DEPARTMENT OF TRANSPORTATION

Federal Motor Carrier Safety Administration

49 CFR Parts 350, 390, 394, 395, and 398

[Docket No. FMCSA–97–2350; formerly FHWA–97–2350 and MC–96–28]

RIN 2126–AA23

Hours of Service of Drivers; Driver Rest and Sleep for Safe Operations

AGENCY: Federal Motor Carrier Safety Administration (FMCSA), DOT.

ACTION: Notice of proposed rulemaking (NPRM); request for comments.

SUMMARY: The FMCSA is proposing to revise its hours-of-service (HOS) regulations to require motor carriers to provide drivers with better opportunities to obtain sleep, and thereby reduce the risk of drivers operating commercial motor vehicles (CMVs) while drowsy, tired, or fatigued to reduce crashes involving these drivers. This action is necessary because the FMCSA estimates that 755 fatalities and 19,705 injuries occur each year on the Nation's roads because of drowsy, tired, or fatigued CMV drivers. The regulations proposed in this document would:

First, revert to a 24-hour daily cycle, and a 7-day weekly cycle.

Second, adjust the work-rest requirements for various types of operations.

Third, emphasize rest. Require for long-haul and regional drivers a period of 10 consecutive hours off duty within each 24-hour cycle, and two hours of additional time off in each 14-hour work period within each 24-hour cycle.

Fourth, require weekends, or their functional equivalent, to include at a minimum a rest period that includes two consecutive periods from 11:00 p.m. to 7:00 a.m.

Fifth, require the use of electronic on-board recorders (EOBRs) in CMVs used by drivers in long-haul and regional operations.

DATES: You must submit your comments to this NPRM no later than July 31, 2000; however, late comments will be considered to the extent practicable.

ADDRESSES: Signed, written comments should refer to the docket number appearing at the top of this document and must be submitted to the Docket Clerk, U.S. DOT Dockets, Room PL–401, 400 Seventh Street, SW., Washington, DC 20590–0001. Written comments and data may also be submitted electronically by using the submission form at *http://dmses.dot.gov/submit/BlankDSS.asp.* All comments received will be available for examination at the above address between 9 a.m. and 5 p.m., e.t., Monday through Friday, except Federal holidays. Those desiring notification of receipt of comments must include a self-addressed, stamped envelope or postcard.

FOR FURTHER INFORMATION CONTACT: *For information on the proposed rule:* Mr. David Miller or Ms. Deborah Freund, Federal Motor Carrier Safety Administration, (202) 366–1790, and Mr. Charles Medalen, Office of the Chief Counsel, Federal Highway Administration, (202) 366–1354. *For information on the public hearings:* Mr. Stan Hamilton, Federal Motor Carrier Safety Administration, (202) 366–0665. *For information about submitting comments and data electronically:* DMS Web staff at Mail.Dockets@tasc.dot.gov, Department of Transportation, 400 Seventh Street, SW., Washington, DC 20590–0001.

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I. Electronic Availability of This NPRM

Internet users may access this NPRM and all comments received by the U.S. DOT Dockets, Room PL–401, by using the universal resource locator (URL): *http://dms.dot.gov.* It is available 24 hours each day, 365 days each year. Please follow the instructions online for more information and help.

An electronic copy of this document may be downloaded by using a computer, modem, and suitable communications software from the Government Printing Office's Electronic Bulletin Board Service at (202)512–1661. Internet users may reach the Office of the Federal Register's home page at: *http://www.nara.gov/fedreg* and the Government Printing Office's web page at: *http://www.access.gpo.gov/nara.*

Internet users may also find this NPRM at the FMCSA's Motor Carrier Regulatory Information Service (MCREGIS) website for proposed rules at: *http://mchs.fhwa.dot.gov/rulesregs/fmcsr/rulemakings.htm#proposedrule.*

II. Introduction

There is general consensus that modifications to current HOS regulations would substantially improve CMV safety by reducing the fatigue factor in CMV-involved crashes. There is evidence that many crashes occur as a result of CMV driver error, that driver error is often the result of inattention,

that inattention can often be the result of fatigue, that the fatigue which causes inattention is often related to sleep deprivation, and that sleep deprivation is often related to working conditions of drivers. This proposal would make the HOS regulations more effective by requiring motor carriers and drivers to adhere to the following six standards and enforcing them:

1. Promote scheduling, dispatching, and operating practices minimizing the use of tired, inattentive drivers.
2. Make available for each driver a consecutive minimum off-duty period of time each workday and workweek for the purpose of obtaining restorative sleep.
3. Make available for each driver an additional minimum off-duty period of time each workday, during the workday or afterwards, to allow a driver to tend to personal necessities and rest at the driver's discretion.
4. Empower the driver to accept or refuse dispatch or continuation of a trip based upon the driver's assessment of his/her alertness level.
5. Enhance motor carriers' and CMV drivers' knowledge and use of safety techniques, devices, and practices that avoid driver impairment due to lack of sleep.
6. Require the use of automated time EOBR technology to monitor the work-rest cycles of long-haul and regional drivers and compliance with the rules, as well as encourage the use of technology for other drivers.

The basic HOS rules have been in effect in their current form since 1962, and controversial for even longer than that. The rules allow CMV drivers in interstate commerce to drive up to 10 hours after 8 consecutive hours off duty. After being on duty for 15 hours, a driver may not drive without taking another 8 consecutive hours off duty. Weekly limits provide that if a motor carrier does not operate CMVs every day of the week, its drivers may not drive after being on duty 60 hours in 7 consecutive days; if the carrier operates CMVs every day, its drivers may not drive after being on duty 70 hours in 8 consecutive days (49 CFR 395.3). Although the charge is sometimes made that the FMCSA is pursuing an ill-conceived ''one size fits all'' policy toward the highly diversified motor carrier industry, the HOS rules in fact include a number of exceptions for specific situations or operations (see § 395.1).

It has become increasingly clear, however, that a complete reevaluation of the HOS rules is needed. America's transportation system has changed significantly since 1962, and even more fundamentally since the late 1930's, when the Interstate Commerce Commission (ICC) adopted the first HOS rules. Long-haul truckers in the 1930's could average only 25 miles per hour (mph)—the top speed was 40 mph—and the best daily run was about 250 miles (11 M.C.C. 203). The construction of the Interstate Highway System has contributed to significantly higher traffic speeds and volumes. Trucking, once a relatively minor adjunct to the railroads, has become the dominant form of transportation for most commodities. Much of the nation's truck traffic moves on the Interstates and other high-speed roads, sometimes for very long distances. Increased exposure to the risk of accidents follows automatically from annual increases in the number of trucks and other vehicles on the road and in total vehicle miles of travel (VMT). The high volume and speed of traffic on the Interstates and many other roads require a high level of driver alertness, for the sheer mass of a truck can make it deadly when accidents occur. Of course, trucks also operate in local or regional environments, often in heavy traffic, and drivers are required to perform an ever-wider range of duties. The results of scientific research into fatigue causation, sleep, circadian rhythms, night work, and other matters were unavailable decades ago when the HOS rules were formulated.

Many people have indicated their concern over driver fatigue, and their concomitant belief that the present HOS regulations do not adequately ensure that drivers are rested. Driver fatigue was voted the number one safety concern of the Federal Highway Administration's (FHWA) 1995 Truck and Bus Safety Summit, a meeting of over 200 drivers, motor carrier representatives, government officials, and safety advocates. The National Transportation Safety Board (NTSB) has also asked the FMCSA to investigate driver fatigue.

On June 1, 1999, the NTSB, recognizing that fatigue is an issue which affects all transportation modes, issued the following recommendation to the Department of Transportation:

> Require the modal administrations to modify the appropriate Codes of Federal Regulations to establish scientifically based hours-of-service regulations that set limits on hours of service, provide predictable work and rest schedules, and consider circadian rhythms and human sleep and rest requirements. Seek Congressional authority, if necessary, for the modal administrations to establish these regulations.

The FMCSA had already devoted several years' of work toward the development of this NPRM at the time the NTSB issued its recommendation. The FMCSA believes that the revised HOS rules proposed today will reduce the acute and cumulative fatigue which appears to beset many drivers and thus prevent a significant number of crashes and fatalities, while limiting major compliance costs on those segments of the motor carrier industry that have the lowest fatigue-related CMV crashes and focusing the major compliance costs on those segments with the highest fatigue-related CMV crashes.

The FMCSA's jurisdiction over the HOS regulations for motor carriers and drivers is specified in Table 1. Motor carriers and drivers are subject to applicable State motor vehicle and highway safety laws and regulations, regardless of whether the motor carriers or drivers are subject to any or all of the FMCSRs.

In October, 1999, the Secretary of Transportation rescinded the authority previously delegated to the Federal Highway Administrator to perform motor carrier functions and operations, and to carry out the duties and powers related to motor carrier safety, that are statutorily vested in the Secretary. That authority was redelegated to the Director of the Office of Motor Carrier Safety (OMCS), a new office within the Department (*see,* 64 FR 56270, October 19, 1999, and 64 FR 58356, October 29, 1999). The OMCS had previously been the FHWA's Office of Motor Carriers (OMC).

The Motor Carrier Safety Improvement Act of 1999 established the Federal Motor Carrier Safety Administration (FMCSA) as a new operating administration within the Department of Transportation, effective January 1, 2000 (Public Law 106—159, 113 Stat. 1748, December 9, 1999). The Secretary therefore rescinded the motor carrier authority delegated to the Director of the OMCS and redelegated it to the Administrator of the FMCSA (65 FR 220, January 4, 2000).

The staff previously assigned to the FHWA's OMC, and then to the OMCS, are now assigned to the FMCSA. The motor carrier functions of the FHWA's Resource Center's and Division (i.e., State) Offices have been transferred without change to the FMCSA Resource Centers and FMCSA Division Offices, respectively. For the time being, all phone numbers and addresses are unchanged. Similarly, rulemaking activities begun under the auspices of the FHWA and continued under the OMCS will be completed by the FMCSA. The recent redelegations do not affect the validity of the November 5, 1996, Advance Notice of Proposed

Rulemaking (ANPRM) in this proceeding (61 FR 57252). All comments to that docket have been transferred to the new FMCSA docket and have been considered in preparing this document. The NPRM has been under development since the June 30, 1997, ANPRM docket closing date. Although the FMCSA has attempted to remove all non-relevant present-tense references to the FHWA and the OMCS, any that remain should be considered references to the FMCSA.

TABLE 1.—APPLICABILITY OF FMCSA HOURS OF SERVICE OF DRIVERS RULEMAKING

If you operate a:	In interstate commerce	In intrastate commerce
CMV—A motor vehicle(s) that has any of the following four characteristics: 1. A GVW, GVWR or GCWR [1] of at least 4,537 kilograms (10,001 pounds); or 2. Is designed or used to transport more than 8 passengers, including the driver, for compensation; or 3. Is designed or used to transport more than 15 passengers, including the driver, and is not used to transport passengers for compensation; or 4. Is used to transport hazardous materials in quantities requiring the vehicle to be marked or placarded under the Hazardous Materials Regulations (49 CFR part 172, subparts D & F).	You must comply with all FMCSA HOS [2] requirements and are subject to proposals made in this NPRM.	You are not subject to the FMCSA HOS. You may be subject to proposals made in this NPRM, if your State or local government adopts final rules based on these proposals in order to participate in the Motor Carrier Safety Assistance Program, 49 CFR part 350.

[1] GVW, GVWR, and GCWR are acronyms for Gross Vehicle Weight, Gross Vehicle Weight Rating, and Gross Combination Weight Rating, respectively. See 49 CFR 390.5.

[2] As noted in § 390.3(f) and specifically provided elsewhere in the FMCSRs, the following six categories of CMVs and drivers operating these CMVs are exempt from the FMCSRs, in whole or in part:

(1) The occasional transportation of personal goods by individuals not for compensation (such as moving your own household) are exempt from all the FMCSRs.

(2) The transportation of children and/or school personnel from home to school and from school to home are only subject to the driver CDL and alcohol and controlled substance requirements of 49 CFR Parts 382 and 383.

(3) Transportation performed by the Federal government, a State, any political subdivision of a State, or an agency established under an agreement between States that has been approved by the U.S. Congress are only subject to the driver CDL and alcohol and controlled substance requirements of 49 CFR Parts 382 and 383.

(4) CMVs used wholly on private property not open to public travel (such as yard hostlers and yard tractors in a motor carrier's terminal) are exempt from all the FMCSRs.

(5) Fire trucks, ambulances, and rescue vehicles involved in emergency related operations, unless a State exempts driver of such vehicles (See 49 CFR 382.103(d) and 383.3(d)), are only subject to the driver CDL and alcohol and controlled substance requirements of 49 CFR Parts 382 and 383.

(6) Transportation of human corpses and sick and injured persons.

(7) The operation of CMVs designed to transport less than 16 passengers, including the driver, until March 6, 2000.

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Chart 1

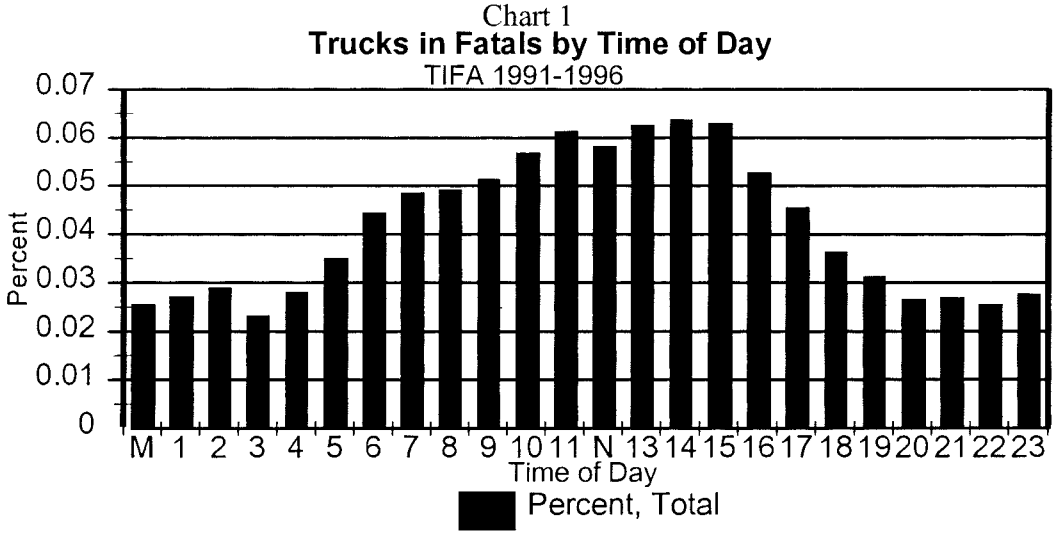


Chart 2

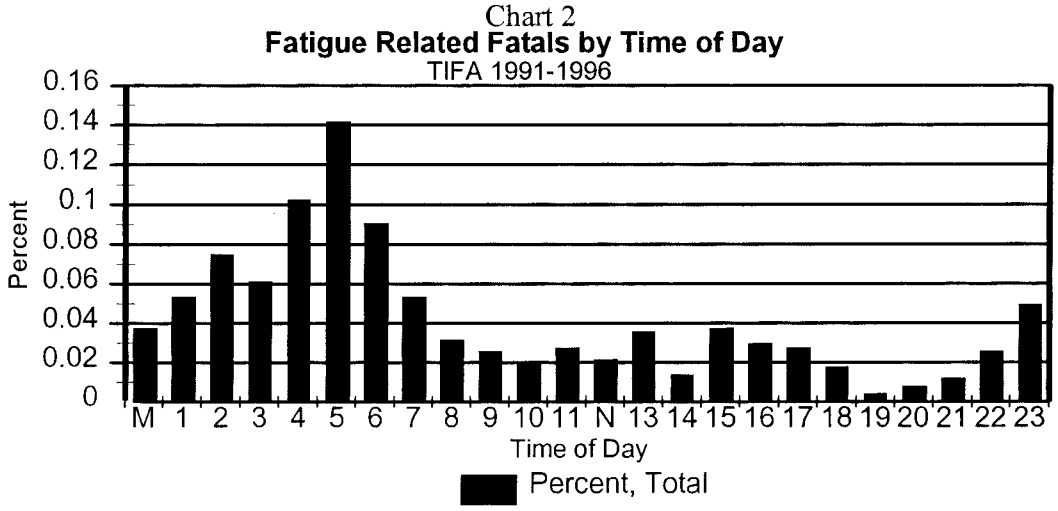


Chart 3

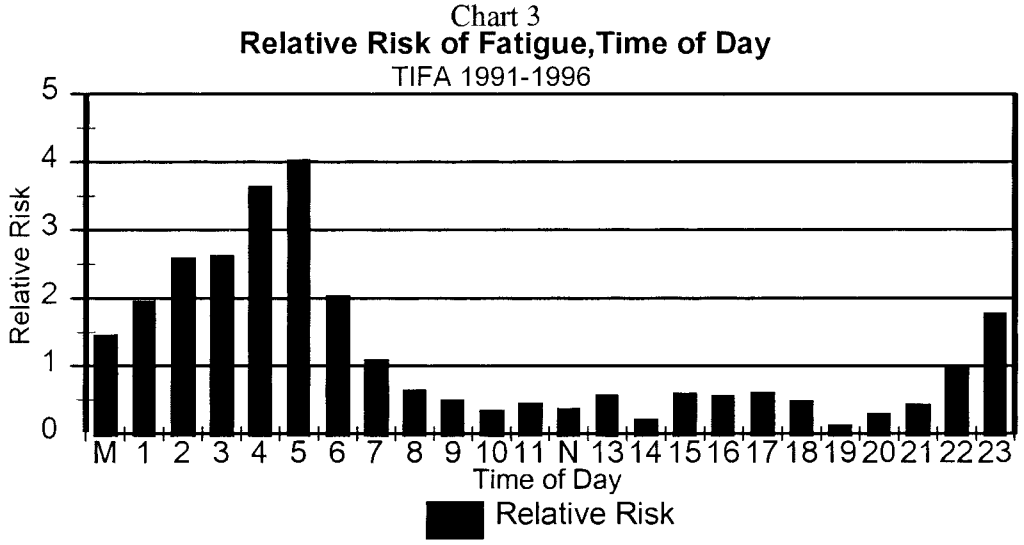


Chart 4

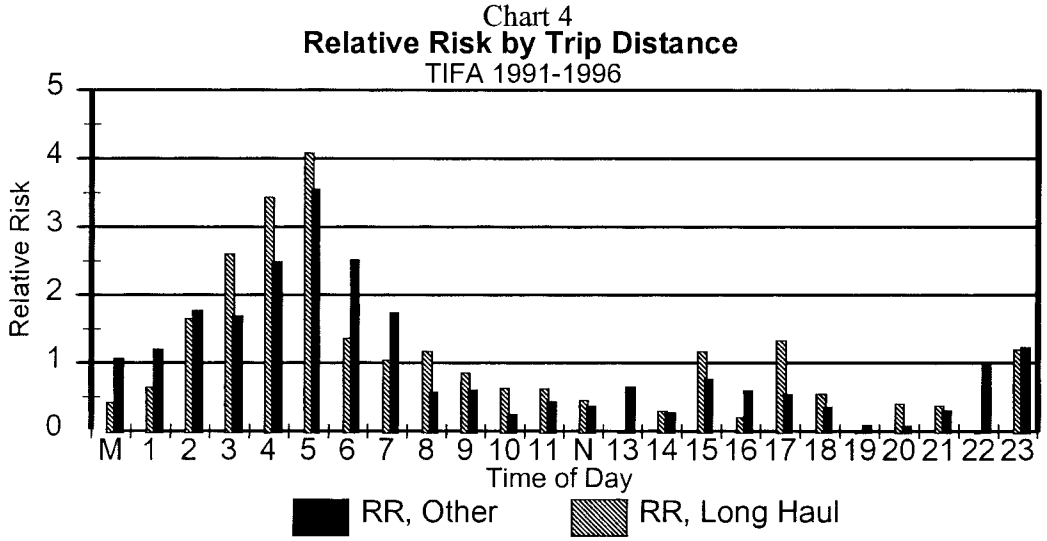


Chart 5

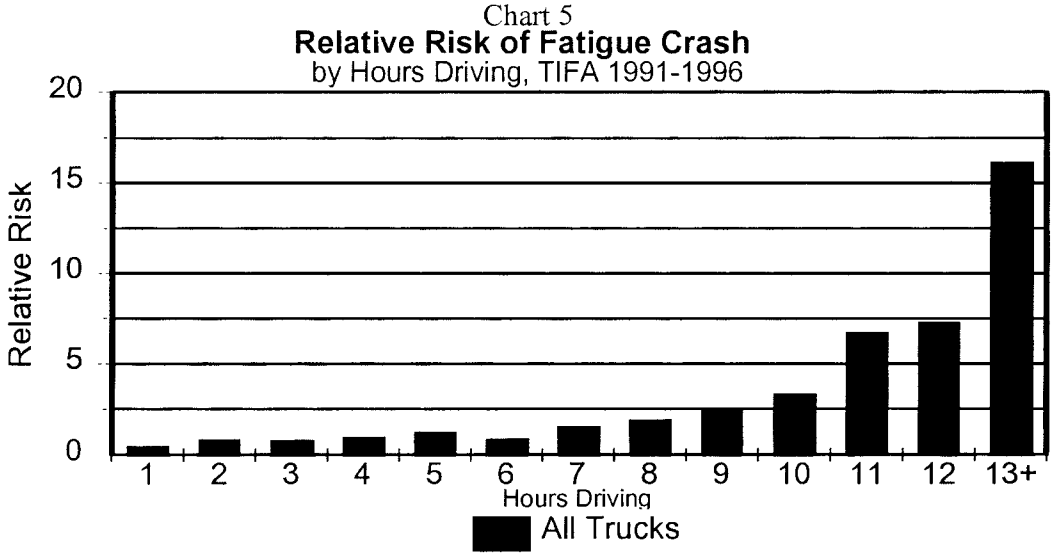
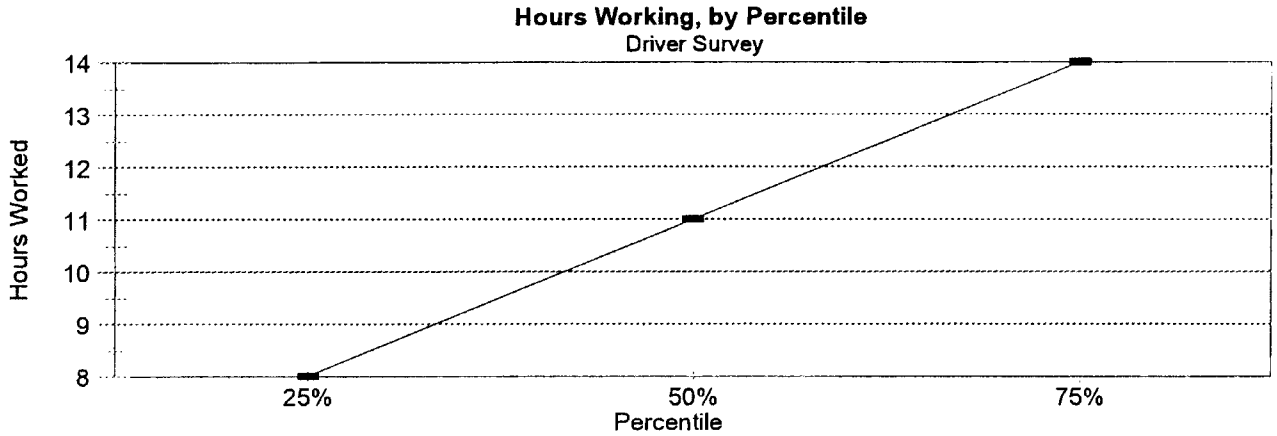


Chart 6



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III. The Safety Problem

While nearly everyone who has studied the current HOS rules agrees that they could and should be improved, it is difficult to reach consensus on alternatives because the extent and nature of the problem are unclear. This was acknowledged in a June 1, 1999, letter from Jim Hall, Chairman of the NTSB, to DOT Secretary Rodney E. Slater. Chairman Hall said, among other things:

> Fatigue has remained a significant factor in transportation accidents since the Safety Board's 1989 recommendations were issued. Although generally accepted as a factor in transportation accidents, the exact number of accidents due to fatigue is difficult to determine and likely to be underestimated. The difficulty in determining the incidence of fatigue-related accidents is due, at least in part, to the difficulty in identifying fatigue as a causal or contributing factor in accidents. There is no comparable chemical test for identifying the presence of fatigue as there is for identifying the presence of drugs or alcohol; hence, it is often difficult to conclude unequivocally that fatigue was a causal or contributing factor in an accident. In most instances, one or more indirect or circumstantial pieces of evidence are used to make the case that fatigue was a factor in the accidents. This evidence includes witness statements, hours worked and slept in the previous few days, the time at which the accident occurred, the regularity or irregularity of the operator's schedule, or the operator's admission that he fell asleep or was impaired by fatigue. Despite the difficulty in identifying fatigue as a causal factor, estimates of the number of accidents involving fatigue have been made for the different modes of transportation; the estimates vary from very little involvement to as high as about one-third of all accidents.
>
> Although the data are not available to statistically determine the incidence of fatigue, the transportation industry has recognized that fatigue is a major factor in accidents. Further, the Safety Board's in-depth investigations have clearly demonstrated that fatigue is a major factor in transportation accidents.

The objective of this proposal is to reduce the number of fatigue-related truck and motorcoach crashes. The overall benefit therefore will depend on the effect this proposal will have on reducing the current number of these crashes.

For purposes of this proposal, the FMCSA has assumed that bus drivers operate in ways similar to truck drivers. The FMCSA requests comments about the accuracy of this assumption. Although there are research studies in the docket concerning the performance of bus drivers suffering from fatigue, the FMCSA could find no research studies on which to distribute bus drivers subject to FMCSA jurisdiction among different operations for the safety and benefit-cost analyses in the docket.

There are significant differences in published estimates of the number and proportion of fatigue-related CMV crashes. Much of this results from the differing analytical approaches used, particularly differences in the set of crashes analyzed. Generally speaking, these studies can be divided into two classes: those relying on large-scale accident data files, and those based on more intensive analysis of a smaller number of crashes.

The FMCSA and the National Highway Traffic Safety Administration (NHTSA) have conducted several fatigue-related CMV crash studies using large-scale data bases, primarily the Fatality Analysis Reporting System (FARS) and the General Estimates System (GES). These databases, which are managed by NHTSA, are based largely (but not exclusively) on police accident reports (PARs). Most police accident forms contain a field for driver contributing factor, and generally among the choices are driver fatigue, drowsiness, or asleep at the wheel. In most analyses, crashes in which one of these fields is checked are classified as fatigue-related.

Crash analysts frequently criticize use of PARs for fatigue analysis, as they believe that PARs understate the true extent of fatigue. Police face a number of difficulties in determining whether fatigue contributed to a crash. First, the responding officer's primary concern is assisting crash victims and restoring the flow of traffic. Investigating the causes of the crash is often a second (or lower) level concern. Second, few police officers are trained in crash reconstruction and, consequently, they are unable to conduct a detailed investigation of the physical and mechanical evidence.

Also, it is unclear what should be counted as a fatigue-related crash. Clearly all crashes where fatigue is cited should be included, but there are other crashes where fatigue may play a less direct role. Crashes involving inattention, distraction, or other driver failures may be related to fatigue, as fatigued drivers are more prone to various types of mental error. These errors are major causal factors in crashes.

The ''Tri-Level Study of the Causes of Traffic Accidents,'' Treat *et al.* (1979), is perhaps the most in-depth study ever performed in the United States on crash causation. This was principally a study of automobile drivers and their crashes. It found that ''recognition failure'' was involved in 56 percent of the crash cases analyzed. ''Recognition failure'' in this study meant: (1) Improper lookout, including faulty visual surveillance and ''looked but did not see;'' (2) inattention, including preoccupation with competing thoughts; (3) internal or (4) external distractions, including attention to competing events, activities, and objects in and out of the vehicle. While driver-drowsiness/fatigue was found to be a certain or probable factor in 2 percent of the cases, 23 percent involved faulty visual surveillance, 15 percent involved inattention, and 13 percent involved distraction. The FMCSA believes the study is generally applicable to CMV drivers and their crashes because the agency believes both CMV and automobile drivers are susceptible to driving related problems associated with visual surveillance, inattention, and distraction.

More recent studies have also found high levels of inattention and distraction. In a study of nearly 700 Crashworthiness Data System (CDS) and GES crashes, Najm *et al.* (1995) determined that recognition errors were the primary causes of 45 percent of the cases studied, compared to 3.7 percent primarily due to driver drowsiness. General Motors scientists reviewed over 1,000 PARs from the State of Michigan, and reported that 17 percent were attributable to ''daydreaming'' and 18 percent to improper lookout, with just 1 percent due to ''dozing.'' Deering (May 17, 1994).

A recent study by the United States Coast Guard also suggests that direct measurement of fatigue may understate its true extent, U.S. Coast Guard (1997)(MSC 68/INF.11). Coast Guard researchers developed a ''fatigue index,'' based on the number of fatigue symptoms reported, and the number of hours worked and slept in the 24 hours prior to the incident. Using this formula increased the percentage of critical vessel cases categorized as fatigue related from 1.2 percent to 16 percent. Critical vessel cases involve significant property damage or the loss of the vessel. Critical casualty cases involve personnel injuries. For critical casualty cases, the fatigue index resulted in an adjustment increase from 1.3 to 33 percent. These reports indicate the need to be more expansive and inclusive when defining fatigue-related incidents, as well as the likelihood that fatigue statistics based solely on accident reports underestimate the true extent of the fatigue problem.

Fatigue increases the likelihood that a driver will not pay sufficient attention to driving or commit other mental errors. As discussed above, in-depth studies of crashes have found that inattention and other mental lapses

contribute to as much as 50 percent of all crashes. While fatigue may not be involved in all these crashes, it clearly contributes to some of them. The agency tentatively estimates that 15 percent of all truck-involved fatal crashes are ''fatigue-relevant,'' that is, fatigue is either a primary or secondary factor. This includes the 4.5 percent of fatal crashes where fatigue is directly cited, and another 10.5 percent where it contributes to other mental lapses, which then result in a crash. The FMCSA conducted some sensitivity analysis to determine the impact of different baseline levels of fatigue. Table 2 shows the FMCSA's estimate of the number of fatigue-related crashes by operational type.

TABLE 2.—ESTIMATED ANNUAL NUMBER OF FATIGUE-RELATED CMV FATALITIES AND INJURIES

	Local	Other	Long haul	Unknown	Total
Fatalities	61	166	480	49	755
Injuries	1,581	4,319	12,532	1,273	19,705
Fatal crashes					645
Injury crashes					13,519
Total	1,642	4,485	13,012	1,322	20,460

Long-haul operations account for two-thirds of all fatalities, excluding those for which the length of haul was unknown. Only one half of one percent of fatalities and injuries occur in a crash with a truck whose driver has been reported driving 12 or more hours, although, as discussed above, the true figure is likely to be higher.

Other research also indicates that local drivers are less likely to be involved in a fatigue-related crash than long-haul drivers. An analysis of the fatal crash rate and mileage figures from the University of Michigan Transportation Research Institute's (UMTRI) Trucks Involved in Fatal Accidents (TIFA) database and the Bureau of the Census' 1992 Truck Inventory and Use Survey (TIUS) shows a dramatic difference in the crash experience of local and other trucks. Local, single-unit straight trucks had an average of 0.0022 fatigue-related fatal involvements per 1000 registered trucks. The comparable figure for long-haul tractor-trailers was 0.0781, approximately 35 times greater. On a per-mile basis, long-haul trucks were almost 20 times more likely to be involved in a fatigue-related crash. Massie *et al.* (1997).

Time of Day

Without reliable exposure data disaggregated by operational type, it is difficult for the FMCSA to confirm that truck travel matches the crash distribution. The UMTRI analyzed the relationship between the risk of fatigue given a fatal accident involvement and the risk of fatigue per VMT, by truck body type and trip type, using VMT data from the TIUS. This analysis, which is partially reprinted in Appendix B to the Preliminary Regulatory Evaluation (PRE) that is in the docket and incorporated by reference in this NPRM, suggests that the relative risk of fatigue given a fatal accident involvement is a good predictor of the risk of fatigue per VMT. This is important because exposure data are not available for many relevant variables (such as time of day and hours driving).

Chart 1 shows the distribution of trucks involved in fatal crashes. It generally mirrors truck traffic, with a mid-afternoon peak when the data show truck travel to be the highest. Chart 2 shows the distribution of fatigue involvement, which is quite different than overall involvement in crashes. Fatigue peaks between 4 a.m. and 6 a.m. Chart 3 combines data from both Chart 1 and 2 to show the relative risk of a fatigue involvement, given that a fatal crash occurs. Chart 3 closely resembles Chart 2, indicating that the incidence of fatigue is more variable than that of crashes. Relative risk looks the same for both long-haul and other trucks. Chart 4 shows that both types of operations have peak relative risks between 4 a.m. and 6 a.m.

There is no significant difference between the time of day distribution of straight and combination trucks.

Hours Driving

Chart 5 shows the relative risk of a fatigue-related fatal crash by the number of hours of driving. Data on hours driving up to 1992 came from phone interviews and from the FHWA's form MCS–50T accident reports. Motor carriers involved in certain accidents were required to complete these forms up to 1992. Since elimination of the requirement to file MCS–50T accident reports in 1993, data on hours driving come entirely from phone interviews by UMTRI researchers. The interview source is the owner of the truck, so the agency expects some under-reporting for hours above the current limits. About one quarter of all respondents refused to answer this question, much higher than the percent missing for any other question. Nonetheless, the data clearly show the impact of extra hours driving on the likelihood of fatigue being cited in a crash.

Not surprisingly, risk increases with time driven. Approximately 20 percent of the fatal crashes per year where fatigue is coded as a factor involve the driver being behind the wheel for 13 or more hours. There also appears to be a slight increase in the risk of fatigue-related crashes at 5 hours. This is difficult to discern in the following chart, but becomes apparent when looking at risks for long-haul drivers. Jovanis *et al.* (1991) found a similar pattern in their examination of crashes from one long-haul carrier, including both a bump at 5 hours and a more dramatic and consistent increase in crash risk after 8 hours. Lin *et al.* (1993). Lin noted a limitation in their analyses, and provide a caveat to the estimates of the odds ratios in the last driving hour category—a large number of non-crash trips are completed during the 8th or 9th hour of driving, but the authors' ''assumed failure time,'' defined as the expected time of involvement in an accident, would occur after this trip completion time.

As noted above, long-haul trucks are involved in about 67 percent of all fatigue-related truck crashes. These vehicles also have a greater relative risk of fatigue involvement for almost any given number of hours driving. Chart 5 would not appreciably change if vehicles were broken down by trip type, except when hours driving exceed 11, where the small numbers of crashes yield some extremely high relative risk values.

The distribution of crashes by vehicle type is not so clear-cut. Two-thirds of all trucks involved in fatal crashes between 1991 and 1996 were combination vehicles, including both tractor semi-

trailers and straight trucks pulling a trailer. These vehicles were also involved in four-fifths of all fatigue-involved fatal crashes, only slightly higher than the percentage of all fatal truck crashes. This suggests that truck body type is a good proxy for predicting fatigue.

Long-haul combination vehicles account for about half of all fatal CMV crashes, but three-fourths of all trucks in fatigue-involved fatal crashes. Straight trucks in long-haul operations are more likely to be fatigue involved; although they represent just 7 percent of trucks involved in fatal crashes, they account for 14 percent of fatigue-involved trucks. The relative risk for drivers of these vehicles is almost 2, while it is closer to 1.5 for drivers of combination vehicles in long-haul operations. This over-representation may be partly due to drivers of straight trucks being unaccustomed to the rigors of long-haul operations.

Injury Crashes

Data on non-fatal crashes are even more limited than for fatals. All the factors militating towards under reporting of fatigue in fatal crashes are even more prevalent in non-fatals. In addition, because the best estimate of the number of non-fatal truck-involved crashes is based on a sample rather than a census (as is the case with fatal crashes), the FMCSA is not able to segregate these crashes by carrier operational type. Therefore, for this analysis, the agency uses the ratio of all injury crashes to fatal crashes as a proxy for fatigue-related injury crashes. The agency has also estimated that injury crashes follow the same patterns as fatal crashes, with overall crashes higher in the afternoon and fatigue-related crashes peaking between 4:00 a.m. and 5:00 a.m.

To evaluate the consistency between fatal and injury crashes, the agency examined injury-crash data from Texas. The agency chose to review Texas for a number of reasons. First, it typically ranks among the highest in terms of fatal truck crashes, ensuring that the agency would have a large sample to analyze. Second, Texas reports a high proportion of fatigue in fatal truck crashes, which suggests the State is better at reporting fatigue. This analysis shows that injury crashes generally mirror the fatal crash distribution by time of day. No data are available on injury crashes by hours driving. Based on Texas' reports and the analysis of the general mirroring of injury crashes to fatal crash distribution, the FMCSA has determined that the distribution of injury crashes, both overall and fatigue-related, would follow the pattern exhibited by fatal crashes. The complete analysis has been placed in the docket.

This analysis does not include property damage only (PDO) crashes. We were not able to find any reliable information on PDO crashes by trip distance, hours driving, or time of day. The FMCSA also believes that fatigue-related crashes tend to be more severe than non-fatigue-related crashes, so the number of fatigue-related PDO crashes is probably small. In any case, the damage from PDO crashes, whether fatigue related or not, is, by definition, minimal. In an analysis in another rulemaking, the FMCSA estimated that the average truck involved PDO crash costs society between $5,000 and $10,000. RIN (Regulatory Identification Number) 2125–AD27, Docket FHWA–1997–2222. To the extent that there are a sizable number of PDO crashes which would be affected by this proposal, overall benefits would be greater than the agency's estimate. See the PRE in the docket for a complete discussion of injury crashes. See the section headed ''XII. Rulemaking Analysis and Notices'' for more information about RINs.

The FMCSA invites comment on any aspect of the safety problem, the data and estimates used by the FMCSA, and the conclusions reached as a result of the analyses. Please provide with your comments all data, studies, and reports you rely upon that you believe the FMCSA should use.

IV. A Brief History of the Hours-of-Service Rules

The following is a brief history of the HOS rules. The docket contains a more complete discussion of the rules and their relationship to the Fair Labor Standards Act (FLSA) and implementing regulations.

A. The ICC's Original Rules

The Motor Carrier Act of 1935 (MCA) (Public Law 74–255, 49 Stat. 543, August 9, 1935), in addition to authorizing far-reaching economic regulation of the trucking industry, directed the ICC to establish qualifications and maximum hours of service for drivers working for private and for-hire interstate property carriers and for-hire interstate passenger carriers. This authority is now codified at 49 U.S.C. 31502.

The ICC published its safety proposals, including HOS limits, on July 8, 1936 (1 FR 738). In preparing its draft rules, the Commission examined all State HOS laws and regulations and solicited input from motor carriers and drivers. A formal rulemaking action, including hearings, was conducted before Division 5 of the ICC. (*Hearings:* 1 FR 1015, August 7, 1936; 1 FR 1510, October 2, 1936; 1 FR 2161, December 18, 1936.) On December 29, 1937, the ICC promulgated its final HOS regulations (effective July 1, 1938), along with detailed findings and explanations (3 M.C.C. 665, 3 FR 7, January 4, 1938). Concerning drivers' need for off-duty time, the ICC found:

> It is obvious that a man cannot work efficiently or be a safe driver if he does not have an opportunity for approximately 8 hours sleep in 24. It is a matter of simple arithmetic that if a man works 16 hours per day he does not have the opportunity to secure 8 hours sleep. Allowance must be made for eating, dressing, getting to and from work, and the enjoyment of the ordinary recreations. 3 M.C.C. 665, at 673 (1937).

Under the regulations adopted by the ICC, motor carriers could not permit or require drivers to be on duty more than 15 hours out of 24; drivers were thus allowed at least 9 hours off duty every day. The limit was designed to give them an opportunity for a minimum of 8 hours of sleep. Within the 15-hour on-duty period, the ICC set a 12-hour maximum daily work period for drivers. Work was defined as ''loading, unloading, driving, handling freight, preparing reports, preparing vehicles for service, or performing any other duty pertaining to the transportation of passengers or property.'' The ICC intended the 3-hour difference between 15 hours on duty and 12 hours of work to be used for meals and rest breaks. The Commission also set a weekly on-duty limit of 60 hours in any 7 consecutive days or 70 hours in 8 consecutive days.

B. Immediate Changes to HOS Rules

Within a short time, however, representatives of organized labor (including the American Federation of Labor, the Teamsters, and the Machinists) petitioned for a stay of the original regulations. A few motor carriers made a similar request. The ICC agreed, and oral arguments were heard again. Labor wanted HOS limits of 8 hours per day and 48 hours per week.

The ICC commented that:

> [T]here was no statistical or other information which would enable [us] to say definitely how long a driver can safely work. However, at the argument before us, the labor representatives particularly stressed the 15-hour limitation, contrasting such a tour of duty with the 8-hour day which is now so generally recognized as the normal standard for workers. The evidence before us clearly does not suffice to enable us to conclude that a duty period as low as 8 hours in 24 is required in the interest of safety. We may call attention, as did the division, to the contrast between factory operations, generally sustained in character, and the operation of busses and trucks, generally characterized by frequent stops for refreshments, gas, or rest,

or because of conditions encountered in highway and street traffic. The monotony or nervous and physical strain of driving such vehicles is alleviated by these breaks in the periods devoted to driving, and the period of actual work is considerably below the period on duty. 6 M.C.C. 557, at 561 (July 12, 1938)

The Commission ultimately decided to change the 12-hour work limit in 24 hours to a 10-hour driving limit in 24 hours. Motor carriers were required to give drivers 8, rather than 9, consecutive hours off duty each day. That meant drivers could be kept on duty as much as 16 hours out of 24; the specific daily on-duty limit was rescinded. The 60- and 70-hour limits were unchanged (3 FR 1875, July 28, 1938). The ICC remarked that these rules were somewhat less flexible than the original HOS regulations, but considerably more flexible than the standards requested by organized labor. ''[A]s the great bulk of the trucking operations covered by these regulations are conducted on a 6-day basis,'' the report said, ''the practical effect of the weekly limitation is to provide a 10-hour day.'' 6 M.C.C. 562 (1938). The Commission reiterated a similar point elsewhere in its report on the amended rules.

[I]t was strongly urged upon us [the ICC] that the daily and weekly maxima prescribed by division 5 would make it difficult to negotiate contracts for shorter hours, or for unorganized labor to hold the hours it has. It was said that already carriers have used the regulations prescribed in the prior report as a means of lengthening hours. Considerations other than those with which we may properly deal enter here, though we look with distinct disfavor on carriers or others who use regulations premised on safety as a means of defeating employees' efforts to improve their economic status. It is questionable, however, whether the practice has been or will be a serious one. The fact that we hereinafter prescribe 60 hours on duty as the weekly maximum should not interfere with the negotiations by organized labor of contracts providing for shorter hours. 6 M.C.C. 557, at 560 (July 12, 1938).

The ICC's hope that the HOS rules would not be used to lengthen drivers' hours has not been borne out. That is a matter of some importance, since the FLSA, which generally required overtime pay after July, 1945 for more than 40 hours of work per week, included an exemption for motor carriers subject to the ICC's regulations. Amended only slightly, the exemption remains in effect today at 29 U.S.C. 213(b):

(b) Maximum hours requirements:

The provisions of section 207 of this title [Maximum hours] shall not apply with respect to—

(1) any employee with respect to whom the Secretary of Transportation has power to establish qualifications and maximum hours of service pursuant to the provisions of section 31502 of title 49 * * *.

The result is that truckers engaged in interstate commerce work some of the longest hours known in this country, without the opportunity for time-and-a-half overtime pay beyond the 40th hour.

On October 22, 1938 (3 FR 2533), the U.S. Department of Labor's (DOL) Wage and Hour Division (WHD) published regulations (29 CFR part 516) implementing section 11(c) of the FLSA (29 U.S.C. 211(c)). These regulations require motor carriers subject to the minimum wage provisions of the Act—which includes carriers subject to the jurisdiction of the ICC (and now the FMCSA)—to make, keep, and preserve time records showing when drivers start and stop work, as well as the total number of hours they work per day and week.

C. 1962 Amendments

The first, and in fact the only, fundamental change to the HOS rules since the late 1930's occurred in 1962 (89 M.C.C. 19, March 29, 1962, 27 FR 3553, April 13, 1962). For reasons it never explained clearly, the ICC retained the 8-hour off-duty requirement and the 10-hour driving limit, but dropped the 24-hour limit. This had profound effects. For example, a driver who came on duty and started driving at 12:01 a.m. Monday would have to stop driving at 10:00 a.m. If the driver then took 8 hours off duty, he or she could drive again from 6:00 p.m. to midnight, for a total of 16 hours on Monday. The previous rule would have limited the driver to a total of 10 hours driving time in any 24-hour period. The unintended consequences of this change are described below.

D. Exemptions

The 1938 revisions to the HOS rules were barely in place when the first request for an exception was filed. Several industry associations argued that the 10-hour driving limit should be extended when bad weather made it impossible to complete a normal run in 10 hours. The ICC allowed an extra 2 hours for ''unfavorable weather conditions.'' See 11 M.C.C. 203, January 27, 1939, 4 FR 475, January 31, 1939. This exception, slightly modified, is still available (49 CFR 395.1(b)(1) Adverse driving conditions). Other requests followed over the years; the exceptions granted by the ICC are codified at 49 CFR 395.1(b)(2) Emergency conditions, (c) Driver-salesperson, (d) Oilfield operations, (e)100 air-mile radius driver, (f) Retail store deliveries, (g) Sleeper berths, (h) State of Alaska, (i) State of Hawaii, and (j) Travel time.

On July 30, 1991 (57 FR 33638), the FHWA published a final rule exempting motor carriers and drivers from most of the Federal Motor Carrier Safety Regulations (FMCSRs), including the HOS rules, while providing emergency relief during a declared regional or local emergency, and more limited relief for tow truck drivers responding to a police request to move wrecked or disabled vehicles (49 CFR 390.23). The emergency relief provision required drivers who had been on duty more than 60 hours in 7 days, or 70 hours in 8, while providing direct assistance to emergency relief efforts, to take 24 hours off duty before returning to normal driving in interstate commerce.

On August 19, 1992 (57 FR 37504), the agency published a proposal to permit drivers to begin anew any on-duty period of 60 hours in 7 days or 70 hours in 8 days upon taking 24 consecutive hours off duty. The FHWA made this proposal to provide opportunities for improved efficiency in operations consistent with highway safety. On February 3, 1993 (58 FR 6937), the FHWA withdrew the proposal, having received virtually no substantive responses to the critical questions asked. Most of the 68,000 comments offered opinions unsupported by empirical (or even anecdotal) material. Except in general terms, there were no discussions of potential impacts on highway safety. The agency needed to know if 24 hours is sufficient time for a driver to obtain the rest necessary to resume driving safely after accumulating 60 to 70 on-duty hours in as short a period as 4.25 days. This question remained unanswered until the completion of Canadian studies (O'Neill, T. et al. (1999) and Smiley, A. & Heslegrave, R. (1997)). The agency discusses these studies later in this document.

Citing the waiver authority enacted as part of the Motor Carrier Safety Act of 1984 (MCSA) (Public Law 98–554, October 30, 1984)(Sec. 206(f), 98 Stat., at 2835), representatives of many industries either filed petitions for waivers of the HOS regulations or contacted the agency about the possibility. Among the carriers requesting exemptions were those involved in utility operations (electricity, natural gas, television), farming and farm supplies, construction, drilling of blast holes for rock quarries, highway traffic marking, custom harvesting, ground water drilling, and transporters of produce, cement, and ready-mix concrete. The FHWA granted none of these requests

because the proponents were unable to provide the agency with sufficient data to show that the waiver would meet the statutory test: (1) Not contrary to the public interest and (2) consistent with the safe operation of CMVs.

