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# TRUCK SAFETY

# Motor Carriers Office's Activities to Reduce Fatalities Are Likely to Have Little Short-term Effect

Statement of Phyllis F. Scheinberg,
Associate Director, Transportation Issues,
Resources, Community, and Economic
Development Division

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Mr. Chairman and Members of the Subcommittee:

I am here today to discuss the safety of large commercial trucks on our nation's highways. My testimony presents preliminary information based on our ongoing work for this Subcommittee on the effectiveness of the Federal Highway Administration's Office of Motor Carrier and Highway Safety (OMCHS) in improving the safety of large trucks (those trucks with a gross vehicle weight of 10,000 pounds or more). Specifically, I will discuss (1) trends in crashes involving large trucks, (2) factors that contribute to such crashes, and (3) OMCHS' activities to improve the safety of large trucks.

In summary, of the nearly 42,000 people who died on our nation's highways in 1997, about 5,400 died from crashes involving large trucks. This represents a 20 percent increase from 1992. At the same time, the annual number of miles traveled by large trucks increased by a similar proportion. If this trend of increasing truck travel continues, the number of fatalities could increase to 5,800 in 1999 and to more than 6,000 in 2000. While trucks are involved in fewer crashes per mile traveled than are cars, crashes involving trucks are more likely to result in a fatality. In 1997, 98 percent of the fatalities from crashes between trucks and cars were occupants of the car.

Although no definitive information on the causes of crashes involving large trucks exists, several factors contribute to these crashes. These contributing factors include errors on the part of car and truck drivers, truck driver fatigue, and vehicle defects. Of these factors, errors on the part of car drivers are cited most frequently as contributing to crashes involving large trucks. Specifically, errors by car drivers were reported in 80 percent of the crashes, while truck driver errors were reported in 28 percent of the crashes.

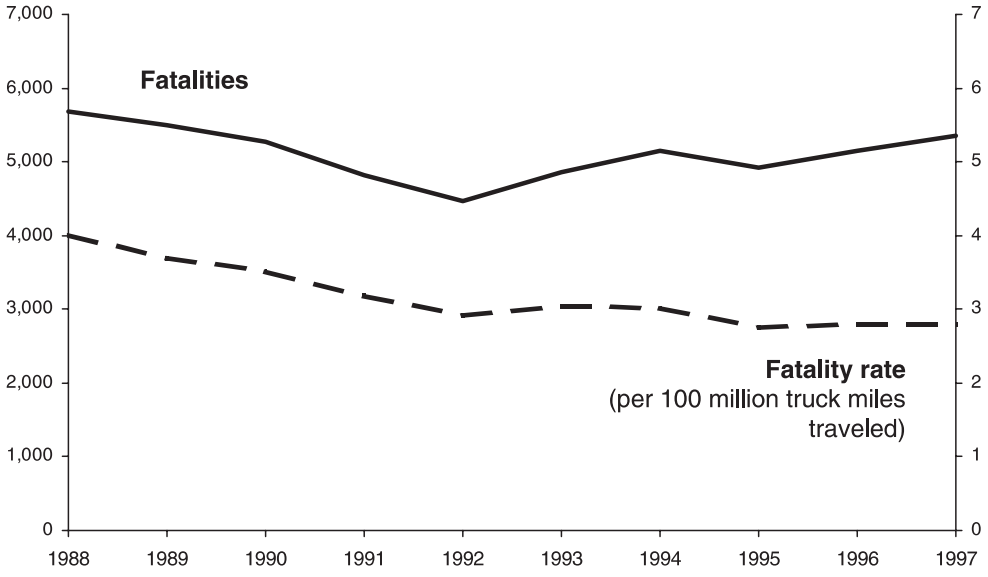
While many factors outside OMCHS' authority—such as the use of safety belts by car occupants and states' actions—influence the number of fatalities that result from crashes involving large trucks, the Federal Highway Administration has established a goal for 1999 of reducing these fatalities. Its goal is to reduce the number of fatalities to below the 1996 level of 5,126—substantially less than the projected figure of 5,800. OMCHS has undertaken a number of activities intended to achieve this goal, such as identifying high-risk carriers for safety improvements and educating car drivers about how to share the road with large trucks. However, OMCHS is unlikely to reach the goal because (1) its initiative to target high-risk

carriers for safety improvements depends on data that are not complete, accurate, or timely; (2) several activities will not be completed before the end of 1999; and (3) the effectiveness of OMCHS' educational campaign to improve car drivers' behavior is unknown.

