms of operating characteristics and characteristics of their accident-involved trucks and drivers. Most of the differences in the characteristics of accident-involved trucks of intrastate and interstate carriers appear to reflect differences in operational factors, such as size of fleet, operating hours, and types of cargo hauled.

The National Transportation Safety Board did not issue any new safety recommendations in conjunction with this safety report at this time; however, the Board will continue to monitor the safety of intrastate carriers and commerce in future accident investigations and by following research and projects being conducted by government agencies, academia, and industry.



## Chapter 1

# Overview of Intrastate Commerce and Trucking Operations

## Introduction

U.S. trucks in commercial cargo operations drive billions of miles each year. Each trip can be classified as either intrastate or interstate commerce depending on the destination of the cargo being transported. Interstate commerce is subject to applicable Federal and State regulations, and intrastate commerce is subject to the laws and regulations of the State in which it occurs.

Virtually all commercial trucks, drivers, and motor carriers are subject to safety regulations. Those operating in interstate commerce are subject to the *Federal Motor Carrier Safety Regulations* (FMCSRs) and the *Hazardous Material Regulations* (HMRs) as well as to State laws and regulations. Those operating in intrastate commerce are subject to the FMCSRs that have been adopted by the States or to State laws that are “compatible” with the FMCSRs; that is, State laws that are identical to or have the same effect as the FMCSRs. Almost all of the States have the same regulations or laws because, as a condition of receiving Federal funds through the Motor Carrier Safety Assistance Program (MCSAP), the States must adopt the FMCSRs or have State laws that are compatible with the FMCSRs. A limited number of variances related to safety are permitted by Title 49 *Code of Federal Regulations* (49 CFR) Part 350.341 for drivers and vehicles operating in intrastate commerce; these include a lower driver age, relaxed medical qualifications, expanded hours of service, exemption of specific commodities from some safety regulations, and exemption of some vehicles from vehicle safety regulations.

Determining if a vehicle is operating in intrastate commerce or interstate commerce on any particular trip, or if it is exempt from any regulations, can be difficult. In 1995, the National Transportation Safety Board investigated the collision between a tractor low-boy semitrailer combination and National Railroad Passenger Train (Amtrak) No. 281 in Sycamore, South Carolina.<sup>1</sup> The investigation highlighted some of the complexities of the regulations pertaining to interstate and intrastate commerce. The motor carrier involved in this highway/rail grade crossing accident primarily transported logs from South Carolina forest tracts to mills in South Carolina. When engaged in intrastate transportation of forest products, the driver and truck were exempted from the

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<sup>1</sup> (a) National Transportation Safety Board, *Highway/Rail Grade Crossing Collision Near Sycamore, South Carolina, May 2, 1995*, Highway Accident Report NTSB/HAR-96/01 (Washington, DC: NTSB, 1996). (b) As a result of the accident, 33 people sustained minor injuries, and combined property damage to the train and the truck exceeded \$1 million.

State of South Carolina's motor carrier safety regulations by provisions of South Carolina law because the "Public Service Commission has no jurisdiction for safety purposes over persons engaged in transporting farm products or forest products from the farm to the first market."<sup>2</sup> Several days before the accident, the same driver and truck had transported logs from a South Carolina forest tract to a mill in Georgia. During that interstate trip, the driver and truck were subject to the FMCSRs. At the time of the Sycamore, South Carolina, accident, the driver and truck were engaged in the for-hire transportation of logging equipment for another firm between points in South Carolina. This intrastate trip did not qualify for the State's forest products exemption because it was hauling logging equipment, not forest products; thus, at the time of the accident, the truck and driver were subject to South Carolina regulations.

Previous accident investigations, such as the 1995 highway/rail grade crossing accident in Sycamore, South Carolina, that highlighted variances permitted for intrastate commerce prompted the Safety Board to further examine intrastate commerce and intrastate motor carrier operations. Although it would be useful to accomplish an explicit empirical evaluation of the safety effect of the variances permitted for intrastate commerce, neither the necessary accident data nor the exposure data (for example, number of trucks, vehicle miles traveled, and ton miles of freight transported) are available. In this report, the Safety Board describes general characteristics of intrastate motor carrier operations and examines accident databases to identify intrastate carrier accident characteristics. Although passenger-carrying motor carriers and hazardous material carriers can be defined as either interstate or intrastate motor carriers and operate in either interstate or intrastate commerce, this report focuses only on nonhazardous material carriers operating trucks. Additionally, the Safety Board recognizes that the FMCSRs contain exemptions that apply to certain types of operations,<sup>3</sup> however, these exemptions are discussed only as they pertain to intrastate commerce and motor carrier operations.

The Safety Board did not issue any safety recommendations in conjunction with this report; however, it will continue to monitor the safety of intrastate commerce in future accident investigations and through ongoing research and projects being conducted by the Federal Motor Carrier Safety Administration (FMCSA), academia, and industry.

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<sup>2</sup> (a) South Carolina Code of Laws 58-23-1140. (b) South Carolina adopted the FMCSRs; thus, other intrastate commerce trips not exempt are subject to the same regulations contained in the FMCSRs.

<sup>3</sup> Title 49 CFR Part 390.3(f) states "unless otherwise specifically provided, the rules in this subchapter [the FMCSRs] do not apply to (f)(1) all school bus operations as defined in 390.5; (f)(2) transportation performed by the Federal government, a State, or any political subdivision of a State, or an agency established under a compact between States that has been approved by the Congress of the United States; (f)(3) the occasional transportation of personal property by individuals not for compensation nor in the furtherance of a commercial enterprise; (f)(4) the transportation of human corpses or sick and injured persons; (f)(5) the operation of fire trucks and rescue vehicles while involved in emergency and related operations." Other portions of the CFR also contain exemptions. For example, drivers in farm custom operations, apiarian industries, and certain farm vehicles are exempt from 49 CFR Part 391 (qualifications of drivers). The hours-of-service regulations (49 CFR Part 395) provide exemptions that relieve drivers from some of the aspects of the regulations.

The remainder of chapter 1 discusses background information on intrastate and interstate commerce and carriers. Chapter 2 discusses the sources of data and information used in this study. Chapter 3 describes the operational and accident characteristics of intrastate carriers contained in currently available databases.

## Interstate and Intrastate Commerce

Interstate and intrastate commerce are defined in 49 CFR 390.5 as follows:

**Interstate commerce** means trade, traffic, or transportation in the United States— (1) Between a place in a State and a place outside of such State (including a place outside of the United States); (2) Between two places in a State through another State or a place outside of the United States; or (3) Between two places in a State as part of trade, traffic, or transportation originating or terminating outside the State or the United States. **Intrastate commerce** means any trade, traffic, or transportation in any State which is not described in the term “interstate commerce.”

Two additional principles guide the determination of intrastate or interstate commerce. First, the intention of the shipper at the time of the movement begins, provided that intention persists, determines the classification of the shipment as being in interstate or intrastate commerce.<sup>4</sup> Second, routing a shipment through more than one State may not legitimize the movement as one in interstate commerce if the route was an intentional subterfuge.

Examples of interstate commerce include movement of a shipment from Mobile, Alabama, to Dothan, Alabama, through Florida; movement of a shipment by plane from Los Angeles, California, to Washington Dulles International Airport in Virginia, that is then moved by a commercial truck to its final destination in Richmond, Virginia; and movement of a shipment from California to New York. If, in the course of the movement of this shipment from California to New York, a single carrier transports it from one part of Ohio to another part of Ohio for movement beyond Ohio, the movement between the two locations in Ohio is still considered to be interstate commerce because the shipper’s intent is to move it beyond Ohio.

## Carrier Distinctions

Interstate carriers are subject to both Federal and State regulations whereas intrastate carriers are subject to the regulations of the State in which they operate. An intrastate carrier may not lawfully transport an interstate shipment (interstate commerce) without first registering with the FMCSA as an interstate carrier.<sup>5</sup> This includes an

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<sup>4</sup> The shipper intent rule applies to interstate commerce for the transportation of property but not to the transportation of passengers.

interstate movement wherein a segment of the movement is within a State's borders. For example, if a shipment is being moved from California to New York, only an interstate carrier could move that shipment from point A in Ohio to point B in Ohio.

Carriers may be further classified as private or for-hire. Private motor carriers are those who provide transportation of property which it owns or leases, by commercial motor carrier (49 CFR 390.5). The transportation activities of private carriers are incidental to, and in furtherance of, their primary business activity. For example, retailers such as grocery stores whose primary business is selling food items but who own and operate trucks to transport their goods are private carriers. For-hire carriers are those carriers who are engaged in the transportation of goods for compensation (49 CFR 390.5). The primary business activity of these carriers is transportation of others' goods.

All carriers (for-hire or private) engaged in interstate transport must register with the FMCSA and receive a U.S. Department of Transportation (DOT) number.<sup>6</sup> Interstate carriers are also required to comply with State registration, fuel tax, and other State regulations and procedures.<sup>7</sup> Interstate for-hire carriers must also obtain interstate operating authority from the FMCSA.<sup>8</sup> Carriers engaged in intrastate transport register with their base State; however, the individual States make the determination as to whether to register both for-hire and private carriers, or just for-hire carriers.

## **The Motor Carrier Safety Assistance Program**

### ***Description of the Program***

The MCSAP is a Federal grant-aid program administered by the FMCSA that provides financial assistance to the States to reduce the number and severity of accidents and hazardous materials incidents involving commercial vehicles. The States receive money for safety programs, thus increasing the likelihood that safety defects, driver deficiencies, and unsafe motor carrier practices will be detected and corrected before they become contributing factors to accidents.<sup>9</sup> Appendix A provides more detailed information about MCSAP.

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<sup>5</sup> The FMCSA was established within the U.S. Department of Transportation (DOT) in December 1999 to regulate and enforce truck and bus safety. The FMCSA assumed the responsibilities of the Office of Motor Carriers that had been part of the Federal Highway Administration within the DOT.

<sup>6</sup> The DOT number is assigned to the motor carrier; the carrier must display the DOT number on its commercial motor vehicles. It is referred to as the USDOT number.

<sup>7</sup> Some States operate under the Single State Registration System, which allows an interstate motor carrier to register its operation by contacting its base State (principal place of business) and, for one fee, register for all States in which operations will be conducted.

<sup>8</sup> To obtain operating authority, the motor carrier is required to maintain liability insurance.

<sup>9</sup> There are currently three States—Maine, Florida, and South Dakota—that are funded at 50 percent because they do not have State regulations that are considered by the FMCSA to be compatible with the FMCSRs or within the tolerance guidelines.

As a condition of receiving MCSAP funding, States must adopt and enforce the FMCSRs (49 CFR Parts 390–397) and the HMRs (49 CFR Parts 107 (subparts F and G only), 171–173, 177, 178, and 180) or have State regulations that are compatible with the Federal regulations. Compatible, as defined in 49 CFR 350.105, means

State laws and regulations applicable to interstate commerce and to intrastate movement of hazardous materials are identical to the FMCSRs and the HMRs or have the same effect as the FMCSRs. State laws applicable to intrastate commerce are either identical to, or have the same effect as, the FMCSRs or fall within the established limited variances under 49 CFR 350.341.

In the case of newly enacted regulations or amendments to the FMCSRs or HMRs, States must amend their laws or regulations to make them compatible with the new or amended FMCSRs or HMRs within 3 years of the effective date of the new Federal regulation.

Section 4002 of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) required the DOT to establish tolerance guidelines and standards for ensuring the compatibility of intrastate commercial motor vehicle laws and regulations with the FMCSRs while providing some flexibility to the States. The act stated, “The guidelines shall, to the extent practicable, allow for maximum flexibility while ensuring the degree of uniformity that will not diminish transportation safety.” The Federal Highway Administration (FHWA) subsequently established tolerance guidelines and published them in September 1992 as part of its final rule pertaining to 49 CFR Parts 350, 355, and 396.<sup>10</sup> As indicated in the final rule, the tolerance guidelines set forth the limited deviations from the FMCSRs allowed in State laws and regulations. The variances applicable to intrastate commerce included provisions for a younger driver age, an expansion of on-duty and driving time, relaxed physical qualifications of drivers, exemptions to the safety regulations for specific commodities, and exemptions for vehicles with gross vehicle weight ratings (GVWR) less than 26,000 pounds (table 1–1).

### **Variances**

The number, type, and extent of the variances applicable to intrastate commerce differ from State to State (table 1–2).<sup>11</sup> These variances are discussed in the following sections.

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<sup>10</sup> *Federal Register* Vol. 57, No. 174, dated September 8, 1992, pp. 40946–40964.

<sup>11</sup> The information in table 1–2 was obtained in 2000–2001 from the States. At the time this report was being prepared, the FMCSA did not maintain a current list of variances within each State. The FMCSA had awarded a \$200,000 grant to create a user-friendly database with the capability to generate customized, real-time, State-specific, and variance-specific reports pertaining to the regulatory requirements for safety, commercial driver’s licenses, and the transport of hazardous materials. As of February 2002, the system had been developed; the FMCSA is currently reviewing the compatibility of State and Federal regulations and is updating the information in the system.

**Table 1–1.** Variances from Federal regulations permitted for intrastate commerce (Title 49 *Code of Federal Regulations* Part 350.341).

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A State may exempt a CMV from all or part of its laws or regulations applicable to intrastate commerce, provided that neither the GVW, GVWR, GCW, nor GCWR of the vehicle equals or exceeds 26,001 pounds. It may not exempt a vehicle that:

Transports hazardous materials requiring a placard.

Is designed or used to transport 16 or more people, including the driver.

States may not exempt motor carriers based on the type of transportation being performed (for-hire, private, etc.).

Industry exemptions are discouraged, but States may apply for them. A State may retain those exemptions from its motor carrier safety laws and regulations that were in effect before April 1988, are still in effect, and apply to specific industries operating in intrastate commerce.

Exemptions based on the distance a motor carrier or driver operates from home terminal are not compatible. This prohibition does not apply to those exemptions already contained in the FMCSRs nor to the extension of the mileage radius exemption contained in 49 CFR 395.1(e) from 100 to 150 miles.

Hours-of-service limitations may vary:

A 12-hour driving limit is permitted provided that the total period of time on duty does not exceed 16 hours.

Drivers who have been on duty 70 hours in 7 consecutive days or 80 hours in 8 consecutive days are not permitted to drive.

All CMV drivers must be at least 18 years of age.

States may provide grandfather clauses in rules if such exemptions are uniform and in substantial harmony with the FMCSRs and provide for a transition to full compatibility at a later date.

Driver qualifications may vary:

Intrastate drivers who do not meet the physical qualification standards in 49 CFR 391.41 may continue to be qualified to operate a CMV in intrastate commerce if: (1) the driver was qualified under existing State law or regulations at the time the State adopted physical qualification standards compatible with the Federal standards in 49 CFR 391.41, (2) the otherwise non-qualifying medical or physical condition has not substantially worsened, and (3) no other non-qualifying medical or physical condition has developed.

The State may adopt or continue programs granting variances to intrastate drivers with medical or physical conditions that would otherwise be nonqualifying under the State's equivalent of 49 CFR 391.41 if the variances are based upon sound medical judgment combined with appropriate performance standards ensuring no adverse affect on safety.

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CFR = *Code of Federal Regulations*; CMV = commercial motor vehicle, FMCSRs = *Federal Motor Carrier Safety Regulations*; GVW = gross vehicle weight; GVWR = gross vehicle weight rating; GCW = gross combination weight; GCWR = gross combination weight rating.

**Table 1–2.** Variances from Federal regulations permitted for intrastate commerce, by State.<sup>a</sup>

State	Variance regarding <sup>b</sup> —					
	Industry/ commodity issues <sup>c</sup>	Hours of service <sup>d</sup>	Mileage radius <sup>e</sup>	Driver physical qualifications <sup>f</sup>	Vehicle GVWR <sup>g</sup>	Driver age <sup>h</sup>
Alabama				yes		yes
Alaska				yes		yes
Arizona				yes	yes	yes
Arkansas						yes
California		yes		yes		yes
Colorado	yes			yes	yes	yes
Connecticut		yes		yes	yes	yes
Delaware				yes	yes	yes
Florida	yes	yes	yes	yes	yes	yes
Georgia						yes
Hawaii						yes
Idaho						yes
Illinois	yes		yes	yes		yes
Indiana	yes			yes		yes
Iowa	yes	yes		yes	yes	yes
Kansas	yes			yes		yes
Kentucky	yes			yes		yes
Louisiana				yes	yes	yes
Maine			yes	yes		yes
Maryland	yes	yes		yes	yes	yes
Massachusetts				yes		yes
Michigan	yes			yes	yes	yes
Minnesota				yes		yes
Mississippi						
Missouri	yes				yes	yes
Montana					yes	yes
Nebraska	yes	yes				yes
Nevada					yes	yes
New Hampshire				yes		yes
New Jersey				yes	yes	yes
New Mexico				yes	yes	yes
New York						yes
North Carolina		yes		yes	yes	yes
North Dakota		yes		yes	yes	yes
Ohio		yes		yes	yes	yes
Oklahoma		yes		yes	yes	yes
Oregon		yes		yes	yes	yes
Pennsylvania		yes		yes	yes	yes
Rhode Island				yes		yes
South Carolina	yes	yes				yes
South Dakota				yes	yes	yes
Tennessee						yes
Texas	yes	yes		yes	yes	yes

**Table 1–2.** Variances from Federal regulations permitted for intrastate commerce, by State.<sup>a</sup> (continued)

State	Variance regarding <sup>b</sup> —					
	Industry/ commodity issues <sup>c</sup>	Hours of service <sup>d</sup>	Mileage radius <sup>e</sup>	Driver physical qualifications <sup>f</sup>	Vehicle GVWR <sup>g</sup>	Driver age <sup>h</sup>
Utah				yes		yes
Vermont				yes	yes	yes
Virginia				yes	yes	yes
Washington	yes	yes		yes	yes	yes
West Virginia				yes		yes
Wisconsin		yes			yes	yes
Wyoming	yes			yes	yes	yes

CMV = commercial motor vehicle, FMCSR = Federal Motor Carrier Safety Regulation, GVW = gross vehicle weight, GVWR = gross vehicle weight rating, GCW = gross combination weight, GCWR = gross combination weight rating, HOS = hours of service.

<sup>a</sup> The information in this table was obtained in 2000–2001 during the National Transportation Safety Board's examination of intrastate commerce and intrastate motor carrier operations. The information was confirmed with State officials to the extent possible. The U.S. territories are not included in this table because relevant information could not be obtained.

<sup>b</sup> Variances as provided by Title 49 *Code of Federal Regulations* Part 350.341. "Yes" indicates that the State permits a variance to the regulations pertaining to the category. The language of a State variance may encompass more than one of the categories shown in this table. In such cases, both categories are marked "yes." For example, Delaware exempts farm vehicles (pertaining to "Industry/Commodity Issues") with a GVWR of 26,000 pounds, thus "yes" is indicated for the categories "Industry/Commodity Issues" and "Vehicle GVWR."

<sup>c</sup> A State may retain those exemptions from its motor carrier safety laws and regulations that were in effect prior to April 1988, are still in effect, and apply to specific industries engaged in intrastate commerce.

<sup>d</sup> State HOS limitations applied to intrastate transportation may vary to the extent of (1) allowing a 12-hour driving limit, provided that the CMV driver has not been on duty more than 16 hours; and (2) prohibiting driving after reaching 70 hours on duty in 7 consecutive days or 80 hours in 8 consecutive days.

<sup>e</sup> State laws and regulations applicable to intrastate commerce must not include exemptions based on the distance a motor carrier or driver operates from the work reporting location. This prohibition does not apply to those exemptions already contained in the FMCSRs or to the extension of the mileage radius exemptions contained in 49 CFR 395.1(e) (HOS) from 100 to 150 miles.

<sup>f</sup> Intrastate drivers who do not meet the physical qualification standards in 49 CFR 391.41 may continue to operate a CMV engaged in intrastate commerce if the following three conditions are met: (1) The driver was qualified under existing State law or regulations at the time the State adopted physical qualification standards compatible with the Federal standards in 49 CFR 391.41. (2) The otherwise nonqualifying medical or physical condition has not substantially worsened. (3) No other nonqualifying medical or physical condition has developed. The State may adopt or continue programs granting variances to intrastate drivers with medical or physical conditions that would otherwise be nonqualifying under the State's equivalent of 49 CFR 391.41 if the variances are based on sound medical judgment combined with appropriate performance standards enduring no adverse affect on safety.

<sup>g</sup> A State may exempt a CMV from all or part of its laws or regulations applicable to intrastate commerce provided that neither the GVW nor the GVWR (likewise neither the GCW nor the GCWR) of the vehicle equals or exceeds 11 801 kilograms (26,001 pounds). However, a State may not exempt a CMV from such laws if the vehicle (1) transports hazardous materials requiring a placard; or (2) is designed or used to transport 16 or more people, including the driver.