Section 345 of the National Highway System Designation Act of 1995 (Public Law 104–59, 109 Stat. 568, 613) (NHS Act) created a statutory exemption from all of the HOS provisions for individuals transporting crops and farm supplies during planting and harvesting seasons, and a more limited exemption (from the 60- and 70-hour rules) for drivers of utility service vehicles, CMVs transporting ground water well drilling rigs, and construction materials and equipment. The FHWA, however, was authorized to conduct rulemaking on the advisability of each of these exemptions (except that for water well drilling rigs). If the agency determined that an exemption would not be in the public interest and would have a significant adverse impact on the safety of CMVs, the exemption could be blocked before it went into effect, modified or revoked. The NHS exemptions apply only to drivers and motor carriers operating in interstate commerce, and the Act specifically denied preemptive effect to any of the exemptions. The States, therefore, are free to adopt or reject any of the HOS exemptions, whether for interstate or intrastate commerce, without jeopardizing their eligibility for Motor Carrier Safety Assistance Program (MCSAP) funding. The FHWA adopted all of the required exemptions on April 3, 1996 (61 FR 14677) (see 49 CFR 395.1(k) Agricultural operations, (l) Ground water well drilling operations, (m) Construction materials and equipment, and (n) Utility service vehicles), but deferred until a future date any rulemaking action to consider modifying or revoking them.

While this notice was being prepared, the FHWA received a petition from the Advocates for Highway and Auto Safety (AHAS) seeking rulemaking to reevaluate the 1996 exemptions. By this NPRM, the agency is granting the AHAS petition, which has been placed in the docket. The agency will also be consolidating the Regulatory Identification Number (RIN) 2126–AA29 (formerly 2125–AE09) into this action. See the section headed ''XII. Rulemaking Analysis and Notices'' for more information about RINs. The FMCSA is proposing to modify the agricultural exemption and revoke all but one of the other NHS Act exemptions. Because Sec. 345 does not authorize rulemaking to reevaluate the exemption for ground water well drilling rigs, it will remain in effect. The utility and construction exemptions, however, would be revoked, and those operations would be required to comply with the proposed ''weekend'' provisions of the HOS rules for Type 4 or 5 operations, described in detail below.

E. Developments in the 1970's and 1980's

In 1970, when Congress authorized funds to be spent on research, the FHWA, which had then assumed the safety responsibilities previously exercised by the ICC, initiated inquiries into drivers' hours of service and fatigue. The research and subsequent rulemaking continued for the next ten years. On February 12, 1976, the FHWA published an ANPRM that discussed three possible options for regulatory revisions (41 FR 6275). Because the agency did not receive sufficient information to determine whether the HOS should be amended, it published a second ANPRM on May 22, 1978 (43 FR 21905) inviting comments on three different regulatory options. After reviewing the comments to the second ANPRM, as well as transcripts from six public hearings that generated more than 9,000 pages of testimony from 1,200 interested parties, the FHWA determined that none of the proposed regulatory options could be supported in its entirety. The FHWA then developed three new proposed HOS options and carried out detailed cost-effectiveness and other regulatory analyses as required by Executive Order 12044 (1978).

Option I would have reduced the 10-hour driving limit to 8 hours, among other things. Option II would have eliminated the differences in time allowances for driving time, on-duty time, and duty tour by specifying each have a limit of 12 hours, among other things. Option III would have maintained the status-quo regulations, with one exception: it would have banned driving between midnight and 6:00 a.m.

The cost to society of Option I was estimated to be $11.496 billion and its benefits to society to be $450 million. The cost of Option II was estimated to be $10.642 billion and its benefits $450 million. The cost of Option III would have been $11.019 billion and its benefits $63 million. The rulemaking was terminated on September 3, 1981.

V. Comments to the ANPRM

The FHWA published an ANPRM to amend the HOS regulations on November 5, 1996 (61 FR 57252). This action was mandated by section 408 of the ICC Termination Act (Public Law 104–88, December 29, 1995, 109 Stat. 803, 958). The FHWA nearing completion of several research projects and sought the results of other relevant research to consider in this effort. The FHWA requested comments on the current HOS regulations and sought assistance in locating any other relevant information, including research, operational tests, or pilot regulatory programs conducted anywhere in the world, that could be used in developing revised HOS rules for CMV drivers.

The agency received 1,650 comments in response to the ANPRM. The strongest support for amending the rules came from truck drivers, although no demand for major increase or decrease in hours emerged from their comments. Many drivers commented they wanted to work fewer hours without loss in annual incomes, and many other drivers wanted to drive longer hours and earn higher annual incomes. The only major theme that most agreed on was that they would like to see the agency prohibit them from loading and unloading cargo.

The specific concerns or issues raised by the commenters who discussed technical or economic issues are addressed in the following sections. The respondents represented 13 advocacy groups, 3 consultants to the industry, 32 individuals, including concerned citizens and spouses of drivers, 1 insurance company, 4 labor unions, 3 law firms, 1,159 motor carriers (including owner/operators and drivers operating for motor carriers), 7 motor carriers of passengers, 49 trade associations (including 1 motor coach association), 1 truck driving school, 3 universities (including specific research departments of various institutions), 7 federal government agencies or representatives (including Senators Robb, Abraham, Specter, and Helms, Representative Cliff Stearns, and the NTSB), 4 state government agencies, 1 local government, and 33 other entities (including respondents of indeterminate affiliation).

Most respondents submitted comments that did not provide relevant scientific research or studies in support of their comments. The FMCSA considered additional comments submitted after the June 30, 1997, closing date.

Following are general comments on information contained in the docket.

1. In September 1997, after the June 1997 closing date, the docket contained 572 responses to the 69 specific questions asked in the ANPRM.

2. Of the 572 question-specific responses, 127 included submissions of,

or references to, a specific report, study, or survey.

3. Of the 1,650 comments analyzed, 731 were form letters to the docket. There were two different form letters; and none of these letters provided any relevant scientific research or studies to support the comments. The first form letter, received from 152 motor carriers in the construction industry, indicated that driver productivity is constrained by weather, the time of the year, and daylight hours. Furthermore, these carriers emphasized that they almost always operate within a localized geographical area, and concluded that drivers in the construction industry be exempt from the HOS regulations that govern over-the-road drivers. The FMCSA consolidated the figures for these 152 carriers and found they operated 5,614 single-unit, straight trucks and 1,734 truck tractors. See Table 3.

TABLE 3.—152 CONSTRUCTION INDUSTRY COMMENTS

Comment	Minimum	Maximum	Average per carrier
Typical Trip Miles	2 miles	700 miles	43.55 miles.
Typical Trip Time	0.02 hours	12 hours	1.89 hours.
Total Trips (over 3 years)	0 trips claimed	1,000,000 trips	101,107 trips.
Total Miles (over 3 years)	60 miles	21,744,000 miles	2,232,038.89 miles.
Accidents (over 3 years)	0 accidents	58 accidents	3.31 accidents.

A second form letter was submitted by drivers in the form of a survey. All respondents submitting these form letters indicated support for a change in the FMCSA HOS regulations. They also provided no relevant scientific research or studies to supported comments.

Comments Identifying Potential Science-Based Alternatives

All comments citing research studies as their basis for comments are discussed in this section. They are presented according to the regulatory elements they address.

Off-Duty Time

The Insurance Institute for Highway Safety (IIHS) recommended a minimum of 12 to 14 hours off duty per day, citing Wylie, C.D. et al. (1996) (the FHWA's Driver Fatigue and Alertness Study). The IIHS believes the rules must require a 14-hour minimum off-duty time after a driver has driven in the time period midnight through 6:00 a.m.; it bases this comment on Miller (1993). In a meeting on September 23, 1998, IIHS and National Safety Council officials came to the FHWA to discuss various HOS concerns. At that meeting, IIHS recommended a minimum 14-hour off-duty period, citing Lin et al. (1994, 1993), Jones and Stein (1987, 1989), Frith (1994), Saccomanno et al. (1996), NTSB (1995), and Summala and Mikkola (1994). IIHS provided copies of these studies and the FHWA/FMCSA filed them in the docket along with a summary of the meeting.

The American Trucking Associations, Inc. (ATA) and Landstar Systems, Inc. support 10 hours per day off duty, also citing Wylie, C.D. et al. (1996). The International Brotherhood of Teamsters (IBT) recommends 9 hours off duty per day citing NTSB, (1995), while the National Sleep Foundation (NSF) presented a Department of the Army aviation study, Caldwell, J. (1997) and Belenky, G. (1994), suggesting that aviators obtain an average of 7 hours of sleep during a 24-hour period.

''Re-start'' Provisions (e.g., 24 Hour, 36 Hour, etc.)

The ATA believes the FMCSA should implement a re-start provision and offered Woodward and Nelson (1974) and Krueger et al. (1987) to support its assertion that a 24-hour ''re-start'' after 36 to 48 hours of high workload is desirable.

Sleeper-Berth Use

The California Highway Patrol (CHP) believes Wylie et al. (1996) suggest that sleeping facilities, other than sleeper-berth equipment meeting the requirements of 49 CFR 393.76, would make enforcement difficult by requiring officers to determine whether alternate locations qualify as adequate sleep/rest locations.

The AHAS believes short sleeper-berth periods should not be allowed to count toward minimum off-duty requirements and bases that comment on Wylie et al. (1996). AHAS recommends that crediting split sleeper-berth periods toward the 8-hour off-duty period be prohibited, also based on its interpretation of Wylie et al. (1996).

The ATA and the Distribution and LTL Carriers Association (DLTLCA) support the continuation of sleeper-berth-type provisions, i.e., split sleep periods or dividing a consecutive off-duty period into two or more smaller periods with duty in between, citing Chiles (1968). The National Sleep Foundation (NSF) supports the continuation of sleeper-berth-type provisions, basing its position on work by Caldwell, J. (1997), Belenky, G. (1994), Bonnet (1994), and Dinges and Broughton (1989). The NTSB, citing research by Dinges (1989), and the IBT, citing NTSB (1995), however, oppose sleeper-berth-type off-duty hours.

The Owner-Operator Independent Driver's Association (OOIDA) surveyed its members before it responded to the ANPRM. Its study, OOIDA (1997), shows 28 percent of its members split their off-duty time. A similar ATA survey, ATA (1997), shows that most driving teams split their sleep periods into 4 hours on duty and 4 hours off duty. The OOIDA survey shows that single drivers average 3 hours 52 minutes for the first sleeper berth period and 4 hours 20 minutes for the second.

The ATA survey shows 5 percent of team drivers use the sleeper berth while the CMV is in operation. The OOIDA survey shows a figure of 11 percent for team drivers, and also reports that these team drivers obtain an average of 5 hours 38 minutes driving and 5 hours 14 minutes of rest in each off-duty sleeper-berth period.

Rest Breaks or Napping

The AHAS and the ATA recommend that the regulations require the practice of taking naps during long trips. AHAS cited Wylie et al. (1996) and ATA cited its own survey, ATA (1997).

On-Duty Time

The OOIDA believes findings in Wylie, et al. (1996) support its recommendation for the FMCSA to allow a maximum of 15 hours per day on duty. ROCOR Transportation favors between 14 and 15 hours maximum on duty time, and also cites Wylie, et al. (1996). The ATA and Landstar Systems, Inc. recommend 14 hours on duty time with no distinction between the driving and on-duty times and bases its recommendation on Wylie, et al. (1996) and Harris, et al. (1972).

Driving Time

The CHP believes Wylie et al. (1996) shows that 10 hours driving time is not

excessive if managed properly. Citizens for Reliable and Safe Highways (CRASH) recommends a maximum of 10 hours driving time in a 12-hour on-duty time period, citing Fuller (1983), Lin et al. (1993), and Jones and Stein (1987). In the meeting on September 23, 1998, discussed above under the subheading ''off duty time,'' IIHS also recommended a maximum 10-hour driving period, citing the same studies, Lin et al. (1994, 1993), Jones and Stein (1987, 1989), and three additional studies, Frith (1994), Saccomanno et al. (1996), NTSB (1995), and Summala and Mikkola (1994). An IIHS official also stated during that meeting that the IIHS could accept an increase in driving hours if the IIHS could be assured the drivers would be afforded more hours off duty.

Weekly On-Duty Limits

The OOIDA cites Wylie et al. (1996) as support for its assertion that the weekly on-duty limit be eliminated. Vallenduuk Tissingh Advocaten (VTA) of the Netherlands cited a European regulation and contended the FMCSA should adopt the European example of allowing 84 hours on duty while limiting driving up to 56 hours. The ATA believes Wylie, et al. (1996) and Mackie and Miller (1978) support the current 60- and 70-hour rules.

Do Wage Methods Affect HOS?

The AHAS favors elimination of the section 13(b) exemption to the Fair Labor Standards Act and cites NTSB (1995), NTSB (1990), and Braver et al. (1992) as the basis for its assertion. The NTSB believes a link between payment by the mile and HOS violations is shown by its 1995 research study. CRASH cites Beilock (1995) as support for its suggestions that the FMCSA should incorporate compensation systems allowing drivers to generate reasonable and adequate incomes while upholding the law. VTA cites University of Groningen research (1986) showing drivers in Europe who are paid monthly salaries have fewer HOS violations than drivers paid by distance traveled.

On-Board Monitoring Devices

The IIHS cites its own research study, IIHS (1995), as well as Stein (1994) and Gronemeyer (1994), as the basis for its recommending a requirement for on-board monitoring devices. The NSF cites Braver et al. (1992), NTSB (1990), and IIHS (1995) as the basis for requiring such devices. The ATA cites Penn and Schoen (1995) in its assertion that on-board monitoring devices should not be required. Six comments provided cost estimates, although only two of the six comments cited cost estimates based on studies, specifically IIHS (1995) and Penn and Schoen (1995). The other four cost estimates came from the Log Truckers Association of Montana, John Cheeseman Trucking, Inc., ROCOR Transportation, and Rockwell Transportation Electronics. ROCOR stated it had 2,000 units in use costing about $3,000 per unit. It estimated a higher cost for smaller motor carriers. Though the other commenters did not state the basis for their estimate, the FMCSA presumes they are based on past business decisions or marketing and sales information.

Types of Motor Vehicles Included

The OOIDA cites Wylie et al. (1996) in asserting that the driving time limits should be applicable only to motor vehicles over 4,537 kg (10,000 pounds). The OOIDA believes the FMCSA should not propose any new regulations defining ''driving time'' applicable to motor vehicles up to 4,537 kg, because it believes Wylie et al. (1996) found that hours of driving are not a strong or consistent predicator of observed fatigue.

Adverse Weather

CRASH does not believe a driver should be allowed to continue to drive an extra two hours when the driver encounters adverse weather conditions after being dispatched, citing Fuller (1983), Lin et al. (1993), and Stein and Jones (1987). The OOIDA, on the other hand, cites Wylie et al. (1996) as support for its belief that the FMCSA should retain the ''adverse weather rule'' provision allowing drivers an extra two hours because, in such circumstances, drivers sometimes have difficulty finding adequate parking.

Bobtailing En Route

The OOIDA believes that Wylie, C.D. et al. (1996) shows that drivers should be allowed to bobtail to motels and restaurants while off duty in the vicinity of en route stops. Bobtailing, in the context provided in question 17 of the ANPRM, means a single tractor CMV operating without a trailer coupled to it. (Bobtailing can also mean the operation of a straight truck in certain industries or parts of the country. The FHWA did not ask any specific questions regarding research data related to use of CMVs for travel to motels and restaurants while off duty in the vicinity of en route stops, although a regulatory interpretation currently allows the practice.)

Provisions Relating to Circadian Rhythms

The AHAS cites Harris (1977), Hamelin (1980, 1981, 1987), Mackie and Miller (1979), Hertz and Eastham (1986), and Moore-Ede et al. (1988) as the basis for its assertion that any new FMCSA regulations must do the following three things:

1. Prevent rapidly rotating shifts.
2. Avoid scheduling that results in a long driving day ending deep within the early-morning circadian trough.
3. Limit the number of consecutive hours that CMV drivers must drive if assigned to nocturnal driving.

The IIHS, NTSB, and the NSF believe a circadian-based provision should be proposed, citing Moore-Ede et al. (1986), Gold et al. (1986), McDonald (1984), Tepas and Monk (1987), Caldwell (1997), and Akerstedt, T. (1995), but they offered no specific suggestions.

Restriction On Early-Morning Driving Time

The ATA cites Wylie et al. (1996) as the basis for its assertion that the FMCSA should not restrict early-morning driving time. The IIHS and NSF cite Rosa and Colligan (1988), Kogi and Ohta (1975), Caldwell (1997), and Akerstedt, T. (1995) to support their belief that early-morning driving time restrictions should be proposed.

Exemptions, Variations, and Customizations

The AHAS opposes all exemptions from HOS regulations that could allow longer daily driving hours, shorter off-duty rest periods, or other relief that fails to incorporate the same health and safety protections afforded long-haul drivers. The AHAS cited NTSB (1995) in support of its argument. The AHAS contends that the FMCSA has no research of record on the following topics: comparisons of long-haul versus short-haul fatigue-related crashes; sleep quality; and other considerations of alertness or performance deficiencies associated with differences in acute or chronic sleep deprivation, including differences identified from a comparison of long-haul and short-haul CMV driving.

The Associated General Contractors of America (AGCA) submitted AGCA (1997) showing that construction industry drivers have short trips and a short seasonal operation period. The AGCA believes this study supports its contention that its member firms are not engaged in long-haul truck driving and should therefore be exempt from any HOS regulations. The National Ready Mixed Concrete Association (NRMCA)

believes that Wylie, et al. (1996) support that industry's request for an HOS exemption. The NRMCA also submitted its own survey (NRMCA (1997)) stating that drivers in its industry drive CMVs only 44 percent of their [working] time, that they average 22 miles per round trip and they drive an average of 21,024 miles per year.

The Utility Solid Waste Activities Group and Virginia Electric and Power Company argue that the findings of Bowen, V. (1996) support the need for a utility industry exemption. They submitted both the study and a petition for an exemption.

Consignor and Consignee Responsibility and Accountability

The OOIDA cites OOIDA (1997) as the basis for its support for heavy fines for consignors and consignees responsible for drivers violating the regulations.

Loading and Unloading Freight

The AHAS cites Wylie et al. (1996) to show loading and unloading freight should be classified as on-duty time. It argues that eliminating such duties from a driver's responsibilities would justify reduction of total driving and duty time from 15 hours to a more reasonable period of time, such as 12 hours.

The OOIDA cites OOIDA (1997) showing that 42 percent of responding drivers record loading and unloading time as off duty. The same survey shows 74 percent would record such time as on duty-not driving if the drivers were paid a reasonable amount for such services.

Consignor and Consignee Delays

The OOIDA (1997) survey shows 80 percent of responding drivers are not paid for time waiting while delayed by consignors and consignees. Seventy-three percent of responding drivers record consignor and consignee delays as off-duty time, while 66 percent would record such time as on duty-not driving if they were paid a reasonable amount for such delays.

Performance-Based Regulation Feasibility

The ATA believes the FMCSA should propose a program for HOS performance similar to the fatigue management demonstration project undertaken in Queensland, Australia and discussed in a paper authored by Gary Mahon of Queensland Transport. The ATA noted in its comments that the province of Alberta, Canada was also considering a fatigue management demonstration project. Alberta and Queensland have ongoing pilot programs within limited geographical areas. According to a discussion paper on the Queensland program that the FMCSA has received:

> The Queensland Fatigue Management Program (FMP) is designed to control all the factors that cause fatigue. The FMP takes into account more than just the number of hours spent driving. FMP operators enter into an accreditation agreement with Queensland Transport. This agreement sets out the conditions of the program and allows operators to operate outside the Truck Driving Hours Regulations. This is the incentive to take part in the program. The FMP Standards attempt to assist the operator with managing all of the factors that impact fatigue including: scheduling, rostering, driver health, workplace conditions, fitness for duty, time off, and management systems to operate the FMP etc. In order to operate under the FMP, the operator must develop and implement management systems and procedures that will allow them to meet the standards and to achieve the level of performance that is required. Enforcement occurs when operators fail to reach those standards and are disaccredited (sic) from the program.[1]

The IIHS does not believe fitness-for-duty and other performance measurement devices have been adequately tested and validated. They suggest review of Williamson et al. (1996), Mausner and Braun (1974), and Lilienfeld and Stolley (1994) to avoid false negatives and false positives, while also accounting for environmental variables such as traffic congestion and weather conditions, before opting for performance requirements.

The NSF also does not believe fitness-for-duty and other performance measurement devices are feasible and operationally practical at the present time. The NSF suggests review of Dinges (1995), Horne and Reyner (1995), Valley and Broughton (1983), and Dinges and Kribbs (1991) before requiring ''drowsy driving detection devices'' and that such devices may lead to a false sense of security for those drivers who would rely solely on them to detect declining alertness. The NSF believes one does not have to fall asleep to be a danger to oneself and others.

VI. FMCSA Response to Comments and Research Cited

One of the foremost goals of this rulemaking is to reduce the number of CMV drivers and others killed and injured in crashes. In formulating new rules, the FMCSA must consider persuasive evidence and reliable data. Most CMV drivers and other commenters did not have access to research concerning technical or economic aspects of fatigue, alertness, off-duty, on-duty, or driving time. The agency appreciates all the information provided by the responders, and the serious comments reflecting both experience and interpretations of the many studies, research reports, and surveys cited. It would not be useful to take issue with the information and comments provided in the abstract. Rather, the FMCSA reviewed these issues and comments in the context of developing its proposal. The remainder of this preamble will focus on those issues in relation to the development of the proposal. The agency, however, has not ignored the concerns of drivers and other commenters whose personal experiences have led them to support changes to the HOS regulations.

Fatigue Management Programs or Plans

Although the FMCSA is not proposing any regulations specifically dealing with Fatigue Management Programs or Plans, the agency is not ruling them out. There is still much to learn about such alternatives to prescriptive HOS regulations, and the FMCSA has been very interested in the experience of other countries in their implementation. Within the DOT, moreover, the Federal Railroad Administration is initiating fatigue management programs for selected railroads. As suggested by the IIHS and the NSF above under the discussion of *Performance-based Regulation Feasibility*, more study is needed before such alternatives should be incorporated in the regulation of commercial highway operations.

The FMCSA continues to study the technology it believes is required to support such programs. Projects are presently under development to test at least two forms of technology in regular operations during this fiscal year. The agency believes that careful testing within the scope of pilot demonstration programs authorized under 49 CFR Part 381 (49 U.S.C. 31136[e]) would be the best way to investigate the feasibility of this promising approach to performance-based regulation in this area.

VII. Regulation Development Process

A. Research Findings

In developing this section, the FMCSA has relied on a large body of research dealing with work, fatigue, alertness, sleep cycles and other related matters. The FMCSA reviewed over 150 research studies and other documents, many of which were referred to by docket commenters or provided as attachments to docket comments. Many

[1] Abstract, *Australian initiatives in managing fatigue in transportation*, by Assoc. Prof. Laurence Hartley, Institute of Research in Safety & Transport, Murdoch University, South Street, Western Australia, Australia, in the Truck Safety Symposium 99, Steering Committee, June 3, 1999.

of the reviewed documents reported on research conducted on motor carriers and CMV drivers. Others, such as studies on shiftwork, sleep and performance, and the physiological nature of sleep, were judged relevant to the issue of CMV driver safety, even though they were conducted in other operational settings or in laboratory environments.

It must be noted that the conclusions drawn from this research were done from the perspective of commercial highway transportation. Although there are industries seeking exemptions from the HOS rules citing research studies in the docket concerning the performance of their drivers, e.g., utility, construction, and motorcoach industries, the FMCSA could find no research studies showing these drivers do not suffer from fatigue, do not need sleep daily, and have fewer fatigue-related crashes than other truck and bus drivers subject to FMCSA jurisdiction.

For example, as stated above, the Utility Solid Waste Activities Group and Virginia Electric and Power Company provided the Bowen (1996) study stating it supports the need for an utility industry exemption. Motor carriers participating in the study were a mix of FMCSA-regulated and non-regulated public utilities. The study used a sample of drivers who accumulated nearly five million miles of driving. Ninety crashes were reported (90 divided by 5 million miles = 18 crashes per million vehicle miles). The author relates (on page 15 of the report) ''*Based on this limited exposure [1731 hours of driving time reported], it seems that after 80 hours on duty [in a 7 day period], the accident rate rises precipitously.*''

The FMCSA notes that, although the Bowen study tracked exposure by both driving time and distance, there were no statistics presented aside from purely descriptive graphs and tables. No significance tests were discussed. No baseline data was presented. This concerns the FMCSA given the extremely high reported crash rate. The data was not analyzed to assess time-of-day effects. Bowen did not report the highway classes where the travel took place and this factor was not used to discriminate among portions of the data. The FMCSA believes that Bowen's study does not support that the utility industry's request for an exemption from the HOS rules.

It also must be noted that the conclusions drawn from all the research may not be consistently applicable throughout the transportation modes. The FHWA convened a panel of representatives of several agencies within the DOT to review the draft proposal from the perspective of the transportation modes regulated by those agencies. Although those representatives took no issue with any of the conclusions drawn from the research cited so far as truck transportation was concerned, they noted that in some cases, due to the difference in operating conditions and required adherence to various laws and treaties, the conclusions may not translate directly to other modes. Some examples are offered in the discussions that follow.

Studies germane to this NPRM and relied upon by the FMCSA are discussed in *An Annotated Literature Review Relating to Proposed Revisions to the Hours-of-Service Regulation for Commercial Motor Vehicle Drivers,* Freund, D.M., Office of Motor Carrier Safety, November 1999, Publication No. DOT-MC–99–129. That review, as well as a copy of each research study it discusses, has been placed in the docket.

The review sets the stage for the problem assessment with chapters covering research on the contribution of operator fatigue to highway vehicle crashes, in general, and the CMV driver fatigue contribution to CMV crashes, in particular. The review then focuses on research into the causes of drowsiness—lack of sufficient, quality sleep—and includes a chapter on the effects of sleep deprivation on alertness and performance, followed by one on naps as a sleep deprivation countermeasure. The review moves forward to address general considerations concerning HOS regulations, working conditions, and regulatory compliance before focusing on setting of schedules, shift rotation, and the special case of multi-day shifts. The final three chapters address outcomes of hours-of-service pilot tests and waivers, operational and performance models, and technological approaches to CMV driver alertness management.

As O'Neill and his co-authors of ''Understanding Fatigue and Alert Driving,'' a training course developed by the ATA in partnership with the FHWA, point out, ''Fatigue has several causes: (from) inadequate rest, sleep loss and/or disrupted sleep; from stress; from displaced biological [circadian] rhythms, excessive physical activity such as driving or loading [cargo], or from excessive mental or cognitive work.'' (ATA, p. 8).

The term ''circadian'' comes from the Latin words *circa dies,* or ''about a day,'' i.e., 24 hours. Circadian rhythms become displaced as a result of schedule irregularity that affects the time when people sleep. Adverse effects of sleep deprivation can occur when the opportunity to take sleep is curtailed, when people try to obtain sleep during periods of the day when their systems are in a more-active physiological state (such as during the mid-morning and early evening), or when environmental conditions are not conducive to obtaining sleep. The adverse effects include slower reaction times, poor and variable responses, deterioration of judgment, vigilance, and attention, and alertness. Loss of sleep can also produce subjective feelings of tiredness, loss of motivation, and deterioration of mood. (ATA, p. 7).

On the other side of the coin, long working hours (especially when the work demands vigilance and concentration) can contribute to fatigue and cause people (by their own choice, or as directed by others) to reduce the time they take for sleep. The converse of long duty hours is a shorter period of time remaining in a 24-hour period for sleep.

The maintenance of schedule regularity was an element of the original HOS regulations issued by the ICC. Until 1962, the HOS regulations limited driving and on-duty time in a 24-hour period. Although the on-duty time limit of 15 hours and the 8-consecutive-hour off-duty period were set in 1941, it is quite possible the actual off-duty period may have been slightly longer to comply with that 24-hour period. Thus, the 1962 rule change that introduced the requirement for driving and on-duty periods to be separated by an 8-hour off-duty period may have had two unintended effects: (1) It allowed drivers to be placed on a schedule that was irregular from a circadian standpoint and (2) it decreased the actual daily off-duty time provided to them.

As several researchers point out, there is a dual predicament with night workers: not only are they required to perform tasks during the time of day they are least able to from physiological and cognitive standpoints, they must sleep during the time of day their bodies are least receptive to it.

Recommendations From the Research

The research reviewed during the FMCSA's process of developing this NPRM suggests five main areas of consideration applicable to CMV drivers: (1) The work day should be more regular; (2) drivers should be afforded more opportunity for daily and weekly sleep; (3) working hours, including hours spent driving in any duty shift, should be limited to no more than 12 hours; (4) the time of day when

driving is performed or, conversely, when sleep may be obtained, should be considered; and (5) non-compliance by drivers and motor carriers increases the potential for adverse safety outcomes. Although not using identical terms, most of the comments also suggested these areas for prime consideration.

1. The Work Day Should Be More Regular: Maintenance of Circadian Rhythm

It has been well established that the hours of the day and night are not equivalent from the perspective of human alertness and safe, efficient, and productive performance of workplace tasks, Wylie, et. al. (1996); Brown, I.D. (1994); Campbell, K. (1988); Folkard, S. (1997); Hildebrandt, G., Rohmert, W., & Rutenfranz, J. (1974); Wylie, D. (1998); Akerstedt, T. (1991); Hildebrandt, G. (1976); Rutenfranz, J., Knauth, P., & Colquhoun, W. (1976); Vidac~ek, S. et al. (1986); Williamson, A.M. & Sanderson, J.W. (1986); O'Neill, et al. (1999); Akerstedt, T. (1997). Humans are biologically programmed to operate on a daily cycle of just over 24 hours. The cycles of daylight and darkness act as synchronizers (see Duffy, J.F. et al. (1996)). If people suddenly shift their wake-sleep cycles (e.g., when traveling across time zones), they must adjust to the new ones and become re-synchronized. This takes about one day per time zone crossed.

Many work environments must be staffed on a 24-hour basis, so workers are scheduled in shifts. Shiftwork can introduce another problem. A nightshift worker, required to sleep during periods of higher physiological activity and to be awake during periods of lower activity, may have difficulty adjusting to an inverted wake-sleep schedule and can accumulate a sleep debt that can seriously affect the level of performance and safety. Even when a consistent schedule is established and wake-sleep patterns are stabilized, it is generally recognized that physiological and performance levels reach the low point of their cycles in the hours after midnight and in the early to mid-afternoon. Therefore, night workers are most susceptible to the dual predicament mentioned above. Unless the night shift worker is able to obtain sufficient restorative sleep on a regular basis, the risk of substandard and potentially unsafe performance substantially increases.

2. The Driver Should Be Afforded More Opportunity for Daily and Weekly Sleep

Daily sleep. Each driver should have an opportunity for eight consecutive hours of uninterrupted sleep every day. The current rules require a minimum of eight consecutive hours off. Many motor carriers do not provide drivers more than the minimum 8 hours off duty, although the present regulations certainly allow them to do so, and many drivers accept tight schedules without objection. These drivers may have to commute home, eat one or two meals, care for family members, bathe, get physical exercise, and conduct other personal activities, all within their 8-hour off-duty period. The current rules also allow the 8-hour off-duty period to be split into two periods when rest is taken in a sleeper berth. One of the two periods may be as short as 2 hours.

To afford the driver an opportunity to obtain a minimum period of 8 hours to sleep, the research shows that the off-duty periods need to be increased. Nine hours off duty was originally required in 1937. For various reasons, organized labor objected to most of the original regulations, and upon further deliberation, the ICC reduced the 9-hour off-duty period to 8 hours in each 24 hours. 6 M.C.C. 557, July 12, 1938.

Several studies strongly suggest the FMCSA should require an even longer consecutive off-duty period than the 9 hours the ICC required in its original 1937 HOS regulations. To provide additional off-duty periods within the 24-hour cycle for necessary personal activities and rest, docket comments and research strongly suggest the need for total off-duty periods from 10 to 16 hours. Studies in aviation (Gander, et al. (1991)), rail (Thomas, et al. (1997), Moore-Ede et al. (1996)), and maritime environments (U.S. Coast Guard Report No. CG–D–06–97, U.S. Coast Guard (1997)(MCS 68/INF.11)) illustrate the same point. Studies of truck drivers, including Lin et al. (1993) and McCartt, et al. (1995), point specifically to increased crash risk and recollections of increased drowsiness or sleepiness after fewer than nine hours off-duty.

Studies performed in laboratory settings, as well as studies assessing operational situations, explore the relationships between the sleep obtained and subsequent performance (Dinges, D.F. & Kribbs, N.B. (1991); Bonnet, M.H. & Arand, D.L. (1995); Belenky, G. et al. (1994); Dinges, D.F. et al. (1997); Pilcher, J.J., & Hufcutt, A.I. (1996); Belenky, G. et al. (1987). The results of the studies can be summarized simply: a person who is sleepy is prone to perform more poorly on tasks requiring vigilance and decisionmaking than a person who is alert.

The time when sleep is taken is important as well because sleep fragmentation can be a byproduct of the timing or the quality of the sleep environment (Bonnet, M.H. (1994); Roehrs, T., Zorick, F., & Roth, T. (1994); Mitler, M.M. et al. (1997); Wylie, D. (1998)).

It is virtually impossible to get an adequate amount of sleep when time for commuting, meals, personal errands, and family/social life is subtracted from an 8-hour off duty period, as the ICC found in 1937. Wylie et al. (1996), for example, showed that drivers in the study obtained nearly 2 hours less sleep per principal sleep period than their stated ''ideal'' (5.2 hours versus 7.2 hours). However, many of them did not manage their off-duty time efficiently or effectively to obtain sufficient sleep. All commuting, meals, personal hygiene, social interaction within the study setting, the study protocol itself, and sleep had to fit into their off-duty periods. The U.S. and Canadian drivers participating in that study operated under schedules set up to allow driving up to the maximum time periods permitted under U.S. or Canadian regulations. The drivers returned to regular work-reporting locations at the end of a shift. The elapsed time between beginning and ending a shift included many ancillary duties and other activities in addition to driving so that time available for sleep was generally limited to 8 hours. Participants who drove a regular 10-hour daytime schedule every day spent 5.8 hours in bed and 5.4 hours asleep. Study drivers who ran a regular 13-hour schedule starting in the daytime spent 5.5 hours in bed and 5.1 hours asleep. This was about 2 hours less than the drivers would have preferred to sleep. The time-in-bed similarities between the 13-hour and 10-hour daytime drivers was likely due primarily to their proximity to the sleep center—the 13-hour drivers had to commute less than 10 minutes from their home terminal to the sleep laboratory and 10-hour drivers had to commute between 20 to 30 minutes. (All times cited are for the principal sleep periods, and do not include the naps that some drivers took during their work shifts.) Also, the drivers in both of these daytime-driving groups were able to obtain their principal sleep during optimal times of the day, starting in late evening and ending in the early morning.

Other studies have found that the amount of sleep obtained by CMV drivers is variable and often short. Arnold, P. et al. (1996), interviewed over 700 CMV drivers in the state of Western Australia, which has no formal HOS regulations. Of the drivers interviewed, about 5 percent reported having no sleep on one day during the prior week, 12.5 percent reported

obtaining less than 4 hours of sleep one or more work days in the prior week, and about 30 percent reported obtaining less than 6 hours of sleep on at least one work day. Prior to commencing their current trips, about two-thirds of drivers had between 6 and 10 hours of sleep, but about 20 percent had less than 6 hours of sleep (pp. 27–28). VanOuwerkerk, F. (1988) in a study based on interviews with 650 international European Economic Community (EEC) drivers, noted that drivers reported a median sleep time of 6.7 hours and a median rest period of 7 hours. They reported that the ''minimum rest time [reduction from 11 hours to eight hours not more than two times per week, as permitted under the current EEC Council Directive] has become the rule'' as far as both drivers and enforcement officials were concerned.

In their survey of 511 medium-and long-distance truck drivers in the United States, Abrams, C., Shultz, T., & Wylie, C.D. (1997), found no statistically significant differences in the stated rest needs among the categories of drivers (owner-operator, company driver, regular route, irregular route, solo, team): on an average day, a driver reported needing an average of 7 hours of sleep. There was a slight difference between union and non-union drivers; the former reported needing about 31 minutes less sleep. Just over 90 percent of the drivers reported that they usually used a sleeper berth while on the road. Almost three-fourths of the drivers reported taking their sleep in a single period, spending eight to nine hours in the berth. Just over two-thirds of the drivers who split their sleeper berth period reported usually spending 4 to 5 hours in the berth during one period.

The time of day when sleep is taken can affect how long the sleep period lasts. Grandjean, E. (1982), cited several surveys of European shiftworkers. ''It appeared that daytime sleep was distinctly shorter than night sleep the workers took on their rest day. The average length of sleep in the daytime was six hours, whereas on the rest day the average varied between six and twelve hours, with longer sleep on the second of the two rest days than on the first'' (pp. 248–249). Grandjean cites Lille's term ''sleep debt'' to describe the longer sleep periods the nightshift workers took on their two between-shift rest days and noted that a single night's sleep was apparently insufficient to ''pay it back.''

Other modal administrations within the U.S. DOT have also found similar findings with respect to their regulated industries. An aviation study documented how commercial flight crews organize their sleep during layovers on long-haul (trans-oceanic) trips involving the crossing of multiple time zones. Duty periods on the trips that were studied in Gander et al. (1991) averaged 10.3 hours. The duty periods alternated with layovers averaging 24.8 hours, and the crew members typically took their sleep in two periods. The authors noted that the sleep/wake patterns were complex, with an average pattern of sleep and wakefulness of 19 hours awake/5.7 hours asleep/7.4 hours awake/5.8 hours asleep. The flight crews also reported naps on the flightdeck and during their off-duty periods. The authors stated: ''This study clearly documents that, in scheduled commercial long-haul operations, there are physiologically and environmentally determined preferred sleep times within a layover. The actual time available for sleep is thus less than the scheduled rest period.'' (p. 1)

A railroad study compared two schedules, one involving fast-backward rotations, the other, slow-backward rotations. The Thomas et al. (1997) study participants received a crew call two hours prior to going on-duty, as railroad crews do generally in their normal operational workdays. Under the fast-rotating schedule, the engineers' sleep duration averaged 4.6 hours during a 9.3-consecutive-hour off-duty period. Under the slow-rotating schedule, the average sleep duration was 6.1 hours during a 12-consecutive-hour off-duty period. (The minimum off-duty time required was 8 consecutive hours if the engineer had less than 12 hours on duty.)

Locomotive engineers participating in a survey (Moore-Ede et al. (1996)) were asked several questions concerning sleep needs and sleep obtained. The following information is drawn from Questions 67 through 70 of the Stage II Volunteer Survey, Overall Totals. To ''feel alert and well rested,'' 10.8 percent stated they needed 5 or fewer hours; 35.1 percent, 6 hours of sleep; 29.7 percent, 7 hours; and 24.3 percent, 8 or more hours. On average, the engineers said their actual sleep taken on days they worked averaged: fewer than 5 hours, 21.6 percent; 5 hours, 16.2 percent; 6 hours, 21.6 percent; 7 hours, 29.7 percent; and 8 or more hours, 10.8 percent. On days off, the engineers stated they received: 7 hours, 37.8 percent; 8 or more hours, 43.2 percent; all other amounts 6 hours or less, 18.9 percent. During vacations, sleep times averaged: 35.1 percent, 7 hours; 51.4 percent, 8 or more hours; all other amounts 6 hours of less, 13.5 percent.

A study was conducted to quantify the nature and extent of fatigue in mariners in the U.S. Coast Guard's ''Fatigue and Alertness in Merchant Marine Personnel: A Field Study of Work and Sleep Patterns,'' Report No. CG–D–06–97. Data in the form of work and sleep logs were collected for periods from 10 to 30 days from 141 mariners on eight different ships involved in U.S. Pacific intercoastal trade. Among the findings: average sleep duration at home was 7.9 hours while average sleep duration at sea was 6.8 hours; watchstanders slept less and rated their sleep to be of lower quality compared to command personnel or day-workers; and the work days of watchstanders are longer than for command and day-work personnel. The researchers also analyzed what they termed ''critical fatigue indicators'': the proportion of 24-hour periods during which total sleep was less than four hours, the proportion of alertness self-assessments of 3 or fewer recorded in the sleep log, and the proportion of sleep latencies (time between going to bed and falling asleep) of five minutes or less as recorded in the sleep log. Watchstanders fared worse than command or daywork personnel, and watchstanders on the 4–8 watch had a considerably higher incidence of sleep durations under 4 hours in a 24-hour period. The report concluded: ''The data clearly portray that risk factors for fatigue are present in maritime work schedules. The solution to this problem involves providing the opportunity for a longer continuous rest period, and motivating mariners to take advantage of that rest period for a single, uninterrupted sleep. A review of shipboard operational practices may identify various means to provide longer continuous rest periods and other approaches to fatigue reduction.'' (p. 6)

Weekly sleep. For weekly off-duty periods, the research indicates that to negate the effect of accumulated week-long sleep deprivation and restore alertness to the human body it is necessary to have at least two consecutive nights off-duty that include the periods from midnight to 6:00 a.m. For long-haul CMV drivers, this ''weekend'' (i.e., a period to permit recovery from cumulative fatigue, not necessarily falling on a Saturday and Sunday) should be up to 56 hours long, but could be reduced to 32 hours as long as that period included two nights covering two periods from midnight to 6:00 a.m. The research suggests that drivers may need even more nights off duty if they have a severe sleep deficit.

This may be a good example where the science would not change, but

where the same provisions cannot be provided in another transportation mode without creating another safety problem. It may not be possible, for instance, to have an ocean ship in a port for each ''weekend'' recovery period, and everyone could not be provided two consecutive nights off each week while the ship is away from port. CMV traffic is much more flexible.

In his 1987 study of European heavy-goods-vehicle drivers, Hamelin suggests that the risk of an accident might be more dependent on cumulative fatigue than on the short periods of work time prior to a crash noted on the accident reports (the forms required an entry of time since the last stop, rather than the time since the beginning of a trip). Hamelin computed accident risk rates according to the time of day, the time on task, and whether the drivers were in the ''Transport'' or ''Other'' occupational categories. For all drivers, the risk rate was nearly double (1.82 times baseline) after 11 hours of work. Hamelin found for the category labeled ''Other'' drivers, who had worked over 11 hours, it was over four times as high during the period 8:00 p.m. and 7:00 a.m.

In a study of driving patterns used by a U.S. less-than-truckload motor carrier, Jovanis, P. et al. (1991) also noted increased crash risk associated with long driving times over two or more days of a week. The Society of Automotive Engineers, Inc.'s ''Truck and Bus Industry Glossary,'' February 1988, No. SP–88/732, defines ''less-than-truckload (LTL)'' as ''a quantity of freight less than that required for the application of a truckload [TL] rate.'' Jovanis and his co-authors noted, ''The two patterns with the highest risk of an accident were those that contained heavy driving during the prior three days and consisted of driving from 3:00 p.m. to 3:00 a.m. (Pattern 1) and from 10:00 p.m. to 10:00 a.m. (Pattern 8). The lowest risk was associated with driving from 8:00 p.m. to 6:00 a.m. but with limited driving on the prior three days.'' (p. 27)

Wylie et al. (1996) found that although some of the performance data did not show a clear-cut relationship to driving time (time on task), drivers' self-ratings *did* correlate significantly with time since the start of the trip and with the cumulative number of trips. ''Thus, the self-ratings were not very good indicators of drowsiness, but they may have been indicative of increasing stress or compensatory effort that signaled fatigue or loss of alertness.'' (p. 5–11).

Smiley, A. & Heslegrave, R. (1997) cited several scientific studies dealing with recovery time as a portion of their review of scientific literature on rest and recovery requirements. The context of the review was an assessment of the potential adequacy of a 36-hour cumulative-fatigue-recovery provision that had been proposed by motor carrier industry groups to Transport Canada. Smiley and Heslegrave cited a 1967 study by Lille suggesting that a single day off was insufficient for night workers to recover after a sleep debt accumulated over five days. Other studies they cited indicated a preference, in terms of recovery, for a three-day rest period compared to a two-day period after three 12-hour night shifts. One example was a study (Hildebrandt et al. (1974)) that illustrated this advantage of two days and three days off, compared to one day off, in operator performance (locomotive engineers' missed multiple in-cab warning signals that resulted in automatic braking being triggered) and a 1994 literature review indicating that two nights of recovery sleep are usually sufficient to allow near full recovery after extended periods of sleep loss. Smiley and Heslegrave concluded that, ''nevertheless, although the available research is sparse, it is sufficient to raise concerns about a 36 hour reset that would allow drivers to accumulate up to 92 hours on-duty within a seven-day period, particularly for night driving.'' (p. 14)

O'Neill, T. et al. (1999) studied drivers on long (14-hour) daytime duty schedules in a driving simulator. The drivers did not appear to have accumulated significant sleep loss during the study but their amount of measured sleep increased and their sleep latency decreased on their first off-duty days. The research conditions tested found ''the effectiveness of a full two nights and one day off (that is, 'Friday night' to 'Sunday morning' as a minimum safe restart period—about 32 hours off duty) under the conditions tested.'' (p. 48)

Griffin, G., et al. (1992) assessed potential outcomes of the FHWA's August 19, 1992 (57 FR 37504) NPRM, concerning HOS for CMV drivers, termed the ''24-hour restart'' provision. As discussed above in today's NPRM, the FHWA withdrew the proposal on February 3, 1993. The authors noted, ''The implications for safety are the most difficult to determine . . . a search for secondary accident data that would be useful in addressing the implications that the 24-hour rule would have on safety was made at the state and federal level. No data was identified that would be statistically valid . . .'' (p. 37)

Rosekind, M.R. (1997) in a major aviation conference presentation, advised listeners to consider cumulative fatigue effects. ''It is important to maintain an optimal sleep opportunity every 24 hours and also address the potential for cumulative effects. Therefore, appropriate recovery time should be allowed per week (days or rolling hours). Scientific studies show that two nights of recovery sleep are typically needed to resume baseline levels of sleep structure and waking performance and alertness.'' (p. 7.6). Second, the driver should be afforded more opportunity for daily and weekly sleep.

3. Driving in Any Duty Shift Should Generally Not Exceed 12 Hours

The research suggests that performance degrades and crash risk increases markedly after the 12th hour of any duty time during a work shift (Hamelin (1987); Brown (1994); Campbell (1988); Rosa and Bonnet (1993); Rosa (1991); Rosa et al. (1989); Harris and Mackie (1972); Mackie and Miller (1978); U.S. Army (1983); Transportation Research and Marketing (1985)). The studies by Campbell, Brown, and Transportation Research and Marketing focused on CMV crash cases; the other studies were performed in actual workplaces (industrial plants, in the case of Rosa's studies) and over-the-road CMV operations (U.S. Army and Mackie and Miller). Some recent research has suggested that naps can improve performance later in work cycles. The use of naps was not a factor explored in these earlier studies. This research finding, however, might not apply very well to other transportation modes, where duty needs may encompass more than is contemplated in the duty of driving CMVs. Such other duty needs and considerations might include: the restricted environment of airplanes, locomotives, and ships; the length of trips away from airports, harbors, and depots; and on-board airplane, locomotive, and vessel needs and emergencies.

4. The Time of Day When Driving Is Performed Should Be Considered

Research suggests that there is a higher risk of fatigue-induced single-vehicle accidents at night, especially between midnight and 6:00 a.m. For example, the following eight studies are representative of the research. Hamelin (1987) computed accident risk rates among drivers of heavy-goods vehicles according to the time of day, the time on task, and whether the drivers were in the ''Transport'' or ''Other'' occupational categories. For ''Transport'' and ''Other'' categories combined, the accident risk rate was

nearly double (1.82 times the baseline) after 11 hours of work. However, for the category ''Other Branch'' drivers who had worked over 11 hours, it was over four times as high during the period 8:00 p.m. and 7:00 a.m.