## Fatalities From Large Truck Crashes Are Increasing, While Fatalities Per Mile Traveled Have Leveled Off

The annual number of fatalities from crashes involving large trucks increased 20 percent from 4,462 in 1992 to 5,355 in 1997 (see fig. 1).[1] This result reversed a trend of decreasing truck fatalities in the previous 5-year period, 1988-92. Also during the 1992-97 period, the fatality rate—the number of fatalities per 100 million miles traveled by large trucks—has remained fairly constant at about 2.9 after decreasing by 27 percent between 1988 and 1992.

**Figure 1: Fatalities From Large Truck Crashes and Fatality Rate, 1988-1997**




Sources: National Highway Traffic Safety Administration and Federal Highway Administration.

The recent increases in annual fatalities reflect in part increases in truck travel: the number of miles traveled increased by 25 percent from 1992 to

[1]The number of fatalities is from the Fatality Analysis Reporting System, which is considered a reliable data source for all fatal crashes, including fatal truck crashes. The reporting system is maintained by the National Highway Traffic Safety Administration.

1997. If truck travel continues to increase at this rate, and nothing is done to reduce the fatality rate, the annual number of fatalities could increase to 5,800 in 1999 and to more than 6,000 in 2000 (see fig. 2).

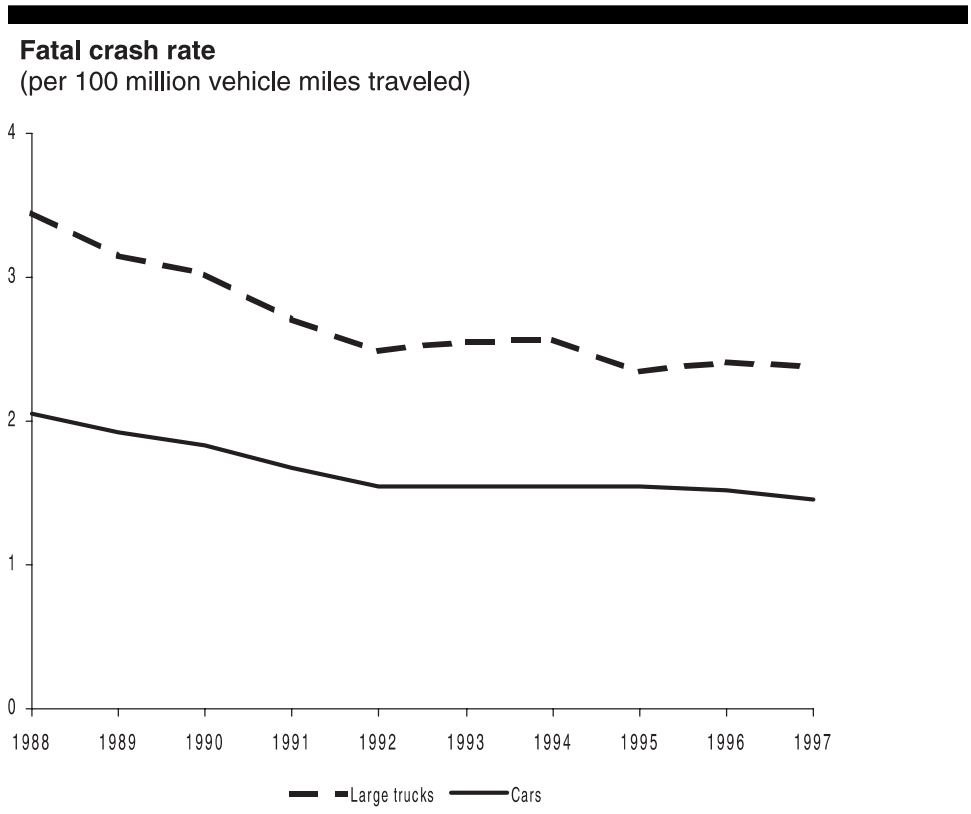
**Figure 2: Actual and Projected Fatalities From Large Truck Crashes, 1988-2000**


Sources: National Highway Traffic Safety Administration and Federal Highway Administration for 1988-1997; GAO's estimate for 1998-2000.