<sup>h</sup> CMV drivers engaged in intrastate commerce may be younger than 21 years but at least 18 years.

**Industry Exemptions.** The tolerance guidelines contained in 49 CFR 350.341 permit exemptions from State motor carrier safety laws and regulations that apply to specific industries operating exclusively in intrastate commerce. The tolerance guidelines permit industry exemptions that were in effect in the States prior to 1988. The FMCSA discourages exemptions for specific industries and has granted very few industry exemptions since 1992 when the tolerance guidelines became effective. Although trucks and drivers operating in these industries would be exempt from State regulations, the vehicles and drivers would have to abide by other State vehicle and driver regulations, such as those that apply to noncommercial vehicles. Additionally, States may have a “safe vehicle clause” in their State legislation that would prohibit the operation of trucks with egregious safety problems.

Farm- and forestry-related intrastate commerce are frequently exempted from State laws and regulations. As described earlier in this chapter, the South Carolina Public Service Commission has no jurisdiction for safety purposes over persons engaged in transporting farm products or forest products from the farm to the first market.<sup>12</sup> In Texas, Commercial Motor Vehicle Safety Standards may not apply to a vehicle transporting a seed cotton module intrastate.<sup>13</sup> Nebraska exempts from State regulations farm trucks registered as 16 tons and under operating in a normal farming or ranching operation.<sup>14</sup>

**Driver Age.** Federal regulation requires commercial motor vehicle (CMV) drivers engaged in interstate commerce to be at least 21 years old. However, CMV drivers engaged wholly in intrastate commerce may be 18 years old.<sup>15</sup> Data in the Commercial Driver License Information System (CDLIS)<sup>16</sup> indicate that as of June 1, 2001, drivers under the age of 21 accounted for about one-third of 1 percent of the drivers listed in CDLIS; out of more than 10 million drivers, 37,886 were under age 21. However, it is not known how many of the drivers listed in CDLIS are actively driving a truck, and the CDLIS does not contain data on CMV drivers who are not required to have a commercial driver’s license (CDL); for example, drivers of trucks with a GVWR less than 26,001 pounds.

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<sup>12</sup> South Carolina Code of Laws 58-23-1140.

<sup>13</sup> Texas statutes, Chapter 644.052 Applicability of Rules.

<sup>14</sup> Nebraska statutes 75-363.

<sup>15</sup> Based on tolerance guidelines contained in 49 CFR 350.341.

<sup>16</sup> CDLIS is a central clearinghouse and repository of information regarding the licensing and identification of commercial driver’s license holders within the United States.

The majority of research on younger drivers has focused on passenger car drivers, but little research has focused on the experience of younger truckdrivers. There is some evidence that younger truckdrivers are overinvolved in accidents.<sup>17</sup> California records indicate that CDL drivers ages 16–19 have a higher fatal or injury accident rate (about 67 fatal or injury accidents per 1,000 licensed drivers) than drivers ages 20–24 (about 19 fatal or injury accidents per 1,000 drivers).<sup>18</sup> Accident rates presented in a 1996 report published by the University of Michigan Transportation Research Institute (UMTRI) suggest that younger Michigan CDL holders are overinvolved in accidents.<sup>19</sup> Overall, Michigan CDL holders had about 5 casualty involvements per 1,000 and about 40 property damage involvements per 1,000. Drivers ages 18–19 had about 28 casualty involvements and 160 property damage involvements per 1,000. The 1996 UMTRI report also identified driving problems among younger truckdrivers (ages 18–21), including excessive and unsafe speed, overly aggressive driving (for example, following too closely), failure to anticipate and provide for the unexpected actions of other road users, failure to maintain proper vehicle control (as in low-speed turning and backing accidents), and possible attentional overload. UMTRI also noted that some of these problems might be overcome with training.

The FMCSA sought public comments on a proposal submitted by the Truckload Carriers Association to initiate a pilot program that would allow individuals between the ages of 18 and 21 to operate CMVs in interstate commerce.<sup>20</sup> According to the Association, this proposal was submitted to address a truckdriver shortage problem. Under the Association's proposal, individuals would be required to meet Federal, State, and/or local laws and regulations related to physical requirements for truckdrivers without any exemption (except age), pass a drug screening test administered by a certified driving school, and possess a safe driving record. The proposed program would require 14 weeks of classroom instruction and 8 weeks of behind-the-wheel training at a certified school. Following completion of school, the student would attend a "finishing program"<sup>21</sup> at a

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<sup>17</sup> (a) K. Campbell, "Fatal Accident Rates by Driver Age for Large Trucks," *Accident Analysis and Prevention* Vol. 23, No. 4 (1991): 287–295, cited in D. Blower, *The Accident Experience of Younger Truck Drivers* (Ann Arbor, MI: Center for National Truck Statistics, University of Michigan Transportation Research Institute, 1996). Prepared for the Trucking Research Institute and the Great Lakes Center for Truck and Transit Research. (b) D. Blower, R. Lyles, K. Campbell, P. Stamatiadis, *The Michigan Heavy Truck Study*, UMTRI-90-1 (Ann Arbor, MI: University of Michigan Transportation Research Institute, 1993), cited in D. Blower, *The Accident Experience of Younger Truck Drivers* (Ann Arbor, MI: Center for National Truck Statistics, University of Michigan Transportation Research Institute, 1996). Prepared for the Trucking Research Institute and the Great Lakes Center for Truck and Transit Research.

<sup>18</sup> Letter dated May 9, 2001, from the State of California; Business, Transportation, and Housing Agency; Department of Motor Vehicles; Licensing Operations Division, P.O. Box 932345, Sacramento, California 94232-3450 to the U.S. Department of Transportation regarding Docket FMCSA-2000-8410, "Request for Comments on Proposal to Allow Drivers Under 21 to Operate a Commercial Motor Vehicle."

<sup>19</sup> D. Blower, *The Accident Experience of Younger Truck Drivers* (Ann Arbor, MI: Center for National Truck Statistics, University of Michigan Transportation Research Institute, 1996). Prepared for the Trucking Research Institute and the Great Lakes Center for Truck and Transit Research.

<sup>20</sup> *Federal Register* Vol. 66, No. 34, dated February 20, 2001, pp. 10935–10938. The comment period closed May 21, 2001, and the FMCSA is reviewing submitted comments.

<sup>21</sup> A course of instruction and on-the-job training offered by motor carriers.

carrier participating in the pilot program working with a driver-trainer for at least 8 weeks, spend another 18 weeks in a team operation, and be monitored<sup>22</sup> until age 21.

**Hours of Service.** Current Federal regulations state that drivers engaged in interstate commerce may not drive more than 10 hours or be on duty more than 15 hours following 8 consecutive hours off duty. Drivers may not drive after being on duty 60 hours in 7 consecutive days or 70 hours in 8 consecutive days. However, the tolerance guidelines in 49 CFR 350.341 allow States to vary the hours-of-service (HOS) regulations so that drivers engaged in intrastate commerce (a) may drive for 12 hours but cannot be on duty for more than 16 hours, and (b) are prohibited from driving if they have been on duty 70 hours in 7 consecutive days or 80 hours in 8 consecutive days.

On February 8, 2000, the Acting Deputy Administrator of the FMCSA issued a policy memorandum to FMCSA Area Administrators and State Directors explaining the FMCSA's jurisdiction over intrastate operations of motor carriers and drivers that sometimes operate interstate. The memorandum said that drivers who operate in intrastate commerce must be in compliance with 49 CFR Part 395 before, during, and after interstate trips, essentially stating that drivers who operate both interstate and intrastate must abide by the Federal regulations even though the States may permit variances for intrastate drivers.<sup>23</sup> The memo establishes a consistent national policy with a 14/15-day rule; that is, any driver who begins a trip in interstate commerce must (1) continue to meet the requirements of 49 CFR 395.3(a) and (b) through the end of the next 7 or 8 consecutive days,<sup>24</sup> and (2) have in his possession a copy of duty status records for the previous 7 consecutive days, unless the driver meets the provisions of 49 CFR 395.1(e).<sup>25</sup>

The FMCSA published a notice of proposed rulemaking (NPRM) on May 2, 2000.<sup>26</sup> The NPRM proposed to eliminate the variance in the tolerance guidelines (49 CFR 350.341) that permits extended driving and on-duty time for drivers engaged in intrastate commerce. The notice proposed five different types of drivers: type 1, long haul; type 2, regional; type 3, local split shift; type 4, local pickup and delivery; and type 5, primary work not driving. Although truckdrivers engaged in intrastate commerce could be classified as any of these driver types for any particular trip, many of the drivers engaged in intrastate commerce would likely fall under type 4 (local pickup and delivery) or type 5 (primary work not driving). Type 4 drivers would be allowed to be on duty for 12 hours followed by 12 hours off duty. Type 5 drivers would be allowed to be on duty for up to 13

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<sup>22</sup> The monitoring would include face-to-face meetings every 3 months, monthly reviews of the student's driver logs, regular analysis of the maintenance records for the truck operated by the younger driver, and immediate temporary or permanent suspension from driving in the event of any crashes, moving violations, or out-of-service (OOS) violations.

<sup>23</sup> *Federal Register* Vol. 46, dated July 23, 1981, p. 37902; and *Federal Register* Vol. 63, dated April 4, 1997, p. 16370. The memo referenced notices in the 1981 and 1997 *Federal Register* that indicated the FMCSA has jurisdiction over drivers who transport or who could be called upon to transport a shipment in interstate commerce for a 4-month period.

<sup>24</sup> Determined by whether the driver works 70 hours in 7 days or 80 hours in 8 days.

<sup>25</sup> Pertains only to drivers who operate within a 100-air-mile radius of the motor carrier's base of operation.

<sup>26</sup> An advance NPRM was published in November 1996.

hours and drive for not more than 5 hours. The type 5 drivers would be allowed 78 hours of on-duty time in 6 consecutive days whereas all other driver types would be allowed 60 hours on-duty time.

The NPRM also proposed requirements for the use of on-board recorders in commercial motor vehicles used by drivers in long-haul and regional operations. On-board recorders would not be required for type 3, 4, and 5 drivers and, therefore, it is probable that many of the drivers engaged in intrastate commerce would not be affected by this requirement. In lieu of on-board recorders, timecards required by the U.S. Department of Labor (with some revisions) are proposed to be the mechanism to enforce HOS requirements for type 3, 4, and 5 drivers.

The Safety Board submitted comments on the NPRM on March 14, 2001, indicating that although it was pleased with certain aspects of the proposed regulations, including the provisions to place drivers on a 24-hour schedule and increase the off-duty time requirements, the Board was concerned that the proposed rule would be difficult to enforce given the delineation of the five types of CMV drivers. The Board also noted the inconsistent requirements for the use of on-board recorders and concern that the rule would pose significant problems for the bus industry. Congress placed a 1-year moratorium, effective October 23, 2000, on the FMCSA's efforts to impose new HOS regulations. In the interim, the DOT continued to conduct more research on truckdriver fatigue but could not proceed with rulemaking. The FMCSA is currently performing an evaluation, including a cost/benefit analysis, of HOS regulations.

**Driver Physical Qualifications.** Title 49 CFR 391.41 requires CMV drivers to meet certain driver physical qualifications, including standards for physical impairment of extremities, vision and hearing requirements, and debilitating medical conditions (table 1–3). The tolerance guidelines in Section 391.41 permit exemptions to these requirements if any of the following three conditions are met: (1) the driver was qualified under existing State law or regulation at the time the State adopted physical qualification standards compatible with Federal regulations; (2) the otherwise nonqualifying medical or physical condition has not substantially worsened; and (3) no other nonqualifying medical or physical condition has developed. Further, the State may adopt programs or continue to grant waivers to drivers in intrastate commerce if the waivers are based on sound medical judgment combined with appropriate performance standards ensuring no adverse impact on safety.<sup>27</sup>

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<sup>27</sup> 49 CFR 391.49 permits the FMCSA to grant waivers to drivers who do not meet the physical and medical standards in paragraph 391.41(b)(1) or (b)(2).

**Table 1–3.** Summary of the current Federal regulations concerning physical qualifications of commercial motor vehicle (CMV) drivers (Title 49 *Code of Federal Regulations* Part 391.41).

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No loss of a foot, a leg, a hand, or an arm, or has been granted a skill performance evaluation.

No impairment of:

A hand or finger which interferes with prehension or power grasping;

An arm, foot, or leg which interferes with the ability to perform normal tasks associated with operating a CMV; or any other significant limb defect or limitation which interferes with the ability to perform normal tasks associated with operating a CMV; or has been granted a skill performance evaluation.

No established medical history or clinical diagnosis of diabetes mellitus currently requiring insulin for control.

No current clinical diagnosis of myocardial infarction, angina pectoris, coronary insufficiency, thrombosis, or any other cardiovascular disease of a variety known to be accompanied by syncope, dyspnea, collapse, or congestive cardiac failure.

No established medical history or clinical diagnosis of a respiratory dysfunction likely to interfere with his/her ability to control and drive a CMV safely.

No current clinical diagnosis of high blood pressure likely to interfere with his/her ability to operate a CMV safely.

No established medical history or clinical diagnosis of rheumatic, arthritic, orthopedic, muscular, neuromuscular, or vascular disease which interferes with his/her ability to control and operate a CMV.

No established medical history or clinical diagnosis of epilepsy or any other condition which is likely to cause loss of consciousness or any loss of ability to control a CMV.

No mental, nervous, organic, or functional disease or psychiatric disorder likely to interfere with his/her ability to drive a CMV safely.

Has distant visual acuity of at least 20/40 (Snellen) in each eye without corrective lenses or visual acuity separately corrected to 20/40 (Snellen) or better with corrective lenses, distant binocular acuity of at least 20/40 (Snellen) in both eyes with or without corrective lenses, field of vision of at least 70° in the horizontal meridian of each eye, and the ability to recognize the colors of traffic signals and devices showing standard red, green, and amber.

First perceives a forced whispered voice in the better ear at not less than 5 feet with or without the use of a hearing aid or, if tested by use of an audiometric device, does not have an average hearing loss in the better ear greater than 40 decibels at 500 Hz, 1,000 Hz, and 2,000 Hz with or without a hearing aid when the audiometric device is calibrated to American National Standard Z24.5–1951.

Does not use a controlled substance identified in 21 CFR 1308.11 Schedule 1, an amphetamine, a narcotic, or any other habit-forming drug unless prescribed by a licensed medical practitioner familiar with the driver's medical history and has advised the driver that it will not adversely affect his ability to operate the CMV.

No current clinical diagnosis of alcoholism.

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Several States provide exemptions to the regulations contained in 49 CFR 391.41. For example, in Delaware, a person who is not physically qualified to drive under Section 391.41 and who is otherwise qualified to drive a motor vehicle may operate a motor vehicle over 26,000 pounds within the State (except passenger carriers and vehicles transporting hazardous materials required to be placarded); the driver will be exempt from the physical examination requirements of Section 391.41 after certifying to the State's Secretary of Public Safety that he (1) was employed on a full-time basis in the operation of motor vehicles with a GVWR over 26,000 pounds prior to July 19, 1985; and (2) has not incurred three serious moving violations in a commercial vehicle since July 19, 1985.<sup>28</sup> Illinois exempts a driver from Section 391.41(b)(10), which addresses visual acuity, if the driver was employed and licensed immediately prior to July 29, 1986.<sup>29</sup>

The actual number of waivers from physical requirements granted by the States to drivers in intrastate commerce is unknown, "because the States do not keep track of their waivers."<sup>30</sup> The FMCSA issues waivers, skill performance evaluations (SPEs), and exemptions to drivers engaged in interstate commerce; the agency estimates that about 2,300 drivers are currently driving with waivers or SPEs.<sup>31</sup> The FMCSA's Health and Safety Specialist indicated to the Safety Board that data collected over a 6-year period on drivers with vision waivers and data collected over a 3-year period on drivers with diabetes waivers show that the drivers with the waivers were not any less safe than the drivers in the General Estimates System (GES).<sup>32</sup>

**Gross Vehicle Weight Rating.** Unless a vehicle transports hazardous materials requiring a placard or is designed or used to transport 16 or more people including the driver, a State may exempt from all or part of its regulations commercial motor vehicles with a gross vehicle weight (GVW), gross vehicle weight rating (GVWR), or gross

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<sup>28</sup> Delaware statutes, Title 21, Chapter 47, Section 4704.

<sup>29</sup> (a) Illinois statutes, Chapter 625 S5/18b-105. (b) These drivers would still have to pass a vision test required to obtain a driver's license in Illinois and would have to have a good driving record.

<sup>30</sup> Testimony of the FMCSA's Health and Safety Specialist at the Safety Board's public hearing on the effectiveness of commercial driver oversight programs, New Orleans, Louisiana, January 2000. In the testimony, the Health and Safety Specialist stated that about 2,315 drivers received waivers from physical requirements; about 2,200 vision waivers and 115 diabetes waivers were issued by the FMCSA to drivers not meeting the vision and diabetes regulations.

<sup>31</sup> (a) The FMCSA issues SPEs, exemptions, and waivers for various medical factors. SPEs qualify individuals who have a loss or impairment of a limb that would not otherwise prevent him or her from operating a commercial motor vehicle. Exemptions are defined as temporary regulatory relief from one or more FMCSRs given to a person or class of persons subject to the regulations or persons who intend to engage in an activity that would make them subject to the regulations. An exemption from the commercial driver fitness regulations provides the person or class of persons with relief from the regulations for up to 2 years and may be renewed. The FMCSA is considering exemptions only from the vision requirements at this time. A waiver is a temporary relief from one or more FMCSRs given to a person subject to the regulations or given to a person who intends to engage in an activity subject to the regulations. A waiver provides the person with relief from the regulations for up to 3 months. About 1,800 drivers are currently driving under an SPE, and 500 drivers are currently driving with a exemption to the vision requirements. (Safety Board staff communication with FMSCA staff, November 5, 2001.)

<sup>32</sup> GES is a probability-based nationally representative sample of about 50,000 crashes selected each year from all police-reported fatal, injury, and property-damage-only crashes. The GES database is maintained by the National Highway Traffic Safety Administration (NHTSA).

combination weight rating (GCWR) less than 26,001 pounds (49 CFR 350.341).<sup>33</sup> For example, in Vermont, a vehicle engaged in intrastate commerce with a GVWR less than 26,000 pounds would not be subject to portions of the State regulations.<sup>34</sup> In Arizona, a vehicle engaged in intrastate commerce with a GVWR less than 18,001 pounds would not be subject to some State regulations.<sup>35</sup> Although these vehicles are not subject to commercial motor carrier laws, they would still be subject to other State vehicle laws.

According to the Vehicle Inventory and Use Survey (VIUS), about 3 percent of the registered trucks weigh more than 10,000 pounds and less than 26,001 pounds (an estimated 2,164,800 trucks).<sup>36</sup> Of these trucks with a weight between 10,000 and 26,001 pounds, the primary operator classification for about 1,177,800 trucks is private business use; for 118,500 trucks, the primary operator classification is for-hire. Information on interstate and intrastate jurisdiction is collected only on for-hire operators, and about 28,600 of the trucks between 10,000 and 26,001 pounds are under intrastate jurisdiction.

## Previous Safety Board Recommendations

Since the 1990s, the Safety Board has issued several safety recommendations pertaining to commercial motor vehicle safety. This section discusses Safety Board recommendations applicable to intrastate motor carriers and intrastate commerce.

### ***Alcohol and Drug Testing***

The Safety Board has addressed alcohol and drug use by commercial motor vehicle drivers in the past, including those of intrastate motor carriers. In conjunction with its 1990 study on fatal-to-the-driver heavy truck accidents,<sup>37</sup> the Safety Board recommended that the FHWA revise and amend Federal requirements pertaining to alcohol and drug testing of CMV drivers (Safety Recommendations H-90-17 through -20) and that the States take similar action with intrastate motor carriers in the interim (Safety Recommendations H-90-44 through -47). These recommendations are shown in table 1-4. The FHWA subsequently took actions that met the intent of the recommendations, and on

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<sup>33</sup> Gross vehicle weight rating means the value specified by the manufacturer as the loaded weight of a single motor vehicle. Gross combination weight rating means the value specified by the manufacturer as the loaded weight of a combination (articulated) motor vehicle. In the absence of a value specified by the manufacturer, GCWR will be determined by adding the GVWR of the power unit and the total weight of the towed unit and any load thereon.

<sup>34</sup> Vermont Code of Laws title 23, chapter 23, section 4103.

<sup>35</sup> Arizona Code of Laws title 17, chapter 5, section R17-5-203.

<sup>36</sup> The VIUS provides information on the physical and operational characteristics of the Nation's truck population. It is conducted by the U.S. Census Bureau every 5 years, covering years ending in 2 or 7. The data presented here are for 1997. The sample includes pickup trucks, vans, minivans, and panel trucks; light single-unit trucks (GVW < 26,000 pounds); heavy single-unit trucks (GVW > 26,000 pounds); and truck-tractors.