Blower & Campbell (1998) reported that about 20 percent of all fatal crashes and fatalities and 10 percent of all injuries involving a long-haul truck (tractor pulling at least one trailer) occur between midnight and 6:00 a.m. Crashes at night tend to be more severe, with about 435 injuries per thousand crashes between midnight and 6:00 a.m., compared with 320 injuries per thousand for the remainder of the day. There are about three times as many fatalities per thousand crashes from midnight to 6:00 a.m. Using exposure data classifying night as 9:00 p.m. to 6:00 a.m., truck travel during that period is associated with a relative risk about twice that of the rest of the day.

Kecklund and Akerstedt (1995) examined data for all accidents involving an injury and all truck accidents on Swedish motorways for the period 1987–1991. Risk ratios were computed against a baseline time period of 8:00 a.m. to 4:00 p.m. Single-vehicle accidents where alcohol was not a factor peaked at 4:00 a.m. at 13 times the baseline level. The risk of a fatal accident was 35 times the baseline level at 4:00 a.m.; severe (27 times) and minor (19 times) injury accidents also peaked at that time. Risk ratios for overtaking-vehicle and oncoming-vehicle accidents also peaked at 4:00 a.m., but the ratios were considerably lower (3–4 times). For trucks, single-vehicle accidents between 3:00 a.m. and 5:00 a.m. peaked at 3.8 times the baseline risk.

Hildebrandt, G., et al. (1974) examined one month's records of approximately 15,000 locomotive engineers employed by the German Federal Railways. They reviewed records covering 2,238 automatic braking incidents and nearly 20,000 second-level warning signals. The authors studied the relative frequency of second-level warning signals and of the occurrence of automatic braking by time of day and by length of shift and found peaks of about 125 percent of the daily average automatic braking incidents taking place around 3:00 a.m. and 1:00 p.m.–2:00 p.m. They found peaks in the activation of the acoustic signal at around 3:00 a.m. and 3:00 p.m. The authors concluded there exists a 12-hour period of variation in vigilance, superimposed upon the 24-hour circadian period.

Jovanis, P., et al. (1991) studied several driving schedule patterns in a less-than-truckload motor carrier's ''pony express'' operation. In this type of operation, drivers make an outbound trip from the home terminal to another terminal, drop their trailer, pick up another trailer, and return to the home terminal at the end of a work shift. Cumulative driving hours ranged from 7.8 to 8.4 daily, while the drivers' daily cycle of on duty and off duty ranged from 22.3 to 23 hours, indicating some circadian disruption. The highest daily risk was found to occur from 4:00 a.m. to 6:00 a.m. Elevated risk was found from midnight to 8:00 a.m. According to the authors, ''The two patterns with the highest risk of an accident were those that contained heavy driving during the prior three days and consisted of driving from 3:00 p.m. to 3:00 a.m. (Pattern 1) and from 10:00 p.m. to 10:00 a.m. (Pattern 8). The lowest risk was associated with driving from 8:00 p.m. to 6:00 a.m. but with limited driving on the prior three days.'' (p. 27)

Dinges, D.F. et al. (1997) studied young male adults under conditions of partial sleep deprivation (average of 5 hours of sleep obtained per night). They reported that the only statistically reliable subjective measure of time-of-day effects (out of several measurements used) was the Stanford Sleepiness Scale. However, four of the five objective performance measures showed statistically significant variations by time of day (tests were administered at 10:00 a.m., 4:00 p.m., and 10:00 p.m.). One measure of vigilance and reaction time (psychomotor vigilance task) also showed significant variation across the days of sleep restriction. Dinges and his coauthors reported the effects of sleep restriction on performance measures appeared to level off between the second and fifth day of sleep restriction; for subjective assessments, between the second and sixth day. The authors believed the subjects were undergoing an ''adaptation'' to sleep restriction following an initial shift to higher daytime sleepiness levels, and that this change may have resulted from changes to sleep itself during those periods (although EEG was not monitored). However, by the sixth to seventh day performance was deteriorating and subjective sleepiness was increasing again. The authors noted the linear nature of the trends indicated the performance changes are cumulative, and they did not level off.

Wylie, et al. (1996), in their operational study of CMV drivers on fixed routes under one of four types of schedules, noted that the strongest and most consistent factor influencing driver fatigue and alertness was the time of day. Compared to driving at other times, night driving (midnight to 6:00 a.m.) was associated with more video observations of driver drowsiness, poorer lane-tracking, and worse results on tests of mental performance.

Lin, et al. (1993), studying schedules of less-than-truckload CMV drivers, assessed consecutive driving time, multi-day driving patterns over a seven-day period that included time of day of driving and days driving within that period, driver age, driving experience, and hours off-duty prior to the trip. Out of ten driving patterns, they found the driving pattern with the lowest risk was ''Pattern 2,'' a highly regular schedule with on-duty times generally spanning the period 6:00 a.m. to about 2:00 p.m. and off-duty times generally spanning the period 6:00 p.m. to 4:00 a.m. Risk in six other schedule patterns that included night and very early morning driving, morning and evening rush-hour driving, and very infrequent scheduled driving had computed crash risk about 1.5 times as high (p. 5). When off-duty hours were assessed, the risk following off-duty periods less than or equal to 9 hours was 1.4 times higher.

When driving time was the category of interest, Lin et al. (1993) found there were no statistically significant differences among the first four hours but the ratio increased from that time until the last driving hour. Lin and his collaborators noted a limitation in their analysis, and provide a caveat to the estimates of the odds ratios in the last driving hour category: a large number of non-crash trips are completed during the 8th or 9th hour of driving, but the authors' ''assumed failure time,'' defined as the expected time of involvement in an accident, would occur after this trip completion time. (p. 5)

A limit, however, on the driving of CMVs between midnight and 6:00 a.m. would not necessarily result in a reduction in CMV-involved crashes. The benefit-cost analysis prepared for this NPRM and filed in the docket, as well as the section with the subheading ''Benefits and Costs'' later in this NPRM, discuss the issues, and additional research findings related to the benefit-cost, of a night-restriction option that the agency analyzed in more detail.

The proposed HOS regulations will address in three ways this issue of higher crash risks associated with night driving. First, the amount of consecutive hours off-duty proposed is longer than the current regulatory minimum. The objective is to allow drivers to have the opportunity to sleep longer during their off-duty periods. Second, the regulatory proposal would return to the pre-1962 24-hour clock. The circadian disruption permitted under the current regulations

(if drivers or motor carriers scheduled duty cycles to touch the edges of the current regulatory envelope of 10 hours of driving and 8 hours off-duty), which also adversely affects sleep quality and quantity, would be mitigated. Third, the regulations would require drivers to be given a consecutive off-duty period spanning at least two periods between midnight and 6:00 a.m. in every seven consecutive days to obtain restorative sleep. This has two benefits: it provides the opportunity for sleep during circadian-optimal times and it prevents drivers from being required to work more than five consecutive night shifts.

5. Non-Compliance by Drivers and Motor Carriers Increases the Potential for Adverse Safety Outcomes

While drivers who drive to the maximum number of hours allowed and rest to the minimum number of hours required by the HOS rules may be fatigued, the situation of drivers who are not in compliance is undeniably worse. Whatever the limitations of, for example, 5 to 6 hours of interrupted sleep, it is clearly more restorative than little or no sleep as reviewed in the discussion of the studies for daily sleep under VII.A.2. above. Unfortunately, many drivers violate the HOS regulations. Braver et al. (1992) interviewed over 1,200 drivers at truck stops, truck inspections stations, and agricultural inspection stations in the early 1990s. Based on the drivers' responses, the authors classified 73 percent of the drivers as hours-of-service violators. A 1995 survey of over-the-road drivers in New York State, McCartt et al. (1997), found that over one-third reported driving more than 60 hours in a typical week, and a similar percent reported working 70 hours in a typical week.

A more recent survey, Belzer et al. (1999), performed by the University of Michigan's Trucking Industry Program (UMTIP) corroborated this high violation rate. Belzer and his collaborators surveyed over 800 mostly over-the-road drivers at a number of truck stops in the Midwest in 1997. Only 16 percent of drivers surveyed reported that log books were generally accurate, and 56 percent stated that they had worked more hours than recorded in their records of duty status (RODS) in the last 30 days. Over-the-road drivers and owner-operators were most likely to report working more hours than recorded in the RODS, whereas local drivers were least likely. The average number of hours worked was over 63 in the previous 7 days. Twenty-five percent of drivers reported working at least 75 hours in the last 7 days, and 10 percent reported working more than 90 hours. The UMTIP also reported that the average annual mileage was found to be 112,765, where local drivers at the 10th percentile reported driving 25,000 miles annually and long-haul drivers at the 90th percentile reported driving 170,000 miles annually.

Assuming drivers have two weeks of annual vacation, that leaves 351 days per year potentially available for driving. Since the current rules prohibit drivers from driving after being on duty more than 70 hours in eight consecutive days, drivers have 3,071.25 on-duty hours during which they could possibly drive [351 days divided by 8 days = 43.875 periods per year × 70 on-duty hours for driving per period]. If one assumes that a driver was able to average 50 mph for every on-duty hour all year long, he or she could drive a maximum of 153,562 miles per year [3071.25 hours × 50 mph]. A 50 mph average for an entire year is highly unrealistic, yet the Belzer survey showed that the 90th percentile of long-haul drivers surveyed covered 170,000 miles per year. The only reasonable conclusions are that these drivers grossly violated the hours-of-service limits, significantly overestimated their annual mileage, or spent part or all of the year in team operations and counted the distances they traveled during on-duty not driving and sleeper-berth periods.

Drivers who comply with the HOS regulations may not be adequately rested, and the significant percentage who do not comply are probably not rested.

B. FMCSA Principles for Regulatory Improvement

The FMCSA determined that, based on the motor carrier and highway research and operational characteristics of the industry, it had to design regulations that incorporated the following requirements.

- Increase the 18-hour on-duty/off-duty work cycle to a normal 24-hour work cycle.
- Increase time off to allow sufficient time for 7 to 8 hours of sleep.
- Require mandatory ''weekend'' recovery periods of at least two nights of recovery sleep to resume baseline levels of sleep structure and waking performance and alertness.
- Address the effects of operations between midnight and 6:00 a.m. by requiring off-duty periods that enable restorative sleep by including two consecutive periods between these hours.
- Allow ''weekends'' of sufficient length to ensure safety and provide adequate protection for driver health and safety.
- Increase operational flexibility by offering a menu of HOS options customized to different major or distinct operational segments while still maintaining an appropriate level of safety.

The FMCSA believes these requirements will significantly reduce fatigue problems related to sleep deprivation, if drivers and motor carriers adhere to them. The FMCSA recognizes, however, that these rule changes do not eliminate the potential problem the ICC described in 1937, namely:

> We have no control over the manner in which a driver may spend his time off duty, although some of his spare time activities may tire him as much as any work would do. We can only emphasize, by this comment, the responsibility which is the driver's own to assure himself of adequate rest and sleep, in the time available for this purpose, to insure safety of his driving, and likewise the employer's responsibility to see that his drivers report for work in fit condition. 3 M.C.C. 665, at 689.

Drivers must still manage their off-duty time if these, or indeed any, proposals are to be effective. Some drivers may continue to push themselves to drive more hours than this proposal allows in order to earn more money. Others may perform non-driving jobs during their off-duty time; have long commutes to and from home; or engage in other pursuits that interfere with their obligation to obtain the proper sleep and be prepared to operate safely. Under this proposal, all time spent in any work must be counted as on-duty time, since all work can either induce fatigue or deprive the driver of sleep.

C. Types of Motor Carrier Operations

The motor carrier industry is diverse. A motor carrier is any person who uses a commercial motor vehicle, regardless of ownership, to transport passengers, property, or the vehicle itself for any purpose. Motor freight and passenger transportation differ in many respects from other modes of transportation. Other modes may have different means of tracking hours of service of their critical employees because of the operating characteristics and more structured environment. Many motor carriers are statutorily exempt from FMCSA jurisdiction (e.g., most of those in intrastate commerce) or exempted by regulation (e.g., Federal, State, or local government vehicles (§ 390.3(f)).

The FMCSA grouped motor carriers subject to its jurisdiction into the following 5 types whose substantial

operational differences might warrant more individualized consideration than the current HOS rules allow:

Type 1—Long haul. These drivers are away from their normal work reporting location and home for more than three days at a time; in total, they are away from home for a large part of the year. Their primary task is driving, although they may well engage in other activities, particularly loading and unloading cargo (or helping passengers and moving baggage, if the driver operates a motor coach). Type 1 drivers may have regular or irregular wake-sleep cycles, depending upon the requirements placed upon them by their employers, their clients (if they are independent owner-operators), their personal preferences, or a combination of all three. Many of these drivers use sleeper berths, but some sleep in hotels, motels, company sleeping quarters, truck stops, or other accommodations. Type 1 drivers have the highest accident exposure (based on distance traveled) of all driver categories, usually over 161,000 kilometers (km) (100,000 miles) per year (the benefit cost analysis uses 114,000 miles); team drivers may have twice that amount. They also have the least regular wake and sleep cycles, which often includes daytime off-duty periods when they must obtain sleep. These drivers are the least likely to be subject to frequent direct monitoring by their employing motor carriers, that ultimately are responsible for managing the driver's work/rest schedules.

Type 2—Regional. These operations are similar to Type 1, except that drivers are away from their home base only three or fewer days at a time. For example, a Type 2 driver might report for work at 7:00 a.m. Monday after a weekend off duty, leave on a trip requiring two overnights on the road, and return to his normal work reporting location by 9:00 p.m. Wednesday. Drivers for some large less-than-truckload carriers return to their normal work reporting location after only one night on the road. Type 2 drivers are generally able to take a larger proportion of their sleep periods in a familiar home environment. A Type 2 driver has a moderately high annual mileage-based accident exposure (from 120,000 to 161,000 km, or 75,000 to 100,000 miles) (the benefit cost analysis uses an interpolated estimate of 82,000 miles since the research the agency used did not directly address this group of drivers). These drivers, although often remote from a home base of operation, are more likely than Type 1 drivers to operate in more regularized schedules and to be subject to more frequent monitoring by their motor carriers.

Type 3—Local split shift. Split-shift drivers spend most of their on-duty time driving, but most are local (or home-based), and their driving shifts are generally separated by several hours. A Type 3 driver might work in a commuter or tour motor coach operation, requiring on-duty periods, for example, from 5:00 a.m. to 9:00 a.m. and 4:00 p.m. to 8:00 p.m. To be considered in this category, the driver must be off-duty during the intervening hours (in the example, from 9:00 a.m. to 4:00 p.m.). The driver may deadhead to another location, be shuttled back to a base of operations, or merely be free to spend the time as he/she chooses at the location where his/her duty terminates. If the driver performs non-driving duties for the motor carrier, holds another job, or performs any other work, time spent in those activities must be counted as on-duty time, and may remove the driver from the Type 3 category. Type 3 drivers are different from Type 4 and 5 drivers because driving is the main part of their job, and because these drivers are not on duty more than 12 hours, although the end of their shift occurs more than 12 consecutive hours after they begin the workday. Type 3 drivers are fairly prevalent in the motor coach industry, but other operations would fall into the same category, e.g., commuter transportation, before-school/after-school-activity bus drivers, split-shift freight, morning and evening edition newspaper delivery operations, and specialized CMV operations. The level of direct motor carrier monitoring of Type 3 drivers work/rest schedules varies depending on the operation involved.

Type 4—Local pickup and delivery. Type 4 drivers work in the vicinity of their normal work reporting location. They are generally on regular schedules extending less than 12 consecutive hours from the time they report in until they check out. Driving is a significant part of their work, more than half of their on-duty hours. Drivers currently operating under the 100 air-mile radius exception in 49 CFR 395.1(e) would generally be considered Type 4 drivers, and would be absorbed into this category, eliminating the need for that exception. Because they operate daily out of a home base, their work tends to be more regularized and the carriers are able to directly monitor drivers' work/rest schedules.

Type 5—Primary work not driving. These drivers also work in the vicinity of their normal work reporting location. Unlike Type 4, however, they typically spend only one-third (or less) of their on-duty hours behind the wheel. This classification covers operators of CMVs whose duties do not center around driving, but who operate these vehicles as a necessary part of their work assignments. Type 5 operations would include many drivers for electrical, water, natural gas, and communications utilities; construction equipment operators; environmental remediation specialists; oilfield service workers; ground water well drilling workers; operators of mobile medical equipment providing community patient services; and driver-salespeople. They are generally subject to close and frequent direct monitoring of their work/rest schedules, and, because they are being grouped into one category for regulatory purposes, there is no need for any special exemptions. Generally, drivers in this category have periods during their work day when they have the opportunity to take breaks while they are awaiting instructions, while they wait for others to perform tasks related to their work. For example, a driver-salesperson delivers snack foods or bread to a grocery store. Before stocking the shelves, the grocery store personnel might have to finish their tasks or clear a space for the salesperson to work.

D. Regulatory Options

The FMCSA applied the research findings and the principles discussed above to the five types of motor carrier operations and developed six potential regulatory options. A seventh option was to retain the current rules. For reasons noted throughout this document, the seventh option was rejected. Nonetheless, the current rules necessarily form the baseline for benefit-cost comparisons with other options.

The FMCSA has found no sleep or fatigue research that supports any of the current exceptions or exemptions, including the 24-hour restart provisions authorized by the NHS Act. The agency determined that a slightly longer break, one that includes two consecutive midnight to 6:00 a.m. periods to obtain restorative sleep and could be as little as a minimum 32 consecutive hours (though this would happen rarely), would better serve safety objectives while meeting the needs of most of those industry segments presently eligible for the 24-hour restart provision. Most of the drivers in those segments operate primarily in the daytime so that a minimum 24-hour break does not return them to their normal starting time. A minimum 32- to 56-hour break that includes the minimum of two consecutive nights of sleep, however, would provide them a full day off with two sleep periods between midnight and 6:00 a.m.

Options Developed

The FMCSA developed policy options using the research available in the docket. See Table 4 for a summary of each option. Policy Option A is the current rule. Policy Option A allows drivers to operate on an 18- to 23-hour cycle. Drivers may work as much as a 15-hour shift, with a maximum of 10 hours of driving. Alternatively, they may drive 10 hours, followed by 8 hours off duty, and then drive for another 10 hours. Thus, drivers are allowed to be on duty and drive for as many as 16 hours in a 24-hour period, with an 8-hour off-duty period after the first 10 hours of driving. This policy option does not require that a driver be given any off-duty time for personal necessities and needed rest, although such breaks are allowed and logged as off-duty time, thus extending the actual elapsed time within which the 10-hour driving and 15-hour duty limitations apply. To exploit the absolute minimums in the rule, and still obtain sufficient sleep, the entire 8-hour off-duty period would have to be devoted to sleep. Essentially the same requirements currently are imposed upon drivers in all five types of operations.

Policy Option B was based on a 24-hour cycle. It required a minimum of 9 consecutive hours off duty for sleep (12 hours for Type 4 drivers), with a recommendation that this 9-hour period begin at the same time each day. In addition, this option provided a minimum of one additional hour in the remainder of the 24-hour period for any activity of the driver's choosing. For Type 2 drivers sleeping at home and for Type 3 drivers, this one-hour minimum was extended to 3 hours. A maximum of 14 hours on-duty time would have been allowed, with the recommendation that it begin at the same time within each 24-hour period, with a maximum of 12 of those hours devoted to driving. However, the maximum on-duty time was 12 hours for Type 2 drivers sleeping at home and for Type 3 and 4 drivers. For Type 5 drivers, the maximum on-duty time would have been extended to 15 hours, only 6 hours of which could have been devoted to driving.

The FMCSA's policy Option C was not greatly different from Policy Option B, except that it increased to two the minimum additional hours off duty allowed for Type 1 and 2 drivers away from home, for personal necessities and rest, as well as other activities of the driver's choosing. Maximum time on one shift was reduced from 14 hours to 13 hours. Like Policy Option B, it allowed up to 12 hours of driving, and 6 hours of driving for Type 5 drivers. Drivers away from home could have accumulated as many as 78 hours on duty in 7 days but not more than 130 hours in 14 days, or an average of 65 hours per week. Drivers who are not away from home could have accumulated no more than 65 hours in 7 days. Like Policy Option B, there would have been no distinction made between daytime and nighttime driving.

Policy Option D was also based on a 24-hour cycle. It would have allowed a minimum of 9 consecutive hours off for sleep (12 hours for Type 4 drivers and 8 hours for Type 5), plus a minimum of 3 hours off for Type 1, 2, and 3 drivers for rest, personal necessities, and other activities. For Type 5 drivers, a minimum of only one hour was required for these other activities. On-duty time was restricted to a maximum of 12 hours, except for Type 5 drivers, where it was 15 hours. Maximum driving time was also 12 hours, except for Type 5 drivers, where it was 6 hours. A maximum of 72 hours of on-duty time could have been accumulated over a 6-day period, and all those hours could have been spent driving. For Type 4 drivers, the maximum was 60 hours within a 7-day period.

Policy Option E retained the 10-hour driving limit in the current system (Policy Option A) but also used a 24-hour base cycle. It would have allowed up to two hours additional on-duty time that could be used for loading and unloading or other work-related activities. In addition, it would have provided reasonable off-duty time in addition to sleep time, so that drivers could pursue other activities required for normal living. As in the other policy options, there was no distinction made between daytime and nighttime driving, nor was there any special consideration of time spent in a sleeper berth.

Policy Option F used a 24-hour base cycle and was identical to Policy Option B though it would have also required a limitation or prohibition on driving between midnight and 6:00 a.m. for all drivers. This option is discussed in more detail in the next section (E. The Expert Panel).

Policy Option G used a 24-hour base cycle and required 16 consecutive hours off duty and would have required driving and other duties to be completed within an eight-consecutive-hour workday. This is the most restrictive option and was viewed by the agency as unsupported either by any cited research data or any of the comments to the ANPRM. The FMCSA did not find any indication in the docket materials leading the agency to believe a duty period as low as 8 hours in a 24-hour period is necessary for highway safety, though it might be desirable for social reasons. Such a policy would have required tens, if not hundreds, of thousands of additional drivers who are not likely to be available, given the present state of the U.S. economy.

The Congress considered, and rejected, an 8-hour workday for the motor carrier industry in 1935. A minority of the House committee considering the Motor Carrier Act of 1935 attempted to legislate an 8-hour workday for bus and truck drivers. See H. Rep. No. 1645, Additional Views, p. 6–7; amendment introduced by the sponsor of the additional views, 79 Cong. Rec. 12212, House, July 31, 1935; and rejected by the Whole House, 79 Cong. Rec. 12230, House, July 31, 1935. The ICC considered the same policy in 1938 and also rejected it. Review the quote from 6 M.C.C. 557, at 561 (July 12, 1938) above under IV. B. Immediate Changes to HOS Rules. The FHWA considered an 8-hour workday in 1980 and 1981. At the time, the FHWA conducted a cost-effectiveness analysis and found such an option had an estimated cost of $11.496 billion and benefits of $450 million. If some drivers use the extra free time to supplement their incomes in other employment, the FMCSA thinks it is logical that they would accumulate additional fatigue that an 8-hour workday is designed to prevent.

The FMCSA assessed preliminarily each of the seven potential HOS options and determined the last two (F and G) would not have significant cost and benefit changes from the 1981 analyses. Based on that assessment, the FMCSA decided that options A through E adequately cover the range of realistic alternatives to the current rules.

TABLE 4.—FMCSA OPTIONS DEVELOPED

Potential Policy...	Wake-Sleep Cycle...	These many hours off duty for sleep in one consecutive period...	With at least these many additional hours off duty...	Allowing the driver to work up to this many hours, including driving, in any combination...	And a weekly recovery period of at least...
A—Status quo	18 to 23 hour cycle.	8	0 hours	15 hours; 10 limited to driving.	NA.
B—Maximum 14 on, Minimum 10 off.	24 hour cycle	9	1 hour driver sleeps away from home, 3 hours when at home.	14 hours, 12 hours limited to driving.	58 hours.
C—Maximum 13 on, Minimum 11 off.	24 hour cycle	9	1 hour driver sleeps away from home, 2 hours when at home.	13 hours, 12 hours limited to driving.	58 hours.
D—Maximum 12 on, Minimum 12 off.	24 hour cycle	9	3 hours	12 hours, no lower limit for driving.	58 hours.
E—Maximum 12 on, minimum 12 off.	24 hour cycle	9	3 hours	12 hours, 10 hours limited to driving.	58 hours.
F—Maximum 14 on, Minimum 10 off.	24 hour cycle	9	1 hour driver sleeps away from home, 3 hours when at home.	14 daily hours, 12 hours daily limited to driving, and only 18 hours of driving between midnight to 6:00 a.m. each workweek.	58 hours.
G—Maximum 8 on, Minimum 16 off.	24 hour cycle	16	0 hours	8 hours	58 hours.

E. The Expert Panel

The FHWA convened an expert panel to examine the potential HOS options developed by the agency and review the current state of knowledge about sleep and fatigue. The panel was composed of eight scientists, engineers, and public policy experts in the fields of traffic safety, human factors, and sleep medicine. They were selected because of their familiarity with the science as it relates to commercial trucking, in particular. The membership might be different if another mode of transportation were involved. The panel members were Gregory Belenky, M.D., of the Walter Reed Army Institute of Research; A. J. McKnight, Ph.D., of the National Public Services Research Institute; Merrill M. Mitler, Ph.D., of the Scripps Institute & Research Foundation; Alison Smiley, Ph.D., of Human Factors North; Louis Tijerina, Ph.D., of the Transportation Research Center, Inc.; Patricia F. Waller, Ph.D., of the UMTRI; Walter W. Wierwille, Ph.D., of the Virginia Polytechnic Institute and State University; and David K. Willis of the American Automobile Association Foundation for Traffic Safety. The panel members work in academia, government, and as private consultants. The FHWA provided the panel with summaries of over 80 (mostly peer-reviewed) research reports compiled by the FHWA. The panel was asked to evaluate the current regulations and various agency-generated proposals in light of the scientific understanding of sleep and alertness. Their findings, reported in *Potential Hours-of-Service Regulations for Commercial Drivers*, Belenky, et al. (1998), include their discussion of the inadequacies of the present regulations. The complete report is in the docket.

The panel's report identifies the following nine critical issues.

- 24-hour cycle.
- Nighttime differential.
- Continuous time off duty daily.
- Split shift drivers.
- On-duty time versus driving time.
- Sleeper berth use.
- Limits on cumulative on-duty time.
- Adequate recovery time.
- Foreknowledge of work schedule.

One major concern of the panel was the absence of a 24-hour cycle in the HOS regulations. Human evolution responded to the natural light cycle, and human biology still exhibits strong cyclical effects. Human metabolism, and thus alertness, shows daily patterns, with 24 hour peaks and troughs. The panel noted a study by Duffy et al. (1996) in support of the role of the light-dark cycle as a circadian synchronizer and the minimal influence of a schedule shift acting alone.

Another concern of the panel was the importance of continuous time off duty. It reported that sleep obtained in discontinuous segments is not as restorative as continuous sleep. The panel also cited studies which demonstrate that longer periods of off-duty time are associated with longer periods of sleep. The current regulations require that drivers have at least 8 continuous hours off-duty before returning to duty. The panel criticized this requirement as inadequate, because it does not allow drivers time to travel to a resting place or to take care of personal business, and because 8 hours off-duty time generally does not translate into 8 hours of sleep. Wylie, C.D. et al. (1996) showed that drivers who are off-duty for 8 hours generally obtain only about 5 hours of sleep. This trend has also been observed in operational studies in the rail and aviation modes.

The panel also asserted that there should be no differentiation between driving time and on-duty not-driving time. They cite several studies which show that performance of tasks declines with increased time on duty, regardless of how on-duty time is spent. The panel believes that all on-duty time should be treated the same, as the effect on driver safety is similar.

Another concern of the panel was the difference between daytime and nighttime driving. Their report noted several problems with nighttime driving. First, as demonstrated by Wylie, C.D. et al. (1996), the strongest and most consistent factor influencing fatigue and alertness is time of day. Night driving was associated with a higher level of observed drowsiness, poorer lane-tracking, and degradation of mental performance. In addition, the panel noted evidence that daytime sleep is not as restorative as nighttime sleep, because fewer hours are spent sleeping and the quality of that sleep is poorer. Drivers generally agree that nighttime sleep is superior to daytime sleep (Abrams et al. (1997)). The result is that

overall alertness and performance are lower in the nighttime than in the day, and accident risk is correspondingly higher. The Expert Panel report cites evidence suggesting that nighttime driving is associated with as much as a fourfold or more increase in fatigue-related crashes. The existing regulations make no distinction between day and nighttime driving.

The panel's report included a presentation of a candidate schedule, ''Policy Option F.'' This policy option included a provision to limit driving between midnight and 6:00 a.m. to 18 hours within a 60-hour workweek, and to require an extended period off duty at the end of the week. The panel itself ''recognized that any specific limit on nighttime driving is, at this time, arbitrary * * * Because nighttime driving is associated with higher crash risk even when other risk factors are taken into consideration, nighttime driving may be considered as a health and safety liability analogous to other hazardous conditions, with limits on exposure an appropriate intervention'' (p. 36). The panel went on to acknowledge that a restriction upon nighttime driving could generate an increase in the number of heavy vehicles in daytime traffic, increasing exposure to other, smaller vehicles.

The FHWA decided not to propose limits on nighttime driving to the panel based on the 1981 regulatory analysis and its preliminary assessment of the regulatory impact of such a policy. Believing the option had to be analyzed further, even though they admitted the 18-hour limitation is arbitrary and a reasonable explanation can be made for it, the panel requested the agency to reconsider. The agency, upon further review, decided to conduct the benefit-cost analysis of this option again as it had done in 1981.

The FMCSA relied upon the Expert Panel report in reviewing the information in the docket a second time and reshaping the options described above into this proposal. As more fully discussed later, the FMCSA is proposing a required ''weekend'' period for all drivers of at least two midnight to 6:00 a.m. periods for obtaining restorative sleep. Smiley, A. & Heslegrave, R. (1997), O'Neill, T. et al. (1999), and Rosekind, M.R. (1997) come to the same conclusion. As Rosekind wrote, ''It is important to maintain an optimal sleep opportunity every 24 hours and also address the potential for cumulative effects. Therefore, appropriate recovery time should be allowed per week (days or rolling hours). Scientific studies show that two nights of recovery sleep are typically needed to resume baseline levels of sleep structure and waking performance and alertness.'' (p. 7.6). This final proposal is also mindful of the strong evidence, and the panel's finding, that the driver should be afforded more opportunity for daily and weekly sleep.

F. Recordkeeping Requirements

The Paperwork Reduction Act of 1995 (44 U.S.C. 3501–3520) requires the FMCSA to eliminate duplication and greatly reduce the information collection burden hours and costs imposed on the motor carrier industry. Driver paper logs have been a perennial source of complaint both among drivers and enforcement officials. The FMCSA analyzed what the agency and its enforcement partners needed to determine whether a driver and motor carrier are complying with any HOS rules and analyzed other record requirements imposed by other Federal agencies.

1. Time Records

The recordkeeping regulations of the DOL's Wage and Hour Division (WHD) (29 CFR part 516) require employers subject to the FLSA to produce and retain information the FMCSA can use to enforce the proposed HOS rules. The WHD recordkeeping regulations are based on the FLSA's record provision, specifically at 29 U.S.C. 211(c):

> (c) Records
>
> Every employer subject to any provision of this chapter or of any order issued under this chapter shall make, keep, and preserve such records of the persons employed by him and of the wages, hours, and other conditions and practices of employment maintained by him, and shall preserve such records for periods of time, and shall make such reports therefrom to the Administrator as he shall prescribe by regulation or order as necessary or appropriate for the enforcement of the provisions of this chapter or the regulations or orders thereunder.

Sec. 211(c) requires all subject employers, including interstate motor carrier employers, to make and keep wage and time records for their employees, including drivers. The FMCSA has the authority under 49 U.S.C. 31133(a) to prescribe recordkeeping and reporting requirements and to require the production of records for all interstate motor carriers, not only those carriers that employ drivers, but also those carriers that lease, contract, or allow owner-operators and other non-subject employees to drive on the motor carriers' behalf. The agency is proposing to use that authority to require all interstate motor carriers to make available to FMCSA investigators the WHD wage and hour records they are already required to maintain to comply with the minimum wage requirements of 29 U.S.C. 206. The FMCSA is also proposing to use that authority to require those interstate motor carriers not covered by the FLSA that lease, contract, or allow owner-operator drivers and other non-FLSA subject drivers who operate on those motor carriers' behalf to produce records similar to the 29 CFR 516 records.

Most of the information the FMCSA needs to enforce the proposed rules is currently in 29 CFR 516.2 *Employees subject to minimum wage or minimum wage and overtime provisions pursuant to section 6 or sections 6 and 7(a) of the Act* of the WHD regulations. This includes the following six pieces of information from paragraph (a)(1), (5), and (7), including: (1) The driver's *name in full* as used for Social Security recordkeeping purposes; (2) the *identifying symbol or number if such is used in place of name on any time, work, or payroll records*; (3) the *time of day and day of week on which the employee's workweek begins*; (4) *If the employee is part of a workforce or employed in or by an establishment all of whose workers have a workweek beginning at the same time on the same day, a single notation of the time of the day and beginning day of the workweek for the whole workforce or establishment will suffice*; (5) the *hours worked each workday*; and (6) the *total hours worked each workweek*.

Most motor carriers engaged in interstate commerce are exempt only from the overtime requirements of the FLSA. Those carriers, however, are addressed by 29 CFR 516.12 *Employees exempt from overtime pay requirements pursuant to section 13(b)(1), (2), (3), (5), (9), (10), (15), (16), (17), (20), (21), (24), (27), or (28) of the Act.* This section requires employers to maintain certain records with respect to each employee exempt from the overtime pay requirements of the FLSA by maintaining and preserving payroll and other records, containing all the information and data required by § 516.2(a) except paragraphs (a)(6) and (9) and, in addition, information and data regarding the basis on which wages are paid (such as the monetary amount paid, expressed as earnings per hour, per day, per week, etc.).

The FLSA exemption from the overtime pay requirement applies only to certain employees of interstate motor carrier employers subject to the MCA of 1935, but not to those subject only to the MCSA of 1984. The only substantial group of interstate carrier employers subject to the 1984 Act that are not also

subject to the MCA of 1935 are private motor carriers of passengers (e.g., churches, musicians, civil and charitable organizations, scouts, companies transporting their own employees, etc.). See 29 CFR 782.2(b)(1). Motor carrier employers employing drivers engaged in intrastate commerce, as defined by 49 U.S.C. 31132, and engaged in interstate commerce, as defined by the FLSA (29 U.S.C. 201 *et seq.*), are required to pay their drivers time-and-a-half overtime for any work in excess of 40 hours per workweek.

The WHD requires subject employers to record and maintain the hours worked by subject employees. The WHD regulations do not specifically state that subject employees (including drivers) must record their own start and end time. In discussions with the DOL, the FMCSA found the WHD allows employers to require the subject employees doing the work to keep their own time or work record instead of hiring separate timekeepers. In any event, all subject employers are responsible under WHD regulations to accurately record the start and end times and total hours worked, for subject employees.

One piece of information, however, is not covered by WHD regulations; that is the location where duty status changes from off duty to on duty and vice versa. The location of duty status changes is important only for those drivers who do not return to their normal work reporting location at the end of each work shift to determine where duty is occurring and is necessary for enforcement of the rule.

Thus, the WHD definitions of on-duty and off-duty time, and the WHD recordkeeping regulations, with the addition of the location of duty status changes for drivers away from their normal work reporting location for two or more workdays, would enable the FMCSA and its State partners to monitor and enforce the proposed HOS regulations for drivers in Types 1 through 5 operations. There would be no need for paper logs in the formats used over the past 60 years. This would allow motor carriers with drivers in Type 3, 4, and 5 operations to use any record of duty the carrier chooses to meet the program objectives and the requirements of both agencies. For Type 1 and 2 drivers, the FMCSA would need to require drivers to add locations of their duty status changes to a WHD-required time record or an EOBR.

The FMCSA is proposing to produce a savings of information collection burdens of approximately 18,000 man-years annually on the industry by dropping the record of duty status (driver log) that has been required since 1937. To enforce the new HOS regulations, the agency would rely on EOBRs for Types 1 and 2 drivers and the employee time records required by the WHD for Type 3 through 5 drivers. See 29 CFR part 516 *Records to Be Kept by Employers* and part 785 *Hours Worked.* This should end the duplication that now exists between FMCSA and DOL regulations.

The agency is also proposing to use 49 U.S.C. 31133(a) to require all motor carriers to prepare time records similar to those required by the WHD for their drivers who are not subject employees covered under the FLSA, generally owner-operators and independent contractors used primarily in Type 1 and 2 operations. The WHD has advised the FMCSA that drivers who are employed by owner-operators and independent contractors who are leased to motor carriers may be subject to the FLSA under the individual coverage provisions of the FLSA, if they are not subject under the enterprise coverage provisions. Owner-operators and independent contractors employing drivers and leasing them to a motor carrier should check if they are subject to the FLSA. The FMCSA is proposing to require the use of EOBRs to record hours for all Type 1 and 2 operations.

2. Electronic On-Board Recording Devices (EOBR)

The FHWA received a petition dated August 3, 1995, to require EOBRs on all CMVs from the IIHS, AHAS, PATT, Families Against Speeding Trucks, National Association of Governors' Highway Safety Representatives, and Public Citizen. These groups believe a mandate to use EOBRs would result in improved HOS compliance, less fatigued drivers, and fewer highway crashes. The NTSB also recommended the FHWA mandate EOBRs.

As discussed below under the benefits and costs of the revised options, the agency has analyzed the benefits and costs of two options to require EOBR use. Overall benefits outweigh overall costs. The FMCSA has therefore decided to propose that motor carriers having drivers in Type 1 and 2 operations be required to use EOBRs. This should ensure credible verification of drivers' adherence to, and improve motor carriers' ability to manage driver compliance with, these proposed rules. It would also enable safety investigators and enforcement officials to better verify the driver's compliance with the new requirements.

The EOBR proposal presented today requires relatively simple technologies and single-purpose devices to satisfy the HOS reporting and recordkeeping requirements. The more complex satellite-based systems and other high-tech communications technologies already used in certain segments of the passenger carrying and trucking industries can probably be adapted or reprogrammed to incorporate HOS functions. The agency is seeking information about the feasibility and cost of such upgrades to existing on-board or satellite-linked data systems. The EOBR requirement is being proposed only to enable FMCSA enforcement officials and their MCSAP-funded State colleagues to review and verify drivers' hours of service and hours of rest. The FMCSA recognizes that drivers may consider this proposal an invasion of their privacy. This is not our intention. We view the EOBR requirement as a more effective form of the self-monitoring and -reporting drivers have been required to perform for many decades in the form of paper records of duty status (logbooks). The EOBR requirement does not include, and should not be interpreted as authorizing, the use of audio or video recording of drivers' activities in, on, or near the vehicle.

The FMCSA solicits comments on the commercial availability and cost of single-function EOBRs designed solely to record HOS. The more complex satellite-based and other high-tech communication devices widely used in the passenger-carrying and trucking segments of the motor carrier industry can probably be adapted to HOS functions. The agency is seeking information about the feasibility and cost of such improvements to existing on-board or up-linked data systems.

The FMCSA solicits comments on, and if possible copies of, engineering and cost analyses of currently available EOBRs that meet the minimum performance standards the agency is proposing.

Comments to the 1996 ANPRM provided no data on the other costs associated with an EOBR requirement, such as the time or effort needed to generate and maintain information, or to provide it to or for the FMCSA. The FMCSA has analyzed the information collection burdens of an EOBR requirement, including the following nine activities:

(1) Reviewing instructions;

(2) Developing, acquiring, installing, and utilizing technology and systems for the purpose of collecting, validating, and verifying information;

(3) Developing, acquiring, installing, and utilizing technology and systems for the purpose of processing and maintaining information;

(4) Developing, acquiring, installing, and utilizing technology and systems for the purpose of disclosing and providing information;

(5) Adjusting the existing ways to comply with any previously applicable instructions and requirements;

(6) Training personnel to be able to respond to a collection of information;

(7) Searching data sources;

(8) Completing and reviewing the collection of information; and

(9) Transmitting, or otherwise disclosing the information.

The FMCSA especially is interested in comments addressing the agency's estimates of the specific costs associated with requiring EOBR use by drivers in Type 1 and 2 operations.

The FMCSA is interested in information about the prevalence of EOBRs, ''smart'' card adapted EOBRs, and electronic control modules (ECM) of any kind presently in use; the cost of converting existing equipment to HOS monitoring capability, such as ECMs; the availability of conforming technology, assuming a performance standard; the installation and maintenance costs of some of the newer devices (our evaluation relied on 1997 estimates); the phase-in period required before full compliance could be achieved; any difficulties in training drivers, clerks, and managers in the use of this technology; and any effects on productivity, as well as on compliance with the HOS rules. The ECM is a computer having about twice as much power as the average personal computer (PC). The ECM contains the heavy-duty-diesel-engine's electronics package. This electronic black-box is an outgrowth of meeting the Environmental Protection Agency's emission standards.

The agency is interested in the potential of ''smart card'' technology. Each driver would have a card that provided identifying data (e.g., a thumb print, retinal scan, or other biometric identifier). To be useful for HOS enforcement, smart cards would be subject to certain performance standards. They could allow data to be written to the card only from a CMV-installed unit; the data would only include driving hours; the card would store the data for 30 days or longer and allow reading capabilities only at motor carrier facilities or during law enforcement stops; the card would be tamper-proof to the maximum extent practicable; and only one card would be issued to each driver. The FMCSA would like comments from manufacturers and others about the availability of such devices and methods for recording work time and monitoring compliance with HOS requirements.

The FMCSA believes the training needed to operate an EOBR system would be minimal. The agency would like comments regarding the training necessary to operate EOBRs well enough to comply with this NPRM. Comments should also address any recurring training that may be needed to maintain proficiency.

The FMCSA is proposing to require the use of EOBRs capable of tracking drivers' driving, other on-duty, and off-duty times for Type 1 and 2 operations only. Type 1 and 2 drivers must take at least 2 hours off-duty during each work day or at the end of the work day. Thus, the FMCSA needs to ensure the drivers are taking that time. The simplest possible device would be similar to what is presently permitted under 49 CFR 395.15, except that the regulations would allow a greater variety of technologies including the use of terrestrial and satellite systems, and driver ''smart cards.'' The FMCSA would continue to require that motor carriers ensure the devices meet the standards currently included in § 395.15(i). Therefore, the device would have to be capable of:

(1) Meeting certain design and operational standards, including being tamper-resistance to the maximum extent practicable.

(2) Producing pertinent information in the vehicle for use both by the driver and safety investigators/enforcement officials.

(3) Identifying the driver.

(4) Computing the relevant totals of driving, on-duty, and off-duty hours in relation to a daily, weekly, or longer period.

(5) Calculating time and location so that changes in duty status can be recorded accurately.

Location recording under the current § 395.15 regulation occurs without the aid of terrestrial or global positioning systems and requires input by the driver. The FHWA began allowing a few motor carriers to pilot demonstrate terrestrial and global positioning system technologies that could assist EOBRs (63 FR 16697, April 6, 1998). These pilot demonstrations are continuing. Off-duty and on-duty not driving times must also be input by the driver. Opportunities for driver input, however, increase the likelihood of driver falsification and allowance of that falsification by motor carriers. Although terrestrial and global positioning systems are available for implementation now, there are many assumptions their system designers have been making that may result in violations of the current HOS regulations. In a few cases, the FMCSA discovered actual violations of the current HOS regulations. The FMCSA believes it must address these assumptions, many that may have been made yet have gone undiscovered, and design prohibitions for such assumptions before proposing prohibitions of driver interactive EOBRs and future proposals requiring EOBRs that have no capability for driver interaction.

The benefits of this NPRM can be achieved by understanding how the rule helps drivers and motor carriers and also making a dramatic change in the present attitude toward compliance in long-haul and regional operations. These are unlikely without persuasive evidence that compliance would not only be expected, but monitored and enforced. The presence of an objective tamper-proof monitor on board long-haul and regional operating CMVs would achieve that objective because they are the ones where the greatest percent of violations are currently found.

The FMCSA is also required by the Paperwork Reduction Act to count, as a Federal requirement, information collection burdens imposed through the MCSAP by a unit of State or local government, except to the extent that the FMCSA shows that such State, local, or tribal requirement would be imposed even in the absence of a Federal mandate. The FMCSA would like to know whether States currently have such requirements for interstate motor carriers to use EOBRs.

One of the principal monitoring tools for HOS compliance has been safety inspections on the roadside. The FMCSA and its State partners complete more than two million of these inspections annually.

The EOBR time records can be used for WHD compliance along with the associated payroll and other records. The driver, who is an employee of a motor carrier or a motor carrier's lessor, would have an incentive to record hours on duty accurately—the driver would know the hours recorded are directly proportional to the minimum wages the motor carrier employer must pay under the FLSA and WHD's implementing regulations. The WHD has told FMCSA it will use a driver's documentation of hours worked, if a dispute arises with the employing motor carrier.

Using the current situation, motor carriers generally have relied upon the records of duty status under 49 CFR part 395, including EOBRs under § 395.15, to calculate the minimum wage required to be paid to the driver for each workweek. Some motor carriers, drivers, and

enforcement officials have not understood the differences between the current FMCSA and WHD definitions of duty time, off duty time, interstate commerce, and record keeping methods. The FMCSA believes some motor carriers that have not understood the difference may miscalculate the minimum wage, placing the motor carrier in violation of the FLSA. The driver may lose pay because the driver recorded time based upon the current FMCSA regulations and guidance rather than using the WHD regulations and guidance for duty time.

Likewise, enforcement officials who do not understand the differences may attempt to compare a WHD-compliant time card to an FMCSA-compliant RODS. The enforcement official may see on the WHD-compliant time card that the driver ''punched in'' at 8:00 a.m. The FMCSA-compliant RODS, however, may show the driver off-duty until 11:00 a.m., when the load was ready for transport. An enforcement official who does not know the differences may cite a false RODS out of ignorance of the different definitions of duty time and off-duty time. Both records were accurate, but the different definitions led to a perceived conflict.

Using standard definitions of on-duty and off-duty time, and using standard DOL HOS recordkeeping methods that most employers subject to the FLSA are required to use, will help to fix these types of misunderstandings and violations of laws and regulations.

G. Supporting Documents

Section 113 of the Hazardous Materials Transportation Authorization Act of 1994 (HMTAA), Public Law 103–311, 108 Stat. 1673 (August 26, 1994) required the Secretary of Transportation to define supporting documents used to verify drivers' HOS and to prescribe regulations governing their use to improve both: (A) Compliance by CMV drivers and motor carriers with the HOS requirements and (B) the effectiveness and efficiency of Federal and State enforcement officers reviewing such compliance.

1. 1998 Notice of Proposed Rulemaking

On April 20, 1998, the FHWA published an NPRM (63 FR 19457, RIN 2125-AD52) requesting comments on a proposed definition of ''supporting documents'' for the HOS regulations. The FHWA proposed that motor carriers develop and maintain effective auditing systems to monitor the accuracy of the drivers' RODS. The NPRM proposed that failure to have such a system would require the motor carrier to retain various types of business documents. The use of electronic recordkeeping methods was also proposed as a preferred alternative to paper records.

Today's NPRM incorporates and supersedes the supporting document NPRM and will address records and supporting documents for use in monitoring and enforcing minimum hours off duty, rest, and work of CMV drivers.

2. Comments to Docket FHWA–98–3706 (Supporting Documents)

The FHWA received 41 comments in response to the 1998 Supporting Documents NPRM. Two organizations each submitted two comments which were counted as separate comments. The respondents represented 3 advocacy groups, 2 consultants to the industry, one labor union, 17 motor carriers, 13 trade associations, including one motor coach association, 2 on-board recorder manufacturers, and one State government agency.

Three comments fully support the NPRM. They were Bestway Express, Inc., IIHS, and the National Propane Gas Association (NPGA). Bestway Express had two suggestions in addition to its approval of the FHWA's efforts to develop:

> a process that allows self assessment in program design for safety management. As an industry, and partner with Government, we need these kind of initiatives as we go forward with performance based standards. The approach that you have developed where a carrier can design a self monitoring system, get pre-determined FHWA assessment of that program, and then can implement their program is commendable.
>
> A self monitoring system, if Safe Stat is the performance standards, is the only model to use as a long range implementation plan.