While we are concerned that the number of fatalities from crashes involving large trucks could increase in the next few years, only about 1 percent of all truck crashes reported to police in 1997 resulted in a fatality. About 99 percent resulted in injuries or property damage only. From 1988 through 1997, the number of people injured each year increased overall from 130,000 to 133,000. During the same period, the number of injuries per 100 million miles traveled fell from 92 to 69. In addition, the annual number of crashes involving large trucks that resulted in property damage only increased from 291,000 to 329,000 while the number of these crashes per 100 million miles traveled decreased from 206 to 172.

For each mile that they traveled between 1988-97, large trucks were involved in fewer total crashes than cars were.[2] However, large trucks were involved in a greater number of fatal crashes per mile traveled (see fig. 3). The higher fatal crash rate for large trucks is not surprising, considering the difference in weight between large trucks and cars. When there is such a mismatch in weight between the vehicles involved in a crash, the lighter one and its occupants tend to suffer more damage. In fatal crashes between large trucks and cars in 1997, 98 percent of the fatalities were occupants of the car.

**Figure 3: Comparison of Fatal Crash Rates for Large Trucks and for Cars, 1988-1997**




Note: Rates for both categories include crashes between trucks and cars.

Sources: National Highway Traffic Safety Administration and Federal Highway Administration.

[2]For the purpose of this testimony, car is defined as all passenger vehicles, including cars, pickup trucks, sport utility vehicles, and vans under 10,001 pounds gross vehicle weight rating.

## Drivers and Mechanical Failures Are Contributing Factors to Fatal Truck Crashes

While no definitive information on the causes of fatal crashes exists, there is information on factors that may contribute to these crashes.[3] Data from the National Highway Traffic Safety Administration's Fatality Analysis Reporting System show that errors on the part of car drivers have been cited more frequently as contributing factors to crashes between large trucks and cars. In fatal crashes, police report driver errors or other factors related to a driver's behavior that contributed to the crash. In 98 percent of the fatal crashes between large trucks and cars in 1997, driver factors were recorded for one or both drivers. Errors by car drivers were reported in 80 percent of the crashes, while errors by truck drivers were reported in 28 percent of the crashes. The inference that car drivers were more often "at fault" than truck drivers has been disputed by safety groups. These groups maintain that because far more truck drivers than car drivers survive fatal crashes between large trucks and cars, more truck drivers have the opportunity to tell the officer at the crash scene their version of how the crash occurred. However, a recent study found that in fatal crashes in 1994 and 1995 in which both the truck driver and the car driver survived, car driver errors were cited in 74 percent of the crashes compared to 35 percent for truck driver errors.[4] This finding lends some support to the hypothesis that, compared to truck drivers, car drivers contribute more to fatal crashes between large trucks and cars.

One driver factor—truck driver fatigue—was identified as the number one issue affecting the safety of motor carriers during a 1995 safety meeting of representatives from government, trucking associations, and safety interest groups. When truck driver fatigue contributes to truck crashes, truck drivers are killed more often than someone outside the truck. From 1992 through 1997, fatigue was cited by police officers for 11 percent of truck drivers in crashes that were fatal to the truck occupant(s) only.[5] In contrast, fatigue was cited for less than 1 percent of truck drivers in crashes that were fatal to people besides truck occupants, such as car occupants or pedestrians.