<sup>37</sup> National Transportation Safety Board, *Fatigue, Alcohol, Other Drugs, and Medical Factors in Fatal-to-the-Driver Heavy Truck Crashes*, Safety Study NTSB/SS-90/01 and NTSB/SS-90/02 (Washington, DC: NTSB, 1990). 2 Vols.

April 20, 1994, the Safety Board classified Safety Recommendations H-90-17, H-90-19, and H-90-20 “Closed—Acceptable Alternate Action” and H-90-18 “Closed—Acceptable Action.” Because FHWA’s actions addressed the issues at the Federal level, the Safety Board classified Safety Recommendations H-90-44 through -47 to the States “Closed—No Longer Applicable” on April 9, 2001.

**Table 1–4.** Alcohol- and drug use-related safety recommendations issued as a result of the National Transportation Safety Board’s 1990 safety study on fatal-to-the-driver heavy truck accidents.<sup>a</sup>

Recipient and recommendation number	Safety recommendation
<b>Federal Highway Administration:</b>	
H-90-17	Require pre-employment alcohol and other drug tests on all drivers of commercial trucks with a gross vehicle weight rating of 10,000 pounds and above as a condition of employment.
H-90-18	Amend 49 CFR 391.21 “Application for employment” and 391.23 “Investigations and inquiries” to include a complete review of alcohol and other drug abuse treatment history prior to employment as a commercial truck driver.
H-90-19	Require commercial truck driver applicants with a prior history of drug and/or alcohol abuse to complete a certified treatment program and obtain a physician’s evaluation of substance abuse and dependency.
H-90-20	Require close supervision, including frequent, unannounced drug testing, for an appropriate period, of commercial truck drivers with an identified alcohol or other drug abuse problem. Such testing should be sufficiently frequent to create the likelihood of detection if the person uses drugs of abuse.
<b>The States and U.S. territories:</b>	
H-90-44	Require intrastate motor carriers in your State to perform pre-employment alcohol and other drug tests for all applicants seeking to work as drivers of commercial trucks weighing over 10,000 pounds GVWR.
H-90-45	Require intrastate motor carriers in your State to review the alcohol/drug abuse treatment history of all applicants seeking work as commercial truck drivers.
H-90-46	Require intrastate motor carriers in your State to obtain proof that applicants seeking work as commercial truck drivers, who have had a history of alcohol/drug abuse, have successfully completed a certified treatment program and obtained a physician’s evaluation of substance abuse and dependency.
H-90-47	Require intrastate motor carriers in your State to require close supervision, including frequent unannounced drug testing, for an appropriate period, of commercial truck drivers with an identified alcohol or other drug abuse problem. Such testing should be sufficiently frequent to create the likelihood of detection if the person uses drugs of abuse.

<sup>a</sup> National Transportation Safety Board, *Fatigue, Alcohol, Other Drugs, and Medical Factors in Fatal-to-the-Driver Heavy Truck Crashes*, Safety Study NTSB/SS-90/01 and NTSB/SS-90/02 (Washington, DC: NTSB, 1990). 2 Vols.

### ***On-board Recorders***

Also in the 1990 safety study, the Safety Board recommended that the States, the Commonwealth of Puerto Rico, the Virgin Islands, and the territories

Require intrastate motor carriers in your jurisdiction to require automated/tamper-proof on-board recording devices such as tachographs or computerized logs to identify commercial truck drivers who exceed hours-of-service regulations. **(H-90-48)**

The Safety Board classified H-90-48 “Closed—Unacceptable Action/No Response Received” because of the lack of progress at the State level. At the time H-90-48 was issued, the Board issued a similar recommendation to the FHWA:

Require automated/tamper-proof on-board recording devices such as tachographs or computerized logs to identify commercial truck drivers who exceed hours-of-service regulations. **(H-90-28)**

On July 7, 1998, the Safety Board classified Safety Recommendation H-90-28 “Closed—Unacceptable Action” for FHWA’s failure to require tachographs or computerized logs in CMVs.

### ***Medical Requirements***

The Safety Board addressed medical certification requirements in its investigation of a motorcoach accident that occurred in New Orleans, Louisiana, on May 9, 1999. On September 10, 2001, the Safety Board asked the American Association of Motor Vehicle Administrators to

Urge its member States to develop a comprehensive medical oversight program for intrastate commercial drivers that contains the following program elements:

- Individuals performing medical examinations for drivers are qualified to do so and are educated about occupational issues for drivers.
- A tracking mechanism is established that ensures that every prior application by an individual for medical certification is recorded and reviewed.
- Medical certification regulations are updated periodically to permit trained examiners to clearly determine whether drivers with common medical conditions should be issued a medical certificate.
- Individuals performing examinations have specific guidance and a readily identifiable source of information for questions on such examinations.
- The review process prevents, or identifies and corrects, the inappropriate issuance of medical certification.
- Enforcement authorities can identify invalid medical certification during safety inspections and routine stops.
- Enforcement authorities can prevent an uncertified driver from driving until an appropriate medical examination takes place.

- Mechanisms for reporting medical conditions to the medical certification and reviewing authority and for evaluating these conditions between medical certification exams are in place. **(H-01-26)**

Individuals, health care providers, and employers are aware of these mechanisms. This recommendation is currently classified “Open—Await Response.”

## Chapter 2

# Data Sources

Three databases were examined for this report: (1) the Motor Carrier Management Information System (MCMIS)<sup>38</sup> census file, (2) the MCMIS crash file, and (3) Trucks Involved in Fatal Accidents (TIFA).<sup>39</sup> The distinction between interstate and intrastate in these sources is based on operations of the motor carrier (that is, whether the motor carrier is an interstate motor carrier registered with the FMCSA or an intrastate motor carrier registered with the State) rather than the type of commerce the truck and driver transport. The Safety Board also examined U.S. roadside inspection data for commercial trucks and conducted a survey of intrastate motor carriers to obtain additional operating information.

## Databases

### *MCMIS Census File*

The FMCSA uses the MCMIS census file to track motor carrier safety performance and to assess nationwide motor carrier safety trends. Each census record contains identifying information (such as name and address), business/operation data (operation classification and type of business), cargo classification (type of cargo hauled), hazardous materials transported, equipment and driver data (such as number of trucks owned, term-leased or trip-leased, and number of drivers), and carrier review data (such as the most recent review date, accident rate, and safety rating).

As of November 2001, the MCMIS census file contained records for about 705,258 active motor carriers and hazardous materials shippers.<sup>40</sup> According to the definitions of census data elements, carrier operations “identifies the carrier as being engaged in interstate, intrastate hazardous material, or intrastate non-hazardous material transport activities.”<sup>41</sup> The census file contains records for 68,993 intrastate, nonhazardous materials, nonbus carriers and 532,199 interstate nonhazardous materials, nonbus carriers.

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<sup>38</sup> The MCMIS is a computerized system whereby the FMCSA maintains a comprehensive record of the safety performance of the motor carriers (truck and bus) and hazardous materials shippers that are subject to the FMCSRs or to the HMRs. The MCMIS contains census, crash, inspection, enforcement, and compliance review information.

<sup>39</sup> TIFA is maintained by the University of Michigan Transportation Research Institute (UMTRI).

<sup>40</sup> A record is considered inactive if the entity is no longer in business or is no longer subject to the FMCSRs or the HMRs. (U.S. Department of Transportation, Federal Highway Administration, Office of Motor Carriers, “Motor Carrier Management Information System (MCMIS) Census File Documentation” (Washington, DC: OMC, July 1998).)

<sup>41</sup> Federal Highway Administration, “Motor Carrier Management Information System Census File Documentation” (Washington, DC: FHWA, March 1999).

To improve the accuracy of its data, the FMCSA issued an interim final rule on November 24, 2000,<sup>42</sup> requiring interstate motor carriers to periodically file an update of their information contained in the MCMIS census file.<sup>43</sup>

The FMCSA maintains a census of interstate motor carriers but not of intrastate carriers. Currently, States maintain their own records of intrastate motor carriers.<sup>44</sup> Hence, there is no national census information available on intrastate carriers. The FMCSA, however, is currently implementing a voluntary registration program to include intrastate motor carriers in its census file. At present, 17 States<sup>45</sup> are participating in the voluntary program to issue USDOT numbers, with a State suffix, to intrastate carriers; the number with the State suffix identifies a carrier as an intrastate carrier. Of the 17 States, 13 issue the numbers to both for-hire and private intrastate carriers whereas 4 of the 17 States (Georgia, Iowa, Missouri, and Washington) issue USDOT numbers with a State suffix only to for-hire intrastate carriers. The Federal requirement for interstate motor carriers to periodically update their information in the census file does not apply to intrastate carriers.

### **MCMIS Crash File**

The MCMIS crash file contains data from State police crash reports involving drivers and vehicles of motor carriers operating in the United States.<sup>46</sup> Uniform data elements were developed by the National Governors Association (NGA). A reportable crash as defined by the NGA must involve a truck (a vehicle designed, used, or maintained primarily for carrying property that has at least two axles and six tires), or a bus (a vehicle with seats for at least 16 people, including the driver). The crash must result in at least one fatality, or at least one injury for which the person injured is taken to a medical facility for immediate medical attention, or result in at least one vehicle being towed from the scene because of disabling crash damage.

The MCMIS crash file uses carrier operation information from the police accident report, rather than type of commerce, to differentiate between interstate and intrastate. Crash data for 732,800 cases, reported for calendar years 1993 to 2001,<sup>47</sup> were examined for the Safety Board's report. To keep the examination focused, the Board excluded from analysis accidents involving trucks placarded for hazardous materials and accidents involving commercial buses.

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<sup>42</sup> *Federal Register* Vol. 65, No. 227, dated November 24, 2000, pp. 70509–70514.

<sup>43</sup> About 55 percent of the responses to the Safety Board's motor carrier survey (discussed later in this chapter) reflected differences in the information on carrier classification (private or for-hire) and carrier size than the information provided in the MCMIS census file.

<sup>44</sup> Some States maintain information on for-hire and private carriers and some maintain information only on for-hire carriers.

<sup>45</sup> Colorado, Connecticut, Florida, Georgia, Idaho, Indiana, Iowa, Kansas, Kentucky, Maine, Missouri, Nebraska, Oklahoma, Oregon, Utah, Washington, and Wyoming. Of the 68,993 carriers in the MCMIS census file, 61,844 (90 percent) are from these 17 States.

<sup>46</sup> The crash data are entered into the Safetynet system, which all States must use as a condition of participating in MCSAP. Safetynet links safety information among the States.

<sup>47</sup> In 1993, the responsibility for reporting accidents shifted from the motor carrier to the States. The crash data are current through November 2001.

The MCMIS crash file is intended to be a census of trucks and buses involved in fatal, injury, and towaway crashes, but some States do not report all NGA-defined reportable crashes.<sup>48</sup> Based on comparisons of the number of fatal accidents reported in the Fatality Analysis Reporting System (FARS) and the estimates of accidents from the GES, the FMCSA estimates that for 1998, about 66 percent of the reports on trucks involved in NGA-reportable crashes and about 77 percent of the cases in FARS were reported by the States to the MCMIS crash file.<sup>49</sup>

### **Trucks Involved in Fatal Accidents**

The TIFA database maintained by UMTRI contains accident variables, vehicle variables (for the truck), and occupant variables (for the driver of the truck) from FARS, which are supplemented with data collected through State police reports and telephone interviews. The supplemental TIFA survey data include information on the cab style of the power unit; the weights, lengths, and axle counts of all units; trailer type, cargo body type, cargo type, and cargo weights; and the carrier operation and classification. TIFA data examined for the Safety Board's report are for calendar years 1991 through 1999.<sup>50</sup> These analyses were conducted on 36,984 trucks (10,479 from intrastate carriers and 26,505 from interstate carriers) from the weighted sample<sup>51</sup> of data.

The coding for TIFA for the variable "area of operation" is interstate, intrastate, government-owned, daily rental, and unknown.<sup>52</sup> Coding is derived by asking the following questions: (1) Was the truck either a daily rental or government-owned? (2) If not, within 12 months before the accident, did any of your trucks carry goods interstate (across State lines)? If the answer to question (2) is "yes," the carrier is coded as interstate; thus, the categories of interstate and intrastate within TIFA refer to the carrier's operation rather than to the type of commerce the truck is involved in on that accident trip.

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<sup>48</sup> Federal Motor Carrier Safety Administration, *Large Truck Crash Profile: The 1998 National Picture* (Washington, DC: FMCSA, January 2000).

<sup>49</sup> FARS is maintained by the U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA). FARS is a census of crashes involving any motor vehicle traveling on a public highway involved in a fatal accident.

<sup>50</sup> Because of funding restrictions, the 1997 TIFA telephone interview data collection on straight trucks was limited to configuration, axle counts, cargo body type and length, and the type of cargo.

<sup>51</sup> The supplemental data collected by UMTRI for TIFA are collected on a sample of vehicles from the FARS data. The data are then weighted to achieve the best estimates of the true number of cases in the population. The weighted frequencies are the appropriate numbers to use for analytic and/or descriptive purposes.

<sup>52</sup> All Safety Board analyses using the TIFA data include interstate and intrastate carriers. The Safety Board excluded from its analyses the TIFA categories of government-owned, daily rental, and unknown.

### ***U.S. Roadside Inspection Data***

Roadside inspections are performed to remove unsafe trucks and drivers from the roadways. The inspections are conducted in accordance with the North American standard<sup>53</sup> developed by the Commercial Vehicle Safety Alliance (CVSA)<sup>54</sup> and the FMCSA. The standards establish national uniform inspection procedures and out-of-service (OOS) criteria for removing unsafe vehicles and drivers from the roadways. Vehicles and drivers that do not meet the OOS standards must remain out of service for a specific period of time or until the defect is corrected.

The FMCSA provided data for fiscal years 1997 to 2000 (October 1, 1996, through September 30, 1999). The data include the number of inspections conducted by State officials in each State, the number of OOS vehicles and drivers, the number of inspections and OOS vehicles and drivers by inspection level, and the specific reasons for placing a vehicle or driver OOS. The FMCSA provided data separately for intrastate and interstate carriers. During this period, 6,016,014 inspections were conducted on drivers/vehicles of nonhazardous material carriers (730,393 intrastate carriers and 5,285,621 interstate carriers).

### **Motor Carrier Survey**

To gain a broader perspective of the trucking industry as a whole, the Safety Board surveyed, by a mailed questionnaire,<sup>55</sup> motor carriers about their intrastate (and interstate, if applicable<sup>56</sup>) operations. Basic information on the carrier, vehicles, and drivers was collected. Before the questionnaire was distributed to motor carriers, it was reviewed by representatives from State transportation departments, the U.S. Department of Transportation, the American Trucking Associations, and the National Private Truck Council.

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<sup>53</sup> The method used by State safety inspectors to conduct safety inspections of commercial motor vehicles. There are six levels of inspection: I, North American standard inspection, which involves a complete truck and driver inspection; II, walk-around driver/vehicle inspection; III, driver-only inspection; IV, special inspection; V, vehicle-only inspection; and VI, enhanced North American standard inspection for radioactive shipments.

<sup>54</sup> The CVSA is an association of States, Canadian Provinces, and Mexico whose members agree to adopt these standards for inspecting commercial motor vehicles in their jurisdiction.

<sup>55</sup> Office of Management and Budget approval number OMB 3147-0020.

<sup>56</sup> Although the motor carriers who received the questionnaire were listed as intrastate carriers in the MCMIS census file, the Safety Board was aware of inaccuracies in the database. Therefore, carriers were asked about their intrastate and interstate operations.

The questionnaire was mailed to 3,000 carriers listed as intrastate carriers in the MCMIS census file. The sample was stratified by company size (1 driver, 2–6 drivers, 7–19 drivers, and 20 or more drivers) and carrier classification (for-hire or private).<sup>57</sup> One thousand questionnaires were sent to for-hire companies and 2,000 to private companies. Questionnaires were sent to all of the carriers with 20 or more drivers and to 50 percent of the carriers with 7–19 drivers; the remainder of the questionnaires were split between companies with 1 driver and 2–6 drivers (table 2–1).

A total of 491 questionnaires were returned from intrastate-only carriers, representing a 16-percent response rate.<sup>58</sup> Table 2–1 shows the response rates based on carrier classification and carrier size indicated in the MCMIS census file. Table 2–2 shows the responses stratified by carrier classification and size based on information provided by the carriers on their returned questionnaires. The Safety Board recognizes that the responses may not be representative of the industry as a whole; however, the Board believes that the survey provides insight into the industry and is useful to identify operational characteristics that might warrant further examination.

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<sup>57</sup> When the questionnaire was mailed in 1999, the MCMIS census file contained information on about 30,000 intrastate carriers. Fifty-two percent of the carriers were small, 1-driver carriers; 42 percent employed 2–6 drivers; 5 percent employed 7–19 drivers; and 1 percent employed more than 20 drivers. About one-third of the carriers were classified as for-hire, and about two-thirds were classified as private. The Safety Board does not purport that this distribution represents the classification of all intrastate carriers.

<sup>58</sup> Another 54 carriers who conducted both interstate and intrastate operations responded to the survey; these responses are not included in the Safety Board's examination of the survey data of intrastate carrier operations. Of the 54 carriers, 42 provided information on their interstate operations.

**Table 2–1.** Sampling scheme for the National Transportation Safety Board’s 1999 survey of motor carriers who were listed as intrastate carriers in the MCMIS census file, and the number who responded.<sup>a</sup>

Item and motor carrier classification, as listed in the MCMIS census file	Carrier size, as listed in the MCMIS census file				
	1 driver	2–6 drivers	7–19 drivers	20 or more drivers	Total
<b>Number of carriers to whom the questionnaire was mailed:</b>					
For-hire	332	332	220	116	1,000
Private	645	645	466	244	2,000
Total	977	977	686	360	3,000
<b>Number of carriers who responded:</b>					
For-hire	42 b(13)	43 (13)	37 (17)	21 (18)	143 (14)
Private	87 (13)	97 (15)	78 (17)	37 (15)	299 (15)
Total	129 (13)	140 (14)	115 (17)	58 (16)	c442 (15)

<sup>a</sup> MCMIS = Motor Carrier Management Information System, which is maintained by the Federal Motor Carrier Safety Administration.

<sup>b</sup> The numbers in parentheses indicate the percent of carriers of that classification and size who responded to the questionnaire; for example, 42 (or 13 percent) of the 332 for-hire carriers with 1 driver.

<sup>c</sup> A total of 491 carriers (16 percent) responded and indicated they conduct intrastate commerce only. For 49 of the 491, the Safety Board was unable to determine the carrier classification and size as listed in the MCMIS census file; consequently, the 49 have been excluded from the numbers who responded.

**Table 2–2.** Carrier classification and size as indicated by the intrastate motor carriers who responded to the National Transportation Safety Board’s 1999 survey.

Motor carrier classification, as indicated by the carrier	Carrier size, as indicated by the carrier				
	1 driver	2–6 drivers	7–19 drivers	20 or more drivers	Total
For-hire	30	27	17	14	88
Private	86	125	51	31	293
Both types	22	25	21	3	71
Other type	3	5	1	1	10
Total	141	182	90	49	a462

<sup>a</sup> Of the 3,000 intrastate motor carriers to whom the questionnaire was mailed, 491 (16 percent) responded and indicated they conduct intrastate commerce only. Of the 491, 29 did not indicate the carrier classification and/or size; consequently, those 29 have been excluded from the numbers who responded.

## Chapter 3

# Results and Discussion: Motor Carrier Operations and Accidents

This chapter compares characteristics of intrastate and interstate motor carrier operations and accidents. The TIFA database and the MCMIS crash file were used to obtain general descriptive statistics relevant to the accident-involved trucks. The MCMIS census file, the Safety Board's survey data, and other information were used to provide a context in which to interpret the descriptive statistics.

## Motor Carrier Data

The MCMIS census file contains 68,993 records on nonhazardous materials, nonpassenger intrastate motor carriers (table 3–1).<sup>59</sup> These intrastate carrier records account for about 9.4 percent of the active records in the census file. However, it is very likely that the number of intrastate motor carriers are underrepresented because (a) the States that are issuing USDOT numbers with a State suffix are in various stages of implementing the voluntary registration system; (b) not all States are registering private carriers; and (c) some larger States—for example, Pennsylvania, Texas, and California—are not currently participating in the registration program.

Information in the MCMIS census file shows that intrastate carriers and interstate motor carriers share many similarities in terms of their operating characteristics (appendix B). In short, both intrastate and interstate motor carriers tend to own their vehicles and equipment rather than lease them, have one to three power units in their fleet, and employ one to six drivers. There are, however, a few differences between intrastate and interstate carriers. Intrastate carriers are more likely to own straight trucks rather than tractors whereas interstate carriers are more likely to own tractors. Although the carriers transport similar types of cargo, intrastate carriers are more likely to haul construction and building materials, machinery and large objects, and garbage whereas interstate carriers transport more general freight, fresh produce, and refrigerated foods.