The NPGA considered the proposal ''a significant step in implementation of electronic document technology into the operations of motor carriers generally.''

In supporting the proposal, the IIHS noted:

> Although the proposal is less stringent than authorized by the Act, it is an important first step in improving truck driver and motor carrier compliance with HOS rules. Any weakening of the proposed rule would contravene the intent of the Act.

Many commenters (23) expressed their belief the supporting documents NPRM should have been deferred until it could be considered in the context of the overall HOS rules. They believed the current HOS rule needs repair, rather than a system to support it.

The National Association of Small Trucking Companies (NASTC) commented that carriers generally recognize their obligation not only ''to trust but to verify'' the drivers' logs as submitted. It noted that the proposal squarely aimed at ''placing the burden on the carrier to catch drivers who make fraudulent log entries,'' and that ''the DOT cites over 30 different extrinsic documents which typically cross a trucking company's desk and suggests that some, part, or all of these documents can be used as an external check to stop log falsifications.''

Many commenters believe the FHWA proposed significant burdens upon industry by requiring records be kept that are not now produced. Many believe few if any documents are produced for each beginning, intermediate, and end of trip and that those documents that are produced do not have the information required by the statute, such as driver's name and the vehicle number.

Yellow Corporation's comments are indicative of LTL carriers generally. It operates between fixed terminals, and manages HOS compliance through the payroll system, which, Yellow notes, is also used by FMCSA personnel during compliance reviews. Like many others, Yellow only sees the proposal as expanding the burden of collecting many unnecessary records, when its present systems are adequate to do the job.

A few commenters were very concerned that the FHWA had misinterpreted and misapplied the definition of ''burden'' in 5 CFR 1320.3(b)(2). They believe that collecting many receipts and keeping them for four months is not usual and customary in the motor carrier industry.

The NASTC also believes that the supporting documents rule should provide examples of acceptable carrier programs that would meet the NPRM's requirements. The writer of the comments describes an intricate system of log verification employed by ''one of our larger, more sophisticated members.'' He notes, however, that although the system could be reduced to writing for auditing purposes, the safety investigator conducting a compliance review would not be able to verify all the checking done by the record's clerk, because the external documents used for that purpose are not retained centrally, or maybe not at all. Without reasonable guidelines, perhaps in the form of models or examples of acceptable systems or programs, the motor carrier can never know whether its system will pass muster. He also observes that the proposal fails to deal with distinctions between system design and system implementation, so that a carrier with an effectively designed system may have to start over from scratch because a safety investigator may find

shortcomings in the way it is implemented.

In addition, a few comments provided specific responses to the 9 questions the agency asked.

Question (1) What types of self-monitoring systems should be considered in addition to the type proposed in this document?

Yellow Corporation contended that any software application that verified RODS through comparison with internal documents should be acceptable, and that the FHWA should not limit a carrier's choice of a self-monitoring system to any specific applications. Alabama Power agreed with Yellow so long as the self-monitoring scheme would provide a reasonable assurance of compliance. ROCOR Transportation was satisfied with the present system with the possible addition of the existing interpretive guidance.

Question (2) Whether and what conditions should be imposed upon motor carriers (such as accident or out of service prevention performance history) before the FHWA would authorize a different self-monitoring system as an alternative to compliance with this proposed rule?

Yellow Corporation opined: ''The only conditions that should be considered in determining if the motor carrier must change its self monitoring system should be those directly related to errors/violations in the RODS or repeated violations of HOS.'' Alabama Power, on the other hand, believed the FHWA should consider relative accident and out-of-service rates. Accident and out-of-service rates should be established for determining when additional monitoring is necessary. ROCOR Transportation, once again, is satisfied with the current system.

Question (3) Whether motor carriers seeking additional authorization should have some established safety record with the FHWA or other State or local enforcement agencies?

This question apparently caused some confusion as Yellow Corporation answered as though the agency were asking about expanded operating authority, and believed the FHWA should conduct a compliance audit of any carrier seeking to expand its operation by more than 20 percent. Alabama Power believes that carriers or industries with established good safety records should be exempted from all or part of the HOS regulations.

Question (4) What must happen before the FHWA should disallow the use of a self-monitoring system or an alternative system?

As noted above, Yellow believes that the system should not be blamed for failure of individuals to comply, and that the FHWA should establish standards for any such system. Alabama Power leans toward a performance test which demonstrates the value of the system by performance on the highway, i.e., high accident and out-of-service rates. ROCOR Transportation believes the FMCSA safety investigator ought to be able to determine whether a carrier is effectively using a system, and make recommendations accordingly.

Question (5) Are there any other advanced technology systems currently in use or under development that the motor carrier industry may use to validate HOS or support the RODS?

Alabama Power believes most advanced systems are cost prohibitive, especially for utility companies where driving is a very minor part of their business. ROCOR Transportation acknowledged the industry has started using satellite technology.

Question (6) Should waivers be considered on a case-by-case basis for other systems that do not quite meet these requirements, but may have other compensating features that produce equivalent safety results?

Yellow's position is that the standards must recognize that differences in operations and practices will mean differences in monitoring programs. Therefore, variances must be considered on a case-by-case basis. Alabama Power advocates a more open system that suits the carrier's needs.

Question (7) Under what circumstances should the use of such alternative systems also operate as a substitute for the requirement to prepare and maintain RODS? Demonstration of the effective use of a system, in whole or in part, for verification should obviate any necessity to further examine the information produced by the system by enforcement personnel.

Yellow would prefer criteria that would accurately capture the hours and be verifiable to a particular driver through a failsafe means, e.g., a code or electronic signature. However, the company believes ''(o)nly when all parties requiring HOS information have the most advanced technology can alternative systems fully replace the current requirement.'' Alabama Power would permit any normal timekeeping system when ''the nature of a carrier's or industry's business limits the exposure to public safety,'' and the carrier or industry has an adequate commercial motor vehicle safety record.

Question (8) What impact would a six-month or longer record retention requirement have on the Federal government, State governments, and motor carriers?

Yellow is firmly opposed to any expansion of the present six-month retention requirement, which, it believes, is more than adequate for purposes of evaluating compliance. Assuming the retention requirement includes all supporting records, the company contends a carrier's administrative costs would increase significantly. Alabama Power agrees that, as written, the proposal would significantly increase the administrative burden of carriers. ROCOR Transportation notes the irony of suggesting increased burdens at a time when the pressure is on to reduce administrative workload. ROCOR would prefer reducing the retention period to four months, which would, in its judgment, be enough to enable FMCSA investigators to assess a carrier's safety posture.

The Georgia Public Service Commission (GPSC) believes the idea of reducing the retention time of RODS from six months to four months is unnecessary. It argues that in the current downsizing climate of government, six months is barely enough time to conduct compliance reviews where complaints have been received and follow-up on serious crashes. It believes reducing the retention period to four months would result in time restraints which would not work for the governments as the workload of State and Federal compliance review personnel is increasing—not decreasing. It believes this would allow many serious complaints and crash investigations to go unfinished as the evidence for substantiating the potential violations will have been discarded by the motor carriers. They suggest this issue is best left alone since most carriers and Congress are comfortable with the six-month time frame.

Question (9) Would we enhance enforcement and prosecution efforts with the longer retention requirement (e.g., the ability to adequately enforce the rules, collect evidence for a criminal case, prepare the case, and successfully prosecute drivers or motor carriers for deliberately or recklessly violating HOS restrictions)?

Neither Yellow nor Alabama Power sees any benefit in longer retention requirements.

3. FMCSA's Response to the Comments on the Supporting Documents Proposal

Obviously, the FMCSA agrees with those commenters who wanted to merge the supporting documents proposal into the HOS rule. The agency was under a legislative mandate to issue the NPRM on supporting documents, and used the

opportunity to gather useful opinions about a more systematic approach to monitoring HOS. However, the agency has now decided to merge the two proposals; some of the issues raised in the comments to the supporting documents proposal are addressed in this notice.

The FMCSA was attentive to the comments concerning the administrative burdens resulting from the prescriptive alternative. The FMCSA believes the NPRM may not have been clear; many commenters misunderstood the options in the original proposal, or, more likely, feared too much discretion on the part of safety investigators in determining the effectiveness of any alternate system. This was particularly evident in the extensive comments of the NASTC. The comments described a carrier program that would definitely have satisfied a requirement for an effective system, but the writer was apprehensive about the possibility that such a model program (although it was entirely a paper system) could be thwarted by a finding by a safety investigator that some element was lacking.

The actual intent of the proposal was captured much more accurately in the comments of Bestway, the NPGA and the IIHS. The FMCSA attempted to convert what appeared to be a very prescriptive statutory requirement into a way of breaking the mold of paperwork reliance. There still appears to be a pervasive reluctance on the part of industry to employ technology to verify compliance with HOS rules. The agency understands that certain segments of the for-hire motor carrier industry do not favor the FMCSA's and FHWA's Intelligent Transportation System (ITS) joint program encouraging the installation and use of such satellite technologies for ITS purposes, and at the same time, permitting FMCSA investigators the use of the same technology devices to assist in discovering violations of HOS regulations. On the other hand, there is a great deal of anxiety about increasing administrative burdens by requiring more verifying records to be used and maintained. What is missing is the acknowledgment by management of the widespread noncompliance with both the HOS restrictions and the preparation of RODS.

With respect to the retention period, the GPSC has persuaded the FMCSA that six months worth of records is needed for proper reviewing by Federal and State officials of a driver's and carrier's compliance with the rules and for crash investigations. The FMCSA has decided to retain the six-month requirement for this reason.

4. Modified Supporting Documents Proposal

The WHD regulations specify other business records motor carrier employers subject to the FLSA need to preserve for two or three years, records which the FMCSA proposes to use as its own under 49 U.S.C. 31133(a). The agency needs four pieces of information from 29 CFR 516.6 *Records to be preserved 2 years*, paragraphs (a)(1), (b), and (c), including:

(1) Supplementary basic employment and earnings records *from the date of last entry, all basic time cards or sheets on which are entered the daily starting and stopping time of individual employees;*

(2) Order, shipping, and billing records *from the last date of entry, the originals or true copies of all customer orders or invoices received, incoming or outgoing shipping or delivery records, as well as all bills of lading and all billings to customers (not including individual sales slips, cash register tapes or the like) which the employer retains or makes in the usual course of business operations;*

(3) Records of additions to or deductions from wages paid, including *those records relating to individual employees referred to in § 516.2(a)(10);* and

(4) *All records used by the employer in determining the original cost, operating and maintenance cost, and depreciation and interest charges, if such costs and charges are involved in the additions to or deductions from wages paid.*

The FMCSA is now attempting to go further than the 1998 supporting documents NPRM by proposing basic changes to both the HOS and the means of verifying compliance. This would address the issues raised by those commenters who believed the supporting documents proposal invited a ''one size fits all'' approach. The instant proposal focuses on those operations involving long or regional trips away from a home base with little supervision, contact with, or control over the driver. The paperwork burden for all other operations would be minimized, and, whenever possible, the FMCSA would be prepared to accept records that are required by other Federal agencies, notably the DOL's Wage and Hour Division.

The FMCSA believes this approach is consistent with the requirements of Section 113 of the HMTAA. The objective of that statute was to improve the enforcement of the HOS regulations and to simplify the recordkeeping requirements of motor carriers. The proposal we are publishing today will achieve both of those goals.

Section 113(b)(4) requires the agency to allow ''motor carrier self-compliance systems that ensure driver compliance with hours of service requirements and allow Federal and State enforcement officers the opportunity to conduct independent audits of such systems to validate compliance * * * The proposal to allow the use of WHD time records by Type 3, 4, and 5 operations is even broader than the ''self-compliance'' system the HMTAA envisioned.

Sec. 113(b)(5) requires case-by-case waivers ''of certain [unspecified] requirements of section 395.8(k) of title 49, Code of Federal Regulations (or successor regulations thereto), when sufficient supporting documentation is provided directly and at a satisfactory frequency to enforcement personnel by an intelligent vehicle highway system * * * Section 395.8(k) requires (1) that motor carriers retain each driver's RODS and supporting documents for six months from the date of receipt and (2) that drivers retain possession of each RODS for the previous 7 consecutive days and make them available for inspection. Today's FMCSA proposal would require motor carriers to retain WHD-type time records for at least a full six months (motor carriers subject to the FLSA and WHD regulations, of course, must continue to maintain these records for at least two to three years). Only Type 1 and 2 drivers would be required to have time records available for inspection on the CMV. Those records would still have to cover the previous 7 consecutive days, but they would be maintained automatically by an EOBR; the driver would only have to register on-duty, non-driving time and locations where changes in duty status occur. Finally, while case-by-case waivers are not included in this NPRM, the proposal to eliminate paper logs for Type 3, 4, and 5 drivers more than meets the spirit of this paragraph. Furthermore, the agency is proposing to use as supporting documents those business documents already required by the WHD rules. The FMCSA obviously cannot provide case-by-case waivers of the regulations of another agency.

H. Revised Regulatory Options

After receiving the Expert Panel's report and reviewing the monitoring needs of motor carriers and the law enforcement communities, the FMCSA decided to revise its options based on the panel's recommendation to limit nighttime driving. The FMCSA revised

options A through E by developing five new options 1 through 5 that included the panel's recommendation in option 3. The FMCSA examined the benefits and costs for each option 1 through 5 explained below in the section headed VII. I. Benefits and Costs.

Under revised option 1 similar to option D, all driver types would have to be off duty for at least 12 consecutive hours each 24-hour cycle, and could be on duty the remaining 12 hours each 24-hour cycle. There would be no distinction between on-duty driving time and on-duty non-driving time. Drivers would be encouraged to begin work at approximately the same time each day, and would be required to have a mandatory ''weekend'' of at least 58 consecutive hours off duty per work week, i.e., a 58-hour ''weekend.''

Under revised option 2 similar to option B, most drivers would face the same requirements as under option 1. Type 1 and 2 drivers could work and drive up to 12 hours within a 14-hour work period during each 24-hour cycle, and would need a minimum of 10 consecutive hours off duty in each 24-hour cycle. The 2 additional off-duty hours could be taken during the on-duty period or added to the consecutive off-duty period. Type 1 and 2 drivers would also be allowed to use a two-week schedule for determining ''weekend'' off-duty time, with one short and one long weekend, each to include two sleep periods between midnight and 6:00 a.m. Type 5 drivers would need a minimum of 9 consecutive hours off-duty in each 24-hour cycle, and could work up to 13 consecutive hours, including driving, in each 24-hour cycle. Type 5 drivers would be limited to 30 hours of driving per week and like Type 1 and 2 drivers would need to take 2 additional off-duty hours during the on-duty period.

Revised option 3 is a variation of revised option 2 (up to a 14 consecutive hour work/drive/break/nap period), with the added provision that drivers would not be allowed to drive more than 18 hours per week between midnight and 6:00 a.m. as recommended by the panel.

Revised option 4 is a variation of revised option 2 (14-consecutive-hour work/drive/break/nap period), with the added provision that all Type 1 drivers would be required to use an EOBR. Revised option 5 is a variation of revised option 2 and 4 (14-hour work/drive/break/nap period), with the added provision that both Type 1 and 2 drivers would be required to use an EOBR. See Table 5.

TABLE 5.—FMCSA REVISED REGULATORY OPTIONS

Potential policy	These many hours off duty for sleep in one consecutive period	With at least these many additional hours off duty	Allowing the driver to work up to this many hours, including driving, in any combination	A weekly recovery period of at least	Records to be kept
1—Maximum 12 on, minimum 12 off.	12 hours	N A	12 hours	758 hours	Type 1 and 2 drivers use records similar to 29 CFR 516 with location changes and have available on the CMV, all other drivers' carriers use records similar to 29 CFR 516.
2—Maximum 14 on, minimum 10 off.	10 hours	2 hours	12 hours	32 to 56 hours	Type 1 and 2 drivers use records similar to 29 CFR 516 with location changes and have available on the CMV, all other drivers' carriers use records similar to 29 CFR 516.
3—Maximum 14 on, minimum 10 off.	10 hours	2 hours	12 hours daily (only 18 hours per workweek during the hours from midnight to 6:00 a.m.).	32 to 56 hours	Type 1 and 2 drivers use records similar to 29 CFR 516 with location changes and have available on the CMV, all other drivers' carriers use records similar to 29 CFR 516.
4—Maximum 14 on, minimum 10 off.	10 hours	2 hours	14 daily hours, 12 hours daily limited to driving, and only 18 hours of driving between midnight to 6:00 a.m. each workweek.	32 to 56 hours	Type 1 drivers required to use EOBR, Type 2 drivers use records similar to 29 CFR 516 with location changes and have available on the CMV, all other drivers' carriers use records similar to 29 CFR 516.
5—Maximum 14 on, minimum 10 off.	10 hours	2 hours	8 hours	32 to 56 hours	Type 1 and 2 drivers required to use EOBRs, all other drivers' carriers use records similar to 29 CFR 516.

I. Benefits and Costs

As discussed above in III. The Safety Problem, the agency estimates that fatigue is directly or indirectly involved in 15 percent of all fatal and injury crashes involving large CMVs, contributing to 755 fatalities and 19,705 injuries annually.

A complete discussion of the benefits and costs of this NPRM and alternatives the agency considered is in the PRE in the docket. The FMCSA invites comment on any aspect of the PRE used by the FMCSA. Please provide with your comments all data, studies, and reports relevant to the assumptions you rely upon that you believe the FMCSA should use. The PRE's discussion of crash reduction benefits, paperwork reduction benefits, total benefits, quantitative costs, and qualitative impacts can be summarized as follows.

1. Crash Reduction

Based on the FMCSA's review of all the research studies, the Expert Panel's review of those studies, the development of options to improve safety and health of CMV drivers and reduce CMV crashes caused by CMV driver fatigue, the FMCSA believes that options 1 and 2 could lower crashes by at least 5 percent. The FMCSA believes that at least 5 percent could be realized by its requiring motor carriers to

provide drivers with: (1) A 24-hour rest/work cycle rather than an 18 to 23 hour rest/work cycle; (2) opportunities for two additional hours to sleep; (3) a mandatory ''weekend'' minimum off duty period that includes two consecutive midnight to 6:00 a.m. sleep periods to resume baseline levels of sleep structure and waking performance and alertness; and (4) reducing daily duty time. The FMCSA also believes that an additional 2.5 percent could be realized through the limitation on nighttime driving, thus option 3 could realize at least an estimated 7.5 percent crash reduction. Options 1 and 2 are very similar. The agency made no attempt to differentiate between their safety impacts. Option 3 is a variant of option 2 by adding the limitation on nighttime driving.

The agency believes that, when fully phased in, option 4 could lower crashes by Type 1 drivers by at least 20 percent, and by all other drivers by at least 5 percent. The agency believes that option 5 could lower crashes by Type 1 and 2 drivers by at least 20 percent when fully phased-in, and by all other drivers by at least 5 percent. The agency believes that options 4 and 5 could have a significant impact on the crash rate of drivers who use an EOBR, because the proposal would help drivers and motor carriers make a dramatic change in their present attitude toward compliance in long-haul and regional operations. The FMCSA must insist on persuasive evidence that compliance occurs, is monitored, and enforced. The presence of the proposed objective tamper-proof monitor on board long-haul and regional operating CMVs is expected to achieve the extra 15 percent crash reduction by those Type 1 and 2 operations where the greatest percent of fatigue-related crashes are currently found. The FMCSA considers all our crash reduction estimates to be conservative. Table 6 displays the agency's minimum crash reduction levels for each option.

The FMCSA has estimated that motor carriers would phase in use of EOBRs in equal increments over the entire phase-in period, with 1/x (one divided by x) of EOBRs installed per year, where x equals the phase-in-period. Within one year of promulgation, one-half of large motor carriers' vehicles and drivers would use EOBRs, one-third of medium motor carriers, and one-fourth of small motor carriers. Benefits were estimated in conjunction with EOBR use. If carriers were unable to meet these installation schedules, they would be required to follow existing HOS and RODS requirements until they are able to comply. The estimated baseline crash reduction from the regulatory changes is 5 percent, while the reduction for motor carriers using EOBRs is 20 percent. This evaluation added in the 15 percent increment (20 percent minus 5 percent) over 1/x years for each size of motor carrier. For the first effective year of this rule, crashes by large Type 1 motor carriers would fall by 20 percent, for medium motor carriers by 10 percent, and for small motor carriers by 8.5 percent.

TABLE 6.—MINIMUM FATIGUE-RELATED CMV CRASH REDUCTION

Option	Description	Minimum reduction in fatigue-related CMV crashes
1	12 consecutive hours off duty, 12 consecutive hours on duty.	5 percent for all CMV crashes.
2	Type 1 drivers take 10 consecutive hours off duty 14-hour work period including 2 hours for breaks/meals/naps.	5 percent for all CMV crashes.
3	Limit on night time driving of 18 hours per week, Type 1 drivers take 10 consecutive hours off duty 14-hour work period including 2 hours for breaks/meals/naps.	7.5 percent for all CMV crashes.
4	Type 1 drivers use EOBRs, Type 1 drivers take 10 consecutive hours off duty 14-hour work period including 2 hours for breaks/meals/naps.	15 percent for Type 1 CMV crashes, 5 percent for all other CMV crashes.
5	Type 1 and 2 drivers use EOBRs, Type 1 drivers take 10 consecutive hours off duty 14-hour work period including 2 hours for breaks/meals/naps.	15 percent for Type 1 and 2 CMV crashes, 5 percent for all other CMV crashes.

The collective result of all the research performed on this subject leads the agency to believe that the effects of the proposals will be crash reduction. The agency has considered that by allowing drivers longer consecutive off-duty periods to obtain sleep, these options should reduce fatigue-related CMV crashes. As discussed above under VII. A. Research Findings, the research suggests that many CMV drivers are not getting sufficient sleep. Insufficient sleep leads to degradations of cognitive performance, including increased mental errors, lapses in vigilance, slower reaction time, and errors in judgment. These errors in turn heighten the likelihood of CMV crashes. The proposal would require longer continuous off-duty time periods, which will enable CMV drivers to have increased sleep time.

The FMCSA estimated a reduction of crashes for option 3, limiting nighttime driving. Chart 4, shown earlier in this NPRM, shows that the relative risk of fatigue-related crashes is higher during the night than at other times. The Expert Panel argued not only that the risk of fatigue-related CMV crashes is higher at night, but also that the overall crash risk is elevated during these hours. While mileage data that would allow for definitive calculations of the overall CMV crash rates by time of day are not available, it is clear that both fatigue propensity and the risk of fatigue-related CMV crashes peak at night.

The ultimate safety impact of option 3 would largely depend on how motor carriers adjusted their nighttime operations. Motor carriers could comply with this option in a number of ways: shifting traffic to daytime, hiring additional nighttime drivers, rotating existing drivers' schedules, or, most likely, using some combination of these options.

These adjustments needed for option 3, however, might have some safety downside. The most significant problem would occur if drivers alternated between daytime and nighttime driving. This would disrupt drivers' circadian rhythms, since they would not have a consistent start or stop time. The Expert Panel believes that ''if driving occurs at night or on an irregular schedule, 72 hours within 6 days is not scientifically defensible, and 36 hours off duty is not sufficient for recovery'' (Smiley and Heslegrave, 1997; Wylie *et al.*, 1997; Akerstedt, 1997; Johnson *et al.*, 1998).

Shifting traffic to early morning for option 3 might increase congestion during what is already one of the busiest

times of the day. While there might be an overall reduction in nighttime crashes, the extra traffic during already congested times of the day might result in an increase in daytime crashes. While the higher relative risk of fatigue-related CMV crashes at nighttime (Chart 3) suggests that daytime travel is safer, there would undoubtedly be an increase in daytime crashes on a per mile basis commensurate with the increased traffic. While the overall number of fatigue-related CMV crashes would likely fall somewhat, the FMCSA believes the number of fatalities and injuries per fatigue-related CMV crash might increase. The agency notes above that it is the truck driver who is the fatality in approximately 70 percent of crashes for which truck drivers are coded as fatigued. This is partly due to the fact that truck drivers are most fatigued during the part of the night that other drivers are least likely to be on the road. By increasing the amount of driving during hours when total vehicle traffic is higher, the smaller number of crashes that do occur are more likely to involve occupants of other vehicles. This may somewhat offset the reduction in the total number of fatigue-related crashes.

Options 4 and 5 have the most dramatic safety impact, with an estimated 20 percent reduction in certain fatigue-related crashes. Although these options allow the same number of driving hours as option 2, they also require use of an EOBR by Type 1 drivers (option 4) or Type 1 and 2 drivers (option 5). The agency's analysis of the research concludes that use of an EOBR reduces fatigue-related crashes by an extra 15 percent. This extra safety would result from increasing driver compliance with the HOS regulations.

The FMCSA noted above that the research indicates that HOS regulation violations are widespread. Surveys of drivers have found that 40 to 75 percent violate the HOS regulations, depending on the definition of violation used. The precise level of violation is less significant than the fact that it appears to be encountered constantly. EOBRs make it easier to verify drivers' compliance with the proposed rules, improve motor carrier ability to effectively manage driver compliance and enable safety investigators to better verify the driver's adherence to the proposed requirements. While EOBRs will not eliminate HOS violations, they would undoubtedly make violations more difficult to conceal. A driver who drives over hours currently can falsify any one of a number of entries on the RODS to make it appear that the driver is in compliance. The EOBR would provide certain pieces of driver-unalterable data, which would complicate the process of falsifying driving hours. An EOBR would make it easy for crash and other safety investigators to determine when a driver began to drive. Depending on the type of driver, the investigator would know that drivers working 12 to 14 hours after their starting time are in violation.

By making it easier for crash and other safety investigators to check adherence to new HOS requirements, the EOBRs should reduce the extent of violations by deterrence. If this is true, increased compliance with the HOS regulations should lead to a reduction in crashes. The agency concludes that EOBR use could result in a 20 percent reduction in fatigue-related crashes, 15 percent more than the estimated reduction from the change in hours alone. Because of the uncertainty about the precise reduction brought on by options 4 and 5, the agency has included sensitivity analysis of different possible safety impacts in chapter 6 of the PRE in the docket. Once again, the FMCSA invites comment on any aspect of the PRE, the data and estimates used by the FMCSA, and the conclusions reached as a result of the analyses of the benefits and costs. Please provide with your comments all data, studies, and reports you rely upon that you believe the FMCSA should use.

Table 7 shows the baseline estimates of the number of fatalities prevented by the different options. Table 8 shows the same estimates for injuries. Figures may not sum because of rounding.

TABLE 7.—ESTIMATED REDUCTION IN CRASH FATALITIES, BY OPTION AND DRIVER TYPE

Option	Type 1 carriers	Type 2 carriers	All other carriers	Total
Adjusted annual average baseline number of crash fatalities (based on 1991 to 1996)	298	215	243	755
1	15	11	12	38
2	15	11	12	38
3	22	16	18	57
4	60	11	12	83
5	60	43	12	115

TABLE 8.—ESTIMATED REDUCTION IN CRASH INJURIES, BY OPTION AND DRIVER TYPE

Option	Type 1 Carriers	Type 2 Carriers	All Other Carriers	Total
Adjusted annual average baseline number of crash injuries (based on 1991 to 1996)	7,785	5,613	6,307	19,705
1	389	281	315	985
2	389	281	315	985
3	584	421	473	1,478
4	1,557	281	315	2,153
5	1,557	1,123	315	2,995

2. Paperwork Reduction

All drivers of CMVs in interstate commerce are presently covered by the RODS requirement, except for certain drivers who operate within a 100 air-mile radius of their home base. These excepted drivers must be relieved from duty within 12 consecutive hours of the time they begin work. Their motor carriers must record information similar to the WHD-required information of starting time, ending time, and total time on duty. The RODS contains a series of graph grid pages, and the driver must categorize each 15-minute increment as either driving, on-duty not driving, sleeper berth, or off-duty. Drivers must also record the location of all stops, deliveries, and pickups, and the location of any change of duty status

(for example, from sleeper berth to driving). Drivers must keep their RODS of the previous 7 or 8 days on their CMV. The RODS must also contain identifying information about both the vehicle and the specific shipment. The complete RODS requirements may be found at 49 CFR 395.8 and 395.15.

As discussed above, employers subject to the FLSA also need to prepare a time record for drivers for wage and hour purposes. The employer of the driver may be the motor carrier, or it may be an owner-operator or independent contractor leasing employed drivers to the motor carrier. While the RODS and the WHD time record overlap somewhat, the DOT and DOL use different definitions of work time.

Because these options propose to eliminate the distinction between driving and non-driving work time, the FMCSA also proposes to remove the RODS requirement. Under options 1, 2, and 3, long-haul (Type 1) and regional (Type 2) drivers would be required to prepare a modified WHD time card, which would include the time and location of any change of duty status (i.e., from on-duty to off-duty). These drivers would also be required to keep their time record on their vehicle when driving. Under option 4, Type 1 drivers would be required to use an EOBR, while both Type 1 and 2 drivers would be required to use an EOBR under option 5. For all five options, motor carriers would be allowed to use the unmodified WHD time card for all Type 3, 4, and 5 drivers, and would not have to keep the time card on their CMVs. The agency would use the WHD time record to monitor compliance with the HOS regulations for specific drivers.

On March 11, 1998 (63 FR 11948), the FHWA published a notice and request for comment on its intent to request the Office of Management and Budget (OMB) to approve continuation of a paperwork collection request. Only one general comment was received in docket FHWA–98–3393. The IIHS supported continuation of the paper handwritten RODS until they are replaced by onboard computers. The FHWA had proposed in that docket that each driver works 240 days each year. This would be equivalent to working 5 days per week for 48 weeks per year. No comments were received about the FHWA's proposed estimates that include drivers taking 2 minutes a day completing an RODS, and that motor carriers spend 31 seconds per driver per day filing these records. Rounding down to 2.5 minutes per driver per day, and estimating that drivers work 240 days per year, this amounts to 10 hours per driver per year. Many Type 5 drivers already are exempt from this requirement, under the 100 air-mile radius exemption. Some drivers defined as Type 3 and 4 in this NPRM are also able to take advantage of the 100 air-mile radius exemption and forgo completing an RODS.

Most Type 3 and 4 drivers, however, would have this burden eliminated. Based on our knowledge of the motor carrier industry and our investigations of motor carriers, the FMCSA concludes that many Type 3 and 4 drivers drive shorter distances than a full 100 air-mile radius of their normal work reporting location and are relieved within 12 hours, and therefore are not currently required to fill out an RODS. We deduce from our knowledge and experience that one-fourth of the 3.997 million Type 3 and 4 drivers are eligible for the current 100 air-mile radius exemption, and the remaining 3 million Type 3 and 4 drivers are not. The FMCSA would appreciate comments whether our estimates of these numbers is on target.

Under all the options 1 through 5, most drivers would be able to use their time record in lieu of an RODS, and so would save 2.5 minutes per day. Under options 1, 2, and 3, Type 1 and 2 drivers would also be able to discontinue using the RODS, but they would have to carry their time records with them on the CMV and add city and State locations of all changes of duty status (from on-duty to off-duty, or the reverse). Option 4 would require Type 1 drivers to use an EOBR, while Type 2 drivers would be required to complete the RODS. Option 5 proposes that both Type 1 and 2 drivers use EOBRs. Option 4 requires Type 1 drivers use the RODS until their CMV is equipped with an EOBR, and option 5 requires both Type 1 and 2 drivers use the RODS until their CMV is equipped with an EOBR to fill out the RODS.

The additional location information that would be required on the modified WHD time record is not currently required on WHD time records. Based on its knowledge and experience of the motor carrier industry and the current requirements to record city and State/Province locations on the RODS, the FMCSA estimates that drivers would accumulate one-half (0.5) minute per day recording locations each time a driver changes duty status from on duty to off duty and back to on duty. The agency also estimates based on its knowledge and experiences requiring the current § 395.15 automatic on-board recording device requirements that it would take an additional half minute per day for drivers to supplement the electronic records, complete them, and transmit the electronic file information generated by the EOBRs. Therefore, the net reduction for drivers using a modified WHD time card or an EOBR is one and a half minutes per day (the elimination of the RODS saves them 2.5 minutes, which is partly offset by the half minute required for the additional change of duty status requirement on the time cards and an additional half minute for filing). Type 3, 4, and 5 drivers shifting to the standard WHD time card from the RODS would save two and a half minutes per day.

Table 9 shows that drivers and clerks in interstate and intrastate commerce currently spend approximately 42.5 million hours completing and filing the RODS. Three of the five options would result in the elimination of 37.5 million of these hours, while option 4 lessens the burden by 33.2 million hours and option 5 by 39.5 million hours. For options 4 and 5, the table presents the reduction occurring when the EOBR requirement is fully phased in. The reduction is somewhat smaller in the initial years. With an estimated wage of $11.91 per hour from the Current Population Survey (CPS), the resulting savings vary from almost $400 million to $470 million per year.

TABLE 9.—REDUCTION IN PAPERWORK BURDEN

Driver type	Long haul	Regional	Other	Total
Baseline Hours for Interstate and Intrastate Commerce	4,248,040	8,238,622	29,977,665	42,464,327
Reduction Option 1	2,548,824	4,943,178	29,977,665	37,469,672
Reduction Option 2	2,548,824	4,943,178	29,977,665	37,469,672
Reduction Option 3	2,548,824	4,943,178	29,977,665	37,469,672
Reduction Option 4	3,228,520	0	29,977,665	33,206,185
Reduction Option 5	3,228,520	6,261,352	29,977,665	39,467,537

TABLE 10.—ANNUAL BENEFITS OF PROPOSALS AFTER FULL IMPLEMENTATION BY ALL CARRIERS

	Annual fatal crashes avoided	Annual injury crashes avoided	Annual crash benefits, millions	Annual paperwork benefits, millions	Total annual benefits, millions	10-year discounted benefits, billions
Option 1	32	676	$183	$446.0	$629.0	$4.4
Option 2	32	676	$183	$446.0	$629.0	$4.4
Option 3	48	1,014	$274	$446.0	$720.0	$5.1
Option 4	70	1,744	$400	$396.0	$795.0	$5.4
Option 5	98	2,514	$558	$470.0	$1,028.0	$6.8

3. Total Benefits

Table 10 presents the agency's estimates of the crash reductions of the five options, along with the estimated monetary benefits. Because options 1 and 2 would reduce crashes by the same amount, they would result in an equivalent level of benefits.

The benefits of this rule would recur, as crashes are avoided, and paperwork reduced, every year the rule is in effect. Over a ten-year analysis period, all options would yield substantial benefits, ranging from $4.4 billion to almost $6.8 billion. Figures in the rightmost column of Table 10 are discounted at a 7 percent rate.

4. Quantitative Costs

The FMCSA has summarized the PRE's discussion of quantitative costs and qualitative impacts as follows:

The FMCSA defined a Type 1 driver as discussed above under the heading VII. C. Types of Motor Carrier Operations. The FMCSA used a University of Michigan Trucking Industry Program (UMTIP) driver survey, Belzer et al. (1999), to conduct the analysis discussed in this section. Since the FMCSA's definition of a Type 1 (long-haul) driver was different than the Belzer et al. (1999) definitions, the FMCSA used averages of the figures for long-haul and regional drivers from the Belzer *et al.* (1999) study.

As discussed in the PRE, the FMCSA found that at both the mean and median, Type 1 drivers work about 11 hours per day, 8.5 of which are driving. These drivers would be in compliance under these options, as they are within the existing regulations. At the 80th percentile, Type 1 TL drivers work 14.5 hours and drive 11 hours. These drivers may be in compliance with existing regulations if their driving time is not consecutive, but they would clearly be violating options 1 and 2, as they would exceed the maximum number of hours working. Chart 6 (shown previously in this NPRM) indicates that at approximately the 60th percentile, Type 1 drivers work 12 hours per day. This suggests that 40 percent of Type 1 TL drivers work more than 12 hours, and would have to reduce their daily working (and possibly driving) time under these options. The FMCSA concludes that some percentage of this 40 percent of Type 1 TL drivers are violating the existing rules.

The FMCSA estimates that at the 80th percentile, regional truck load drivers drive 13 hours, 1.5 hours fewer than their long haul counterparts. This adjustment accounts for the shorter trip lengths of these drivers.

LTL drivers operate quite differently than TL drivers. Instead of the highly variable long distance trips common among TL drivers (particularly owner-operators), LTL drivers tend to drive the same routes, often working at the same time of day. The UMTIP survey likely undersampled LTL drivers, as they are less likely to stop at rest areas than are TL drivers. Anecdotal evidence also suggests that LTL drivers are unlikely to violate the HOS regulations.

According to the 1997 Vehicle Inventory and Use Survey (VIUS), the successor to the TIUS, 31.4 percent of large trucks are used in LTL operations. We estimate that 80th percentile LTL drivers drive 12.5 hours per day, rather than the 14.5 hours of national TL drivers.

Approximately forty percent of long haul drivers, those between the 60th and 100th percentile working time, would have to reduce their working hours under the provisions in this NPRM. Drivers at the 61st percentile would only need a modest reduction in working time to come into compliance, while those at the 99th percentile would require a substantial reduction in hours. The FMCSA estimated the cost of bringing the midpoint over-hours driver, at the 80th percentile, into compliance with this NPRM.

The FMCSA calculated the number of hours motor carriers would ''lose'' if all over-hours drivers drove 12 hours per day. Carriers would need to make up approximately 586,000 missing hours, which translates into almost 49,000 drivers (586,185 lost hours per day divided by 12 hours per driver = 48,849 drivers).

Table 11 shows the number of drivers, hours at the 80th percentile, and assumed percentage of total drivers, and the number of drivers needed to make up for lost hours, for the different driver types used for the cost analysis in the PRE.

TABLE 11.—DRIVER CHARACTERISTICS BY DRIVER TYPE

	Percent drivers, by distance	Number	Hours worked, 80th percentile	New drivers needed
Long haul LTL	31	133,320	12.5	1,944
Long haul TL	69	291,484	14.5	24,290
Regional LTL	31	258,560	12.5	3,771
Regional TL	69	565,303	13	18,843

Motor carriers would need to hire a total of 48,849 new drivers, the vast majority of them in the truckload sector. This equals 3.9 percent of the current number of regional and long haul drivers, so with an elasticity of 10 (explained in the PRE), drivers wages will have to increase by 0.39 percent to induce 48,800 individuals to become truck drivers.

As discussed in the PRE, the cost to motor carriers would be determined by three interacting forces: (1) A reduction in wages to drivers who currently drive more than 12 hours per day; (2) an increase in wages for current drivers as a result of the need for higher wages to attract additional drivers; and (3) the wages for new drivers. Regression analysis of 1997 data from the March 1998 Current Population Survey shows that the average 60 hours a week truck driver makes $35,737, while the average 70 hours a week driver makes $38,959 annually. Just under 480,000 long haul drivers currently drive more than 12 hours, and would have their wages lowered under the options considered in this NPRM. Motor carriers would save $1.55 billion in wages for these drivers (479,843 drivers x ($38,959–35,737)).

The new equilibrium 60 hours per week wage would be $35,877 ($35,737 wage multiplied by 0.39 new drivers multiplied by 10.0 elasticity). This is $139.81 greater than the previous 60 hour a week wage, and all 1,248,667 long haul and regional drivers would get this raise. This would cost motor carriers approximately $175 million per year (1,248,667 drivers x $139.81 = $174.57 million).

The largest cost for motor carriers will be hiring new drivers. At an average wage of $35,877, the 48,849 new drivers needed will cost motor carriers $1.75 billion per year ($35,877 new wage multiplied by 48,849 new drivers). The net effect of these three changes will be an increase in drivers costs of $384 million per year ($1.755 billion for new drivers plus $174.57 million for existing drivers minus $1.545 billion for over-60-hour drivers).

Motor carriers could also attempt to make up for lost hours by increasing the number of hours current drivers work. Table 6 of the PRE indicates that many drivers drive significantly fewer than 12 hours per day, and it is possible that some of these drivers may be able to assume some of the lost hours previously worked by their colleagues. While this may be possible for some LTL operations, it seems unlikely to be feasible for TL motor carriers. A driver who runs out of hours distant from the home terminal in most cases can not be efficiently replaced with a new driver. While it is possible to imagine some circumstances where hours could be shifted to drivers who work less than 12 hours, it is unlikely that many hours could be replaced this way.

Finally, motor carriers could make up for lost drivers hours by increasing the efficiency of existing drivers. About one quarter of long haul drivers' time consists of non-driving work, much of which generates little value to carriers (or the economy). A moderate reduction in this proportion of non-driving work would allow for more hours of driving, which could offset the reduced hours of other long haul drivers. A smaller but still significant percentage of drivers time is spent waiting, which is entirely unproductive.

Motor carriers do not entirely control how many hours drivers wait or are engaged in non-driving work; and, therefore, would have difficulty dramatically reducing this percentage on their own. Drivers schedules are dependant upon the conditions and demands of shippers and receivers, so any concerted effort to reduce non-driving time would need their cooperation. It is not clear what incentive shippers, receivers, and others would have to cooperate, as wasted drivers time is generally no cost to them. Motor carriers could presumably squeeze some inefficiency out of the delivery system, but it is unlikely they could achieve a significant reduction in the amount of non-driving work time or waiting time without widespread cooperation from their customers.

Whether waiting time meets the legal definition of time worked depends upon particular circumstances. The determination involves scrutiny and construction of the agreements between particular parties, appraisal of their practical construction of the working agreement by conduct, consideration of the nature of the service, its relationship to the waiting time, and all of the circumstances. Facts may show that drivers were engaged to wait or they may show that they waited to be engaged (Skidmore v. Swift, 323 U.S. 134 (1944)). Such questions ''must be determined in accordance with common sense and the general concept of work or employment.'' (Central Mo. Tel. Co. v. Conwell, 170 F. 2d 641 (C.A. 8, 1948))

Driver-repairpeople are working while they wait for their motor carrier's customer to get the premises in readiness. The time is work time even though they are allowed to leave the premises or the job site during such periods of inactivity. The periods during which these occur are unpredictable. They are usually of short duration. In either event they are unable to use the time effectively for their own purposes. It belongs to and is controlled by the motor carrier. In all of these cases waiting is an integral part of the job. The drivers are engaged to wait.

Periods during which drivers are completely relieved from duty and which are long enough to enable them to use the time effectively for their own purposes are not hours worked. Drivers are not completely relieved from duty and cannot use the time effectively for their own purposes unless they are definitely told in advance that they may leave the job and that they will not have to commence work until a definitely specified hour has arrived. Whether the time is long enough to enable them to use the time effectively for their own purposes depends upon all of the facts and circumstances of the case.

Drivers who have to wait at or near the job site for goods to be loaded are working during the loading period. If drivers reach their destination and while awaiting the return trip are required to take care of their motor carrier's property, they are also working while waiting. In both cases the drivers are engaged to wait. Waiting is an integral part of the job. On the other hand, for example, if a driver is sent from Washington, DC to New York City, leaving at 6:00 a.m. and arriving at noon, and is completely and specifically relieved from all duty until 6:00 p.m. when he again goes on duty for the return trip the idle time is not working time. He is waiting to be engaged.

Drivers paid by the mile reported working an average of 66.3 hours in the week prior to the Belzer et al. (1999) survey, with 75.3 percent of those hours spent in driving, for an estimated 49.9 weekly driving hours at the mean (66.3 multiplied by 0.753 = 49.9). Option 3 would limit drivers to 18 hours of driving between midnight and 6:00 a.m. per week; 18 hours represents 36 percent of mean driving hours (18 divided by 49.9 = 0.36). However, the Belzer et al. (1999) survey asked drivers about driving between 11:00 p.m. and 7:00 a.m., whereas option 3 limits driving between midnight and 6:00 a.m. If the agency estimates a uniform distribution of driving over the eight hours, then hours between midnight and 6:00 a.m. should be 75 percent of those for the longer period. Thirty-six percent of nighttime driving for the longer period translates into 13.5 hours for the shorter period (18 multiplied by 0.75 = 13.5). To accumulate 18 hours of driving between midnight and 6:00 a.m., 48 percent of drivers' time must fall between 11:00 p.m. and 7:00 a.m. (1 divided by (0.75) multiplied by 0.36 =

0.48). This is approximately equal to the percentage of night driving at the 75th percentile of the survey distribution, which suggests that about one-quarter of all drivers would be affected by an 18-hour limitation.

To calculate the marginal effect of this limitation, the agency computed the increase in wages required to shift someone at the 90th percentile of the percent night driving distribution down to the 75th percentile. To estimate the total social cost, the agency scaled this figure up by applying this change to one-quarter of the Type 1 and 2 drivers and one-eighth of Type 3, 4, and 5 drivers. The 90th percentile night driver has 66.7 percent of his driving at night, and to cut this level to the 46.7 percent of the 75th percentile night driver is a drop of 30 percent. The point estimate of the effect of the percent of night driving on the wage is ''0.0415. (This is based on the wage equation discussed in the PRE in the docket). This estimate is statistically significant at the 6.25 percent level. This estimated value can be interpreted as the elasticity of the wage with respect to the percent of night driving at the mean of the wage. At the mean wages but the 90th percentile of the night driving distribution, the elasticity equals 0.091 percent (''0.0415 x (0.667/0.303) = 0.091 percent). Hence, a 30 percent drop in the night driving percent should be associated with approximately a 2.74 percent increase in the wage (30 x 0.091 percent = 2.74 percent) or 0.027 x $.303 = $0.0083 per mile. This figure represents the extra per-mile wages drivers would have to be paid to compensate for their lost income from reduced nighttime driving.

Drivers classified as local in the Belzer *et al.* (1999) survey reported somewhat less nighttime driving than drivers classified as long-haul and regional. As discussed in the PRE, by surveying drivers at truck stops, the Belzer et al. (1999) survey probably does not capture a representative sample of local drivers. Most local drivers do not stop at truck stops, and those who do are likely to be systematically different from drivers who do not visit truck stops. Accordingly, the agency estimated that Type 3, 4, and 5 drivers are only half as likely as Type 1 and 2 drivers to drive more than 18 nighttime hours per week. Belzer et al. (1999) estimated that 25 percent of long-haul and regional drivers (those between the 75th and 100th percentile) would have to reduce their nighttime driving; the FMCSA reduced this figure to 12.5 percent for Type 3, 4, and 5 drivers.

The agency then multiplied $0.0083 per mile by the average annual miles for each operational type. The definition of drivers from the survey probably does not match those envisioned in this proposal. The agency estimated that those labeled long haul and regional in the survey are Type 1 according to its definition, and drivers who call themselves local in the survey are closer to Type 2 drivers in the options. Type 3, 4, and 5 drivers were effectively outside the scope of the survey. Accordingly, the agency estimates that Type 1 drivers drive 114,000 miles annually, the average for long-haul and regional drivers, and Type 2 drivers drive 82,000 miles. The agency estimates that Type 3, 4, and 5 drivers operate 25,000 miles per year.

The average number of miles was multiplied by the 25 percent of Type 1 and 2 drivers, and the 12.5 percent of Type 3, 4, and 5 drivers, who drive more than 18 nighttime hours per week. The calculation for the total cost is as follows: $0.0083 per mile multiplied by the number of miles per year, times the percent of drivers who drive more than 18 hours per week. The total cost is high, approximately $375.3 million per year. See Table 12. This represents an annual cost, as motor carriers would continue to pay drivers extra to compensate for missing earnings. At a 7 percent discount rate, the ten-year cost of compensating drivers for reduced nighttime driving is $2.64 billion.

TABLE 12.—ANNUAL COST OF OPTION 3

Driver type	Number of drivers	Average miles	Cost per driver	Total cost, millions
Type 1	424,804	114,000	$946	$100.5
Type 2	823,863	82,065	$681	$140.3
Type 4	3,997,023	25,000	$208	$103.7
Type 5	1,190,740	25,000	$208	$30.9
Total	6,436,430			$375.3

Option 4 is similar to option 2, except that all Type 1 operation CMVs must be equipped with an electronic on-board recorder. This requirement raises the cost (and, as explained in the PRE, the benefit) of option 4 considerably.