However, these figures may significantly underestimate the actual proportion of fatal truck crashes attributable to fatigue because of the

[3]A contributing factor does not necessarily identify fault or the cause of a crash; rather, these factors reflect the judgment of the officer at the scene and are not based on a thorough evaluation of the crash in an attempt to determine the cause of the crash.

[4]Daniel Blower, The Relative Contribution of Truck Drivers and Passenger Vehicle Drivers to Truck-Passenger Vehicle Traffic Crashes, The University of Michigan Transportation Research Institute (Ann Arbor, Mich.: 1998).

[5]Truck occupants killed in crashes are almost always the truck driver.

difficulty of determining the pre-crash condition of the driver after a crash occurs. OMCHS estimates that truck driver fatigue is the primary factor in 15 to 33 percent of the crashes that are fatal to the truck occupant(s) only, and 1 to 2 percent of crashes that are fatal to people besides the truck occupant(s). Furthermore, the National Transportation Safety Board estimates that truck driver fatigue is the probable cause of 31 percent of crashes involving trucks over 26,000 pounds that are fatal to the driver.[6]

Mechanical defects, such as worn brakes or a bald tire, have also been cited as a contributing factor to crashes involving large trucks. According to estimates in several studies, the percentage of such crashes that are attributed to mechanical failure ranges from 5 to 13 percent.[7] In addition, in a 1996 study, OMCHS estimated that 29 percent of all large trucks had mechanical defects severe enough to warrant placing the vehicles out of service.[8] While we do not know whether any of these large trucks had crashes as a result of their defects, they probably presented a higher crash risk than large trucks without defects.

Other factors that may contribute to crashes or that may affect whether a fatality occurs in a crash include drivers' blood alcohol concentration and use of safety belts. These measures suggest that truck drivers who are involved in fatal crashes might be more safety conscious than car drivers involved in such crashes. For example, in fatal crashes between large trucks and cars in 1997, about 1 percent of truck drivers had blood alcohol concentrations of 0.10 or above, compared to 15 percent of car drivers. In addition, 75 percent of truck drivers were wearing their safety belt in fatal crashes between a large truck and a car in 1997, compared to 47 percent of car drivers.

## OMCHS Is Not Likely to Meet the 1999 Goal of Reducing Fatalities

The Federal Highway Administration has established a goal for 1999 of reducing the number of fatalities from crashes involving large trucks to fewer than 5,126—the number of fatalities that occurred in 1996. This goal is substantially below the projected figure of 5,800 for 1999 if recent trends continue. OMCHS has undertaken a number of activities that it believes will

[6]Fatigue, Alcohol, Other Drugs, and Medical Factors In Fatal-to-the-Driver Heavy Truck Crashes, (Safety Study NTSB/SS-90/01, 1990).

[7]OMC Safety Program Performance Measures, Office of Motor Carriers, Federal Highway Administration, draft report (Jul. 1998). T.D. Gillespie and L.P. Kostyniuk, A Rationale For Establishing the Period of Validity For CVSA Truck Inspection Decals. University of Michigan Transportation Research Institute, (Ann Arbor, Mich.: Apr. 1991).

[8]National Fleet Safety Survey, 1996, prepared for the Office of Motor Carriers by Star Mountain, Inc. (Mar. 1997).

accomplish this short-term goal.[9] While these activities could have a positive effect on truck safety issues over the long term if effectively implemented, OMCHS is not likely to reach its goal for 1999. This is because (1) its initiative to target high-risk carriers for safety improvements depends on data that are not complete, accurate, or timely, (2) major components of several activities will not be completed before the end of 1999, and (3) the effectiveness of OMCHS' educational campaign to improve car driver behavior is unknown.

OMCHS' activities are just one of many factors that affect the level of truck safety. OMCHS' activities—either directly or through grants provided to states—are intended to improve truck safety largely by influencing the safety practices of trucking companies and the behavior of truck drivers. There are other factors that affect truck safety that OMCHS does not directly influence, such as the use of safety belts by car occupants, highway design standards, trucks' and cars' handling and crashworthiness characteristics, traffic congestion, local traffic laws and enforcement, and state initiatives.