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<sup>59</sup> To keep the report's focus on nonhazardous materials-, nonpassenger-carrying intrastate motor carriers, the Safety Board selected only records for carriers identified as being engaged in intrastate, nonhazardous materials transport and owning no buses. The data are provided for exploratory purposes.

**Table 3–1.** Number and percent of intrastate and interstate motor carriers as reported in the MCMIS census file.<sup>a</sup>

Item	Intrastate carriers, number (percent)	Interstate carriers, number (percent)
Intrastate and interstate motor carriers, as reported in the MCMIS census file, November 2001 (n = 705,258) <sup>b</sup>	68,993 (9.8)	532,199 (75.5)
Private	37,523 <sup>c</sup> (54.4)	238,335 <sup>c</sup> (44.8)
For-hire	27,503 <sup>d</sup> (39.9)	240,615 <sup>d</sup> (45.2)
Intrastate and interstate motor carriers in the 17 States that issue USDOT numbers with a State suffix, as reported in the MCMIS census file, November 2001 (n = 259,909) <sup>e</sup>	61,844 (23.8)	160,236 (61.7)
Private	33,116 <sup>c</sup> (53.5)	70,248 <sup>c</sup> (43.8)
For-hire	25,516 <sup>d</sup> (41.3)	73,053 <sup>d</sup> (45.6)

<sup>a</sup> MCMIS = Motor Carrier Management Information System, which is maintained by the Federal Motor Carrier Safety Administration.

<sup>b</sup> Excludes bus and hazardous materials operators. An additional 106,066 (15.0 percent) active motor carriers are listed in the MCMIS census file.

<sup>c</sup> Percent of the described carriers who are private carriers.

<sup>d</sup> Percent of the described carriers for-hire carriers.

<sup>e</sup> The 17 States are Colorado, Connecticut, Florida, Georgia, Idaho, Indiana, Iowa, Kansas, Kentucky, Maine, Missouri, Nebraska, Oklahoma, Oregon, Utah, Washington, and Wyoming.

According to the MCMIS census file, 53.5 percent of intrastate carriers are private carriers and 41.3 percent are for-hire carriers.<sup>60</sup> In comparison, 43.8 percent of interstate carriers are private carriers and 45.6 are for-hire carriers. About half of the interstate for-hire carriers report hauling general freight and almost 20 percent haul grain, feed, and hay, which is proportionally more than reported for the intrastate carriers or the interstate private carriers. Proportionally, intrastate private carriers haul the least amount of general freight and are more likely to haul machinery and large objects and building materials. Intrastate private and for-hire carriers and interstate private carriers report owning more trucks than tractors whereas the interstate for-hire carriers own and operate more tractors.

Although the MCMIS census file contains truck information from the motor carriers, the Safety Board is hesitant to rely on these data for reasons previously noted, including outdated information. Data from VIUS indicate that in 1997,<sup>61</sup> about 18 million of all trucks were used in private business operations, and 1,059,700 were used in for-hire

<sup>60</sup> (a) The numbers and percentages for private and for-hire intrastate carriers are based on the limited sample of MCMIS census data from 17 States (see appendix B). (b) Other potential classifications include U.S. mail, Federal government, State government, local government, Indian tribe. These are not included in the percentages.

<sup>61</sup> VIUS data are collected by the U.S. Census Bureau every 5 years.

operations.<sup>62</sup> Of those in for-hire operations, 300,500 (28 percent) were under intrastate or local jurisdiction. Further, trucks operated by interstate for-hire carriers accumulated more average miles per truck (89,700 average miles per truck) than did trucks operated by intrastate for-hire carriers (49,600 average miles per truck). VIUS does not provide comparable information about private carriers.

## Accident Data

The TIFA database shows that one-quarter of the trucks involved in fatal accidents in 1991–1999 (10,479 of 41,177) were operated by intrastate carriers, and the MCMIS crash file shows that 22.9 percent of the trucks involved in accidents in 1993–November 2001 (168,171 of 732,800) were operated by intrastate carriers. In the 17 States that issue USDOT numbers with a State suffix, about 25 percent of the fatal accident-involved trucks were operated by intrastate carriers.

The characteristics of accident-involved trucks operated by intrastate carriers are similar to those of the accident-involved trucks operated by interstate carriers (appendix B). Regardless of the carrier's operation (intrastate or interstate), most of the accident-involved trucks were involved in accidents that

- involved collisions with nonfixed objects (for example, a motor vehicle in transport),
- occurred on the roadway rather than a shoulder or median,
- occurred at noninterchange rather than interchange areas,
- occurred on straight roadways,
- occurred on level roadways,
- were not in construction zones,
- were on blacktop, bituminous, or asphalt surfaces,
- were on dry roadway surfaces,
- occurred during the “typical” work week of Monday through Friday, and
- did not involve drinking or drugs.

Further, most of the accident-involved trucks

- had a GVWR of at least 26,000 pounds, and
- were operated by drivers who held valid licenses for their operation and were not charged with a violation at the time of the accident.

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<sup>62</sup> If pickup trucks, panel trucks, minivans, sport utilities, and station wagons are excluded, then 4,327,100 trucks were used for private business and 938,600 were used in for-hire operations.

Few accident- and vehicle-related factors are reported in the fatal records. Tires and brakes were cited most frequently for trucks of both interstate and intrastate carriers; however, they were cited proportionally more often for accident-involved trucks of intrastate carriers.

### ***Truck Characteristics***

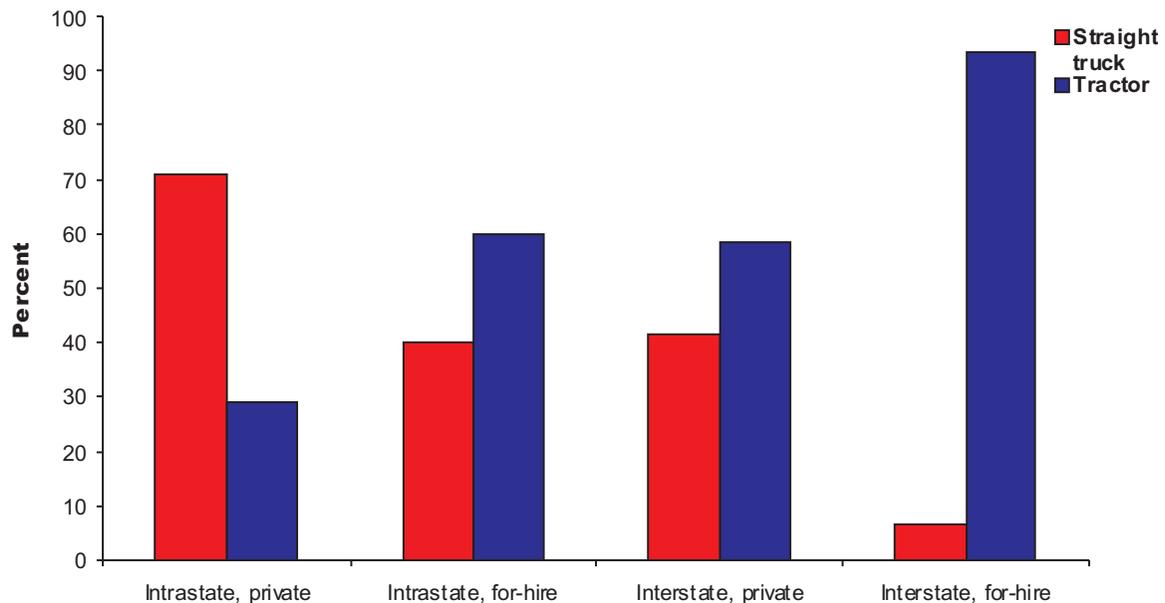
**Truck Body Type.** According to the MCMIS census file, intrastate carriers are more likely to operate straight trucks whereas interstate carriers are more likely to operate tractors.<sup>63</sup> The respondents to the Safety Board survey of intrastate carriers also reported owning more straight trucks than tractors. As expected, these body types were reflected in data about fatal accidents: intrastate carrier trucks involved in fatal accidents were more likely to be straight trucks (about 61.3 percent) whereas the interstate carrier trucks were more likely to be tractors (83.7 percent). However, the truck body type involved in fatal accidents was influenced by carrier classification (for-hire or private). Fatal accident-involved trucks operated by intrastate private carriers were more likely to be straight trucks (71.1 percent) whereas fatal accident-involved tractors were more common for the other operations and classifications: intrastate for-hire (60 percent), interstate for-hire (93.5 percent), and interstate private, (58.5 percent) (figure 3–1).

It would be expected that the nature of the trucking business and types of cargo hauled would be reflected in the types of trucks used by carriers and involved in accidents. For instance, the Safety Board's survey data indicated that many intrastate carriers transport construction goods (28.9 percent) and building materials (10.8 percent), and according to the MCMIS census file, more intrastate carriers report hauling construction goods (17.8 percent), building materials (17.5 percent), and garbage (5.8 percent) than do interstate carriers. Therefore, it is not unexpected to find that for intrastate carriers, dump trucks and garbage trucks were involved in proportionally more fatal accidents than were their other truck types (table 3–2). Similarly, more interstate carriers transport general freight, which is more likely to be hauled by a van truck body type; therefore, it would be reasonable to expect more van truck body types to be involved in the interstate carriers' fatal accidents.

Indeed, the TIFA data for 1991–1999 show that for interstate carriers, 28.5 percent of their straight trucks and 42.2 percent of their trailers involved in a fatal accident were the van body type; for intrastate carriers, 13.1 percent of their straight trucks and 13.2 percent of their trailers involved in a fatal accident were the van body type.

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<sup>63</sup> Two basic types of trucks (straight trucks and tractors) were distinguished. Within these basic types are several different vehicle body types such as van, flatbed, tank, and garbage.



**Figure 3–1.** Percent of trucks involved in fatal accidents, by body type and motor carrier operation and classification, January 1, 1991, through December 31, 1999. (Source: Trucks Involved in Fatal Accidents, which is maintained by the University of Michigan Transportation Research Institute.)

Analysis of the accident data is somewhat restricted by the limited detail of the data. For example, about 13 percent of the intrastate and interstate carriers report hauling logs, poles, beams, and lumber; 11.3 percent of the trailers of intrastate carriers involved in fatal accidents were pole/logging trailers, yet only 2.5 percent of the trailers of interstate carriers involved in fatal accidents were pole/logging trailers. Flatbeds, which are sometimes used to haul logs and poles, accounted for 21.4 percent of the trailers of intrastate carriers and 17.7 percent of the trailers of the interstate carriers.

**Truck Weight.** Given that more intrastate carrier vehicles are straight trucks rather than tractors, it would be expected that the intrastate carrier truck weight would also be less than that of interstate carrier vehicles. The average empty combination weight (20,213 pounds) and the average gross weight (36,687 pounds) of the intrastate carrier trucks was less than the average empty combination weight (28,066 pounds) and average gross weight (49,683 pounds) of the interstate carrier trucks involved in fatal accidents. The majority of accident-involved trucks of both intrastate and interstate carriers had a GVWR of 33,001 pounds or more; 19.1 percent of the intrastate carrier trucks had a GVWR less than 26,001 pounds compared with about 6 percent of the interstate carrier trucks. MCMIS crash data showed similar findings related to weight: the majority of the trucks involved in the reported accidents had a GVWR greater than 26,000 pounds; only 18 percent of the intrastate carrier trucks and 9.1 percent of the interstate carrier trucks had a GVWR less than 26,000 pounds.

**Table 3–2.** Truck body types recorded in the TIFA database for intrastate and interstate carrier trucks involved in fatal accidents, January 1, 1991, through December 31, 1999.<sup>a</sup>

Body type category and truck body type	Percent of the body type category for trucks involved in a fatal accident, operated by— <sup>b</sup>			Percent of the body type category for trucks involved in a fatal accident, operated by— <sup>b</sup>		
	All intrastate carriers	Intrastate private carriers	Intrastate for-hire carriers	All interstate carriers	Interstate private carriers	Interstate for-hire carriers
<b>Straight truck body type:</b>	<i>n</i> =6,434	<i>n</i> =5,077	<i>n</i> =1,321	<i>n</i> =4,347	<i>n</i> =3,101	<i>n</i> =1,228
Van	13.1	13.0	13.5	28.5	24.5	38.6
Open top van	0.2	0.2	<0.1	0.2	0.2	0.2
Refrigerated van	3.6	4.3	0.2	7.3	9.7	1.2
Livestock carrier	0.2	0.2	0.1	0.4	0.3	0.7
Flatbed	6.4	7.7	1.7	7.5	9.2	3.2
Low-boy	0	0	0	<0.1	<0.1	0
Flatbed with equipment	2.3	2.8	0.1	2.9	3.8	0.7
Flatbed with sides	5.7	6.7	1.8	3.5	4.2	1.5
Pole/logging	1.7	1.2	2.3	1.0	0.7	2.0
Tank, liquid/gas	4.4	4.4	4.1	3.8	3.7	4.2
Tank, dry bulk	0.1	0.1	<0.1	0.3	0.3	0.2
Auto carrier	0.2	<0.1	0.4	4.3	0.4	14.3
Dump	33.7	26.2	62.2	16.2	14.5	20.7
Bottom dump/hopper bottom	<0.1	<0.1	<0.1	<0.1	0.1	<0.1
Garbage/refuse	8.9	11.0	1.1	5.9	8.0	0.7
Other	19.6	21.5	12.3	17.9	20.4	11.2
Unknown	0	0	0	0.3	0.1	0.7
<b>First trailer body type:</b>	<i>n</i> =4,494	<i>n</i> =2,517	<i>n</i> =1,965	<i>n</i> =21,970	<i>n</i> =4,573	<i>n</i> =15,497
Van	13.2	12.1	14.5	42.2	29.5	46.0
Open top van	1.8	1.7	2.0	1.0	1.4	0.9
Refrigerated van	4.3	5.5	2.7	14.9	15.7	14.7
Livestock carrier	1.4	1.8	1.0	1.5	2.0	1.3
Flatbed	18.7	22.8	13.5	15.7	16.4	15.5
Low-boy	4.8	8.0	0.8	1.5	3.6	0.9
Flatbed with equipment	0.4	0.4	0.4	0.3	0.6	0.2
Flatbed with sides	2.3	3.0	1.5	1.7	1.8	1.7
Pole/logging	11.3	9.5	13.7	2.5	4.7	1.8
Tank, liquid/gas	5.0	5.0	4.9	5.1	6.9	4.5
Tank, dry bulk	1.6	2.1	1.1	1.6	1.7	1.6
Auto carrier	0.5	0.4	0.7	1.1	0.6	1.3
Dump	21.4	14.3	30.6	5.7	6.5	5.5
Bottom dump/hopper bottom	6.4	5.3	7.8	2.8	3.1	2.7
Garbage/refuse	0.5	0.6	0.3	0.2	0.5	<0.1
Other	6.2	7.6	4.5	2.1	5.0	1.2
Unknown	0	0	0	0.1	0.1	0.2

<sup>a</sup> TIFA = Trucks in Fatal Accidents, which is maintained by the University of Michigan Transportation Research Institute. The data in this table exclude commercial vehicles carrying passengers or hazardous materials.

<sup>b</sup> Percents within each column indicate the specified body type's proportion of the straight truck body type or the first trailer body type. For example, 13.1 percent of the 6,434 straight trucks operating for all intrastate carriers that were involved in a fatal accident were van, straight trucks, and 13.0 percent of the 5,077 straight trucks operating for intrastate private carriers that were involved in a fatal accident were van, straight trucks. The numbers indicated for the body types are estimated from data in TIFA.

Although proportionally there were more intrastate carrier trucks with a GVWR less than 26,000 pounds involved in the accidents, it is difficult to link this occurrence to the variance that permits exemptions to trucks less than 26,000 pounds. To do so would require information related to whether or not the vehicle was operating under an exemption and whether the exemption allowed the truck to operate in an unsafe manner that was related to the accident. Secondly, the greater proportion of lower weight intrastate carrier trucks involved in accidents may be reflective of exposure. According to VIUS, 19.1 percent of the trucks under intrastate for-hire jurisdiction had a GVWR less than 26,000 pounds and these lower weight trucks account for 10 percent of the vehicle miles traveled; 6.7 percent of the trucks under interstate for-hire jurisdiction had a GVWR less than 26,000 pounds and account for 2.3 percent of the vehicle miles traveled.

**Truck Age.** Past experience has shown that older vehicles tend to be used near home base or in a local area (for example, drayage operations) usually because the risk and cost of maintenance problems increase with age. The Safety Board survey data indicate that a majority of intrastate carriers operate within a 100-air-mile radius of home base. Alternatively, it is also possible that the life span of trucks used in intrastate operations is longer than trucks used in interstate operations. Hence, because intrastate carrier trucks are likely to be used in a local area and because they may have a longer lifespan, it was expected that accident-involved intrastate carrier trucks would be older than interstate carrier trucks. The age of the vehicle, based on model year, at the time of the accident was calculated for the TIFA data. On average, vehicles of intrastate carriers (mean = 9.45 years) were older than vehicles from interstate carriers (mean = 5.35 years). The average age of the intrastate carrier trucks reported in the Safety Board's survey was 11 years.

**Truck-related Factors.** Because the accident-involved intrastate carrier trucks were older trucks, one might expect more vehicle-related factors to be associated with them; however, only 13.5 percent of the accident-involved intrastate carrier trucks were cited with vehicle factors. Fewer (7.8 percent) of the accident-involved interstate carrier trucks were cited with vehicle factors. In general, tires and brakes were cited most frequently as vehicle-related factors in the accidents.

U.S. roadside inspection data provided by the FMCSA suggest that a slightly higher percentage of trucks were placed OOS for intrastate carriers (31.3 percent) than for interstate carriers (25.2 percent) (table 3–3). Regardless of carrier operation, the most predominant types of vehicle OOS violations were for lights, brakes, and tires. Although the percent of violations cited for brakes and tires were comparable for interstate and intrastate carriers, lights were cited slightly more frequently for intrastate carrier trucks (25.1 percent) than for interstate carrier trucks (17.2 percent) (appendix B). Although vehicles are frequently placed out of service for brakes, lights, and tires, these are not the primary causes of fatal accidents.

### ***Driver Characteristics***

**Driver Age.** In some States, drivers in intrastate commerce may be younger than 21 years but must be at least 18 years old to drive a commercial motor vehicle. Most

**Table 3–3.** Commercial trucks placed out of service in U.S. roadside inspections, October 1, 1996, through September 30, 1999.<sup>a</sup>

Inspection level <sup>b</sup>	Trucks operated by intrastate carriers		Trucks operated by interstate carriers	
	Number of inspections	Number of vehicles placed out of service	Number of inspections	Number of vehicles placed out of service
I	369,688	118,733	2,116,796	649,540
II	231,962	70,246	1,655,465	301,701
III <sup>c</sup>	113,785	10,997	1,456,512	50,365
IV	3,944	745	28,219	3,765
V	8,014	1,605	28,629	5,814
<b>All levels</b>	<b>727,393</b>	<sup>d</sup> <b>190,584</b>	<b>5,285,621</b>	<sup>d</sup> <b>957,055</b>
<b>Percent</b>		<sup>d</sup> <b>(31.3%)</b>		<sup>d</sup> <b>(25.2%)</b>

<sup>a</sup> The data exclude commercial vehicles carrying passengers or hazardous materials.

<sup>b</sup> Level I = North American standard inspection; level II = walk-around driver/vehicle inspection; level III = driver-only inspection; level IV = special inspection; level V = vehicle-only inspection. Level VI, an enhanced North American standard inspection for radioactive shipments, is not included in this table because the National Transportation Safety Board's report does not include commercial vehicles carrying hazardous materials.

<sup>c</sup> Although level III is a driver-only inspection, many of these inspections are initiated during on-road traffic enforcement stops for "probable cause." The probable cause is frequently a vehicle defect that is cited on the inspection report.

<sup>d</sup> The number of vehicles placed out of service is based on inspection levels I, II, and V; the percent of vehicles is based on the number of inspections in the same inspection levels.

Source: Federal Motor Carrier Safety Administration.

drivers involved in fatal accidents in 1991–1999 were 21 years old or older (98 percent). Of those truckdrivers younger than 21, 79 percent worked for intrastate carriers and the remaining 21 percent worked for interstate carriers.<sup>64</sup> TIFA data show that 27.6 percent of the younger drivers were charged with a violation compared with 18.3 percent of the drivers older than 21 years (table 3–4).