The March 11, 1998 (63 FR 11948) notice and docket FHWA–98–3393 estimated that 5 percent of Type 1 operation motor carriers currently use EOBRs on all their CMVs. There were no comments objecting to this estimate. The FMCSA excluded any costs and benefits in this NPRM for the estimated 5 percent of EOBRs that motor carriers use. Motor carriers, therefore, would have to purchase 252,798 EOBRs (0.95 × 266,102).

The cost of EOBRs built only for HOS compliance is unclear. Queries of manufacturers, surveys of users and manufacturers of EOBRS, and comments to the ANPRM docket reveal a wide range of estimated costs. A 1997 motor carrier survey undertaken for the FHWA reported an average cost of $2,000 per EOBR. Campbell (1998). While the survey had a fairly low response rate, it is the only survey the FMCSA is familiar with which queried users about the cost of EOBRs. In comments to the ANPRM docket, the IIHS cited a telephone survey of on-board computer manufacturers. IIHS (1995) The cost for the first CMV ranged from $1,089 to $19,000. Most of the manufacturers cited a high and low cost, and the mean low cost was $4,500, while the mean high cost was approximately $9,000. For additional CMVs, prices ranged from $585 to $4,000, with a low cost mean of $1,150 and a high cost mean of $2,200. IIHS prices are presumably in 1994 dollars. Other ANPRM comments offered estimates between $700 (Rockwell Transportation Electronics) and $5,000 per vehicle (ROCOR Transportation).

The FMCSA also contacted two manufacturers of EOBRs, which quoted prices of $2,000 and $2,400. These manufacturers also cited other costs, such as software, driver cards, card readers, and training. These items could double the per unit cost, depending on the specific configuration and assumptions about the number of drivers per carrier and terminal. However, it appears that these prices are for high-end models, which have many

capabilities in addition to the ability to record HOS. These extra capabilities include such items as speed governors, recording various engine and mechanical data, and global positioning system tie-ins. Options 4 and 5 would require carriers to use an EOBR for HOS compliance only. Therefore, the costs for the extra capabilities should not be included as a cost of these options.

The FMCSA also contacted a manufacturer of electronic tachographs for the European market that could also be produced for the U.S. market, too. Electronic tachographs have not yet been mandated in Europe, but requirements for them have continually been proposed by the European Economic Community. This manufacturer states its electronic tachographs for the European market are EOBRs with built-in global positioning system (GPS) technology. During an FMCSA site visit, this manufacturer stated anticipated prices for its new model being designed for the European market. The manufacturer anticipates a unit purchased by a power unit manufacturer for the European market and installed by that power unit manufacturer on the assembly line to be about $180 per power unit, while aftermarket versions of the same new model for the European market could be $600 to $700. Costs of installation for the power unit manufacturer during power unit assembly should add about 0.25 hours to the process, the manufacturer estimated. Aftermarket and retrofit European electronic tachographs should require up to 2 hours additional labor and possibly a wiring harness adding $50 to $60 to the aftermarket equipment cost, the manufacturer estimated.

The manufacturer's system would record the information on an individual driver's smart card as this manufacturer believes the European requirements would expect them to require. The licensing agencies in Europe would issue the cards to the drivers. The additional cost of the smart card's could be $1.00 to $2.00, though the manufacturer stated that if the European licensing agencies incorporate a silk-screened commercial driver's license (CDL) onto the smart card, the cost may be even less for those licensing agencies as the card would be multi-functional. The manufacturer stated it would expect the quantity of multi-function CDL/HOS smart cards to be required would be in the millions so the cost should be small. This would, of course, depend upon whether such a system were to be mandated by European licensing agencies, since it is not being proposed as a requirement in this NPRM. The manufacturer was targeting its price of the hardware located at the terminal or principal place of business to be less than $500. No software would be required for the manufacturer's basic system to fulfill an HOS mandate. The manufacturer currently has a similar product offered for sale at $695. The manufacturer believes one day of training per driver would be adequate for its products and that the cost of the training would range from $400 to $650 per day. Thus, taking all of these prices into account, this manufacturer would be able to provide a factory-installed European electronic tachograph, support systems, and training for one vehicle at about $1,080. This would not include any additional costs marked up by the power unit manufacturer.

This analysis uses a purchase price of $1,000, with annual costs (for maintenance, training, etc) of $100 per unit. The FMCSA also estimated that drivers of vehicles with EOBRs would need 2 hours of training, at $11.91 per hour (from the CPS). Because of the wide range of estimates, the FMCSA analyzed the impact of higher and lower EOBR prices.

Over ten years, Type 1 operation motor carriers would pay $253 million for the purchase of EOBRs, $229 million for maintenance, and $9.6 million for training, for a total undiscounted cost of approximately $492 million.

Option 4 has the same driving limitations as option 2, and, therefore, the analysis carried out above is applicable for this option. The FMCSA calculated the discounted cost to be $2.7 billion. At a 7 percent discount rate, the net present value (NPV) of these costs is approximately $3.024 billion.

Option 5 is the same as option 4, except both Type 1 and 2 drivers would be required to use EOBRs. Minimum off-duty hours, maximum driving time, and ''weekend'' rest provisions are unchanged.

The FMCSA estimates that there are 266,102 Type 1 CMV power-units, and 242,069 Type 2 CMV power units. A total of 508,171 CMVs would be affected by this option. Five percent of CMVs are already equipped with EOBRs, so the remaining 482,766 vehicles would have to be equipped with them.

Over ten years, purchasing EOBRs would cost motor carriers $483 million, maintaining the devices would cost $438 million, and training would add another $28.3 million. The total NPV of the driver and EOBR costs is approximately $3.444 billion, with an annualized cost of approximately $490 million.

5. Small Business Costs

Approximately 500,000 motor carriers were listed on the FMCSA's Motor Carrier Management Information System (MCMIS) census file in the fall of 1999, and the FMCSA has data on the number of vehicles owned by 413,000 of them. Almost one half of the motor carriers with size data have only one truck, and 95 percent of motor carriers, almost 395,000, have 20 or fewer trucks. These small motor carriers owned approximately 37 percent of the registered trucks. The average small motor carrier operated just under 3 trucks.

Small long-haul and regional carriers would face significant costs from this proposal, particularly options 4 and 5. These motor carriers would bear 37 percent of the higher wages and EOBRs. The FMCSA estimated that driver wages would rise by $384 million per year. Small carriers would bear 37 percent of that cost, approximately $142 million annually, which equals $361 per small motor carrier. Small motor carriers with larger fleets will pay more than their smaller counterparts.

Under option 4, small long-haul motor carriers would face an extra $177 million over ten years for EOBRs ($135 million discounted). Purchasing the EOBR constitutes approximately $100 million of this cost, and it is split evenly between the first four years. Ongoing maintenance accounts for the bulk of the remaining costs, and it is spread out over ten years. EOBRs will cost the average small long-haul motor carrier $2,850 to purchase and $282 annually for maintenance (undiscounted).

Option 5 would cost small long-haul and regional motor carriers $180 million undiscounted to purchase EOBRs, $152 million discounted. Annual costs equal $17.9 million undiscounted, for a total of approximately $103 million discounted over ten years. Per carrier costs are the same as for option 4, because of the method used for calculating costs.

Data on firms and receipts from the Small Business Administrations (SBA) web site were used to generate an estimate of average receipts for small motor carriers. See *http://www.sba.gov.* The FMCSA used data from Standard Industrial Classification (SIC) codes for trucking, SIC codes 4200 through 4214. Small motor carriers, defined as those with fewer than 20 employees, had average annual receipts of just over $400,000 in 1996. First year costs of $3,132 ($2,850 plus $282) equal approximately three fourths of one percent of the average small motor carriers receipts.

The previous calculations include only motor carriers in SIC codes 4200 through 4214, which include motor freight transportation and warehousing, trucking and courier services, local trucking without storage, non-local trucking, and local trucking with storage. Many small establishments covered by this NPRM are in other industrial sectors, and therefore would not be included in this estimate. There are a large number of private carriers, those which do not accept for-hire shipments, but instead serve as a shipping subsidiary of an establishment in a different line of business. Examples include bakeries or groceries which own small fleets of trucks to deliver their goods, or a touring musician who travels via a privately owned motor coach. The FMCSA was not able to generate data on these private motor carriers.

It is likely that both EOBR and driver costs could be lower than estimated above. First, we assumed that small motor carriers would purchase one quarter of their EOBRs in each of the first four years. In reality, it is likely that most small motor carriers will wait until the latter years to buy an EOBR. This will lower the discounted EOBR costs, as later year purchases are discounted more highly than earlier ones. In addition, small motor carriers who purchase EOBRs in year 4 will have to pay for maintenance for 3 fewer years than those who purchase in the first year.

Second, the FMCSA believes it is likely that the price of EOBRs will fall as production increases. As manufacturers gain proficiency in producing a good, improved use of labor and materials tend to lower the costs of production. Improvements include reducing the number and complexity of component parts, improved production of components, improved assembly speed and processes, reduced error rates, and better manufacturing processes. In a 1984 study of 108 manufacturing items from 22 field studies, Dutton and Thomas found a progress ratio of slightly higher than 80 percent, which means that each doubling of cumulative production reduces the cost level by 20 percent (Dutton and Thomas). Because of the phase-in period for small motor carriers, larger motor carriers are likely to bear the higher initial production costs.

In addition, wage costs may also be lower than estimated. Small motor carriers, like many small businesses, tend to pay lower wages than their larger competitors (Brown and Medoff for overall wage differential; Hirsch and Macpherson for motor carriers). Therefore, a given percent increase in wages will translate into a smaller absolute change than is the case for higher wage firms. The overall percentage figure used in this analysis may overstate the wage increases faced by small motor carriers.

As noted above, the FMCSA assumed that EOBRs will cost motor carriers $100 per year. This figure includes such items as maintenance, search costs, other transaction costs, and learning curve costs. While we were not able to directly estimate the separate cost components, we do not believe they will be significant. Manufacturers and salespeople for EOBRs will have a substantial incentive to provide information about their products to drivers. Unions, magazines, and trade associations are also likely sources of information for drivers. The costs to reach the long-haul and regional drivers who will be required to purchase EOBRs are fairly low, as these drivers often congregate at rest areas and loading docks, and many drivers communicate with other drivers via citizens band radio. The relatively high concentration of drivers lowers the cost of reaching drivers, provides further incentives for manufacturers, salespeople, and other to provide information on EOBRs to drivers.

The analysis also assumes that many motor carriers will be able to have EOBRs installed during routine annual checkups. Motor carriers are required by the FMCSRs to inspect their trucks annually, and many carriers routinely inspect their vehicles more frequently. The FMCSA believes that many motor carriers may be able to have an EOBR installed while their trucks are undergoing routine maintenance, lowering the opportunity cost of obtaining an EOBR. For most motor carriers, the opportunity cost of an EOBR is only the additional time required for installation once a truck is already available for service.

6. Qualitative Impacts

The FMCSA expects different qualitative effects from two aspects of the various options. The following section discusses the likely impact of options 1 (12 off, 12 on) and 3 (limiting nighttime operations) on the motor carrier industry. The agency does not believe options 2, 4, or 5 would have significant qualitative, intangible effects to warrant a discussion of them. The FMCSA invites comment on whether you believe there are significant qualitative, intangible effects to warrant a discussion for options 2, 4, or 5. Please provide with your comments the significant qualitative, intangible effects you believe must be considered along with all data, studies, and reports you rely upon that you believe the FMCSA should use.

Option 1 has two primary dimensions'daily and weekly scheduling requirements.

Daily Scheduling. The regional LTL industry would have the least difficulty conforming with option 1's daily schedule, as most freight follows the overnight rhythm. The ability to use the driver for 12 hours regardless of activity (driving or other labor) would give the motor carriers more flexibility. The agency is not sure how much of this additional capability carriers might use, but it would allow them to adjust according to the demands on their business. The national LTL industry would also be able to adjust to this option as carriers now use their drivers for less than 10 hours of driving at a time (at least the union carriers do not require drivers to do other work) and would have the additional flexibility to use drivers beyond 10 hours, if necessary.

One difficulty the national and regional LTL industry segments may face would be a possible reduction in overall labor time: option 1 specifies that 12 hours includes all breaks, so the net effect might be to reduce total daily labor by as much as 10 percent or as little as zero. Assuming drivers work 11 hours per day for five days per week, that gives them a 55-hour work week, which is about what the agency would expect in the industry.

The long-haul truckload industry, at the other extreme, would have to make major changes to adjust to this schedule. Many TL drivers currently work more hours than this proposed rule and any option considered would allow. If other reforms reduced drivers' non-productive time, the effect might be minimized. That is, since the median Type 1 driver drives only 8.5 hours daily, this might not affect the driving experience of drivers at the median. However, at the 75th percentile Type 1 drivers drive 11 hours, suggesting that the only way many drivers could comply would be by eliminating non-driving hours entirely. In sum, the Type 1 TL industry probably may have to hire more drivers than it currently has, assuming drivers and motor carriers comply with the regulation and assuming no change in the current framework that does not discourage shippers and consignees (and even carriers) from requiring drivers to wait.

Type 2 trucking-segment motor carriers generally operate in a fashion closer to LTL than to the Type 1 trucking-segment motor carriers. The Belzer et al. (1999) survey suggests

regional trucking falls approximately in the middle between local and long haul, depending on the measure. Regional drivers are more likely on average to perform labor other than driving than the long-haul TL drivers, though the latter have larger blocks of non-productive time. It is difficult to generalize among such a wide set of possibilities, in terms of industry segments and markets, so conclusions are difficult to make based on the option and the current work schedule. Work schedules vary quite widely among industry segments.

Weekly Scheduling. The options would require at least two nights off duty to obtain restorative sleep at the end of a work week. For option 1, the regional LTL industry already is structured in a way that accommodates this main research finding, at least as closely as any other group. The typical regional LTL driver begins his work week Monday evening or night and works five ''shifts'' of driving and labor ending up back at his home domicile by Saturday morning (some motor carriers might add an additional shift to allow drivers to reach maximum hours and earnings or to meet its service requirements). While the options would limit the flexibility of these carriers with respect to extra driving (because of the requirement of a minimum of 58 consecutive hours off once per week), they would have the least effect on these drivers.

The long-haul LTL industry does not schedule this same way. While the agency believes these LTL carriers could adapt to this schedule, they could do so only with some effort and dislocation. Their operations currently depend on a mix of regular bid runs, on-call drivers, and casual drivers. City drivers (pickup and delivery) have reasonably regular shifts, ordinarily are paid by the hour, and probably stick pretty close to the recommended HOS limits and schedule. Regular bid road drivers run steady operations between cities and haul the most predictable freight. As a result, their schedules are predictable and can most likely conform to the daily and weekly HOS options. Lower-seniority irregular road drivers who maintain a position on a seniority list (''road board'') are called in to work as the carrier is able to ''close out'' a trailer and send it to another destination. Such destinations vary, but sharp cutoff times needed for regional LTL aren't needed in national LTL and hence the daily discipline is not as critical. Larger terminals generally have a higher number of bid drivers, and may be able to create relatively restricted time windows during which daily dispatch can occur. Weekly regularity is a bigger problem, since that is not a current requirement. The agency has found no way to estimate the cost of compliance for this industry, though it would like comments from those in that industry about how to do it.

Both the regional and national LTL industries may find it difficult to adapt structurally to different options regarding HOS. Currently, these carriers take both business and regulatory constraints into consideration when planning terminal networks. That is, they consider the metropolitan area in which they may pick up and deliver freight (or where they have appropriate freight density) along with the distances between terminals where they transfer freight throughout their network. Any changes in daily HOS regulations could induce them to move terminals closer together or farther apart. Some readjustment would undoubtedly take place, but the agency believes this should not be considered a cost of this proposal. Motor carriers that do not relocate terminals would not face any additional costs because of this option, they would merely be bypassing an opportunity to realize savings.

The regional trucking industry (particularly TL and other-than-general-freight) probably could adapt to this change relatively easily also, since they are better able to get drivers home on weekends or on a weekly basis. Currently these carriers advertise ''home weekends'' as a recruiting tool, so their workers and potential workers presumably view this as a benefit. While they scarcely comply with the current weekly limit (Belzer et al. (1999) shows they work 60 hours per week at the median), their biggest problem probably would come more in adapting to each option's 60-hour limits than in adapting to the schedule providing for 58 hours of consecutive off-duty time weekly.

As was the case with the daily restrictions, the long-haul TL industry would find it the most difficult to adapt to the weekly limitations. Currently drivers are working through this period and view lengthy delays on the road as time wasters. Since these drivers typically sleep in their trucks and may have to spend this time in truck stops when their weekly break occurs on the road, they might not achieve the level of rest anticipated by the rule even if they obey the regulation. For analytic purposes, however, it might make sense to divide the long-haul TL industry into two broad segments.

Smaller TL motor carriers run their drivers long distances and generally have their drivers spending weeks on the road. While the agency has not analyzed this phenomenon in detail, research suggests the smaller carriers have fewer alternatives to this form of operation. That is, if they dispatch a driver on a long cross-country run they alone are responsible for locating freight for the return trip. The agency suspects their inability to locate freight on a timely basis contributes to the ''wasted time'' phenomenon observed in the Belzer et al. (1999) survey. Larger motor carriers may be more likely to locate freight for the return at a distance, though most carriers historically have faced challenges maintaining freight balance over long routes and between far-flung city pairs. See 3 MCC 665, at 675–678, December 29, 1937.

Perhaps the biggest advantage larger motor carriers (or more precisely, motor carriers with denser regional concentrations and freight lanes) have over smaller ones is some ability to relay freight from one region to another. The ability to relay freight from one driver to another would allow the motor carrier to keep drivers within a reasonable proximity of home and allow them greater opportunities to return home for the 58-hour breaks. Without this option, long-haul carriers and their drivers would find it rather difficult to adapt to these options. One unintended consequence might be a continuation of the current situation, whereby drivers extend their overall HOS by manually recording ''unpaid'' waiting time as off duty on the EOBRs, so that they can maximize driving time, which is paid.

Option 3 has two primary dimensions. The first dimension has potential HOS requirements that are the same as option 1. The second dimension is the limitation on nighttime driving.

The proposed limitation on nighttime driving could cause major restructuring in the LTL industry. Most LTL carriers, especially in the regional industry, run throughout the night. The regional LTL industry relies on nighttime driving. Its primary niche is the overnight service lane, and the structure of operations requires nighttime driving. To summarize and simplify their operations, they pick up freight during the afternoon and take it to a terminal where it is stripped off local trailers and reloaded on road trailers for delivery. The dock operation may take anywhere from three to five hours, after which the loaded trailers are dispatched over-the-road to a terminal or terminals in another city. The freight may be handled once or twice en route during the night. In any case, the freight arrives at its destination terminal the following morning, is stripped off the road trailer and loaded onto a city trailer. A city driver (''pickup and delivery driver'')

takes the freight to the customer, and repeats the pickup process. This pattern ordinarily continues Monday through Friday, with most freight picked up and delivered on those days.

Variations on this theme apply to the inter-regional LTL carriers as well as to national package delivery carriers, much of whose revenue actually consists of regional and local freight. National LTL carriers (along with inter-regional LTL carriers and package carriers) have wider variation in operations. The pickup-and-delivery processes are the same, but longer lanes mean that the intermediate dispatch can take place around the clock. Some motor carriers are structured such that inter-regional movement of freight would tend to happen on the same nighttime lanes on which their overnight shipments travel, and some motor carriers are structured so that second- and third-day freight will travel during the day for at least some of its intermediate movement. In any case, the entire industry depends on nighttime freight movement, and limiting drivers to 18 nighttime hours per week could cause major restructuring. Indeed, since this option likely would restrict drivers to three days of work per week (less than full time), carriers might adapt by switching their drivers between nighttime and daytime shifts throughout the week. While this would comply with the option, it could disrupt drivers' circadian cycles, eliminate the possibility of regular schedules, and possibly reduce overall safety.

The Belzer et al. (1999) survey suggests the extent of nighttime driving is somewhat lower than previously thought. The survey reveals that, on average, drivers already are well in compliance with such an option. The discrepancy comes at the extremes. People who are on the night shift perform all of their work during these hours, so as individuals they would be far from compliant with a potential 18-hour limit. This group includes those who drive for most regional LTL carriers, for package carriers, and probably for much of the inter-regional and national LTL industry. Those who drive for TL firms (particularly Type 1 drivers) may well drive a small enough percentage of their hours during this period that they would be in compliance. However, the drivers most likely to be compliant with the 60-hour limit probably are the very drivers whose industry would be altered dramatically as a result of such an option. Finally, while data are sketchy some analysts believe the LTL and package industry have a lower than average fatigue crash rate, so this option could affect the operations of those carriers that may contribute least to the nation's highway safety problem.

Regularity. The FMCSA also examined the cost of requiring drivers to begin work at the same time each day. The specific option under consideration would have prevented drivers from working until 23 hours after the previous day's start time. A driver who started work at 6:00 a.m. Monday would not have been allowed to begin again until 5:00 a.m. Tuesday, regardless of how many hours the driver had driven on Monday.

The agency used a wage equation described in the PRE to estimate the cost of regularity. The coefficient on the proxy constructed for irregularity (a binary variable) is −0.0196. It is statistically significant at the 14.5 percent level, which means it is estimated relatively imprecisely, lowering confidence in the estimate's numerical value. Under the assumptions outlined above, in equilibrium the agency expects that the typical irregular driver gets on average more miles (or more paid hours, where applicable), and so makes about the same annual income as a regular driver, other things being equal. If the agency prohibited irregularity, then these drivers would have to be paid almost 2 cents per mile more on the smaller number of miles they would then run to make the same annual wages.

Using the average annual miles from above (hence not trying to explicitly capture any implied change in miles), carriers would have to pay between $500 and $2,200 per year in higher per mile wages over fewer miles for the average irregular driver in order to restore his wages to their approximate pre-prohibition level. Hence society would pay that much more in higher freight rates for the freight each irregular driver now hauls, if irregularity were prohibited and all drivers complied with this prohibition.

The agency treated all drivers (including owner-operators and independent contractors) like the average mileage-paid driver, and estimated that 23.4 percent of this entire population is ''irregular,'' the percentage found in the Belzer et al. (1999) survey. This results in total costs of nearly $1.5 billion per year, as shown in Table 13. Regional drivers account for more than 55 percent of the total cost of a regularity potential option.

TABLE 13.—COST OF REGULARITY

Driver types	Number of drivers	Average miles	Cost per driver	Total cost, millions
1	424,804	114,000	$2,234	$207
2	823,863	82,065	1,608	837
4	3,997,023	25,000	490	69
5	1,190,740	25,000	490	369
Total	6,436,430	.....	.....	1,482

Because of the substantial cost, the FMCSA is not proposing to require regularity in this NPRM. The FMCSA recommends that carriers and drivers keep regular schedules to the maximum extent possible.

7. Benefits and Costs Combined

All options yield net benefits, with the benefits generally increasing with the option number. When paperwork benefits are excluded, only option 5 has net benefits, while the remaining options yield net costs.

Table 14 reprints the estimated fatal and injury crashes avoided from table 25 of the PRE, and presents estimates of the number of fatalities and injuries avoided. The rightmost column calculates the monetary value of these avoided incidents, based on a value of $3.388 million per fatal crash avoided and approximately $110,000 per injury crash avoided. Appendix C of the PRE explains the derivation of these values.

TABLE 14.—BENEFITS OF OPTIONS

	Fatalities avoided	Fatal crashes avoided	Injuries avoided	Injury crashes avoided	Total benefits, 10 year, billions, NPV
Option 1	38	32	985	676	4.4
Option 2	38	32	985	676	4.4
Option 3	57	48	1,478	1,014	5.1
Option 4	83	70	2,153	1,744	5.4
Option 5	115	98	2,995	2,514	6.8

Table 15 repeats the benefits from the previous table, along with cost figures from Chapter 5 of the PRE. It shows that all options yield large net benefits, ranging from almost $1.7 billion for options 1 and 2 to $3.4 billion for option 5. Costs and benefits are for ten years, and discounted at a 7 percent rate. Figures do not add because of rounding.

TABLE 15.—COSTS AND BENEFITS

	Discounted benefits, billions	Discounted costs, billions	Net benefits, billions
Option 1	$4.418	$2.696	$1.721
Option 2	4.418	2.696	1.721
Option 3	5.059	2.636	2.423
Option 4	5.364	3.083	2.281
Option 5	6.803	3.444	3.359

The costs and benefits of options 1 and 2 are identical, with net benefits of $1.7 billion. Although, as discussed in chapter 5 of the PRE, the flexibility of option 2 might lower motor carrier costs somewhat, no attempt was made to quantify lower costs. Option 3 has greater benefits and similar costs, resulting in net benefits of more than $2.4 billion. Option 4 yields a net benefit of almost $2.3 billion, while option 5 has the highest net benefits at almost $3.4 billion.

Thirty percent of the benefit of options 1 and 2 is due to the reduction in crashes, with the remaining 70 percent accounted for by paperwork savings. Forty percent of the benefit of option 3 is due to the reduction in crashes, with the extra 2.5 percent assumed reduction in crashes of option 3 accounting for this difference. Approximately fifty percent of the benefit of options 4 and 5 results from the reduction in crashes. Table 16 displays the costs and benefits of the proposals excluding this paperwork benefit.

TABLE 16.—COSTS AND BENEFITS EXCLUDING PAPERWORK BENEFITS

	Discounted benefits, billions	Discounted costs, billions	Net benefits, Millions
Option 1	$1.283	$2.696	($1.413)
Option 2	1.283	2.696	(1.413)
Option 3	1.925	2.636	(0.711)
Option 4	2.619	3.083	(0.465)
Option 5	3.597	3.444	153

Ignoring the paperwork benefits does not affect costs. However, the impact on benefits is substantial. The resulting reduction in benefits lowers net benefits for all options, with options 1 through 4 yielding net costs.

Table 17 shows the marginal costs, benefits and net benefits of moving from one option to a more stringent option. For all the changes in the table, costs increase, but not as much as benefits, so net benefits also rise. Net benefits jump by one third between options 2 and 4, and almost double between options 2 and 5. Moving from option 4 to option 5 increases net benefits by one half.

TABLE 17.—MARGINAL CHANGES IN COSTS, BENEFITS, AND CRASHES

Change	Fatal crashes	Costs, millions	Benefits, millions	Net benefits, millions	Net benefits, millions, no paperwork
2 to 4	(343)	$387	$946	$559	$948
2 to 5	(597)	748	2,386	1,638	1,566
4 to 5	(254)	361	1,439	1,079	618

Lowering the assumed accident reduction rates reduces the net benefits of all options. Because paperwork savings constitute a large part of total benefits, a given percent reduction in crashes results in a smaller reduction in net benefits. Halving the assumed crash reduction rate for all options lowers the net benefits of options 1 and 2 by approximately one third, and options 3, 4, and 5 by approximately 40 percent.

The PRE discussed the uncertainty concerning the percent of fatigue-related crashes. While the FMCSA estimates that 15 percent of all truck crashes are fatigue-related, analysts disagree about the precise figure. Accordingly, the following table shows the impact of lowering the baseline fatigue-related crash rate. Table 18 shows the costs, benefits, and reductions in accidents that would occur if 7.5 percent of all truck crashes were fatigue-related.

TABLE 18.—IMPACT OF 7.5 PERCENT BASELINE FATIGUE RELATED CRASH RATE

	Fatal crash reduction	Injury crash reduction	Safety benefits, millions	Net benefits, millions
Option 1	16	338	$642	$1,080
Option 2	16	338	642	1,080
Option 3	24	507	962	1,461
Option 4	35	738	1,341	1,003
Option 5	48	1,027	1,829	1,591

Lowering the assumed fatigue-related crash rate reduces the benefits of all the options, but all options continue to show sizeable net benefits. Increasing the baseline fatigue-related crash rate obviously results in higher gross and net benefits.

Chapter 4 of the PRE noted the uncertainty surrounding the price of EOBRs, with estimates ranging from $700 to $19,000 per unit. Because of doubt about the true cost, the FMCSA analyzed the consequences of higher and lower EOBR costs. Increasing the purchase price to $2,000 and the annual operating cost to $200 raises the cost of option 4 by almost $380 million, from $3.08 billion to $3.46 billion. Benefits continue to exceed costs, with net benefits of $1.9 billion. Excluding paperwork benefits, costs exceed benefits by $843 million over ten years. For option 5, costs shoot up approximately three quarter of a billion dollars, to $4.167 billion, while net benefits fall by the same amount, to $2.6 billion.

The FMCSA also analyzed the impact of halving the cost of EOBRs, to $500 per unit and $50 per year. Not surprisingly, costs for both options plummet. For option 4, costs falls by almost $189 million, and net benefits increase by that amount. The cost of option 5 declines by approximately $362 million, and net benefits increase commensurately. Neither option appears to be overly sensitive to changes in the cost of EOBRs. Only when the cost of EOBRs reaches $6,000 does the cost of option 5 equal the benefits. For option 4, the breakeven EOBR cost is approximately $7,000.

The FMCSA believes it is likely that the price of EOBRs will fall as production increases. As manufacturers gain proficiency in producing a product, improved use of labor and material tend to lower the costs of productions. Improvements include reducing the number and complexity of component parts, improved production of components, improved assembly speed and processes, reduced error rates, and better manufacturing processes. In a 1984 study of 108 manufacturing items from 22 field studies, Dutton and Thomas found a progress ratio of slightly higher than 80 percent, which means that each doubling of cumulative production reduces the cost level by 20 percent (Dutton and Thomas).

The effectiveness of EOBRs in reducing fatigue-related crashes is also subject to disagreement. The FMCSA argued in Chapter 4 of the PRE that drivers of vehicles with an EOBR will have 20 percent fewer fatigue-related crashes than those without the devices, because EOBRs will enhance enforcement officers to capabilities to detect violations and will thereby increase compliance. The FMCSA also evaluated the impact of varying the assumed level of reduction in fatigue-related crashes brought on by EOBRs.

Table 19 shows the costs, benefits and number of accidents that would be avoided if EOBRs only reduced fatigue-related crashes by 10 percent. Costs are unchanged, but fewer accidents are avoided, so total and net benefits drop for options 4 and 5. Benefits for both options remain positive. However, the net benefit of option 4 falls by $900 million, and that of option 5 by $1.5 billion. The net benefit of option 4, $1.34 billion, is less than that of options 1, 2 and 3. The new benefit of option 5 exceeds that of all options except option 3.

TABLE 19.—IMPACT OF REDUCING EOBR CRASH REDUCTION RATE TO 10 PERCENT

	Fatal crash reduction	Injury crash reduction	Safety benefits, millions	Net benefits, millions
Option 4	44	943	$1,717	$1,379
Option 5	53	1,135	2,054	1,816

The benefits and costs of this proposal, and of alternative options, depend on the values of several key parameters which can be substantiated by robust, empirical data. These include the following:

1. The relationship between on-duty and off-duty hours of service and crash risks;

2. The cost of relocating fixed terminals that motor carriers may have to incur in transitioning from the current to the proposed HOS rules;

3. The extent to which the proposal or some alternative would effectively reduce the driving time of current

drivers and thus result in the hiring of additional drivers;

4. The change in the driver workforce a motor carrier might reasonably anticipate in terms of numbers and levels of experience;

5. The cost of hiring additional drivers;

6. The effect of additional hiring on the average wages of new and existing drivers;

7. The effect of reduced hours on existing drivers' income;

8. The effect of experience on overall accident risk for existing drivers' experience levels and that of additional drivers required to make up the lost hours;

9. The baseline percentage of overall crashes that one could reasonably expect to be affected by a change in the HOS rules;

10. The rate of crash reduction caused by changes in HOS;

11. The effect of a change in HOS on the distribution of driving between nighttime and daytime hours and the effect of any such change on overall accident risks;

12. The effect of the requirement that motor carriers notify drivers about their responsibility for loading and unloading;

13. The effect of requiring or recommending that drivers take the opportunity provided by off-duty periods to obtain rest.

14. The cost of purchasing, installing, maintaining, and using EOBRs, particularly for small entities;

15. The effect of EOBRs on compliance with HOS rules; and

16. The reduction in paperwork burden for Type 1 and 2 operations (attributable to replacing RODS with EOBRs) and Type 3 through 5 operations (due to replacement of RODS with DOL time records).

The FMCSA seeks comments on the quantitative information presented on each of the parameters listed above and requests data and analysis regarding them and on any other aspects of the regulatory evaluation. Such information would be most useful if, to the extent feasible and relevant, it were: (1) Broken out by driver Type (i.e., 1 through 5) and (2) provided in such a way as to enable an analysis of alternative options. For example, data indicating an option would result in hiring of a substantially different number of additional drivers or have a demonstrably different effect on overall safety would be useful. Similarly, concerns about the data presented in this NPRM should be as specific and quantitative as possible to be helpful.

J. The Option Selected to Propose

Based on the options, the recordkeeping options, the benefit-cost analyses summarized above, and other regulatory analyses, the FMCSA has chosen to propose option 5. This option proposes to require EOBRs for Type 1 and 2 operations for compliance purposes only. EOBRs are not intended for other types of surveillance (e.g., audio or video recording). They are intended solely to satisfy HOS reporting and recordkeeping requirements. The information they collect and provide should not be used for other purposes. This option also requires Type 1 and 2 drivers have at least 10 consecutive hours off duty, work up to a 14-consecutive-hour period including taking 2 hours for breaks, meals, and naps. Option 5 saves the most lives, 115, prevents the most injuries, 2,995, and provides the highest net benefits to society, almost $3.359 billion, assuming that 15 percent of all CMV-involved crashes are fatigue-related and the proposed rules cut fatigue-related deaths each year by 20 percent for long-haul and regional motor carrier operations and 5 percent for all other motor carrier operations.

The FMCSA proposal would divide the motor carrier industry into the five types of motor carrier operations discussed in section VII.C., Types of Motor Carrier Operations, earlier in this NPRM.

Type 1—Long haul. These drivers are away from their normal work reporting location and home for more than three days at a time; in total, they are away from home for a large part of the year.

Type 2—Regional. These operations are similar to Type 1, except that drivers are away from their home base only 3 or fewer days at a time.

Type 3—Local split shift. Split-shift drivers spend most of their on-duty time driving, but most are local (or home-based), and their driving shifts are generally separated by several hours.

Type 4—Local pickup and delivery. Type 4 drivers work in the vicinity of their normal work reporting location. They are generally on regular schedules extending less than 12 consecutive hours from the time they report in until they check out. Driving is a significant part of their work, more than half of their on-duty hours.

Type 5—Primary work not driving. These drivers also work in the vicinity of their normal work reporting location. Unlike Type 4, however, they spend only one-third (or less) of their on-duty hours behind the wheel. The classification covers operators of CMVs whose duties do not center around driving, but who operate these vehicles as a necessary part of their work assignments.

In a document to be published at a later date in the **Federal Register**, the FMCSA will propose a new version of the FMCSRs using a question-and-answer format in which regulations applicable to drivers and motor carriers will be printed in separate sections. The HOS rules being proposed today are drafted in that format. Part 394 would apply to motor carriers and Part 395 to drivers.

VIII. Additional Petitions Received

The Office of the Secretary of Transportation (OST) and the FHWA received three petitions from motor carrier associations in August 1999. On August 5, 1999, the OST received a petition from the ATA requesting an addition to 49 CFR 5.1(d) and providing suggested rule text. ATA explained its purpose was to:

> give those affected by [FMCSA] hours of service regulations the opportunity to furnish to the Department comments on the scientific studies, findings and principles upon which the Department intends to base its decisions on [FMCSA] hours of service regulations.

The OST created docket number OST–99–6075 for this petition, denied the petition on September 29, 1999, and notified the ATA of its decision.

On August 11, 1999, the DLTLCA (Distribution and LTL Carriers Association) petitioned the FHWA to adopt an amended rule providing a non-distance-based exemption when a driver meets the following three conditions:

1. The driver reports to and is released from a normal work reporting facility.

2. The driver complies with the daily driving and on-duty time limits set forth in current § 395.3.

3. The motor carrier maintains records of the driver's on-duty status.

The FMCSA addresses the subject of the DLTLCA petition in the above discussions about time records and believes this NPRM incorporates a discussion of this matter.

On August 12, 1999, the FHWA received another petition from the DLTLCA asking the agency to adopt further procedures under 49 CFR 389.25 *Additional rule making proceedings* to allow the participants of this NPRM to review and comment on the safety and fatigue research which the FMCSA gathered and relies upon in this document to propose revising the current HOS rules. Further, the DLTLCA requested that the FHWA implement these procedures before issuing this NPRM. The Office of Motor Carrier Safety denied this petition, notified the

DLTLCA of its decision, and has filed the decision in the docket for review.

Commenters are also requested to provide and justify values for the types of parameters specified in FMCSA's proposal. These parameters, for example, include:

1. The need for and duration of mandatory rest breaks during the daily on-duty period;
2. The number of hours per day and per week that drivers would be allowed to be on-duty, with or without averaging over more than one day or one week;
3. The length and timing of any weekly recovery period; and
4. The allowance for drivers to reset their weekly on-duty total back to zero after any minimum weekly recovery period.

IX. Implementation

The FMCSA is proposing that all motor carriers would continue to have to comply with the current Part 395 until 6 months after publication of the final rule. On that date, all motor carriers would begin complying with most requirements of the final rule. The agency believes this should be sufficient time to make any necessary adjustments to schedules and to familiarize drivers, other motor carrier personnel, and Federal, State, and local enforcement personnel with the details of the new rules.

The requirements for installed and in use EOBRs in Type 1 and Type 2 operations would be mandatory within 2, 3, or 4 years of that date 6 months after publication of the final rule. The deferred mandatory compliance dates for EOBRs in Type 1 and 2 operations are staggered according to the size of the motor carrier on that 6-month effective date: 2 years for carriers with 51 or more power units; 3 years for carriers with 20 to 50 power units; and 4 years for carriers with 20 or fewer power units on the effective date of the rule. The intent of the deferred implementation schedule is to mitigate the start-up costs, particularly for small entities. The agency believes that the more universal the use of these devices, the more likely the price will drop. The analysis of cost is provided elsewhere in this NPRM.

Type 1 and 2 motor carriers and their drivers would continue to use the current part 395 recordkeeping requirements until they purchase, install, and begin using the mandatory EOBRs. If a motor carrier chooses to wait until the applicable date 2 to 4 years in the future to begin using EOBRs, that motor carrier would have to comply with the current § 395.8 RODS or § 395.15 automatic on-board recording device requirements. This should provide an incentive for those motor carriers that would like to take advantage of the various cost savings to do so as soon as they begin using compliant EOBRs.

As discussed above in VII. F. 1., the WHD records in 29 CFR part 516 do not include change of duty status location data that is needed by the FMCSA and its State and local partners in law enforcement to enforce the proposed rules for safety purposes. The FMCSA cannot effectively enforce the proposed safety rules to discover whether drivers are operating CMVs while tired or unalert without locations added. The location of duty status changes is important only for those drivers who do not return to their normal work reporting location at the end of each work shift to determine where duty is occurring and is necessary for enforcement of the rule. For Type 1 and 2 drivers, the FMCSA needs locations of CMV drivers duty status changes either on a WHD-required time record or an EOBR.

The FMCSA believes requiring the continued use of the historical § 395.8 RODS would reduce unnecessary confusion. Requiring a WHD time record with the additional location data on it would create unnecessary confusion and would probably create enforcement problems. First, many motor carrier employers probably have not been creating the WHD time record in the first place. This, of course, is possibly a violation of FLSA requirements. The FMCSA has spoken with numerous driver-employees of non-unionized motor carriers who have no knowledge that they are covered under the FLSA minimum wage requirements. This leads FMCSA to believe that the motor carriers are only requiring the RODS, but are not also creating the WHD time record to calculate the minimum wage required to be paid. Motor carriers would have to create a temporary time record system adding appropriate location data for the 2 to 4 years until they install and begin using EOBRs. Second, motor carriers would have to scrap the temporary system once they do install compliant EOBRs. The FMCSA believes this is too much burden and unnecessary confusion. It expects motor carriers and drivers to understand and have the ability to implement that temporary system to be in compliance and then scrap it. Third, Federal, State, and local law enforcement would have to learn how to interpret each carrier's temporary time record system for roadside enforcement. Delays of freight and passengers would probably result when officers begin asking questions that drivers could not answer. Officers would begin contacting the motor carriers directly for the answers before allowing drivers to proceed. Fourth, drivers, carriers, and officers know the current RODS system and automatic on-board recording system to be able to enforce the rules immediately.

Of course, those motor carriers that have chosen to use current § 395.15 EOBRs may be able to begin using the new recordkeeping rules on the 6-month effective date, depending upon whether their EOBRs are compliant with the final rule (including the proposed requirement to upgrade warning, sensor failure, and edited data requirements).

As an alternative, for Type 1 and 2 drivers operating non-compliant EOBRs, the FMCSA is considering a requirement that motor carriers would implement the proposed daily off-duty limitation, but would delay implementing the proposed on-duty limitations for those Type 1 and 2 drivers. The motor carriers would have to use the proposed off-duty limitation (i.e., 10 hours) each day and record time using RODS until all their CMVs were compliant with the EOBR requirements. Creating another split recordkeeping situation within a carrier's operation would make compliance verification in the field extremely difficult where a driver may drive EOBR-compliant CMVs some of the time and non-compliant CMVs at other times. In particular, this alternative would focus on the proposed 12-hour daily driving limitation and possibly the current weekly 60-hour and 70-hour limitations for on-duty time, because of the difficulty of verifying off-duty times without EOBRs or with the existing RODS. The agency is particularly interested in comments concerning these implementation options.

X. Additional Proceedings

The FMCSA will also hold seven public hearings during the comment period. The hearing locations will be dispersed geographically around the United States. The purpose of these hearings will be to accept oral comments from the public. A notice will be published in the near future with the dates, locations, and other particulars of each hearing.

XI. Section-by-Section Evaluation

A. Conforming Amendments

Changes to other parts of the regulations not contained in the revised parts 394 and 395 are necessary to conform them to the new requirements in this proposal.

1. The first deals with the extent to which State laws and regulations governing the operations of CMVs in intrastate commerce may differ from the FMCSRs without jeopardizing funds authorized under the Motor Carrier Safety Assistance Program.

Section 350.341 What Specific Variances From the FMCSRs Are Allowed for State Laws and Regulations Governing Motor Carriers, CMV Drivers, and CMVs Engaged in Intrastate Commerce and Not Subject to Federal Jurisdiction?

On April 16, 1992 (57 FR 13572, at 13580), the FHWA discussed how section 4002(l) of the Intermodal Surface Transportation Efficiency Act of 1991 required the FHWA to specify tolerance guidelines and standards for ensuring compatibility of intrastate CMV safety laws and regulations with the FMCSRs under the MCSAP. It has always been the FHWA's policy—and now that of the FMCSA—to work toward eventual uniformity of interstate and intrastate laws and regulations under the MCSAP.

This NPRM is based on numerous research studies that have direct applicability to all CMV drivers, regardless of whether the driver operates in interstate or intrastate commerce. The FMCSA believes it should remove any tolerance guidelines that allow intrastate exceptions and exemptions not based on applicable science. As discussed previously in this NPRM, if every CMV driver needs 7 to 8 hours of sleep each night and additional time to attend to personal hygiene, nutrition, and commuting time, 16 hours on duty as MCSAP currently tolerates would not provide those additional opportunities. The 12-hour driving limit would also be removed since that would become the new maximum on-duty limit that includes driving. The agency also believes it must require States to adopt and enforce the weekly off-duty period that includes at least two midnight to 6:00 a.m. periods to be consistent with the research findings above. Therefore, all States would be required to achieve full compatibility for both intrastate and interstate transportation within three years after the effective date of the final rule to this NPRM.

This section would remove the last phrase from the second sentence of paragraph (d) that reads ''nor to the extension of the mileage radius exemption contained in 49 CFR 395.1(e), from 100 to 150 miles.'' This would conform the tolerance guidelines to the proposed replacement of the 100 air-mile radius driver with Type 3, 4, or 5 drivers. Paragraph (e) would also be removed.

2. The second conforming amendment relates to the time off required to be taken by a driver before returning from operations excluded from regulation under the ''emergency exception'' provision.

Section 390.23 Relief from Regulations

This section would be amended to increase the minimum off-duty time after emergencies from eight hours to ten hours to conform with the new 10-consecutive-hour minimum in this proposal. It would also replace the current ''24-hour clock reset'' provision with the proposed minimum requirement for two consecutive nights off-duty, including the core sleep periods from midnight to 6:00 a.m., before returning to normal driving subject to the HOS rules. The rules also would require the driver to begin at or after 7:00 a.m. to be consistent with proposed §§ 394.163 and 395.163.

The FMCSA would also make a technical amendment by replacing the term ''Regional Director'' wherever it is found in §§ 390.23 and 390.25 with the term ''State Director.'' The FHWA reorganized its field offices in January 1999 while FMCSA was still a part of the FHWA. The title of ''Regional Director'' no longer exists. This action will formally permit FMCSA State Directors to declare and extend Statewide emergencies under these two sections. For emergencies that are of a regional nature, several State Directors may issue the same exemption.

B. Proposed Hours of Service Parts 394 and 395

The proposed rule would replace the current part 395 with two parts, one directed at the motor carrier and the other, the driver. The numbered section in each part correlates with the same numbered section in the other part, so long as they address the same subject matter. The corresponding sections are combined for purposes of this analysis, and to avoid repetition.

Purposes, Standards, Penalties, and Exemptions

Sections 394.101, 395.101 What Are the Purpose and Standards of This Part?

These sections describe the purpose of the rule. These would immediately and clearly emphasize the need to use well-rested, alert, and attentive drivers by stressing off-duty time, daily and weekly, to ensure drivers have an opportunity to get sufficient, restorative sleep. The lead section in both the motor carrier and driver parts would fix responsibilities to make sure this happens.

These sections also clarify the responsibilities and standards that require sufficient off-duty time daily and weekly to ensure drivers have an opportunity to get sufficient, restorative sleep, and that these responsibilities reside with both drivers and motor carriers. The rule would provide three standards for motor carriers to achieve. It also would have three things a motor carrier should do as additional guiding principles. The advisory items in paragraph (d) have no regulatory effect, but are standards of care to assist motor carriers and drivers to operate CMVs safely. The FMCSA believes it is necessary to establish these guiding principles so that the connection between the rules and their objectives is not lost, and the carriers and drivers are reminded that their responsibility to avoid the risks associated with driving while fatigued is not limited to minimal compliance with prescriptive rules.

Sections 394.103, 395.103 What Must I Do To Enhance Driver Alertness?

These sections describe how motor carriers and drivers should carry out their respective responsibilities to ensure that the drivers are alert and otherwise fit to operate CMVs safely. Drivers and motor carriers would be responsible for ensuring that drivers who have more than one job work no more than 12 or 13 hours depending upon the type of operation they work in. These responsibilities would incorporate the various interpretations provided over the years concerning drivers working for other motor carriers and entities. The FMCSA does not propose to extend this policy to volunteer work or National Guard/Reserve duty, such as drill weekends, or to try to control other types of unpaid activities (*e.g.*, roofing a friend's home, painting the driver's own house), which, realistically, are beyond the agency's enforcement reach. The FMCSA, however, believes drivers and motor carriers must be aware that any type of physical or mental exertion can produce fatigue. Drivers and motor carriers should take into account these other types of fatigue-producing activities when planning their off-duty periods so that they ensure they protect highway safety to the maximum extent possible.

The FMCSA's goal is to ensure CMV drivers are well-rested, alert, and attentive while driving. CMV drivers who work during off-duty periods circumvent the purpose of the regulations, create risks to highway safety, and increase the chances of fatigue-related crashes.

Sections 394.105, 395.105 What Are the Penalties for Failing To Comply With This Part?

These sections describe the penalties for motor carriers and drivers who fail to comply with the requirements of these parts. This provision is placed in the beginning of the parts to advise drivers and motor carriers that failure to meet their responsibilities under the regulations carries severe consequences.

Sections 394.107, 395.107 What Definitions Apply to This Part?

These sections provide definitions that are unique to these parts. They will eventually be included in a part devoted to definitions when the agency completes the zerobase revision of the FMCSRs.