## Insufficient Data Limit OMCHS' Ability to Target High-Risk Carriers and States' Ability to Develop and Implement Safety Plans

Each year, OMCHS and state inspectors conduct thousands of on-site reviews of motor carriers' compliance with federal safety regulations, known as compliance reviews. To identify high-risk carriers for these reviews, OMCHS uses a safety status measurement system known as SafeStat. SafeStat relies heavily on data from OMCHS' motor carrier management information system (MCMIS) to rank motor carriers on the basis of four factors: (1) crashes, (2) driver factors, (3) vehicle factors, and (4) safety management. The crash factor is given twice the weight of the other factors because carriers that have been in crashes are considered more likely to be involved in crashes in the future. Carriers that are ranked in the worst 25 percent of all carriers for three or more factors or for the accident factor plus one other factor are targeted for a compliance review.

However, SafeStat's ability to accurately target high-risk carriers is limited because state officials do not report a large percentage of crashes involving large trucks to MCMIS. For 1997, OMCHS estimated that about 38 percent of all reportable crashes and 30 percent of the fatal crashes involving large trucks were not reported to MCMIS.[10] Furthermore, 10 states reported fewer than 50 percent of the fatal crashes occurring within their

[9]Truck fatality data for each calendar year are typically not available until 6 months after the end of the year. Therefore, OMCHS will not know if it has achieved its goal for 1999 before July 2000.

[10]For OMCHS purposes, a reportable crash must result in a fatality, an injury where the person injured is taken to a medical facility, or one vehicle having been towed from the scene.

borders, including four states that reported fewer than 10 percent. Because MCMIS does not contain a record of all crashes, a carrier that has been involved in a substantial number of crashes might go undetected by SafeStat. According to OMCHS officials, states do not report all crashes for several reasons. In particular, (1) states do not understand that complete reporting would enable OMCHS to more accurately target high-risk carriers, (2) state employees who submit crash data to MCMIS may not have sufficient training or incentives, or (3) there may be errors in some states' databases that are preventing the transmittal of the data. According to OMCHS officials, an initiative to encourage states to report data for all crashes in a consistent manner is being developed; no implementation date has been set.

SafeStat's ability to target high-risk carriers is also limited by out-of-date census data in MCMIS. SafeStat uses the census data—such as the number of trucks operated by each carrier—to normalize safety data. For example, SafeStat checks the number of crashes reported for a carrier against the number of trucks operated by the carrier to determine if the number of crashes is disproportionate. However, interstate carriers are required to file census data with OMCHS only once—when they initially go into business. After that, the census data are updated generally only when OMCHS or states conduct compliance reviews at the carriers' facilities. Each year from 1993 through 1997, these reviews were conducted for fewer than 4 percent of these carriers listed in MCMIS, whose number increased from 275,000 to more than 415,000 over the period. According to OMCHS officials, a system to update census data annually will not be implemented for at least 2 years.

As we reported in 1997, states have improved the timeliness of reporting the results of the roadside inspections, compliance reviews, and crashes that are used by SafeStat.[11] However, they are still not meeting OMCHS' reporting deadlines. OMCHS' December 1996 guidance to states includes deadlines to report the results of roadside inspections and compliance reviews within 21 days, and crashes within 90 days. As shown in table 1, states improved the timeliness of reporting data to MCMIS from fiscal year 1997 to 1998 but were missing OMCHS' deadlines by an average of 8 to 16 days.

[11]Commercial Motor Carriers: DOT Is Shifting to Performance-Based Standards to Assess Whether Carriers Operate Safely (GAO/RCED-98-8, Nov. 3, 1997).

**Table 1: Average Number of Days to Report Results of Roadside Inspections, Compliance Reviews, and Crashes to MCMIS, Fiscal Years 1996-1998**

| | Average number of days to report to MCMIS | | | Reporting deadline | Difference in FY 1998 and reporting deadline |
|---|---|---|---|---|---|
| | FY 1996 | FY 1997 | FY 1998 | | |
| Roadside inspections | 49 | 47 | 37 | 21 | 16 |
| Compliance reviews | 35 | 41 | 29 | 21 | 8 |
| Crashes | 195 | 120 | 102 | 90 | 12 |

Note: The reporting deadline was established during fiscal year 1997.