**Driver Factors.** Drinking and drugs were reported in few fatal accidents (less than 3 percent for drinking and less than 1 percent for drugs for drivers of intrastate carriers). About 20 percent of the drivers (for intrastate and interstate carriers) were charged with a violation, most frequently a moving violation. The TIFA variable "driver-related factors" was completed for about half of the drivers. Regardless of carrier operation, the most frequently cited factors were traffic-related (about 35 percent for drivers of either intrastate or interstate carriers), such as failure to keep in the proper lane or running off the road, failure to yield the right of way, and so on. Physical/mental conditions (including fatigue and inattention) were reported for 4.3 percent of the intrastate carrier drivers and 6.0 percent of the interstate carrier drivers (appendix B).

<sup>64</sup> It is possible for a truckdriver under 21 years of age to work for an interstate carrier but travel in intrastate commerce.

**Table 3–4.** Driver violations recorded in the TIFA database for fatal accidents involving trucks operated by intrastate carriers, by driver age group, January 1, 1991, through December 31, 1999.<sup>a</sup>

Type of violation	Drivers <21 years old charged with violation		Drivers 21 years old or older charged with violation	
	Number charged	Percent charged	Number charged	Percent charged
<b>January 1, 1991, through December 31, 1996</b>				
None	146	72.6	5,153	79.4
Alcohol or drugs	1	0.5	45	0.7
Speeding	1	0.5	52	0.8
Alcohol or drugs and speeding	0	0	0	0
Reckless driving	1	0.5	55	0.8
Driving with a suspended or revoked license	3	1.5	27	0.4
Other moving violation	28	13.9	620	9.6
Nonmoving violation	6	3.0	161	2.5
Violation, type unknown or other violation	5	2.5	46	0.7
Unknown	10	5.0	333	5.1
<b>January 1, 1997, through December 31, 1999<sup>b</sup></b>				
None	52	61.0	2,667	80.3
Reckless/careless/ hit-and-run type offenses	9	10.6	133	5.0
Impairment offenses	2	2.4	18	0.7
Speed-related offenses	1	1.2	26	0.8
Rules of the road: traffic sign and signals	2	2.4	34	1.0
Rules of the road: turning, yielding, signaling	1	1.2	49	1.5
Rules of the road: wrong side, passing, and following	3	3.5	26	0.8
Rules of the road: lane usage	0	0	11	0.3
Nonmoving: license and registration	5	5.9	78	2.3
Equipment	1	1.2	47	1.4
Other violations	9	10.6	4	6.9

<sup>a</sup> TIFA = Trucks Involved in Fatal Accidents, which is maintained by the University of Michigan Transportation Research Institute. The data in this table exclude trucks transporting hazardous materials.

<sup>b</sup> In 1997, changes were made in the coding for driver violations that enabled the database to record up to three violations per driver.

Roadside inspection data, as shown in table 3–5, indicate that the percentage of drivers placed OOS was lower for intrastate carriers (5.7 percent) than for interstate carriers (8.7 percent). The most common type of driver OOS violation for the intrastate carriers was for no log/log not current (excluding the category of “all other driver violations”) (see appendix B for violation types).

**Table 3–5.** Commercial drivers placed out of service in U.S. roadside inspections, October 1, 1996, through September 30, 1999.<sup>a</sup>

Inspection level <sup>b</sup>	Trucks operated by intrastate carriers		Trucks operated by interstate carriers	
	Number of inspections	Number of drivers placed out of service	Number of inspections	Number of drivers placed out of service
I	369,688	18,300	2,116,796	131,040
II	231,962	15,580	1,655,465	146,046
III <sup>c</sup>	113,785	7,221	1,456,512	180,094
IV	3,944	152	28,219	1,120
V	8,014	NA	28,629	NA
<b>All levels</b>	<b>727,393</b>	<b>42,101</b>	<b>5,285,621</b>	<b>457,180</b>
<b>Percent</b>		<sup>d</sup> <b>(5.7)</b>		<sup>d</sup> <b>(8.7)</b>

NA = not applicable.

<sup>a</sup> The data exclude commercial vehicles carrying passengers or hazardous materials.

<sup>b</sup> Level I = North American standard inspection; level II = walk-around driver/vehicle inspection; level III = driver-only inspection; level IV = special inspection; level V = vehicle-only inspection. Level VI, an enhanced North American standard inspection for radioactive shipments, is not included in this table because the National Transportation Safety Board's report did not include commercial vehicles carrying hazardous materials.

<sup>c</sup> Although level III is a driver-only inspection, many of these inspections are initiated during on-road traffic enforcement stops for "probable cause." The probable cause is frequently a vehicle defect that is cited on the inspection report.

<sup>d</sup> The percentage of drivers out of service is based on levels I, II, III.

Source: Federal Motor Carrier Safety Administration.

Fewer OOS driver violations for drivers of intrastate carriers are not unexpected. Such drivers frequently work within their local area and might not experience some conditions for which violations could be charged. For example, the Safety Board's survey data indicated that the majority of the drivers of the responding intrastate carriers operated within 100 miles from the carrier's base of operation, thus the drivers are not required to maintain a log book under certain conditions.<sup>65</sup> Additionally, some of these operations do not require continuous driving. For instance, dump truck drivers are not behind the wheel for 8 hours a day; a good portion of their day is spent loading and unloading. Although the most frequently cited driver violation for drivers in intrastate commerce was for log book violations, they were cited about half as frequently for drivers of interstate carriers.

<sup>65</sup> Title 49 CFR 395.1(e) exempts drivers from the requirements of Section 395.8 (driver's record of duty status) if all of the following conditions are met: (a) the driver operates within a 100-air-mile radius of the normal work reporting location; (b) the driver returns to the work reporting location and is released from work within 12 consecutive hours; (c) at least 8 consecutive hours off duty separate each 12 hours on duty; (d) the driver does not drive for more than 10 hours maximum driving time following the 8 hours off duty; and (e) the motor carrier who employs the driver maintains and retains accurate and true time records for a period of 6 months. Title 49 CFR 350.341(d) extends the mileage radius exemption contained in Section 395.1(e) from 100 to 150 miles for CMV drivers engaged in intrastate commerce.

### ***Accident Characteristics***

**Roadway Type.** About two-thirds of the trucks involved in a fatal accident, regardless of whether they were operated by an intrastate or interstate carrier, were on rural roadways at the time of the accident (table 3–6). Although the interstate carrier trucks were more frequently involved in fatal accidents on rural principal arterials, intrastate carrier trucks were more frequently involved in fatal accidents on rural minor arterials, major collectors, and local roads or streets. Information obtained from interviews with intrastate carriers suggest that intrastate carrier trucks often travel on secondary roadways.

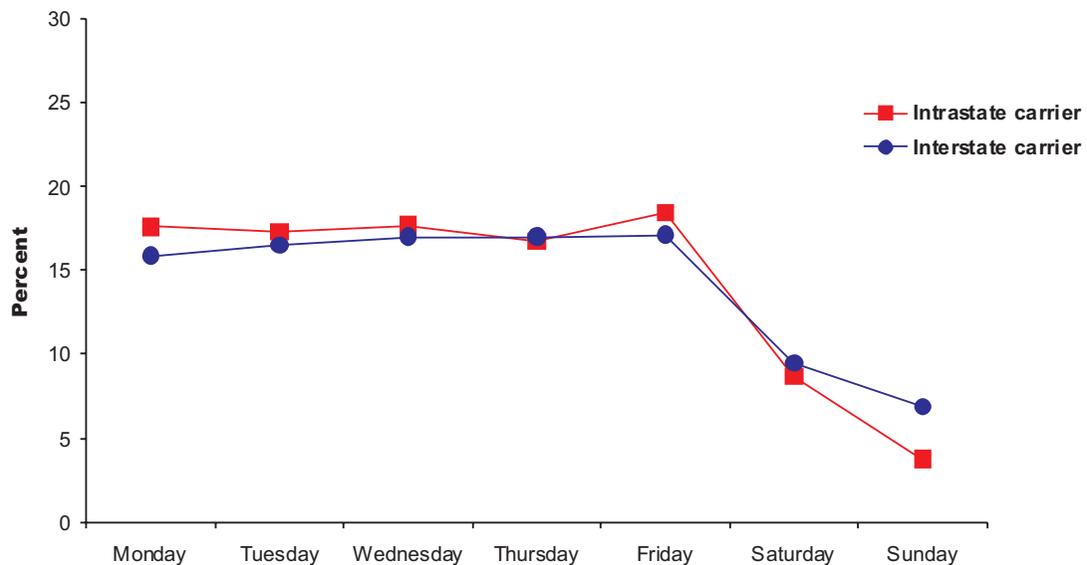
**Accident Time.** The majority of fatal accident-involved trucks were in accidents that occurred Monday through Friday, regardless of whether the truck was operated by an interstate or intrastate motor carrier. However, the proportion of accidents occurring on the weekend, particularly Sunday, decreased slightly more for trucks of intrastate carriers than for interstate carriers (figure 3–2). There was also a time-of-day effect. Proportionally, more of the intrastate carrier trucks were involved in accidents during the day than were interstate carrier trucks; the latter were involved in more accidents during the night (figure 3–3). MCMIS crash data showed similar findings. The majority of accidents occurred during daylight, but trucks operated by interstate carriers were twice as likely to be involved in accidents after dark than were trucks operated by intrastate carriers (23.1 percent compared with 11.9 percent). Intrastate carriers responding to the Safety Board’s survey reported that their drivers usually worked a typical 8-hour day and did not travel during the nighttime.

Similar patterns emerge in the accident times for trucks operated by intrastate private carriers, intrastate for-hire carriers, and interstate private carriers. The pattern of accident time for trucks operated by interstate for-hire carriers, however, is different. Although fewer accidents occurred on Saturdays and Sundays, slightly more trucks operated by interstate for-hire carriers were involved in accidents on these days than were trucks operated by interstate private and intrastate carriers (figures 3–4 and 3–5). The time of the accidents involving trucks of intrastate private, intrastate for-hire, and interstate private carriers peaked during the mid- to late afternoon. The distribution of accident times of interstate for-hire carrier trucks also peaked during daytime hours but were more frequent during the nighttime hours than for trucks of the other carrier operations and classifications. Because interstate for-hire drivers may also be long haul drivers, there may be a tendency for them to drive at night when there is less congestion, and the carriers may operate 7 days a week.

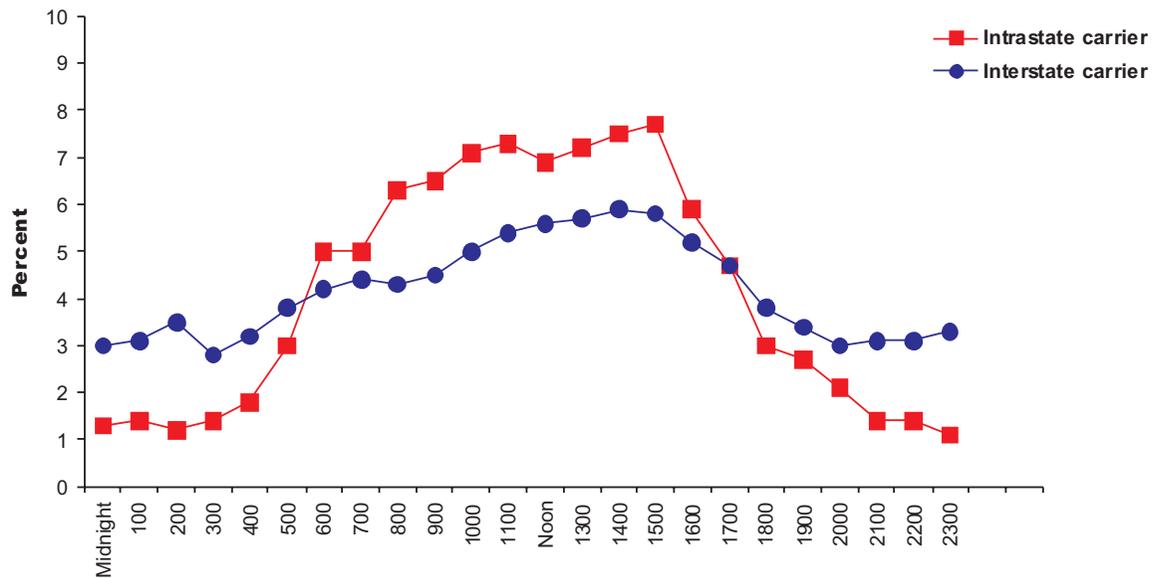
**Table 3–6.** Roadway function class recorded in the TIFA database for intrastate and interstate carrier trucks involved in fatal accidents, January 1, 1991, through December 31, 1999.<sup>a</sup>

Roadway function class	Percent of the fatal accident-involved trucks operated by intrastate carriers	Percent of the fatal accident-involved trucks operated by interstate carriers
<b>Rural:</b>	<b>62.4</b>	<b>68.1</b>
Principal arterial, Interstate highway	3.5	18.6
Principal arterial, other	17.6	24.2
Minor arterial	14.9	13.4
Major collector	15.7	8.3
Minor collector	2.8	1.2
Local road or street	7.2	2.0
Unknown rural	0.7	0.4
<b>Urban:</b>	<b>36.4</b>	<b>31.4</b>
Principal arterial, Interstate highway	5.6	11.4
Principal arterial, other freeways or expressways	4.9	2.9
Other principal arterial	11.5	10.3
Minor arterial	8.4	4.0
Collector	1.7	0.8
Local road or street	4.1	1.9
Unknown urban	0.2	0.1
<b>Unknown</b>	<b>1.5</b>	<b>1.0</b>

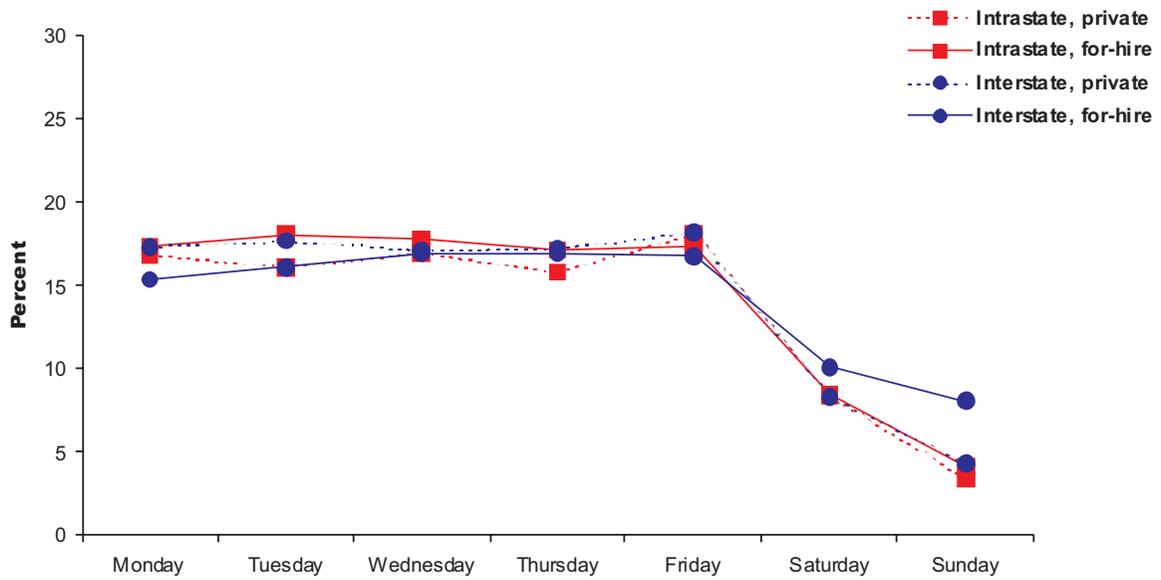
<sup>a</sup> TIFA = Trucks Involved in Fatal Accidents, which is maintained by the University of Michigan Transportation Research Institute. The data in this table exclude trucks transporting hazardous materials.



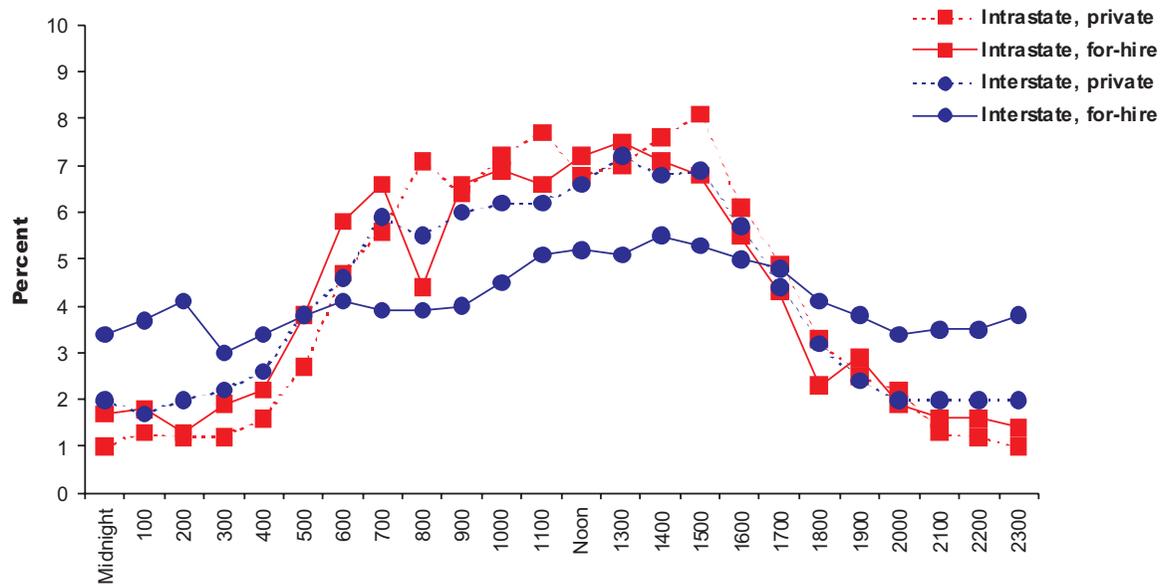
**Figure 3–2.** Percent of trucks involved in fatal accidents, by day of week and motor carrier operation, January 1, 1991, through December 31, 1999. (Source: Trucks Involved in Fatal Accidents, which is maintained by the University of Michigan Transportation Research Institute.)



**Figure 3–3.** Percent of trucks involved in fatal accidents, by time of day and motor carrier operation January 1, 1991, through December 31, 1999. (Source: Trucks Involved in Fatal Accidents, which is maintained by the University of Michigan Transportation Research Institute.)



**Figure 3–4.** Percent of trucks involved in fatal accidents, by day of week and motor carrier operation and classification, January 1, 1991, through December 31, 1999. (Source: Trucks Involved in Fatal Accidents, which is maintained by the University of Michigan Transportation Research Institute.)



**Figure 3–5.** Percent of trucks involved in fatal accidents, by time of day and motor carrier operation and classification, January 1, 1991, through December 31, 1999. (Source: Trucks Involved in Fatal Accidents, which is maintained by the University of Michigan Transportation Research Institute.)

## Summary

Each year, about 5,000 people are killed in accidents involving large trucks. In 2000, large trucks accounted for 4 percent of all registered vehicles and 7.5 percent of the total vehicle miles traveled, yet large trucks accounted for 9 percent of all vehicles involved in fatal crashes.<sup>66</sup> Thus, there is good reason to be concerned about large truck safety. In this report, the Safety Board examined operating characteristics of intrastate motor carriers and accident characteristics involving trucks operated by intrastate motor carriers.

Data in the MCMIS census file, the MCMIS crash file, and the TIFA database show that intrastate carriers and interstate carriers share many similarities in terms of their operating characteristics and characteristics of their accident-involved trucks. However, there were some differences. The accident-involved intrastate carrier trucks were straight trucks rather than tractors and older than accident-involved interstate carrier trucks. There were slightly more vehicle-related factors cited for intrastate carrier trucks involved in fatal accidents. Roadside inspection data showed a higher vehicle OOS rate for intrastate carriers than for interstate carriers but a lower driver OOS rate for intrastate carriers. Most of the trucks operated by both interstate and intrastate carriers were involved in accidents in rural areas; trucks operated by intrastate carriers were more frequently involved in

<sup>66</sup> Information about registered vehicles and vehicle miles traveled is from the U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics 2000* (Washington, DC: FHWA, 2000). Crash data are from the U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts 2000: Large Trucks* (Washington, DC: NHTSA, 2000).

accidents on rural local roadways whereas trucks operated by interstate carriers were more frequently involved in accidents on rural principal arterials. Although most accidents occurred during the daytime hours, more interstate carrier trucks were involved in accidents that occurred at night. This was particularly true for trucks operated by interstate for-hire carriers. The differences in the characteristics of accident-involved trucks most likely reflect differences in the work characteristics of these carriers.