The FMCSA would define an automated time-record system. This would be the equivalent of what is now commonly known as the EOBR, but would allow various technologies that currently exist or may be developed, providing they meet the performance requirements of proposed part 394, subpart C. Allowing new and alternative technologies was the subject of an interpretation published in the **Federal Register** on April 6, 1998 (63 FR 16697), authorizing a pilot demonstration project for monitoring drivers' HOS using GPS technology. The definition would be similar to the definition of automatic on-board recording device currently in § 395.2. The last two sentences of the current definition would be moved to subpart C, since these are actually performance requirements for a system.

The FMCSA would add definitions for the new terms ''off-duty time,'' ''workday,'' and ''workweek,'' modify the definition of the term ''on-duty time,'' and keep the definition of ''driving time'' from the current rule in § 395.2. Consistent with the overall objectives of these parts, the FMCSA is incorporating references to the regulations of the WHD. The definition of ''off-duty time'' would be similar to the WHD's definitions in Application of Principles in 29 CFR 785.16, *Off-duty*, § 785.18 *Rest*, and § 785.19 *Meal*. Similarly, off-duty time would be required to last at least 30 minutes if it is to be counted toward the required accumulation, which is also consistent with WHD's definitions. Any time less than 30 minutes would be considered on-duty time because such short breaks are insufficient to meet the need for restorative rest. This is also similar to the way WHD treats shorter periods for minimum wage purposes.

The FMCSA definition of ''on-duty time'' would be revised to make it consistent with the term ''hours worked'' as explained in the WHD's regulation at 29 CFR 785.7 *Judicial construction*, referencing a series of U.S. Supreme Court cases: *Tennessee Coal, Iron, and Railroad Co.* v. *Muscoda Local No. 123*, 321 U.S. 590 (1944), *Armour & Co.* v. *Wantock, 323 U.S. 126* (1944), *Skidmore* v. *Swift, 323 U.S. 134* (1944), and *Anderson* v. *Mt. Clemens Pottery Co., 328 U.S. 680* (1946).

In consultations between the FMCSA and the WHD, the WHD believes for consistency of rule application, subject motor carrier employers must ensure that: (1) driver-employees must be completely relieved from duty; (2) the period must be long enough for the employee to use the time effectively for the driver's own purposes; and (3) the employee is told explicitly in advance that the driver may leave the job and that the driver will not have to commence work until a definite, specific hour has arrived. The WHD has had recent minimum wage enforcement cases involving motor carrier employers failing to count on-duty waiting time while drivers wait at shipper and receiver locations as hours worked. These definitions and the removal of the duplicative recordkeeping systems should end motor carriers failing to properly count on-duty waiting time of drivers.

The FMCSA would define the terms ''workday'' and ''workweek'' to be compatible with the WHD's definitions of these terms in 29 CFR 516.2(a)(7). The use of common terms and definitions would allow time records created by drivers and by motor carriers to be used to comply with the recordkeeping requirements of both the FMCSA and the WHD. Records currently created for FMCSA compliance purposes use definitions and interpretations created over the years by the ICC, FHWA, and the FMCSA; and they differ somewhat from those used by the WHD. The differences often create confusion for motor carriers and drivers—and for officials from both the FMCSA and the WHD—when it comes to assessing a motor carrier's compliance with FMCSA and WHD regulations.

Two key examples of potential problem areas are the recording of duty time to determine a motor carrier's compliance with the minimum-wage provisions of the Fair Labor Standards Act, and a motor carrier's use of a WHD time card to verify drivers' entries on their records of duty status entries. Comparing separate records using the two different sets of definitions may make it appear the driver has a false RODS under current part 395. In fact, both sets of records may be accurate and correct for their respective purposes. The FMCSA's regulations and regulatory guidance have allowed drivers to record some periods of time during the workday as off-duty time. However, the WHD requires the motor carrier to record the same period as time ''worked'' and to compensate the driver for that time.

In summary, the definitions the FMCSA proposes to revise in this section would make the FMCSA's ''on-duty time'' the equivalent of WHD-required ''paid work.'' The FMCSA would also revise its conditions necessary for determining ''off-duty'' time so they would correspond to the WHD's definition. This change should fix the problems described above, reduce the need for regulatory interpretation by tying into an established body of WHD interpretations, and provide clear guidelines for motor carriers and the FMCSA to make accurate determinations of how many hours off-duty the driver had prior to beginning work.

Sections 394.109, 395.109 What Types of Operations Are Exempt From the Requirements of This Part?

These sections would only cover the agricultural operations exempted by Congress from hour limits under the NHS Act. The NHS Act exempted drivers transporting agricultural commodities and farm suppliers from the maximum driving time, maximum duty time, and minimum off-duty time limit provisions of the FMCSRs. This provision covers only transportation of agricultural commodities or farm supplies for agricultural purposes, and is limited to an area within a 100 air-mile radius from the source of the commodities or the distribution point for the farm supplies. It must take place only during the planting and harvesting seasons in each State, as determined by that State.

The FMCSA interprets the NHS Act provision to exempt this class of carriers and drivers from HOS restrictions in the present part 395, but does not exempt them from the general responsibilities that ensure drivers obtain sufficient restorative sleep and that prohibit ill and drowsy, tired, or inattentive drivers from continued driving. Consequently, a note is provided in subsection (b) to that effect.

Paragraph (c) of this section would provide a new requirement for those drivers who have been working under the exemption regarding when they may

begin or resume services not subject to the exemption. The FMCSA has patterned this requirement after the declared emergency exemption and would allow drivers needing immediate rest to obtain such rest. The motor carrier would be required to provide at least ten consecutive, uninterrupted hours off duty, including the core sleep period from midnight to 6:00 a.m., before requiring the driver to perform non-exempt driving duties. This would allow the driver to obtain at least one night's sleep to be fit and safe for the next workday subject to this proposal. If the driver has been in exempt transportation service for more than five consecutive days, the proposed rule would require the driver be provided a continuous off-duty period that includes two consecutive midnight to 6:00 a.m. periods. The driver could return to service at 7:00 a.m. like all other drivers required to take a ''weekend'' off duty as required by proposed § 394.163. The FMCSA believes the regulations have to allow the driver a period of sleep time necessary to restore any sleep debt the driver may have accumulated while providing the exempt transportation services.

Paragraph (d) proposes definitions limited to this section only, i.e., the terms ''agricultural commodities,'' ''farm supplies,'' and ''source of the commodities.'' The NHS Act did not provide definitions for these terms, and the terms have sometimes been confusing to the public and enforcement officials. These narrowly defined terms should limit the exemption to those drivers and motor carriers that are farmers having field crops and those suppliers that provide farm supplies directly to farmers.

Paragraph (e) provides clarification that this exemption does not preempt other Federal and State laws or regulations. The exemption does not exempt a motor carrier from the FLSA. States are also free to restrict agricultural operations to applicable HOS regulations.

Implementation Schedule

Sections 394.111, 395.111 When Must I Begin To Comply With the Rules in This Part?

These sections would require the new hourly limits to begin immediately on the effective date of the final rule, 180 days after publication in the **Federal Register**. All motor carrier operations engaged in interstate commerce must begin complying with the new hours of rest and service requirements at that time of the effective date of the final rule; however, the agency is proposing that the requirements for use of EOBRs by Type 1 and 2 operations be phased in over a period of 4 years after the effective date of the final rule. The largest motor carriers, i.e., those with more than 50 power units, would have to be in full compliance within two years after the effective date; the medium range, those with 20 to 50 power units, would have to reach full compliance within 3 years; and the small carriers, i.e., those with fewer than 20 power units, could take 4 years to come into full compliance. The proposal defines full compliance as (1) having fully operational automated time record systems meeting the proposed requirements installed, (2) the drivers properly trained in their use, and (3) a systematic monitoring program in place and operational.

Until any Type 1 and 2 carrier complies with the EOBR requirements, that carrier must comply with the recordkeeping rules that were in effect immediately before the effective date of the final rule. That means that motor carriers in Type 1 and Type 2 operations that do not have compliant EOBRs must comply with the presently existing requirements for daily records of duty status in § 395.8 or § 395.15 automatic on-board recording devices.

These transitional rules, i.e., the existing § 395.8, will be set forth in the codified CFR as published by the Government Printing Office in smaller type after an explanatory note of the effective date of the new rules.

Types of Operations

Sections 394.121, 395.121 Are There Different Rules For Different Types of Operations?

These sections specify five different types of motor carrier operations. For each type of operation, the regulations would require specific off-duty periods during each workday and each workweek. The FMCSA believes each type of operation has characteristics that reflect a different level of daily management contact that corresponds to more or less control or supervision over the driver. The ability of management to assess the alertness and attentiveness of the driver is different in each type of operation. As will be seen in later sections, the proposed regulations would specify different off-duty, driving, and on-duty periods for each type of operation, depending on the fatigue-related crash history, amount of driving, and the relative opportunity for direct control or verifiability of the driver's adherence with rest period requirements.

In Type 1 operations motor carriers generally have less daily management control over drivers than in any other type of operation, although, because of unique systems, some individual motor carriers may exercise more control than others. These drivers spend most of their working time behind the wheel, operate at all hours of the day and night under a wide variety of conditions, and are usually most lacking in off-duty time for regular restorative sleep. Motor carrier management should monitor these drivers more closely as they have a higher crash risk, as discussed earlier in this NPRM in the ''Safety Problem'' and ''Benefits'' sections. Because of the remoteness of their working locations, however, these drivers generally do not have much daily direct contact with management. Based on the scientific and experiential evidence, the FMCSA believes EOBRs are the best way to improve monitoring and ensure that drivers follow the rules. While the new, prescribed work/rest hours should go a long way toward improving the drivers' ability to obtain needed sleep, that objective is only attainable if the rules are followed.

These motor carriers would have to ensure these devices and their associated equipment, software, and, if the motor carrier chooses, satellite monitoring systems have been properly installed. In addition, motor carriers would need to ensure the devices, systems, and software are maintained according to the manufacturer's directions, as well as train drivers and staff to use them. The costs are somewhat mitigated by the growing inclination toward investment in electronic and other automated systems that can be adapted to perform the functions of the EOBRs. The agency believes the costs would be justified by improved regulatory compliance and reduced crashes.

Type 1 carriers and drivers would be able to use a flexible schedule allowing an extra day of work in the first of two workweeks, take a short ''weekend,'' and then conclude a shorter second workweek with an extended ''weekend'' at home or other location. This 2-week flexible alternative to the standard workweek could be used to alleviate the stress and other pressures caused by compliance with the present 60- and 70-hour limitations. Drivers often complain that they ''run out of hours'' at remote locations and are faced with the choice of taking a long stressful off-duty period, or breaking the rules. Many admit they often choose to break the rules in those circumstances. Rather than being forced to take long breaks at remote, inconvenient locations, these drivers

could begin a return trip sooner or take a longer break at locations more conducive to regular, restorative sleep.

Type 2 operations are similar to those of Type 1 except that the drivers are away from their home base three or fewer days at a time and thus are able to sleep more often in a familiar home or other desirable environment.

As described in the rule development sections, drivers in Type 3 operations also spend most of their on-duty time driving, but their driving patterns are different from the Type 1 and Type 2 drivers. They are generally local or home-based, and their driving periods are split into two parts, most often separated by several hours.

Drivers in Type 4 operations work in the geographic vicinity of their normal work reporting location. They are generally on regular schedules, and they are not on duty more than 12 consecutive hours from the time they report in until the time they are released. Driving is a significant part of their work (more than one-third of their on-duty hours). Establishing this category eliminates the need for the several existing exemptions, including the *100 air-mile radius* exception currently found in 49 CFR 395.1(e).

Drivers in Type 5 operations also work in the vicinity of their home or normal work reporting location. The difference between a Type 4 and 5 operation is that in the latter category, driving is usually incidental to the primary occupation of the drivers. Type 5 drivers spend less than one-third of their on-duty hours behind the steering wheel. Type 5 operations might include utility workers such as electrical, water, natural gas, or communications lines specialists; construction equipment operators; environmental mitigation specialists; oilfield service workers; ground water well drilling workers; operators of mobile medical equipment providing community patient services; and driver-salespeople. Establishing this category eliminates the need for an array of exemptions for these specialized operations.

Sections 394.123, 395.123 How do I determine Which Requirements Apply to my Operations?

These sections would make it clear to the motor carriers and drivers that they must comply with the rules applicable to the type of operation that best describes their own. The actual facts and circumstances at the time compliance is required would determine the appropriate category, but carriers and drivers would not be liable to penalty if they are complying in good faith with requirements applicable to a type of operation they reasonably believed included their own.

Sections 394.125, 395.125 May I Assign my Drivers to More Than One Type Operation Within a Workweek?

These sections provide flexibility for drivers and motor carriers to switch between types of operations after the drivers have accrued an appropriate amount of off-duty time. For example, if drivers who have been working in a Type 5 operation for a workweek have to be switched to a Type 4 operation, they could do that after taking an off-duty period that includes two consecutive midnight to 6:00 a.m. periods.

Fatigued Drivers

Sections 394.131, 395.131 What must I do if my driver becomes impaired by fatigue or illness?

These sections would require drivers to cease driving when their ability is impaired due to illness or fatigue. These sections parallel the prohibition contained in the current 49 CFR 392.3, and we have added the prohibition that motor carriers must not retaliate, penalize, discipline, dismiss, or otherwise discriminate against drivers who exercise their obligations to stop driving. Drivers would report violations of this section to the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA), as required by 49 U.S.C. 31105 and OSHA's implementing regulations at 29 CFR part 1978 *Rules for Implementing Section 405 of the Surface Transportation Assistance Act of 1982 (STAA).*

The OSHA has procedures implementing the statutory provisions for the handling of complaints of discrimination made by drivers, or persons acting on their behalf. The rules, together with those set forth at 29 CFR part 18, specify the procedures for submission of complaints under 49 U.S.C. 31105, investigations, issuance of findings and preliminary orders, objections, litigation before administrative law judges, post-hearing administrative review, withdrawals and settlements, judicial review and enforcement, and deferral to other forums.

Generally, after considering all the relevant information collected during an investigation, OSHA will issue, within 60 days of the filing of the complaint, written findings as to whether there is reasonable cause to believe that the motor carrier or others have discriminated against the driver in violation of 49 U.S.C. 31105. If OSHA concludes that there is reasonable cause to believe that a violation has occurred, it will accompany its findings with a preliminary order providing for relief and will include, where appropriate, a requirement that the motor carrier abate the violation; reinstate the driver to his or her former position, together with the compensation (including back pay), terms, conditions and privileges of the driver's employment; and payment of compensatory damages. At the driver's request the order may also assess the motor carrier for the driver's costs and expenses (including attorney's fees) reasonably incurred in pursuing the complaint.

Daily Time

Sections 394.141, 395.141 How Many Consecutive Hours Must my Drivers Remain Off-Duty Before Beginning Each Workday?

These sections specify the minimum number of consecutive hours drivers in each type of operation must have off to obtain restorative sleep. Only Type 1 team drivers would be allowed to split their off-duty time into two sleeper berth periods. This would allow one member of the team to continue to drive while the other sleeps in the berth. Solo drivers would be prohibited from splitting their sleep period. The Expert Panel recommended that until there is more definitive information available on the relative quality of sleeper berth sleep, drivers using sleeper berths should be allowed greater opportunity to obtain additional rest. The panel found that:

> Rest or sleep acquired in a sleeper berth is not equivalent to rest or sleep in a bed (Mackie and Miller, 1978; Williamson *et al.*, 1992; Neale et al., 1998). Hertz (1988) reported that drivers using sleeper berths had a higher crash risk than drivers obtaining sleep in a bed. Mackie and Miller (1978) found that drivers using sleeper berths showed earlier signs of performance decrement and earlier signs of fatigue, compared to drivers sleeping in a bed. The circumstances surrounding sleeper berth use, *e.g.*, typically, split sleep periods, vehicle motion, highway and/or truck stop noise, and other conditions associated with sleeper berth use, are disruptive of restorative sleep. It is assumed, but not documented, that sleep acquired in a sleeper berth while the vehicle is in motion (i.e., while another driver is driving) is not so restorative as sleeper berth sleep in a stationary vehicle. However, both have been reported to be less restful. Single drivers who use a sleeper berth report that they are not able to sleep well because of concerns for their personal safety (Neale et al., 1998)
>
> Team drivers, like other drivers, must be limited to 12 hours on duty during any 24-hour period, with 12 hours off duty. The off-duty time should include an uninterrupted time period of at least 7 hours to allow for

6 hours of continuous sleep, with another period of at least 2 hours for sleep. There should also be another 3 hours for other activities.

Although the Panel was not able to quantify the difference between sleeper berth sleep and sleep acquired in the home, there must be recognition of the difference in quality of sleep in a sleeper berth compared to sleep acquired under more normal circumstances. The practical and economic limitations on sleeper berth use restrictions are acknowledged by the Panel.

The FMCSA is proposing to increase the current minimum sleeper-berth period (2 hours) to five hours to provide the drivers a better opportunity to obtain restorative sleep. To obtain the minimum 10 hours off duty for drivers in type 1 operations under this proposal, team drivers must split their time into two periods of at least 5 hours each. Of course, these drivers could also each sleep 10 consecutive hours in the sleeper berth while the CMV is moving, though the driving member would be limited by the additional 2-hour rest, nap, and meal breaks and the on-duty time limitations.

Although the NTSB and others recommend the removal of the sleeper berth exception, the FMCSA believes such a decision would be premature. The marine industry, for example, has an international treaty requirement for 10 hours of rest daily, which may be broken into two periods where one must be at least 6 consecutive hours. This is similar to the sleeper berth practice that has evolved in the trucking industry. The FMCSA does not believe the evidence in support of those recommendations is sufficient to warrant that step. The FMCSA has a research study underway on sleeper-berth use and the quality and quantity of restorative sleep drivers obtain in these berths while the CMV is traveling on the road at highway speeds. The agency's position will be reevaluated when the results of the study are available.

Sections 394.143, 395.143 What Are the Consequences of Interrupting a Driver's Minimum Consecutive Off-Duty Hours?

These sections would provide that motor carriers that interrupt a driver's off-duty period would have to ''restart the clock'' with respect to that driver's consecutive off-duty time. This provision would also apply to team drivers using the sleeper berth exception so that motor carriers cannot disturb the sleeping driver.

Drivers frequently complain that motor carriers call them at any hour of the day and night, frequently interrupting their sleep. Bonnet (1994) notes that the continuity of sleep is integral to its quality: ''Evidence has begun to demonstrate that sleep is a time-based cumulative process, and that frequent awakenings can slow or stop that process . . .'' Bonnet's research shows that drivers who are awakened during their principal sleep period are more likely to have reduced alertness.

The WHD regulations at 29 CFR § 785.22 *Duty of 24 hours or more* also address interruptions of sleep in paragraph (b) of that section, stating that if the sleeping period is interrupted by a call to duty, the interruption must be counted as hours worked. If the period is interrupted to such an extent that the employee cannot get a reasonable night's sleep, the entire period must be counted. For enforcement purposes, the WHD divisions have adopted the rule that if the employee cannot get at least 5 hours' sleep during the scheduled period the entire time is working time. (See Eustice v. Federal Cartridge Corp., 66 F. Supp. 55 (D. Minn. 1946).) These sections therefore make it very costly for motor carriers to interrupt drivers' off-duty hours.

Sections 394.145, 395.145 Must I Allow My Drivers Additional Off-Duty Time After They Begin Work?

These sections would require motor carriers to provide time for Types 1, 2, and 5 drivers to take at least two off-duty hours each workday to rest and nap, at the driver's discretion. The 2-hour period could also be used to meet personal necessities or to perform personal errands.

The driver may use the additional off-duty time during the driving shift or at the end of the workday. The FMCSA believes most drivers would use the time throughout the day to stop at truck stops and other rest areas for meals, naps and breaks, and to contact their families. These sections would also allow drivers to take rest breaks, including naps, while at the driving controls of the motor vehicle as long as it is properly parked and secured.

Sections 394.147, 395.147 How Long May Drivers Be on Duty?

These sections set forth maximum amounts of on-duty time for drivers in each of the five types of operations. The general on-duty limit is 12 hours per day, or 13 in the case of Type 5 drivers. Drivers in Type 3 and 4 operations would usually drive considerably less than 12 hours in any duty period, because of the amount of non-driving work typically required in these types of operations. Drivers in Type 3 operations also would be off duty at least 3 hours in between the two on-duty periods.

Sections 394.149, 395.149 How Long May Drivers Drive Motor Vehicles?

These sections set forth maximum amounts of driving time for drivers in each of the five types of operations. The general driving limit is the same as the on-duty time, i.e., 12 hours per workday, or, in the case of Type 5 drivers, 5 hours. The FMCSA defined a Type 5 driver to be one who drives CMVs only incidental to primary work responsibilities, e.g., repairman, salesman, carpenter, plumber, etc. In addition, the rule would limit the drivers' exposure to increased highway safety risks that could result from conceivably driving a CMV in the 14th to 15th consecutive hour after beginning work. Since the research indicates increased safety risks after 12 hours on duty in almost every occupation, the FMCSA believes that allowing drivers who primarily do work other than driving should be limited in their driving tasks to protect the public.

Weekly Time

Sections 394.161, 395.161 How Many Consecutive Off-Duty Hours Per Workweek Must I Give My Drivers?

These sections describe the ''weekend'' requirement. These minimum off-duty periods were designed to afford the drivers the opportunity for restorative sleep based on the amount of driving and other work they perform. The ''weekend'' may be longer depending on when the motor carrier releases the driver from duty on the last workday of the workweek. The rules would allow drivers to take as few as 32 consecutive hours off duty on a ''weekend,'' provided the time period includes two consecutive midnight to 6:00 a.m. periods to obtain restorative sleep and the driver is released from work at exactly 11:00 p.m. on the last workday of the workweek.

As the ICC found in 1937,

[A]llowance must be made for eating, dressing, getting to and from work, and the enjoyment of the ordinary recreations'' (3 M.C.C. 665, at 673). Logically, a driver cannot get full advantage of the minimum two consecutive midnight to 6:00 a.m. sleep periods if he/she is released at or just before midnight, and required to return to work at or just after 6:00 a.m. The FMCSA has chosen 11:00 p.m. as the latest time drivers could get off work and still get to sleep for the first full midnight to 6:00 a.m. period on the first night of a ''weekend.'' Likewise, the agency has chosen 7:00 a.m. as the earliest time drivers could start a new workweek and still sleep the last full midnight to 6:00 a.m. period on the last night of a ''weekend.''

Generally, drivers would be off duty for more than the minimum 32 consecutive hours, but fewer than the 64

consecutive hours in a ''normal weekend'' (4:00 p.m. Friday to 8:00 a.m. Monday). A driver completing a workweek at 11:00 p.m., for example, could take only the minimum 32 hours before beginning the next workweek. A driver completing a workweek at 11:10 p.m., though, would have to be off duty for at least 55 hours, 50 minutes before beginning the next workweek since the driver was released after 11:00 p.m. and would not have the full ''allowance . . . for eating, dressing, getting to and from work, and the enjoyment of the ordinary recreations.''

The FMCSA is not suggesting that motor carriers provide only 32 hours that include the two consecutive midnight to 6:00 a.m. periods, or up to 55 hours 59 minutes off duty at the end of a workweek. The off-duty period that includes two consecutive midnight to 6:00 a.m. periods is only a minimum. The ICC made the mistake of assuming motor carriers would not ''believe that the maximums herein prescribed will become either the minimum or the standard of hours' (3 M.C.C. 665, at 686). The FMCSA expects motor carriers to provide, and drivers to take, as much time as necessary to recover from any sleep debts and other conditions resulting from cumulative weekly fatigue.

The rules would allow Type 1 drivers the option to take a short ''weekend'' at the end of one extended on-duty workweek and a long ''weekend'' at the end of the second reduced on-duty workweek. For example, a driver could take the minimum 32 consecutive hours off duty at the end of the first workweek, if released from duty at exactly 11:00 p.m. The driver could work during this workweek for up to 72 hours. The second consecutive workweek, though, would average the off-duty and on-duty time periods over the two workweeks. This would require the driver to only work for up to 48 hours during the second workweek and take at least 80 consecutive hours off duty at the end of the second workweek, thus producing an average of 60 or fewer hours on duty per workweek and at least 56 hours off-duty hours per ''weekend.''

The FMCSA believes that the 1962 oilfield exception and the 1995 NHS Act exemptions for utility and construction motor carrier operations, allowing a restart of the cumulative duty period after 24 hours off duty, are inconsistent with the modern understanding of fatigue and should be modified. Therefore, the proposed rule would require those drivers to obtain at least two consecutive midnight to 6:00 a.m. periods, which could be as few as 32 consecutive hours off duty. This would allow those drivers to get the restorative sleep the research suggests they need to ensure their own safety and that of others who also use the highways. It would also accommodate the needs of those industries presently using the 24-hour restart provision. In practice, the 24-hour period translates into a full day off, meaning two sleep periods. Those exemptions would henceforth be subject to the weekend requirements of these sections.

The FMCSA is proposing to provide a specific exception for the groundwater well drilling industry. Paragraph (c) of § 345 of the NHS Act (109 Stat. 613) provided a specific prohibition that prohibits this NPRM and any other NPRM from determining whether granting the groundwater well drilling exception is not in the public interest and would have a significant adverse impact on the safety of CMVs. The FMCSA cannot propose to modify the 24-hour restart exception for this industry segment, even though it is inconsistent with the modern understanding of fatigue.

Sections 394.163, 395.163 When May My Drivers Start Working After Being Off Duty at the End of a Workweek?

This is a table showing the time of day a driver may begin a new workweek after taking the required 32 or more consecutive hours off duty. The starting times for the new workweek are calculated based upon the particular time of day the driver was released from duty at the end of the previous workweek. As was discussed in the section above headed *§§ 394.161, 395.161 How many consecutive off-duty hours per workweek must I give my drivers?*, the FMCSA has determined that the driver must be provided an off-duty period long enough to obtain at least two consecutive core sleep periods including the hours between midnight and 6:00 a.m. for the purpose of obtaining restorative sleep in each of the two nights needed and an additional ''allowance . . . for eating, dressing, getting to and from work, and the enjoyment of the ordinary recreations'' at the beginning and end of each such period.

Sections 394.165, 395.165 How Many Hours per Week May My Drivers Work?

These sections would limit on-duty time up to 60 hours in a workweek for Types 1, 2, 3, and 4 drivers and 78 hours for Type 5 drivers. This would basically allow each type of driver to work their maximum daily limit and accumulate their maximum total within a 5- or 6-consecutive-day period, depending on the exact time the driver begins duty and is released from duty each workweek.

Motor carriers and drivers involved in nighttime operations would only be able to fit a 5-full-day schedule into the limits proposed in this NPRM. These daily and weekly limitations together should compensate the drivers for any accumulated sleep debt, especially for drivers who operate CMVs consistently between midnight and 6:00 a.m. For example, generally, Type 2 less-than-truckload drivers are the greatest proportion of all drivers who operate CMVs consistently between midnight and 6:00 a.m. See the discussion above under VII. I. 5. Qualitative Impacts, Weekly Scheduling. Table 20 shows a typical Type 2 less-than-truckload driver's off-duty and on-duty daily cycles and the off-duty and on-duty hours the driver would accumulate throughout a typical workweek. The table shows that the requirement for a minimum ''weekend'' off-duty period consisting of two midnight to 6:00 a.m. periods, the daily off-duty minimum requirement, the daily on-duty maximum limit, and a regular workweek start time at 9:00 p.m. would only allow the driver to work, including driving, for up to 60 hours in a workweek. Note the driver accumulates the time between Monday night and Saturday morning.

TABLE 20—TYPICAL TYPE 2 DRIVER'S WORKWEEK

[Allowed to be on duty up to 12 hours and required to be off duty at least 12 hours daily. Motor carrier assigns driver to begin work at 9:00 p.m. on Monday]

Description	Time of day when occurs	Cumulative on-duty time	Cumulative off-duty time
Workweek begins for a typical Type 2 driver	9:00 p.m. Monday	0	0
12 hours on duty and took 2 additional hours off duty for rest and meal breaks.	9:00 p.m. Monday to 11:00 a.m. Tuesday.	12	2
Minimum 10 consecutive hours off duty	11:00 a.m. Tuesday to 9:00 p.m. Tuesday.	12	12
12 hours on duty and took 2 additional hours off duty	9:00 p.m. Tuesday to 11:00 a.m. Wednesday.	24	14
Minimum 10 consecutive hours off duty	11:00 a.m. Wednesday to 9:00 p.m. Wednesday.	24	24
12 hours on duty and took 2 additional hours off duty	9:00 p.m. Wednesday to 11:00 a.m. Thursday.	36	28
Minimum 10 consecutive hours off duty	11:00 a.m. Thursday to 9:00 p.m. Thursday.	36	36
12 hours on duty and took 2 additional hours off duty	9:00 p.m. Thursday to 11:00 a.m. Friday.	48	38
Minimum 10 consecutive hours off duty	11:00 a.m. Friday to 9:00 p.m. Friday.	48	48
12 hours on duty and took 2 additional hours off duty and begins ''weekend''.	9:00 p.m. Friday to 11:00 a.m. Saturday.	60	50
Off-duty time has now consisted of two consecutive midnight to 6:00 a.m. periods.	11:00 a.m. Saturday to 7:00 a.m. Monday.	60	94
End of typical workweek	9:00 p.m. Monday	60	108

Type 5 drivers, of course, have limited exposure on the highways because of the nature of their work. To emphasize the uniqueness of this category, the proposal limits driving time to a maximum of 5 hours per day. These drivers have one of the lowest estimated fatigue-related crash rates the agency found for the last five-year period for which data were available. Type 5 drivers are subject to a ''weekend'' requirement that includes two consecutive midnight to 6:00 a.m. periods that the research indicates are necessary to overcome any sleep debt accumulated during the previous 5 to 6 consecutive days of work. Thus, these drivers would be required to take the minimum 32 to 56 consecutive hours off duty like all other drivers. The FMCSA believes these factors compensate for allowing Type 5 drivers to work one extra hour per day and one extra day per week up to 78 hours in a workweek.

Table 21, similar to table 20, shows a typical driver-salesperson's, utility service CMV driver's, or other Type 5 driver's off-duty and on-duty daily cycles and the off-duty and on-duty hours these drivers would accumulate throughout a typical workweek. Table 21, like table 20, shows that the requirement for a minimum ''weekend'' off-duty period consisting of two midnight to 6:00 a.m. periods, the daily off-duty minimum requirement, the daily on-duty maximum limit, and a regular workweek start time at 7:00 a.m. would only allow the driver to work, including driving, for the Type 5 driver's applicable 78 hours in a workweek. Note the driver accumulates the time between Monday morning and Saturday evening.

TABLE 21—TYPICAL TYPE 5 DRIVER'S WORKWEEK

[Allowed to be on duty up to 13 hours and required to be off duty at least 11 hours daily. Motor carrier assigns driver to begin work at 7:00 a.m. on Monday.]

Description	Time of day when occurs	Cumulative on-duty time	Cumulative off-duty time
Workweek begins for a typical Type 5 driver	7:00 a.m. Monday	0	0
13 hours on duty and took 2 additional hours off duty for rest and meal breaks.	7:00 a.m. Monday to 10:00 p.m. Monday.	13	2
Minimum 9 consecutive hours off duty	10:00 p.m. Monday to 7:00 a.m. Tuesday.	13	11
13 hours on duty and took 2 additional hours off duty	7:00 a.m. Tuesday to 10:00 p.m. Tuesday.	26	13
Minimum 9 consecutive hours off duty	10:00 p.m. Tuesday to 7:00 a.m. Wednesday.	26	22
13 hours on duty and took 2 additional hours off duty	7:00 a.m. Wednesday to 10:00 p.m. Wednesday.	39	24
Minimum 9 consecutive hours off duty	10:00 p.m. Wednesday to 7:00 a.m. Thursday.	39	33
13 hours on duty and took 2 additional hours off duty	7:00 a.m. Thursday to 10:00 p.m. Thursday.	52	35
Minimum 9 consecutive hours off duty	10:00 p.m. Thursday to 7:00 a.m. Friday.	52	44
13 hours on duty and took 2 additional hours off duty	7:00 a.m. Friday to 10:00 p.m. Friday.	65	46

TABLE 21—TYPICAL TYPE 5 DRIVER'S WORKWEEK—Continued

[Allowed to be on duty up to 13 hours and required to be off duty at least 11 hours daily. Motor carrier assigns driver to begin work at 7:00 a.m. on Monday.]

Description	Time of day when occurs	Cumulative on-duty time	Cumulative off-duty time
Minimum 9 consecutive hours off duty	10:00 p.m. Friday to 7:00 a.m. Saturday.	65	55
13 hours on duty and took 2 additional hours off duty and begins ''weekend''.	7:00 a.m. Saturday to 10:00 p.m. Saturday.	78	57
Off-duty time has now consisted of two consecutive midnight to 6:00 a.m. periods and end of typical workweek.	10:00 p.m. Saturday to 7:00 a.m. Monday.	78	90

Summary of Hours Limits

Sections 394.167, 395.167 Can These Requirements Be Summarized in a Chart?

The preceding sections would be summarized in a chart for easier understanding and to make clear the differences between the limits for drivers in each type of operation.

A week consists of 168 consecutive hours. If a Type 1 driver starts at 7:00 a.m. Monday and works 12 hours over a 14-consecutive-hour period for each of five work days, the driver would get off duty at 9:00 p.m. Friday and have to have a minimum of 34 consecutive hours off duty for the ''weekend.'' The rules would allow flexible start times during the workweek, but §§ 394.163 and 395.163 would require the driver to be off duty by 11:00 p.m. Saturday in order to have a consistent start time for the following Monday morning. Otherwise, the driver may not begin work for the following workweek until 7:00 a.m. Tuesday.

Loading and Unloading Practices

Sections 394.169, 395.169 What Are the Loading and Unloading Responsibilities of Drivers?

These sections would require the motor carrier to advise its drivers about who is responsible for loading and unloading services. The services of loading and unloading cargo by laborers are known in the motor carrier industry as ''lumping.'' The Motor Carrier Act of 1980, Public Law 96–296, July 1, 1980, which addressed the issue of lumping, prohibits extortion and coercion to load and unload trucks (49 U.S.C. 14103). Also see H. Rpt. 96–1069, 96th Cong., 2nd Sess., June 3, 1980, pages 30 and 31, about the intent of Congress with respect to loading and unloading trucks.

The proposed provisions are intended to answer the frequent complaints the FHWA had received, and the FMCSA now receives, from drivers of for-hire motor carriers about lumping and other pressures on drivers to perform unexpected and unscheduled loading and unloading operations. Lessors' drivers (owner-operators, independent contractors, employees, and others) often are not informed about who is responsible for loading and unloading services. It is often the lessor's drivers who are responsible for loading and unloading cargo as a part of the lease contract. The lessee (motor carrier) or lessor often fails to inform the driver of such responsibilities or the driver was informed at one time but fails to remember the information.

The FMCSA requires certain for-hire motor carriers to place specific items in every written lease. A lease is defined in 49 CFR 376.2(e) as a ''contract or arrangement in which the owner grants the use of equipment, with or without driver, for a specified period to an authorized carrier for use in the regulated transportation of property, in exchange for compensation.'' Section 376.12(e) requires motor carriers executing written leases to ''clearly specify who is responsible for loading and unloading the property onto and from the motor vehicle, and the compensation, if any, to be paid for the service.''

The FMCSA believes that motor carriers must do a better job of communicating to all their drivers their policies regarding loading and unloading services; providing for loading and unloading in their contracts with shippers, receivers, or brokers; and enforcing those provisions when the loading and unloading occurs.

Many drivers often confuse lumping with specific requirements to sort or segregate deliveries in receiver-demanded configurations or patterns, including re-palletizing, and restrictions on using loading docks, pallet jacks, fork lifts, or other package handling equipment. These services are not generally considered lumping. These services do, however, lead to unanticipated delays and extend the driver's workday. Motor carriers should clarify these issues for all drivers before trips are scheduled so that sufficient time and energy may be reserved to avoid unforeseen fatigue-causing delays or exertions.

This section specifies that a driver's time performing loading and unloading services is on-duty time for purposes of this proposed rule.

Since a disclosure to a third party is considered a collection of information under 5 CFR 1320.3(c), the FMCSA is requesting the OMB to assign this information collection requirement the number 2126–0001.

Subpart B—Records and Reports

Time Records To Be Prepared and Kept By Motor Carriers/Drivers

Sections 394.201, 395.201 What Records Must I Create Showing That My Drivers Comply With the Off-Duty and On-Duty Requirements?

Motor carriers must require drivers in Type 1 or 2 operations to use, operate, and accurately record time in EOBR automated time record systems; and the drivers must carry those records on CMVs. This is not a requirement for drivers in Types 3, 4, or 5 operations, though EOBRs would be allowed for them. The rationale for not requiring EOBRs for Types 3, 4, and 5 drivers follows the rationale for the current 49 CFR 395.1(e), except that the requirement that the driver operate within a 100 air-mile radius of the normal work reporting location and be released within 12 consecutive hours, is modified to include only the 12-hour-release provision.

The current § 395.1(e) has its roots dating back to 1940. On May 29, 1940, the American Transit Association filed a petition ''so as to relieve drivers engaged in certain types of operations from the requirement to prepare a daily'' record of duty status. In 24 MCC 413, at 414, July 30, 1940, the ICC stated it:

> appreciate[s] that it is difficult and burdensome for a driver of such a vehicle to note accurately the many stops made and the times of such stops. It frequently happens that in the course of the day such a motor vehicle will cross and recross a State line many times, and it is likewise burdensome to require the driver to note the time of such crossing.

Our purpose in requiring the maintenance of a driver's log was twofold. We desired a standardized type of record to be maintained of the daily driving time and the weekly hours on duty which would be in the possession of each driver and which would enable a highway patrolman or other enforcement officer to determine immediately upon the stopping of a vehicle whether the driver had been on duty or was driving in violation of our regulations. We recognize that highway patrolmen and other enforcement officers seldom stop passenger busses operating wholly in urban and suburban areas such as those under discussion here. Our other purpose in requiring the maintenance of a driver's log was to provide a record from which our field representatives could readily determine whether or not the carriers are complying with the regulations. Because of the records other than the log maintained by the carriers engaged in this type of transportation and because, as stated, highway patrolmen and other enforcement officers rarely stop busses operating in urban and suburban territories, the maintenance of a driver's log is not necessary for the purposes which we had in mind.

The ICC alluded to ''the records other than the log maintained by the carriers.'' The FMCSA believes that one could deduce that the ICC was writing about the WHD time records. The WHD published on October 22, 1938 (3 FR 2533), and made effective on the date of publication, the requirements in 29 CFR part 516 for employers, including motor carriers, to record information for the FLSA's Section 11. The original exemption had a limit of 35 miles from the garage or terminal and the carrier had to maintain records showing the total number of hours of driving per day, the total number of hours on duty per day, and the total number of hours on duty per week of each driver.

In 54 MCC 337, at 356 (April 14, 1952), the ICC expanded the distance limit to a 50-mile radius and placed a further condition that no such driver taking the exception remains on duty for more than 12 hours in any period of 24 consecutive hours, though the agency did not explain the rationale for the added condition.

On October 13, 1977 (42 FR 55109), the FHWA proposed expanding the distance limit to a 100-mile radius because of the numerous changes affecting pickup-and-delivery operations that had occurred. Among the obvious changes cited were: The improvement and increase in the number of limited access highways; improved highway designs; the expansion of most metropolitan areas; and improved truck and bus designs. The proposal also stated that ''in order to insure the removal of fatigued drivers from highly congested city highways without restricting economy of operations, a limitation of a 12 consecutive hour work period is being proposed.''

The details of the recordkeeping requirements for Type 3, 4, and 5 drivers would be similar to the WHD regulation at 29 CFR 516.1(a). Motor carriers would be allowed to use any forms or records so long as the forms or records contain the necessary information.

As discussed previously, the FMCSA intends to use recordkeeping requirements as close as practical to those used by the WHD under 29 CFR 516.2(a)(1), (2), (5), and (7), and § 516.6(a)(1) to avoid duplication. These proposed regulations would be used by all motor carriers, including motor carriers employing owner-operator drivers and independent contractors, not just driver-employees. The FMCSA, like the WHD, would not prohibit motor carriers from requiring Type 3, 4, and 5 drivers to prepare these records for the motor carriers. Motor carriers would be responsible for ensuring the records are produced, that the records are accurate, and that they are made available for inspection by authorized FMCSA and State and local enforcement officials.

All motor carriers and drivers would be required to complete records only for workdays drivers perform any on-duty function. Motor carriers would be responsible for ensuring drivers who work for non-motor carrier employers do not exceed the on-duty limits and have at least the required off-duty hours prior to reporting for duty to drive CMVs. The records of full off-duty days for any type of driver would not have to be prepared by any driver or motor carrier, except at the discretion of the motor carrier. The FMCSA would assume, as the WHD does, that missing records denote days off duty, unless the agency has or discovers evidence showing a driver worked on a presumed day off.

The FMCSA is requesting the OMB to assign the general information collection requirements of this section for all driver types the number 1215–0017 (the number assigned to 29 CFR part 516 records). The FMCSA is requesting the OMB to assign the additional required EOBR information collection requirements of this section for Type 1 and 2 drivers the number 2126–0001 (the current OMB number for 49 CFR part 395 records).

Sections 394.203, 395.203 Must Time Records Be Prepared in a Particular Order or on Particular Forms?

All records would be prepared as daily records, although the simpler systems allowed by WHD's regulation at 29 CFR 516.1(a) under OMB number 1217–0017 could be used. Motor carriers and drivers in Type 1 and 2 operations would be required to use EOBRs to record time worked and off-duty. The WHD does not require that employers prepare records in any particular order, form, or manner. The FMCSA would adopt this practice for all motor carriers using Type 3, 4, and 5 drivers.

Section 395.205 What Are My Responsibilities If I Use an Automatic Time Record System to Record My Duty Status?

This section would explain the Type 1 and 2 driver's responsibilities for preparing the required automated time records. The responsibilities would include: (1) accurately recording all off-duty, driving, and on-duty time, including daily starting and ending times for work periods and the place where work changes (i.e., town and State, town and Province, or location codes for such places), intervening times and locations during each work period when business is transacted (e.g., picking up freight or passengers, fueling stops, deliveries, roadside inspections), intervening times and locations during each work period when the required 2 hours off duty for rest and meals are taken; (2) system operational knowledge, following instructions of carriers and system manufacturers; (3) submission of records and documents obtained during each trip; and (4) production of records upon the request of a special agent of the FMCSA or any authorized law enforcement official.

If the system fails, the drivers would have to reconstruct any defective records for the current day and the previous 7 days, using the format required by carriers; prepare written records of all subsequent time periods until the system is operational, using the format required by the carrier; and produce the current records upon the request of a special agent of the FMCSA or any authorized law enforcement official.

The FMCSA would request the OMB to assign the information collection requirements of this section the number 2126–0001 for requiring EOBRs since they are not required by the WHD. The FMCSA has submitted new time and cost estimates associated with this information collection based upon the new requirements that are not already covered by the WHD regulations.

Time Record Maintenance and Preservation

Section 394.207 What Time Records Must I Preserve? For How Long?

This section is directed to the motor carrier. Paragraphs (a), (b), and (c) of these sections are similar to 29 CFR 516.6(a)(1), (b), and (c2).

Motor carriers must maintain records for two years to comply with WHD requirements. The FMCSA's current regulations require motor carriers to maintain these records for six months, and the FMCSA is proposing to maintain the retention period at six months. The FHWA has generally focused its compliance reviews of motor carriers on the last 90 to 120 days before the time of the investigation. The FMCSA has continued this practice. In most cases, this period is long enough to show a continuing pattern of behavior. This factor is important because it precludes a motor carrier's defense that previously discovered violations have ceased.

The FMCSA, however, would reserve the right to inspect all records the WHD requires motor carriers to maintain for the two-year period. If a motor carrier uses drivers who are not subject to WHD regulations, the motor carrier may not be required to maintain the records past the FMCSA retention period.

Monitoring Driver Time

Section 394.209 Must I Monitor My Drivers' Compliance With This Part and Part 395?

This section is directed to the motor carrier. It would set forth the requirements for motor carriers to systematically monitor driver compliance with the HOS requirements. This would make explicit the FMCSA's current implied requirement, that motor carriers monitor their drivers' HOS to ensure the drivers are fit and safe to operate CMVs. The FMCSA would require motor carriers to verify the accuracy of the drivers' on-duty and off-duty times and also monitor the records for violations.

Motor carriers should monitor continuously to discover a driver's HOS and off-duty hours for the past workday and workweek. Motor carriers that do so are able to calculate the driver's available hours for that workday and subsequent workdays before dispatching that driver.

Inspection of Records

Sections 394.211, 395.211 Must I Present My Equipment and Records If an FMCSA Special Agent Asks To Inspect Them?

These sections describe the obligations of motor carriers and drivers to provide access to equipment and records for inspection. Upon request by an FMCSA representative who displays proper credentials as a special agent, motor carriers and drivers must permit the inspection of all lands, buildings, equipment, and records, and the copying of records. Many drivers have inquired about State authorities' right to inspect equipment and records. State and local officials should have inspection authority similar to that of the FMCSA.

Sections 394.213, 395.213 What Records May Be Used To Determine My Compliance With This Part?

These sections specify the FMCSA's intention to use any information, whether or not in a motor carrier's or driver's possession, to determine a motor carrier's and driver's regulatory compliance and verify the accuracy of their records.

Sections 394.215, 395.215 Where Must I Keep Records Available for Inspection?

These sections tell motor carriers and drivers where to maintain time records: for inspection purposes, on the CMV and at the motor carrier's principal place of business or central recordkeeping office. It also would require motor carriers to ensure that drivers in Type 1 and 2 operations comply with § 395.215(a) (2) and (3) by requiring the motor carrier to collect and maintain the records required by § 394.207(b). These sections require Type 1 and 2 motor carriers and drivers to maintain time records and supporting records in the CMV where they will be available for inspection. Drivers in Type 3, 4, and 5 operations would not have to comply with this requirement.

Subpart C—Automated Time Record System Performance Standards

Section 394.301 What Standards Must Automated Time Record System Devices Meet?

Motor carriers required to use automated time record systems would have to ensure the systems meet certain manufacturing design and performance standards. These standards are similar to the current § 395.15 standards, though many of the prescriptive requirements have been removed to allow for innovative future technologies.

The automated time record system would have to be integrally synchronized with specific operations of the commercial motor vehicle in which it is installed, including synchronized with engine use, road speed, the date, and time of day. The FMCSA would update the rule requiring ''miles driven'' by adding to it ''kilometers or miles driven each day'' as required by the Omnibus Trade and Competitiveness Act of 1988 (Pub. L. 100'418, sec. 5164) which amended the Metric Conversion Act of 1975. The FMCSA would require automated time record systems to be capable of maintenance and calibration, be tamperproof, and designed to prohibit drivers from editing data.

The systems must also warn the driver visually and/or audibly when the systems cease to function or when they identify sensor failures or data edited by anyone when reproduced in printed form. The systems must also permit duty status to be updated only when the commercial motor vehicle is at rest, except when registering the time a commercial motor vehicle crosses a State, Provincial, or national boundary. This would ensure that the driver's attention is on the road rather than electronic devices within the CMV.

The information must be shown on a chart, electronic display, or printout and the system must allow the FMCSA and authorized State or local officials to check the driver's daily duty at the roadside.

Support systems used in conjunction with automated time record systems at a driver's home terminal or the motor carrier's principal place of business must be capable of providing the FMCSA or authorized State or local officials with summaries printed on paper of an individual driver's duty records. The support systems must also provide information concerning system sensor failures and identification of edited data.

The system on the CMV must automatically record duty and additional standard information as follows ''Off duty,'' ''Driving,'' ''On duty not driving,'' or equivalent codes for these items; the date; total kilometers or miles driven per day; truck, tractor, coach, and trailer number(s); name of motor carrier; and home terminal address, including zip code; 24-hour period starting time (e.g., midnight, 9:00 a.m., noon, 3:00 p.m.); name of co-driver, if applicable; total hours on duty per day; and the name or location code of the city, town, or village, with State or Provincial abbreviation where the driver changes duty status (off duty, on duty, driving). A list of location codes

showing all possible location identifiers must be available in the CMV and at the motor carrier's principal place of business or central recordkeeping office.