Source: GAO's analysis of OMCHS' data.

Data problems also exist at the state level. In fiscal year 1998, all states submitted performance-based safety plans to OMCHS for the first time. Under these plans, states must identify areas that need improvement, such as sections of highways where a disproportionate number of crashes involving large trucks have occurred, and develop a plan for improving those areas. In a pilot program to implement performance-based plans, 5 of the 13 pilot states reported that they lacked sufficient or timely data to accurately identify areas that need improvement. OMCHS officials said that insufficient data—such as carrier size information that is used to help states focus their safety education programs for carriers—have also been a problem for some states once they have identified problem areas and are developing improvement plans.

## Several OMCHS Activities to Improve Large Truck Safety Are Not Complete

Several of OMCHS' activities that could improve large truck safety—including revising the rule governing the number of hours that truck drivers can drive and targeting high-risk carriers through the number of citations drivers receive—will not be completed before the end of 1999. The ICC Termination Act of 1995 directed the Federal Highway Administration to modify the existing hours of service rule for commercial motor vehicles to incorporate countermeasures for reducing fatigue-related incidents, such as crashes. The act required the Administration to issue an advance notice of proposed rulemaking by March 1, 1996; this notice was issued on November 5, 1996. The act also required a proposed rule within one year after the advance notice, and a final rule within two years after that one year deadline. The Administration has not issued a proposed rule. OMCHS officials explained that revising the rule is a difficult and very contentious issue and the final rule will not be issued until 2000 or later.

In addition, OMCHS has concluded that high-risk carriers can be more accurately targeted by tracking the number of citations issued to each carrier's drivers. A 1997 report prepared for the Federal Highway Administration found that trucking companies with higher rates of citations—for such things as overweight vehicles or moving violations—are also more likely to have higher accident rates.[12] OMCHS officials have stated that they plan to develop software that will track the number of citations drivers for each carrier receive. However, states must first agree on a standard format for collecting and reporting citations, and OMCHS does not yet have an estimated date for implementing its plan to use driver citations as a targeting mechanism.

## Effectiveness of OMCHS' Activity to Improve Car Driver Behavior Is Unknown

Because of the large contribution of car driver errors to fatal crashes between large trucks and cars, OMCHS launched the "No-Zone" campaign in 1994. ("No-Zone" is a term used to describe the areas around a truck where the truck driver's visibility is limited.) This campaign is intended to reduce crashes between large trucks and cars by educating car drivers about how to safely share the road with large trucks and about trucks' limitations, such as reduced maneuverability, longer stopping distances, and blind spots. The campaign's public education efforts include public service announcements via radio, television, and print; brochures; posters; and decals on large trucks. Because car drivers between 15 and 20 years old were found to be involved in a relatively high percentage of fatal crashes, the "No-Zone" campaign focused a large part of its public outreach on this age group.

The campaign has a goal of reducing fatal crashes involving large trucks and cars by 10 percent over a 5-year period. However, as evidenced by the overall increase in the number of fatalities since 1994, the campaign apparently did not make any progress toward achieving its goal through 1997, the last year for which data are available. OMCHS has not determined to what extent, if any, the "No-Zone" campaign has contributed to changing car drivers' behavior and reducing crashes between large trucks and cars. While OMCHS plans to conduct a national telephone survey within the next year to determine the level of public recognition of the "No-Zone" campaign, the survey will not measure whether car drivers' behavior has changed.

[12]Driver/Carrier Data Relationship Project, Phase II Report, Prepared by AAMVAnet, Inc. and Keane Federal Systems for the Federal Highway Administration, February 1997.

These findings summarize our work to date. We are continuing our review of the effectiveness of OMCHS for this Subcommittee. Mr. Chairman, this concludes my statement. I will be pleased to answer any questions that you or Members of the Subcommittee may have.

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