Several limitations with the data make interpretation of the analyses difficult. The TIFA data are restricted to fatal accidents, making generalizations to other types of accidents problematic. Although the MCMIS crash file is intended to be a census of fatal, injury, and property damage-only accidents, the FMCSA acknowledges that not all accidents are reported to the MCMIS crash file. The MCMIS census file poses additional concerns. Although the FMCSA has initiated a voluntary program for the States to issue USDOT numbers with a State suffix to intrastate carriers, only 17 States are currently participating in the registration program. Further, not all of these States register private carriers, and many of the larger States—for example, California, Pennsylvania, and Texas—are not yet participating; thus complete census data for intrastate carriers are not available. Requirements to update the census information did not become effective until December 2000 and apply only to interstate carriers. Finally, even though the MCMIS census data contains data on fleet size, neither the census file nor the VIUS data contain data on vehicle miles traveled. The lack of quality accident and exposure data makes interpretation of the data difficult.

Despite these data limitations, the Safety Board believes the exploratory examinations and comparisons of intrastate and interstate carriers in this report are important. Basic information suggests that intrastate carrier operations and accident characteristics are similar to those of interstate carriers. Incorporating comparisons between private and for-hire carriers suggest that differences exist among the carriers regarding the types of cargo transported, types of trucks operated, and to some extent the vehicle miles traveled. These differences assist in the interpretation of differences found in the accident characteristics. Other operational factors—such as size of fleet, operating hours, and types of cargo hauled—may influence the characteristics more so than the intrastate and interstate carrier distinction.

Although the Safety Board could not evaluate the safety of vehicles and drivers operating in intrastate commerce because of a scarcity of data, it was able to compare operating characteristics of intrastate and interstate motor carriers and the characteristics of accident-involved trucks operated by intrastate and interstate motor carriers. On the basis of the data analyses, the Safety Board is not issuing any safety recommendations pertaining to intrastate carriers or intrastate commerce at this time. The Board will continue to monitor the safety of intrastate carriers and commerce in accident investigations and by following research and projects being conducted by other government agencies, academia, and industry.

**By the National Transportation Safety Board**

**Marion C. Blakey**  
Chairman

**John A. Hammerschmidt**  
Member

**Carol J. Carmody**  
Vice Chairman

**John Goglia**  
Member

**George W. Black, Jr.**  
Member

**Adopted March 28, 2002**

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# Appendix A

## The Motor Carrier Safety Assistance Program

The Motor Carrier Safety Assistance Program (MCSAP) is a Federal grant-aid program administered by the Federal Motor Carrier Safety Administration (FMCSA) that provides financial assistance to the States to reduce the number and severity of accidents and hazardous materials incidents involving commercial vehicles. The States receive money for safety programs, thus increasing the likelihood that safety defects, driver deficiencies, and unsafe motor carrier practices will be detected and corrected before they become contributing factors to accidents.

As a condition of receiving MCSAP grants, States must adopt and enforce the *Federal Motor Carrier Safety Regulations* (FMCSRs, 49 CFR Parts 390–397) and the *Hazardous Material Regulations* (HMRs, 49 CFR Parts 107 [subparts F and G only], 171–173, 177, 178, and 180) or have State regulations that are compatible with the Federal regulations.

### Elements of the Program

States receiving MCSAP grant money may use the funds for various activities, including five national program elements: driver/vehicle inspections, compliance review, traffic enforcement, public education, and data collection.<sup>1</sup> These elements are designed to enhance trucking safety regardless of whether the carrier is an interstate and/or intrastate carrier or whether a particular movement is in interstate or intrastate commerce.

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<sup>1</sup> This section provides only an overview of the program elements; it does not discuss the States' implementation of inspections and compliance reviews.

- Driver and vehicle roadside inspections can be conducted on both interstate and intrastate carriers using money from the MCSAP grant program. The roadside inspections are performed in accordance with the North American standard<sup>2</sup> developed by the Commercial Vehicle Safety Alliance (CVSA)<sup>3</sup> and the FMCSA. The standards establish national uniform inspection procedures and out-of-service (OOS) criteria for removing unsafe vehicles and drivers from the roadways. Vehicles and drivers that do not meet the OOS standards must remain out of service for a specific period of time or until the defect is corrected. State officials can conduct roadside inspections on both intrastate and interstate carriers and enforce the State regulations. Federal officials can inspect trucks and drivers operating in interstate commerce and enforce the Federal regulations.
- Compliance reviews are in-depth examinations of a motor carrier's operations conducted by State or Federal officials. Documents, including driver qualification files, records of duty status, and vehicle maintenance records, are thoroughly examined for compliance with regulatory requirements. On-road performance information, such as roadside inspection results and accidents, are also used to evaluate the carriers' compliance with regulatory requirements. Intrastate carriers fall under State jurisdiction; thus, intrastate carrier compliance reviews must be conducted by State officials. State authorities can also conduct compliance reviews on interstate carriers located in their State in cooperation with the FMCSA. The FMCSA has jurisdiction over those carriers who are registered with the FMCSA to engage in interstate commerce; the agency also has the authority to conduct compliance reviews on interstate carriers.
- Traffic enforcement generally refers to those activities carried out by authorized State and local enforcement officials that include stopping commercial motor vehicles (CMVs) operating on highways, streets, or roads after having been detected as being in violation of State or local motor vehicle or traffic laws. Such violations include speeding, following too closely, reckless driving, and improper lane change. In order for the traffic enforcement stop to be eligible for funding from MCSAP funds, the enforcement official must conduct an inspection of the CMV or driver or both prior to releasing the driver or CMV or both to resume operations.

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<sup>2</sup> The method used by State safety inspectors to conduct safety inspections of commercial motor vehicles. There are six levels of inspection: I, North American standard inspection, which involves a complete truck and driver inspection; II, walk-around driver/vehicle inspection; III, driver-only inspection; IV, special inspection; V, vehicle-only inspection; and VI, enhanced North American standard inspection for radioactive shipments.

<sup>3</sup> The CVSA is an association of States, Canadian Provinces, and Mexico whose members agree to adopt these standards for inspecting commercial motor vehicles in their jurisdiction.

- Public education and awareness refers primarily to educating the general public about roadway safety with programs such as “No-Zone.”<sup>4</sup> Some States also use the grant money to develop educational materials for truckdrivers and others in the trucking industry.
- States collect several types of information including crash, roadside inspection, and compliance review data. States use the Safetynet computer system to send the data to the FMCSA.<sup>5</sup> Information is collected on carrier operations, but it is not collected on the type of commerce.

## Funding

The Transportation Equity Act for the 21st Century (TEA-21) authorized a total of \$579 million over 6 years: \$79 million for fiscal year (FY) 1998, \$90 million for FY 1999, \$95 million for FY 2000, \$100 million for FY 2001, \$105 million for FY 2002, and \$110 million for FY 2003. Additional MCSAP funds of \$55 million were designated in the Motor Carrier Safety Improvement Act of 1999 for FYs 2001, 2002, and 2003. The FMCSA provides up to 80 percent of the costs associated with a State’s Commercial Vehicle Safety Plan, and the State contributes the remaining 20 percent or more.

In order to be eligible for MCSAP funding, a State must adopt the FMCSRs and HMRs or have laws or regulations that are compatible with the FMCSRs and HMRs. There are currently three States—Florida, Maine, and South Dakota—that are funded at 50 percent because they do not have State regulations that are considered by the FMCSA to be compatible with the FMCSRs or within the tolerance guidelines.<sup>6</sup> The final rule published on March 21, 2000, contains a provision (49 CFR 350.335(c) ) for these three States to continue to receive 50 percent funding. However, if a State that currently has compatible CMV safety laws and regulations pertaining to interstate commerce and

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<sup>4</sup> The goal of the No-Zone program is to increase awareness of the danger areas, such as blind spots, around commercial vehicles, in which cars “disappear” from the view of the truckdriver or busdriver. Crashes are more likely to occur when vehicles are in the danger areas around commercial vehicles.

<sup>5</sup> Safetynet is a computer system used by the States to share information about a truck, driver, or carrier.

<sup>6</sup> Florida has the following incompatibilities with the FMCSRs: (1) All drivers (except those transporting hazardous materials and passengers) are permitted to drive 15 hours; (2) citrus growers and forestry drivers are exempt from the hours-of-service regulations; (3) 200-mile-radius drivers are exempt from driver log requirements; (4) drivers can drive 72 hours in 7 days, or 84 in 8 (70/7, 80/8 are allowed), and they also have a 24-hour restart provision; and (5) drivers of farm or forest products and unprocessed agricultural products during harvest season are exempt from 49 CFR Parts 391, 395, and 396. Maine has three regulatory variances that exempt intrastate carriers, other than carriers of hazardous materials, whose drivers operate within a 100-air-mile radius of their terminal from (1) all hours-of-service regulations under 49 CFR Part 395; (2) all qualifications of drivers under 49 CFR Part 391; and (3) maintenance and repair recordkeeping. South Dakota exempts intrastate drivers and motor carriers operating vehicles and combinations of vehicles with three axles (such as garbage trucks) or less or with a gross vehicle weight rating (GVWR) of not more than 26,000 pounds from Parts 390 through 396 of the FMCSRs. South Dakota also allows 16-year-old intrastate CMV drivers, and the State exempts all intrastate drivers of CMVs from the physical qualification requirements in 49 CFR 391.41.

intrastate commerce becomes incompatible, it will not be eligible for funding (49 CFR 395.335(a) ). Additionally, if a State fails to adopt any new regulation or amendment to the FMCSRs or HMRs within 3 years of its effective date, that State will be deemed to have incompatible regulations and will not be eligible for MCSAP funding.

When TEA-21 reauthorized MCSAP in 1998, the legislation also mandated that the FMCSA conduct a study on the effect of reductions of MCSAP grants due to nonconformity of State requirements pertaining to intrastate motor carriers' commercial motor vehicles and drivers with the FMCSRs. The study has been completed and the FMCSA is currently reviewing a draft of the report.

## Brief History of the Program

When Congress passed the Surface Transportation Assistance Act of 1982 (STAA), it created MCSAP to address a need for a nationally uniform motor carrier safety program; thus, a major tenet of the program created at that time, which still exists today, is the compatibility of State motor carrier safety regulations with the Federal regulations. According to the FMCSA, the U.S. Department of Transportation (DOT) interpreted the STAA as requiring the States to adopt and enforce the FMCSRs or to adopt compatible State regulations, including intrastate requirements, as a condition of receiving MCSAP funds whereas “many of the States disagreed with the administrative interpretation of the STAA, claiming that they had ultimate authority over intrastate motor carriers and that intrastate trucking has little effect on safety.”<sup>7</sup>

Section 218 of the Motor Carrier Safety Act of 1984 directed the Secretary of Transportation to conduct a study of the safety performance of commercial motor vehicles being operated in intrastate commerce and the effectiveness in promoting the safety of individual State regulations governing the operations of such vehicles. The Federal Highway Administration (FHWA) completed the study in 1987 but was unable to reach conclusive results because of the scarcity of accident data for intrastate commerce.<sup>8</sup> The FHWA suggested that these data might be available in the future because it was developing a database that was designed to provide information on both interstate and intrastate motor carriers.<sup>9</sup> The FHWA also suggested at that time that intrastate motor carriers may also benefit from complying with the Federal safety regulations. The report concluded that additional actions to bring intrastate trucks under the FMCSRs were not necessary because, when the report was released in 1987, the FHWA had several programs underway to “bring intrastate motor carrier operations under a national truck and bus

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<sup>7</sup> Federal Motor Carrier Safety Administration, *Compatibility of Motor Carrier Safety Regulations* (Washington, DC: FMCSA, 2000).

<sup>8</sup> Federal Highway Administration, *Study of Safety Performance of Commercial Motor Vehicles Pursuant to Section 218 Motor Carrier Safety Act of 1984*, Report to Congress HS-040 419 (Washington, DC: FHWA, 1987).

<sup>9</sup> Safetynet was the database subsequently developed to collect information on motor carriers.

safety regulatory system,” including the Motor Carrier Safety Assistance Program and the Commercial Driver’s License program.<sup>10</sup>

Section 4002 of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) required the DOT to establish tolerance guidelines and standards for ensuring the compatibility of intrastate commercial motor vehicle laws and regulations with the FMCSRs. The act stated, “The guidelines shall, to the extent practicable, allow for maximum flexibility while ensuring the degree of uniformity that will not diminish transportation safety.” The FHWA subsequently established tolerance guidelines and published them in September 1992 as part of its final rule pertaining to 49 CFR Parts 350, 355, and 396.<sup>11</sup> As indicated in the final rule, the tolerance guidelines set forth the limited deviations from the FMCSRs allowed in State laws and regulations. The variances applicable to intrastate commerce included provisions for a younger driver age, an expansion of on-duty and driving time, exemptions from the Federal regulations regarding the physical qualifications of drivers, specific industries, and motor vehicles with a gross vehicle weight rating (GVWR) of 26,000 pounds or less.

TEA-21 was signed into law on June 9, 1998, and on March 21, 2000, the FMCSA published a final rule containing amendments to MCSAP as designated by TEA-21.<sup>12</sup> The final rule broadens the scope of the program beyond enforcement activities and programs by giving States greater responsibility for improving motor carrier safety. Among other things, the rule requires States to develop performance-based plans, called Commercial Vehicle Safety Plans, documenting the State’s commercial vehicle safety objectives, activities, and performance measures such as accidents, injuries, and fatalities resulting from commercial vehicle collisions. The tolerance guidelines regarding intrastate commerce were removed from appendix C to Part 350 and incorporated into the text of Part 350.<sup>13</sup> Table A–1 describes the major legislation related to MCSAP.

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<sup>10</sup> Since April 1, 1992, drivers have been required to have a commercial driver’s license in order to drive a commercial motor vehicle.

<sup>11</sup> *Federal Register* Vol. 57, No. 174, dated September 8, 1992, pp. 40946–40964.

<sup>12</sup> *Federal Register* Vol. 65, No. 55, dated March 21, 2000, pp. 15092–15110. The final rule addressed 49 CFR Part 350.

<sup>13</sup> To make the regulations easier to understand, the FMCSA wrote the new regulations in a question-and-answer format; hence, the language of the tolerance guidelines for intrastate commerce varies slightly from the prior language. The effect of the tolerance guidelines remains the same.

**Table A–1.** Legislation related to the Motor Carrier Safety Assistance Program (MCSAP).<sup>a</sup>

Title	Description
Surface Transportation Assistance Act of 1982 (STAA)	Created the Motor Carrier Safety Assistance Program.
Motor Carrier Safety Act of 1984	Required the U.S. Department of Transportation (DOT) to establish the Commercial Motor Vehicle Safety Regulatory Review Panel to review the compatibility of the State regulations with Federal requirements and to make recommendations to improve the State regulations. Also provided the DOT the authority to review and preempt State requirements adversely affecting interstate operations.
Hazardous Materials Transportation Uniform Act of 1990	Required that the <i>Federal Hazardous Materials Regulations</i> apply to the transport of hazardous materials in intrastate commerce by highway and provided preemption authority to the Federal government.
Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)	Required the U.S. Department of Transportation to establish tolerance guidelines and standards for ensuring compatibility of intrastate commercial motor vehicle laws and regulations with the <i>Federal Motor Carrier Safety Regulations</i> .
Transportation Equity Act for the 21st Century (TEA-21)	Enacted June 9, 1998. Reauthorized MCSAP and mandated the Federal Highway Administration to conduct a study on the effects of reductions of MCSAP grants due to nonconformity of State regulations with the <i>Federal Motor Carrier Safety Regulations</i> .
Motor Carrier Safety Improvement Act of 1999	Authorized additional funds for MCSAP.

<sup>a</sup> The MCSAP is currently administered by the Federal Motor Carrier Safety Administration.

# Appendix B

## Data From the Data Sources

### MCMIS Census Data

**Table B-1.** Operational characteristics of intrastate and interstate motor carriers as reported in the MCMIS census file, November 2001.<sup>a</sup>

Operational characteristic	Carriers in all 50 States		Carriers in 17 States <sup>b</sup>	
	Percent of the 68,993 intra-state carriers indicating the characteristic	Percent of the 532,199 inter-state carriers indicating the characteristic	Percent of the 61,844 intra-state carriers indicating the characteristic	Percent of the 160,236 inter-state carriers indicating the characteristic
<b>Classification:</b>				
Authorized for-hire	29.5	37.8	30.4	36.1
Exempt for-hire	10.4	7.4	10.9	9.5
Private (property)	54.4	44.8	53.5	43.8
Other classification <sup>c</sup>	1.2	5.0	0.8	2.2
Multiple classifications <sup>d</sup>	4.6	7.0	4.4	8.3
<b>Cargo transported:<sup>e</sup></b>				
Beverages	1.3	3.5	1.1	3.9
Building materials	16.9	12.7	17.5	13.9
Coal, coke	1.9	1.3	2.0	1.4
Commodities drybulk	4.7	6.2	3.8	6.8
Construction	17.2	4.2	17.8	4.5
Drive away, tow away	2.8	2.5	3.0	2.8
Farm supplies	2.9	2.5	2.9	3.2
Fresh produce	1.9	8.4	1.8	8.7
Garbage, refuse, trash	5.5	2.2	5.8	1.9
General freight	9.8	32.8	9.5	31.3
Grain, feed, hay	13.3	12.7	13.8	17.8
Household goods	2.0	3.9	2.0	3.6
Intermodal containers	0.3	1.3	0.3	1.5
Liquids, gases	0.9	0.9	0.8	1.0
Livestock	3.6	5.3	3.7	8.3
Logs, poles, beams, lumber	13.2	12.7	13.6	13.7
Machinery, large objects	19.5	13.6	20.1	15.7
Meat	0.6	3.2	0.5	3.7
Metal: sheets, coils, rolls	3.6	7.4	3.5	7.9
Mobile homes	1.4	1.0	1.5	1.2
Motor vehicles	5.8	7.1	6.0	7.9
Oil field equipment	1.1	1.6	1.1	1.8
Paper products	2.0	6.4	1.8	6.6
Refrigerated food	1.2	6.0	1.0	6.3
Utility	0.9	0.7	1.0	0.8
Water well	0.6	0.3	0.6	0.3
Other (including gravel, cement, soil, laundry)	34.0	28.4	34.4	27.2

**Table B-1.** Operational characteristics of intrastate and interstate motor carriers as reported in the MCMIS census file, November 2001.<sup>a</sup>(continued)

Operational characteristic	Carriers in all 50 States		Carriers in 17 States <sup>b</sup>	
	Percent of the 68,993 intra-state carriers indicating the characteristic	Percent of the 532,199 inter-state carriers indicating the characteristic	Percent of the 61,844 intra-state carriers indicating the characteristic	Percent of the 160,236 inter-state carriers indicating the characteristic
<b>Number of drivers:</b>				
1	50.5	37.8	52.2	39.3
2	20.9	17.0	21.4	17.9
3-6	18.7	16.6	18.4	16.7
7-19	5.1	5.9	4.6	5.5
20 or more	1.5	2.3	1.3	2.1
Missing (no data were reported)	3.3	20.4	2.1	18.4
<b>Size of fleet:<sup>f</sup></b>				
1	55.4	46.3	57.2	48.9
2-3	26.1	21.2	26.3	22.0
4-6	9.3	8.9	9.0	8.8
7-8	2.2	2.3	2.1	2.2
9-11	1.6	2.0	1.5	1.8
12-14	0.9	1.2	0.8	1.1
15-17	0.5	0.7	0.5	0.6
18-20	0.3	0.5	0.3	0.5
21 or more	1.4	2.3	1.1	2.1
Missing (no data were reported)	2.3	14.6	1.4	12.0
<b>Number of trucks owned:<sup>g</sup></b>				
1	44.0	24.4	45.6	24.2
2	13.6	7.9	13.8	8.2
3-6	12.7	7.9	12.4	8.0
7-19	3.5	2.5	3.3	2.4
20 or more	0.9	0.7	0.7	0.7
<b>Number of trucks term-leased:<sup>g</sup></b>				
1	2.3	2.7	2.3	2.3
2	0.6	0.9	0.6	0.7
3-6	0.7	0.9	0.6	0.7
7-19	0.3	0.3	0.2	0.3
20 or more	0.1	0.2	0.1	0.1
<b>Number of trucks trip-leased:<sup>g</sup></b>				
1	0.2	0.3	0.2	0.3
2	<0.1	0.1	<0.1	0.1
3-6	<0.1	0.1	<0.1	0.1
7-19	<0.1	<0.1	<0.1	<0.1
20 or more	<0.1	<0.1	<0.1	<0.1
<b>Number of tractors owned:<sup>g</sup></b>				
1	22.6	29.6	22.7	33.2
2	5.2	6.8	4.9	7.3
3-6	3.6	6.6	3.2	6.4
7-19	0.8	2.4	0.7	2.2
20 or more	0.2	0.9	0.2	0.7

**Table B–1.** Operational characteristics of intrastate and interstate motor carriers as reported in the MCMIS census file, November 2001.<sup>a</sup> (continued)

Operational characteristic	Carriers in all 50 States		Carriers in 17 States <sup>b</sup>	
	Percent of the 68,993 intra-state carriers indicating the characteristic	Percent of the 532,199 inter-state carriers indicating the characteristic	Percent of the 61,844 intra-state carriers indicating the characteristic	Percent of the 160,236 inter-state carriers indicating the characteristic
<b>Number of tractors term-leased:<sup>g</sup></b>				
1	1.0	2.7	0.9	7.8
2	0.3	1.0	0.2	1.0
3–6	0.3	1.4	0.2	1.3
7–19	0.2	0.9	0.1	0.8
20 or more	0.1	0.5	0.1	0.4
<b>Number of tractors trip-leased:<sup>g</sup></b>				
1	0.1	0.4	0.1	0.4
2	<0.1	0.1	<0.1	0.1
3–6	<0.1	0.1	<0.1	0.1
7–19	<0.1	<0.1	<0.1	<0.1
20 or more	<0.1	<0.1	<0.1	<0.1
<b>Number of trailers owned:<sup>g</sup></b>				
1	19.9	21.0	20.3	24.2
2	7.4	7.6	7.3	8.8
3–6	6.4	8.4	6.0	9.1
7–19	1.9	3.8	1.5	3.7
20 or more	0.6	2.1	0.4	1.8
<b>Number of trailers term-leased:<sup>g</sup></b>				
1	1.0	2.2	0.9	2.5
2	0.3	0.8	0.3	0.8
3–6	0.3	1.1	0.2	1.0
7–19	0.2	0.7	0.1	0.6
20 or more	0.1	0.5	0.1	0.4
<b>Number of trailers trip-leased:<sup>g</sup></b>				
1	0.2	0.4	0.2	0.4
2	<0.1	0.1	<0.1	0.1
3–6	<0.1	0.1	<0.1	0.1
7–19	<0.1	<0.1	<0.1	<0.1
20 or more	<0.1	0.1	<0.1	<0.1

<sup>a</sup> MCMIS = Motor Carrier Management Information System, which is maintained by the Federal Motor Carrier Safety Administration (FMCSA). The percentages in this table do not include carriers transporting hazardous materials or carriers operating buses.