An information packet containing the following two items must also be on the CMV: an instruction sheet describing in detail how data may be stored and retrieved from the system and a supply of blank driver's duty records sufficient to record the driver's duty status and other related information for the duration of the current trip.

Automated time record systems on CMVs with electronic displays must have the capability to display the driver's total hours of driving per day, the total hours on duty per day, total kilometers or miles driven each day, total hours on duty for the previous 7 consecutive days, including today, the sequential changes in off-duty, on-duty, and driving status and the times the changes occurred for each driver using the system. The system must also be capable of recording separately each driver's off-duty, on-duty, and driving status when there is a multiple-driver operation.

The current rule in § 395.15 provides an exception for systems installed and in operation since October 31, 1988, based on the original pilot demonstration project. The exception allows for no visual or audible warning and it allows for sensor failures and edited data not to be identified in printed form. The FMCSA is interested in specific comments from motor carriers that are using such excepted systems about the number being used and any costs that may be incurred in upgrading those systems to the proposed EOBR standard requiring the visual or audible warning and printed records of sensor failures and edited data. The FMCSA is proposing not to allow those systems upon the implementation dates of the final rule and would like to know the extent such systems continue to be used. The FMCSA may modify whether upgrades are needed based on the extent the excepted systems continue to be used and the costs to be incurred.

Section 394.303 How Must I Maintain and Regularly Calibrate Automated Time Record System Devices?

This section would require motor carriers to have a systematic maintenance process to ensure that each automated time record system remains accurate in accordance with the manufacturer's directions.

Section 394.305 Must I Train My Drivers Regarding the Proper Operation of the Devices I Use?

This section would require drivers be trained in the proper operation of the devices installed on CMVs. This does not require the motor carrier to do the actual training, but to ensure the driver understands how the devices work. The driver may have acquired the knowledge while working for a different motor carrier.

Subpart C—Roadside Out-of-Service Orders

Section 395.301 What Must I Do If I Am Declared Out of Service for Violations of This Part?

This section specifies what a driver must do if he or she has been placed out of service because the FMCSA or another authorized enforcement official has determined the driver has violated one or more of the regulations in this part.

Subpart D—Emergency Operations

Section 395.401 What Must I Do If I Need Immediate Rest After Providing Direct Assistance in an Emergency?

This section would expressly require drivers to take an additional minimum off-duty period after emergency service. This increased time would be at least ten hours. It would be correlated to the motor carrier requirements in § 390.23 discussed above.

Section 395.403 What Conditions Must I Meet Before I Operate in Interstate Commerce After Providing Direct Assistance in an Emergency?

This section would require drivers to obtain two consecutive nights of sleep including the core periods from midnight to 6:00 a.m. for the purpose of obtaining restorative sleep after an emergency.

Transportation of Migrant Workers

Section 398.6 Hours of Rest and Work; Minimum Rest and Maximum Work Time.

The applicability of part 398 is confined to a small population of private motor carriers of passengers and contract carriers that transport migrant agricultural workers in interstate commerce. This is due to the limited authority of the Migrant Farm Workers Regulation of Interstate Transportation Act of 1956, Pub. L 84–939, 70 Stat. 958, August 3, 1956 (MFW) (now codified at 49 U.S.C. 31502(c)). This law required the ICC to establish reasonable requirements with respect to the safety and comfort of migrant agricultural workers who are transported by certain private and for-hire motor carriers.

The term ''migrant worker'' as defined by the 1956 Act and part 398 means any individual proceeding to or returning from employment in agriculture as defined in section 3(f) of the FLSA, as amended (29 U.S.C. 203(f)), or section 3121(g) of the Internal Revenue Code of 1954 [2] (26 U.S.C. 3121(g)). The term ''carrier of migrant workers by motor vehicle'' as defined by the 1956 Act and part 398 means any person, including any ''contract carrier by motor vehicle,'' but not including any ''common carrier by motor vehicle,'' who or which transports in interstate or foreign commerce at any one time three or more migrant workers to or from their employment by any motor vehicle other than a passenger automobile or station wagon, except a migrant worker transporting himself/herself or his/her immediate family. ''Immediate family'' in this context comes directly from the Farm Labor Contractor Registration Act of 1963 (FLCRA),[3] Public Law 88–582, with regulations at 29 CFR 40.2(f) and 29 CFR 500.20(o) which define ''immediate family'' as: (1) A spouse; (2) children, stepchildren, and foster children; (3) parents, stepparents, and foster parents; and (4) brothers and sisters. Under this definition, a truck carrying an uncle, a brother-in-law, or another unrelated laborer would be subject to part 398.

Part 398 applies to motor carriers of migrant workers only in the case of transportation of any migrant worker for a total distance of more than seventy-five miles, and then only if such transportation is across the boundary line of any State, the District of Columbia, a Territory of the United States, or a foreign country.

Motor carriers of migrant workers currently comply with the 10-hour driving rule as it applied to all motor carriers prior to 1962. This rule has continued the limitation for 10 hours of driving within any 24-hour period. Such carriers and drivers have not been subject to the 15-hour rule, the weekly limitations, nor the recordkeeping requirements. Many of these motor carriers have been subject to the recordkeeping provisions of the FLSA and the MSAWPA. The WHD administers and enforces the FLSA and MSAWPA. The WHD has the same

[2] The Internal Revenue Code of 1954 was replaced by the Tax Reform Act of 1986.

[3] Replaced by Public Law 97–470 (1983) the Migrant and Seasonal Agricultural Worker Protection Act (MSAWPA) (29 U.S.C. 1801 *et seq.*).

§ 398.6 HOS regulations for migrant workers in 29 CFR part 500.

This section would direct motor carriers of migrant workers to comply with the proposed requirements of part 394. Drivers working for motor carriers of migrant workers would have to comply with the applicable requirements of part 395. Thus, these motor carriers of migrant workers would become subject to all of the general and specific responsibilities that ensure drivers obtain sufficient restorative sleep and that prohibit ill and drowsy, tired, or inattentive drivers from continued driving. It would be expanding their responsibilities to better ensure the migrant workers are protected from ill, drowsy, tired, or inattentive drivers that have not had sufficient restorative sleep.

Under the FMCSA's zerobase initiative discussed earlier in this document, migrant motor carrier regulations are also being rewritten and reformatted. That proposed rulemaking will be published later. It contains the balance of the FMCSA's consideration of migrant worker transportation rules covered under RIN 2125–AD81. See the section headed ''XII. Rulemaking Analysis and Notices'' for more information about RINs.

XII. Rulemaking Analysis and Notices

All comments received before the close of business on the comment closing date indicated above will be considered and will be available for examination using the docket number appearing at the top of this document, FHWA–97–2350, in the docket room at U.S. DOT Dockets, Room PL–401, 400 Seventh Street, SW., Washington, DC. Internet users may access the comments received by the U.S. DOT Dockets Room, by using the universal resource locator (URL): *http://dms.dot.gov* and the docket number FHWA–97–2350. The FMCSA will file in the docket comments received after the comment closing date and will consider late comments to the extent practicable. The FMCSA may, however, issue a final rule at any time after the close of the comment period. In addition to late comments, the FMCSA will also continue to file in the docket relevant information becoming available after the comment closing date, and interested persons should continue to examine the docket for new material.

Regulatory Identification Number

An RIN is assigned to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. The RIN contained in the heading of this document, RIN 2126–AA23, can be used to cross reference this action with the Unified Agenda. This action formerly was identified under RIN 2125–AD93 during FHWA development. This action contains a total consolidation of RINs 2125–AD52 and 2126–AA29 (formerly 2125–AE09) (HOS of Drivers; Supporting Document Recordkeeping and FMCSRs; HOS and CDL Exemptions; respectively) into this RIN 2126–AA23, a partial consolidation with respect to hours of service under RIN 2125–AD81 (Transportation of Migrant Workers) and RIN 2126–AA16 (formerly 2125–AD65) (Advanced Technology in Commercial Motor Vehicle Operations), a discussion of the comments received to RIN 2125–AD52, and a modified proposal based upon the comments received to RIN 2125–AD52.

Motor Carrier Safety Act

The MCSA was the first broad legislation dealing with truck safety since the Motor Carrier Act of 1935. It required the FHWA and requires the FMCSA to establish safety standards for CMVs which ensure, at a minimum, that:

(1) Commercial motor vehicles are maintained, equipped, loaded, and operated safely;

(2) The responsibilities imposed on operators of commercial motor vehicles do not impair their ability to operate the vehicles safely;

(3) The physical condition of operators of commercial motor vehicles is adequate to enable them to operate the vehicles safely; and

(4) The operation of commercial motor vehicles does not have a deleterious effect on the physical condition of the operators. 49 U.S.C. 31136(a).

Section 31136(a)(2), (3), and (4) authorizes the FMCSA to consider very broadly all operational factors that may adversely impact the health and physical condition of drivers, and thus highway safety.

Before prescribing regulations, the agency must also consider, to the extent practicable and consistent with the purposes of the MCSA, the costs and benefits of any rules (49 U.S.C. 31136(c)(2)(A)). The Senate Committee on Commerce, Science, and Transportation explained the intent of the cost-benefit requirement.

> The [FMCSA] is required to consider, where practicable, costs and benefits before establishing or revising such rules, regulations, standards, and orders. In requiring the [FMCSA] to consider the costs and benefits, where practicable, in the course of regulatory activities, the Committee realizes that many aspects of safety and health regulations do not lend themselves to detailed cost-benefit analysis. However, the Committee intends that the [FMCSA], in issuing a regulation, will perform some type of cost-benefit analysis, recognizing that while the benefits of a particular rule or regulation may be substantial, they may not be quantifiable. Additionally, the Committee does not intend such requirement to have the effect of precluding, preventing, or suspending the promulgation or revision of rules, regulations, standards, or orders due to difficulty in establishing specific, quantified cost or benefit data. S. Rep. No. 98–424, at 8 (1984).

A portion of the anticipated effect of this action would come from changes to the information collection burdens associated with the proposed rule. A proposed requirement, however, would impose a substantial financial burden in start-up and continuing maintenance and operating costs. Purchasing EOBRs would burden motor carriers with a $253 million start-up cost for the first four years of a final rule, maintaining the devices would cost $229 million annually, and training would add another $5.6 million annually. This would be offset by an annual savings of $262.3 million based upon the information collection burden hour reduction of 37.47 million hours at an hourly rate of $7.00 per driver.

The proposed information collection burdens are described in more detail below under the heading XII. F. Paperwork Reduction Act.

This regulatory action contains proposed provisions that should affect public safety by preventing 115 fatalities and 2,995 injuries each year. The net result in benefits to society should be at least a discounted $5,321,000,000 over 10 years assuming a 7 percent discount rate.

Executive Order 12866 (Regulatory Planning and Review) and DOT Regulatory Policies and Procedures

The FMCSA has determined that this document contains an economically significant regulatory action under Executive Order 12866 and under the DOT's policies and procedures because the FMCSA estimates this action will have an annual effect on the economy of $100 million or more.

The FMCSA has also determined this regulatory action is significant under the regulatory policies and procedures of the DOT because of the high level of interest concerning motor carrier safety issues expressed by Congress, motor carriers, their drivers and other employees, State governments, safety advocates, and members of the traveling public.

The FMCSA does not anticipate that this regulatory action would adversely affect in a material way a sector of the economy, competition, jobs, the environment, or State, local, or tribal governments or communities. It will not create a serious inconsistency or otherwise interfere with an action taken or planned by another agency. The FMCSA does not anticipate that this proposed action will materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients of those programs.

This action was reviewed by the Office of Management and Budget.

Regulatory Flexibility Act

In compliance with the Regulatory Flexibility Act (5 U.S.C. 601–612), the FMCSA has evaluated the effects of this proposed rule on small entities, including small businesses, small non-profit organizations, and small governmental entities with populations under 50,000. Many of these small entities operate as motor carriers of passengers or property in interstate or intrastate commerce. The FMCSA has placed a copy of the analysis in the docket.

The FMCSA believes that this proposal will effect a substantial number of small entities. What we do not know with certainty is the full economic impact of the proposal on small entities. We, therefore, specifically request on the costs and impacts of this proposal on small entities. If after receiving and reviewing public comments, our analysis indicates that the cost and impacts comparable to those used in this analysis, the FMCSA would then certify that the final rule does not have a significant impact on a substantial number of small entities.

The Regulatory Flexibility Act seeks to ensure that federal agencies take small businesses' particular concerns into account when developing, writing, publicizing, promulgating and enforcing regulations. To achieve this, the Act requires agencies to detail how they have met these concerns, by including a Regulatory Flexibility Analysis (RFA). An initial RFA, which accompanies an NPRM, must include the following six elements:

(1) A description of the reasons why action by the agency is being considered;

(2) A succinct statement of the objectives of, and legal basis for, the proposed rule;

(3) A description of and, where feasible, an estimate of the number of small entities to which the proposed rule will apply;

(4) A description of the proposed reporting, recordkeeping and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirements and the type of professional skills necessary for preparation of the report or record;

(5) An identification, to the extent practicable, of all federal rules which may duplicate, overlap, or conflict with the proposed rule; and

(6) A description of any significant alternatives to the proposed rule which accomplish the stated objectives of applicable statutes and which minimize and significant economic impact of the proposed rule on small entities.

A discussion of these requirements follows.

(1) A description of the reasons why action by the agency is being considered.

The FMCSA developed this NPRM because of Congressional action and independent safety concerns. Section 408 of the ICC Termination Act of 1995 directs the FMCSA to issue an ANPRM and NPRM ''dealing with a variety of fatigue-related issues pertaining to commercial motor vehicle safety (including 8 hours of continuous sleep after 10 hours of driving * * * and other appropriate regulatory and enforcement countermeasures for reducing fatigue-related incidents and increasing driver alertness).'' In addition, evidence suggests that fatigue continues to be an important contributing factor in some CMV crashes. The FMCSA believes that updating the regulations to reflect advances in understanding of sleep and fatigue will increase compliance with the regulations, ease enforcement, and enhance overall highway safety.

(2) A succinct statement of the objectives of, and legal basis for, the proposed rule.

The objective of this NPRM is to ensure that drivers are adequately rested before driving CMVs. The proposals seek to do this by increasing the continuous off-duty periods of time afforded to drivers to obtain sleep, providing additional opportunities for some categories of drivers to obtain rest during breaks, and improving the daily sleep-wake cycle to correspond more closely with circadian rhytymicity. The proposals also seek to minimize the paperwork burden on carriers by eliminating the RODS for many drivers.

The legal basis for the rule, in addition to the provisions of the ICC Termination Act cited above, include the MCA codified at 49 U.S.C. 31502(a) and (b), the MFW codified at 49 U.S.C. 31502(c), the MCSA codified at 49 U.S.C. 31136, section 113 of the HMTAA, and section 345 of the NHS.

The HMTAA instructs the FHWA to issue regulations improving ''(A) compliance by commercial motor vehicle drivers and motor carriers with hours of service requirements; and (B) the effectiveness and efficiency if Federal and States enforcement officers reviewing such compliance''.

(3) A description of and, where feasible, an estimate of the number of small entities to which the proposed rule will apply.

This NPRM proposals would apply to a large number of small carriers. Of the 497,000 motor carriers on the MCMIS census file, almost 250,000 own 6 or fewer power-units, 50 percent of the total. These 250,000 motor carriers own approximately 703,000 power-units, an average of about almost 3 per carrier, accounting for approximately 22.5 percent of all power-units on MCMIS.

Not all of these motor carriers are considered small businesses under the definitions issued by the SBA. The SBA defines a small business as one with annual gross receipts of less than $18.5 million. We do not know what percentage of motor carriers fit into this category. While it is likely that the majority of motor carriers with fewer than 6 drivers have gross receipts of less than $18.5 million, the Agency believes some of them surpass that revenue threshold. The FMCSA's safety regulations apply to all operators of CMVs in interstate commerce, not only traditional motor carriers. Some of these CMV operators may make the majority of their revenue from non-trucking sources, but only own 2 or 3 CMVs. Examples include musicians who own buses for transportation between performances, or millwork distributors which operate a few CMVs to distribute finished millwork. While the small number of vehicles these operations own would suggest they are small entities, their gross revenues from non-trucking sources could result in their being classified as large entities.

In the PRE, the FMCSA estimated that option 5 would cost small long-haul and regional motor carriers $180 million undiscounted to purchase EOBRs, $152 million discounted. Annual costs equal $17.9 million undiscounted, for a total of approximately $103 million discounted over ten years. EOBRs will cost the average small long-haul motor carrier $2,850 to purchase and $282 annually for maintenance (undiscounted).

Data on firms and receipts from the SBA web site show that for SIC codes 4200 through 4214, small motor carriers had average annual receipts of just over

$400,000 in 1996. First year costs of $3,132 ($2,850 plus $282) equal approximately three fourths of one percent of the average small motor carriers receipts.

While overall costs are fairly high for small motor carriers, we believe it is likely that EOBR costs could be lower than estimated above. First, we assumed that small motor carriers would purchase one quarter of their EOBRs in each of the first four years. In reality, it is likely that most small motor carriers will wait until the latter years to buy an EOBR. This will lower the discounted EOBR costs, as later year purchases are discounted more highly than earlier ones. In addition, small motor carriers who purchase EOBRs in year 4 will have to pay for maintenance for 3 fewer years than those who purchase in the first year.

Second, the FMCSA believes it is likely that the price of EOBRs will fall as production increases. As manufacturers gain proficiency in producing a product, improved use of labor and material tend to lower the costs of productions. Improvements include reducing the number and complexity of component parts, improved production of components, improved assembly speed and processes, reduced error rates, and better manufacturing processes. In a 1984 study of 108 manufacturing items from 22 field studies, Dutton and Thomas found a progress ratio of slightly higher than 80 percent, which means that each doubling of cumulative production reduces the cost level by 20 percent (Dutton and Thomas). Because of the phase-in period for small motor carriers, larger motor carriers are likely to bear higher initial production costs.

Finally, many small motor carriers will be able to purchase EOBRs through larger motor carriers, thereby realizing the same scale economies as large motor carriers. Anecdotal information suggests that a majority of owner-operators are on long term leases with large motor carriers. One source of this information was oral communication between the executive-director of the Owner-Operator Independent Drivers Association (OOIDA) and Department of Transportation staff. OOIDA's executive director estimated that 70 percent of owner-operators work as long-term contractors with other motor carriers. Many of these long-term contractors will presumably be able to purchase EOBRs at the same cost as the larger motor carriers to which they are contracted.

The economic impact of this proposal on each motor carrier would vary depending on its operations and the number of drivers it uses. For motor carriers engaged in local operations (proposed regulatory Types 3, 4, and 5) subject to the requirements of the Fair Labor Standards Act, the economic impact should be zero because the motor carriers are already required to maintain time records and supporting documents to comply with U.S. Department of Labor regulations, and the FMCSA is proposing to allow these time records and documents to satisfy the recordkeeping requirements proposed in this NPRM. For motor carriers engaged in long-haul (Type 1) and regional (Type 2) operations, the majority of the economic impact would be caused by the proposed requirement to ensure CMVs have properly installed EOBRs and that its drivers use them as required. These impacts are directly related to the number of CMVs, and the number of CMV drivers, in those operations.

As an example of the potential economic effect of this proposed rule on a small motor carrier subject to the FMCSRs, consider one that operates three power units and has annual receipts of $400,000. See the discussion of the cost of EOBRs in the sections above headed VII. I. 2. Paperwork Reduction, VII. I. 3. Total Benefits, and VII. I. 4. Quantitative Costs. If the motor carrier were to purchase and install EOBRs in all these power units in one year, the estimated cost of the equipment and the initial year's operation would be $3,300, or 0.825 percent of its annual receipts (($1,000 plus 100) times 3 divided by $400,000). Next, consider a motor carrier that operates 20 power units and has annual receipts of $18.5 million. The economic impact would be $22,000, or 0.12 percent of its annual receipts (($1,000 plus 100) times 20 divided by $18.5 million). If a motor carrier operated 100 power units and had annual receipts of $18.5 million, the economic impact would be approximately 0.59 percent of the carrier's annual receipts ($110,000 divided by $18.5 million).

Consider the cost of EOBRs per CMV power unit. If a new CMV truck tractor costs $100,000, a $1,000 EOBR would be one percent of the cost of the truck tractor.

These figures do not include costs to train drivers and other staff on the operation and use of these EOBRs, nor do they account for savings in driver and other motor carrier staff resources associated with the elimination of the requirement to use paper RODS. They also present a worst-case economic scenario, because the motor carriers would probably amortize EOBR purchase and installation costs over several years.

Based on this summarized analysis, the FMCSA believes that this rule would affect a substantial number of small entities, but would not have a significant impact on these entities.

Therefore, the FMCSA, in compliance with the Regulatory Flexibility Act (5 U.S.C. 601–612), has considered the economic impacts of these requirements on small entities and certifies that this rule would not have a significant economic impact on a substantial number of small entities.

Unfunded Mandates Reform Act of 1995 and Executive Order 12875 (Enhancing the Intergovernmental Partnership)

This rule does not impose any unfunded mandates on State, local, or tribal governments as defined by the Unfunded Mandates Reform Act of 1995 (2 U.S.C. 1531 *et seq.*). However, this rule would impose a Federal mandate on the private sector requiring expenditure by motor carriers of $100 million or more in any one year. Therefore, the FMCSA has prepared a separate written statement incorporating various assessments, estimates, and descriptions that are delineated in the Act. A copy of the FMCSA's Regulatory Accountability and Reform Analysis is included in the docket.

The FMCSA considered several regulatory alternatives and believes that this proposal achieves the objectives of the rulemaking to reduce CMV crashes involving fatigue-induced CMV drivers.

The FMCSA believes the benefits of this NPRM can be achieved only by forcing motor carriers and Type 1 and 2 drivers to make a dramatic change in their present attitude toward compliance in long-haul and regional operations. Their attitudes are unlikely to change without requiring persuasive evidence that compliance would be monitored and enforced. The American public expects the motor carrier industry to do a better job for safety, based on the numerous comments from concerned victims and citizens in the docket. The FMCSA's proposal to require an objective tamper-proof monitor on board long-haul and regional operating CMVs should achieve that objective, even though the option selected is not the least burdensome, least costly, nor the most cost effective for society.

The FMCSA estimates that the hours of rest and service of drivers rule will cost the public approximately $817 million over ten years. The cost applies not only to motor carriers subject to the FMCSRs, but also to motor carriers subject to compatible State HOS of driver laws and regulations to be

adopted as proposed to be required under 49 CFR part 350 to be eligible for MCSAP grant-in-aid type program funds. The agency estimates that the 10-year discounted monetary value of the benefits (fatalities and injuries prevented, property damage savings) is $6.138 billion.

The FMCSA intends to assist State MCSAP agencies in revising and adapting their motor carrier safety regulations and safety assurance programs in two ways. First, the agency intends to allow a phase-in period for the final rule, after it is promulgated, to ensure that those responsible for safety regulation implementation and oversight functions can become fully familiar with the new format and content of the HOS rules. Second, the agency is developing model State legislation and regulations to aid States in adopting the rules proposed today or adapting them to their own regulatory programs. The agency would also make special efforts to provide education, training, and guidance materials for MCSAP agencies and their staffs. The FMCSA welcomes comments from State and local government agencies concerning any potential difficulties they anticipate in making the transition to, and adopting, compatible regulations promulgated as a result of this action.

The FMCSA estimates that transition costs for States that wish to continue receiving MCSAP grant-in-aid funds to revise and implement their regulations to remain compatible with the proposed revisions would be approximately 5 percent of a year's MCSAP allocation. Nationwide, MCSAP allocations total approximately $80–85 million per year. Because States are given three years to adopt revisions to the FMCSRs, this estimated transition cost of between $4 million and $4.25 million would be distributed over that same time period. As described earlier in this section, the FMCSA plans to assist the States with the development of model legislation, transition planning, and data entry and analysis to ensure that there would be continuity between the regulations comprising the current CMV safety program and those revisions that may result from the changes proposed today.

The FMCSA believes that one significant cost element would involve training of State and local government MCSAP officials in the proposed new structure of the HOS regulations and the accompanying revisions to the microcomputer software suites used to perform roadside CMV safety inspections and motor carrier compliance reviews. The MCSAP program funds the work of 7,500 to 8,000 safety officials (6,000 full-time and 1,500–2,000 part-time). The FMCSA estimates it would take one-half day of instruction (4 hours) to familiarize these officials with the new software. The FHWA has paid average loaded salaries of State safety officials at $30.00 per hour in the past year. At an average loaded salary of $30.00 per hour (including benefits), the approximate salary costs would be $960,000. Costs of notebooks and other classroom materials (at $10 per student) would amount to another $80,000. Software upgrades would be required in centralized State information systems, as well as in desktop and laptop computers used in the field. Because some States' centralized information systems are housed on mainframe computers, and others depend on the FMCSA's system, estimates of upgrade costs will vary considerably. The FMCSA estimates an additional $2 million to $3 million in other costs (software revisions, other training and testing) associated with the transition.

Paperwork Reduction Act

Under the Paperwork Reduction Act of 1995 (PRA) (44 U.S.C. 3501, *et. seq.*) Federal agencies must obtain approval from the Office of Management and Budget (OMB) for each collection of information they conduct, sponsor, or require through regulations. The FMCSA has determined that this proposal, when promulgated as a final rule, would revise several existing aspects and add new requirements to a currently approved clearance for OMB Control Number 2126–0001 (which is due to expire on October 31, 2001).

The FMCSA, in previous estimations of time and cost burdens associated with OMB Control Number 2126–0001, omitted burdens imposed upon State governments. Title 5 CFR 1320.3 requires the FMCSA to include in its information clearance package burdens imposed upon a recipient of a Federal grant if the terms and conditions of the grant require specific approval by the agency of the collection of information or collection procedures. As a condition to receive an FMCSA Motor Carrier Safety Assistance Program (MCSAP) grant, State governments are required to adopt and enforce compatible regulations for intrastate motor carriers and CMV and, therefore, should be considered when estimating burdens associated with the Driver's Record of Duty Status information collection.

When the FHWA last published a 60-day notice in compliance with 5 CFR 1320.8 on March 11, 1998 (63 FR 11948), the IIHS was the only commenter to the public docket. The IIHS supported continuation of the paper ''logs'' until they are replaced by on-board computers. The agency also sought OMB's approval of an emergency extension for a six-month period of time. That notice was published in the **Federal Register** on May 13, 1998 (63 FR 26675). Neither opportunity for comments brought to the FHWA's attention the fact that it had omitted intrastate motor carrier information collections. When the FMCSA conducted its regulatory analysis for this NPRM, the agency discovered the error. The FMCSA is correcting the intrastate operations error as well as providing better data of the number of respondents in a revised submission to the OMB.

Currently, the inventory indicates a burden for 2126–0001 of 42,464,327 burden hours, rounded to 42.5 million hours. Based on the regulatory evaluation and the option selected to propose, the FMCSA is submitting to the OMB for review in accordance with the PRA requirements a burden of 3,003,050 burden hours for this NPRM.

OMB Control Number: 2126–0001.

Proposed New Title: Hours of Service of Driver Regulations.

Affected Public: Approximately 483,000 motor carriers using approximately 6.43 million drivers who operate in interstate and intrastate commerce.

Estimated Annual Hour Burden: 3,003,050 million burden hours.

The paper RODS and automatic on-board recording devices have been the primary regulatory tools used by motor carriers and CMV drivers to determine compliance with the maximum driving and duty time limitations prescribed in the FMCSRs. The FMCSA also uses the current RODS and automatic on-board recording device records to determine compliance during compliance reviews. Federal, State, and foreign government officials use the information for roadside enforcement. The FMCSA also considers compliance with the HOS requirements as a factor in its determination of a motor carrier's safety fitness.

Information Collections for Type 3, 4, and 5 Drivers

For CMV drivers who return to their normal work reporting location at the end of the work day (Types 3, 4, and 5 as described in this NPRM), the FMCSA proposes to conform the requirements similar to those of the WHD. A requirement to use a time record is currently codified at 49 CFR 395.1(e). The provision is currently available to motor carriers whose drivers operate within a 100 air-mile radius of their normal work reporting location and who

return to the work reporting location and are released from duty within 12 consecutive hours. The FMCSA proposes to extend this provision to drivers who return to the work reporting location and are released from duty within the same 12 consecutive hours generally, removing the distance-based limitation of the current regulation.

Like the ''100 air-mile radius'' CMV drivers of today (49 CFR 395.1(e)), Type 3, 4, and 5 drivers would not be required to carry their time records with them on their CMVs. Enforcement officials inspecting Type 3, 4, or 5 drivers at the roadside would have the opportunity, as they do now, to investigate the driver's claim by contacting or visiting the driver's normal work reporting location to review the driver's time record.

Information Collections for Type 1 and 2 Drivers

For CMV drivers in long-haul and regional operations (Types 1 and 2 as defined in this NPRM), the FMCSA is proposing a requirement for installation and use of EOBRs (electronic on-board recorders, i.e., a semi-automated time record). The requirement would include identifying the locations where changes in duty status occur. The FMCSA estimates that 1.25 million drivers would be affected by this element of the proposed rule.

The agency is proposing a phased-in requirement for these motor carriers based upon the number of power units (*e.g.*, truck-tractors, straight trucks, buses, specialized equipment) they operate. During the phase-in period, motor carriers and drivers that are not yet required to use EOBRs may install and use them, at their option. If they are not yet using EOBRs, however, they must comply use RODS that conform to the requirement contained at the current 49 CFR 395.8.

The FMCSA proposes to require motor carrier fleets with more than 50 power units to use EOBRs two years after the effective date of a final rule. Fleets with 21 to 50 power units would have three years, and fleets with 20 or fewer power units would have four years before they are required to use these devices. During this phase-in period, motor carriers may use EOBRs prior to the time they are required to do so. However, motor carriers and their drivers that have not begun using EOBRs would be required to use the RODS currently required under 49 CFR 395.8 as well as retaining the appropriate supporting documents.

For Type 1 and 2 motor carriers and drivers, the FMCSA and its State partner safety officials would use the on-duty and off-duty periods of time recorded by EOBRs and drivers to enforce the new safety regulations. During the proposed phase-in period, motor carriers and drivers not yet using EOBRs, and the FMCSA and State officials reviewing their compliance with the HOS requirements, would continue to use the RODS.

For all Driver types

The FMCSA intends to continue to require motor carriers to retain drivers' time records and supporting documents for six months from the date they receive them from their drivers. Motor carrier employers are required to maintain for two years time records and documents required by the U.S. Department of Labor under 29 CFR Part 516 (OMB control number 1215–0017). The FMCSA proposes to use those records, at its option, for the purpose of verifying motor carriers' and drivers' compliance with the hours of work and hours of rest regulations during the two-year period.

For all operations, motor carriers would be required to systematically monitor compliance with these proposed rules in order to detect drivers' failures to make records or detect false entries on records that point towards potential HOS violations, and to maintain records of the violations found. All motor carriers would also be required to disclose to their drivers their loading and unloading practices so that drivers may reserve sufficient time and energy to prevent unforeseen fatigue-causing delays or exertions, and avoid misunderstandings about possible lumping violations.

The FMCSA believes these requirements meet the principles of the Paperwork Reduction Act of 1995 by ensuring—

(1) The information collection is the least burdensome necessary for the proper performance of the FMCSA's safety mandate.

(2) The information collection does not duplicate information collected by other agencies. The FMCSA believes the information collected by DOL to comply with the WHD regulations would also satisfy the FMCSA's requirements. Further, since motor carrier employers are required to make this information accessible to the WHD for all employees, there should be no additional burdens associated with making it accessible to the FMCSA.

(3) The information collection has practical utility. The FMCSA has sought to minimize the cost to itself of collecting, processing, and using the information, but not to accomplish this by shifting disproportionate costs or burdens onto the public.

The FMCSA seeks public comment on this proposed information collection requirement. Interested parties are invited to send comments regarding any aspect of these information collection requirements, including, but not limited to:

(1) Evaluating whether the collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have a practical use;

(2) Evaluating the accuracy of the agency's estimate of the burden of the collection of information, including the validity of the methodology and assumptions used;

(3) Enhancing the quality, usefulness, and clarity of the information to be collected; and

(4) Minimizing the burden of collection of information on those who are to respond, including through the use of appropriate automated electronic, mechanical, or other technological collection techniques or other forms of information technology, such as permitting electronic submission of responses.

The collections of information contained in this NPRM relating to OMB Control Number 2126–0001 have been submitted to OMB for review under section 3507(d) of the PRA. Please direct all comments to the Office of Information and Regulatory Affairs of OMB, Attention: Desk Officer for the Department of Transportation. Comments may be received within 30 days of publication up to the close of the rule's comment period, but comments to OMB will be most useful if received by OMB within 30 days of publication.

National Environmental Policy Act

The agency has analyzed this action for the purposes of the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 *et seq.*) and has determined that this action will not have any effect on the quality of the environment.

Executive Order 12988 (Civil Justice Reform)

This action meets applicable standards in sections 3(a) and 3(b)(2) of Executive Order 12988, Civil Justice Reform, to minimize litigation, eliminate ambiguity, and reduce burden.

Executive Order 13045 (Protection of Children)

The FMCSA has analyzed this action under Executive Order 13045,

Protection of Children from Environmental Health Risks and Safety Risks, and found it to be economically significant. This NPRM, however, does not concern an environmental risk to health or safety that may disproportionately affect children.

Executive Order 12630 (Taking of Private Property)

This rule will not effect a taking of private property or otherwise have taking implications under Executive Order 12630, Governmental Actions and Interference with Constitutionally Protected Property Rights.

Executive Order 13132 (Federalism Assessment)

This action has been analyzed in accordance with the principles and criteria contained in Executive Order 13132. The FMCSA has determined this proposed rule does not have sufficient federalism impacts to warrant the preparation of a Federalism Assessment.

The proposed changes to the HOS rules would not preempt any State law or regulation. However, the FMCSA is proposing to eliminate the hours of service of drivers' tolerance guidelines that allow State governments to have and enforce compatible HOS regulations for intrastate commerce. The current tolerance guidelines consider the following to be compatible with the FMCSRs: a 12-hour driving limit; a prohibition on driving after 16 hours on duty; and prohibitions on driving after 70 hours on duty in 7 consecutive days or 80 hours in 8 consecutive days.

The FMCSA is proposing to revise the MCSAP Tolerance Guidelines and the compatibility guidelines for regulatory review concerning intrastate HOS regulation compatibility. The FMCSA is proposing to require compatible State intrastate rules within three years from the effective date when the last group of interstate motor carriers, those with fewer than 20 power units, must comply with the automated time record system requirements (1,305 days after the date of publication of the final rule in the **Federal Register**). This would allow States to review and modify existing laws and regulations as allowed by Part 355, Appendix A, State Determinations, section 3.

The FMCSA is proposing to revise § 350.341 of the FMCSRs to require States to adopt and enforce the proposed regulations. After this three-year period, States that are not compatible would not be eligible to participate in MCSAP until they became compatible. This action would not have an impact on the States' ability to execute traditional State governmental functions.

Executive Order 12372 (Intergovernmental Review)

Catalog of Federal Domestic Assistance Program Number or 20.217, Motor Carrier Safety. The regulations implementing Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities do not apply to this program.

List of Subjects

49 CFR Part 350

Grant programs—transportation, Highway safety, Motor carriers.

49 CFR Part 390

Highway safety, Highways and roads, Motor carriers, Motor vehicle identification and marking, Reporting and recordkeeping requirements.

49 CFR Part 394

Global positioning systems, Highway safety, Highways and roads, Intelligent Transportation Systems, Motor carriers, Motor vehicle safety, Reporting and recordkeeping requirements.

49 CFR Part 395

Drivers, Global positioning systems, Highway safety, Highways and roads, Intelligent Transportation Systems, Motor vehicle safety, Reporting and recordkeeping requirements.

49 CFR Part 398

Highway safety, Migrant labor, Motor carriers, Motor vehicle safety, Reporting and recordkeeping requirements.

Issued on: April 24, 2000.

Julie Anna Cirillo,

Acting Deputy Administrator.

In consideration of the foregoing, the FMCSA is proposing to amend Title 49, CFR, chapter III, as set forth below:

PART 350—COMMERCIAL MOTOR CARRIER SAFETY ASSISTANCE PROGRAM

1. The authority section of part 350 continues to read as follows.

Authority: 49 U.S.C. 31100–31104, 31108, 31136, 31140–31141, 31161, 31310-31311, 31502; and 49 CFR 1.73.

2. Section 350.341 is revised to read as follows.

§ 350.341 What specific variances from the FMCSRs are allowed for State laws and regulations governing motor carriers, CMV drivers, and CMVs engaged in intrastate commerce and not subject to Federal jurisdiction?

(a) 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 exceeds 11,801 kg (26,001 lbs.). However, a State may not exempt a CMV from such laws or regulations if the vehicle:

(1) Transports hazardous materials requiring a placard.

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

(b) State laws and regulations applicable to intrastate commerce may not grant exemptions based upon the type of transportation being performed (e.g., for-hire, private, etc.).

(c) 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.

(d) State laws and regulations applicable to intrastate commerce must not include exemptions based upon 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.

(e) Age of CMV driver—All CMV drivers must be at least 18 years of age.

(f) Grandfather clauses—States may provide grandfather clauses in their rules and regulations if such exemptions are uniform or in substantial harmony with the FMCSRs and provide an orderly transition to full regulatory adoption at a later date.

(g) Driver qualifications. (1) 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 the following three conditions are met:

(i) The driver was qualified under existing State law or regulation at the time the State adopted physical qualification standards compatible with the Federal standards in 49 CFR 391.41.

(ii) The otherwise non-qualifying medical or physical condition has not substantially worsened.

(iii) No other non-qualifying medical or physical condition has developed.

(2) The State may adopt or continue programs granting variances to intrastate drivers with medical or physical conditions that would otherwise be non-qualifying 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.

PART 390—FEDERAL MOTOR CARRIER SAFETY REGULATIONS; GENERAL

3. The authority citation for part 390 continues to read as follows.

Authority: 49 U.S.C. 13301, 13902, 13902, 31132, 31133, 31136, 31502, and 31504; sec. 204, Pub. L. 104–88, 109 Stat. 803, 941 (49 U.S.C. 701 note); and 49 CFR 1.73.

4. Section 390.23 is revised to read as follows.

§ 390.23 Relief from regulations.

(a) Parts 390 through 399 of this chapter do not apply to any motor carrier or driver operating a commercial motor vehicle to provide emergency relief during an emergency, subject to the following time limits:

(1) *State emergencies.* (i) The exemption provided by paragraph (a)(1) of this section is effective only when:

(A) An emergency has been declared by the President of the United States, the Governor of a State, or their authorized representatives having authority to declare emergencies; or

(B) The State Director of the Federal Motor Carrier Safety Administration has declared that a State emergency exists which justifies an exemption from parts 390 through 399 of this chapter.

(ii) Except as provided in § 390.25, this exemption will not exceed the duration of the motor carrier's or driver's direct assistance in providing emergency relief, or 30 days from the date of the initial declaration of the emergency or the exemption from the regulations by the State Director of the Federal Motor Carrier Safety Administration, whichever is less.

(2) *Local emergencies.* (i) The exemption provided by paragraph (a)(2) of this section is effective only when:

(A) An emergency has been declared by a Federal, State, or local government official having authority to declare an emergency; or

(B) The State Director of the Federal Motor Carrier Safety Administration has declared that a local emergency exists which justifies an exemption from parts 390 through 399 of this chapter.

(ii) This exemption shall not exceed the duration of the motor carrier's or driver's direct assistance in providing emergency relief, or 5 days from the date of the initial declaration of the emergency or the exemption from the regulations by the State Director of the Federal Motor Carrier Safety Administration, whichever is less.

(3) *Tow trucks responding to emergencies.* (i) The exemption provided by paragraph (a)(3) of this section is effective only when a request has been made by a Federal, State or local police officer for tow trucks to move wrecked or disabled motor vehicles.

(ii) This exemption shall not exceed the length of the motor carrier's or driver's direct assistance in providing emergency relief, or 24 hours from the time of the initial request for assistance by the Federal, State, or local police officer, whichever is less.

(b) *Termination of assistance.* (1) Direct assistance terminates as provided in paragraph (a) of this section or when a driver or commercial motor vehicle is used in interstate commerce to transport cargo not destined for the emergency relief effort, or when the motor carrier dispatches such driver or vehicle to another location to begin operations in commerce.

(2) Upon termination of direct assistance to the emergencies covered by this section, the motor carrier or driver is subject to all of the requirements of parts 390 through 399 of this chapter.

(3) *Exception:* The relief from regulations extends, without the prior approval required under § 390.25, to a driver's return trip directly from the location of the emergency assistance to the motor carrier's terminal or the driver's normal work reporting location. However, any driver who informs the motor carrier that he or she needs immediate rest must be permitted at least 10 consecutive, uninterrupted hours off duty before the driver is required to return to such terminal or location.

(c) When the driver has been relieved of all duty and responsibilities upon termination of direct assistance to an emergency covered by this section, no motor carrier must permit or require its driver to drive nor must any such driver drive in commerce until the driver has met the following three conditions:

(1) The driver has been off duty for at least 10 consecutive, uninterrupted hours, including one period from midnight to 6:00 a.m.

(2) After providing direct assistance for more than three consecutive days, the driver has been continuously off duty for a period that consists of two consecutive midnight to 6:00 a.m. periods.

(3) The driver has at least one hour off duty after 6:00 a.m.

5. Section 390.25 is revised to read as follows.

§ 390.25 Extension of relief from regulations—emergencies.

(a) The State Director of the Federal Motor Carrier Safety Administration may extend the 30-day time period of the exemption contained in § 390.23(a)(1), but not the 5-day time period contained in § 390.23(a)(2) or the 24-hour period contained in § 390.23(a)(3). The decision to extend the exemption is based on a determination whether such relief is necessary taking into account both the severity of the ongoing emergency and the nature of the relief services to be provided by the carrier or driver. Any extension must establish a new time limit and may place on the motor carrier or driver any other restrictions deemed necessary.

(b) Any motor carrier or driver seeking to extend the 30-day limit must obtain approval from the State Director of the Federal Motor Carrier Safety Administration in the State in which the emergency was declared before the expiration of the 30-day period. The motor carrier or driver must give full details of the additional relief requested.

6. Part 394 is added to read as follows:

PART 394—MOTOR CARRIER FATIGUE PREVENTION

Subpart A—Motor Carrier Operations

Purpose, Standards, Penalties, and Exemptions

394.101 What are the purpose and standards of this part?
394.103 What must I do to enhance driver alertness?
394.105 What are the penalties for failing to comply with this part?
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394.149 How long may drivers drive motor vehicles?

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394.211 Must I present my equipment and records if an FMCSA special agent asks to inspect them?
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394.301 What standards must automated time record systems meet?
394.303 How must I maintain automated time record system devices?
394.305 Must I train my drivers regarding the proper operation of the devices I use?

Authority: 49 U.S.C. 504, 14122, 31133, 31136, and 31502; sec. 113, Pub. L. 103–311, 108 Stat. 1673, 1676; and 49 CFR 1.73.

Subpart A—Motor Carrier Operations

Purpose, Standards, Penalties, and Exemptions

§ 394.101 What are the purpose and standards of this part?

(a) *Purpose.* The purpose of this part is to improve highway safety by promoting the use of well-rested, alert, and attentive drivers.

(b) *Requirements.* This part requires you, the motor carrier, to provide your drivers with sufficient off-duty time, daily and weekly, to ensure they have adequate opportunity for restorative sleep prior to reporting for duty. You must comply with paragraph (c) of this section. You should also make every effort to comply with paragraph (d) of this section.

(c) *Standards.* As a motor carrier, you must:

(1) Provide each driver a minimum consecutive off-duty period of time each day and cumulative off-duty time each week to obtain restorative sleep.

(2) Make available an additional minimum off-duty period of time each workday to allow each driver to attend to personal necessities and rest at the driver's discretion.

(3) Empower the driver to accept or refuse a driving assignment or continuation of a trip based upon the driver's self-assessment of his/her alertness.

(d) *Advisories.* As a motor carrier, you should:

(1) Develop scheduling, dispatching, and operating practices to avoid the use of drivers who are not sufficiently well rested to operate CMVs safely and that their workday driving schedules occur during periods of higher alertness (6:00 a.m. to midnight).

(2) Maximize your knowledge of and ability to implement operational safety management techniques, including fatigue prevention.

(3) Educate your employees, shippers, receivers, brokers, and others about the dangers and possible consequences of scheduling shipments that do not allow your drivers to obtain proper amounts of restorative sleep.

§ 394.103 What must I do to enhance driver alertness?

(a) You must comply with the following five requirements.

(1) You must restrict your drivers in Types 1, 2, 3, and 4 operations (see § 394.121) to no more than 12 hours on duty in any workday.

(2) You must restrict your drivers in Type 5 operations (see § 394.121) to no more than 13 hours on duty in any workday.

(3) In any workweek, you must provide your drivers the opportunity to obtain at least 32 to 56 consecutive hours off duty, including at least two periods from midnight to 6:00 a.m.

(4) You must not use or allow to be used a driver who is too ill or fatigued to complete a driving assignment safely. You must not penalize, discipline, dismiss, or discriminate against drivers who refuse to begin or continue a driving assignment due to illness or fatigue.

(5) You must comply with the other specific limitations contained in this part, as applicable to your operations.

(b) The Types of Operations are described in § 394.121.

§ 394.105 What are the penalties for failing to comply with this part?

(a) You are subject to civil penalties under 49 U.S.C. 521 and part 386 of this subchapter.

(b) The Federal Motor Carrier Safety Administration (FMCSA), or an official of a State or political subdivision of a State with authority over the safety of your motor carrier operations, may place your driver out of service.

(c) Knowing and willful violations of this part may give rise to criminal penalties under 49 U.S.C. 521(b)(6).

(d) Repeated violations of the regulations in this part may result in a determination under part 385 of this subchapter that you are unfit and lead to an order that you must cease operations.

§ 394.107 What definitions apply to this part?

The following definitions apply to this part:

Automated time record system means an electric, electronic, electromechanical, or mechanical system, including a device capable of recording driver's duty status information accurately and automatically as required by § 394.211 and subpart C of this part.

Driving time means all time at the driving controls of a motor vehicle in operation.

Off-duty time means any period when a driver is relieved from duty and is free to attend to personal necessities including sleep, meals, refreshment, rest, and relaxation. Each off-duty period must be at least 30 minutes long. Off-duty time may be taken in a CMV so long as the driver is relieved of other duties and responsibilities to the motor carrier. See also 29 CFR 785.16.

On-duty time means any period when a driver provides physical or mental exertion (whether burdensome or not) necessarily and primarily for the benefit of the driver's motor carrier. It includes all time when a motor carrier requires a driver to be on the motor carrier's premises, vehicles, equipment, or at other prescribed work places, except when the motor carrier expressly allows the driver to take rest breaks in vehicles or at a terminal. It also includes all such work for any other motor carrier or non-motor carrier employers. See also 29 CFR 785.16.

Workday means any fixed period of 24 consecutive hours.

Workweek means any fixed and regularly recurring period of seven consecutive workdays.

§ 394.109 What operations are exempt from the requirements of this part?

The following types of operations are exempt from the requirements of this part.

(a) *Agricultural operations.* The exemption in this section is based on Section 345(a)(1) of the National Highway System Designation Act of 1995 (49 U.S.C. 31136 note).

(b) *Exemption.* The requirements of §§ 394.141 through 394.165 do not apply to any driver who is transporting agricultural commodities within a State if the transportation takes place entirely within a 185-kilometer (100-air-mile) radius of the source of the commodities or the distribution point for the farm supplies during the planting and harvesting seasons in that State, as determined by the State.

Note: This exemption does not relieve motor carriers of the responsibility to meet the general standards in § 394.101(c).