<sup>b</sup> The following 17 States were selected for a more refined analysis because they are participating in the FMCSA voluntary registration program to issue USDOT numbers, with a State suffix, to intrastate carriers: Colorado, Connecticut, Florida, Georgia, Idaho, Indiana, Iowa, Kansas, Kentucky, Maine, Missouri, Nebraska, Oklahoma, Oregon, Utah, Washington, and Wyoming. Further, the combined number of intrastate carriers in these 17 States constitute the majority of intrastate carriers in all 50 States who are included the MCMIS census file.

<sup>c</sup> “Other” comprises several operational classifications, including migrant; U.S. mail; Federal, State, and local governments and American Indian tribe.

<sup>d</sup> The operations of some motor carriers fall into more than one classification.

<sup>e</sup> Carriers may haul more than one type of cargo; therefore, percentages total more than 100.

<sup>f</sup> The total number of power units, including trucks and truck tractors, used by the carrier.

<sup>g</sup> Some carriers do not own, term-lease, or trip-lease the indicated type of equipment; therefore, percentages regarding ownership or leasing of trucks, tractors, and trailers do not total 100.

**Table B–2.** Operational characteristics of intrastate and interstate private and for-hire motor carriers in 17 States as reported in the MCMIS census file, November 2001.<sup>a</sup>

Operational characteristic	Intrastate carriers		Interstate carriers	
	Percent of the 33,116 intrastate private carriers indicating the characteristic	Percent of the 25,516 intrastate for-hire carriers indicating the characteristic	Percent of the 70,248 interstate private carriers indicating the characteristic	Percent of the 73,053 interstate for-hire carriers indicating the characteristic
<b>Cargo transported:<sup>b</sup></b>				
Beverages	1.4	0.8	1.3	5.8
Building materials	19.2	14.9	13.4	13.4
Coal, coke	1.2	3.0	0.6	1.9
Commodities drybulk	2.6	4.9	2.9	9.0
Construction	14.5	21.7	4.3	3.7
Drive away, tow away	0.9	5.5	1.4	3.7
Farm supplies	2.8	2.6	2.6	2.6
Fresh produce	1.7	1.6	3.0	12.8
Garbage, refuse, trash	6.1	5.4	1.7	1.8
General freight	6.6	12.7	10.0	48.9
Grain, feed, hay	15.4	10.6	13.1	19.1
Household goods	1.5	2.5	3.0	3.9
Intermodal containers	0.1	0.5	0.2	2.4
Liquids, gases	0.9	0.6	0.9	0.9
Livestock	4.1	2.9	6.6	8.6
Logs, poles, beams, lumber	13.9	12.7	9.9	16.0
Machinery, large objects	25.2	12.5	18.8	11.4
Meat	0.5	0.5	1.1	5.6
Metal: sheets, coils, rolls	3.7	3.1	5.5	9.5
Mobile homes	0.7	2.4	0.9	1.4
Motor vehicles	2.6	10.3	5.9	9.1
Oil field equipment	1.0	1.2	1.0	2.2
Paper products	1.5	2.1	2.7	9.3
Refrigerated foods	1.0	0.9	2.5	9.1
Utility	1.1	0.7	0.6	0.8
Water well	0.8	0.4	0.3	0.3
Other (including gravel, cement, soil, laundry)	33.3	35.7	39.7	16.2
<b>Number of drivers:</b>				
1	46.6	59.8	35.4	41.9
2	23.1	19.0	21.4	13.8
3–6	21.2	14.8	20.6	12.6
7–19	5.3	3.4	5.8	5.2
20 or more	1.6	0.8	1.8	2.3
Missing (no data were reported)	2.1	2.2	15.1	24.2
<b>Size of fleet:<sup>c</sup></b>				
1	52.1	64.2	47.6	49.2
2–3	29.2	22.4	26.7	17.1
4–6	10.2	7.2	10.5	6.9
7–8	2.4	1.7	2.6	1.9
9–11	1.8	1.0	2.0	1.7
12–14	0.9	0.6	1.1	1.0
15–17	0.5	0.3	0.6	0.6

**Table B–2.** Operational characteristics of intrastate and interstate private and for-hire motor carriers in 17 States as reported in the MCMIS census file, November 2001.<sup>a</sup> (continued)

Operational characteristic	Intrastate carriers		Interstate carriers	
	Percent of the 33,116 intrastate private carriers indicating the characteristic	Percent of the 25,516 intrastate for-hire carriers indicating the characteristic	Percent of the 70,248 interstate private carriers indicating the characteristic	Percent of the 73,053 interstate for-hire carriers indicating the characteristic
18–20	0.3	0.2	0.5	0.5
21 or more	1.3	0.7	1.9	2.2
Missing (no data were reported)	1.3	1.6	6.7	18.9
<b>Number of trucks owned:<sup>d</sup></b>				
1	45.1	46.6	35.9	13.4
2	16.0	11.1	12.8	3.8
3–6	14.3	9.9	12.3	4.0
7–19	4.1	2.1	3.8	1.2
20 or more	1.0	0.4	1.2	0.3
<b>Number of trucks term-leased:<sup>d</sup></b>				
1	2.4	2.2	3.5	1.2
2	0.7	0.5	1.0	0.4
3–6	0.7	0.6	1.0	0.4
7–19	0.3	0.2	0.4	0.2
20 or more	0.1	0.1	0.2	0.1
<b>Number of trucks trip-leased:<sup>d</sup></b>				
1	0.1	0.2	0.4	0.2
2	<0.1	<0.1	0.1	<0.1
3–6	<0.1	<0.1	0.1	<0.1
7–19	<0.1	<0.1	<0.1	<0.1
20 or more	<0.1	<0.1	<0.1	<0.1
<b>Number of tractors owned:<sup>d</sup></b>				
1	20.7	25.0	23.4	41.0
2	4.8	4.8	6.5	7.6
3–6	3.1	3.2	4.9	7.3
7–19	0.6	0.7	1.3	2.9
20 or more	0.2	0.1	0.3	1.1
<b>Number of tractors term-leased:<sup>d</sup></b>				
1	0.7	1.1	1.9	3.4
2	0.2	0.3	0.7	1.2
3–6	0.2	0.3	0.8	1.8
7–19	0.1	0.1	0.3	1.3
20 or more	<0.1	0.1	0.1	0.7
<b>Number of tractors trip-leased:<sup>d</sup></b>				
1	0.1	0.1	0.4	0.4
2	<0.1	0.1	<0.1	0.1
3–6	<0.1	0.1	0.1	0.1
7–19	<0.1	<0.1	<0.1	<0.1
20 or more	<0.1	<0.1	<0.1	<0.1

**Table B–2.** Operational characteristics of intrastate and interstate private and for-hire motor carriers in 17 States as reported in the MCMIS census file, November 2001.<sup>a</sup> (continued)

Operational characteristic	Intrastate carriers		Interstate carriers	
	Percent of the 33,116 intrastate private carriers indicating the characteristic	Percent of the 25,516 intrastate for-hire carriers indicating the characteristic	Percent of the 70,248 interstate private carriers indicating the characteristic	Percent of the 73,053 interstate for-hire carriers indicating the characteristic
<b>Number of trailers owned:<sup>d</sup></b>				
1	20.7	19.5	21.1	26.5
2	7.9	6.2	9.3	7.9
3–6	6.8	4.8	9.5	8.1
7–19	1.7	1.2	3.4	3.8
20 or more	0.5	0.4	1.4	2.2
<b>Number of trailers term-leased:<sup>d</sup></b>				
1	0.6	1.3	1.3	3.4
2	0.2	0.3	0.5	1.1
3–6	0.2	0.2	0.6	1.4
7–19	0.1	0.1	0.3	0.9
20 or more	0.1	0.1	0.2	0.6
<b>Number of trailers trip-leased:<sup>d</sup></b>				
1	0.1	0.2	0.3	0.5
2	<0.1	<0.1	0.1	0.1
3–6	<0.1	0.1	0.1	0.1
7–19	<0.1	<0.1	<0.1	<0.1
20 or more	<0.1	<0.1	<0.1	0.1

<sup>a</sup> MCMIS = Motor Carrier Management Information System, which is maintained by the Federal Motor Carrier Safety Administration (FMCSA). The percentages in this table do not include carriers transporting hazardous materials or carriers operating buses. The following 17 States were selected for a more refined analysis because they are participating the FMCSA voluntary registration program to issue USDOT numbers, with a State suffix, to intrastate carriers: Colorado, Connecticut, Florida, Georgia, Idaho, Indiana, Iowa, Kansas, Kentucky, Maine, Missouri, Nebraska, Oklahoma, Oregon, Utah, Washington, and Wyoming. Further, the combined number of intrastate carriers in these 17 States constitute the majority of intrastate carriers in all 50 States who are included in the MCMIS census file.

<sup>b</sup> Carriers may haul more than one type of cargo; therefore, percentages total more than 100.

<sup>c</sup> The total number of power units, including trucks and truck tractors, used by the carrier.

<sup>d</sup> Some carriers do not own, term-lease, or trip-lease the indicated type of equipment; therefore, percentages regarding ownership or leasing of trucks, tractors, and trailers do not total 100.

**TIFA Accident Data****Table B–3.** Vehicle characteristics recorded in the TIFA database for intrastate and interstate carrier trucks involved in fatal accidents, January 1, 1991, through December 31, 1999.<sup>a</sup>

<b>Category and vehicle characteristic</b>	<b>Percent of category for trucks operated by intrastate carriers involved in fatal accidents<sup>b</sup></b>	<b>Percent of category for trucks operated by interstate carriers involved in fatal accidents<sup>b</sup></b>
<b>Power unit type:</b>		
Straight truck	58.8	16.4
Tractor	41.2	83.6
Unknown	0	<0.1
<b>Straight truck body type:</b>		
Not applicable <sup>c</sup>	38.7	83.6
Van	8.0	4.7
Open top van	0.1	<0.1
Refrigerated van	2.2	1.2
Livestock carrier	0.1	<0.1
Flatbed	3.9	1.2
Low-boy	0	<0.1
Flatbed with equipment	1.4	0.5
Flatbed with sides	3.5	0.6
Pole/logging	1.1	0.2
Tank, liquid/gas	2.7	0.6
Tank, dry bulk	<0.1	<0.1
Auto carrier	0.1	0.7
Dump	19.7	2.7
Bottom dump/hopper bottom	<0.1	<0.1
Garbage/refuse	5.5	1.0
Other	12.0	2.9
Unknown	0	<0.1
<b>First Trailer Type:</b>		
Semi-trailer	36.0	80.0
Full trailer	1.9	0.6
Other	5.0	2.4
None	57.1	17.0
Unknown	0	<0.1
<b>First trailer body type:</b>		
Not applicable <sup>d</sup>	55.1	17.0
Van	5.6	35.7
Open top van	0.8	0.8
Refrigerated van	1.8	12.5
Livestock carrier	0.6	1.2
Flatbed	8.0	13.2
Low-boy	2.1	1.2
Flatbed with equipment	0.2	0.2
Flatbed with sides	1.0	1.3
Pole/logging	4.9	1.8
Tank, liquid/gas	2.2	4.2
Tank, dry bulk	0.7	1.4
Auto carrier	0.2	1.0
Dump	9.2	4.5
Bottom dump/hopper bottom	2.8	2.2
Garbage/refuse	0.2	0.1

**Table B–3.** Vehicle characteristics recorded in the TIFA database for intrastate and interstate carrier trucks involved in fatal accidents, January 1, 1991, through December 31, 1999.<sup>a</sup> (continued)

Category and vehicle characteristic	Percent of category for trucks operated by intrastate carriers involved in fatal accidents <sup>b</sup>	Percent of category for trucks operated by interstate carriers involved in fatal accidents <sup>b</sup>
Other	2.7	1.7
Unknown	<0.1	0.1
<b>Number of trailers:</b>		
0	57.1	17.0
1	39.3	78.8
2	3.6	4.1
3	<0.1	<0.1
<b>Gross vehicle weight rating:</b>		
10,001 to 14,000 pounds	8.7	2.2
14,001 to 16,000 pounds	3.2	0.9
16,001 to 19,500 pounds	1.1	0.4
19,501 to 26,000 pounds	6.1	2.2
26,001 to 33,000 pounds	10.1	6.5
33,001 pounds or more	63.1	85.9
Unknown	7.9	2.0
<b>Averages of the following characteristics:</b>		
Truck age	9.45 years	5.35 years
Empty combination weight	22,213.46 pounds	28,066.26 pounds
Gross weight	36,687.23 pounds	49,683.40 pounds
Total length	38.93 feet	56.17 feet
Total width	96.45 inches	98.54 inches

<sup>a</sup> TIFA = Trucks Involved in Fatal Accidents, which is maintained by the University of Michigan Transportation Research Institute. The data in this table exclude trucks transporting hazardous materials.

<sup>b</sup> Percentages for a category may not total 100 because of rounding.

<sup>c</sup> Not applicable because the vehicle was a tractor-trailer.

<sup>d</sup> Not applicable because the vehicle was a straight truck or tractor without trailer.

**Table B–4.** Driver characteristics recorded in the TIFA database for intrastate and interstate carrier trucks involved in fatal accidents, January 1, 1991, through December 31, 1999.<sup>a</sup>

Category and driver characteristic	Percent of category for fatal accidents involving trucks operated by intrastate carriers <sup>b</sup>	Percent of category for fatal accidents involving trucks operated by interstate carriers <sup>b</sup>
<b>License class compliance (1991–1999):</b>		
Not licensed	0.5	0.4
No license required for this class vehicle	<0.1	<0.1
No valid license for this class vehicle	5.7	2.7
Valid license for this class vehicle	91.2	92.4
Unknown if CDL and/or CDL endorsement was required for this vehicle <sup>c</sup>	0.6	0.4
Unknown	2.0	4.1
<b>CDL license status (1993–1997):<sup>c</sup></b>		
No CDL <sup>c</sup>	23.5	6.7
Learner's permit	<0.1	<0.1
Valid CDL <sup>c</sup>	72.5	87.3
Suspended	0.8	0.6
Revoked	<0.1	0.1
Expired	0.2	0.4
Cancelled	<0.1	<0.1
Disqualified	<0.1	0.1
Other, not valid	0.6	0.3
CDL status unknown	2.1	4.2
<b>Driver drinking (1991–1999):</b>		
No drinking reported	94.2	92.4
Drinking reported	3.0	2.4
Not reported	2.0	2.8
Unknown	0.9	0.8
<b>Drug involvement (1991–1999):</b>		
No	24.9	21.8
Yes	0.5	4.8
Not reported	68.7	69.0
Unknown (police reported as unknown)	6.0	4.4
<b>License restrictions met (1991–1999):</b>		
No restrictions or not applicable	73.7	71.0
Restrictions complied with	5.4	6.6
Restrictions not complied with	0.2	0.1
Restrictions, compliance unknown	18.5	18.1
Unknown	2.2	4.7
<b>Violations charged (1991–1996):</b>		
None	81.0	84.6
Alcohol or drugs	0.6	0.4
Speeding	0.7	1.0
Alcohol or drugs and speeding	0	<0.1
Reckless driving	0.8	0.7
Driving with a suspended or revoked license	0.4	0.1

**Table B-4.** Driver characteristics recorded in the TIFA database for intrastate and interstate carrier trucks involved in fatal accidents, January 1, 1991, through December 31, 1999.<sup>a</sup> (continued)

Category and driver characteristic	Percent of category for fatal accidents involving trucks operated by intrastate carriers <sup>b</sup>	Percent of category for fatal accidents involving trucks operated by interstate carriers <sup>b</sup>
Other moving violation	8.8	6.5
Nonmoving violation	2.0	1.5
Violation, type unknown or other violation	0.7	0.7
Unknown	4.7	4.5
<b>Violation (1997-1999):</b>		
None	79.7	78.3
Reckless/careless/hit-and-run type offenses	4.1	4.9
Impairment offenses	0.6	0.4
Speed-related offenses	0.8	1.0
Rules of the road: traffic sign and signals	1.1	0.7
Rules of the road: turning, yielding, signaling	1.5	1.2
Rules of the road: wrong side, passing, and following	0.8	1.0
Rules of the road: lane usage	0.3	0.4
Nonmoving: license and registration	2.4	1.4
Equipment	1.6	1.1
Other violations	0.3	0.3
Unknown violation	6.8	9.3

<sup>a</sup> TIFA = Trucks Involved in Fatal Accidents, which is maintained by the University of Michigan Transportation Research Institute. The data in this table exclude trucks transporting hazardous materials.

<sup>b</sup> Percentages for a category may not total 100 because of rounding.

<sup>c</sup> CDL = commercial driver's license.

**Table B–5.** Accident characteristics recorded in the TIFA database for intrastate and interstate carrier trucks involved in fatal accidents, January 1, 1991, through December 31, 1999.<sup>a</sup>

Category and accident characteristic	Percent of category for fatal accidents involving trucks operated by intrastate carriers <sup>b</sup>	Percent of category for fatal accidents involving trucks operated by interstate carriers <sup>b</sup>
<b>Route signing:</b>		
Interstate highway	9.3	29.9
U.S. highway	21.6	30.0
State highway	35.3	26.3
County road	16.4	5.5
Township	2.5	0.9
Municipality	9.8	5.3
Frontage	0.3	0.3
Other	3.6	1.2
Unknown	1.2	0.6
<b>Roadway function class:</b>		
Rural	62.4	68.1
Urban	36.4	31.4
Unknown	1.5	1.0
<b>First harmful event in accident sequence:</b>		
Noncollision <sup>c</sup>	4.9	4.3
Collision with nonfixed object <sup>d</sup>	90.1	88.5
Collision with fixed object <sup>e</sup>	5.0	7.2
<b>Relation to roadway:</b>		
On roadway	90.3	87.7
Shoulder	2.6	3.4
Median	0.7	2.0
Roadside	3.9	4.2
Outside right-of-way	0.4	0.5
Off roadway, location unknown	1.8	1.9
In parking lane	<0.1	<0.1
Gore	0.2	0.1
Unknown	0.1	0.1
<b>Relation to junction:</b>		
Noninterchange	97.2	94.8
Interchange	2.8	5.2
Unknown	<0.1	<0.1
<b>Construction or maintenance zone:</b>		
None	96.3	96.0
Construction	2.9	3.4
Maintenance	0.4	0.3
Utility	<0.1	<0.1
Work zone, type unknown	0.3	0.2
<b>Roadway alignment:</b>		
Straight	82.8	82.7
Curve	17.6	17.0
Unknown	0.3	0.3

**Table B–5.** Accident characteristics recorded in the TIFA database for intrastate and interstate carrier trucks involved in fatal accidents, January 1, 1991, through December 31, 1999.<sup>a</sup> (continued)

Category and accident characteristic	Percent of category for fatal accidents involving trucks operated by intrastate carriers <sup>b</sup>	Percent of category for fatal accidents involving trucks operated by interstate carriers <sup>b</sup>
<b>Roadway profile:</b>		
Level	72.9	68.8
Grade	22.8	27.1
Hillcrest	3.9	2.1
Sag	0.5	0.5
Unknown	1.9	1.5
<b>Roadway surface type:</b>		
Concrete	11.8	18.2
Blacktop, bituminous, or asphalt	85.1	80.2
Brick or block	<0.1	<0.1
Slag, gravel, or stone	1.0	0.3
Dirt	0.5	0.1
Other	<0.1	<0.1
Unknown	1.5	1.2
<b>Roadway surface condition:</b>		
Dry	82.9	78.2
Wet	14.0	15.9
Snow or slush	1.3	2.5
Ice	1.6	5.5
Sand, dirt, oil	<0.1	<0.1
Other	<0.1	0.2
Unknown	<0.1	0.2

<sup>a</sup> TIFA = Trucks Involved in Fatal Accidents, which is maintained by the University of Michigan Transportation Research Institute. The data in this table exclude trucks transporting hazardous materials.

<sup>b</sup> Percentages for a category may not total 100 because of rounding.

<sup>c</sup> Noncollision includes accidents that involved a rollover, explosion or fire, immersion, gas inhalation, fall and/or injury from the vehicle, thrown or falling objects, or pavement irregularities.

<sup>d</sup> Nonfixed objects include objects such as pedestrians, pedalcycles, railway trains, animals, motor vehicle in transport, or parked motor vehicle.

<sup>e</sup> Fixed objects include objects such as bridges, boulders, buildings, guardrails, utility poles, and ditches.

**Table B–6.** Accident-, vehicle-, and driver-related factors recorded in the TIFA database for intrastate and interstate carrier trucks involved in fatal accidents, January 1, 1991, through December 31, 1999.<sup>a</sup>

Category and related factor	Percent of category for fatal accidents involving trucks operated by intrastate carriers <sup>b</sup>	Percent of category for fatal accidents involving trucks operated by interstate carriers <sup>b</sup>
<b>Accident-related factors:</b>		
None	95.2	95.5
Inadequate warning of exits, lanes narrowing, traffic controls, etc.	<0.1	<0.1
Shoulder-related	0.1	0.2
Other construction created condition	0.2	0.4
No (or obscured) pavement marking	0.2	<0.1
Surface under water	<0.1	<0.1
Inadequate construction or poor design of roadway bridges, etc.	<0.1	<0.1
Surface washed out (caved in road slippage)	<0.1	<0.1
Motor vehicle in transport struck by falling cargo, or by something that was set in motion by a vehicle	1.1	1.5
Nonoccupant struck by falling cargo or by something that came loose from or was set in motion by a vehicle	0.2	0.2
Nonoccupant struck vehicle	0.5	0.3
Vehicle set in motion by nondriver	<0.1	<0.1
Date of accident and date of emergency medical services notification were not the same	<0.1	0.1
Recent previous accident scene nearby	0.8	2.0
Police pursuit involved	0.1	0.2
Within designated school zone	<0.1	<0.1
Speed limit is a statutory limit	<0.1	<0.1
Unknown	0.8	0.4
<b>Vehicle-related factors:</b>		
None	86.5	92.2
Tires	1.6	0.8
Brake system	4.0	2.2
Steering system	0.3	0.1
Suspension	0.1	0.1
Power train	0.1	0.1
Exhaust system	<0.1	<0.1
Headlights	0.2	<0.1
Signal lights	0.2	<0.1
Other lights	0.4	0.2
Horn	<0.1	<0.1
Mirrors	<0.1	<0.1
Wipers	0	<0.1
Driver seating and control	0	0
Body, doors, hood, other <sup>c</sup>	<0.1	<0.1
Trailer hitch	0.2	0.2
Wheels	0.1	<0.1
Air bags	0	0
Other vehicle defect	0.6	0.4
Hit-and-run vehicle	0.5	0.4

**Table B–6.** Accident-, vehicle-, and driver-related factors recorded in the TIFA database for intrastate and interstate carrier trucks involved in fatal accidents, January 1, 1991, through December 31, 1999.<sup>a</sup> (continued)

Category and related factor	Percent of category for fatal accidents involving trucks operated by intrastate carriers <sup>b</sup>	Percent of category for fatal accidents involving trucks operated by interstate carriers <sup>b</sup>
Vehicle registered for handicapped	0	0
Vehicle being pushed by nonmotorist	0	0
Unknown	2.5	3.0
<b>Driver-related factors:</b>		
None	49.2	51.9
Physical/mental condition <sup>d</sup>	4.3	6.0
Miscellaneous (traffic-related) <sup>e</sup>	35.5	32.6
Vision obscured <sup>f</sup>	2.2	2.1
Avoidance, swerved, or slid <sup>g</sup>	2.0	2.6
Other miscellaneous factor <sup>h</sup>	5.7	4.0
Possible distractions (inside vehicle) <sup>i</sup>	<0.1	<0.1
Unknown	0.9	0.8

<sup>a</sup> TIFA = Trucks Involved in Fatal Accidents, which is maintained by the University of Michigan Transportation Research Institute. The data in this table exclude trucks transporting hazardous materials.

<sup>b</sup> Percentages for a category may total more than 100 percent because more than one factor may be cited within a category.

<sup>c</sup> Includes the exterior components of vehicle (such as hood hatch and bumpers) that are not included in another vehicle-related item.

<sup>d</sup> Conditions include drowsy, ill, inattention, and so on.

<sup>e</sup> Traffic-related factors include failure to keep in proper lane or running off the road, failure to yield right of way, improper passing of other vehicles, improper loading of vehicle, driving too fast for conditions or in excess of posted maximum, and so on.

<sup>f</sup> Source of obscured vision includes rain; snow; motor vehicle; curve, hill, or other design features; and so on.

<sup>g</sup> Action resulting from severe crosswind, vehicle in road, phantom vehicle, and so on.

<sup>h</sup> Includes hit-and-run vehicle driver, nontraffic violation charged (for example, manslaughter or other homicide), and other nonmoving traffic violations.

<sup>i</sup> For example, use of cellular phone, two-way radio, on-board navigation system, and so on.

**MCMIS Crash Data****Table B–7.** Accident characteristics in the MCMIS crash file recorded for intrastate and interstate truckdrivers or trucks involved in an accident, 1993 through November 2001.<sup>a</sup>

<b>Category and accident characteristic</b>	<b>Percent of the 168,171 intrastate carrier drivers or trucks for which the characteristic was recorded<sup>b</sup></b>	<b>Percent of the 564,629 interstate carrier drivers or trucks for which the characteristic was recorded<sup>b</sup></b>
<b>Road trafficway:</b>		
Not physically divided (two-way trafficway)	44.8	31.7
Divided highway, median strip, without traffic barrier	15.3	23.3
Divided highway, median strip, with traffic barrier	9.8	17.8
One-way trafficway	3.3	3.6
Unknown or missing <sup>c</sup>	26.9	23.5
<b>Road access control:</b>		
No control (unlimited access)	27.0	38.1
Full control (only ramp entry and exit)	7.6	5.1
Other	63.0	55.7
Unknown or missing <sup>c</sup>	2.3	2.5
<b>Road surface type:</b>		
Dry	70.1	65.7
Wet	14.2	15.9
Water (standing , moving)	<0.1	<0.1
Snow	2.8	3.8
Slush	<0.1	<0.1
Ice	2.8	5.1
Sand, mud, dirt, or gravel	0.3	0.2
Other	0.1	0.2
Unknown or missing <sup>c</sup>	9.7	9.1
<b>Weather condition:</b>		
No adverse condition	73.0	66.2
Rain	9.6	11.3
Sleet, hail	0.6	1.4
Snow	3.2	5.2
Fog	1.3	1.5
Blowing sand, soil, dirt, or snow	0.3	0.5
Severe crosswinds	0.1	0.5
Other	3.4	4.7
Unknown or missing <sup>c</sup>	9.5	8.7
<b>Light condition:</b>		
Daylight	75.3	63.7
Dark, not lighted	7.0	15.8
Dark, lighted	4.9	7.3
Dark, unknown roadway lighting	<0.1	<0.1
Dawn	1.8	2.7
Dusk	1.0	1.9
Other	0	<0.1
Unknown or missing <sup>c</sup>	9.9	9.0
<b>Apparent driver condition:</b>		
Appeared normal	74.7	74.6
Had been drinking	0.6	0.5

**Table B-7.** Accident characteristics in the MCMIS crash file recorded for intrastate and interstate truckdrivers or trucks involved in an accident, 1993 through November 2001.<sup>a</sup> (continued)

Category and accident characteristic	Percent of the 168,171 intrastate carrier drivers or trucks for which the characteristic was recorded <sup>b</sup>	Percent of the 564,629 interstate carrier drivers or trucks for which the characteristic was recorded <sup>b</sup>
Illegal drug use	0.1	0.1
Sick	0.1	0.2
Fatigue	0.4	0.6
Asleep	0.2	0.8
Medication	<0.1	0.1
Unknown or missing <sup>c</sup>	23.9	23.1
<b>Vehicle configuration:</b>		
Single-unit truck, 2 axles, 6 tires	22.7	9.4
Single-unit truck, 3 or more axles	22.8	9.4
Truck trailer	11.0	9.7
Truck tractor (bobtail)	2.3	3.8
Tractor-semitrailer	30.1	60.5
Tractor-double semitrailer	1.3	3.3
Tractor-triple semitrailer	0.1	0.2
Unknown heavy truck, cannot classify	8.9	3.2
Unknown or missing <sup>c</sup>	0.8	0.5
<b>Cargo body type:</b>		
Van, enclosed box	15.0	42.4
Cargo tank	2.8	3.7
Flatbed	10.7	11.7
Dump	20.3	5.0
Concrete mixer	3.4	1.4
Auto transporter	0.5	0.8
Garbage/refuse	5.5	1.4
Other	31.5	22.2
Unknown or missing <sup>c</sup>	10.4	11.4
<b>Gross vehicle weight rating:</b>		
10,000 pounds or less	3.4	1.4
10,001 to 26,000 pounds	14.6	7.7
26,001 pounds or more	60.2	73.9
Unknown or missing <sup>c</sup>	21.8	17.0
<b>First event of accident sequence:</b>		
Noncollision—		
Ran off road	9.0	10.9
Jackknife	1.1	2.9
Overturn (rollover)	2.9	2.8
Downhill runaway	0.4	0.2
Cargo loss or shift	1.2	1.2
Explosion or fire	0.3	0.4
Separation of units	0.4	0.3
Cross median/centerline	<0.1	<0.1
Equipment failure (brake failure, blown tires, etc.)	3.6	3.8
Other	<0.1	<0.1

**Table B-7.** Accident characteristics in the MCMIS crash file recorded for intrastate and interstate truckdrivers or trucks involved in an accident, 1993 through November 2001.<sup>a</sup> (continued)

Category and accident characteristic	Percent of the 168,171 intrastate carrier drivers or trucks for which the characteristic was recorded <sup>b</sup>	Percent of the 564,629 interstate carrier drivers or trucks for which the characteristic was recorded <sup>b</sup>
Collision—		
Involving pedestrian	0.7	0.6
Involving motor vehicle in transport	53.0	50.3
Involving parked motor vehicle	1.4	1.6
Involving train	0.2	0.2
Involving pedalcycle	0.2	0.1
Involving animal	0.5	0.8
Involving fixed object	2.5	3.6
With work zone maintenance equipment	0	0
With other movable object	0.7	1.0
Other	7.0	6.8
Unknown or missing <sup>c</sup>	15.0	12.4

<sup>a</sup> MCMIS = Motor Carrier Management Information System, which is maintained by the Federal Motor Carrier Safety Administration. The data in this table exclude accidents involving trucks placarded for hazardous materials and buses.

<sup>b</sup> Percentages within a category may not total 100 due to rounding.

<sup>c</sup> Unknown = the person completing the data form after the accident did not know the information; missing = no data were reported.

## National Transportation Safety Board Survey Data

**Table B–8.** Operational characteristics as indicated by the intrastate motor carriers who responded to the National Transportation Safety Board’s 1999 survey.<sup>a</sup>

Operational characteristic	Response pertaining to the characteristic
<b>Carrier classification:</b>	<i>Percent who responded</i>
For-hire	18.7
Private	64.4
Both types	15.1
Other type	2.2
<b>Number of years carrier has been in business:</b>	<i>Percent who responded</i>
Less than 1	0.2
1–4	9.8
5–9	12.0
10–19	22.7
20–29	20.2
30–39	9.3
40–49	6.7
50	14.5
<b>Cargo transported:<sup>b</sup></b>	<i>Percent who responded</i>
Beverages	3.9
Building materials	10.8
Commodities dry bulk	3.1
Coal, coke	0.6
Construction	28.9
Drive away/tow away	0.6
Farm supplies	4.5
Fresh produce	1.6
Garbage, refuse, trash	6.7
General freight	4.3
Grain, feed, hay	12.2
Household goods	0.8
Liquids, gases	2.9
Livestock	1.8
Logs, poles, beams, lumber	11.8
Meat	0.4
Machinery, large objects	15.7
Metal: sheets, coils, rolls	1.8
Mobile homes	0.6
Motor vehicles	1.4
Oilfield equipment	1.0
Paper products	2.2
Refrigerated foods	1.4
Other (including gravel, cement, soil, laundry)	23.8
<b>Number of vehicles owned, by type:</b>	<i>Total vehicles, all respondents</i>
Power units	1,726
Trailers	2,569
Converter dollies	79
Straight trucks	2,812
Vans	276

**Table B–8.** Operational characteristics as indicated by the intrastate motor carriers who responded to the National Transportation Safety Board’s 1999 survey.<sup>a</sup>(continued)

Operational characteristic	Response pertaining to the characteristic
<b>Number of vehicles leased, by type:</b>	<i>Total vehicles, all respondents</i>
Power units	187
Trailers	161
Converter dollies	3
Straight trucks	159
Vans	5
<b>Average age of vehicles, by type:</b>	<i>Years</i>
Power units	11.05
Trailers	10.18
Converter dollies	2.8
Straight trucks	10.7
Vans	7.2
<b>Frequency of preventative maintenance:</b>	<i>Percent who responded</i>
Daily	16.9
Weekly	28.9
Monthly	20.2
5,000 miles	15.5
10,000 miles	3.7
15,000 miles	0.6
Other	8.7
<b>General maintenance performed by:</b>	<i>Percent who responded</i>
In-house	61.3
Contractor	3.5
Commercial garage	12.0
Combination	19.9
Other	1.4
<b>Major maintenance performed by:</b>	<i>Percent who responded</i>
In-house	19.8
Contractor	8.1
Commercial garage	53.6
Combination	13.8
Other	1.4
<b>Pre-trip inspections performed by:</b>	<i>Percent who responded</i>
Drivers	83.5
Dispatchers	0
Maintenance/mechanics	0.6
Safety personnel	0
Combination	8.9
Other	4.9

**Table B–8.** Operational characteristics as indicated by the intrastate motor carriers who responded to the National Transportation Safety Board’s 1999 survey.<sup>a</sup> (continued)

Operational characteristic	Response pertaining to the characteristic
<b>Post-trip inspections performed by:</b>	
	<i>Percent who responded</i>
Drivers	78.8
Dispatchers	0
Maintenance/mechanics	3.1
Safety personnel	0.2
Combination	10.8
Other	4.5
<b>Number of trucks with on-board recorders for recording hours of service:</b>	
	<i>Percent who responded</i>
0 trucks	84.9
1 truck	2.6
2 trucks	2.0
3 or more trucks	6.4
<b>Number of trucks with on-board recorders for recording maintenance records:</b>	
	<i>Percent who responded</i>
0 trucks	85.5
1 truck	3.3
2 trucks	1.2
3 or more trucks	6.4
<b>Number of driver positions:</b>	
	<i>Total drivers, all respondents</i>
Full-time drivers	3,334
Part-time drivers	543
<b>Average age of drivers:</b>	
	<i>Years</i>
Full-time drivers	41.4
Part-time drivers	41.7
<b>Average experience of drivers:</b>	
	<i>Years</i>
Full-time drivers	16.78
Part-time drivers	14.37
<b>Other driver-related operational characteristics:</b>	
	<i>Total for all respondents, or percent who responded</i>
Number of drivers younger than 21 years	86 drivers
All drivers of the carrier hold a CDL <sup>c</sup>	78.2 percent
All drivers of the carrier operate within 100 air-mile radius	86.2 percent
<b>Compensation of drivers:</b>	
	<i>Percent who responded</i>
By the mile	0.6
By the hour	60.5
By the trip	3.3
By commission	5.9
Combination of methods	2.2

**Table B–8.** Operational characteristics as indicated by the intrastate motor carriers who responded to the National Transportation Safety Board's 1999 survey.<sup>a</sup> (continued)

Operational characteristic	Response pertaining to the characteristic
<b>Percent of budget spent on safety:</b>	<i>Percent who responded</i>
0	22.4
0.01–0.99	4.6
1.0	14.7
1.1–9.9	16.6
10 or more	5.3
<b>Other safety-related operational characteristics:</b>	<i>Percent who responded</i>
Percent of carriers with a safety director	36.9
Percent of carriers with a written safety policy	45.4
<b>Number of times drivers or trucks inspected at roadside inspections, by year:</b>	<i>Total, for respondents</i>
1998	1,227
1997	1,173
<b>Number of drivers placed out-of-service, by year:</b>	<i>Total, for respondents</i>
1998	50
1997	45
<b>Number of trucks placed out-of-service, by year:</b>	<i>Total, for respondents</i>
1998	96
1997	94

<sup>a</sup> Of the 3,000 intrastate motor carriers to whom the questionnaire was mailed, 491 (16 percent) responded and indicated they conduct intrastate commerce only.

<sup>b</sup> Carriers may haul more than one type of cargo; therefore, percentages total more than 100.

<sup>c</sup> CDL = commercial driver's license.

### U.S. Roadside Inspection Data

**Table B–9.** Vehicle- and driver-related out-of-service violations charged to intrastate and interstate carriers resulting from U.S. roadside inspections, October 1, 1996, through September 30, 1999 (FY1997 through FY1999).<sup>a</sup>

Category and violation	Intrastate carriers		Interstate carriers	
	Number of violations	Percent of category <sup>b</sup>	Number	Percent of category <sup>b</sup>
<b>Vehicle-related violations:</b>				
Brake adjustment	27,923	7.7	219,751	13.3
Brake, other	78,183	21.6	395,195	23.9
Coupling devices	6,550	1.8	28,321	1.7
Emergency equipment	401	0.1	1,402	<0.1
Exhaust discharge	1,675	0.5	4,865	0.3
Fuel system	8,785	2.4	34,095	2.1
Frames	4,426	1.2	20,029	1.2
Lights	90,733	25.1	287,790	17.4
Load secure	21,924	6.1	81,695	4.9
Periodic inspection	85	<0.1	370	<0.1
Steering mechanism	12,854	3.6	44,072	2.7
Suspension	20,708	5.7	125,922	7.6
Tires	40,864	11.3	171,256	10.3
Wheels, studs, clamps,	9,577	2.7	56,072	3.4
Windshield	354	<0.1	897	<0.1
All other vehicle-related defects	36,334	10.1	184,126	11.1
Total, vehicle-related violations	361,376		1,655,858	
<b>Driver violations:</b>				
Medical certification	2,153	3.6	14,446	2.4
False log	216	0.4	50,729	8.4
No log/log not current	7,977	13.2	227,912	37.8
10/15 hours <sup>c</sup>	843	1.4	94,407	15.7
15/20 hours <sup>d</sup>	0	0	97	<0.1
60/70/80 hours <sup>e</sup>	116	0.2	38,193	6.3
All other hours-of-service violations	0	0	1,027	0.2
Disqualified driver	3,056	5.0	18,032	3.0
Drugs	260	0.4	4,046	0.7
Alcohol	1,009	1.7	8,034	1.3
Seat belt	37	<0.1	138	<0.1
Traffic enforcement	2,049	3.4	8,367	1.4
Radar detector	8	<0.1	127	<0.1
All other driver-related violations	42,822	70.7	136,921	22.7
Total, driver-related violations	60,546		602,476	

<sup>a</sup> The data exclude commercial vehicles carrying passengers or transporting hazardous materials.

<sup>b</sup> Percentages for a category may not total 100 because of rounding.

<sup>c</sup> Pertains to maximum driving times. A driver may not drive for more than 10 hours following 8 consecutive hours off duty. In Alaska, a driver may drive for 15 hours.

<sup>d</sup> Pertains to maximum on-duty times. A driver may be on-duty for up to 15 hours following 8 consecutive hours off duty. In Alaska, a driver may be on duty for 20 hours.

<sup>e</sup> Pertains to maximum "weekly" driving times. A driver can be on duty only a maximum of 60 hours in 7 consecutive days or 70 hours in 8 consecutive days. In Alaska, a driver may be on duty a maximum of 80 hours in 8 consecutive days.

Source: Federal Motor Carrier Safety Administration.