(c) *After concluding exempt agricultural operations.* (1) If a driver asks for immediate rest after completing exempt agricultural transportation, you must allow the driver to have at least ten consecutive, uninterrupted hours off duty before requiring the driver to return to non-exempt work.

(2) You must not permit or require a driver who has completed exempt agricultural transportation to drive in non-exempt operations until the driver has met the following three conditions:

(i) The driver has been off duty for at least ten consecutive, uninterrupted hours, including a period from midnight to 6:00 a.m.

(ii) After providing exempt agricultural transportation for more than three consecutive days, the driver has been continuously off duty for a period of at least 32 to 56 consecutive hours that includes two consecutive midnight to 6:00 a.m. periods.

(iii) The driver has at least one hour off duty after 6:00 a.m.

(d) *Specific definitions.* The following definitions apply to this section: (1) *Agricultural commodities* means farm crops that are produced from the soil on a farm, but does not include timber.

(2) *Farm supplies* means those items directly relating to the farming activities of planting, fertilizing, or harvesting crops that are delivered directly to a farm. This does not include materials that are used as a part of a non-farm business or materials to be used in a residence or home, including the farmer's residence.

(3) *Source of the commodities* means a farm where farm crops are produced, but does not include a farm planting or harvesting timber.

(e) *No preemptive effect.* This exemption does not preempt any other Federal, State, or local law for hours of service, safety of operation, or recordkeeping requirements.

Implementation Schedule

§ 394.111 When must I begin to comply with the rules in this part?

(a) You must begin using subpart A of this part applicable to each type of operation on [date 180 days after the date of publication of the final rule in the **Federal Register**].

(b) For Type 1 and 2 operations, you must comply fully with the requirements of subpart B and C of this part according to the following schedule. If on [date 180 days after the date of publication of the final rule in the **Federal Register**]:

(1) You operate more than 50 power units (owned or leased)—[date 2 years and 180 days after the date of publication of the final rule in the **Federal Register**].

(2) You operate between 20 and 50 power units (owned or leased)—[date 3 years and 180 days after the date of publication of the final rule in the **Federal Register**].

(3) You operate fewer than 20 power units (owned or leased)—[date 4 years and 180 days after the date of publication of the final rule in the **Federal Register**].

(c) To be in full compliance with the requirements of this part:

(1) *General.* All motor carriers must have in place an operating systematic monitoring program as required in subpart B of this part.

(2) *Type 1 and 2 motor carriers.* All Type 1 and 2 motor carriers must:

(i) Have installed fully operational automated time record systems meeting the requirements of subpart C of this part.

(ii) Ensure you or your managers and supervisors are properly trained in their use as required in subpart C of this part.

(iii) Require your drivers to use them, and ensure they are properly trained.

(d) If you are not yet required to comply with the rules in subpart B of this part, regarding records and reports, and opt not to comply, you must, at a minimum, comply with the recordkeeping rules of 49 CFR 395.8 that were in effect on the day before [date 180 days after the date of publication of the final rule in the **Federal Register**] (See 49 CFR Parts 200–399 revised as of October 1, 1999.).

Types of Operations

§ 394.121 Are there different rules for different types of operations?

(a) There are five different types of operations. For each type, specific requirements apply for off-duty, on-duty, and driving periods during each workday and workweek. See §§ 394.141 and 394.161.

(b) The five types of operations are as follows.

(1) Type 1. Long-haul operations that require the driver to be away from his/her normal work reporting location for three or more consecutive workdays.

(2) Type 2. Long-haul operations that require the driver to be away from his/her normal work reporting location overnight, but for less than three consecutive workdays.

(3) Type 3. Operations that require the driver to operate a CMV during two separate scheduled duty periods on the same workday. The driver returns to his/her normal work reporting location and is released from work within 15 consecutive hours after first beginning work. The two duty periods are separated by at least a three-hour off-duty period during the workday.

(4) Type 4. Operations in which the driver returns to his/her normal work reporting location and is released from work within 12 consecutive hours after beginning work.

(5) Type 5. Operations in which driving is incidental to other primary work activities, and the driver returns to his/her normal work reporting location and is released from work within 15 consecutive hours after beginning work. The driving duties do not exceed 5 hours in a workday. For-hire carriers are not Type 5 operations.

§ 394.123 How do I determine which requirements apply to my operations?

(a) Your operations must fit within one of the categories described in § 394.121, and you must adjust your hours of operation to conform to the requirements applicable to that type of operation.

(b) Your compliance with requirements applicable to the type of operation will be determined by the actual facts and circumstances of your operations at the time compliance is required.

(c) If there is some reasonable doubt about your operational type, you must comply in good faith with the regulations applicable to the type that you believe best describes your operation.

§ 394.125 May I assign my drivers to more than one type operation within a workweek?

Your driver may move between the different types of operations after the appropriate off-duty time at the end of a workday or workweek for the previous type operation.

Fatigued Drivers

§ 394.131 What must I do if my driver becomes impaired by fatigue or illness?

(a) You must instruct your drivers to stop when they are drowsy, ill, or have other signs of fatigue. However, you may allow your drivers to drive the motor vehicle to the nearest place where the vehicle can be parked without creating a greater risk to safety than that caused by the continued operation by the ill or fatigued driver. Failure to comply with this paragraph may subject you to penalties specified in 49 U.S.C. 521 or subpart G of part 386 of this subchapter.

(b) You must not retaliate, penalize, discipline, dismiss, discriminate, demote, blacklist, threaten, or take any other retaliatory action against drivers who refuse to violate any Federal commercial motor vehicle safety regulations in this subchapter or State or local commercial motor vehicle safety laws, ordinances, or regulations.

(c) Actions contrary to paragraph (b) of this section are also violations of 49 U.S.C. 31105 and will subject you to action by the U.S. Department of Labor, which may require you to reinstate the driver, and pay back pay and compensatory damages, among other things.

(d) Drivers who believe they have suffered retaliation in violation of 49 U.S.C. 31105 may submit a complaint to any of the regional or area offices of the U.S. Department of Labor's Occupational Safety and Health Administration within 180 days of the retaliation for investigation. This is not a complete description of the requirements of 49 U.S.C. 31105. See 29 CFR part 1978 for details about your rights and responsibilities during the investigation.

Daily Time

§ 394.141 How many consecutive hours must my drivers remain off-duty before beginning each workday?

(a) You must require your drivers to remain off duty for at least the following number of hours before starting duty each workday:

If your driver is in this type of operation (see § 394.121)	Your driver must remain off duty for a minimum of
Type 1	10 consecutive hours of each workday
Type 2	10 consecutive hours of each workday
Type 3	9 consecutive hours of each workday
Type 4	12 consecutive hours of each workday
Type 5	9 consecutive hours of each workday

(b) *Exception.* (1) Your team drivers in Type 1 operations may take their 10 hours off duty in sleeper berth equipment in no more than two off-duty periods of at least 5 consecutive hours each. The on-duty and driving time between the two sleeper-berth periods must be counted as part of the on-duty period that begins after the second sleeper-berth period. On-duty periods may be interrupted by off-duty periods of less than 5 hours, but only periods of 5 or more consecutive hours in a sleeper berth count towards the required 10-hour off-duty period. Your drivers are limited by the on-duty and driving rules for the workday and workweek.

(2) Sleeper berth equipment is defined in § 393.76 of this subchapter.

§ 394.143 What are the consequences of interrupting a driver's minimum consecutive off-duty hours?

(a) If you interrupt your driver's consecutive off-duty hours, the minimum period before the driver may return to duty starts anew at the conclusion of the interruption. The time required to deal with your interruption must be counted as on-duty time.

(b) ''Interrupt,'' in this section, means you require drivers to undertake any responsibility for you as a motor carrier. An interruption includes, but is not limited to:

(1) Causing drivers to answer personally any type of communication device, including, but not limited to, a telephone, pager, beeper, facsimile mail machine, doorbell, global positioning system message, or any other type of device.

(2) Notifying drivers personally about an assignment.

(3) Requiring drivers to contact you or anyone else about the status of trips or conditions of loads.

(c) If you are subject to the minimum wage provisions of the Fair Labor Standards Act (29 U.S.C. 206), you and your drivers may also have to comply with the counting-of-hours principles in 29 CFR part 785.

§ 394.145 Must I allow my drivers additional off-duty time after they begin work?

(a) In Type 1, 2, and 5 operations, you must provide drivers at least two additional off-duty hours each workday to nap, rest, or attend to personal necessities.

(b) This two-hour period may be taken in segments of not less than 30 minutes at the discretion of your driver at any location, including the CMV.

(c) Drivers in Type 3 operations must have at least 3 consecutive hours off duty between their two split work shifts.

§ 394.147 How long may drivers be on duty?

(a) Type 1, 2, 3, and 4 drivers may be on duty no more than 12 hours within a 14-consecutive-hour period in any workday.

(b) Type 5 drivers may be on duty no more than 13 hours within a 15-consecutive-hour period in any workday.

§ 394.149 How long may drivers drive motor vehicles?

(a) You may require your drivers in Type 1, 2, 3, and 4 operations to drive no more than 12 hours in any workday.

(b) You may require your drivers in Type 5 operations to drive no more than 5 hours in any workday.

Weekly Time

§ 394.161 How many consecutive off-duty hours per workweek must I give my drivers?

(a) You must give every driver an off-duty period of at least 32 to 56 consecutive hours that includes at least two consecutive midnight to 6:00 a.m. periods before the start of the next workweek.

(b) In Type 1 operations, you must provide your drivers, for every two consecutive workweeks, with two such off-duty periods with a combined total of at least 112 hours.

(c) *Exception.* If you operate a groundwater well-drilling operation exclusively, you must give your driver at least 24 consecutive hours off duty at the end of each workweek. This exception is required by 49 U.S.C. 31136 note. To meet the standards of this part, however, you should provide your driver with the opportunity to sleep during two consecutive midnight to 6:00 a.m. periods of time and not begin work until 7:00 a.m.

§ 394.163 When may my drivers start work after being off duty at the end of a workweek?

Your drivers may start work after being off duty at the end of a workweek as follows:

The driver stops work between 11:01 p.m. on the workday immediately before this day and 11:00 p.m. on this workday	The driver may begin to work the next workweek on this workday no earlier than 7:00 a.m.
(a) Saturday	Monday
(b) Sunday	Tuesday
(c) Monday	Wednesday
(d) Tuesday	Thursday
(e) Wednesday	Friday
(f) Thursday	Saturday
(g) Friday	Sunday

§ 394.165 How many hours per week may my drivers be on duty?

(a) Your drivers in Types 1, 2, 3, and 4 operations may be on duty up to, but no more than, 60 hours in any workweek.

(b) Your drivers in Type 5 operations may be on duty up to, but no more than, 78 hours in any workweek.

(c) *Exception.* When your Type 1 driver is on a trip requiring two or more consecutive workweeks away from his normal work reporting location, the driver may average two weekly maximum on-duty periods, i.e. 120 hours. The longer period may be no more than 72 hours on duty before the end of the workweek.

Summary of Hour Limits

§ 394.167 Can these requirements be summarized in a chart?

In general, the following hourly limits apply, subject to any specific conditions listed in §§ 394.141, 394.145, 394.147, 394.149, 394.161, 394.163, and 394.165:

	In this type of operation, the driver	Must have this many consecutive hours off duty every workday	Must have this many additional hours off duty every workday	May be on duty for up to this many hours every workday	May drive only this many hours every workday	Must have an off-duty period every workweek that includes at least two consecutive midnight to 6:00 a.m. periods and at least this many consecutive hours off duty	May drive only this many hours every workweek	May be on duty only this many hours every workweek
(a)(1) One-week	Type 1	≥10	≥2	≤12	≤12	≥32 to 56	≤60 standard	≤60 standard
(2) Two-week flexible.	Type 1	≥10	≥2	≤12	≤12	One week ≥32 to 56 & Other week ≤80.	One week ≤72 & Other week ≤48.	One week ≤72 & Other week ≤48
(b)	Type 2	≥10	≥2	≤12	≤12	≥32 to 56	≤60	≤60
(c)	Type 3	≥9	≥3	≤12	≤12	≥32 to 56	≤60	≤60
(d)	Type 4	≥12	.....	≤12	≤12	≥32 to 56	≤60	≤60
(e)	Type 5	≥9	≥2	≤13	≤5	≥32 to 56	≤30	≤78

Loading and Unloading Practices

§ 394.169 What must I do regarding the loading and unloading responsibilities of drivers?

If you are a motor carrier of property,

(a) You must agree in advance with your shipper, receiver, or other consignee whether the driver has the responsibility for loading or unloading cargo.

(b) If these agreements make your driver responsible for loading and unloading, you must inform the driver of that fact.

(c) If your driver is required to provide any loading or unloading services, notwithstanding an agreement to the contrary, those services and time spent waiting count as on-duty time, and you must require the driver to include all time spent waiting, loading, and unloading in his/her duty hours. See 29 CFR part 785.

(d) The OMB has assigned the information collection requirements of paragraphs (a) and (b) of this section the number 2126–0001.

Subpart B—Records and Reports

Time Records To Be Prepared and Kept By Motor Carriers

§ 394.201 What records must I create showing that my drivers comply with the off-duty and on-duty requirements?

(a) *Type 1 and 2 drivers.* You must require each driver in a Type 1 and 2 operation to accurately record driving and on-duty time, as defined by this part and 29 CFR part 785, in an automated time record system meeting the requirements of subpart C of this part.

(b) *Type 3, 4, and 5 drivers.* You must create or cause to be created for each Type 3, 4, and 5 driver, accurate time and work records containing at least the following five items of information.

(1) Identity of driver.

(2) Daily starting and ending times for each on-duty period.

(3) Home terminal address, including zip code.

(4) Time of day and day of week each driver's workweek begins. If all employees, including drivers, have a workweek beginning at the same time on the same day, a single notation for the entire workforce or establishment will suffice.

(5) Total hours each driver was on duty each workday and workweek, as defined by this part and 29 CFR part 785.

(c)(1) The OMB has assigned the information collection requirements of paragraph (a) of this section the number 2126–0001.

(2) The OMB has assigned the information collection requirements of paragraph (b) of this section the number 1215–0017. The U.S. Department of Labor's Wage and Hour Division regulations require you to create other records, if you are a subject employer. See 29 CFR part 516.

§ 394.203 Must time records be prepared in a particular order or on particular forms?

(a) A particular order or form of records is required by this part only for Type 1 and 2 drivers.

(b) For all other types of drivers, you may maintain and preserve the records you create in paper, microfilm, microfiche, or electronic format.

(c) If you use electronic or mechanical word or data processing media, you must make adequate projection, viewing, and reproduction equipment available to the authorized FMCSA, State, and local enforcement personnel during inspections and investigations. The reproductions must be clear and identifiable by date or time period.

(d)(1) The OMB has assigned the information collection requirements of paragraph (a) of this section the number 2126–0001.

(2) The OMB has assigned the information collection requirements of paragraphs (b) and (c) of this section the number 1215–0017.

Time Record Maintenance and Preservation

§ 394.207 What time records must I preserve? For how long?

(a) *Basic records.* (1) You must preserve and retain all basic time records showing daily starting and ending times of individual drivers, or of separate work forces, for at least six months from the date of last entry.

(2) You must require all Type 1 and 2 drivers to provide you, and you must obtain, within 13 days following completion of the time record, all time records they create and maintain as required by § 395.201 of this subchapter. You must preserve and retain all Type 1 and 2 driver time records for at least six months from the date of the record.

(b) *Order, shipping, and billing records.* (1) You must preserve and retain for at least six months originals or true copies of all customer orders or invoices received, incoming or outgoing shipping or delivery records, as well as all bills of lading and all billings to customers (not including individual sales slips, cash register tapes or the like) that you retain or make in the usual course of business operations.

(2) You must require all Type 1 and 2 drivers to provide you, and you must obtain, within 13 days following completion of the time record, all order, shipping, billing, and other receipt records they create, receive, and maintain as required by § 395.201 of this subchapter. You must preserve and retain Type 1 and 2 driver time, order, shipping, billing, and other receipt records for at least six months from the date of the record.

(c) You must preserve and retain for at least six months records of additions to and deductions from driver pay or compensation that you make in the usual course of business operations, including:

(1) Total additions to or deductions from driver pay or compensation for each pay or compensation period, including purchase orders and pay or compensation assignments. The dates, amounts and nature of the items which make up the total additions and deductions.

(2) All records used by the motor carrier in determining the original cost, operating and maintenance cost, and depreciation and interest charges, if such costs and charges are involved in the additions to or deductions from driver pay or compensation.

(d) *Manufacturer's certificate.* You must preserve and retain for the length of time your automated time record system is in operation, and for at least six months after you no longer use such system, a copy of a written statement from the manufacturer of the system(s) certifying that the design of the system has been sufficiently tested under operational conditions to meet the requirements of subpart C of this part.

(e) *Back-up copies.* You must preserve and retain for at least six months a second copy (back-up copy) of the electronic time record system files required by this subpart, by month, in a physical location different from where the original data is stored.

(f)(1) The OMB has assigned the information collection requirements of paragraphs (a), (b), and (c) of this section the number 1215–0017. The U.S. Department of Labor's Wage and Hour Division regulations require you to preserve and maintain these and other records for at least two years, if you are a subject employer. See 29 CFR part 516.

(2) The OMB has assigned the information collection requirements of paragraphs (d) and (e) of this section the number 2126–0001.

Monitoring Driver Time

§ 394.209 Must I monitor my drivers' compliance with this part and part 395?

(a) You must systematically monitor each driver's compliance with the requirements of this part and part 395 of this subchapter. If you do not take effective action to penalize drivers' violations of, and thus to ensure their compliance with, these requirements, the FMCSA may hold you and/or the drivers responsible for the violations.

(b) The monitoring system must verify the accuracy of your drivers' on-duty and off-duty times recorded as required by § 394.201.

(c) Upon request of authorized FMCSA, State, or local enforcement personnel conducting an investigation, you must produce a written description of your monitoring system with an explanation of how it works.

(d) The OMB has assigned the information collection requirements of this section the number 2126–0001.

Inspection of Records

§ 394.211 Must I present my equipment and records if an FMCSA special agent asks to inspect them?

You must immediately comply with a request by an FMCSA special agent or other authorized law enforcement official who displays proper credentials and demands to inspect your equipment and records.

§ 394.213 What records may be used to determine my compliance with this part?

FMCSA officials or a State or local government official with authority over the safety of your motor carrier operations may use any information, whether or not in your possession, to determine your compliance with the requirements of this part and to verify the accuracy of the records you are required to maintain.

§ 394.215 Where must I keep records available for inspection?

(a) *Location of records while the motor vehicle is in operation.* You must require each of your drivers in Type 1 and 2 operations to keep in the commercial motor vehicle accurate daily off-duty, on-duty, and driving-time records for the day of work and the previous seven consecutive days showing the items required by subpart C of this part.

(b) *Location of records at all other times.* You must keep the records required by this part at the place or places of use, or at one or more established central recordkeeping offices where such records are customarily maintained. If you have more than one business location and maintain the records at a location other than your principal place of business, you must make the records available within 48 hours following notice from an FMCSA special agent or an official of a State or political subdivision of a State with authority over the safety of your motor carrier operations.

(c) *Inspection of records.* (1) Automated time records and handwritten records for drivers in Types 1 and 2 operations must be available for inspection and transcription at roadside for the day of work and the previous

seven consecutive days. The record must be available for inspection at your place of business within 13 days after the record is made.

(2) Time records for drivers in Types 3, 4, and 5 operations need only be available for inspection and transcription at your place of business.

(d) *OMB numbers.* (1) The OMB has assigned the information collection requirements of paragraphs (a) and (c)(1) of this section the number 2126–0001.

(2) The OMB has assigned the information collection requirements of paragraphs (b) and (c)(2) of this section the number 1215–0017. The U.S. Department of Labor's Wage and Hour Division regulations require you to provide for inspection for other records, if you are a subject employer. See 29 CFR part 516.

Subpart C—Automated Time Record System Performance Standards

§ 394.301 What standards must automated time record systems meet?

You must ensure the automated time record system(s) you use meet the following design and performance standards:

(a) The automated time record system installed on your commercial motor vehicles generate records that can be read, directly or remotely, at the driver's home terminal.

(b) The automated time record system must record the date, whether the engine is on or off, vehicle speed, kilometers and/or miles driven per day, and a continuous time scale.

(c) The automated time record system and associated support systems are capable of maintenance and calibration.

(d)(1) The automated time record system and associated support systems are, to the maximum extent practicable, tamperproof.

(2) The automated time record system prohibits drivers from editing data.

(e) The automated time record system warns the driver visually and/or audibly that the system has ceased to function.

(f) The automated time record system identifies sensor failures and data edited by anyone when reproduced in printed form.

(g) The automated time record system must permit duty status to be updated only when the commercial motor vehicle is at rest, except when registering the time a commercial motor vehicle crosses a State, Provincial, or national boundary.

(h) *Information collection standards.* (1) Automated time record systems must produce, upon demand, a driver's duty status chart, electronic display, or printout showing the time and sequence of duty status changes, including the driver's starting time at the beginning of each day.

(2) The system must provide a means whereby authorized Federal, State, or local officials can immediately check the driver's duty status at roadside.

(3) Support systems used in conjunction with automated time record systems at a driver's home terminal or the motor carrier's principal place of business must be capable of providing the FMCSA or authorized State or local officials with summaries of an individual driver's duty records. The support systems must also provide information concerning system sensor failures and identification of edited data.

(4) The system must automatically record the driver's duty status and additional standard information as follows:

(i) ''Off duty'' or ''OFF'', or by an identifiable code or character;

(ii) ''Driving'' or ''D'', or by an identifiable code or character (*i.e.,* whenever the commercial motor vehicle is in any forward or reverse gear);

(iii) ''On-duty not driving'' or ''ON'', or by an identifiable code or character;

(iv) Date;

(v) Total kilometers or miles driven each day;

(vi) Truck, tractor, coach, and trailer number(s), as appropriate;

(vii) Name of motor carrier;

(viii) Home terminal address, including zip code;

(ix) Workday starting time (*e.g.,* midnight, 9:00 a.m., noon, 3:00 p.m.);

(x) Name of co-driver, if applicable; and

(xi) Total hours on duty each day as defined by this part and 29 CFR part 785.

(5) The name or location code of the city, town, or village, with State or Provincial abbreviation, where the driver changes duty status (off duty, on duty, driving). A list of location codes showing all possible location identifiers must be available in the cab of the commercial motor vehicle and available at the motor carrier's principal place of business.

(6) An information packet containing the following two items:

(i) An instruction sheet describing in detail how data may be stored and retrieved from the system; and

(ii) A supply of blank driver's duty records sufficient to record the driver's duty status and other related information for the duration of the current trip.

(7) Automated time record systems with electronic displays must have the capability of displaying the following five pieces of information:

(i) Driver's total hours of driving each day;

(ii) The total hours on duty each day, as defined by this part and 29 CFR part 785;

(iii) Total kilometers or miles driven each day;

(iv) Total hours on duty for the previous 7 consecutive days, including the current day, as defined by this part and 29 CFR part 785;

(v) The sequential changes in off-duty, on-duty, and driving status and the times the changes occurred for each driver using the system.

(8) In a multiple-driver operation, the automated time record system is capable of recording separately each driver's off-duty, on-duty, and driving status.

§ 394.303 How must I maintain automated time record system devices?

You must systematically maintain each automated time record system to ensure its accuracy in accordance with the manufacturer's specifications.

§ 394.305 Must I train my drivers regarding the proper operation of the devices I use?

You must ensure your drivers are, or have been, adequately trained regarding the proper operation of the devices you have installed on your CMVs.

7. Part 395 is revised to read as follows.

PART 395—DRIVER REST AND SLEEP FOR SAFE OPERATIONS

Subpart A—Rest and Sleep for Safe Operations

Purpose, Standards, Penalties, and Exemptions

Sec.
395.101 What are the purpose and standards of this part?
395.103 What must I do to enhance my alertness?
395.105 What are the penalties for failing to comply with this part?
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395.109 What types of operations are exempt from the requirements of this part?

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395.147 How long may I be on duty?
395.149 How long may I drive motor vehicles?

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395.201 What records must I make and maintain while working?
395.203 Must I prepare time records in a particular order or on particular forms?
395.205 What are my responsibilities if I use an automatic time record system to record my duty status?

Inspection of Records

395.211 Must I present my equipment and records if an FMCSA special agent asks to inspect them?
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395.215 Where must I keep records available for inspection?

Subpart C—Roadside Out-Of-Service Orders

395.301 What must I do if I am declared out of service for violations of this part?

Subpart D—Emergency Operations

395.401 What must I do if I need immediate rest after providing direct assistance in an emergency?
395.403 What conditions must I meet before I operate in interstate commerce after providing direct assistance in an emergency?

Authority: 49 U.S.C. 504, 14122, 31133, 31136, and 31502; sec. 113, Pub. L. 103–311, 108 Stat. 1673, 1676; and 49 CFR 1.73.

Subpart A—Rest and Sleep for Safe Operations

Purpose, Standards, Penalties, and Exemptions

§ 395.101 What are the purpose and standards of this part?

(a) *Purpose.* The purpose of this part is to improve highway safety by promoting the use of well-rested, alert, and attentive drivers.

(b) *Requirements.* This part requires you to get sufficient off-duty time, daily and weekly, to ensure that you have adequate opportunity for restorative sleep prior to reporting for duty. You must schedule your activities to take at least the prescribed off-duty time. You must comply with paragraph (c) of this section. You should also make every effort to comply with paragraph (d) of this section.

(c) *Standards.* As a driver, you must: (1) Drive only when you are sufficiently well rested to operate CMVs safely.

(2) Take a minimum consecutive off-duty period each day and cumulative off-duty period each workweek to obtain restorative sleep.

(3) Accept or refuse a driving assignment or continuation of a trip based upon your self-assessment of your alertness.

(d) *Advisories.* As a driver, you should:

(1) Take off-duty periods each workday to attend to personal necessities and rest at your discretion.

(2) Take off-duty periods each workday and workweek to ensure you are sufficiently well rested to operate CMVs safely, generally during periods of higher alertness (6:00 a.m. to midnight).

(3) Educate others about the dangers and possible consequences of not allowing you to obtain proper amounts of restorative sleep.

§ 395.103 What must I do to enhance my alertness?

You must comply with the following requirements.

(a) If you are a driver in a Type 1, 2, 3, or 4 operation (see § 395.121), you must not be on duty for more than 12 hours in any 24-hour period, no matter how many motor carriers or other employers you work for.

(b) If you are a driver in Type 5 operations (see § 395.121), you must not be on duty for more than 15 hours in any 24-hour period, no matter how many motor carriers or other employers you work for.

(c) In any workweek, you must take at least 32 to 56 consecutive hours off duty, including at least two periods from midnight to 6:00 a.m.

(d) You must refuse dispatch or continuation of a trip if you believe you are not alert enough to drive safety.

(e) You must comply with the other specific limitations contained in this part.

§ 395.105 What are the penalties for failing to comply with this part?

(a) You are subject to civil penalties under 49 U.S.C. 521 and part 386 of this subchapter.

(b) The FMCSA, or an official of a State or political subdivision of a State with authority over the safety of your motor carrier operations, may order you out of service.

(c) Knowing and willful violations of this part may give rise to criminal penalties under 49 U.S.C. 521(b)(6).

§ 395.107 What definitions apply to this part?

The following definitions apply to this part:

Driving time means all time at the driving controls of a motor vehicle in operation.

Off-duty time means any period when you are relieved from duty and are free to attend to personal necessities including sleep, meals, refreshment, rest, and relaxation. Each period of off-duty time must be at least 30 minutes long. See also 29 CFR 785.16.

On-duty time means any period when you provide physical or mental exertion (whether burdensome or not) necessarily and primarily for the benefit of your motor carrier. It includes all time when you are on your motor carrier's premises, vehicles, equipment, or at other prescribed work places, except when your motor carrier expressly allows you to take rest breaks in vehicles or at a terminal. It includes all work for non-motor carrier employers. See also 29 CFR 785.16.

Workday means any fixed period of 24 consecutive hours.

Workweek means any fixed and regularly recurring period of seven consecutive workdays.

§ 395.109 What types of operations are exempt from the requirements of this part?

The following types of operations are exempt from the requirements of this part.

(a) *Agricultural operations.* The exemption in this section is based on Section 345(a)(1) of the National Highway System Designation Act of 1995 (49 U.S.C. 31136 note).

(b) *Exemption.* The requirements of §§ 395.141–395.165 do not apply to you when you are transporting agricultural commodities within a State if the transportation takes place entirely within a 185-kilometer (100 air-mile) radius of the source of the commodities or the distribution point for the farm supplies during the planting and harvesting seasons in that State, as determined by the State. (*Note:* This exemption does not relieve you of the

responsibility to meet the general standards in § 395.101(c) or comply with the general requirements of § 395.103.)

(c) *After concluding exempt agricultural operations.* (1) If you ask for immediate rest after completing exempt agricultural transportation, you must take at least ten consecutive, uninterrupted hours off duty before returning to non-exempt work.

(2) You must not drive in non-exempt operations until you have met the following three conditions:

(i) You have been off duty for at least ten consecutive, uninterrupted hours, including a period from midnight to 6:00 a.m.

(ii) After providing exempt agricultural transportation for more than three consecutive days, you have been continuously off duty for a period of at least 32 to 56 consecutive hours that includes two consecutive midnight to 6:00 a.m. periods.

(iii) You have at least one hour off duty after 6:00 a.m.

(d) *Specific definitions.* The following definitions apply to this section:

(1) *Agricultural commodities* mean farm crops that are produced on a farm, but does not include timber.

(2) *Farm supplies* mean those items directly relating to the farming activities of planting, fertilizing, or harvesting crops that are delivered directly to a farm. This does not include materials that are used as a part of a non-farm business or materials to be used in a residence or home, including the farmer's residence.

(3) *Source of the commodities* means a farm where farm crops are produced from the soil, but does not include a farm planting or harvesting timber.

(e) *No preemptive effect.* This exemption does not preempt any other Federal, State, or local law for hours of service, safety of operation, or recordkeeping requirements.

Implementation Schedule

§ 395.111 When must I begin to comply with the rules in this part?

(a) You must begin complying with subpart A of this part applicable to each type of operation on [date 180 days after the date of publication of the final rule in the **Federal Register**].

(b) For Type 1 and 2 operations, you must comply fully with the requirements of subpart B and C of this part according to the following schedule. If your motor carrier on [date 180 days after the date of publication of the final rule in the **Federal Register**]:

(1) Operates more than 50 power units (owned or leased)—[date 2 years and 180 days after the date of publication of the final rule in the **Federal Register**].

(2) Operates between 20 and 50 power units (owned or leased)—[date 3 years and 180 days after the date of publication of the final rule in the **Federal Register**].

(3) Operates fewer than 20 power units (owned or leased)—[date 4 years and 180 days after the date of publication of the final rule in the **Federal Register**].

(c) To be in full compliance with the requirements of this part:

(1) *General.* All drivers must comply with the record keeping requirements of subpart B of this part.

(2) *Type 1 and 2 drivers.* All Type 1 and 2 drivers must:

(i) Have installed fully operational automated time record systems meeting the requirements of subpart C of part 394 of this subchapter.

(ii) Be properly trained and use the automated time record systems.

(d) If you are not yet required to comply with the rules in subpart B of this part, regarding records and reports, and opt not to comply, you must, at a minimum, comply with the recordkeeping rules 49 CFR 395.8 that were in effect on the day before [date 180 days after the date of publication of the final rule in the **Federal Register**] (See 49 CFR Parts 200–399 revised as of October 1, 1999.).

Types of Operations

§ 395.121 Are there different rules for different types of operations?

(a) There are five different types of operations. For each type, the regulations require specific off-duty, on-duty, and driving periods during each workday and workweek. See §§ 394.141 and 394.161.

(b) The five types of operations are as follows.

(1) Type 1. Long-haul operations that keep you away from your normal work reporting location for three or more consecutive workdays.

(2) Type 2. Long-haul operations that keep you away from your normal work reporting location overnight, but for less than three consecutive workdays.

(3) Type 3. You operate a CMV during two separate scheduled duty periods on the same workday. You return to your normal work reporting location and are released from work within 15 consecutive hours after beginning work. The two duty periods are separated by at least a three-hour off-duty period during the workday.

(4) Type 4. You return to your normal work reporting location and are released from work within 12 consecutive hours after beginning work.

(5) Type 5. Your driving duties are incidental to other primary activities. You return to your normal work reporting location and are released from work within 15 consecutive hours after beginning work. Your driving duties do not exceed 5 hours in any workday. You do not drive for a for-hire motor carrier.

§ 395.123 How do I determine which requirements apply to my work?

(a) Your work must fit within one of the categories described in § 395.121, and you must adjust your hours of operation to conform to the requirements applicable to that type of work.

(b) Your compliance with requirements applicable to the type of operation will be determined by the actual facts and circumstances of your work at the time compliance is required.

(c) If there is some reasonable doubt about your operational type, you must comply in good faith with the regulations applicable to the type that you believe best describes your work.

§ 395.125 May I drive in more than one type operation within a workweek?

Yes, you may move between the different types of operations after you have the appropriate off-duty time at the end of a workday or workweek for the previous type operation.

Fatigued Drivers

§ 395.131 What must I do if I become impaired by fatigue or illness?

(a) You must stop driving when you are drowsy, ill, or have other signs of fatigue. However, you may drive the motor vehicle to the nearest place where the vehicle can be parked without creating a greater risk to safety than continued operation would cause. Failure to comply with this paragraph may subject you and your motor carrier employer to penalties specified in 49 U.S.C. 521 or subpart G of part 386 of this subchapter.

(b) It is illegal for a motor carrier to take retaliatory actions against you for refusing to violate any Federal commercial motor vehicle safety regulations in this subchapter or State or local commercial motor vehicle safety laws, ordinances, or regulations. Retaliatory actions include, but are not limited to, being penalized, disciplined, discharged, discriminated against, demoted, blacklisted, and threatened.

(c) Actions contrary to paragraph (b) of this section are also violations of 49 U.S.C. 31105 and will subject your motor carrier employer to action by the U.S. Department of Labor which may require your employer to reinstate you and pay you back pay and

compensatory damages, among other things.

(d) If you believe that a motor carrier has taken retaliatory action against you in violation of 49 U.S.C. 31105, you may submit a complaint to any of the regional or area offices of the U.S. Department of Labor's Occupational Safety and Health Administration within 180 days of the retaliation for investigation. This is not a complete description of the requirements of 49 U.S.C. 31105. See 29 CFR part 1978 for details about how to file a complaint.

Daily Time

§ 395.141 How many consecutive hours must I remain off-duty before beginning each workday?

(a) You must remain off-duty for at least the following number of hours before starting duty each workday:

If you are in this type of operation (see § 395.121)	You must remain off-duty for a minimum of
Type 1	10 consecutive hours of each workday.
Type 2	10 consecutive hours of each workday.
Type 3	9 consecutive hours of each workday.
Type 4	12 consecutive hours of each workday.
Type 5	9 consecutive hours of each workday.

(b) *Exception.* (1) If you operate as a member of a team in a Type 1 operation, you may take your 10 hours off duty in sleeper berth equipment in no more than two off-duty periods of at least 5 consecutive hours each. The on-duty and driving time between the two sleeper-berth periods must be counted as part of the on-duty period that begins after the second sleeper-berth period. On-duty periods may be interrupted by off duty periods of less than 5 hours, but only periods of 5 or more consecutive hours in a sleeper berth count towards the required 10-hour off-duty period. You continue to be limited by the on-duty and driving rules for the workday and workweek.

(2) Sleeper berth equipment is defined in § 393.76 of this subchapter.

§ 395.143 What must I do when my minimum consecutive off-duty hours are interrupted?

(a) If your motor carrier interrupts your minimum consecutive off-duty hours, the minimum off-duty period must start anew at the conclusion of the interruption. In addition, you must count the time required to deal with the interruption as on-duty time.

(b) ''Interrupt,'' in this section, means your motor carrier requires you to undertake any responsibility for the carrier, including, but not limited to any of the following:

(1) Answer any type of communication device, including, but not limited to, a telephone, pager, beeper, facsimile mail machine, doorbell, global positioning system message, or any other type of device.

(2) Contact it for a new dispatch.

(3) Contact it about the status of a trip or the condition of a load.

(c) If your motor carrier is required to pay you minimum wages under the minimum wage provisions of the Fair Labor Standards Act (29 U.S.C. 206), the counting-of-hours principles in 29 CFR part 785 may also apply.

§ 395.145 Must I take additional off-duty time after I begin working?

(a) If you are a driver in a Type 1, 2, or 5 operation, you must take at least two additional off-duty hours each workday to nap, rest, or attend to personal necessities. This two-hour period may be taken at your discretion at any location, including the CMV. You may divide the two-hour period into periods of not less than 30 minutes.

(b) If you are a driver in a Type 3 operation, you must have at least 3 consecutive hours off duty between your two split work shifts.

§ 395.147 How long may I be on duty?

(a) Type 1–4 drivers may be on duty no more than 12 hours within a 14-consecutive-hour period in any workday.

(b) Type 5 drivers may be on duty no more than 13 hours within a 15-consecutive-hour period in any workday.

§ 395.149 How long may I drive motor vehicles?

(a) You must not drive more than 12 hours per workday in Type 1, 2, 3, or 4 operations.

(b) You must not drive more than 5 hours per workday in a Type 5 operation.

Weekly Time

§ 395.161 How many consecutive hours per workweek must I take off duty?

(a) You must take an off-duty period of at least 32 to 56 consecutive hours that includes at least two consecutive midnight to 6:00 a.m. periods before the start of the next workweek.

(b) In Type 1 operations, for every two consecutive workweeks, you must take two such off-duty periods with a combined total of at least 112 hours.

(c) Exception. If you operate as a driver exclusively for a groundwater well drilling operation, you must take at least 24 consecutive hours off duty at the end of each workweek. This exception is required by 49 U.S.C. 31136 note. To meet the standards of this part, however, you should have the opportunity to sleep during two consecutive midnight to 6:00 a.m. periods of time and not begin work until 7:00 a.m.

§ 395.163 When may I start work after being off duty at the end of a workweek?

You may start work after being off duty at the end of a workweek as follows:

You stop work between 11:01 p.m. on the workday immediately before this day and 11:00 p.m. on this workday	You may begin to work the next workweek on this workday no earlier than 7:00 a.m.
(a) Saturday	Monday
(b) Sunday	Tuesday
(c) Monday	Wednesday
(d) Tuesday	Thursday
(e) Wednesday	Friday
(f) Thursday	Saturday
(g) Friday	Sunday

§ 395.165 How many hours per week may I work?

(a) If you are a driver in a Type 1, 2, 3, or 4 operation, you may be on-duty up to, but no more than, 60 hours in any workweek.

(b) If you are a driver in a Type 5 operation, you may be on-duty up to, but no more than, 78 hours in any workweek.

(c) Exception. If you are a Type 1 driver on a trip requiring two or more consecutive workweeks away from your normal work reporting location, you may average two weekly maximum on-duty periods, *i.e.*, 120 hours. The longer period may consist of no more than 72 hours on duty before the end of the workweek.

Summary of Hour Limits

§ 395.167 Can these requirements be summarized in a chart?

In general, the following hourly limits apply, subject to any specific conditions listed in §§ 395.141, 395.145, 395.147, 395.149, 395.161, 395.163, and 395.165:

	In this type of operation, the driver	Must have this many consecutive hours off duty every workday	Must have this many additional hours off duty every workday	May be on duty for up to this many hours every workday	May drive only this many hours every workday	Must have an off-duty period every workweek that includes at least two consecutive midnight to 6:00 a.m. periods and at least this many consecutive hours off duty	May drive only this many hours every workweek	May be on duty only this many hours every workweek
(a)(1) One-week	Type 1	≥10	≥2	≤12	≤12	≥32 to 56	≤60 standard.	≤60 standard
(2) Two-week flexible	Type 1	≥10	≥2	≤12	≤12	One week ≥32 to 56 & Other week ≤80.	One week ≤72 & Other week ≤48.	One week ≤72 & Other week ≤48
(b)	Type 2	≥10	≥2	≤12	≤12	≥32 to 56	≤60	≤60
(c)	Type 3	≥9	≥3	≤12	≤12	≥32 to 56	≤60	≤60
(d)	Type 4	≥12		≤12	≤12	≥32 to 56	≤60	≤60
(e)	Type 5	≥9	≥2	≤13	≤5	≥32 to 56	≤30	≤78

Loading and Unloading Practices

§ 395.169 What are the loading and unloading responsibilities of drivers?

(a) Your motor carrier must inform you about your responsibility for loading and unloading services. See § 394.169 of this subchapter.

(b) If you are responsible for loading and unloading cargo, you must include all such time in your daily on-duty hours. See also 29 CFR part 785.

(c) The OMB has assigned the information collection requirements of paragraph (a) of this section the number 2126–0001.

Subpart B—Records and Reports

Time Records To Be Prepared and Kept By Drivers

§ 395.201 What records must I make and maintain while working?

(a) *Type 1 and 2 drivers.* If you are a driver in a Type 1 or 2 operation, you must accurately record your driving and on-duty time records in an automated time record system meeting the requirements of § 394.201 and subpart C of part 394 of this subchapter and any additional requirements imposed on you by your motor carrier.

(b) If your motor carrier is not yet required to comply with the rules in subpart B of part 394, regarding records and reports, and opts not to comply, you must, at a minimum, comply with the rules that were in effect on the day before [date 180 days after the date of publication of the final rule in the **Federal Register**] (See 49 CFR Parts 200–399 revised as of October 1, 1999.).

(c) If you are a driver in a Type 1 or 2 operation, you are legally responsible for the accuracy of off-duty, on-duty, and driving-time records prepared by you.

(d) *Type 3, 4, and 5 drivers.* If you are a driver in a Type 3, 4, or 5 operation, you are not required to make or maintain on-duty and off-duty time records, unless your motor carrier requires you to do so. You are legally responsible for the accuracy of rest and work time records prepared by you.

(e)(1) The OMB has assigned the information collection requirements of paragraph (a) of this section the number 2126–0001.

(2) The OMB has assigned the information collection requirements of paragraph (d) of this section the number 1215–0017. The U.S. Department of Labor's Wage and Hour Division regulations require your motor carrier to create other records, if your motor carrier is a subject employer. See 29 CFR part 516.

§ 395.203 Must I prepare time records in a particular order or on particular forms?

(a) If you are a driver in a Type 1 or 2 operation, you must record and maintain records in the order or form prescribed by your motor carrier for its automated time record system.

(b) If you are a driver in a Type 3, 4, or 5 operation, a particular order or form of records is not required by this part. Your motor carrier may require that you create the records in its own format in paper, microfilm, microfiche, electronic, or automated time record format.

§ 395.205 What are my responsibilities if I use an automatic time record system to record my duty status?

You must:

(a) Record accurately all your off-duty, driving, and on-duty time, including the following.

(1) Daily starting and ending times for each work period and the place where you start and end each work period (i.e., town and State, town and Province, or location code of such locations).

(2) Intervening times and locations during each work period when you transact business, e.g., picking up freight or passengers, fueling stops, deliveries, roadside inspections.

(3) Intervening times and locations during each work period when you take your required 2 hours off duty for rest and meals.

(b) Make sure you understand the system and how it operates.

(c) Follow the instructions of your motor carrier and the manufacturer of the automatic time record system.

(d) Retain in the commercial motor vehicle the records prescribed in paragraph (a) of this section for the current workday and the previous seven workdays.

(e) Submit or forward your original time record and all documents obtained during each trip supporting the time record to your motor carrier within 13 days after completing each record.

(f) Produce the current records from the automatic time record system upon the request of a special agent of the FMCSA or any authorized law enforcement official.

(g) If the system fails:

(1) Reconstruct accurate records for the current day and the previous seven days, in the manner prescribed in paragraph (a) of this section, using the format required by your motor carrier.

(2) Prepare a written record of all subsequent time periods, in the manner prescribed in paragraph (a) of this section, until the system is operational, using the format required by your motor carrier.

(3) Produce the current records upon the request of a special agent of the FMCSA or any authorized law enforcement official.

Inspection of Records

§ 395.211 Must I present my equipment and records if an FMCSA special agent asks to inspect them?

You must immediately comply with a request by an FMCSA special agent or

other authorized law enforcement official who displays proper credentials and demands to inspect your equipment and records.

§ 395.213 What records may be used to determine my compliance with this part?

FMCSA officials or a State or local government official with authority over the safety of your motor carrier operations may use any information, whether or not in your possession, to determine your compliance with the requirements of this part and to verify the accuracy of the records you are required to maintain.

§ 395.215 Where must I keep records available for inspection?

(a) *Place of records for type 1 or 2 drivers.* (1) As indicated in § 395.205(d) if you are a driver in a Type 1 or 2 operation, you must keep time records required by §§ 395.201 and 395.205 in your possession while on duty and for seven consecutive days after the record is made.

(2) You must keep originals or true copies of all customer orders or invoices received, incoming or outgoing shipping or delivery records, all bills of lading and all billings to customers (not including individual sales slips, cash register tapes, or the like), and any other receipts in your possession while on duty. If the documentation for previous trips have been given to your motor carrier, you must have all documentation for your current trip in your possession.

(3) You must keep accessible while on duty and for at least seven consecutive days records of items to be added to and deducted from your pay or compensation for your services in the usual course of business operations, including:

(i) Total additions to or deductions from pay or compensation for each pay or compensation period including the dates, amounts, and nature of the items which make up the total additions and deductions.

(ii) All records used by you in determining the original cost, operating and maintenance cost, and depreciation and interest charges, if such costs and charges are involved in additions to or deductions from your pay or compensation.

(b) *Location and inspection of records for type 3, 4, and 5 drivers.* Customer orders or invoices received, incoming or outgoing shipping or delivery records, all bills of lading and all billings to customers (not including individual sales slips, cash register tapes, or the like), and any other receipts and time records for drivers in Types 3, 4, and 5 operations need only be available for inspection and transcription at your motor carrier's principal place of business.

(c)(1) The OMB has assigned the information collection requirements of paragraph (a) of this section the number 2126–0001.

(2) The OMB has assigned the information collection requirements of paragraph (b) of this section the number 1215–0017. The U.S. Department of Labor's Wage and Hour Division regulations require your motor carrier to provide other records for inspection, if your motor carrier is a subject employer. See 29 CFR part 516.

Subpart C—Roadside Out-Of-Service Orders

§ 395.301 What must I do if I am declared out of service for violations of this part?

You must not drive a CMV until you have taken the minimum consecutive hours off duty required to restore compliance with §§ 395.141, 395.161, and 395.163; complied with the terms of the out-of-service order; and, for Type 1 or 2 drivers only, updated your time record(s) to show the time on duty, driving, and off duty accurately.

Subpart D—Emergency Operations

§ 395.401 What must I do if I need immediate rest after providing direct assistance in an emergency?

(a) Inform your motor carrier.

(b) Take at least ten consecutive, uninterrupted hours off duty before returning to your normal work reporting location.

§ 395.403 What conditions must I meet before I operate in interstate commerce after providing direct assistance in an emergency?

You must not drive in interstate commerce until you have met the following three conditions:

(a) You have been off duty for at least ten consecutive hours, including a period from midnight to 6:00 a.m.

(b) After providing direct assistance for more than three consecutive days, you have been continuously off duty for a period of time that includes two consecutive midnight to 6:00 a.m. periods and at least 32 to 56 consecutive hours.

(c) You have had at least one hour off duty after 6:00 a.m.

PART 398—TRANSPORTATION OF MIGRANT WORKERS

8. The authority citation for part 398 is revised to read as follows.

Authority: 49 U.S.C. 504, 14122, 31133, 31136, and 31502; sec. 113, Pub. L. 103–311, 108 Stat. 1673, 1676; and 49 CFR 1.73.

9. Section 398.6 is revised to read as follows:

§ 398.6 Hours of rest and work; minimum rest and maximum work time.

(a) If you are a motor carrier, you must comply with the requirements of part 394 of this subchapter when transporting migrant workers.

(b) If you are a driver, you must comply with the requirements of part 395 of this subchapter when transporting migrant workers.

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